

BEFORE THE U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ADMINISTRATIVE LAW JUDGES

In the Matter of)
)
ENVIRONMENTAL PROTECTION) OPA-09-2018-00002
AGENCY,)
)
Complainant,) Administrative Law Judge
v.) Susan L. Biro
)
VSS INTERNATIONAL, INC.,)
)
Respondent.)

Phillip Burton Federal
Building and United States
Courthouse
Courtroom 15, 18th Floor
450 Golden Gate Ave
San Francisco California
Friday,
May 17, 2019

The parties met, pursuant to notice of the
Court, at 9:01 a.m.

BEFORE: HONORABLE SUSAN BIRO
Chief Administrative Law Judge
APPEARANCES:
For the Complainant:
REBECCA SUGERMAN, Esquire
J. ANDREW HELMLINGER, Esquire
Environmental Protection Agency
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CONTENTS

VOIR

WITNESSES: DIRECT CROSS REDIRECT RECROSS DIRE

For the Complainant:

William Michaud 260 308 370 -- --

For the Respondent:

Randall Tilford 390 415 435 436 --

-- -- -- 437 --

Kari Casey 439 472 501 -- --

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EXHIBITS

COMPLAINANT

EXHIBITS: IDENTIFIED RECEIVED
1 through 48 Prev. 259
52 through 54 Prev. 259
55 270 272

RESPONDENT

EXHIBITS: IDENTIFIED RECEIVED
1 through 24 Prev. 259
29 Prev. 259
32 Prev. 259
37-43 Prev. 259
45-101 Prev. 259
104 Prev. 259
105 369 370

1 PROCEEDINGS
 2 (9:01 a.m.)
 3 JUDGE BIRO: Good morning, everyone. Please
 4 be seated. Are there any preliminary matters before
 5 we continue?
 6 MR. HELMLINGER: I think there's one, Your
 7 Honor. You had asked us to consider whether we could
 8 stipulate to admitting documents. I think we have
 9 that. So this will be a little duplicative of the
 10 list you had yesterday, and I apologize for that, but
 11 we're trying to keep it easy. There had been a
 12 stipulation before to the authenticity of documents,
 13 and we're just going to go ahead and stipulate to
 14 admit all of those documents.
 15 JUDGE BIRO: Okay.
 16 MR. HELMLINGER: So I can read this list to
 17 you. And I'm going to follow the same list with a
 18 slight amendment for the RX documents from that last
 19 stipulation that we sent you, but it would be CX 1
 20 through 48 and 52 through 54 that could be deemed
 21 admitted into the record. And RX 1 through 24, 29,
 22 32, 37 through 43 and 45 through 101, plus one that we
 23 deemed 104, which would be the declaration as well.
 24 //
 25 //

1 (The documents referred to,
 2 previously marked for
 3 identification as
 4 Complainant's Exhibit Nos. 1
 5 through 48, 52 through 54 and
 6 Respondent's Exhibit Nos. 1
 7 through 24, 29, 32, 37
 8 through 43, 45 through 101,
 9 and 104 and were received in
 10 evidence.)
 11 JUDGE BIRO: Okay. We're all in agreement,
 12 we're going to admit those by agreement?
 13 MR. HELMLINGER: By agreement, they're
 14 admitted --
 15 JUDGE BIRO: Okay.
 16 MR. HELMLINGER: -- if we have developments
 17 concerns or weight concerns, we'll argue that later.
 18 JUDGE BIRO: Okay, right. That's a whole
 19 different issue. Okay. So by agreement, we're
 20 admitting all of those documents that Mr. Helmlinger
 21 just reiterated, Complainant's Exhibit 1 through 48,
 22 Complainant's Exhibit 52 through 54, Respondent's
 23 Exhibit 1 through 24, Respondent's Exhibits 29, 32, 37
 24 to 43,45 through 101 and 104. Okay.
 25 MR. HELMLINGER: Thank you.

1 JUDGE BIRO: Is there any other matter to
 2 proceed with preliminarily?
 3 MR. HELMLINGER: I think we're ready to
 4 begin with the witness, if everyone else is.
 5 JUDGE BIRO: Okay. Call your next witness,
 6 please.
 7 MR. HELMLINGER: The Complainant calls Mr.
 8 Bill Michaud.
 9 JUDGE BIRO: Madam Reporter, would you
 10 please swear the witness.
 11 Whereupon,
 12 WILLIAM MICHAUD
 13 having been duly sworn, was called as a
 14 witness and was examined and testified as follows:
 15 DIRECT EXAMINATION
 16 BY MR. HELMLINGER:
 17 Q Good morning, Mr. Michaud.
 18 A Good morning.
 19 Q Would you tell us where you are currently
 20 employed?
 21 A I'm currently employed at CSRA, which is a
 22 company of General Dynamics Information Technology or
 23 GDIT.
 24 Q And what's your position there?
 25 A I'm a senior technical advisor within the

1 science and engineering division.
 2 Q And how long have you had this position?
 3 A I've been in this position for -- or with
 4 this company for 23 years, in different
 5 manifestations. We started with -- I started in a
 6 much smaller company that has been acquired and merged
 7 and et cetera to this point.
 8 Q Could you describe your roles or
 9 responsibilities in this position?
 10 A Sure. So I have a few different roles. I
 11 have administrative management roles where I manage a
 12 team of about 10 people. I have roles where I manage
 13 specific projects or task orders within contracts, and
 14 then on a more general element in my technical
 15 advisory role, I advise across many different projects
 16 with my colleagues. They'll bring me in to advise on
 17 technical matters on different projects.
 18 Q Could you describe generally some of these
 19 projects?
 20 A Yeah, so I work on probably dozens of
 21 projects. I can describe some of my current projects.
 22 For example, I'm working on some projects in the --
 23 with the Great Lakes National Program Office,
 24 supporting that office of the EPA, dealing with
 25 screening level, ecological risk assessment,

1 developing clean up goals, remedial action levels for
2 sediment projects, cleanup. Other projects, I've
3 worked with communities, like a community down in
4 Louisiana, I'm going to deal with flooding and flood
5 mitigation issues. So that's just an example of some
6 of my projects.

7 Q Could you describe your background,
8 education a little bit, leading up to this position?
9 What post-high school education do you have?

10 A I have a bachelor's in chemical engineering
11 from Rensselaer Polytechnic Institute and a master's
12 in public policy with a focus on economics and
13 regulatory policy.

14 Q Do you have any certifications?

15 A I'm a professional engineer, licensed
16 professional engineer.

17 Q In what state?

18 A In the Commonwealth of Massachusetts.

19 Q The Commonwealth, I'm sorry, not a state.
20 Have you had any opportunities to participate in any
21 peer studies, committee groups, other academics to
22 broaden your professional experience?

23 A Sure, yes. I participate in professional
24 societies. I was fairly active for a while in the
25 American Evaluation Association. It's a very

1 researched-focused organization. I was appointed to
2 the National Academy's Study Committee, evaluating
3 some, streamlining regulations under the Department of
4 Transportation, advising the Department on that --
5 those issues. And I've been -- I was appointed to an
6 expert working group of the Organization for Economic
7 Cooperation and Development on chemical safety
8 performance indicators.

9 Q Could you describe any emphasis in your
10 engineering education, whether it be mechanical,
11 electrical?

12 A Sure, yeah. It's -- you know, as I said, I
13 do have a degree in chemical engineering, and so I
14 would say that I've practiced for the first eight or
15 nine years of my career in a more traditional civil
16 engineering capacity, dealing with hydraulics,
17 hydrology, you know, design of hydrological systems or
18 hydraulic systems and analysis, hydrology, strong
19 currents (phonetic), things like that.

20 Since I got my graduate degree, I focused
21 my -- I've been able to focus more on kind of the
22 intersection of chemistry and chemical engineering and
23 the environment in a technical capacity.

24 Q How does work come to you? You mentioned
25 EPA as a client. How does work come to you from EPA?

1 A There are different mechanisms, typically,
2 we'll have a contract with EPA. Some of those
3 contracts -- we have many different contracts with
4 EPA -- I might work on five or six at any one time,
5 different contracts. Some of those contracts are very
6 standard, there are certain activities that are spelled
7 out in the contract. For example, you know, a hazard
8 ranking system, support for -- and listing sites from
9 the national priorities list, that contract has some
10 very set activities, Q&A review, response to comments,
11 rule-making support, training, things like that.

12 Other contracts are much more open-ended,
13 where EPA will come to us with a, you know, new task.
14 I do a lot of work with the Office of Research and
15 Development at EPA. And, and, and they'll come to us
16 with some fairly technically challenging tasks that
17 aren't set in stone, more open-ended types of
18 projects. That's where I tend to do most of my work
19 in this later part of my career, is in these more
20 open-ended types of projects.

21 Q Could you describe whether any of these
22 projects from EPA come to you with any sort of
23 assumptions presented, either on law or technical
24 material?

25 A I would say at least -- most of my projects

1 maybe, maybe half of my projects end in a type of
2 research. The question will be couched in, in a
3 broader regulatory context. So, for example,
4 questions around cleanup levels or ecological risk or
5 those types of questions obviously have a whole set of
6 regulations that provide boundaries and context for
7 any answer I would provide.

8 And in addition to regulations, you know,
9 are obviously the statutes. You've got guidance and
10 policy, and so, in order for me to answer questions
11 that will come to me, I need to understand that broad
12 context, absolutely.

13 Q Have you had, given your background in
14 regulatory policy or engineering, opportunity or
15 experiences where you have disagreed with any of the
16 assumptions presented to you by EPA?

17 A Sure. And, you know, at times, those will
18 be the technical assumptions and methods, regulatory
19 implementation and how to interpret what the
20 regulations say. And just as an example, last week, a
21 client came to me or two weeks ago, I think now, and
22 said, you know, we'd like you to establish cleanup
23 goals based on petroleum hydrocarbons in sediment.
24 And the client presented the methodology for doing
25 that where, where, you know, certain risk-based

1 assumptions were made. And I looked at it, I didn't
2 think that it really complied with a technically valid
3 approach, given that it was a mixture of contaminants,
4 a mixture of hydrocarbons and, and the way you would
5 apply a risk-type framework, it didn't seem to me to,
6 to me to be compliant with that or, or to be a valid,
7 valid defensible approach.

8 So, you know, as uncomfortable as it might
9 be, you know, this was a new client, he really didn't
10 have a longstanding relationship. He didn't really --
11 we hadn't established that trust relationship.
12 Nonetheless, I did critique this map that he had
13 developed and, and explained myself, and explained
14 rationale for it. And we discussed it, and I think in
15 the end that he agreed that, you know, that my
16 rationale was reasonable, and we moved forward with a
17 different approach.

18 Q Thank you. In your work, have you become
19 familiar with the oil pollution prevention
20 regulations, 40CFR Part 112?

21 A I have, yes.

22 Q And could you state generally your
23 understanding of what those regulations regard?

24 A Well, the parts of the regulations that I
25 really deal with specifically are the regulations

1 dealing with the facility response plan requirements,
2 and more specifically, the applicability, so that 40
3 CFR 11220 is the part of the regulations that I'm most
4 familiar with. Obviously, I need to understand the
5 full regulation in order to implement the rationale.

6 Q Sure. I have -- I don't know if you can see
7 it here, but CX53, if you want to go to the binders in
8 front of you. It's an illustration that was admitted
9 yesterday and this morning. You recognize this
10 document, yes?

11 A I do.

12 Q You were -- can you turn it a little bit,
13 just a little bit?

14 A Sure, thank you. Thank you.

15 Q You were in the courtroom yesterday and
16 heard Mr. Swackhammer describe his impression of a D1,
17 D2, D3, D4. Do you have any disagreement with any of
18 the representations that he made?

19 A I do not.

20 Q So is there any additional material that you
21 think you need to explain at present to fill in
22 anything you thought Mr. Swackhammer hadn't explained
23 to, to give you a general understanding of D1, D2, D3,
24 D4, and I mean this only in a general sense? I think
25 if we have specific questions, we'll get there, but

1 I'm trying to save some time with the court and not go
2 through this whole thing again.

3 A Nothing specific. The only thing that -- in
4 the description that -- no, I think -- you know, I
5 think that D1 is, is the distance to the storm drain.
6 D2, I think, he jumped quickly into, into some, some
7 assumptions about -- D2 is that distance from that
8 storm drain or when it enters the concrete culvert to
9 when it would reach navigable water. To me, that
10 wasn't entirely clear, so I would just clarify that.

11 Q Sure. And you heard the discussions about
12 the relevance of the half-mile distance between the
13 facility and navigable water. Do you agree with that
14 discussion that you heard yesterday?

15 A Yes, I do.

16 Q So what remained relevant once you get into
17 that half-mile discussion you recall was the D3
18 calculation? So I'd like to ask you more specific
19 calculations about calculating D3.

20 A Sure.

21 Q Are you familiar with how D3 is calculated?

22 A Yes, I am.

23 Q And is there a formula that suggests how to
24 calculate D3?

25 A Yes, there's a -- there are two formulas,

1 essentially, that we would use. The basic formula is
2 that the distance, D3, is velocity times time. So, if
3 you have, you know, something moving at velocity, you
4 know, 15 -- say it's something we're familiar with, 15
5 miles per hour, and you have that going over an hour,
6 so you've got 15 miles per hour is your velocity times
7 an hour, that would be equal to 15 miles. So that's
8 the basic equation for figuring out distance. In the
9 equation in, in the regulations, there's also a
10 conversion factor to make sure that you're using
11 units, you know, the same units, so you're, you're
12 using feet per second for, for your velocity, but
13 you're using hours for your time. And you convert,
14 just to make sure you're using the same units.

15 There's a second equation involved, which is
16 the Channing -- Chezy Manning Equation, which is how
17 you determine your velocity. And that -- and we can
18 go through that equation, I don't know if you --

19 Q Yeah, I don't mean this to be a memory test.

20 A Sure.

21 Q So but if I think I understood you
22 correctly, the first formula is D3 equals velocity
23 times time times a constant coefficient.

24 A Correct.

25 Q And so the V, velocity, is the second

1 equation.

2 A Correct.

3 Q And I don't mean this to be a memory test,

4 if you have trouble recalling it, please let us know,

5 but do you recall the velocity formula?

6 A Yes, as I mentioned, it's the Chezy Manning

7 Equation, which is -- I mean, I can -- it's one over

8 N, N times R to the 2/3s, times S to the half. And I

9 can explain what those different variables would be.

10 Would it be helpful for people to look at something

11 here?

12 (The document referred to was

13 marked for identification as

14 Complainant's Exhibit No.

15 55.)

16 BY MR. HELMLINGER:

17 Q It could be. I could turn you to --

18 Respondent had the regulations, but I think we also

19 have CX55, I could turn you to that, it's going to be

20 the most clean thing to take a look at.

21 JUDGE BIRO: Maybe Mr. Michaud could use the

22 board and write out his formula and explain it, if

23 it's significant enough.

24 MR. HELMLINGER: Do you think it would be

25 helpful to use the board and write?

1 THE WITNESS: Either, either way --

2 MR. HELMLINGER: Once we get 55 here. Do

3 you have that?

4 THE WITNESS: Yeah.

5 BY MR. HELMLINGER:

6 Q Do you see CX55?

7 A Yes, I do.

8 Q Could you take a moment and familiarize

9 yourself with it and explain for us, if you can, what

10 it is?

11 A So this is the second declaration run for

12 this case.

13 Q And what was the purpose of this second

14 declaration?

15 A There was some questions and in my

16 understanding, there was some questions about my first

17 declaration. So the second declaration was to help

18 clarify some of that information.

19 Q In this declaration, do you conduct the

20 planning distance calculation somewhat longhand?

21 A Yes, I do.

22 Q Would you adopt this declaration as

23 testimony today, given the opportunity?

24 A Yes, I would.

25 MR. HELMLINGER: Your Honor, just for the

1 sake of time, I'd go ahead and admit CX55. It was not

2 on our stipulated list.

3 JUDGE BIRO: Is there an objection?

4 MR. MCNEIL: No objection.

5 JUDGE BIRO: Okay. We're going to admit 55,

6 Complainant's Exhibit 55 into the record.

7 (The document referred to,

8 previously identified as

9 Complainant's Exhibit No. 55,

10 was received in evidence.)

11 BY MR. HELMLINGER:

12 Q So turning to Paragraph 11 on Page 5 of 9 of

13 CX55, are you at that paragraph?

14 A Yes.

15 Q So there, it looks like you're laying out

16 the velocity calculation there. So with that, I think

17 it's something for everyone to read along with. Could

18 you go ahead and explain what the different variables

19 are, M, R and S?

20 A Sure. So M is the Manning's roughness

21 coefficient, so when you're thinking about flow in a

22 channel, in a -- in a concrete channel or a culvert,

23 the important things to think about are at the -- at

24 the contact between the water and the wall, you have

25 friction. And so that's going to affect your, your

1 flow rating, so before you figure out your velocity.

2 Velocity is, is your flow rate divided by your surface

3 area, so Q divided by surface area. So that gives you

4 your velocity or your -- or your cross-section.

5 So in order to figure out velocity, in order

6 to figure out your flow rate, you need to take into

7 account the shape of the channel, the, the roughness

8 along the channel, so, for example, if you have a slow

9 winding channel with a lot of trees and branches in

10 it, you're going to have a, a higher Manning's

11 coefficient than you would if you have a nice smooth

12 channel, nice straight and smooth. And so that, that

13 Manning coefficient helps you take into account those

14 kinds of real world conditions.

15 Q Do the regulations prescribe some approaches

16 towards that or are you left on your own, trying to

17 figure that out?

18 A Yeah, there's a lot of different

19 coefficients in the literature that the regulations do

20 prescribe or provide some values for UTs.

21 Q Right. And which value did you use for the

22 Sacramento River Deep Water Channel -- Ship Channel?

23 A I used a value of .035, and that, that was

24 in consideration of the width of the channel and, and

25 it's a straight channel.

1 Q And that, I take, is descriptive from the
 2 regulation?
 3 A That's right, on the regulation, yes.
 4 Q And can we discuss R, what, what variable to
 5 use for R?
 6 A So R is the hydraulic radius. And that's,
 7 that's the, the length of contact between the water
 8 and the wall, and so there are different ways to
 9 calculate that. You can look at the geometry of the
 10 channel. You can estimate the depth of the channel,
 11 and you can go through a fairly complicated -- not so
 12 complicated but more detailed calculation. Or the
 13 regulations also give you kind of a shorthand
 14 calculation where you would take .667 times the depth,
 15 and I can come up with that number.
 16 Q And how did you calculate it?
 17 A I -- for this -- for this, I used that,
 18 that, that -- the equation that was provided in the
 19 regulations.
 20 Q And how did you determine the depth of the
 21 Sacramento River Deep Water Ship Channel?
 22 A There's information in the U.S. Army Corps
 23 of Engineers documents that's 30 feet deep.
 24 Obviously, that -- you know, that, that's -- it's not
 25 30 feet deep everywhere, but that's, that's the

1 average that, that they use, and so I thought it was a
 2 good assumption.
 3 Q Is that, in your professional experience, a
 4 fair assumption for essentially an engineered channel?
 5 A Yes, for a navigation channel, yes.
 6 Q And how about S? What variable did you use
 7 for S?
 8 A S is the slope, so essentially, it is the --
 9 you know, the, the other thing I've determined in how
 10 fast the water moves is if you're on a -- on a sharp
 11 incline, obviously, water is going to be moving much
 12 more quickly than if you're on a shallow incline. And
 13 so the slope accounts for that, those, again, real
 14 world conditions, so you can take that into account.
 15 Slope is calculated by looking at two
 16 points, the line and channel. You look at, at an
 17 upstream point and a downstream point. And you can
 18 use topographic information to say, you know, over
 19 that certain distance, what's the change in height and
 20 the change in height or the change in distance is, is
 21 your slope.
 22 Q And so where did you find your information
 23 to enter -- calculate an S?
 24 A So I, I -- you know, I looked at the
 25 topography in the area and the topographic maps. I, I

1 came up with a value of about a five-foot drop over,
 2 over 20 miles. I, I then also as I did my
 3 calculations, I looked at the calculations that, that
 4 were in the respondent's information. And I --
 5 Q How did they compare?
 6 A They compared well. On, on the slope, I
 7 used 20 miles, and when I back calculated the slope
 8 they used, then I came up with 19.62 miles. So I --
 9 so I plugged in that number instead of my own number,
 10 just so we would have a comparable -- you know,
 11 comparable inputs anyway.
 12 Q Sure.
 13 A So the inputs compared well, but I, I didn't
 14 mean to say that the outputs showed it.
 15 Q So there are just a few more variables to
 16 discuss in this formula before we get to the output.
 17 T, the output. So we did that -- we've talked about
 18 variables you would plug in for the V calculations.
 19 Getting back to the first formula, the T time,
 20 velocity times time, how do you calculate the time for
 21 the purpose of the regulations?
 22 A So the time, as prescribed in the
 23 regulations, there are two different planning times
 24 you can use. The first is a 15-hour planning time,
 25 which is 12 hours response time, plus three hours kind

1 of establishing your, your equipment, et cetera.
 2 Q And how would that one be used, or in what
 3 circumstance?
 4 A That's used for larger active port yards,
 5 where, where it's assumed that, that, you know,
 6 vessels could get to that type of area more quickly.
 7 And then the second one is, is the 27-hour planning
 8 time, and it's 24 hours plus three hours, and that's
 9 for everything, but a larger port area.
 10 Q Okay. So outside the port area, it would
 11 take longer -- the regulations have an assumption that
 12 it's a longer response time?
 13 A Correct.
 14 Q It sort of plans accordingly. Do you take
 15 those times to be somewhat prescriptive once you pick
 16 which box you're in?
 17 A Yes.
 18 Q And so which box would you apply for the
 19 location of the VSS facility?
 20 A So, so my answer to that question is
 21 typically, you know, if I were doing an applicability
 22 review, I -- because this is near the Sacramento Port,
 23 Port of Sacramento, I would look -- I would look at
 24 both. And in this case, the, the -- I don't know if
 25 you would call it conservative, but the more

1 conservative assumption would be the 15 hours, that
2 that, you know, the response could happen more
3 quickly. That would give you a lower D3, and so
4 that's the -- you know, the low end. If you're
5 evaluating applicability, to me, that would be the
6 more conservative approach, but I would also do a D1
7 calculation just, just to inform EPA or my client.

8 Q Sure. Have you -- you've had a, an
9 opportunity in this process to familiarize yourself
10 with the location of the VSS facility; is that
11 correct?

12 A Right.

13 Q Do you understand it to be between the
14 essentially head of the Sacramento River Deep Water
15 Channel and its termination in Cache Slough?

16 A Yes, I do.

17 MR. HELMLINGER: So, Your Honor, I would
18 like Mr. Michaud to be recognized as an expert for the
19 purpose of applying the FRP regulations. He certainly
20 discussed his chemical and hydrologic expertise, his
21 many years of working with regulations, both for and
22 with EPA and other clients. We have the testimony in
23 the record that these are intended to be clear and
24 easy to apply. And I think that, as he's discussed,
25 there's many more complicated ways to do it, but the

1 regulations give you a straightforward way to do it,
2 and he's, he's definitely experienced with that.

3 JUDGE BIRO: Mr. McNeil?

4 MR. MCNEIL: Your Honor, we would
5 respectfully object. We have no objection to him
6 being designated as an expert chemical engineer or
7 even an expert civil engineer, based on his testimony.
8 But we do not believe a sufficient foundation has been
9 laid for him to be designated as an expert in FRP
10 regulations, which is what I understand the proposal
11 to be. And moreover, as we'd indicated earlier, we
12 believe that the proffered expert designation as being
13 an expert in how a regulation would be interpreted is,
14 is not something for even a chemical engineer. He's
15 not a lawyer, that's the province of this court.

16 But in this case, there hasn't been any
17 foundation about it, other than he's said he's worked
18 on some FRPs. Thank you.

19 JUDGE BIRO: Mr. Michaud, how many times
20 have you, in your professional capacity applied these
21 calculations that you've just gone through with us to
22 a real world incident?

23 THE WITNESS: To -- for applicability
24 review, I, I've applied them four times. To other
25 types of questions, you know, these questions around

1 hydraulic flow, around, you know, slopes, hydraulic
2 radiuses, I've applied them over the course of 34
3 years, probably at least dozens of times if not
4 hundreds of times. I mean these are -- these are the
5 kind of -- the stock and trade of, of my profession,
6 so --

7 JUDGE BIRO: These mathematical
8 calculations?

9 THE WITNESS: Yes.

10 JUDGE BIRO: Okay. And you said in terms of
11 the FRP, you've had four opportunities to apply them
12 each during the applicability of the FRP.

13 THE WITNESS: Correct.

14 JUDGE BIRO: Okay. Tell me a little bit
15 about those incidents.

16 THE WITNESS: Sure. So there have been four
17 cases, all under the same contract of EPA. One of the
18 other cases involved an asphalt facility. I, I think
19 I know the geographical location, but I don't want to
20 speculate. Another one involved a coconut oil
21 facility, so once again, it was a viscous liquid, so
22 there, there, there were -- there were questions
23 around viscosity, same questions around secondary
24 containment, around overland flow. And then the
25 fourth case had to do with a more standard oil, a fuel

1 oil-type situation.

2 JUDGE BIRO: And in each case, did you go
3 through the whole process of determining the
4 mathematical calculations and then the applicability
5 of an FRP to that facility?

6 THE WITNESS: Yes, in every case. And in
7 some cases, the -- as I mentioned, the DT planning
8 distance -- D1 planning distance can always be a very
9 complicated calculation. D2, in some cases that I've
10 worked on, has also been relatively complicated. D3
11 is, is probably the least complicated of the
12 calculations that, that I would do.

13 JUDGE BIRO: And you were paid for the
14 service and retained to do it in your professional
15 capacity?

16 THE WITNESS: That's correct.

17 JUDGE BIRO: Okay. Over objection, I'm
18 going to qualify Mr. Michaud as an expert in applying
19 the FRP regs. Please proceed.

20 MR. HELMLINGER: Thank you, Your Honor.

21 BY MR. HELMLINGER:

22 Q Mr. Michaud, after calculating the D3
23 calculations, what is your determination of the
24 planning distance, given your preferred time of 15
25 month -- 15 hours?

1 A I came up with a planning distance of 22.4
 2 miles, based on that 15 hours.
 3 Q And if you had used the longer response time
 4 of 27 hours, what would your planning distance
 5 calculation be?
 6 A It would be 40.4 miles.
 7 Q On Page 7 of CX55, on Page 7, at the top of
 8 the page CX55, there is a graph. Do you see this?
 9 A Yes, the table.
 10 Q Yes, do you recognize this table?
 11 A Yes, I do.
 12 Q And what is this table?
 13 A This is the table from a -- from one of the
 14 Respondent's reports where they did this calculation.
 15 Q And looking at the variables down the line,
 16 they have a change in elevation, the, the triangle-
 17 shaped delta elevation, change in elevation 5-feet,
 18 comes from Google Earth reference. Do you see that?
 19 A Yes.
 20 Q Do you have any reason to believe that's not
 21 correct?
 22 A No, I don't.
 23 Q And the distance of 20 miles, based on
 24 Google Earth as a reference, do you have any reason to
 25 believe that's not correct?

1 A No, I don't.
 2 Q And the slope, I believe you testified, I'll
 3 just ask you, do you have any reason to believe that's
 4 not correct?
 5 A No, I don't.
 6 Q And the channel depth, similarly, they have
 7 30 feet?
 8 A I, I agree with that.
 9 Q Do you agree with that?
 10 A Yes.
 11 Q If you look down at the bottom of the table
 12 there, they've got D and then it's the calculation of
 13 2.53 miles. Do you agree with that calculation?
 14 A No, I don't.
 15 Q Do you have any reason that you could opine
 16 in your professional experience on how you could
 17 determine, using the same inputs, an output of 2.53
 18 miles?
 19 A Yes, although I, I tried to reproduce that
 20 number. I was able to reproduce that number. The --
 21 what I found was the calculation of velocity didn't
 22 use the order of operations correctly.
 23 Q Could you state for the record, just
 24 generally, what is the standard order of operations?
 25 A So the standard order of operations is you

1 would do any exponential calculations first before you
 2 do multiplication and division. Multiplication and
 3 division would follow from left to right. and then
 4 you would do that before you do any subbing or --
 5 Q In your professional experience, how
 6 generally accepted is this in -- as a mathematical
 7 concept?
 8 A It is the only way to do it.
 9 Q I'd like to ask you some questions about
 10 secondary containment and working with asphalt
 11 specifically. Have you had an opportunity to review
 12 calculations of the volume potential of secondary
 13 containment produced by Respondent?
 14 A Yes, I have.
 15 Q And what have you reviewed?
 16 A In my initial review, I looked at secondary
 17 containment in all of the areas that were storing oil.
 18 I found that -- I found a couple different things in
 19 the product manufacturing and storage area, based on
 20 the information I had, I determined that secondary
 21 containment was insufficient. I also looked at the
 22 bulk asphalt storage area. In that area, there was
 23 some information in -- that I was given that was
 24 unclear to me in terms of -- especially in terms of
 25 the integrity of the containment wall. So I did two

1 different calculations there. One based on one
 2 assumption; one based on, on a different assumption.
 3 Q And you mentioned integrity of the wall, how
 4 do you reference that? Or the containment that you
 5 tested, how do you -- how do you mean that to be?
 6 A So in the -- I believe it was the
 7 consolidated plan, the 2014 consolidated plan, also in
 8 Haley & Aldrich, a report was included in that plan.
 9 There was a cross-sectional diagram of the containment
 10 wall around the bulk asphalt storage area. There was
 11 a label in that diagram that showed maximum fluid
 12 height.
 13 Q If I could --
 14 A Sure, yeah.
 15 Q -- turn you, perhaps, to CX15 on Page 13.
 16 JUDGE BIRO: What exhibit number, again?
 17 What exhibit number?
 18 MR. HELMLINGER: 15.
 19 JUDGE BIRO: Thank you.
 20 MR. HELMLINGER: Page 13. Do you have that
 21 in front of you?
 22 THE WITNESS: Yes, I do.
 23 BY MR. HELMLINGER:
 24 Q Is this the diagram you were mentioning?
 25 A Yes, it is.

1 Q Could you describe the diagram?
 2 A Yeah, so the, the, the caption is, "Detail
 3 on asphalt, cement, AST containment area, dike wall
 4 provided by DSS not to scale."
 5 Q Do you see to the left of this diagram,
 6 written vertically bottom to top, where it says, "Max
 7 fluid height, Max Fluid HT"?
 8 A Yes, and the dimension on that is three-
 9 foot-two-inches.
 10 Q Are you a structural engineer, Mr. Michaud?
 11 A I am not. I mean I practice as a civil
 12 engineer, but that's not my speciality.
 13 Q With that caveat, what does that reference
 14 to you -- mean to you?
 15 A As a hydraulic engineer, if I were to design
 16 a channel or a -- or a wall that was to contain
 17 liquid, the basis for my design, my design basis, I
 18 would put -- I mean I may put -- I would probably put
 19 on the diagram, so if I were to design a channel that
 20 was dealing with water and that channel was based on a
 21 two-foot flow, I would give that to my structural
 22 engineer, and I would say here's, here's my design
 23 criteria. This wall needs to hold, hold up to two
 24 feet. And then what I might get back from my
 25 structural engineer is a cross-section like this,

1 where they say, okay, here's the -- here's the design
 2 criteria you gave me, and here's the wall that I'm --
 3 here, here's, here's the wall that needs to be
 4 constructed in order to meet that requirement.
 5 Q Sure. And what cautions or considerations
 6 would you have if the fluid height were above that,
 7 that you would give your engineer in your table?
 8 A So if, if I were to get this drawing, if I
 9 were to say be an engineer for this facility, I would
 10 be very cautious about allowing fluid to get above
 11 that height because that, that structural engineer who
 12 signed -- stamped and signed this document said I
 13 designed this wall for three-foot-two-inches.
 14 Q So have you had an opportunity to review the
 15 secondary containment designs for the VSS facility?
 16 A Yes, I have.
 17 Q Particularly with reference to the, the bulk
 18 product storage area, have you calculated the capacity
 19 of that secondary containment volume?
 20 A Yes, I have.
 21 Q And if you calculated that capacity with --
 22 using the, the maximum wall height of three-foot-two,
 23 what is your opinion as to the sufficiency of
 24 secondary containment?
 25 A: At three-foot-two-inches, I found that was

1 insufficient.
 2 Q And if the wall were at a maximum fluid
 3 height of four-foot-two, what would that -- what would
 4 your opinion be?
 5 A So just to clarify, I made my opinion based
 6 on a four-foot-zero wall height, and I don't know if
 7 you want me to explain that. It's not your question,
 8 so --
 9 Q We'll circle back to that.
 10 A Sure. At four-foot-zero, I found it to be
 11 sufficient to contain the capacity of the largest tank
 12 in the area, plus sufficient volume for free-borne.
 13 Q Free-borne?
 14 A Free-borne sources, thank you.
 15 Q So if you look back at that illustration on
 16 Page 13 of CX15, do you see where it suggests four-
 17 foot-two max height?
 18 A Yes, I do.
 19 Q So why are you not using that as your
 20 calculation for the maximum wall height?
 21 A So when I see something labeled like max,
 22 when you're looking at containment of a fluid or a
 23 liquid, it's not really important what the maximum
 24 wall height is. What's important is, is what the
 25 minimum elevation on that wall is. So just assuming

1 that the wall is level, I'll assume that the wall is
 2 level, what is the maximum height or what is the
 3 minimum height of that wall? I, I don't care about
 4 the maximum height, I don't care about the minimum
 5 height. Once that liquid gets up to that minimum
 6 height, it's going to flow over.
 7 And so the word 'max', to me, in this
 8 diagram made me think twice. So what I did is I
 9 looked at the Haley & Aldrich calculations and saw
 10 what they used, and they used a four-foot-zero in
 11 their calculation. So I adopted that as, as the basis
 12 for my calculations.
 13 Q Have you had an opportunity to consider the
 14 volume of the tank we heard testimony about yesterday,
 15 Tank 865?
 16 A Yes, I have.
 17 Q Have you had an opportunity to calculate the
 18 impact of that volume on the potential secondary
 19 containment at the VSS facility?
 20 A Yes, I have.
 21 Q Do you have an opinion if the volume of that
 22 tank is inside of the bulk storage area that we were
 23 discussing, whether that impacts the potential risk
 24 for sufficiency of secondary containment?
 25 A Yes, so when you do the secondary

1 containment calculation, the calculation assumes that
 2 the largest container, the largest oil tank -- assumes
 3 that that tank is no longer there, so that footprint
 4 comes out, and the total volume of that tank, you
 5 calculate the total capacity of that tank or you
 6 calculate the volume that that will take up. In order
 7 to do that calculation, you look at the, the total
 8 area, containment area, so your total square footage
 9 of that area, and then you would have height, and
 10 height times area is for volume.

11 In order to do that calculation, we also
 12 have to take into account that there may be other
 13 things in that area that would displace volume. So if
 14 you have a tank, like Tank 865, that is -- that is not
 15 going to allow liquid into that tank, that's going to
 16 displace the liquid and so you're going to have a
 17 slightly higher -- you have less volume, effective
 18 volume in your area. So you have slightly higher
 19 elevation when all of that liquid is in there.

20 So I calculated that it had a minimal effect
 21 of .32 inches, but it will affect, yes.

22 Q Does that affect your conclusions based on
 23 the wall height if you used three-foot-two as your max
 24 fluid height?

25 A It does not affect that conclusion. It

1 makes that conclusion slightly stronger.

2 Q Does that affect your conclusion if you use
 3 a four-foot or four-foot-two wall height?

4 A It does not.

5 Q So it would be sufficient in that case?

6 A Correct.

7 Q Have you had an opportunity in this case to
 8 consider the thermoplastic properties of asphalt
 9 cement?

10 A Yes.

11 Q And are there any maybe sort of common
 12 analogies for a layperson like myself, not an
 13 engineer, to think of asphalt and cement at various
 14 temperatures that you could suggest?

15 A Sure, yeah. And just as, as a matter of
 16 explanation, so when you're looking at, at questions
 17 around flow of asphalt, asphalt is -- it's a
 18 thermoplastic material, meaning that, that as it gets
 19 heated, it's more fluid, it's more flowable. As it --
 20 as it cools, it, it solidifies. And one of the -- one
 21 of the things about thermoplastic materials is that
 22 that heating and cooling process can take place a
 23 number of times and it won't lose its or it won't
 24 degrade its chemical and physical properties. It
 25 won't change significantly.

1 So, so one of the things I account for in
 2 all of my equations, dealing with any kind of
 3 hydrodynamic flow, not, not the volume calculations
 4 but the flow-related calculations is at viscosity and
 5 the fact that viscosity will be variable over time.
 6 So I know you didn't ask that question, but I wanted
 7 to explain.

8 Q Well, let me give you a different -- let me
 9 rephrase -- reset the question a little bit.

10 A Sure.

11 Q I think we understand that the VSS facility
 12 holds its, or we would say given -- if we don't
 13 understand this, holds asphaltic cement at about 250
 14 degrees. Given that, could you describe in some
 15 commonly understandable analogs what the flow of that
 16 material might look like?

17 A Sure. So at 250 degrees, I, I -- I can't
 18 give you an exact viscosity, but the viscosity or, or,
 19 which is a way of measuring that kind of thickness,
 20 the stickiness of the material, would be somewhere
 21 less thick -- or more thick than maple syrup and
 22 somewhat less thick than honey or molasses.

23 Q And if the temperature came down to 200
 24 degrees, on a -- on your scale of molasses to syrup --

25 A Right, right. So, so it's -- so over that

1 first period where it's dropping say from 250, 260
 2 degrees down to 200 degrees, the viscosity begins
 3 to -- it begins to thicken, so your viscosity begins
 4 to rise, and it would approach something on the order
 5 of, of honey, maybe not quite there, it, it would
 6 still be much less thick than something like molasses.
 7 It would be something like motor oil, if you're
 8 familiar with like an SA -- SA30- or 40-grade motor
 9 oil.

10 Q Yes, I'm familiar with that. I don't know
 11 that everybody else is.

12 A Yeah, that's why I was using food.

13 Q Given your consideration, have you had an
 14 opportunity to consider what a worst case discharge
 15 of -- given a 2.5-million gallon tank of material with
 16 this thermoplastic property might look like in
 17 examples or considerations that you might've observed?

18 A Sure. There's, there's a, a classic example
 19 of this type of spill where you've got a highly
 20 viscous material that, that I've, you know, looked at
 21 over the years. It, it occurred in 1919 in Boston.
 22 It's known as the Molasses Flood, the Great Molasses
 23 Flood. And that was -- that occurred -- it was
 24 molasses, obviously molasses had, had been delivered a
 25 few days before. It was about 40 degrees at the time.

1 And so it was -- it was in a cool, cooled condition,
2 relative to, you know, what would be in your kitchen.

3 It was a two million-gallon tank. It, it
4 ruptured and collapsed; 21 people died, 150 people
5 were injured. And estimates were that, you know, it
6 was a 50-foot-tall tank, to a million gallons,
7 estimates were that a 25-foot wave of molasses
8 engulfed the neighborhood, 35 miles an hour, traveling
9 at one point, it wiped out two city blocks, knocked
10 over a fire station, knocked over train cars. It was
11 a fairly significant disaster.

12 Q Is this a disaster that's generally studied
13 in the field of thermoplastic dynamics?

14 A It's, it's, it's, it's, it's a really good
15 way to illustrate, you know, the, the somewhat
16 complicated questions around what happens when, when a
17 viscous fluid is released, you know, when, when the
18 containment structure around viscous fluid fails.
19 It's, it's just a really good illustration. It -- the
20 -- you know, there are a lot of forces on this fluid.
21 It's not like, you know, when you look at pavement on
22 the street, which are actually different -- it's, it's
23 different chemicals than material in asphalt cement.
24 But that's what people think of, and so I think when
25 you think about something like molasses that people

1 can relate to, when you think about, you know,
2 suddenly, this stuff is released and you've got
3 gravity working, you've got momentum working, it,
4 it's, it's a tragic but useful illustration of, of
5 what could happen.

6 Q Sure. Have you had an opportunity to
7 consider this type of flow scenario with the facts
8 that you understand about the VSS facility?

9 A Yes, I have.

10 Q Could you describe generally what you looked
11 at to -- in those considerations?

12 A Sure. So I looked at different flow
13 scenarios, different reasonable ways that a tank could
14 fail, more in terms of, of the directing or
15 directional flow. So, for example, you could look at
16 flow in all directions from the tank, so 360-degree
17 flow, or you could look at flow of say, you know, if
18 half the tank were to fail and you've got 180-degrees.
19 So I looked at that range from 360 to 45 degrees, just
20 to give me a sense of, of how, how that would change
21 the calculations. And I think we, we -- well, at
22 least I, I recognize that in any failure situation,
23 it's, it's not like you're just going to lift up the
24 tank and it's going to move out 360 degrees. There
25 are going to be all kinds of debris.

1 There are going to be different things that
2 are going to change the direction of velocity and
3 momentum of that flow. So I just looked at that
4 range, I looked at, you know, the, the height of
5 the -- of the asphalt material in the tank and when
6 you start the calculation, the height in the tank is,
7 is the total height that it could be. Outside the
8 tank, you've got nothing, and so you've got zero
9 height. And then, then I run the model where, where
10 you look at how that height will change as, as the
11 asphalt falls here, it's going to start moving
12 outwards. And then eventually, at some point in the
13 height, in the footprint of the tank and beyond the
14 footprint of the tank, it's going to be about the
15 same.

16 And at that point, then you've got more of a
17 sheet flow scenario and you can model that as, as a
18 sheet flow.

19 Q And in these different release scenarios
20 that you might've considered, you mentioned 360-degree
21 failure of the tank. Is that a probable situation?

22 A No, that's improbable.

23 Q What would be a more probable situation?

24 A If, if a part of the tank were to fail, if
25 there was a structural failure in the tank, you would

1 have a, a more direct inflow. It's, it's hard for me
2 to imagine a, a scenario where you would have a 360-
3 degree flow.

4 Q Have you had the opportunity to calculate
5 various release scenarios based on more specific
6 failures than a tank?

7 A So not, not a specific failure, like this
8 specific tank, you know, this specific seam failed or,
9 or this -- you, you know, this -- you know,
10 this -- so not, not at like a specific condition, but
11 a scenario or range of conditions. But again, to --
12 you know, as an engineer, as, as the person who's
13 asked to evaluate applicability, I, I think it's a
14 mistake to, to make an assumption that there's,
15 there's -- you know, here's the one scenario where I'm
16 going to examine and I'm going to give my clients an
17 answer based on that scenario.

18 So I, I look at a range of scenarios, a
19 possible range, just to --

20 Q I'm sorry, could you describe what that
21 range might be that you look at?

22 A Yeah. So in this case, I looked at 45-
23 degree, which would be a, a --

24 Q An eighth.

25 A -- an eighth of a tank versus I also looked

1 specifically at 90-degrees, which would be a quarter
2 of a tank and 180-degrees, half-a-tank, and 360, and
3 that just gives me the range of, okay, given the fact
4 that we don't know exactly how a tank could fail and
5 how different factors would come into the directional
6 flow from that tank, this will give you a picture of
7 what could happen under the range of scenarios.

8 Q So given this range of scenarios, had you
9 calculated whether asphalt heated to 250 degrees or so
10 released in any situations, 360 degrees, 180 degrees,
11 90 degrees, 45 degrees, any other situations had
12 probability of reaching the Sacramento Deep Water Ship
13 Channel?

14 A Yes, I estimated that under that 180, 90,
15 45, any of those scenarios that there would be a high
16 probability or a reasonable -- let me put it this way,
17 a reasonable probability that it would reach the ship
18 channel.

19 Q Look at -- pardon me -- in your
20 calculations, did you consider the -- call it contour
21 of the grading, maybe, of the bulk storage containment
22 area?

23 A Absolutely. Considering the topography is
24 critical in this kind of analysis because you're,
25 you're looking at how, how your wave height in that

1 initial collapse scenario, how that wave height could
2 be affected by barriers, by topography, so fill in the
3 low areas before it's starting to peak over higher
4 areas. And when I say that, I don't mean it's going
5 to fill in everything. It's going to -- in that -- in
6 that direction of the wave, it'll, it'll -- it's not
7 going to travel over those low areas. So you have to
8 take into account the low areas, the high areas, et
9 cetera.

10 Q Sure. So you're talking about waves and
11 heights and whatnot. How about just sort of flow along
12 the top of this contoured area? How might that -- can
13 you model that out?

14 A I'm not sure I understood the question.

15 Q Are you familiar with the Gau model, if I'm
16 pronouncing that right, G-A-U?

17 A G-U-O.

18 Q G-U-O. So I'm not pronouncing it right.

19 A That's okay.

20 Q Are you familiar with the Guo model?

21 A Yes, I am.

22 Q And can you describe the Guo model?

23 A Yes, so, so in my calculations, so Guo model
24 is, is applicable to sheet flow, and so I use one
25 model to, to -- for the initial splash phase or the

1 collapse phase and one model, the way it's set up is
2 that you -- in the paper that outlines this model or
3 that this -- there's no explanation about how you
4 determine that initial splash, which is why I came up
5 with an approach to determine that.

6 Once you determine that initial splash, then
7 you treat it as, as more of a sheet flow or, you know,
8 if you imagine -- and one way to think about it is if
9 you like pour -- slowly pour pancake batter into --
10 into a frying pan, that batter's going to move out
11 kind of in a nice orderly fashion, if you're -- if
12 you're doing it right, until it gets to a point where
13 it's, it's, it's hardened up or it's in -- it's a
14 little different than that -- the batter's heating,
15 but asphalt is cooling, but it's going to get to a
16 point where it hardens up and it stops flowing.

17 So the Guo model is a way of, of valuing
18 that for asphalt, specifically, where, where over,
19 over a period of times, it moves out like a sheet, but
20 eventually, it, it gets to the point where the
21 viscosity is such that it hardens up and it stops
22 flowing.

23 Q I'd like to give you an example that I have
24 in my head. You're discussing waves and sheet flows
25 and that sort of thing, and maybe it's because I live

1 in California and you don't, but I'm thinking of a
2 wave hits the beach, the beach has a little bit of an
3 incline and once the wave crashes, you still have that
4 sort of flow that runs out the side of the beach, is
5 that -- when you say sheet flow or run-out, is that a
6 fair assumption or why not?

7 A Sure. If, if the situation is going to have
8 to be in the splash phase, the, the -- your leading
9 edge has not crested a, a barrier, a high point in the
10 topography, then that, that could happen. And, and so
11 you would follow the Guo model and I model of the
12 forward momentum, but also the fact that you're going
13 to have some reverse momentum because now gravity is
14 working in a different direction. If -- in this case
15 and several of the scenarios that I analyzed, if
16 you've already exceeded that, that peak point, then
17 you're going to model it. And then the Guo model
18 assumes that there's a slope. And so the Guo model
19 would be applicable for a slope kind of over that peak
20 down, in this case, to the shipping channel, you could
21 also use it to model anything that remains kind of
22 behind the peak. and you would model that in the other
23 direction, away from the ship channel.

24 Q Sure. This Guo model, do you understand it
25 to be generally accepted in your field of practice?

1 A In, in the -- in the field of asphalt sheet
 2 flow, yes.
 3 Q Do you have experience with -- you, you
 4 mentioned that you looked at Respondent's reports,
 5 they used the same model, essentially?
 6 A That's correct, but they used it in, in
 7 different ways than I used it.
 8 Q Could you explain how their ways are
 9 different?
 10 A The Respondent used the model both for the
 11 collapse phase and for the run-out phase or the post-
 12 splash phase. I, I don't think it's appropriate to
 13 use for the splash phase because it's, it's a sheet
 14 flow model, and column collapse is not sheet flow. So
 15 but I didn't do an agreement that's application kind
 16 of in the -- in the run-out phase after the initial
 17 splash.
 18 Q So --
 19 A And again, I used it -- I used it slightly
 20 differently than, than maybe some other people do, but
 21 --
 22 Q Right. So in that run-off phase, assuming a
 23 180-degree tank collapse, does your calculation exceed
 24 200 feet of run-out of the --
 25 A Yes, yes.

1 Q -- asphalt cement?
 2 A Yes.
 3 Q And if the tank collapses at 90 degrees, so
 4 in other words, if a quarter of the tank collapses,
 5 does it exceed 200 feet?
 6 A Yes.
 7 Q And at a 45-degree or 40-degree tank
 8 collapse, an eighth of a tank collapse, would it reach
 9 beyond 200 feet?
 10 A Yes, and, and to clarify, that 200 feet that
 11 I have included or that I mentioned to you before,
 12 that's 200 feet from the property boundary, so and the
 13 answer to that is yes, it would exceed 200 feet and
 14 would reach the deep water ship channel.
 15 MR. HELMLINGER: Ten seconds, Your Honor.
 16 MR. MCNEIL: Your Honor, I do have -- I do
 17 have cross as well if we could take just a short
 18 break.
 19 JUDGE BIRO: Sure, we will. That's -- as
 20 soon as Mr. Helmlinger tells us he's done, we'll take
 21 a break.
 22 MR. MCNEIL: Oh, I thought he was done.
 23 JUDGE BIRO: Yeah.
 24 MR. HELMLINGER: I'm sorry, I missed that
 25 exchange.

1 JUDGE BIRO: Please proceed. We're good.
 2 MR. HELMLINGER: Oh, sure. I'm sorry.
 3 Didn't know if there was a question for me to answer.
 4 BY MR. HELMLINGER:
 5 Q Mr. Michaud, one last question, if you --
 6 and, and this goes to the fact of the D3 calculation,
 7 if you put any inputs into the D3 calculation that
 8 were not zeroes, in your calculation, based on the
 9 testimony you heard yesterday as to what was a Fish &
 10 Wildlife sensitive environment, is there any D3 that's
 11 not going to impact -- any distance that changes
 12 anything? So hypothetically, if you put -- let's
 13 start this over.
 14 If you took any positive number for any of
 15 the inputs into your D3 calculation, whether it's V or
 16 T or S, how far would that D3 calculation extend in
 17 that distance to -- from the Sacramento Deep Water
 18 Ship Channel to what we heard yesterday's testimony is
 19 a Fish & Wildlife Sensitive Environment?
 20 JUDGE BIRO: Do you understand that
 21 question?
 22 THE WITNESS: Yes, I do.
 23 MR. HELMLINGER: It's a -- it's kind of
 24 heavy. It's weird esoteric math, I get it. I can
 25 restate it if it would please Your Honor.

1 JUDGE BIRO: If he understands, and then you
 2 explain it to me.
 3 THE WITNESS: Yeah, if I could provide a
 4 little context. So typically for an applicability
 5 review, which is -- which is what I'm asked to do, I
 6 think we heard Mr. Swackhammer testify yesterday that,
 7 that in every case, you're going to do the full D3
 8 calculation. It's, it's useful for applicability, but
 9 it's also useful for planning. It's also necessary
 10 for planning. To be clear, my, my goal is just
 11 applicability. And so the way I do my D3 calculations
 12 is the first thing I do is I, I look to, you know,
 13 where, where a release could enter navigable water.
 14 That's the start, the starting point of my, my D3.
 15 And then typically what I would do is I
 16 would -- I would then look -- I would look downstream
 17 from there and find, you know -- and see if there's a
 18 Fish and Wildlife sensitive environment. If that is,
 19 you know, 10 miles away, I would then calculate, you
 20 know, when D3 reached that point, if it's 20 miles
 21 away, I would probably just do my full D3 calculation
 22 and see whether that D3 exceeds 20 miles. In which
 23 case -- in, in any case, if it was more than just,
 24 just, you know, right there, I would typically do full
 25 D3 calculations. Now, now, I say typically because

1 sometimes it's really easy to do a D3 calculation if
 2 you've got a nice straight channel. Sometimes it can
 3 take a lot of time, and you don't have good data. And
 4 so as an engineer, to make sure that I'm not -- that,
 5 that I'm using my client's monies effectively, I'll
 6 probably do the easy part of the calculation first,
 7 see if there's a Fish & Wildlife sensitive environment
 8 within that area, within that distance, and if so,
 9 then, then that's the end of my analysis.

10 I'll conclude that, yes, it, it -- the
 11 facility is within a distance that could injure this
 12 resource. In this case or, you know, and then I'm,
 13 I'm continuing to do that until the D3 is, is,
 14 done. If, if, if I don't find Fish & Wildlife
 15 sensitive environment, I would conclude that no, it
 16 does not meet that criteria.

17 In this case, because of the Sacramento Deep
 18 Water Ship Channel is a Fish and Wildlife Sensitive
 19 Environment, I concluded that as soon as that material
 20 reaches that, that resource, it will cause injury to
 21 that, it will impact that environment, so my
 22 conclusion in, in my report was that D3 is some value
 23 greater than zero because it will -- it will move into
 24 that, that body of water. I established that through
 25 my calculations, if it moves into that body of water

1 by one inch, it will -- it will have impact to that
 2 body of water, according to the regulations.

3 If it moves into it by two miles, it will
 4 have impacted it, at 20 miles, it will have impacted
 5 it. So that's why it may have been confusing. That's
 6 why I used the, the term non-zero, but my, my
 7 intention there was, was to say that any, any, any
 8 distance would -- I would reach the same conclusion
 9 regardless of the distance for D3.

10 MR. HELMLINGER: I think you phrased it much
 11 better than my question. Thank you.

12 JUDGE BIRO: Okay. Mr. McNeil, how long
 13 would you like to prepare for your cross?

14 MR. MCNEIL: I just need a short break.

15 JUDGE BIRO: A short break, okay. So we'll
 16 stand in recess until 10:20. Would that be
 17 sufficient?

18 MR. MCNEIL: Yes.

19 JUDGE BIRO: Okay.

20 (Whereupon, a brief recess was taken.)

21 JUDGE BIRO: We're going back on the record.

22 Okay.

23 Mr. McNeil, are you prepared?

24 MR. MCNEIL: Yes, thank you, Your Honor.

25 JUDGE BIRO: Okay. Please begin.

1 CROSS-EXAMINATION

2 BY MR. MCNEIL:

3 Q Good morning, Mr. Michaud.

4 A Good morning.

5 Q I'd like to ask you a couple of questions
 6 that you had kind of provided answers earlier to Mr.
 7 Helmlinger. And the first one I, I, I'm gathering
 8 you're sharing with us, you know, the tragedy that
 9 occurred in Boston is historical or an anecdotal story
 10 that you've -- that you've read about or been told
 11 about?

12 A That is correct.

13 Q Okay. So you -- I think you said -- you
 14 said the year was 1919?

15 A I believe that's correct.

16 Q So I'm guessing you weren't --

17 A Obviously.

18 Q And you -- well, my dad was born in 1920, so
 19 it's -- maybe it's possible, but you don't -- you
 20 don't look as old as he does. And so in terms of
 21 the -- I don't think anybody would contest the tragedy
 22 you described, but in terms of the, the components or
 23 the factors and the site conditions, the tank volume,
 24 height of the tank, height of the wave, you certainly
 25 don't have any first-hand knowledge of that; is that

1 right?

2 A That's right.

3 Q Is that based on things you've been told or
 4 things you've heard?

5 A It's based on things that I've read.

6 Q Okay. And were they in scholarly
 7 publications or more like news articles or --

8 A Not, not scholarly publications.

9 Q Okay. So kind of second-hand story?

10 A Right, stories that were reported in, in
 11 articles and, you know, there have been some studies,
 12 but I don't think they have been formally published.
 13 I know Harvard University did do some studies, but I
 14 think they were more for academic purposes and less,
 15 less, you know, what I would call a, a, you know,
 16 primary journal.

17 Q So, for example, in the Harvard University
 18 study, do they -- do they also corroborate the volume
 19 of the tank contents?

20 A I'm not familiar enough with the studies, I
 21 don't think --.

22 Q Or the height or the wave or anything?

23 A Again, you know, I'm not that familiar
 24 with --

25 Q As you sit here today? So you can't share

1 that with us?
 2 A I, I'm not that familiar with that study.
 3 As I said, it's not in a published journal. It's more,
 4 you know, possibly a conference presentation that I
 5 saw. I'm not exactly sure.
 6 Q And, you know, again, without minimizing at
 7 all the significance of that event, you didn't use
 8 anything from that in your analysis of VSS's potential
 9 FRP applicability of understanding, is that right?
 10 A That's correct. It was more of an
 11 illustrative example, but it's not anything I used
 12 quantitatively or in any other way.
 13 Q Mr. Michaud, may I ask you if you had
 14 available to you, or if you didn't have available to
 15 you, if you requested any details regarding the
 16 construction of, in this case, Tank 2001?
 17 A The only information I have was what was in
 18 that consolidated plan, so not of the construction of
 19 the tank itself, but the dimensions of the tank is the
 20 information that I had.
 21 Q Would it -- would it make a difference to
 22 you in doing your FRP applicability analysis if the
 23 tank were -- if I used the term 'vertical seam', do
 24 you understand what that is?
 25 A Yes.

1 Q Okay. And if I used the term 'brick grid',
 2 do you understand what that is?
 3 A Yes, in general, yes.
 4 Q So would it -- okay, great. If you -- if
 5 you knew it was one, the vertical seam, versus the
 6 other, the brick grid, is that something that if you
 7 had that information, you would try to account for in
 8 your analysis?
 9 A The -- you know, the moment of failure, the
 10 direction in which the failure would occur, those,
 11 those types of questions are really beyond what I
 12 would consider in an FRP applicability analysis. What
 13 I'm really trying to do is just look at, you know, a
 14 reasonable set of scenarios and really for more of a
 15 volumetric and directional standpoint, you know,
 16 calculating what your fan area might be than really
 17 trying to play through the, you know, innumerable
 18 scenarios that, that might occur. So I'm just trying
 19 to come up with a range of, of answers.
 20 Q Okay. So, so tank construction you wouldn't
 21 consider to be a reasonable factor to refer to?
 22 A It's beyond the scope of what I would
 23 consider.
 24 Q And what's the reason for that?
 25 A I mean the regulations -- first of all, the

1 regulations are just looking at the questions over
 2 flow. So I'm, I'm really just looking at -- and to
 3 use the Guo model, you want to know, you know, what
 4 could be the volume that could be released and looking
 5 at dimensions, really, really kind of larger
 6 dimensions like the height -- the height that the
 7 fluid could start at. So more the hydraulic questions
 8 and less the how could this occur questions, but more,
 9 you know, what are a number of -- what are the range
 10 of scenarios? And those scenarios are, you know, more
 11 or less infinite that could occur.
 12 I generally have -- I'm, I'm certainly not
 13 paid that much money to, to, to look at every single
 14 scenario, but I'm paid to evaluate a reasonable range
 15 of outcomes I would predict.
 16 Q And so tank construction would just not be
 17 reasonable at this step of the analysis is your -- is
 18 your view?
 19 A That's my view, yes.
 20 Q Now, you did, excuse me, mention that flow
 21 direction would be -- would be relevant; is that
 22 right?
 23 A Certainly, yes.
 24 Q Can you help me understand and, and I guess
 25 just preliminarily my -- you did -- well, you did a

1 report dated August 23, 2016, right?
 2 A That's correct.
 3 Q And in your declaration, you said -- you
 4 said you stand by that report, right?
 5 A I do.
 6 Q And you do today, as you sit here, right?
 7 A Yes, I do. I've had an opportunity to
 8 review that report and make a couple corrections,
 9 which I believe I also stated in my declaration.
 10 Q Yes, and just so we can all be on the same
 11 page, but without going into a lot of schlemiel, the
 12 ones I'm aware of, just sort of topically are you
 13 submitted a second declaration that presented on the
 14 secondary containment issue that Mr. Helmlinger had
 15 asked you about.
 16 A Correct.
 17 Q What I would characterize, and please again
 18 correct me, as sort of a conditional refresher or
 19 update to your earlier conclusion, and that was if the
 20 integrity of the retaining wall met certain criteria,
 21 then secondary containment was -- would be sufficient,
 22 but if it didn't, it would be insufficient; is that
 23 fair for just --
 24 A Well, I, I drew that conclusion in my first
 25 initial report in 2016. I, I didn't revise that

1 conclusion. I did revise the, the calculation. I
2 didn't look at the impact of Tank 865 in the bulk
3 asphalt storage area. It did not change my
4 conclusions from the original report.

5 Q Okay. Very good. So and then I think the
6 other matter that you were alluding to was you
7 provided a more -- a more detailed planning distance
8 calculation than you had provided earlier?

9 A That's correct. I, I explained the
10 rationale for that, that statement of non-zero and the
11 kind of math behind that and that that is actually a
12 quantitative result that, that I did explain that if I
13 were to carry out the calculation, here's what I would
14 have or what I would have concluded.

15 Q Okay.

16 A Yes.

17 Q And so were those the two matters you
18 referred to earlier that you had -- and I don't -- I'm
19 not going to say that were incorrect, but that you had
20 revised since your 2016 report?

21 A I think I also clarified the question around
22 information I used or, or I looked at another piece of
23 information in terms of the status of a deep water
24 shipping channel, in terms of being a Fish & Wildlife
25 sensitive environment.

1 Q Very fine. Anything else?

2 A To the best of my recollection, that's it.

3 Q Well, so going back to some of the tables
4 that are in that -- in calculations that you did in
5 the 2016 report, I just want to see if I'm
6 understanding. Mr. Helmlinger asked you about flow
7 scenarios and I believe you said something about you
8 want to take into account a reasonable directional
9 flow or words to that effect, is that --

10 A A reasonable range of scenarios --

11 Q Reasonable.

12 A -- included in one of the variables is the
13 direction of the flow.

14 Q And so I guess my question for you is did
15 you consider that the -- that the flow would vary over
16 the course of the time of the release? And
17 specifically, because you talked about a 360-degree
18 initial splash; is that right?

19 A That could be one of the assumptions, that
20 it's a 360-degree splash.

21 Q And at the same time, would you not agree
22 that at a certain point under, you know, any
23 reasonable scenario, that radius would no longer be
24 360 degrees?

25 A I'm not sure I understand the question.

1 Q Well, I think when you -- when you were
2 testifying about 360 degrees in the initial splash, I
3 think what you were saying is basically, the -- when
4 the -- under the hypothetical scenario, that the
5 entire volume of the tank is filled instantaneously,
6 then it would all basically fall right around -- you
7 know, around the tank, almost, you know, for
8 calculation purposes, in a circle?

9 A That is one of the scenarios. It's not the
10 only scenario I looked at, but assuming that it is --
11 we used the 360-degree splash center, which is
12 something I do because that's one end of your -- if
13 you're looking at a range of scenarios, that's one end
14 of that range, and based on that, yes, under that
15 scenario, that initial splash, that's what I would
16 use, that assumption that that -- for that initial
17 really dynamic activity, you know, that, that is
18 essentially what would occur, but, you know, I mean I
19 take into account geographic factors. So I don't know
20 if I can really say my conclusion would be a circle --
21 (Simultaneous discussion.)

22 Q Well, let me ask you this, for purposes of
23 the FRP applicability in this case, what do you think
24 is -- what would be reasonably expected from this
25 particular tank that you had used as a -- as a model,

1 2001?

2 A And so I -- that's a hard question to
3 answer. As I said, there, there are an infinite
4 number of scenarios, and so you've got -- you've got
5 different tank failure scenarios that could result in
6 different directional flows that could result in
7 different -- you know, all kinds of different
8 situations, you've got geography to account for, you
9 know, the direction could be towards the channel; it
10 could be in a different direction. It could be
11 towards the railroad tracks, for example. It could be
12 -- there seems to be a berm on the other side of the
13 tank. It could be towards that. All of those
14 directions, you know, so those are all different
15 scenarios. And, and the question of what is
16 reasonable, I, I cannot and I do not evaluate every
17 single scenario.

18 What I try to do is evaluate a scenario that
19 would or could, rather -- a scenario that could result
20 in, in a discharge to a Fish & Wildlife sensitive
21 environment or to a storm drain, and I'll look at
22 those, those scenarios, and I'll try to come up with a
23 reasonable, you know -- again, reasonable range of
24 scenarios under which that could occur and so that's
25 how I try and answer the question which is asked in

1 the regulations of could this occur in that -- and so
 2 I don't know if that answers your question. I'm
 3 sorry.
 4 Q Well, I guess -- I guess what I'm curious
 5 about is, you know, you say there's an infinite range
 6 of possibilities, and I -- you know, I think that, you
 7 know, anybody would probably agree with you. But if
 8 there's an infinite range of possibilities, then where
 9 do you -- you know, where do you draw the line in
 10 terms of you're going to -- because if that's the
 11 case, you wouldn't need the regulations, right,
 12 because there's an infinite number of scenarios. So
 13 there's always a possibility, right?
 14 A No, there's not always a possibility.
 15 Q So how do you -- so how -- so how do you --
 16 A Maybe infinite is, is, is the wrong term,
 17 it's a -- it's a term of art. There are so many
 18 possibilities.
 19 Q But that's my -- that's my question is I
 20 think you -- I think you testified in response to one
 21 of Mr. Helmlinger's questions that you were trying to
 22 find, you know, something that would have a reasonable
 23 expectation of reaching that. So let's just, you
 24 know, use that -- let's just say that's, you know, a
 25 fair interpretation of the regulations.

1 So how do you draw the line when you're
 2 doing your applicability analysis if you can have an
 3 infinite range of possibilities?
 4 A Sure. Yeah, so I think there -- certainly,
 5 there are possibilities that would not result in, in
 6 the oil -- the asphalt reaching that shipping channel.
 7 For instance, just to give an example, if, if the tank
 8 were empty when something happened, and so I can -- I
 9 -- rather than try to find all of the scenarios that
 10 would not result in that, to me, that's not a very
 11 effective use of my time, what I would do is, is I
 12 would look at or what I do is I look at scenarios
 13 under which it could reach the Sacramento Deep Water
 14 Shipping Channel. So the first thing in that scenario
 15 would be direction.
 16 So I -- so I ask myself is there -- are
 17 there a reasonable number of scenarios where, where
 18 the direction of flow, where the tank would fail in,
 19 in a place that is perpendicular to or is -- the flow
 20 would head in that direction. If, if the answer to
 21 that is no, there's no way the tank could ever fail on
 22 that side, for some reason, then I would say okay,
 23 that's not reasonable. But if there are a number of
 24 scenarios where it could fail on that side, if I can
 25 say reasonably to myself yes, that could happen --

1 Q There's a reasonable expectation.
 2 A Yeah. Then I'll say okay, reasonable, I've
 3 met that hurdle for that for direction.
 4 Q Okay.
 5 A And then I will say -- then I'll ask myself,
 6 you know, depth, what could be the depth of that tank,
 7 you know? Yes, it could be two inches, or it could
 8 be, you know, conceivably be 40 feet. And so I'd ask
 9 myself is it -- is it reasonable to assume that it
 10 could be 40 feet. And then I will ask myself is it
 11 reasonable to assume that it could be a 360-degree
 12 spread, a 45-degree spread? You know, what are some
 13 reasonable assumptions around that? And so I, I just
 14 lay around that, and, and really try to test myself
 15 every single time I, I make -- build a scenario, is --
 16 am I being reasonable or am I -- am, you know, trying
 17 to find an answer here.
 18 My job as an engineer is to be as objective
 19 as possible, to give my clients, even if they don't
 20 want to hear the answer, the answer that my objective,
 21 rational, you know, well-documented approach would,
 22 would -- the answer that I come up with.
 23 Q And so direction of flow would implicate,
 24 would it not, slope or topography?
 25 A Yes.

1 Q And did you review topographical or sloping
 2 information as part of your applicability analysis?
 3 A Yes, I did.
 4 Q And what did you -- do you remember what you
 5 reviewed?
 6 A There -- I've reviewed -- initially I
 7 reviewed some information that was in the consolidated
 8 plan. There's some topographic information in the --
 9 in, in that plan. I looked at, you know, topographic
 10 information at the edge of the property, and then
 11 information about the height of the shipping channel,
 12 the water in the shipping channel, the elevation
 13 there. So I looked at a whole range of different
 14 inputs to try and create that profile.
 15 Q And the consolidated plan, you mean the WHF
 16 consolidated plan that was from 2014 that had some --
 17 at least, I think, one figure that has some
 18 topographical survey information?
 19 A It was a 2014 -- it was a 2014 document. I
 20 don't know who the authors of that document were.
 21 Q But do you recall seeing a figure that had
 22 topographical --
 23 A Yes.
 24 Q -- survey elevations of the site?
 25 A Yes. My recollection is Figure 7, but --

1 Q What's that?
 2 A Yes, I did see that figure.
 3 Q Figure 7?
 4 A Yes.
 5 Q That is -- is that -- is that what you said?
 6 A That was my recollection, but I could be
 7 incorrect.
 8 Q Yeah. No, that's correct.
 9 A Okay.
 10 Q So I'd like to -- I don't know if -- I don't
 11 think Mr. -- I think Mr. Helmlinger referred to your
 12 report, but I don't know if we actually asked you to
 13 take a look at it, but if you have it, the binder's in
 14 front of you. It's CX14. This is your 2016 report.
 15 A Okay.
 16 Q And I apologize, but for this one thing I'm
 17 going to ask you about before we look at that, and
 18 it's something you had testified earlier to. You had
 19 -- you had observed or you testified that you had
 20 observed that the Guo model did not have a specific
 21 input perimeter for column collapse or initial splash.
 22 A The model requires that you assume what that
 23 splash radius would be but doesn't really provide any
 24 guidance on how to calculate that.
 25 Q So you -- so you looked to another source;

1 am I correct?
 2 A That's correct.
 3 Q And that was the Roche model?
 4 A Correct.
 5 Q From 2008?
 6 A Right.
 7 Q And what did you glean and then apply in
 8 your applicability analysis from that model in this
 9 case?
 10 A Yeah, so that's a model where a viscous
 11 material was, was -- the model was, was established to
 12 evaluate how a viscous material would, would react
 13 under conditions where the containment was, was
 14 suddenly removed and the initial viscosity of that was
 15 modified in some way. It modified such that the -- so
 16 viscosity is, is a matter of intermolecular forces.
 17 So that's what creates the viscosity. There's some
 18 stickiness as molecules move over one another, as
 19 they're flowing. And so this, this paper I used to
 20 process for kind of changing those intermolecular
 21 forces, such as what happened when heated asphalt
 22 changes the, the stickiness of the molecules as they
 23 move across one another. And that's what makes it
 24 more viscous and more -- less viscous and more liquid.
 25 And so, so the model evaluated what would

1 happen if, all of the sudden, containment were, were
 2 removed when this kind of pre -- pre, you know,
 3 condition was applicable, was, was there. And so it
 4 evaluated how, how the column would -- the shape of
 5 the wave would, would happen. So you start with, you
 6 know, the situation, as I explained before, where you
 7 have the material above your footprint, your original
 8 footprint, like a tank or, or some sort of container.
 9 So the material above that -- and then
 10 initially, you have nothing on the outside of that.
 11 You remove the containment and that, that shape of
 12 that wave over time is going to change. So initially,
 13 you would have something where you've got, you know,
 14 the volume is still pretty high above your footprint,
 15 but you're starting to see something move out from the
 16 bottom. So you think about that, you know, the wave
 17 moving out from the bottom, things are pushing down
 18 and that -- and that weight is moving out.
 19 And then that shape will change, after 10
 20 seconds, it'll look different or say after one second,
 21 it'll look different; two seconds, it'll look
 22 different. And so they just modeled that shape. And
 23 then they compared the initial kind of configuration
 24 of, of the -- of the initial container, so volume to
 25 height to volume. And they looked at some

1 dimensionless kind of parameters and how they moved
 2 over time and they found that under a number of
 3 different initial conditions, they would -- the shapes
 4 of the curves when you plotted them looks very
 5 similar.
 6 And so I used that data, I used that
 7 information to, to kind of model that, the shape of
 8 that curve, how that -- how the heights of that
 9 leading edge would move out over time and how fast
 10 they would move out.
 11 Q Okay, thank you. And just one question to
 12 clarify, you mentioned it was a viscous material,
 13 which is, of course, generally what we have at VSS,
 14 right? And do you recall what the viscous material
 15 was in that -- in the Roche report?
 16 A I believe they were modeling pyroclastic
 17 flows, which are flows from volcanic situations. I
 18 think it was some type of granular material where the,
 19 the friction between the grains is analogous of
 20 friction that you would see in the intermolecular, you
 21 know, at, at a finer scale intermolecular force.
 22 Q I see, okay. So anyway, turning back to
 23 your report, let's -- if you wouldn't mind, let's take
 24 a look at Page 16 of 20, which is Table 4, Column
 25 Collapse Calculations. And I believe this is what you

1 were referring to a moment ago. But I'd like to just
 2 ask you a couple of questions about the calculation.
 3 Would that be all right?
 4 A Sure.
 5 Q So the -- so if we go left to right above
 6 the top, there's units, which is, you know, relatively
 7 self-explanatory. Then there are three columns. The
 8 first says initial. The second says first transition,
 9 and the third says second transition. Can you help us
 10 understand what those three are?
 11 A Sure. So initial is, is the, the starting
 12 point. So before the containment is moved or is, you
 13 know, no longer there, so that's where you start. So
 14 if you look at the curves, if you look at how they
 15 plotted the data, there are some inflections in the
 16 curves, changes in the slope. And so during the first
 17 -- to the best of my recollection, during the first
 18 transition, you see -- kind of in general terms, you
 19 see the wave has a certain shape to it, where it's
 20 kind of higher towards -- closer in towards where it
 21 initially started. And then, then it's, you know,
 22 kind of lower, but the leading edge is moving out.
 23 That shape changes at some point, and you
 24 can see that in the data, the slope of the curve, and
 25 I'm sorry this is so abstract, but the curve -- you

1 know, the slope of the curve changes, and so where
 2 that changes, there's, there's something happening
 3 physically in that -- in the -- in the relationship
 4 between gravity, momentum, viscosity that is changing.
 5 And so, so I modeled that first part that looks, you
 6 know, very kind of linear. Then I modeled the second
 7 part that looks linear in a different way, you know,
 8 the, the way it's changing is different.
 9 Q That's the first -- so that's the initial
 10 and the first transition.
 11 A So the first transition is where -- is where
 12 it, it -- the first shape changes and the second --
 13 and so now we're in a period where it's moving
 14 differently than it did initially.
 15 Q So where it starts to level is the first
 16 transition or the second transition?
 17 JUDGE BIRO: Do you want to draw it for us?
 18 THE WITNESS: I, I -- if I had -- if I had
 19 the paper itself, I would draw it accurately. I'm
 20 afraid I couldn't draw it accurately. So the first
 21 transition --
 22 MR. MCNEIL: That's actually -- I'm sorry to
 23 interrupt, but this might help everybody. I was just
 24 curious, is this a, a proprietary computer model or is
 25 it sort of a hand-drawn or hand-calculated model? You

1 know what I'm -- you know the distinction I'm drawing
 2 there? Do you understand the --
 3 THE WITNESS: It's not proprietary. It's
 4 something that I've developed.
 5 BY MR. MCNEIL:
 6 Q Is it -- is it a computer model?
 7 A Yes, yes.
 8 Q Okay. So --
 9 A It's a fairly sophisticated --
 10 Q So this --
 11 A -- and I do a lot of modeling.
 12 Q -- is not a model that you've -- this is a
 13 model you developed, not a model that you purchased?
 14 A Correct.
 15 Q Or you have a license to?
 16 A Correct.
 17 Q This is your model.
 18 A Correct.
 19 Q But -- okay. So you used your model for
 20 this analysis in your 2016 report?
 21 A That's correct.
 22 Q And what I think you're saying is that your
 23 model was developed by you, at least in part based on
 24 the Roche and the Guo model; is that what you're
 25 saying?

1 A That's correct. So those are inputs to the
 2 model. Other inputs to the model are the geography,
 3 topography from the site. So the model is -- it's,
 4 it's, it's a -- it's a -- I, I guess we, we could call
 5 it a model. It's a -- it's a fairly sophisticated
 6 calculation.
 7 Q Okay.
 8 A And so just to answer your question, I don't
 9 know that first transition and second transition are a
 10 really great explanation, but what the researchers
 11 found was that there were three phases. So there's
 12 the initial phase where the fluid is behaving in one
 13 way; then there's the -- then there's the second phase
 14 where it's beginning to run out, it's beginning to
 15 level off. And then the third phase is where the, the
 16 fluid behind in the initial footprint is about the
 17 same height. It's approaching the same height as the
 18 fluid in the leading wave. And at that point, I
 19 turned off my model, so I've got the first two phases
 20 of what I include in my model after that second phase,
 21 I call that the end of the splash phase to align with
 22 the Guo model, which is -- that's where the Guo model
 23 picks up, on that third phase. And so then I'll
 24 switch into that.
 25 Q So it's not -- it's not Guoy (phonetic),

1 it's Guo.

2 A I don't know, it's G-U-O, so --

3 Q Okay. Well, Mr. Helmlinger said Guo, so I'm
4 going to --

5 A Let's go with Guo.

6 Q -- I'm going to stick with that. He probably
7 knows.

8 (Simultaneous discussion.)

9 Q So the -- okay, so the inputs for the Guo
10 model, and let me come back, perhaps, to the -- to
11 your model, but are -- I, I, I know you kind of went
12 through it with Mr. Helmlinger, but let me -- in other
13 words, what I'm asking you is the Guo article that you
14 cited has some calculations, and then it has the case
15 study --

16 A Right.

17 Q -- and they're a little bit different,
18 right?

19 A I think the case study is, is a good
20 representation of the -- illustration of the
21 calculations.

22 Q So that was my first question, so if we were
23 using the case study as kind of the laundry list of
24 inputs, what would be the key inputs in applying the
25 Guo model in this case?

1 A So, so the initial splash radius is
2 really -- is kind of a combination of, of geometric
3 calculation as, as, as, as something that, say, starts
4 out like a socialistic (phonetic), moves out and gets,
5 gets -- the diameter, the circumference gets larger,
6 that amount of material is just going to get spread
7 out. And so there's, there's kind of just a really
8 volumetric, geometric calculation that's part of the
9 model, you know, how once something spreads out to
10 that distance, what's the height -- change in height.

11 The second piece of it does involve
12 viscosity measurements. And so that takes more into
13 account the, the, you know, the sheer (phonetic)
14 factors that are going to take place. There's an
15 assumption that you're going to have kind of your --
16 on your -- the surface of your land, you're going to
17 have one surface, and then you're going to start
18 forming a skin on top, and so, so the model really is,
19 is, is two planes, it's flow within two planes. It's
20 flow within two planes modeling. Viscosity is really
21 critical input to that. I don't know if that answers
22 your question, but that's --

23 Q Well, no, no, that's fine as far as it goes,
24 but are there any other key inputs in -- if we're
25 using that case study as kind of the template?

1 A The other key input that I can -- well, two
2 key inputs, slope and your fan angle, so is it 45
3 degrees; is it 100 degrees? Is it 180 degrees?
4 What's your fan angle?

5 Q Yeah. And fan meaning the really
6 directional flow?

7 A Correct. With the assumption that it is
8 going to -- starting at, at the tank -- sorry, the
9 center of the tank, and it's going to fan out in a --
10 in a uniform way.

11 Q Correct. What would be -- what would be a
12 good shorthand for that? Would it be angle or -- I
13 mean fan is fine if that's --

14 A Segment.

15 Q Pardon?

16 A Segment. And the Guo model uses, uses the
17 term 'fan', I believe.

18 Q Okay. If there were a manmade depression,
19 would that -- where would that get factored in? Would
20 that get factored in as part of the slope? Or would
21 it get factored in as part of volume?

22 A So the model is not great. That's one of
23 the places where the model is -- does not work well in
24 terms of taking into account changes in slope. So in
25 order to take into account that type of situation,

1 what you can do is you can run the model in time
2 steps. So rather than just looking at what would
3 happen at the end of two hours, which is -- which is
4 how the model is supplied in the paper, you can look
5 at what would happen in the first 20 minutes and
6 between 20 and 40, 40 and 60.

7 And you can look at those results, and based
8 on -- and, and you can -- and I found this not, not in
9 this situation but in other cases, you can look at
10 changes in your slope, so if you were to have a
11 depression, you know, your slope might be -- you might
12 assume a constant slope down to that depression, and
13 then if your depression, say your land levels off, and
14 that's how a depression would work, and then it goes
15 up a little bit, and then it goes down again, you
16 could take that into account. That's the change in
17 slope.

18 And so you would stop your model, your
19 initial model with your slope assumption at that
20 point. You would, you would run the next -- and that
21 would be kind of your -- you would start again and say
22 okay, now that's my new splash radius, and then you --
23 then you would run the model again for your next
24 slope, cut it off when, when that slope changes again,
25 run it again with the next slope. And you'd just

1 continue to do that to take into account variable
 2 slopes.
 3 Q So you would reset it, as appropriate to
 4 reflect --
 5 A Correct, correct.
 6 Q -- topography, including depressions?
 7 A Correct.
 8 Q Let's actually look at the next page, Table
 9 5, which is CX14 at 17. And you have an input here
 10 for slope. And it's expressed as 0.057 feet per feet;
 11 do you see that there?
 12 A Yes, I do.
 13 Q So when it -- in the notes, it refers to the
 14 channel embankment. Do you see that?
 15 A Yes, I do.
 16 Q Okay. So can you just clarify for me when
 17 this 0.057 is being referred to, what portion of the
 18 hypothetical release does that slope relate to?
 19 A So there's -- there is -- there is a high
 20 point in the property near the -- my understanding
 21 near the, the property boundary, and then it slopes
 22 down from there to the -- to the channel. And so
 23 that's referring to that slope that is after that high
 24 point down to the -- to the channel.
 25 Q And what about the slope between the tank

1 and the high point? Where does that appear in the
 2 model?
 3 A In this here -- so, so the -- it's -- so
 4 the, the way I use the model is, is first of all, if
 5 the splash radius will get beyond that high point --
 6 so the initial part of the model column will get
 7 beyond that high point, then it's met the condition
 8 that that then the, the, the amount of the asphalt
 9 that has gotten behind that high point will then
 10 transition to sheet flow, so I would only use this in
 11 that condition, if that condition is met.
 12 Q And so I mean I see Table 5 says model
 13 material overtopping southern site boundary, but I
 14 guess what you're saying is that this Table 5 is --
 15 would not reflect or if it does, please tell me
 16 because that's my question, the fade and transport,
 17 let's just say, to use a, you know, I think commonly
 18 understood term of the hypothetical spill from the
 19 tank to, in this case, the levy, the high point,
 20 right?
 21 A Right, that would be covered in Table 4.
 22 Q Table 4, okay. So you're -- okay. So
 23 you're treating -- in your report, you're treating the
 24 fade and transport of the spill from the tank to the
 25 levy that is the high point as part of the column

1 collapse analysis, correct?
 2 A Yes, I determined that it would reach that
 3 point.
 4 Q So going back to Table 4, can you help me
 5 ascertain where or how the topography of the site is
 6 included in these -- in the parameters?
 7 A It's, it's not really represented in Table
 8 4. As I recall, and this was a couple years ago, a
 9 few years ago, what I looked at is I looked at the
 10 fact that as the -- as the wave is advancing, you've
 11 got your top, you've got your top of wave, and so
 12 that's one of your models. That's one of the things
 13 you're modeling, but, but as I recall, I also looked
 14 at the fact that that -- at the bottom, kind of below
 15 a certain point, below a certain elevation, that the
 16 volume of material in that was not -- so if you look
 17 at the top of the berm and you draw a straight line
 18 back to the tank, it's a wedge.
 19 So it's, it's -- so the berm, you know,
 20 you're, you're drawing a straight line because at the
 21 straight elevation if you were -- if you were to be at
 22 the top of the berm and you were just shooting an
 23 elevation across your tank, you would come up on
 24 not -- you know, there would be some slope upwards.
 25 And so that piece of the flow, the fan with the --

1 with the zero dimension at the top and some non-zero
 2 dimension at the top that forms what could be called a
 3 wedge. And so I calculate the volume of that wedge
 4 and make sure that I take that into account when I'm -
 5 - when I'm calculating the volume of the flow that's
 6 going beyond the, the tank.
 7 Q Okay. And there is --
 8 A There are some simple and sophisticated ways
 9 to do that.
 10 Q Where -- so where is the volume shown in
 11 Table 4? Maybe we start with that.
 12 A It's, it's not shown, but it's included in
 13 the calculation of volume of material beyond AST
 14 footprint.
 15 Q Okay, I can't see that. That's third from
 16 the bottom, right?
 17 A The second from the bottom.
 18 Q Well, the second from the bottom, yes.
 19 A Yeah.
 20 Q Third from below the bottom?
 21 A Yes.
 22 Q Yes.
 23 A And that's second.
 24 Q So it -- based on what you've testified, am
 25 I correct in understanding that the end -- that for

1 this exercise, the end of the second transition aligns
 2 with the top of the slope before you reach the
 3 embankment?
 4 A I believe I calculated that it goes slightly
 5 beyond that.
 6 Q So you're -- okay. So for purposes of
 7 today, can we just assume those are in the same place?
 8 And that your second transition and the levy or the
 9 high point before it goes down, is that close enough?
 10 A If -- I mean if you want to make that
 11 assumption to illustrate -- you know, to keep the
 12 conversation going, sure.
 13 Q So you've got -- well, how far away is that?
 14 What is that, a couple feet or?
 15 A Again, this, this, this is one calculation I
 16 did. It was -- I, I don't recall. It was a few feet,
 17 several feet. I --
 18 Q Okay. Well, we can come back to that, but
 19 you've got 29,128 cubic feet of asphalt at that
 20 location, right? This is at the end of the second
 21 transition, which is approximately near the high point
 22 of the property to the south?
 23 A That's what it says in the table. I
 24 would -- I would have to read my interpretation of
 25 that, but --

1 Q Okay. So just, just assuming that's the
 2 case, then 29,128 cubic feet, what does that translate
 3 to in gallons?
 4 A If you multiply it by 7.4805, you could come
 5 up with that number.
 6 Q I probably am not the most qualified, but I
 7 will try. You said times 7.4 --
 8 A 805.
 9 MR. MCNEIL: Okay. Your Honor, will you
 10 allow me to -- just 15 seconds to try to make that
 11 calculation? I get --
 12 MR. HELMLINGER: 217,892?
 13 JUDGE BIRO: That's what I get, 217,892.
 14 MR. MCNEIL: 217,892. 217,892. Okay. We
 15 have a -- we seem to have a consensus. I didn't
 16 figure it, but I'm going to go with the majority. And
 17 so in other words, what this table means is that
 18 217,892 or some, some amount close to that has, by
 19 your model, reaches the, the top of the southern --
 20 the levy -- you, you know there's a levy there,
 21 there's a levy -- there's a high point at the southern
 22 end.
 23 THE WITNESS: There's a high point.
 24 BY MR. MCNEIL:
 25 Q Yeah. Have you been to the property?

1 A I have not.
 2 Q So how -- so you're familiar -- how are you
 3 familiar -- I don't mean this in an argumentative way,
 4 what did you review to familiarize yourself with the
 5 site topography, other than the one figure we had
 6 talked about earlier?
 7 A The one figure is where I started to, to
 8 look at that, and then I looked at, again, you know,
 9 the Google Earth images.
 10 Q That's not going to tell you the topography.
 11 A No, it's not going to tell you topography.
 12 It's going to give you a sense -- a qualitative sense
 13 of the, the -- you know, the, the shape of the land.
 14 And so, so you marry that up with, with topographic
 15 contours, and then you can get a sense of, of
 16 topography. I just -- I do that as a matter of
 17 checking that there's, you know, not something there
 18 that -- you know, topography is, is an estimate of, of
 19 elevation, you know, between points. You, you go out
 20 there and you survey certain points, and you can draw
 21 topographic lines. And so I do that just to make sure
 22 that there's not something that is missing -- is
 23 not -- is not illustrated or not indicated by the
 24 topographic lines.
 25 Q Well, it's a little bit more than that here,

1 right? Because the Guo model is a slope-dominant
 2 model, right?
 3 A Yes, it is.
 4 Q Okay. So topography is not an insignificant
 5 factor?
 6 A Not at all, not at all. All I'm saying --
 7 all I'm saying is I used the images -- used the images
 8 to, to develop it.
 9 Q It needs to be accounted for.
 10 A Absolutely.
 11 Q So how did you account for the slope between
 12 the southern property line and the levy?
 13 A So I had the top of the slope at the
 14 southern property line and the bottom of the slope or
 15 elevation at the -- you know, the, the place where --
 16 at, at the top of the water or the water bank. And so
 17 those were the two points I used.
 18 Q And what's that distance?
 19 A I believe the distance is about 200 feet,
 20 maybe 220 feet, somewhere in that range.
 21 Q So did you just assume a steady linear
 22 slope?
 23 A I did, I did, yes.
 24 Q And in other words, you assumed -- well, you
 25 calculated a slope based on an average linear but

1 constant --

2 A Correct.

3 JUDGE BIRO: Declination.

4 MR. MCNEIL: Sorry.

5 JUDGE BIRO: Right? A declination.

6 MR. MCNEIL: Yes.

7 THE WITNESS: A declination, very good.

8 Yeah, that's, that's a good term. Okay.

9 BY MR. MCNEIL:

10 Q Go with that. Okay. Which may or may not

11 be the actual slope?

12 A That's correct.

13 Q And then if we could go back for a moment to

14 Table 5, I would like to ask you about volume again.

15 This is, I think, in the first box, one, two, three,

16 four, five, six, seventh item. And oh, sorry,

17 actually, I meant to first ask you, if you could, I

18 apologize to everybody, can we go back to Table 4?

19 Looking again at the volume of that same one we were

20 looking at. I meant to ask you about the initial

21 phase, the 313,882 cubic feet number.

22 A Uh-huh.

23 Q If we did the math on that, would that be --

24 would that equal the tank volume in full, in other

25 words 2.348 million gallons?

1 A It should.

2 Q And then where is -- where would the first

3 tran -- you told us at least approximately where the

4 second transition would be spatially. It would be at

5 or near the top of the slope, leading down to the

6 channel, right?

7 A Right, okay. Yes.

8 Q Where would the -- where would the spatial

9 location of the end of the first transition be? The

10 first transition, he has 172,635 cubic feet.

11 A Right. So that would be the leading edge,

12 so 48 feet from the tank edge.

13 Q 48 feet to the south of the tank?

14 A Right, from the edge of the tank versus the

15 southerly line of the tank.

16 Q Right, in other words, the southerly -- the

17 southerly point of the tank -- of the tank exterior?

18 A Yes, and I believe -- and I, I -- that's why

19 I'm hesitating a little bit, I believe that this is a

20 360-degree model, so it would be 48 feet from the tank

21 edge in all directions, but I, I would have to verify

22 it.

23 Q So does the difference between the cubic

24 feet expressed in -- I'm still in the same row, which

25 is volume material above AST footprint, are you with

1 me?

2 A Yes, I am.

3 Q So looking at the column, initial and

4 looking at the column, first transition, is the

5 difference between those two figures -- does it take

6 into account any of the topographic features within

7 the tank wall or the tank containment wall?

8 A Those figures are, are figures related to

9 the volume of material, so -- right, so if you look at

10 the volume of material above AST footprint, volume of

11 material beyond AST footprint, if you add those two

12 lines across, so 313,882 plus zero is 313,882. The

13 next -- in the first transition, 172,635, plus 141,247

14 should equal 313,882. So that, that, that's just a

15 volumetric calculation, what's above the tank, what's

16 beyond the tank.

17 The, the topographic information, the

18 depression -- so you've got a height. The height

19 is -- the height of the fluid is really determined by

20 the, the fluid behind -- by the fluid over the

21 footprint. That's what's really kind of driving the

22 height of your footprint. The base of your, your

23 fluid is, is what -- is where we take into account

24 topography. So now if I -- if I draw my 360-degree

25 circle and I move out 48 feet or rather, it's

1 iterative, so if I draw my circle, and then I say

2 after a certain amount of time where we go into our

3 next transition, how much material will have moved

4 beyond the, the, the footprint.

5 Based on that number, I, I would then take

6 into account, I've got, you know, my height, and so I

7 would take into account topography to give me my base.

8 And then that would give me my, my volume of material

9 beyond the footprint. That would give me my volume --

10 that would be the shape of the -- of the -- of the

11 volumetric surface or the volumetric -- the

12 configuration of, of this -- it's hard to explain.

13 So that would give me my shape beyond my

14 footprint, and so then I would say, okay, I know how

15 much volume is beyond that footprint, but how does

16 that volume fit within that shape? And once I answer

17 that question, that tells me what my distance is.

18 That tells us -- so as I move away from my tank, the

19 volume that can be contained in that area changes.

20 And when I get to the place where the volume I

21 calculate from my distance to my topography with that

22 volume is the same as the volume I've calculated

23 beyond my footprint, then I -- then I stop and I say

24 that's the edge of the -- of the flow at this point.

25 So topography is, is taking into account

1 explicitly, in terms of my geometry, you know, my
2 geometric calculation. I wish I could explain it
3 better, but --

4 Q Is it -- is it variable across the 48 feet
5 or is it constant across the 48 feet?

6 A I would have to look at how I made my
7 assumptions here. In some cases, it's, it's
8 completely variable. I'll look at changes in slope
9 from Point A to Point B and take that into account in
10 my calculations.

11 Q What is the -- so in this -- this is part of
12 your model that we're talking about now, right?

13 A That's correct.

14 Q Okay. So what do you -- what do you label
15 the input here that you -- that you've designed? Does
16 it have the same label as the column we're looking at,
17 volume of material? Or how do you -- how do you enter
18 it? How do you calculate it and enter it in your
19 model?

20 A So the model includes geometric components
21 like the raise of the tank, the height of the initial
22 fluid, the topographic contours, so I would -- I would
23 say as I -- as I said, as I move away from the tank,
24 if, if you initially are sloping down, which I believe
25 is the case here, then I would -- I would say where

1 does that slope change, and I would call this Point 1,
2 Point 2, and then where does -- you know, after, after
3 that, where does it change again? Point 3. Then is
4 there a lip that'll be Point 3A & B, you know, 3 --
5 you know, gutter and 3 outside topography, whatever it
6 would be.

7 And then I'll, I'll just continue to make
8 those points, and that creates my geometry. That
9 creates my, my geometric model. So those are some of
10 the inputs. Other inputs are viscosity. Actually,
11 viscosity is not, not actually a major input in this
12 model. The other inputs would be, you know, the
13 height, as, as I mentioned.

14 Q Is that -- is that because you're assuming
15 this initial splash moves the release -- the release
16 of the contents a certain distance? Is that why
17 viscosity is minimized in this particular calculation?

18 A That's right, because then -- and, and for
19 this initial phase, which again, is like the first 20
20 -- you know, 15, 20, 30 seconds, the dominant forces
21 of gravity and momentum, which can be affected by
22 topography, which can be -- but those are -- those are
23 the things that are dominating, and once you get out
24 to a place after this initial splash, viscosity starts
25 to take over as one of those forces that dominate

1 flow.

2 Q Sure. So I, I guess would it -- I'm just --
3 I'm trying to -- so I think I asked you whether it was
4 variable or constant across the initial -- the first
5 transition, and your answer was?

6 A I believe, in this case, I assumed it was
7 constant for simplicity. And in other cases where
8 this is more of a determinative factor in my
9 conclusions, I'll, I'll make more precise assumptions.

10 Q So that -- your decision, I believe you
11 said, was dictated, in part, by your understanding or
12 your opinion that the viscosity of this material would
13 be less impactful in the initial phase; is that right?

14 A I don't -- I don't think that's what I said.

15 Q Okay. Maybe I misunderstood. So you were
16 talking about the initial splash and the volume and
17 the wave and so forth. And I'm just trying to
18 understand how you -- how you actually input that into
19 your model and then what your model outputs were for
20 this distance between the initial and the first
21 transition.

22 A Right. So the -- so the impacts are, as I
23 mentioned, the geometric kind of pieces of it, how the
24 volume changes as one moves away from the tank. So
25 that, that's geometric. The other input is really

1 the, the dimensionless shape, height and distance,
2 values that come out of that Roche model that we
3 mentioned earlier.

4 Q Flipping back to Table 5, for the fan, you
5 explain here in the notes, "Model one degree slice."
6 What does that mean?

7 A So again, if -- given the complexity of the
8 topography and contours and, you know, other barriers,
9 different, different parts of that fan, once it's
10 after the initial -- after the initial splash,
11 different parts of that fan are going to move
12 differently. So for example, towards the north,
13 towards the catch basin, which I also modeled, you're
14 going to have different slope. And so rather than --
15 the -- as I -- as I mentioned, the Guo model assumes a
16 constant slope, but I know that as I go around the
17 circle of my fan, that the slope, at this point, is
18 different than the slope at this point, is different
19 than the slope at this point. So what I do in order
20 to, to evaluate how different points along that fan
21 are going to move is I just look at one degree -- a
22 one-degree slice.

23 And I model that slice and then I can model
24 this slice separately and this slice separately. And,
25 and I know where my initial volume is and I -- and I

1 know how that is going to fan out. Given the fact
2 that that is all fanning out, you're not going to have
3 really strong interactions kind of between those
4 slices, and so you can just model a single slice to
5 come up with your answer about, you know, how this is
6 going to move out.

7 And at the end, you're not going to have a
8 nice circle. You're going to have a -- you know, a, a
9 funny shape. And by doing it slice-by-slice, you'd be
10 able to actually define what that shape would look
11 like.

12 Q And the funny shape you just mentioned, is
13 that something that at the -- when you're done with
14 running your model, you could actually print out
15 visually or is it just a series of numbers or what --

16 A Yeah, I --

17 Q -- what's the funny shape?

18 A Yeah, I could do that. Typically, what I'll
19 do is I'll just look at, at those directions that
20 really matter to the answer. And so in this case, I
21 looked, you know, in the direction of the ship
22 channel, and I looked in the direction of the catch
23 basin. Those were the two slices or what I -- what I
24 call it here, those -- you know, those were the, I
25 think, slices, yeah, 100-degree slice. Those are the

1 two slices I looked at. There were other cases where
2 I'm trying to evaluate whether something will, will
3 overtop, you know, if there are -- if there are
4 multiple changes in topography, I'll look at a number
5 of different slices, just to evaluate how something
6 could be released beyond a, a topographic barrier.
7 Although, I've never -- I've never run the full thing
8 to come up with what the shape would look like, it's,
9 it's interesting -- it would be interesting, but it's
10 not, you know, what, what I'm paid to do, so --

11 Q Okay. And what's the -- what's the name of
12 your model?

13 A I don't -- I haven't named it, it's not a
14 published model. I, I refer to it in my head, I
15 guess, when people ask me about it as the column
16 collapse model.

17 Q Does it have any sort of intellectual
18 property protection that you've applied for?

19 A I have not, no.

20 Q Does anybody else have it, besides you?

21 A I don't -- so I may have -- I may have
22 shared the basic model with EPA. I'm not -- I'm not
23 sure. Certainly, it's available to EPA if, if they
24 would like to see it. It's, it's their property.

25 Q They paid for it.

1 A Correct.

2 Q When was the model developed, what year?

3 A I, I think my initial version of the model
4 was probably in 2016. I, I've modified it since then
5 in, in different ways. And, you know, we, we call it
6 a model. It's, it's a -- it's a -- it's a
7 calculation. It's a methodology. It's a calculation
8 approach. It's, it's using fairly, you know, standard
9 type information. It's geometry. It's just put
10 together in a way that'll do efficient calculations
11 based on geometry.

12 Q Does it -- does it only have a usefulness in
13 FRP applicability?

14 A I'm sure it could be used in other ways, but
15 I've only used it for this application, yes.

16 Q And if it was developed in 2016, that's also
17 the year that you prepared the report, was this report
18 part of the research and development of the model?

19 A Yes, yeah.

20 Q And since then, what other projects have you
21 used it on?

22 A I have used it on another FRP applicability
23 evaluation, again, with an asphalt application. I'm
24 not sure that I needed to use it for the other two,
25 given the, the, you know, specific circumstances of

1 those evaluations.

2 Q What was that other site that you used it
3 on?

4 A I don't know if I'm --

5 Q Why don't you just tell us the state it's
6 in, if there's no objections?

7 MR. HELMLINGER: I'm sorry, I missed the
8 statement.

9 MR. MCNEIL: He's hesitant to identify the
10 client, so I said why doesn't he just tell us the
11 state that it was -- that the property's in that he
12 worked this up for.

13 MR. HELMLINGER: I'm not sure of the
14 relevance of it. I think that there has been a lot of
15 discussion about this model and that this question is
16 -- I think the model is a mischaracterization. I
17 think the testimony in the record is going to be clear
18 enough, but if it's --

19 JUDGE BIRO: Do you object to the disclosure
20 of the location by state of the other asphalt plant?

21 MR. HELMLINGER: It won't do any harm. No,
22 I don't object.

23 JUDGE BIRO: Okay.

24 THE WITNESS: I'm sorry, I, I actually can't
25 recall the state.

1 BY MR. MCNEIL:
 2 Q Okay. That's all right. Was it -- was it
 3 also an EPA-funded project?
 4 A Yes, it was.
 5 Q It was a contract that you -- your firm had
 6 with the EPA to do that work?
 7 A Yes.
 8 Q And you did that work?
 9 A Yes.
 10 Q Is it completed?
 11 A Yes.
 12 Q All right. Turning back to Table 4, under
 13 the third line, "Estimated Values, Advancing Fluid
 14 Height," can you share with us what that refers to?
 15 A So there's the fluid height above the
 16 original footprint of your -- of your container or
 17 your dam or whatever, and then there's the fluid
 18 height that is moving beyond. And so as I mentioned,
 19 the shape looks like, you know, above your footprint,
 20 it looks like this, and then moving beyond, it looks
 21 like that. And so that would be the height of the
 22 fluid moving beyond.
 23 Q If you wanted to explain to everybody here
 24 assembled how you took into account in running this
 25 model for this assignment, the depression, the

1 topographical depression around 2000 -- Tank 2001, how
 2 could you -- how could you explain that to us?
 3 A Could -- could I draw it? Okay. Then
 4 that's the best way to do it. Is there a --
 5 JUDGE BIRO: Here, you can have my pen.
 6 THE WITNESS: So this, this is not to scale,
 7 I apologize. So, so here's the center line of your
 8 tank. Say your topography looks like this --
 9 JUDGE BIRO: You can't use words like 'looks
 10 like this'. You have to mark it as Line A.
 11 THE WITNESS: Okay. So this rectangle here
 12 we'll call the tank. This line going down through the
 13 center is the -- I'm going to label it CL, the center
 14 line of the tank. This is the base of the tank. So
 15 this is -- this is the -- this is the land. I'm
 16 trying to represent here the land. So I have a, a
 17 line sloping down away from the tank, indicating that
 18 the land is sloping away from the base of the tank or
 19 some distance, and I'll call this distance X1.
 20 And then this indicates here that the land
 21 is now sloping up, so the line moving up to the right
 22 I'll call -- to some point, we'll call X2, and then
 23 here, I've got a third line, I'm just going to label
 24 it X3 so we have like Line 1, 2 and 3. The third line
 25 is just a, a straight line across.

1 And so --
 2 MR. MCNEIL: Mr. Michaud, I just -- I
 3 apologize for interrupting, but X1 is very difficult
 4 to see. I think the pen didn't really have ink, so --
 5 THE WITNESS: Okay.
 6 MR. MCNEIL: Thank you.
 7 THE WITNESS: So we -- in, in the model, we
 8 have our initial -- this is our -- this is the height,
 9 I'll call it HI, height at the initial point, and so
 10 the, the height beyond what I would call advancing
 11 fluid height, here is -- so I'll call that A, AI. The
 12 advancing fluid height, when everything is in here is,
 13 is here. So now, take away this wall, so I'm taking
 14 away the, the right-hand line of the tank. This is
 15 going to change over time. So after the first say few
 16 seconds, my height here is going to look like this,
 17 and then there's going to be some dropoff and my
 18 height beyond is going to look like this.
 19 JUDGE BIRO: When you say this, mark that
 20 line as B or something.
 21 THE WITNESS: So this is HF for H first
 22 transition. I'm going to call that F, F. F first
 23 transition over the footprint. And this here, this
 24 height here is my H height A, advancing F, first
 25 transition. And so this height, HAF then is related

1 to this height HFF, based on the -- on the dimension
 2 list parameters that come out of the Roche model.
 3 They say that after a certain amount of time, those
 4 two H above the footprint and H advancing, HA -- F and
 5 HA, there's a relationship with that, those two. And
 6 that's going to change over time. And so I can input
 7 that into my model and say, okay, after, after one
 8 minute, what's that's going to look like? After two
 9 minutes, after one second, after 20 seconds?
 10 And I have that ratio. So I know what this
 11 is going to be because I know that that -- well,
 12 actually, what I do is I say, okay, after 10 percent
 13 of the volume, is, has moved beyond, what is this
 14 going to look like? What's, you know -- now I know
 15 once I -- once I remove 10 percent from here, I can
 16 calculate my height above my footprint. That's just a
 17 simple volumetric calculation. And so I can calculate
 18 my fluid beyond, that's, that's everything that has
 19 now emptied out of that.
 20 Then -- and I know my -- I know this height,
 21 the HAF, so if I -- if I know the height of my land
 22 and I know the height of, of my -- of this point here,
 23 of HAF, for simplification, I've got now this, this
 24 geometric shape here, which, which is bounded on the
 25 bottom by the shape of the land; it's bounded on the

1 top by the height of my advancing fluid. It's bounded
2 on the left by my tank edge. And here because the
3 land is sloping up, it's, it's -- it has no -- it has
4 no vertical endpoint.

5 So this is what I was referring to before as
6 roughly like a wedge going beyond. If I know -- if I
7 know this height at the top of my wedge and I know
8 this height at the bottom of my wedge, I could
9 calculate -- and I know my volume, I can calculate how
10 much -- how far -- I can calculate how far it's going
11 to go. I can calculate whether it's going to go this
12 far, say X1-2, that's the transition between one and
13 two, or I can calculate whether it's only going to go
14 this far, that's -- it's a volumetric calculation.

15 And on the volume, I have my -- I have my
16 shape, and I know that as I move away from that tank,
17 that shape is going to change, and I can calculate how
18 that volume is going to fill up that shape.

19 BY MR. MCNEIL:

20 Q So in your example, sorry to interrupt, but
21 in your example, let's just use your example of the 10
22 percent because I can probably do that math. So
23 you're assuming the tank is full, so it's got 2.348
24 million gallons. Okay. So let's take 234,000 gallons
25 off of that. So that amount is going to travel how

1 far?

2 A That will -- so, so I'll look at either say
3 a one-degree wedge or whatever my, my fan distance is.
4 Depending on my scenario, if it's -- if it's a -- say
5 a 45-degree directional flow, I can -- I can -- I can
6 calculate how that, that 23,000 --

7 Q 230,000, yeah.

8 A -- 230,000 gallons are going to fit in this
9 -- in this shape, in this -- in this -- that wedging
10 shape that has this changing bottom and a constant
11 top. I can -- I can calculate how it's going to fit
12 into that -- into that wedge. The, the variable that
13 I can't -- I don't know is how far it's -- how, how
14 far to move in this direction, so I can move from -- I
15 can calculate it here, and maybe that comes out to be
16 140,000 gallons. I can calculate it here or, you
17 know, I'm moving my hands to the right to indicate
18 that I'm moving further away from the tank.

19 So I can calculate it here, maybe that's 140
20 or calculate it here, maybe that's 200, and then I
21 move it a little bit more, and that comes out to
22 230,000 gallons. And I say, okay, I can fit 230,000
23 gallons into this shape. And so wherever my hand
24 stopped, that's my leading edge. That's how I
25 determine my leading edge. And then I'll take another

1 10 percent off. Then I'll move that volume into here.
2 Then that, that will give me a new leading edge. In
3 every one of these calculations, I am taking into
4 account the shape of the topography because that's,
5 that's part of my volume. That's part of my shape.
6 That, that -- and this is also -- and maybe in some
7 cases, it's going up because, because my -- the volume
8 of, you know -- because maybe I have a slope going up.

9 And so this, this will -- this will change -
10 - this is going up because more material is coming
11 out. And, and so you have to take into account all of
12 those things, but your shape is changing. You -- but
13 in a -- in a way that you can model.

14 Q And just to back up to something you said
15 earlier, at this point, viscosity is not being -- is
16 not part of the input, at this point -- at this point
17 of the equation?

18 A That's correct, because this, this is all
19 taking place within maybe a minute or two minutes.
20 And at that point, you're, you're changing what
21 this -- well, I mean one point I, I would like to make
22 is your viscosity is not going to change from, from
23 during this period. That's the first part. And then
24 I do take into account the variable viscosity during
25 the run-out phase. But the other thing is as the

1 model --

2 Q Viscosity won't change --
3 (Simultaneous discussion.)

4 A It'll change, but --

5 Q -- but the cooling effect of the ambient
6 temperature will have an impact on this release,
7 right?

8 A Very little. At this -- in the first
9 minute, two minutes after a release, it is going to be
10 dominated by the difference in hydrostatic pressure
11 between, between this, HF, your footprint and H and
12 your -- and your advancing footprint. You've got a
13 lot of weight behind your advancing footprint, and
14 that is going to be pushing down because of gravity,
15 and then it's going to be pushing out and creating
16 momentum in this direction as it moves out this way.
17 That's the way the forces are going to move in.

18 Now, and the research that I've relied on
19 and, and I, I cited the Roche paper; there are other
20 papers as well, demonstrate that just during this
21 initial phase, gravity and momentum are really the
22 dominant forces. Those, those are much more dominant
23 forces than the two molecular forces.

24 Q Can you -- can you help me understand the --
25 did the Roche study involve an earthen dam or a dam

1 break that had water in it?

2 A I believe what they did -- it was a -- it
3 was a laboratory model, and so what they did is they
4 had a, a plate in front of a reservoir with, with
5 material in it. And they lifted the plate quickly and
6 they, they modeled -- so it was -- it was a model so
7 that they can capture the cross-section. Because
8 really what they were interested in --

9 Q So the models of that was assuming water
10 behind the dam?

11 A No, that's incorrect. It was -- it had a --
12 they modeled -- and again, my best -- to the best of
13 my recollection, there was -- there was a granular
14 material that had been -- where air had been forced
15 into it to remove the friction, the friction that was
16 used to model intermolecular forces. There was a
17 material where that initial condition did not occur,
18 same, same material. And then they also used water.

19 And they, they looked at how those three
20 different materials behaved. So the materials that I
21 was using are, are the granular material that had been
22 fluidized, which is a way of modeling the, the counter
23 -- counteraction -- counteracting the intermolecular
24 forces, viscosity.

25 Q If you had to -- if you had to estimate a

1 margin of error for the model you developed, what,
2 what would be the range of margin of error that you
3 would estimate? What, what would be your best
4 estimate?

5 A I --

6 Q 10 percent? 25 percent?

7 A I, I -- for, for that kind of analysis, I, I
8 would like to have the various parameters and, and,
9 and give you a -- typically, when I -- when I do some
10 kind of uncertainty analysis or margin of error
11 analysis, I always like to do that quantitatively and
12 not, not just guess at it.

13 Q Okay. But there would be some variability
14 between actual site conditions and what you modeled,
15 right?

16 A Yes, the model -- a model is a model. It's
17 a representation of, of the real world.

18 Q And it depends on the inputs, of course, and
19 --

20 A Correct. And it can -- it can go either
21 way. It can -- it can underestimate. It can over-
22 estimate. To put an amount on that, just off the top
23 of my head, I don't feel comfortable with that.
24 Although, I will say that given the -- putting
25 everything together is complicated, but, but the basic

1 math is, is not that complicated. It's really --
2 it's, it's geometry. So I, I have -- I have a good
3 deal of confidence. The places where, where I don't
4 have confidence is that there is -- there is -- the
5 places that would add some error is that that land is
6 not -- you know, the contours of the land are, are
7 variable and they're -- you have to make simplifying
8 assumptions in order to run the model.

9 Q If you look for a moment at your Table 6 on
10 the third line in the first bracket, that's slope. I
11 think we looked at that earlier. Do you see that?
12 This is the 0.008 feet, per feet. And in your
13 notes -- do you see that?

14 A Yes, I do.

15 Q And in your notes, you have a reference to
16 the consolidated plan, Figure 7. And if I represented
17 to you that, that Figure 7 show contours of 99 -- an
18 elevation of 99 to an elevation of 102, and I asked
19 you if that was one of the inputs in your model, what
20 would your answer be?

21 A Yes, but that's not what's reflected in this
22 table.

23 Q Okay. What is reflected in it?

24 A This, this is the table that, that looks at
25 that wedge from the tank to the catch basin.

1 Q Oh, okay. So -- okay, so you're saying we
2 would have to look at Table 4?

3 A Table 4 is where that would come into, into
4 play and it's, it's not transparent in the table.

5 Q Where can you see it as a table?

6 A It's, it's -- as I said, it's not
7 transparent in the table. It's included in the model,
8 but --

9 Q What, what on the table shows where it's not
10 included?

11 A The -- as I illustrated here, the distance
12 beyond the edge of the tank is, in part, determined by
13 that, that input because that, that defines your
14 shape, that defines your, your volumetric shape.

15 Q Okay. Let me ask you while you've got CX14
16 before you to look at the last page, Page 20 of 20.
17 And this is your Figure 2. Do you see that, Elevation
18 View of C as in Collapse Scenario?

19 A Yes, yes.

20 Q For AST No. 2001?

21 A Yes.

22 Q This is -- is this something that the model
23 generated or is this something that you drew by hand?

24 A This is just hand-drawn.

25 Q Did you perform it?

1 A Did I --

2 Q Did you -- did you draw it?

3 A Yes, I did.

4 Q This shows, as it says, an elevation, so at

5 the left side of the figure is the channel and the

6 right side would be the -- one of the catch basins

7 that are on site that are at the northern -- on the

8 northern side of the tank, right?

9 A Correct.

10 Q So the left side is south, and the right

11 side is north on this page.

12 A Correct, correct.

13 Q Okay.

14 A Yes.

15 Q Does this elevation reflect the man-made

16 depression around the -- this tank, 2001?

17 A No, so this is really just a simplified

18 illustration to explain the text. But no, it does not

19 show that.

20 Q And does it show the survey contours that I

21 mentioned a moment ago, 99 feet and 102 feet?

22 A No, this is not intended to be a scale

23 drawing.

24 Q Does it show the levy?

25 A It shows a high point, after which the land

1 slopes down to the ship channel. I don't know if

2 that's called a levy or not. I, I mean I deal with

3 levies.

4 Q Does it show the K rails that are at the

5 southern end that run along parallel to the southern

6 end of the tank enclosure?

7 A As far as I understand that, there are K

8 rails there, but no it does not show that.

9 Q Okay. You read they are there.

10 A Yeah, I've read, read that.

11 Q But you didn't depict them here?

12 A No, I did not.

13 Q And did you include them in your inputs?

14 A No, I did not.

15 MR. MCNEIL: I don't think I have anything

16 further right now, Your Honor.

17 JUDGE BIRO: Okay. It's 11:54. Would you

18 like to proceed? It's 11:54. Would you like to

19 proceed now or do you want a break?

20 MR. HELMLINGER: I'm happy to proceed now.

21 It might take about a half-hour. There's a lot of

22 complicated discussion there, so I'll leave it to your

23 discretion if you want to --

24 JUDGE BIRO: No, we'll take a late lunch.

25 Let's go.

1 Mr. Michaud, do you have water? Are you

2 okay? Do you need a break?

3 THE WITNESS: I could use a quick break.

4 JUDGE BIRO: Okay.

5 MR. HELMLINGER: Five minutes.

6 JUDGE BIRO: Let's stand in recess for 10

7 minutes. Go ahead.

8 (Whereupon, a brief recess was taken.)

9 JUDGE BIRO: Let's proceed.

10 MR. HELMLINGER: As a preliminary matter,

11 there was discussion of the hand-drawn illustration on

12 the easel board.

13 JUDGE BIRO: Right, we --

14 MR. HELMLINGER: Would Your Honor have

15 objection if we found the need to make that part of

16 the record or is that --

17 JUDGE BIRO: No, that's fine. We should

18 mark it for identification, at the very least.

19 MR. HELMLINGER: Sure.

20 JUDGE BIRO: As --

21 MR. HELMLINGER: I think 105 we're up to,

22 maybe.

23 JUDGE BIRO: Respondent's Exhibit 105,

24 that's fine. And the original copy would stay with

25 the record, whether it's admitted or not, but if you

1 want to make it -- if you want to have a copy of it

2 for your own purposes, I would think you could

3 photograph it.

4 (The document referred to was

5 marked for identification as

6 Respondent's Exhibit No.

7 105.)

8 MR. HELMLINGER: Sure. That would be easy.

9 JUDGE BIRO: That would be the easiest

10 method.

11 MR. HELMLINGER: Right.

12 JUDGE BIRO: Otherwise, you'd have to find a

13 place to physically copy it.

14 MR. HELMLINGER: Sure, no, I'm not sure that

15 we need our own copy with any specificity. Maybe that

16 comes up, not likely. I think just for referencing

17 for the rest of this examination.

18 JUDGE BIRO: Okay. Do you want to admit it

19 into the record as an exhibit?

20 MR. HELMLINGER: Sure, we'll go ahead and do

21 that.

22 MR. MCNEIL: I don't object.

23 JUDGE BIRO: Okay. So Respondent's Exhibit

24 105 is admitted into the record.

25 //

1 (The document referred to,
2 previously identified as
3 Respondent's Exhibit No. 105,
4 was received in evidence.)

5 REDIRECT EXAMINATION

6 BY MR. HELMLINGER:

7 Q Mr. Michaud, we heard testimony both
8 yesterday and today about this half-mile concept and
9 you have adopted an understanding of that. Could you
10 tell us whether that would've spared us from all of
11 that math we just did over the last 45 minutes?

12 A Yes.

13 Q And how so?

14 A So in, in determining the FRP applicability
15 and doing my evaluation, rather -- so the first thing
16 I -- after secondary containment, when I was looking
17 at the location of the facility relative to Fish &
18 Wildlife and sensitive environment, I went to
19 Attachment C3 of Appendix C, and I think we talked
20 about that yesterday. And as you go through that
21 attachment there, there are sections that deal with
22 how to calculate D3, and then there's Section 5, which
23 deals with how to calculate the overland flow. So
24 under Section 5, Paragraph 5.5, in that appendix
25 states that, "If the nearest opportunity for discharge

1 is within a half mile of a navigable water, that you
2 must calculate D3. That's the D3 distance and so --

3 Q Right. And we don't need to rehash sort of
4 all of the calculations there, I think that --

5 A Sure.

6 Q -- for my purposes now, that's sufficient.
7 But is there more points that you'd like to add,
8 though, to well answer that question?

9 A It was -- it's pretty clear to me that if,
10 you know, once I determined that it was within a half
11 a mile of the Sacramento Deep Water Ship Channel, that
12 was the end of my calculation --

13 Q Sure.

14 A -- for the purposes of determining
15 applicability.

16 Q From your experience with the oil pollution
17 prevention regulations and calculating facility
18 response plan applicability analysis, are you familiar
19 with the concept of a worst case discharge?

20 A Yes.

21 Q Could you describe what you understand that
22 to be?

23 A I, I prefer to look at the definition. I'm,
24 I'm not sure I can tell you off the top of my head.

25 Q So I propose to you that it is defined in

1 the regulations as 40 CFR, Part 112.2. I'll read this
2 and let me know if it sounds correct to you, to your
3 understanding. "Worst case discharge for an onshore
4 non-transportation related facility means the largest
5 foreseeable discharge in adverse weather conditions,
6 as determined using the worksheet in Appendix D to
7 this part." Does that sound correct to you?

8 A That does, yes.

9 Q I'd like to ask you about the word
10 'foreseeable'. There was a lot of discussion
11 previously with Mr. McNeil about reasonable
12 expectations of discharge. Is it foreseeable to you
13 that a tank may have design defects, as an engineer,
14 foreseeable to you?

15 A Yes.

16 Q Is it foreseeable to you, as an engineer,
17 that an earthquake may occur in California?

18 A Yes.

19 Q Is a total tank collapse foreseeable under
20 circumstances that, to you as a professional engineer,
21 seem reasonable?

22 A Yes.

23 Q The -- given your experience with
24 calculating facility response plan application
25 contemplation, could you describe how the process or

1 formula contemplates the presence of secondary
2 containment?

3 A So in the overland flow calculation,
4 secondary -- you cannot consider secondary containment
5 in your -- in the flow model.

6 Q But it does allow you to consider manmade
7 depressions, do you understand that?

8 A That -- yes, that's correct.

9 Q Is manmade depression defined, to your
10 understanding?

11 A I don't know if it's defined in the
12 regulations, but I have a very clear concept of what
13 that means, yes.

14 Q I'd like you to turn, if you would to CX17.
15 I think it's Page 22.

16 A Okay.

17 Q Is this the topographic map that was given
18 some discussion a few minutes ago, topographic survey
19 I think it was described as?

20 A This is a topographic map that I've, I've
21 considered. I don't know if this is the only one.

22 Q But you're familiar with the topographic
23 surveys and how to read them; is that right?

24 A Yes, yes.

25 Q In your professional experience, it's a

1 reasonably common thing?

2 A Yes.

3 Q So representing that this is an illustration
4 of the VSS Facility in West Sacramento, there are two
5 large grey circles here, and I'll represent to you
6 that those are the two large asphalt tanks that we've
7 been discussing. Can you accept that?

8 A I can accept that.

9 Q Do you see the blue topographic line that
10 really cuts almost right under the middle of the tank
11 to the right of the illustration? I guess that would
12 be east as -- northeast as oriented on the map, as
13 noted up above. Do you see that blue topographic
14 line?

15 A I do.

16 Q And can you follow that back -- and it may
17 be hard to read, but can you read the topographic
18 designation on that line?

19 A 100.5.

20 Q I think with my tired eyes, that's what it
21 says, too. So if you read to the south, as this map
22 is generally facing, above on the page, the next
23 topographic line out, almost to the black line that
24 I'd represent to you is the secondary containment wall
25 at the facility, do you see that line?

1 A Yes.

2 Q It sort of runs right under where it says
3 asphalt plant area.

4 A Yes, I do.

5 Q Could you read the topographic demarcation
6 on that line?

7 A 101.0, 101.0.

8 Q So moving from north to south, in between
9 those topographic lines, what does that represent to
10 you?

11 A It means that the land is sloping up.

12 Q Given the scale of the map, is this
13 consistent with the slope that you used in your table
14 at CX14?

15 A Yes, this is what I took into account.

16 Q And if I could show you, moving north across
17 the illustration, I'm going to call the top north,
18 even though it's really sort of a northwesterly, I
19 think it's easier to conceptualize. You can see the
20 cardinal of the map is just slightly off angle, but if
21 we moved straight up north on the map, the next blue
22 line behind the tank on the right, do you see that
23 blue line? It moves and bisects then a much smaller
24 tank outside the secondary containment in this
25 illustration? Am I sort of clear trying to articulate

1 which line I'm talking about?

2 A Yes, I do. Yes.

3 Q And it looks like there's a confluence of
4 lines, several that come together, almost -- well,
5 virtually creating the drainage. And you see where
6 those lines come together, can you read the
7 topographic demarcation of that line that sort of
8 creates that low point?

9 A Yes, it looks like 100.0.

10 Q And do you see anywhere to the bottom of
11 that more southerly, any demarcation suggesting 99
12 feet?

13 A Yes, I do.

14 Q And where is that?

15 A So -- well, I see it to the north. The, the
16 -- kind of the north corner, the upper right corner of
17 the area around those two circles, there's, there's a
18 topographic line that closes on itself.

19 Q Sure.

20 A That says 99.5.

21 Q And it creates a depression to the north of
22 these tanks. But between these tanks in the
23 Sacramento Deep Water Ship Channel, as you understand
24 this map to lay out, does it -- is there anywhere
25 lower between those tanks and the southern part

1 demarcated as less than 125 feet?

2 A No.

3 Q So if we look to your hand-drawn
4 illustration previously, what's marked as RX105, you
5 have that low point of X1, that would be only
6 hypothetical as applied to if you're reviewing the
7 facility from the south on the side angle. From this
8 topographic map, is there any depression between the
9 tank that goes down as you have that kind of low point
10 of your bottom wedge, I think was the phrase you used?

11 A Based on this topo?

12 Q Yes.

13 A No, no there is not. I do recall that
14 there's another topographic map out there with finer
15 topographic delineations.

16 Q Does it create a significant depression?

17 A No.

18 Q So we heard the phrase 'manmade depression'
19 several times. Do you see any engineered structures,
20 facilities or anything that create a significant
21 depression in this topographic map on Page 22 of CX17,
22 south of the tanks?

23 A Nothing that I would call significant.

24 Q Might it be fair to rather than use the
25 phrase manmade depression over and over, just simply

1 call it slope?

2 A There are changes in slope, yes.

3 Q There's a lot of discussion about models

4 previously, change the topic a little bit. So you

5 testified that you applied the Guo model and the Roche

6 model; is that correct?

7 A That's correct.

8 Q And there was discussion of something else

9 you had as a model, the -- this column collapse model

10 as we were discussing it. Does it include any

11 mathematic methodology of your own creation?

12 A No, I wouldn't -- I would -- I would say

13 that I put together some fairly standard math in, in

14 maybe a complicated way, but --

15 Q How would you respond were I to suggest that

16 your column collapse model is really just a digestion

17 of the Roche and Guo models in a macro format, much

18 like one might take several routine complications that

19 you don't want to do over and over and over and create

20 a system of doing them rapidly and efficiently?

21 MR. MCNEIL: Objection, Your Honor. That's

22 a leading question. It's improper.

23 JUDGE BIRO: Sustained, sustained.

24 BY MR. HELMLINGER:

25 Q You discussed that your model considers the

1 Roche model, and your model considers the Guo model,

2 are there any other models or factors included in your

3 column collapse model?

4 A The only other factors are really the, the

5 topographic -- the specific contours of, of the sun.

6 Q How would you describe this column collapse

7 model to peers of yours who may be familiar with Roche

8 and Guo?

9 A I would say that the -- well, really it, it

10 encapsulates, it, it's really using the shape

11 parameters from the Roche model kind of, of -- and,

12 and there are different shaped perimeters, and so you

13 can -- you can kind of find what applies based on your

14 -- on the specific configuration of, of the tank in

15 terms of height versus diameter. So it applies to

16 those parameters. It, it runs volumetric calculations

17 that would be difficult. It would be very time-

18 consuming to do by hand. And so it's a -- it's an

19 Excel spreadsheet that does these calculations.

20 It allows me to iterate. It allows me to

21 put in the value, starting value, see where I come

22 out. Put in another value until my volumetric

23 calculations line up.

24 Q Are you familiar with the concept of a macro

25 routine in computing your calculations?

1 A Yes, I've written many macro routines.

2 Q And how would you compare your column

3 collapse model to a macro routine?

4 A So the macros that I've written are more,

5 you know, basic -- basic macros using code. This is

6 using the basic code in, in the Excel platform. I'm

7 not sure if that answers your question.

8 Q Well, you --

9 A I could do it by macro, or I could do it

10 using just the Excel, either way.

11 Q That's fair enough. I'll move on. K rails

12 on the perimeter of the facility, are you familiar

13 with the concept of K rail?

14 A Yes.

15 Q Or Jersey walls, some people might call

16 them.

17 A That's, that's the term I would typically

18 use.

19 Q Do you generally in your professional

20 experience understand them to be water-tight?

21 A No.

22 Q Do you intend them to be designed to contain

23 oil?

24 A Not in my experience. I have never used

25 them for that purpose or designed them.

1 Q If I could turn you to, let's see, I think

2 it's -- what was it CX -- I had the wrong number

3 written down, sorry, CX9. I think I'm being a little

4 dyslexic in my haste, I had CXP, doesn't do me any

5 good.

6 A Okay.

7 Q Okay. I'd have you turn to Page 4 of CX9.

8 Do you see that? At the bottom of the page, there is

9 an illustration that begins, "Photo Description:

10 Overview of the Southeast Perimeter." Do you see

11 that?

12 A Yes, I do.

13 Q Do you see in the bottom portion of that

14 picture, a structure of any sort?

15 A Yes, it looks like at the bottom of the

16 picture, there, are there two, you can see kind of the

17 brown and white lines underneath which there's grey

18 and those, those two structures appear to be tops of K

19 rails or Jersey barriers.

20 Q And do you see any higher elevation from

21 that view out toward the Sacramento Deep Water Ship

22 Channel, any levy or berm or any of those concepts?

23 A I don't see anything there I would describe

24 as a levy or a berm.

25 MR. HELMLINGER: No further questions.

1 JUDGE BIRO: Any recross?
 2 MR. MCNEIL: No recross, Your Honor.
 3 JUDGE BIRO: Bear with me just for a moment.
 4 MR. MCNEIL: Absolutely.
 5 MR. HELMLINGER: And Your Honor, we would
 6 like to not release Mr. Michaud as yet. We may need
 7 to call him as a rebuttal witness after the experts
 8 for the Respondent testify.
 9 JUDGE BIRO: Okay.
 10 MR. HELMLINGER: Thank you.
 11 JUDGE BIRO: I just wanted to clarify a few
 12 comments you made. When you were talking about the
 13 worst case scenario issue, does that apply to
 14 determining whether there is sufficient containment at
 15 the facility?
 16 THE WITNESS: Yes, so for the secondary
 17 containment calculation, which is more a volumetric
 18 calculation, so first, first I would calculate the
 19 capacity of that structure to store the capacity of
 20 the largest tank. So that's, that's, in some ways,
 21 the worst case scenario that you, you've released the
 22 oil from the largest tank and it was at capacity at
 23 the time.
 24 The other piece of the scenario is that you
 25 take into account the fact that rainfall now could

1 also fall within that structure. And so you take into
 2 account the -- it's generally accepted, the 24-hour --
 3 25-year, 24-hour storm, so a storm that -- a 24-hour
 4 storm that happens once every 25 years is the way to
 5 think about it. That's the frequency.
 6 JUDGE BIRO: Do you take into account
 7 whether the material, in this case, asphaltic cement,
 8 would expand or contract based on the temperature?
 9 THE WITNESS: I haven't taken that into
 10 account in my calculations. That's a good question.
 11 JUDGE BIRO: Would it be affected by the
 12 ambient temperature? If, for example, we are in
 13 California, and it was, by bad coincidence, 120
 14 degrees outside, would that affect the containment?
 15 THE WITNESS: I don't know how that would
 16 affect it in terms of the height or the volume that
 17 would need to be fitted in there. I think that if
 18 there was rainfall at the same time, there would be
 19 some counteraction within those factors.
 20 JUDGE BIRO: How about if it had been 120
 21 degrees for a number of days and what the asphaltic
 22 cement was falling on was very hot itself, the ground
 23 and the barriers?
 24 THE WITNESS: Well, I think for asphalt
 25 cement, the starting point is that that cement was

1 already heated up to, you know, 250, 260 degrees. So
 2 that the tank needs to be able to contain that volume
 3 at that heated level. So I would think that if
 4 anything after the asphalt had been released, it would
 5 probably cool because, because it's subject to, to
 6 less tension.
 7 JUDGE BIRO: But the rate at which it would
 8 cool would be slower if the temperature of both the
 9 ambient air and the ground were warmer than --
 10 THE WITNESS: That's correct.
 11 JUDGE BIRO: -- right, 100 -- let's say it
 12 was 100 degrees on the ground and in the air versus 50
 13 degrees on the ground and the temperature of the
 14 cement or whatever is around it.
 15 THE WITNESS: Absolutely, yes.
 16 JUDGE BIRO: You had talked a little bit
 17 about your example of the molasses and such, you were
 18 talking about density in that case, right, of the
 19 molasses and the -- not viscosity?
 20 THE WITNESS: I was talking about the
 21 viscosity.
 22 JUDGE BIRO: Okay. So how do you define
 23 viscosity?
 24 THE WITNESS: It, it has to do with the
 25 shearing of, of, of the material.

1 JUDGE BIRO: You said stickiness, so if that
 2 -- is that its tendency not to flow? Is that what --
 3 how you would define it?
 4 THE WITNESS: Yes, so in, in a chemical
 5 mixture, which asphalt is, you've got -- well, any,
 6 any kind of chemical compound, you've got -- you've
 7 got molecular forces, like H2O and they're keeping
 8 that molecule together. But then you've also got --
 9 in certain types of substances, you've got
 10 intermolecular forces. So in the case of asphalt,
 11 there are certain compounds in the asphalt,
 12 asphaltenes and aromatic compounds and some hetero
 13 compounds that have other types of non-hydrocarbon
 14 atoms, and those all create forces like that you've
 15 got positive and negative charges and, and they pull
 16 on each other.
 17 You've also got asphaltenes are very kind of
 18 rigid structures. And so you have these, these forces
 19 that as, as fluid flows, so fluid doesn't all move
 20 together, but they're always -- you know, there are
 21 always interactions between molecules and the fluid as
 22 it flows. And so in a viscous fluid, you have those
 23 intermolecular forces instead of just allowing
 24 something to flow right past another molecule,
 25 they'll, they'll kind of grab onto each other.

1 And that, that -- those forces are keeping
 2 it from just flowing like you would think water would
 3 flow. And so, so it's fighting against that -- you
 4 know, the gravity that would just allow it to flow
 5 down the hill. So, so, you know, you've got in
 6 asphalt that happens, it also happens in other fluids,
 7 like, like in honey and molasses.
 8 JUDGE BIRO: Okay. So is there a -- there
 9 are density numbers. That density number for water is
 10 1,000 --
 11 THE WITNESS: Uh-huh.
 12 JUDGE BIRO: -- and I think molasses is like
 13 1.4, you know, 1,400 or something. Is there a density
 14 number for asphaltic cement?
 15 THE WITNESS: There is. There are many
 16 different grades of asphalt, so different, different
 17 asphaltic cements will have different densities. I
 18 can't tell you off the top of my head the grading
 19 range I use, but actually, I do use asphalt density in
 20 my calculations in overland flow. Federal Highway
 21 Administration has, has a way of modeling the change
 22 in viscosity over time for different -- for different
 23 grades of asphalt. And so in this case, I knew the
 24 grade of asphalt cement. I was able to use those
 25 specific numbers.

1 And that's what you use to translate your,
 2 your absolute viscosity, your dynamic viscosity and
 3 kinematic viscosity, and that's the -- that's the
 4 amount. So you need -- you need both density and
 5 absolute viscosity in order to calculate the
 6 kinematic, and that's what goes into the, the model
 7 that I use.
 8 JUDGE BIRO: But that doesn't account for
 9 the ambient temperature or the temperature of the land
 10 on which the asphalt is moving over?
 11 THE WITNESS: No, generally, the assumption
 12 is that it's that ambient pressure and temperature,
 13 which is obviously an oversimplification of the world,
 14 but yes.
 15 JUDGE BIRO: Okay. I don't think I have any
 16 more questions. Did my questions raise any questions
 17 to you, Mr. Helmlinger?
 18 MR. HELMLINGER: No.
 19 JUDGE BIRO: Okay. Mr. McNeil?
 20 MR. MCNEIL: No.
 21 JUDGE BIRO: Okay. Thank you very much.
 22 (Witness excused.)
 23 JUDGE BIRO: It's 12:32. Would you like to
 24 stand in recess for lunch?
 25 MR. HELMLINGER: That's appropriate.

1 JUDGE BIRO: Okay. Accounting for
 2 everything yesterday, should we take an hour for lunch
 3 today so that we all come back on time? Okay. So
 4 we'll stand in recess until 1:30.
 5 MR. HELMLINGER: Sounds great, Your Honor.
 6 JUDGE BIRO: Okay.
 7 (Whereupon, at 12:32 p.m., the hearing in
 8 the above-entitled matter recessed, to reconvene at
 9 1:31 p.m. this same day, Friday, May 17, 2019.)
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1 A F T E R N O O N S E S S I O N
 2 (1:31 p.m.)
 3 JUDGE BIRO: Madam Reporter, we're going to
 4 go back on the record. Okay.
 5 Mr. Helmlinger, do you have another witness?
 6 MR. HELMLINGER: We do not have any more
 7 witnesses. We presented what we aimed to present.
 8 JUDGE BIRO: Okay. So you rest?
 9 MR. HELMLINGER: We rest, subject to
 10 rebuttals.
 11 JUDGE BIRO: Yes. Okay.
 12 Mr. McNeil, would you like to proceed?
 13 MR. MCNEIL: Yes, please. Thank you. We
 14 would like to call Mr. Randall Tilford of VSS.
 15 JUDGE BIRO: Oh, that's no problem. I
 16 thought you wanted to make your opening statement at
 17 the beginning of your case.
 18 MR. MCNEIL: Oh, Your Honor, if nobody
 19 objects, we'll just make closing.
 20 JUDGE BIRO: Oh, that's fine. And you don't
 21 have to actually make a closing because we have post-
 22 hearing briefs.
 23 MR. MCNEIL: Okay.
 24 JUDGE BIRO: And so that's plenty of
 25 opportunity usually to set out all of your arguments.

1 MR. MCNEIL: Okay. I think at this point,
 2 we're -- an opening would probably be superfluous.
 3 JUDGE BIRO: Okay.
 4 MR. MCNEIL: If there's no objection.
 5 JUDGE BIRO: No, no problem. Go ahead.
 6 Madam Reporter, would you please swear the
 7 witness.
 8 Whereupon,
 9 RANDALL TILFORD
 10 having been duly sworn, was called as a
 11 witness and was examined and testified as follows:
 12 DIRECT EXAMINATION
 13 BY MR. MCNEIL:
 14 Q Good afternoon, Mr. Tilford.
 15 A Good afternoon.
 16 Q First of all, I would just simply like to
 17 ask you if you are the company-designated
 18 representative of VSS for these proceedings?
 19 A Yes, I am.
 20 Q And you've been in attendance throughout the
 21 hearing so far?
 22 A Yes, I have.
 23 Q And would you be kind enough to share with
 24 Your Honor and the others assembled here your
 25 position, your job title and position at VSS?

1 A I'm the corporate environmental health and
 2 safety manager.
 3 Q And how long have you been so employed?
 4 A Since 2011.
 5 Q And what are your kind of core job
 6 responsibilities or job duties?
 7 A Environmental and safety compliance. I also
 8 oversee risk, it's not in my title, but those are my
 9 core responsibilities.
 10 Q Thank you. And before you were employed
 11 with VSS, what was your prior employment?
 12 A I started with South Carolina DHEC. It's
 13 the Department of Health and Environmental Control in
 14 South Carolina.
 15 Q And how long were you employed in that
 16 position?
 17 A It was multiple positions within the agency
 18 but approximately 18 years.
 19 Q And just in general, what were your job
 20 duties and responsibilities in those roles when you
 21 were in South Carolina?
 22 A I started with the Bureau of Air Quality as,
 23 as an inspector and emissions testing, going to
 24 industrial sites and making sure all the testing
 25 methodology was correct and inspecting industrial

1 sites, all types from BMW to Michelin to asphalt
 2 facilities. I -- from there, I proceeded to a
 3 position as an oversight inspector, meaning we have 12
 4 districts in South Carolina with roughly two
 5 inspectors per district. My job was to train them and
 6 make sure they were doing their jobs properly and
 7 making sure we were inspecting -- inspecting properly
 8 and working with the facilities and things of that
 9 nature.
 10 From there, I proceeded to become the
 11 pretreatment compliance manager and roughly what that
 12 means is I was -- oversaw 62 municipalities in South
 13 Carolina. And in wastewater treatment facility
 14 plants, industries have -- industries are what are
 15 called either significant industry users or
 16 categorical industry users. And they're required to
 17 pretreat their waste at their site prior to being
 18 moved to a wastewater treatment facility of the city
 19 so that it doesn't kill the plant, so to speak.
 20 My job was to make sure that the issues were
 21 inspected; the municipalities were taking care of what
 22 they needed to do. I performed audits. In fact, we
 23 were -- we worked with EPA on an audit of our program
 24 and, and I'm proud to say we had a perfect record.
 25 The latter part of my career, I was a compliance

1 officer and enforcement officer and an inspector in
 2 relation to storm water.
 3 A compliance officer basically asks, like a
 4 detective, takes a, a report from an inspector,
 5 evaluates it, determines violations, things of that
 6 nature and forwards it to the enforcement officer.
 7 The enforcement officer conducts hearings. There'll
 8 be attorneys there. We issued consent orders, consent
 9 decrees, things of that nature, administrative orders,
 10 noncompliance orders. And I also performed storm
 11 water inspections, so that was the span of my career.
 12 Q Very good. Thank you. And do you hold any
 13 post-high school degrees?
 14 A Yes, I attended Purdue University. I was
 15 studying both pre-veterinary medicine -- that's kind
 16 of where I -- my science background and also
 17 agricultural economics. My degree is a BS in ag econ.
 18 Q Okay. Thank you. While you were at VSS,
 19 did you have the West Sacramento plant within your
 20 sphere of responsibility?
 21 A Yes.
 22 Q And I think -- I believe you said you
 23 started in about 2011. Did there come a time shortly
 24 thereafter where you had an opportunity to review the
 25 environmental status of the West Sacramento plant?

1 A Yes.

2 Q And what did you -- in that initial review

3 or during that initial time frame, were there any

4 issues that came to your attention?

5 A Well, I think we or I realized it needed --

6 this spill plan specifically needed revision. We

7 needed to do some work on that. So that was something

8 that came to the forefront of what we needed to do.

9 Q So you're referring to the SPCC plan?

10 A Yes.

11 Q Yes, okay. And did you develop an

12 understanding of whether the facility had already an

13 SPCC plan that was current?

14 A They did have an SPCC plan. I know it was

15 time for review, and so that's -- I initiated a

16 review.

17 Q And this would've been in roughly the 2012

18 time frame?

19 A Correct.

20 Q And did you engage an outside environmental

21 firm to assist VSS with that?

22 A Yes, Condor Earth Technologies.

23 Q And was there an individual at Condor that

24 you principally interfaced with?

25 A Yes, Wesley Greenwood. He was my primary

1 and pretty much only contact.

2 Q And during the -- during the first half of

3 2012, was Condor able to meet the needs of VSS in

4 terms of developing such a plan?

5 A We spent a significant amount of time

6 working together to develop the plan, yes.

7 Q And was that plan finalized?

8 A To my knowledge, yes.

9 Q Oh, okay. And were there -- was there any

10 agency involvement, any agency oversight in 2012, in

11 the first half of 2012 that needed to be attended to

12 regarding that plan?

13 A Well, there were two regulatory entities

14 that I dealt with, and that was the CUPA and,

15 actually, EPA.

16 Q So and the CUPA was -- is that Yolo County;

17 is that correct?

18 A Yes, it is, correct.

19 Q And is there an individual that you

20 principally interfaced with for Yolo County?

21 A Michael Sears, yes.

22 Q And did the CUPA -- was the CUPA involved in

23 the development or the finalization of the SPCC plan?

24 A Yes, Michael and I had a lot of contact

25 conversations, yes, absolutely.

1 Q Can you just describe generally kind of the

2 highlight of -- highlights of that period of time when

3 you were interfacing with Condor or the county in

4 terms of the finalization of the Condor plan?

5 A Sure. Along the way, there was an

6 inspection by CUPA. Michael Sears conducted an

7 inspection. I attended it, along with him. And he

8 gave us his inspection report. We sat down. We did a

9 closing conference, listed the deficiencies and I let

10 him know that absolutely, we wanted to work together.

11 That's my policy, whether it was on the regulatory

12 side or with industry is cooperation's always easiest

13 working with any entity, whether it's a business or a

14 regulatory agency. I told him I had an open-door

15 policy, whether it was records or if he wanted to come

16 onsite, absolutely. I'm -- I -- my staff is

17 instructed to have that same policy.

18 Q And did you have any opportunity to discuss

19 the -- your approach that you just described for us

20 with Mr. Greenwood?

21 A Yes, absolutely. Mr. Greenwood was under

22 the same instructions. It doesn't matter whether it's

23 a consultant or a staff member. It can be someone in

24 the shop. They all have the same instructions from

25 myself as you cooperate and work with the regulatory

1 agencies.

2 Q All right. All right. Very well. During

3 the first half of 2012, and I'd like to please ask you

4 to take a look at -- do you see the exhibit binders

5 there?

6 A Yes.

7 Q RX47 at Page 1, which I'll just identify is

8 an email exchange between Randy Tilford and Michael

9 Sears and others.

10 A Yes.

11 Q Just Page 1 of that, the bottom half.

12 A Okay.

13 Q Let me know when you have -- do you have

14 that?

15 A Yes.

16 Q Okay. Everybody have that? Okay. Do you

17 see in the bottom half, an email dated June 4, 2012 at

18 9:51 a.m.?

19 A Yes.

20 Q And that's addressed to you from Michael

21 Sears?

22 A Yes, I do.

23 Q And could you just -- if you don't mind,

24 please read out loud the first paragraph?

25 A "All of the pending violations from the APS

1 (phonetic) inspection, which took place on
2 January 19th of '12 are considered corrected and have
3 been cleared in our system. The date of correction is
4 June 1st of '12."

5 Q Okay. Thank you, Mr. Tilford. And so does
6 that -- does that reflect -- does that email reflect
7 conversations that or this email document or
8 correspondence that you had with Mr. Sears at or
9 around that time regarding the status of the
10 compliance of VSS with Mr. Sears' program?

11 A Yes, it does.

12 Q So as of the -- let's just say the middle of
13 2012, what was your understanding of the compliance
14 status of the West Sacramento plant?

15 A That we were compliant. I take great, great
16 pride and the company takes great pride in meeting
17 compliance, so we felt very good.

18 Q And you had -- there had been an, an
19 inspection. There had been some items identified.
20 You had taken action and those had been cleared?

21 A Yes, yes.

22 Q And then moving forward a few months, and
23 you may have been here -- I believe you were when
24 there was testimony earlier about an EPA inspection at
25 West Sacramento, again, on I believe it was November

1 27, 2012. Were you present for that?

2 A Yes, sir, I was.

3 Q And can you tell us who else was -- or, I
4 guess, how did -- what was your understanding how that
5 inspection came to be? Were you notified in advance
6 or, or --

7 A Yes, yes I was notified, absolutely.

8 Q All right. Do you remember by whom you were
9 notified?

10 A I believe by Ms. Witul.

11 Q Okay. Did she call you or email you,
12 something like that?

13 A I don't remember.

14 Q Okay.

15 A I know -- I know she properly contacted me.

16 Q And you're -- by the way, you're not at the
17 -- you're not at the West Sacramento plant every
18 single day?

19 A No, I'm not. No, I'm not.

20 Q But you were made aware of this inspection?

21 A Yes, sir.

22 Q And just to -- again, to the best of your
23 recollection, who was present when Ms. Witul arrived?

24 A To the best of my recollection, it was
25 myself, Jeff Nowlin and Pat McNairy.

1 Q All right. And did Ms. Witul have anybody
2 accompanying her?

3 A I believe Mr. Sears was with her.

4 Q And let's see, did they arrive in the mid-
5 morning, late morning, something like that?

6 A Typically, we arrange these in the mornings,
7 but I honestly don't remember.

8 Q And did you or one of the other gentlemen
9 you mentioned escort Ms. Witul and Mr. Sears through
10 the facility?

11 A I believe all three of us did, yes.

12 Q Did they ask for any documentation, to your
13 recollection?

14 A Yes, initially, Ms. Witul presented her
15 credentials and, and I, I know she asked us for some
16 documentation, but we did a walkthrough first, prior
17 to reviewing documents.

18 Q And during the walkthrough, was that
19 relatively routine, do you remember anything or was
20 it --

21 A It was rather, I guess, innocuous, or quiet
22 is the word. There weren't a lot of comments, maybe
23 some questions here and there. There -- I know there
24 was a comment about the caps on the rail cars and a
25 sign in the emulsion plant area, but it was relatively

1 quiet. There was not a lot of commentary.

2 Q And if you were asked for any documentation,
3 did you go ahead and provide that?

4 A Yes, yes.

5 Q And was there a closing conference I think
6 was the term you used earlier. Was there anything
7 like a closing conference at the conclusion of the
8 inspection?

9 A Yes, there was.

10 Q And what do you -- what do you recall from
11 the closing conference in terms of the back-and-forth
12 between EPA and VSS?

13 A Well, what I remember from the comments was
14 that Ms. Witul was going to take all of the material
15 back to her office to review. There were -- there may
16 have been a few comments made, but I don't remember if
17 she was going -- had other inspections. I got the
18 impression maybe there was a vacation involved as
19 well. She was going to be gone for a few months. I
20 know there was not a lot brought to our attention
21 other than with this being a federal inspector and,
22 you know, I'd been on the regulatory side for so long,
23 I mean this is extremely important. We wanted to be
24 compliant. We wanted to make sure we were doing the
25 right thing, but it is kind of, you know, you have a

1 federal inspector there, so you want to make sure, you
2 know, everything's in order and I asked the question
3 is there -- is there any major issues here, and the
4 only comment I received was I see nothing here that
5 would result in any penalties or fines.

6 Q Okay. And then when was the -- do you
7 remember if you ever received a written follow-up, a
8 notice of violation or something like that from the
9 EPA?

10 A No, I remember waiting and waiting, thinking
11 something might come, and months and months went by.
12 And then I just took it to the other inspections she
13 had to do or the vacation or whatever occurred. And I
14 do not remember receiving an inspection report.

15 Q And if you received again any follow-up
16 inspection report, do you remember what time frame
17 that would've been after the initial inspection?

18 A It would've had to have been in six months
19 or so, maybe something along that time frame because I
20 know that we actively worked on correcting any issues
21 that might've been. We, we take great pride in if an
22 inspector gives us 30 days to doing something, we try
23 to do it in 10 or something of that nature. And we've
24 been very successful at that.

25 Q Did you -- sometime thereafter, do you

1 remember, and I think there's been some testimony from
2 Ms. Witul on this point, but EPA contacting VSS with
3 the request for written information?

4 A Yes, sir, yes.

5 Q And to the best of your knowledge, was that
6 complied with?

7 A Yes, sir, to the best of my knowledge.

8 Q And thereafter, Ms. Witul, if you recall
9 this testimony, testified that EPA sent VSS what
10 the -- what's referred to as a show cause letter.

11 A Yes, I do remember.

12 Q And following the receipt of that letter, do
13 you recall that an in-person meeting between EPA and
14 VSS was scheduled?

15 A Yes, I do.

16 Q And if I said that was in the middle of
17 2014, does that sound about right to you?

18 A That sounds reasonable.

19 Q And to your recollection, who was present at
20 that meeting for EPA?

21 A I believe Andrea and Josh were both there as
22 well --

23 Q Okay. And Mr. Helmlinger?

24 A Yes, Mr. Helmlinger, yes.

25 Q And Ms. Witul?

1 A Yes.

2 Q Anybody else from EPA that you recall?

3 A Not that I recall. No, sir.

4 Q And did you have anybody else from VSS with
5 you?

6 A We had other personnel there. I believe
7 there were three or four total individuals.

8 Q And do you remember the general substance of
9 the, again, kind of any back-and-forth and just sort
10 of by topic, what was discussed?

11 A Yes, I, I, I know we talked about the FRP
12 plan, and the discussion was, you know, we're
13 interested. We'll, we'll take any help from EPA or
14 anyone that can guide us in the proper direction of
15 developing an FRP or how to do it the right way. We
16 didn't know. And so there was a lot of that
17 discussion of how do we do this; what do we do? What
18 are you looking for? And the resulting comments we
19 received were essentially it was an expanded SPCC
20 plan, that it, it didn't need to be something major,
21 dramatic, just an expanded SPCC program.

22 Q Okay. And following up on that meeting, did
23 you continue to engage Condor for this next round of
24 work?

25 A No, we contracted WHF out of Oakdale.

1 Q And did you -- did you -- were you
2 principally in charge of that relationship between WHF
3 and VSS?

4 A Yes, that's correct.

5 Q And did you task WHF with any assignments
6 following up on the in-person meeting with EPA in
7 2014?

8 A Yes, we did, for development of the FRP.

9 Q As you understood that?

10 A Right. And in working with EPA, I learned
11 early on, and I instruct the staff that I work with
12 now to build those relationships with the regulatory
13 community and do our best to try to do things ahead of
14 time. So not having the knowledge on our part, you
15 know, WHF has a lot more expertise and the, the main
16 direction we had was let's make sure we're compliant
17 and then let's work with EPA. We have no desire to
18 work ASAP (phonetic).

19 Q Was there -- was there any issue that you
20 recall raised -- I think Ms. Witul testified about
21 tank integrity testing at the West Sacramento plant?

22 A Yes.

23 Q Yes, and did you task WHF or any other
24 personnel to follow up on that item?

25 A Yes, Mr. Craig Fletcher.

1 Q And who is he?
 2 A A tank integrity expert, you know -- expert.
 3 He's very familiar with that program.
 4 Q Did VSS formally engage him?
 5 A Yes, yes, we did.
 6 Q Was that also in 2014 or thereabout?
 7 A Correct.
 8 Q And what was involved generally in his
 9 assignment?
 10 A I asked him to make sure, one, that we were
 11 compliant, that we were working with EPA to develop
 12 some sort of program, testing schedule, proper testing
 13 methodology, things of that nature to meet the
 14 requirements.
 15 Q And did he issue a report sometime
 16 thereafter that you sent on to EPA?
 17 A Yes, he did, correct.
 18 Q And do you recall that there was another
 19 meeting in person between VSS representatives and EPA
 20 representatives the following year?
 21 A Yes, I do. Yes, sir.
 22 Q Did you attend that?
 23 A Yes, sir, I did.
 24 Q And if you recall, who was present for EPA
 25 at that meeting?

1 A To the best of my recollection, it was only
 2 J. Andrew Helmlinger.
 3 Q Was -- do you recall if Ms. Witul was -- had
 4 tentatively been designated as a person to attend?
 5 A I think from our side, we thought she'd be
 6 there, yes, we, we wanted to have a discussion.
 7 Q Based on that meeting, what was your
 8 understanding of what VSS would do -- this is now in
 9 2015, what VSS would do to respond to, in particular,
 10 these two issues that EPA had commented on? That's
 11 first -- let's say first the facility response plan,
 12 where did that stand in 2015?
 13 A I think the intent on the meeting, we --
 14 because I know we brought several experts and
 15 consultants to it, was to discuss compliance and
 16 meeting compliance. Our intent from the beginning,
 17 the middle, and now is still compliance. And so we
 18 wanted to show what we were doing. You know, we
 19 wanted to cooperate.
 20 Q Let me ask you to take a look at RX14.
 21 A Okay.
 22 Q Which is an email exchange between EPA and
 23 VSS representatives. And, if you would, just look at
 24 the top. Just read to yourself the top paragraph,
 25 just those four lines. This is dated April 24, 2015.

1 Was this -- to your recollection, was this email sent
 2 after the additional meeting between VSS and EPA?
 3 A I can't say. I, I, I don't know.
 4 Q But this email talks about VSS taking some
 5 additional --
 6 A Yes.
 7 Q -- steps, in terms of an engineering
 8 analysis?
 9 A Yes.
 10 Q Did you -- did you task WHF or somebody to
 11 do that?
 12 A WHF has been our, our primary consultant on,
 13 on this project.
 14 Q And as far as you know, did they go forward
 15 and submit that to EPA?
 16 A Yes.
 17 Q And if you would, take a look at Exhibit
 18 RX22, and this is dated July 8th of 2015.
 19 A Yes.
 20 Q And did you see -- you're not addressed on
 21 this email, but did you see a copy of this email at or
 22 around that time, to the best of your recollection?
 23 A Yes.
 24 Q And was it your understanding that as of
 25 July of 2015, that EPA was going to consider the

1 information submitted by VSS and then provide any
 2 constructive commentary it had back to VSS?
 3 A Yes, in, in all of our discussions, we
 4 viewed EPA as a partner in this. And someone that we
 5 wanted to work with and come to conclusions so we
 6 could move on to other things. And our understanding
 7 was EPA was the experts. WHF was the experts. The
 8 information submitted, we expected commentary back,
 9 yes. We figured it was constructive commentary.
 10 Q Okay, thank you. And could you just take a
 11 good look at RX52, which is an email from the
 12 following month. This is now an August of 2015 email
 13 between -- email exchange between you and Mr. Sears.
 14 And just -- if you would, just read the first line at
 15 the top. And if you can give me your recollection of
 16 the -- whatever this issue was with the tank testing
 17 that you and Mr. Sears discussed.
 18 A "Randy, very good with the integrity
 19 testing. I had asked that question via email during
 20 my review of the SPCC plan and did not receive an
 21 affirmative answer. I was told it was unknown, which
 22 I interpreted as a no."
 23 Q And then he asks for some documentation.
 24 Did VSS provide that?
 25 A Yes.

1 Q And there was an inspection -- a second
 2 inspection of VSS the following year, 2016, in
 3 September, Ms. Witul testified to that. Do you
 4 remember that?
 5 A Yes. Yes, sir.
 6 Q That was September 30, 2016. And my
 7 question is, to your knowledge, between July of 2015
 8 and September of 2016, do you -- do you recall getting
 9 anything in the nature of kind of constructive comment
 10 from EPA that you recall receiving during that
 11 interval?
 12 A No, sir.
 13 Q Okay.
 14 A We, we did know where, where things stood.
 15 We were expecting communication.
 16 Q And did you also -- were you also present
 17 for Ms. Witul's testimony that she had prepared, I
 18 believe, two what are referred to as FRP checklists.
 19 One was prepared in January 2017, and one was prepared
 20 in September of 2017. Were you here for that
 21 testimony?
 22 A Yes, sir.
 23 Q Do you -- do you know if you ever received
 24 either of those documents?
 25 A No, sir, we never received. I, I didn't

1 know until recently it had even occurred.
 2 Q And do you -- do you recall that Ms. Witul
 3 also testified about facility response plan costs when
 4 she was discussing the penalty -- proposed penalty
 5 calculation that EPA had worked out?
 6 A Yes, sir.
 7 Q And she described a figure of \$28,159, and
 8 if you recall, some of these costs were related to
 9 preparation of FRP plans, implementation, that sort of
 10 thing. And I know you may not have the exact number,
 11 but if -- are you able to say whether the amount that
 12 DSS spent on those items you testified is higher than
 13 \$28,159?
 14 A Oh, absolutely. Absolutely.
 15 Q Quite a bit higher?
 16 A Yes.
 17 Q And then just one more question for your --
 18 now, there was two exhibits that were referred to
 19 earlier, and they are, just for reference, CX35 and
 20 CX36, and again, this was part of the -- it was part
 21 of the analysis for the proposed penalty. And those
 22 documents -- those documents, let's just say ballpark,
 23 reflect gross sales of \$25 to \$50 million for VSS.
 24 Does that sound in the ballpark to you for gross
 25 sales?

1 A Yes, sir.
 2 Q Do you have an understanding, Mr. Tilford,
 3 of the difference between gross sales and net income?
 4 A Yes, sir.
 5 Q And what is that understanding?
 6 A Gross is what you're making for the product,
 7 and net would be what you have left over after cost.
 8 Q And do you have with the -- you know,
 9 with -- you don't have to provide any of the exact
 10 numbers, but do you have any estimate of what the net
 11 income of VSS has been over the last few years?
 12 A I can't give you an absolute, but I can tell
 13 you that I had many discussions over the years. And
 14 when I came to the company, and for several years
 15 after that, I know that there was severe distress.
 16 The company was trying to survive the impact of the
 17 banking situation in 2008, '09 and in that area, it
 18 devastated the construction industry. And
 19 conversations with our CFO, with CEO and such, it was
 20 -- I can't even begin to describe the stress. People
 21 not sure if we'd have jobs in a week, things of that
 22 nature. This company had been in business for, you
 23 know, years, decades. And I was very proud to be a
 24 part of it, but I can tell you it was extremely high-
 25 stress because we didn't know from week to week

1 whether we were going to survive it.
 2 MR. MCNEIL: Okay. Thank you, Mr. Tilford.
 3 Your Honor, may I just have a moment?
 4 JUDGE BIRO: Of course.
 5 BY MR. MCNEIL:
 6 Q Oh, yeah, on that last point, is VSS a
 7 family-owned business?
 8 A Yes, there's a -- it started out with the
 9 great-grandfather and then the grandfather, he -- the
 10 grandfather was the chairman. He passed away about
 11 three years ago. A great gentleman. The son is, is
 12 now head of the company with the wife. She's a
 13 chemical engineer. He's an engineer. The oldest son
 14 is coming into the business. We have a lot of second,
 15 third-generation employees there. We have husbands
 16 and wives that work there.
 17 And it's one of the reasons I really enjoy
 18 working there is because as hard as you, you work and,
 19 and try your best, they take great pride in, in taking
 20 care of families. We, we have discussions at the
 21 senior manager level and executive level of we will
 22 take care of our employees, and we will make sure that
 23 our business is viable so that employees can go out
 24 and live and enjoy life.
 25 Q And just one other thing, when you were

1 working with Mr. Greenwood and Mr. Sears, if you
2 recall back in the first half of 2012, we talked about
3 that, were you -- I think you had talked about the
4 instructions you gave Mr. Greenwood.

5 A Yes, sir.

6 Q Were you -- were you looking to him to
7 provide the technical support that Mr. Sears was
8 asking for?

9 A Yes, sir.

10 Q And I guess just the last question, I think
11 there was some uncertainty about this earlier. You
12 participated in a collection of documents that were
13 submitted to EPA that showed for Tank 2001, a date of
14 service of May 21, 2013.

15 A Yes, sir.

16 Q What was that -- how was that information
17 transmitted to you?

18 A I received that information from Mr. Pat
19 McNairy, who, at the time, I believe his title was
20 operations manager. So he was -- he would've had far
21 more knowledge than myself.

22 MR. MCNEIL: Okay. Nothing further at this
23 time, Your Honor.

24 MS. SUGERMAN: Can we have about ten
25 minutes?

1 JUDGE BIRO: Sure.

2 MS. SUGERMAN: Thank you.

3 JUDGE BIRO: We'll stand in recess for ten
4 minutes. Please don't discuss your testimony with
5 anybody.

6 THE WITNESS: Yes, Your Honor.

7 JUDGE BIRO: Not the lawyers, family or
8 anyone.

9 THE WITNESS: I can stay here if you want me
10 to.

11 JUDGE BIRO: No, you may go to the bathroom.
12 You can take a break.

13 (Whereupon, a brief recess was taken.)

14 JUDGE BIRO: We're going back on the record.

15 CROSS-EXAMINATION

16 BY MS. SUGERMAN:

17 Q Mr. Tilford, hello.

18 A Hi there.

19 Q I am going to try and do this in an
20 organized fashion. I do not know what I will achieve.
21 I'd like to start with your experience as a regulator.
22 I'm requesting that background. I think it's pretty
23 valuable here. Do you understand generally the SPCC
24 and FRP programs are generally risk-management
25 programs?

1 A Yes, ma'am.

2 Q And given your experience as an inspector,
3 allowing a company to avoid risk planning while
4 waiting for a response, would you consider that
5 compliance at that time?

6 MR. MCNEIL: Objection, asks for a legal
7 conclusion.

8 JUDGE BIRO: Overruled. Go ahead.

9 THE WITNESS: I would've tried to actively
10 work with any company or individual, as I did when I
11 was a regulator, to bring them into compliance.

12 BY MS. SUGERMAN:

13 Q And generally, if in the time it might take
14 them to get into that compliance, as a regulator,
15 delaying risk management, does that seem like it would
16 cause some harm, potential harm?

17 A Not necessarily, ma'am. We took -- our
18 agency and myself took great pride in working with
19 people and working with anyone that came into our
20 realm to bring them to full compliance. We, we viewed
21 it as -- we viewed enforcement as the last option and
22 compliance as the primary.

23 Q In your role, you were implementing a
24 regulatory program, were there regulations at issue
25 that you were applying or was it statute?

1 A Yes, ma'am.

2 Q It was regulations -- and did you generally
3 feel that it was the company's responsibility to
4 ensure it was in compliance? I understand there's a
5 level of compliance assistance with the regulator, but
6 in terms of where the buck stops, is it the company's
7 responsibility to remain in compliance or are they
8 generally allowed to wait until the regulator says yes
9 or no?

10 A Well, to answer your question, we were
11 directed straight from the top, even from the governor
12 to do our best to work with anybody that we could, and
13 I found that typically 99.9 percent of the time, we,
14 we came to a mutual compliance standpoint.

15 Q Okay. I have a few questions about the 2012
16 inspection. Do you recall if at the 2012 inspection,
17 whether tank inspection records -- tank integrity
18 records were available for EPA's review?

19 A I don't remember specifically. I know
20 asking for inspection records and prior to my arrival,
21 and I know that since I got there, we insisted on, on
22 inspections, so I do know inspections were done.

23 Q And when you say inspections, can you
24 describe what you mean for me?

25 A Site and, and everything from inspecting the

1 entire site to spill prevention to piping to corrosion
 2 and to anything of that nature. We -- there would --
 3 there would actually be daily walkers. I know it's
 4 not required, but there were -- there were dailies.
 5 There was weeklies. Things of that nature.
 6 Q Are you familiar with the industry standards
 7 that would apply to many of the tanks at VSS?
 8 A I don't consider myself an expert, but yes,
 9 I have some understanding.
 10 Q Are you familiar with the different levels
 11 of tank inspection, as opposed to sort of the
 12 visual --?
 13 A Yes, ma'am. Yes, ma'am.
 14 Q And are you aware that every five years,
 15 there's supposed to be a certain amount of external
 16 integrity testing by a professional -- a certified
 17 tank inspector?
 18 A Yes, ma'am.
 19 Q So when you started there, did you get a
 20 sense of whether those were being conducted?
 21 A I don't believe they were, no.
 22 Q So probably those records were not -- were
 23 those -- those records would not have been
 24 available --
 25 A No, ma'am. No, ma'am.

1 Q -- at the time of this inspection? You
 2 mentioned that during the walkthrough, during the
 3 inspection, there was a question about caps at rail
 4 cars; do you recall that?
 5 A Yes.
 6 Q Can you explain that to me?
 7 A It was just a casual comment. I think the
 8 rail cars -- the lines from the rail cars to -- there
 9 was -- the caps were not on.
 10 Q Do you recall any other discussions about
 11 Tank 2001?
 12 A I do not recall specifically. It's been a
 13 number of years.
 14 Q Sure, I understand. And railcars, what was
 15 your understanding of the relationship between rail
 16 cars and the asphalt tanks, Tank 2001 --
 17 A Well, to be honest, at that time, in, in
 18 that time period, I was really getting used to the
 19 company and what was going on, so my focus was not on
 20 operations. I, I can honestly say I did not have a
 21 lot of knowledge of the operations at that time. I
 22 was simply trying to bring in my regulatory experience
 23 and knowledge to bring everyone into compliance.
 24 Q I have a few more questions.
 25 A Sure.

1 Q I'm just going to need to get a little
 2 organized here. Okay. Can we -- I don't think I
 3 brought the binders up. Will you turn to RX52? And
 4 then we'll also look at RX53. Give me a moment to
 5 grab those binders.
 6 A Sure.
 7 Q So RX52, we already looked at, and that's a
 8 communication from Michael Sears about integrity
 9 testing, correct?
 10 A Correct, yes.
 11 Q And will you look at RX53, please?
 12 A Yes.
 13 Q So can you just read that second paragraph,
 14 the one that starts of course?
 15 A "Of course, the facility is not in
 16 compliance with 1128C6 integrity testing requirements
 17 at this time because there are tanks in the facility
 18 that have not been tested like they should've been,
 19 but I think the schedule, as outlined in the SPCC plan
 20 is reasonable. If the schedule is being followed, I
 21 don't see a problem."
 22 Q And now this is October 2015, so I think the
 23 SPCC plan at issue is the 2014 integrated plan we've
 24 been talking about, which I think is at CX17. Let's
 25 go back to the white binder.

1 A You said 17, correct?
 2 Q CX17, I'm giving you a second to find the
 3 page. Starting on Page 103, please.
 4 A Okay. Nope.
 5 Q Or let's try 100. Okay. Can you identify
 6 this document for me?
 7 A It's Fletcher Inspections, a letter from Mr.
 8 Craig Fletcher.
 9 Q And we'll turn to Page -- or let's confirm,
 10 this, to me, looks like the document likely that
 11 Michael Sears was referring to in his email. Does
 12 that sound right?
 13 A More than likely, yes, ma'am.
 14 Q If you would turn to Page 104, please, so
 15 this is the schedule that Fletcher is recommending.
 16 A Yes, ma'am.
 17 Q It shows in the 2014, 2015 winter season, a
 18 certain number of tanks to be inspected. And the rest
 19 of the page, I don't know if you want to take a second
 20 to look at it, it sets up a schedule that I think Mr.
 21 Sears was referring to --
 22 A Yes, ma'am.
 23 Q -- for when the tanks would be inspected.
 24 To the best of your knowledge, was this schedule
 25 followed?

1 A No, ma'am.

2 Q And do you recall when the first external

3 inspection was actually conducted?

4 A To the best of my recollection, I would say

5 2015. It was, Powers Engineering inspected roughly

6 ten tanks, I believe.

7 Q Okay. I --

8 A Or I, I'm not exact on that.

9 Q -- I do know a lot of those are in the

10 record, so if you'll give me a second, I can find one

11 of the first of those. Starting with RX54, please.

12 MR. LUDWIG: That's not the first

13 chronological one.

14 MS. SUGERMAN: I understand, yeah. Thank

15 you for pointing it out.

16 MR. MCNEIL: Your Honor, my apologies, and I

17 know there's not really a question pending, but I want

18 to just note that I think we're getting a little bit

19 beyond the scope of direct here, and we have an expert

20 who's going to testify on the subject, so I'm not

21 lodging an objection, but I'm hoping counsel will

22 be -- take that into consideration.

23 JUDGE BIRO: Okay. So what exhibit are we

24 looking at now?

25 MS. SUGERMAN: 54 was the one I directed him

1 to.

2 JUDGE BIRO: Okay.

3 BY MS. SUGERMAN:

4 Q Does that appear to be the Powers

5 Engineering type of the report that you're talking

6 about?

7 A Yes, ma'am.

8 Q And then what's the date on that one?

9 A November of 2016.

10 Q And I don't know if I need to take

11 everybody's time going to RX65, but RX65 has an

12 inspection date of June 2016, and I think that's the

13 earliest one in the record; does that sound possible

14 to you?

15 A It may be.

16 Q So just to confirm, the plan was to do the

17 integrity testing starting in 2014. It didn't really

18 get done until approximately two years later, 2016,

19 right?

20 A Yes, ma'am.

21 Q Okay. There was a question about the

22 company's financial abilities. Do you know if in this

23 -- in the five years or so that EPA and VSS have been

24 discussing, has VSS ever submitted financial

25 information or indicated in any way that it can't pay

1 penalties?

2 A I'm not sure, ma'am. I'm, I'm not.

3 Q Okay. When we were trying to determine the

4 date that Tank 2001 came online, was there any attempt

5 to verify by looking at the manifests of incoming

6 product to determine the actual start date?

7 A No, I, I did my best, and that's the only

8 date I can come up with.

9 Q Are you aware that in the federal -- in the

10 actual regulations, there's a model facility response

11 plan?

12 A No, ma'am, I'm not.

13 Q So the regulations have a model facility

14 response plan, and in terms of achieving compliance,

15 what -- at some point, VSS hired a contractor to

16 develop the facility response plan. Was it the intent

17 to come into complete compliance with those

18 requirements?

19 A The intent was cooperation, ma'am, we -- the

20 entire time we've done this, that was always our

21 drive. We didn't have the expertise, so we were using

22 our consultants and, and doing our best to cooperate.

23 It was -- it was in the interest of cooperation.

24 Q Moments ago, we were looking at the 2014

25 integrated plan, is -- in your opinion, is that a

1 final submittal by VSS, the 2014 plan? We had -- it

2 was CX17, if that helps.

3 A CX which one, ma'am?

4 Q CX17. And so my question is so this is a --

5 what's called an integrated plan, right? It looks to

6 satisfy several requirements at once. Once this plan

7 is submitted to various agencies, is it generally your

8 intent that this is the final plan for the

9 circumstances?

10 A It's always the intent, but I think there

11 are times where we've had drafts going back and forth

12 and communication, whether it's with y'all or whether

13 it was with CUPA. So our intent is always to submit a

14 final, but there are times where we have asked for

15 communication and send that communication back and

16 forth.

17 Q In the event a draft is submitted, which

18 plan would you consider enforced? Say there's an

19 emergency at your facility, what plan would your

20 people turn to with response?

21 A It would be the final we're using, ma'am.

22 Q So, for example, in this case, if something

23 happened October 24, 2014, this plan, even though it

24 may have been a draft in some context, this would've

25 been the plan relied on to respond to any emergencies?

1 A If this was a, a final, that would be the
2 plan that we would be using.

3 Q So at your facility, would someone have
4 needed to find the -- say the last final plan was the
5 2012 SPCC plan and, yet, maybe this one is in a file,
6 but it's still waiting for some completion, in an
7 emergency, which plan should your facility personnel
8 turn to?

9 A Well, typically, you know, unless we were
10 talking about the FRP specifically, typically, the
11 spill plan, we -- or this is a combination plan here,
12 we would determine that it was final, but when it was
13 coming to the FRP, we were in the middle of
14 discussions and things of that nature. So from a
15 spill prevention standpoint, we would use whatever we
16 developed at that point.

17 Q So are you indicating that the spill
18 prevention control and countermeasure plan was likely
19 final, but that the facility response plan might still
20 have been in flux?

21 A I think so, ma'am.

22 MS. SUGERMAN: Okay. One moment, please.
23 Those are all my questions. Thank you very much.

24 JUDGE BIRO: Any redirect?

25 MR. MCNEIL: Nothing further, Your Honor.

1 JUDGE BIRO: Can I just ask you a couple of
2 questions?

3 THE WITNESS: Yes, ma'am.

4 JUDGE BIRO: You said that VSS was a family-
5 owned business?

6 THE WITNESS: Yes, ma'am.

7 JUDGE BIRO: I think there was some
8 testimony about it being a wholly owned subsidiary of
9 another corporation, Basic Resources?

10 THE WITNESS: Yes, ma'am.

11 JUDGE BIRO: So it's not really family-
12 owned. It's owned by another corporation?

13 THE WITNESS: Well, the, the family runs the
14 business, ma'am.

15 JUDGE BIRO: Who owns Basic Resources?

16 THE WITNESS: It's the Reed family that has
17 the -- that's the father and wife and son that I was
18 talking about.

19 JUDGE BIRO: Tell me their names again.

20 THE WITNESS: Jeffrey.

21 JUDGE BIRO: Jeff Reed, R-E-E-D?

22 THE WITNESS: Yes, ma'am.

23 JUDGE BIRO: And he owns Basic Resources?

24 THE WITNESS: He is the CEO and owner.

25 JUDGE BIRO: Other than Jeff Reed, is there

1 other owners at the corporation?

2 THE WITNESS: I, I believe Ms. Reed and the
3 son, Jordan Reed. I don't know, I'm not privy to all
4 of the ownership information, but those are the
5 individuals that, that we report to in our company.

6 JUDGE BIRO: What's Mr. Reed's wife's name?

7 THE WITNESS: Margaret.

8 JUDGE BIRO: Margaret. Other than this
9 wholly owned subsidiary, VSS, do they own, through
10 Basic Resources, a number of other corporations?

11 THE WITNESS: Yes, ma'am.

12 JUDGE BIRO: And what are the names of those
13 corporations?

14 THE WITNESS: There would be George Reed,
15 Inc., 711 Materials, Inc., Reed International.

16 JUDGE BIRO: Okay.

17 THE WITNESS: I believe that's it. I think
18 there's some properties, but --

19 JUDGE BIRO: Is Basic Resources owned, in
20 any way, by any other corporation?

21 THE WITNESS: Not that I'm aware of, ma'am.

22 JUDGE BIRO: Okay. And none of these are
23 publicly traded corporations?

24 THE WITNESS: No, ma'am.

25 JUDGE BIRO: Now, remind me again exactly

1 when you started at this company?

2 THE WITNESS: 2011, ma'am.

3 JUDGE BIRO: And in 2011, was Tank 2001 in
4 service?

5 THE WITNESS: I specifically cannot say. I
6 wasn't -- I had nothing to do with operations, so in
7 my search for the answer, that's when I reached out to
8 Mr. McNairy, who, at the time, was with the company,
9 and asked that question.

10 JUDGE BIRO: So you don't have personal
11 knowledge of any --

12 THE WITNESS: No.

13 JUDGE BIRO: -- year or date within a year
14 when that went into service?

15 THE WITNESS: No.

16 JUDGE BIRO: Okay. Were there, at any
17 point, any spills or releases at this facility?

18 THE WITNESS: At, at that time, ma'am or --
19 there had been some minor ones, yes.

20 JUDGE BIRO: Tell me when such spills and
21 releases occurred.

22 THE WITNESS: I believe we had four or five-
23 gallon latex material a couple years ago. There's
24 been a few gallons of diesel here and there, but
25 there's not been any -- there's been no major releases

1 of any kind.
 2 JUDGE BIRO: Have you ever had to put this
 3 SPCC plan into effect?
 4 THE WITNESS: Well, we've put it into effect
 5 on a regular basis, meaning we do inspections and, and
 6 things of that nature.
 7 JUDGE BIRO: No, but containment, in the
 8 event of a leak or a release?
 9 THE WITNESS: Yes, ma'am.
 10 JUDGE BIRO: So you did put it into effect
 11 with these smaller releases?
 12 THE WITNESS: We have everyone trained, a
 13 team trained for responses and things of that note.
 14 And they're trained to take the appropriate measures
 15 if they can safely clean them up and report them and
 16 document them and take pictures. Yes, ma'am.
 17 JUDGE BIRO: So is there standard yearly
 18 training conducted?
 19 THE WITNESS: Yes, ma'am. There is an
 20 annual -- it's roughly a 140-some page PowerPoint that
 21 we do, including all of these regulations. They train
 22 at safety meetings. They have conducted drills.
 23 We've done a number of things, and we've, we've taken
 24 a lot of measures, protective measures for the site.
 25 JUDGE BIRO: Do you do that in-house

1 training or do you hire an outside company to provide
 2 that training?
 3 THE WITNESS: Both.
 4 JUDGE BIRO: Both.
 5 THE WITNESS: Yes, ma'am.
 6 JUDGE BIRO: So how many hours of total
 7 training does each employee get?
 8 THE WITNESS: Well, the, the employee
 9 orientation is three days, I, I believe three days.
 10 JUDGE BIRO: And that would cover the
 11 SPCC --
 12 THE WITNESS: That would cover the S -- that
 13 would cover everything that the employees need to do.
 14 It could be workers comp, things of that nature, but
 15 this portion might be a few hours, during that time
 16 frame, as well as I have a gentleman that works for me
 17 onsite, and he does regular training. He, he's
 18 actually there.
 19 JUDGE BIRO: So is that pretty much his
 20 full-time job?
 21 THE WITNESS: It's safety and environmental,
 22 yes, ma'am.
 23 JUDGE BIRO: But training of employees?
 24 THE WITNESS: Not strictly. He, he --
 25 that's a portion of his job, but he's out there to

1 work with the crews. He goes out with the crews to
 2 make sure they're being safe and environmentally
 3 sound. And, and he's at the site.
 4 JUDGE BIRO: How many employees do you have
 5 at the site?
 6 THE WITNESS: Best guess, maybe 60.
 7 JUDGE BIRO: Has that increased or decreased
 8 over time?
 9 THE WITNESS: It's just starting to increase
 10 as, as business is getting, getting better now.
 11 JUDGE BIRO: And each year, do you think
 12 they get five or ten hours of training on SPCC, FRP-
 13 related?
 14 THE WITNESS: Yes, ma'am. But one thing
 15 that we are doing now is also, we have kind of what's
 16 called an LMS system, where we're having training
 17 online. So they can take it at a time at the office.
 18 It's, it's -- the idea is that this training comes
 19 from J.J. Keller, so it's very professional, and
 20 they'll receive that on safety and environmental, plus
 21 the training from our onsite person.
 22 JUDGE BIRO: How much did the tank testing
 23 cost the company when they finally did it in 2016?
 24 THE WITNESS: I, I don't know. That was
 25 handled by the current operations manager.

1 JUDGE BIRO: Can you give me an estimate?
 2 THE WITNESS: Sorry. Best estimate, maybe
 3 20-some-thousand-dollars, in that range.
 4 JUDGE BIRO: You finally had an FRP put into
 5 place, did you -- you paid for that from the outside
 6 consultant?
 7 THE WITNESS: Yes, ma'am.
 8 JUDGE BIRO: And how much do you estimate
 9 that cost?
 10 THE WITNESS: With the revisions that were
 11 done over time, I -- I can't give you an accurate
 12 number, but I'd say it's probably in the same area.
 13 JUDGE BIRO: \$20,000?
 14 THE WITNESS: Yes, ma'am. They conducted
 15 training, as well. There was several times they came
 16 onsite and conducted training. So there may be
 17 training costs as well as the development of the FRP.
 18 JUDGE BIRO: Okay. Was it your
 19 understanding when you came on to take over this risk
 20 management that your facility or the one that we're
 21 talking about here is within the area contingency
 22 plan?
 23 THE WITNESS: I was not aware of that,
 24 ma'am.
 25 JUDGE BIRO: Did you become aware of that at

1 any point?

2 THE WITNESS: During this hearing.

3 JUDGE BIRO: You mean in the last day?

4 THE WITNESS: We have not had serious

5 discussions. It might've been brought up in, in the

6 time frame leading up to the hearing, but that was not

7 something that I was active participation --

8 participant in with -- my concern and my focus and our

9 company's was development of that RFP, regardless of,

10 of where we were -- we were trying to cooperate, we,

11 we wanted to get that FRP going.

12 JUDGE BIRO: Okay. I don't have any further

13 questions.

14 Mr. McNeil, would you like to follow up with

15 any questions?

16 MR. MCNEIL: No, Your Honor. Thank you.

17 JUDGE BIRO: Okay. No, okay. Thank you

18 very much.

19 THE WITNESS: Thank you.

20 JUDGE BIRO: Do you --

21 MR. MCNEIL: Oh, I'm sorry, I just have one.

22 JUDGE BIRO: Oh, okay.

23 MR. MCNEIL: If I may?

24 JUDGE BIRO: Yes.

25 //

1 REDIRECT EXAMINATION

2 BY MR. MCNEIL:

3 Q Mr. Tilford, just briefly again, I apologize

4 if I asked this earlier, but are you aware that --

5 whether VSS submitted to EPA its current documentation

6 about these inspections and drills and exercises?

7 A Yes, we did.

8 Q And do you -- did you also have an awareness

9 that VSS submitted a signed contract for Patriot and

10 Clean Harbors that were the third-party consultants to

11 respond to the FRP?

12 A Yes, they were contracted. They have a

13 quick response time. They were contracted to handle

14 response from an FRP, yes.

15 Q And you saw the signed contracts?

16 A Yes, sir.

17 Q And you saw them -- you saw a copy that they

18 were sent to EPA?

19 A Yes.

20 MR. MCNEIL: Okay.

21 JUDGE BIRO: Thank you. Wait one minute,

22 just let's make sure that we're all on the same page

23 here.

24 //

25 //

1 RE-CROSS-EXAMINATION

2 BY MS. SUGERMAN:

3 Q Hi, last couple of questions.

4 A No problem.

5 Q Do you know when the documentation was

6 submitted to EPA?

7 A Originally, I think it was a few months ago,

8 but I know that the documentation was sent in the

9 latter part of April.

10 Q And --

11 A We were looking to make sure that you had

12 signed copies.

13 Q And to the best of your knowledge, I don't

14 have the exhibit in front of me, but we discussed it,

15 we -- there was a list that EPA had sent via email, a

16 list of names of people who needed training, who

17 needed to sign off on a contract, a few things.

18 A Uh-huh.

19 Q To the best of your knowledge, do you think

20 that VSS submitted a complete response to that list?

21 A I know we submitted contracts and

22 inspections that were far-ranging but I, I, I cannot

23 confirm that.

24 Q And just -- you will object, I am sure, if

25 this is inappropriate, but to the best of your

1 knowledge, did you -- did VSS submit that to EPA or

2 you submitted something to your attorney to have the

3 attorney submit it to EPA?

4 A The recent round, I believe I sent to our

5 attorney, yes.

6 MS. SUGERMAN: Okay. I have no further

7 questions.

8 JUDGE BIRO: Okay. Thank you.

9 MR. MCNEIL: I promise.

10 JUDGE BIRO: Okay. If you start another

11 round --

12 MR. MCNEIL: I promise -- no, I promise.

13 REDIRECT EXAMINATION

14 BY MR. MCNEIL:

15 Q Mr. Tilford, the email that I, I think we

16 are all familiar with where that additional

17 information was requested, there was a list of

18 somewhere between 12 and 16 individuals, VSS

19 employees, EPA was asking for a reinspection.

20 A Yes.

21 Q Do you remember that?

22 A Yes, yes.

23 Q And we had it as an exhibit the other day,

24 okay. Can you estimate how many of those employees

25 are no longer with VSS, for various reasons?

1 A No, sir. I cannot.
 2 Q Okay. Are there some -- do you -- are there
 3 some employees on that list that are no longer with
 4 VSS, for various reasons?
 5 A I would have to take a look at the list
 6 again.
 7 Q Okay. Is Brian Orr still --
 8 A Brian Orr is no longer there.
 9 Q Is Pat McNairy still with VSS?
 10 A No, sir.
 11 Q Is Jeff Nowlin still with VSS?
 12 A No, sir.
 13 MR. MCNEIL: Okay. Thank you.
 14 JUDGE BIRO: Thank you.
 15 Do you want to reserve Mr. Tilford or is --
 16 we're going to release him?
 17 MR. MCNEIL: May we, please?
 18 JUDGE BIRO: Yes, okay.
 19 (Witness excused.)
 20 MR. MCNEIL: And may we have just a few
 21 minutes? We're ready with our next witness, but --
 22 JUDGE BIRO: Okay.
 23 MR. MCNEIL: -- a short break. Thank you.
 24 JUDGE BIRO: Sure. We'll stand in recess
 25 until five after.

1 MR. MCNEIL: Thank you.
 2 (Whereupon, a brief recess was taken.)
 3 JUDGE BIRO: Mr. McNeil, would you like to
 4 call your next witness?
 5 MR. MCNEIL: Thank you, Your Honor.
 6 Respondent calls Kari Casey.
 7 Whereupon,
 8 KARI CASEY
 9 having been duly sworn, was called as a
 10 witness and was examined and testified as follows:
 11 DIRECT EXAMINATION
 12 BY MR. MCNEIL:
 13 Q Ms. Casey, good afternoon. I'd like to
 14 begin by asking if you could kindly tell us by whom
 15 you are currently employed?
 16 A WHF, Inc., Environmental and Engineering
 17 Group.
 18 Q Okay. W -- and if I refer to that as WHF is
 19 that fair for today, instead of WHF, Inc. Engineering
 20 Group?
 21 A Yes. Yeah, we don't normally attach the
 22 last part.
 23 Q And does the company have -- when I say the
 24 company, WHF, have a home office?
 25 A Yes, in Oakdale, California.

1 Q In Oakdale?
 2 A Uh-huh.
 3 Q Okay. And is that where you're officed?
 4 A Yes.
 5 Q And what is your current job description?
 6 A Currently, I'm the general and operations
 7 manager.
 8 Q And what does that entail?
 9 A I mostly run -- like run project management
 10 for most of our -- for all of our projects. And then
 11 I have a set of my own projects. And then I just do
 12 general administrative oversight and then just general
 13 operations for the business.
 14 Q Okay. And do you have any post-high school
 15 education?
 16 A Yes.
 17 Q And could you share with us what that is?
 18 A I have a bachelor's degree from Humboldt
 19 State University in environmental science, technology
 20 and business, with a minor in applied mathematics.
 21 Q Okay.
 22 A Then I have a master's degree from the
 23 University of San Francisco in environmental
 24 management.
 25 Q Okay. Thank you. And when did you begin

1 your employment with WHF?
 2 A In July of 2004.
 3 Q And have you been employed with WHF
 4 continuously over the roughly last 15 years?
 5 A Yes.
 6 Q And do you hold any licenses or credentials
 7 or --
 8 A I'm a certified hazardous materials manager.
 9 Q Okay. And over the course of the past 15
 10 years, have you been involved in various environmental
 11 or engineering projects while employed at WHF?
 12 A Yes.
 13 Q And could you give us a flavor for what,
 14 what's, what kind of -- what kind of projects you've
 15 worked on, just as a general matter?
 16 A Preparations of SPCCs and compliance-related
 17 stuff in regards to hazardous materials, hazardous
 18 waste, air permitting --
 19 JUDGE BIRO: Too fast.
 20 THE WITNESS: Sorry.
 21 JUDGE BIRO: Okay. Go ahead.
 22 THE WITNESS: Do you want me to repeat that?
 23 Okay. So preparations of, of SPCC plans.
 24 BY MR. MCNEIL:
 25 Q How many -- sorry to interrupt, but how many

1 SPCC plans have you done?
 2 A Well over 30.
 3 Q Over 30?
 4 A Yeah, I think I can put a number to it. It
 5 says it in -- and then in hazardous materials
 6 management, hazardous waste management and compliance
 7 related to that. And then I've done air quality
 8 permitting and toxics reporting for hot spots
 9 monitoring. I've done --
 10 Q Is that the AB2588 program?
 11 A Yes.
 12 Q Okay, perfect.
 13 A And general compliance permitting, writing
 14 ODBRs and storm water permits --
 15 (Phone rings.)
 16 JUDGE BIRO: Go ahead.
 17 MR. MCNEIL: You were saying storm water
 18 permits.
 19 THE WITNESS: Yes, storm water, industrial
 20 storm water.
 21 BY MR. MCNEIL:
 22 Q And --
 23 A And then --
 24 Q -- no, that's fine. And can you give us,
 25 again, just a flavor of the types of industries or the

1 types of businesses or other clients, whether it be
 2 municipal or what have you that you've performed those
 3 kind of services for?
 4 A Construction companies, trucking companies.
 5 I have a wood -- a wood treating facility,
 6 agricultural industry and support services for that I
 7 believe. And the bulk, bulk fueling facilities.
 8 Q Okay. And do you interface with
 9 environmental regulatory agencies as part of your,
 10 your professional duties?
 11 A Yes.
 12 Q And again, just give us a sense of who some
 13 of those agencies are?
 14 A Local, local CUPA programs, usually county
 15 or fire department.
 16 Q And CUPA, again, stands for certified --
 17 A Certified Unified Program Agency.
 18 Q So for example --
 19 A It's run through the -- through the OES
 20 or -- or well, California EPA basically, I don't know
 21 the agencies off the top of my head.
 22 Q So that would be, for example, like Yolo
 23 County in this case?
 24 A Yes, yes. And we work with the regional
 25 board and state DTSC. I have had some interaction

1 with the EPA on one or two facilities.
 2 Q Federal EPA?
 3 A Uh-huh.
 4 MR. MCNEIL: And, Your Honor, I respectfully
 5 request that Ms. Casey be designated as an expert on
 6 the preparation of SPCC plans.
 7 MR. HELMLINGER: No objection.
 8 JUDGE BIRO: Okay. So qualified.
 9 MR. MCNEIL: Thank you.
 10 BY MR. MCNEIL:
 11 Q Ms. Casey, did there come a time when you
 12 received a reach-out from Mr. Tilford regarding
 13 environmental complaints, issues at the VSS West
 14 Sacramento facility?
 15 A Yes.
 16 Q And do you recall approximately what year
 17 that was?
 18 A Some time in 2014.
 19 Q And do you recall what the general nature of
 20 the -- what was your understanding of what you were
 21 being asked to undertake or what it was being proposed
 22 that you undertake?
 23 A Well, he had -- he had said that there was
 24 some issues resolve -- or regarding the SPCC and this
 25 potential FRP question and wanted me to attend a

1 meeting by the EPA.
 2 Q Okay. That was a meeting here in San
 3 Francisco?
 4 A Yes.
 5 Q And did you -- did you accept that
 6 engagement and go to that meeting?
 7 A Yes.
 8 Q And that was also in approximately 2014?
 9 A I think so, yes.
 10 Q And to your best recollection, who was
 11 present at the meeting for -- on the -- representing
 12 EPA?
 13 A Andrew --
 14 Q Helmlinger?
 15 A Yes.
 16 Q And was it -- do you recall if anybody else
 17 was present?
 18 A I don't recall.
 19 Q And who do you recall being present for
 20 WH --
 21 A Just myself.
 22 Q Oh, okay. And was there anybody from VSS
 23 there?
 24 A Randy Tilford was there and Jeffrey was also
 25 there.

1 Q Mr. Reed was there?

2 A Yes.

3 Q And Mr. Reed is the same Mr. Reed that Your
4 Honor had been -- if you were here 20 minutes ago --

5 A Yes.

6 Q -- that Your Honor referred to. And he's
7 the CEO of VSS?

8 A I believe so. I don't know specifically his
9 title.

10 Q But you -- he attended the meeting?

11 A Yes, he did.

12 Q And do you recall, in general, what the
13 topics were that were covered at the meeting?

14 A Well, there was some general discussion
15 about the applicability of the FRP requirements and
16 there was some questions raised about that, and then
17 sort of the general consensus, I guess, or what I took
18 away from it was that we were going to be given an
19 opportunity to answer some of those questions, and
20 then in the meantime, present our consolidated plan,
21 which included some additional emergency response
22 stuff that's in addition to the SPCC guidelines that
23 we thought would maybe sort of bridge a gap a little
24 bit on this FRP issue in the meantime until we got
25 some commentary back.

1 Q Okay. Thank you. And when you -- when you
2 use the phrase 'bridge the gap', does that refer to
3 something that was discussed at this meeting?

4 A No, just that in, in general, it wasn't --
5 we were -- we were -- I think that the -- what I
6 recall was that it was that maybe a full FRP would
7 maybe not be required, depending on the information we
8 were submitting but that we would, in an effort to
9 comply, submit some additional emergency response
10 procedures and such and see if that would, would be
11 sort of in a, a modified submittal.

12 Q Now, your understanding is that was what had
13 been suggested by EPA as a possible --

14 A That was the direction I took from that
15 meeting, yeah.

16 Q And then did you, in fact, thereafter,
17 proceed to undertake that assignment?

18 A Yes.

19 Q And was that under the direction of Mr.
20 Tilford and on behalf of VSS?

21 A Yes.

22 Q And at the meeting, were there -- were there
23 any other compliance or potential compliance issues
24 that you recall were discussed?

25 A Well, I believe there was some discussion

1 about the tank integrity, and now that I think about
2 it, Craig Fletcher was also in attendance at that
3 meeting.

4 Q Craig -- Mr. Fletcher was in attendance?

5 A Yes.

6 Q Okay.

7 A And he, he discussed that with -- yeah, he
8 was discussing that.

9 Q And what was -- what was your takeaway of
10 what Mr. Fletcher was possibly being asked to do, as
11 discussed at the meeting?

12 A I believe he was going to put together a
13 schedule for the integrity testing, a submittal for
14 what would be required in that schedule to get that
15 done.

16 Q Okay, very good. And then there was some
17 discussion that you may have been present for about a
18 November 27, 2012 EPA inspection, VSS. Are you
19 familiar that there was such an inspection?

20 A Correct.

21 Q Were you present at that?

22 A No.

23 Q Had you been engaged by VSS for West
24 Sacramento as of that date?

25 A Not for that -- not for that issue, no.

1 Q And did you have an understanding whether
2 there was another environmental consultant who was
3 assisting VSS with that?

4 A Yeah.

5 Q And who was that?

6 A Condor Earth Technologies, I believe.

7 Q Condor Earth Technologies?

8 A Yeah.

9 Q Okay. And so did you -- so in the -- after
10 the EPA meeting, is it fair to say that you -- WHF
11 sort of took over as the consultant of record for
12 these EPA matters for VSS for West Sac?

13 A Yes.

14 Q Okay.

15 A When we were at that meeting, Randy told me
16 to, to prepare the documents then to submit.

17 Q Okay.

18 A Yeah.

19 Q So that was -- that was the -- if not the
20 exact date, that was the general time of your
21 mediation?

22 A Correct.

23 Q And had you worked with -- had you worked
24 with VSS on other projects?

25 A Yes. We wrote their industrial storm water

1 permit rider to the SPCC.
 2 Q And had you worked with Mr. Tilford before?
 3 A Yes.
 4 Q And did you hear Mr. Tilford's earlier
 5 testimony today about compliance?
 6 A Uh-huh.
 7 Q Do you have any different view about
 8 VSS's --
 9 MR. HELMLINGER: Objection, goes beyond the
 10 scope of expert's knowledge.
 11 JUDGE BIRO: But it may be her personal
 12 knowledge.
 13 MR. HELMLINGER: But there's no foundation
 14 for that, so I want to make an objection.
 15 JUDGE BIRO: Overruled. Go ahead.
 16 THE WITNESS: I'm sorry.
 17 MR. MCNEIL: Well, based on the other
 18 projects that you had worked on with DSS and Mr.
 19 Tilford, did you -- did you have the same impression
 20 as was testified earlier to the company's commitment
 21 to compliance?
 22 THE WITNESS: Yes. I mean generally, we --
 23 because we worked with DLM (phonetic) on, on a wide
 24 range of projects and facilities. And just general,
 25 you just do what you have to do. We would get it

1 done. Let me know what I need -- you know, let me
 2 know what we need to do. So that's, that's usually
 3 his direction, yeah, or is his direction.
 4 BY MR. MCNEIL:
 5 Q And so going back to the, the FRP plan for a
 6 moment or this kind of modified -- this modified plan
 7 you'd mentioned, what were the steps that you took
 8 after the meeting with EPA to follow through on that
 9 task?
 10 A Well, we all specifically had to go back and
 11 rewrite the entire SPCC plan. So it was sort of the
 12 main focus was, was writing the SPCC plan. We did
 13 some -- well, their engineer did some survey work, and
 14 we did the demographic map at that time. And then we
 15 just tried to look at the general guidelines for the
 16 FRP and see if we could sort of fit in certain
 17 sections and kind of make that contingency plan that
 18 we normally write, fit a few of the guidelines from
 19 the FRP.
 20 Q Okay. And did that culminate in the
 21 issuance of any final report or draft report or
 22 anything like that from your office?
 23 A Well, we submitted a draft report for the
 24 facility to plan, and I believe I gave that to you
 25 directly. And then we submitted this as the

1 Substantial Harm Criteria at a later date.
 2 Q When you mention the consolidated plan, just
 3 so we're all on the same page, I'm going to ask you to
 4 look at CX17 and can you tell me if that's the plan
 5 you're referring to?
 6 A Yes.
 7 Q Yes, it is?
 8 A Yes.
 9 Q And that was prepared chiefly by you?
 10 A Yes, in combination with our office and our
 11 engineers.
 12 Q And your engineers?
 13 A Lee Delano, yes. Lee Delano.
 14 Q And is he in the courtroom today?
 15 A Yes.
 16 Q And he, he assisted you on this project or I
 17 don't want to say assisted, he's worked with you side-
 18 by-side on this project these last several years?
 19 A Yes. I'll handle sort of the written and
 20 text portions, and then he'll handle some of the more
 21 technical stuff, if that's needed.
 22 Q And I just kind of -- it's probably obvious,
 23 but I probably need to ask it, you've been to the West
 24 Sacramento plant personally?
 25 A Yes.

1 Q And if you had to estimate how many times
 2 you've been there, what would that estimate be?
 3 A Well, I initially started going to that site
 4 in 2006, so probably well over 30 times at this point.
 5 Q Okay. So you feel pretty familiar with this
 6 site?
 7 A Yes.
 8 Q And we'll ask Mr. Delano when he testifies,
 9 but just so we don't keep anybody hanging, do you --
 10 are you aware that he's also visited the site?
 11 A Yes.
 12 Q So did there come a time where you were
 13 informed or you developed an understanding that EPA
 14 was perhaps of a different view than the view you
 15 expressed earlier that a modified FRP would be
 16 satisfactory or what -- did you -- did you ever get
 17 any feedback on -- well, first, let me ask you did you
 18 get any feedback on your modified FRP?
 19 A No.
 20 Q What was the next thing you heard as far as
 21 where EPA was with the FRP, if you recall?
 22 A It was in the September 2016 inspection,
 23 where I had a brief conversation with Janice about
 24 that.
 25 Q That's Ms. Wital?

1 A Yes. And it was -- it was maybe just a
2 couple comments back and forth and the only thing she
3 said was we didn't understand what you were
4 submitting, essentially, and we were -- so that was
5 the first indication that we -- you know, that what we
6 had presented was not acceptable by her standards.

7 Q And when you say we didn't understand, did
8 you mean Janice Witul was saying that on behalf of
9 EPA?

10 A Yes.

11 Q The EPA didn't understand the approach you
12 had taken?

13 A Yes.

14 Q And did she follow up then and say why don't
15 you do this or why don't you do that or anything? Or
16 what feedback did you get?

17 A No, the feedback we got was on the
18 inspection report just after that where it may have
19 been given at the conclusion of the inspection where
20 she noted there was no FRP. So at that point, Randy
21 said, "Let's just do a full FRP and get into
22 compliance with this."

23 Q And then so that was -- if I told you the
24 date of that was somewhere in the September 2016
25 range, does that sound about right?

1 A Yes.

2 Q So based on those instructions, so let me
3 back up. So you had submitted a plan -- or not a
4 plan, I guess an analysis of the FRP in 2015 that you
5 -- that was entitled, "Substantial Harm Criteria."

6 A Yes.

7 Q Okay. And we will look at that in a minute
8 or two, but I, I would just like your best testimony
9 from the date of that plan, which is June 23, 2015 and
10 when you encountered Ms. Witul at the site inspection
11 in September of 2016, so that year-plus, did you have
12 any feedback or any response from EPA that you were
13 aware of?

14 A Not to my knowledge.

15 Q Okay. Rewriting the FRP?

16 A No.

17 Q Okay. So you were -- I gather you were
18 present at the September 2016 inspection?

19 A Correct.

20 Q And I think you testified that thereafter,
21 you were instructed by Mr. Tilford to follow up, and
22 what did he tell you to do?

23 A To make the corrections that were listed in
24 the -- in the inspection report, the SPCC and then
25 just in preparation for the FRP.

1 Q And if you look at CX17, if you would, for a
2 moment, at Page 107 of 131.

3 A Yes.

4 Q Do you -- do you have that before you?

5 A Yeah.

6 Q And what is that -- what is that -- is that
7 a diagram?

8 A Yes.

9 Q And what does it purport to show?

10 A Well, this is actually a diagram out of
11 Craig Fletcher's report that indicates all the tanks
12 and their locations.

13 Q So was this -- so this document was provided
14 to you by Mr. Fletcher?

15 A Correct.

16 Q Do you -- is there anything in the document
17 that differs from your familiarity with the site in
18 terms of tank layout?

19 A No.

20 Q Or other site conditions?

21 A No.

22 Q Appears to be correct?

23 A Appears to be correct, yeah.

24 Q Let me draw your attention to the depiction
25 of Tank 865, and what is -- where is that shown to

1 exist?

2 A Well, just -- I'm just trying to orientate
3 myself with this map. It's at the east side of the
4 bulk asphalt containment area.

5 Q And did you, earlier in this proceeding,
6 submit a declaration explaining that there was some
7 sort of a transpositional error with how Tank 865 was
8 shown or how the -- how the contents were identified,
9 do you recall that?

10 A Yeah. And essentially, it was not on the
11 mapping. The mapping clearly identified the location
12 of 865 at 881, and that was consistent. Where I made
13 the error was in the table and it was that I took two
14 of the tank volumes and switched them.

15 Q Sorry, Ms. Casey. I apologize for
16 interrupting, but can you direct us all to the table
17 that you're referring to?

18 A It's Page, Page 24.

19 Q Is this the page that's titled in Part 4,
20 "Chemical Inventory"?

21 A Yes.

22 Q And what was the situation with Tank 865
23 that you were mentioning?

24 A Well, that tank, 865, should have been
25 identified, I believe, as 880, and it got -- it was

1 incorrectly identified as in spill containment and it
2 was not. It never has been.

3 Q Sorry, say that again, just so that
4 everybody can recall it --

5 A It was -- it was misidentified on this
6 label. It should have been 880, within that table.

7 Q So this table that is, if you look to the
8 far right is demarcating tanks within the product
9 storage and manufacturing area; is that right?

10 A Well, it's sort of a combination because the
11 -- this is an accounting of all of the A/C base stock,
12 so each tank that they have that product in, then
13 it's, it's a list. So, so the 2.38 million-gallon
14 tank is on this same set of tank numbers.

15 Q But on the -- on the far right column --

16 A Oh, yes, product storage unit and
17 manufacturing area.

18 Q -- refers to the storage area?

19 A Yes.

20 Q Okay. So what's referred to as 865 here
21 is -- according to this page is saying it's in the
22 product storage manufacturing area?

23 A Correct.

24 Q And you're saying that was not actually --

25 A It's not. It was just an error.

1 Q And was the error in that it should've been
2 Tank 880 and --

3 A I believe so. It was -- it was the -- yes,
4 I believe so.

5 Q And was that error rectified by you some
6 time thereafter?

7 A Yes. So this plan was just submitted as a
8 draft and we subsequently issued a plan to the site
9 some time in early of 2015, and that had been
10 corrected in that site plan.

11 Q So this plan, which is dated October 24th of
12 2014, you said it was submitted as a draft to whom?

13 A To EPA.

14 Q And why was it submitted as a draft to EPA?

15 A Because it contained some of these elements
16 of the FRP, and we were trying to get some feedback.

17 Q And did you get any feedback from EPA?

18 A No.

19 Q Again, before the -- before the inspection
20 at the end of 2016?

21 A Yeah, no.

22 Q So what prompted your decision then to go
23 ahead and issue a plan in January 2015, two or three
24 months later, after this?

25 A Well, because we -- we had done all of this

1 work, and we needed to issue it to the site, and so
2 we, we needed to finalize that and, and submit it to
3 the facility.

4 Q So your understanding at the time was you
5 submitted a draft to EPA to get their comments, didn't
6 hear back, and then went ahead and finalized to the
7 site with them?

8 A Correct.

9 Q And I'd like to ask you the same question --
10 couple of questions I asked Mr. Tilford, you may have
11 heard, so I apologize for repeating, but there were
12 documents that were produced in this litigation that
13 included CX12 and CX24, these are -- they were both
14 entitled FRP Checklist. One was from January; one
15 from September of 2017?

16 A Yes.

17 Q And my question is before this -- you know,
18 the documents that were produced in the last year or
19 so in this case, had you ever seen those before?

20 A The January 2017, yes.

21 Q That one you saw?

22 A Yes, but the --

23 Q Okay.

24 A -- the subsequent one, not until --

25 Q So when you got -- so when you saw the

1 January of '17, how was that -- do you recall how that
2 was transmitted to you?

3 A Randy must've provided me a copy or I was on
4 the CC list.

5 Q And what did -- what did you -- so once you
6 got that, what was your understanding of what you were
7 supposed to do with it?

8 A Make corrections to the plan.

9 Q Make corrections to respond to that?

10 A Yeah.

11 Q And did you do that?

12 A Yes.

13 Q To the best of your ability?

14 A Yes.

15 Q And what did that result in?

16 A We reissued an FRP in May of '17 and
17 submitted that.

18 Q And as far as you were concerned, that was a
19 final and compliant FRP?

20 A To my -- to my knowledge, yes.

21 Q So until you saw the September of '17
22 comments where some deficiencies were noted by Ms.
23 Witul, you didn't see that in September of '17?

24 A That -- not until this case, no.

25 Q You only saw it once this case had been

1 started and people were exchanging documents?
 2 A Correct.
 3 Q And had you seen it in September of '17,
 4 what would you have done?
 5 A We would've responded to, to whatever the
 6 comments were.
 7 Q Let me ask you to take a look at CX23. Do
 8 you have that before you, Ms. Casey?
 9 A Yes.
 10 Q What is this document?
 11 A This is a Substantial Harm Criteria
 12 determination that we prepared.
 13 Q And you were -- you were involved in the
 14 preparation of this document?
 15 A Correct.
 16 Q As was Mr. Delano, I gather, from the first
 17 page?
 18 A Correct.
 19 Q And once again, why were you -- what's your
 20 best recollection or understanding of why you were
 21 being asked to prepare this by VSS?
 22 A To clarify questions surrounding the
 23 applicability requirements, I have a hard time saying
 24 that word, yeah.
 25 Q In preparation of this plan, were there

1 specific site conditions that you, meaning you, WHF,
 2 were aware of that you tried to incorporate into this
 3 document?
 4 A I'm sorry, can you repeat that?
 5 Q Well, specific site conditions meaning the
 6 specific layout that you were familiar with or the --
 7 you know, things like the topography, I think you
 8 mentioned you all had done the survey?
 9 A Yes.
 10 Q So to the best of your knowledge, does this
 11 document reflect the most accurate information that
 12 you have available to you?
 13 A Yes.
 14 Q Regarding the site layout?
 15 A Yes.
 16 Q And that would include drainage patterns and
 17 topography?
 18 A Correct.
 19 Q Okay. And what -- we have a -- we have a --
 20 we've had a lot of testimony about the substantial
 21 harm criteria, and I'll at least make an effort not to
 22 have us all go through it again, but in general,
 23 what's your just sort of basic understanding of how
 24 the part -- the 40 CFR Part 112.20 FRP regulations are
 25 to be used at a site like VSS? What do you -- what do

1 you -- what are you looking -- what are you looking to
 2 -- what questions are you looking to answer in this
 3 context?
 4 A So in the regs, there's four basic questions
 5 you have to answer, whether or not the facility, I
 6 believe, stores over 42,000 gallons and transports
 7 over water, which doesn't apply to this facility.
 8 Q That's F1 --
 9 A Just one of the questions, yeah.
 10 Q -- A?
 11 A Yes.
 12 Q And that does not apply?
 13 A Right.
 14 Q Okay.
 15 A The next --
 16 Q Do me a -- do me a favor and jump to D.
 17 A Oh, well, then there's the question of fish-
 18 sensitive environment, which is in proximity to fish-
 19 sensitive environmental and drinking water intake.
 20 And then where you've had a spill over 10,000 gallons
 21 within a certain time frame or -- and then the last
 22 question is, is there adequate secondary spill
 23 containment. So we have to answer those basic
 24 questions and then if this -- and then that gets you
 25 into the planning calculations.

1 Q Okay. So I, I think what you were -- you
 2 were saying, and I apologize, I cut you off, was two
 3 of the -- two of the four, seemingly everybody agrees,
 4 do not apply. That's the public drinking water intake
 5 and the spill history?
 6 A Correct.
 7 Q So that just leaves on the table for
 8 purposes of this proceeding, B & C, B being the
 9 secondary containment factor and C being the
 10 substantial harm?
 11 MR. HELMLINGER: Again, I object to the
 12 mischaracterization of the record. I'm not sure
 13 everyone does agree that the drinking water doesn't
 14 apply. It hasn't been analyzed in this case because
 15 it's about a -- maybe a fifth-level review, but I
 16 wouldn't say we agree, it doesn't apply.
 17 JUDGE BIRO: It's not at issue in this
 18 proceeding, just move on.
 19 MR. MCNEIL: I certainly stand corrected.
 20 In any event, I'm only going to address B and C. So
 21 as far as B goes, did you -- did you look at that --
 22 this is a secondary containment. What's your --
 23 what's your understanding of what that requirement is
 24 in general?
 25 THE WITNESS: It was -- a lot of times in

1 California it's applied as 110 percent of the max
2 tank. Well, but I do understand that in some, some
3 instances, you do use a 24-hour rain event or whatever
4 that -- whatever that 25-year, 24-hour rain event to
5 calculate that. But typically, in most SPCCs, the
6 applications, we just use 110 percent of the largest
7 tank volume.

8 BY MR. MCNEIL:

9 Q And did you reach a conclusion that that
10 prong of F1 that, that is the lack of adequate
11 secondary containment was not the case here?

12 A Correct.

13 Q And what did you review to arrive at that
14 conclusion?

15 A We just -- we looked at -- as a whole, we
16 looked at the secondary containment calculations and
17 they -- there's been a couple iterations of that, and
18 we did some of our own calculations.

19 Q And then insofar as Subsection C, the
20 substantial harm criteria, what did you -- what was
21 your approach in analyzing the potential applicability
22 of the FRP requirements vis-a-vis substantial harm?

23 A Well, we went through those questions and
24 then -- and then mostly focused on the overland flow
25 because that way follows the biggest questions as to

1 whether overland flow could really get to the channel.
2 And then also, we -- if the storm drain connection,
3 whether the type of material affects the weight of
4 that would flow into the storm drain. So I was
5 looking at those, B2 as the -- I believe the storm
6 drain calculation -- I think D1 is where storm and
7 overland flow calculation.

8 (Simultaneous discussion.)

9 MR. LUDWIG: Would it help --

10 THE WITNESS: Yeah, or do you -- D -- yeah,
11 D1 and D4 are really dealing with overland flow.

12 BY MR. MCNEIL:

13 Q I was going to ask you about that other one
14 first, so the overland flow, what was your approach to
15 whether that was applicable in this case?

16 A We looked at some modeling applications and
17 then -- and then direct parameters and created our own
18 model.

19 Q And what was the information that you used
20 for --

21 A That was the Guo, Guo study is what we -- is
22 what we used.

23 Q And what did you use as your -- as your
24 inputs or your values for -- so you followed that
25 model?

1 A Correct.

2 Q So -- and were you here for Mr. Michaud's
3 testimony?

4 A Yes.

5 Q So you wouldn't disagree that that model is
6 appropriate for this analysis, right?

7 A No.

8 Q So did you -- in the review of that model,
9 did you reach a conclusion whether the model, the Guo
10 model could also be used for the initial splash?

11 A I believe so because the model itself is
12 modeling the tank break and, and inflow from the tank.
13 So I don't -- I think it would be an appropriate
14 assumption to use that model.

15 Q And then did you -- did you -- what else did
16 you consider? Did you consider site topography?

17 A Yes.

18 Q And is that -- is that shown -- now is that
19 depicted in any figures to CX23 that you can refer us
20 to?

21 A Yes. So we have Figure 5.

22 Q All right. And what is Figure 5?

23 A It shows the overall site topography, but
24 then also outlines topography within that scope of
25 containment.

1 Q And did you -- in your analysis, did you
2 reach -- again, we certainly can, with Your Honor's
3 permission maybe we can pull it out, but you're
4 generally familiar with Section 5.0, overland
5 transport, in the appendix to Section 12?

6 A Yes.

7 Q And the witnesses have talked about that
8 already. Is it your understanding that that allows
9 the facility owner to do a calculation, but you're
10 allowed to, and I'm just asking is this your
11 understanding of it, allowed to include or take credit
12 for manmade depressions, but you're not allowed to
13 take credit for secondary containment?

14 A Correct.

15 Q Is that fair?

16 A Correct.

17 Q Okay. That's your understanding?

18 A Yes.

19 Q Is that how you applied that here?

20 A Yes.

21 Q Okay. So do you have a calculation for the
22 effect on the volume of material in the event of a
23 release or do you have any calculations that would
24 show the impact of the manmade depression around the
25 tanks?

1 A Yeah, we have a couple things that go to
2 that point. So what the first is, it's on Page 29 is
3 -- it gives the description of the depression of this,
4 the containment structure, well, part of it is
5 subsurface, so we would consider that a manmade
6 depression because it's a point where the containment
7 won't fail.

8 Q And you said Page 29?

9 A Yes.

10 Q Of 41, okay. And then what's the other --
11 you said there was another reference.

12 A And then -- can't see it --

13 Q Oh, I'm sorry, on Page 29, just going back
14 to that for a second, is this figure that's included
15 in the bottom half of Page 29, is that essentially the
16 same as Figure 5?

17 A Yes, it's just inlaid into the topography
18 map, yeah.

19 Q And then what was your analysis of the
20 potential applicability of the other factor that you
21 looked at involving the potential migration and
22 direction of storm drains or catch basins?

23 A Well, we looked at the overall site
24 topography, so where, you know, the general topography
25 would be, which would be in the northerly direction,

1 and then towards the facility storm drains. And then
2 we looked at that volume and the volume of, you know,
3 some of the containment structures that are there, the
4 rail -- the rail and, and actually the product and
5 storage, I believe that was sort of accounted for,
6 too, because that's also low-grade.

7 Q And what was your conclusion regarding the
8 reasonable expectation or whether there was a
9 reasonable expectation that a release would reach the
10 channel via either of those routes?

11 A Well, we -- I think we demonstrated in our
12 model that it was a relatively low possibility because
13 the material cools so quickly, we, we take some pretty
14 conservative estimates of how that material will
15 initially travel, and when you sort of knock down --
16 when you sort of assume that that initial wave is
17 contained and then you take out that snow (phonetic)
18 volume and account for the slope, you would -- you
19 would get where it just really doesn't go as -- it
20 doesn't go, you know, past that southern boundary when
21 you take, take into account the slope changes.

22 Q Meaning the uphill slope at the southerly
23 side?

24 A Correct.

25 MR. MCNEIL: I have nothing further at this

1 time, Your Honor.

2 JUDGE BIRO: Okay. Do you want to proceed
3 with cross?

4 MR. HELMLINGER: Could we take five minutes
5 before I start?

6 JUDGE BIRO: Sure.

7 MR. HELMLINGER: I should be able to finish
8 before 5:00.

9 JUDGE BIRO: Okay.

10 (Whereupon, a brief recess was taken.)

11 JUDGE BIRO: Madam Reporter, we're going to
12 go back on the record. Please proceed.

13 CROSS-EXAMINATION

14 BY MR. HELMLINGER:

15 Q Hello, Ms. Casey.

16 A Hey.

17 Q So your testimony was that you have done a
18 bit of work with SPCC plans, air permitting, hazmat
19 work. You understand that the state Above Ground
20 Petroleum Storage Act is different than the federal
21 SPCC department's, do you not?

22 A Yes.

23 Q And the hazmat work, you're working with the
24 DTSC, the Department of Toxic Substances Control,
25 which is a state agency, that's correct?

1 A Correct.

2 Q And that when you discussed the regional
3 water boards, that's a state -- California State Water
4 Regulation Agency?

5 A Correct.

6 Q Principally for ground water and surface
7 water. You mentioned that you had had some
8 involvement with EPA. Could you describe if that
9 regards SPCC or FRP?

10 A It was an -- it was an SPCC.

11 Q And which site was that?

12 A What's that?

13 Q Which site was that?

14 A It was a site in Tuolumne County.

15 Q In Tuolumne County?

16 A Yes.

17 Q Do you know the name of the facility?

18 A Yes, it's the George Reed Rock Quarry.

19 Q Now was that an SPCC or FRP issue?

20 A SPCC.

21 Q And just the one?

22 A Yeah, and I think the other EPA thing was
23 sort of a different issue, not SPCC-related.

24 Q When you're working with the state agencies,
25 have you been involved in enforcement actions related

1 to the work that you've been involved with?

2 A Yes.

3 Q And are you brought into those matters after

4 the agency has identified potential violations?

5 A Depends on the client.

6 Q Let's say that you have been brought into a

7 situation after an agency has notified the client of

8 potential violations, have you understood the agencies

9 to accept iterations of permits, for example, efforts

10 of compliance?

11 A I think if the -- if the general effort is

12 towards compliance, there's, there's been a

13 willingness to, to accept.

14 Q Sure. We can all agree, compliance is, is a

15 goal across the board.

16 A Yeah.

17 Q But does that change -- has that, in your

18 experience, have you ever seen in writing from an

19 agency that changed the nature of the original

20 violation allegation?

21 A Yeah.

22 Q You've seen that in writing?

23 A Uh-huh.

24 Q For what sites?

25 A I mean specifically. I mean I, I've seen

1 where in our response has changed a violation order

2 is, is adding information or giving more information

3 changes the response from the agency.

4 Q In those instances, is that changing the

5 facts, the understanding that the agency might have?

6 Or is that sort of coming into compliance? You're

7 telling me -- one question at a time.

8 (Simultaneous discussion.)

9 Q Let me back up, so it's clear for the

10 record, one question at a time. Is it your

11 understanding that providing maybe better facts to the

12 agency has changed an agency's assertion of a

13 violation?

14 A Or a clarification on regulation, yes.

15 Q Or a clarification on regulation, so if the

16 agency would agree it had a misinterpretation of a

17 regulation that, that might change the posture of the

18 violation, that's been your experience?

19 A Yes.

20 Q If there is no misunderstanding of the

21 regulation or there is no clarification or improvement

22 of facts, has subsequent compliance been conveyed to

23 you or your clients in writing that the original

24 violation didn't occur?

25 A Well, it's usually negated by whatever was

1 submitted.

2 Q Negated or resolved, which is a better word?

3 A Resolved, probably.

4 Q I'd like to have you turn to RX23, if you

5 would.

6 THE WITNESS: What was the number?

7 JUDGE BIRO: 23.

8 THE WITNESS: Is that in the black book?

9 JUDGE BIRO: In the black volume, it's the

10 last one in the first volume.

11 THE WITNESS: Okay.

12 BY MR. HELMLINGER:

13 Q It's a big document. If you would turn to

14 Page 78 of RX23. Can you take a moment and

15 familiarize yourself with this?

16 A Yes.

17 Q Can you tell me if you recognize this? Have

18 you seen this document?

19 A Yes.

20 Q What is it?

21 A This is the checklist from the January 17

22 FRP checklist.

23 Q And this is what you used when you made

24 another effort at improving the FRP plan, is that

25 right?

1 A Correct.

2 Q I'd have you turn to the second page of the

3 document. Could you review this and identify, if you

4 can, what it is?

5 A This particular page?

6 Q And this document, yes.

7 A I don't understand what you're asking me to

8 do.

9 Q Page 2 of 147, do you have that in front of

10 you?

11 JUDGE BIRO: Page 2 of 147?

12 MR. HELMLINGER: Yes.

13 JUDGE BIRO: Oh.

14 MR. HELMLINGER: This is one of those

15 documents that's really kind of many documents

16 conflated.

17 THE WITNESS: Okay.

18 BY MR. HELMLINGER:

19 Q Do you see the top right corner of this

20 document, the date?

21 A Yes.

22 Q And what is that date?

23 A March 27, 2017.

24 Q And is this letter addressed to Mr. Jeffrey

25 Reed?

1 A Correct.

2 Q At the VSS facility in West Sacramento?

3 A Yes.

4 Q And does this document transmit the FRP

5 checklist to the VSS facility?

6 A I assume so, yes.

7 Q So given your work with SPCC plans, can I

8 assume you're familiar with the phrase 'crosswalk'?

9 A Sure.

10 Q Okay. Are you familiar with the phrase

11 'crosswalk'?

12 A Well, I understand what you're saying, yes.

13 Q Sure. So you understand there's

14 requirements in the SPCC regulations to essentially

15 crosswalk the requirements. If you don't provide your

16 SPCC plan in the same order and format suggested by

17 the federal regulations, that you provide a crosswalk.

18 A Right. We call that a cross-reference

19 table.

20 Q Okay. A cross-reference table. Have you

21 prepared a cross-reference table among the several

22 iterations of compliance documents between 2015 and

23 2017?

24 A Yes.

25 Q You have?

1 A Yes.

2 Q Have you submitted that to EPA?

3 A It's in all of our plans, correct.

4 Q There's a crosswalk between the different

5 documents?

6 A Well, the FRP and SPCC are standalone

7 documents.

8 Q Well, if I understood the testimony

9 correctly, there were a couple graphs that combined

10 SPCC and FRP, ultimately culminated in May 2017 with

11 an FRP plan, and along the way there, there were, I

12 think you used the phrase 'graphs', there was

13 testimony earlier that whichever one we had, I think

14 was the quote, was the applicable plan. The plans had

15 different materials then, isn't that right?

16 A Well, there's -- yeah, because they're --

17 they -- they're a document that continues to be

18 modified over time, so there's different versions of

19 that document, yes.

20 Q Each subsequent iteration didn't include the

21 same information the previous draft did; isn't that

22 right?

23 A Well, correct.

24 Q Some of the preceding documents included

25 information that didn't transmit forward into the

1 later documents, such as an emergency response plan;

2 isn't that right?

3 A I'm not exactly following what you're asking

4 me.

5 Q If there was an emergency response plan in a

6 2014 document that did not appear in a 2015 document,

7 was there any crosswalk or cross-reference that

8 suggested if you're looking at the 2015 plan that one

9 should go to the 2014 plan to find that piece of

10 information?

11 A Well, do we -- do we refer back to old plans

12 in that cross-reference section?

13 Q If you want to take the question that way,

14 that's fine with me.

15 A I don't -- I don't -- if, if that's your

16 question, then no, we don't -- we don't go back to

17 previous plans.

18 Q Thank you. When you were at the meeting in

19 2014, you mentioned I was there, did you have any

20 understanding that the EPA did not believe there were

21 violations at the VSS facility, both of SPCC and FRP

22 regulations?

23 A Well, I think it was -- there was a -- I

24 mean the -- with the SPCC, I think there was a clear

25 understanding of that. The FRP, to me, seemed like

1 kind of an open-ended question. There was -- there

2 was discussion about that, that it seemed like that

3 was still sort of an unanswered question.

4 Q So it's your testimony that EPA brought you

5 to San Francisco to discuss potential FRP violations,

6 but you don't think FRP -- EPA believed there would

7 ever be violations on that day?

8 A I hadn't seen any specific mention of what

9 they -- of the violations. I mean I came to that

10 meeting, I, I hadn't, you know, reviewed any document

11 that said there were specific violations regarding

12 that.

13 Q Were you told that day that EPA had concerns

14 that there were FRP violations at that facility?

15 A Well, of course, that was a part of the

16 conversation, but the conclusion of that conversation

17 seemed like it left it open-ended, in my opinion.

18 Q You prepared CX23. I'd like to have you

19 turn to that. If I could have you turn to Page 10 of

20 that document. Do you have that in front of you?

21 A Yes.

22 Q Table 4 on that page has your summary of

23 initial waves. This is a wave calculation that you

24 testified you produced following the Guo model; is

25 that right?

1 A Correct.

2 Q And you have the total tank volume,
3 2,348,000 gallons. I believe the report states that
4 that would be the absolute worst discharge, the
5 maximum volume of a single tank?

6 A Correct.

7 Q And your report also states that the
8 absolute worst case discharge would be a side seam
9 split of that tank; is that right?

10 A Correct.

11 Q You go through here, if I'm understanding
12 this right, you are saying that in line -- contained
13 on site, the third line down, that Table 4, 1,400,000
14 gallons, you're saying, wouldn't escape containment,
15 essentially. That is what you had said, I believe,
16 would be trapped in the manmade depression. Do I have
17 that testimony correct; is that right?

18 A Well, on this -- in this table, the initial
19 1.4 million is contained within that manmade
20 depression, and then the 948 is what escapes that,
21 correct.

22 Q Right. And so when you say manmade
23 depressions, to me, if we look at RX105 on the wall
24 here, that's this -- what was -- testimony was the
25 wedge shape where you come up to reach the containment

1 berm; is that right? The sort of slope?

2 A There's no right or -- that's not an
3 accurate depiction of the site.

4 Q Sure, this -- I agree, this does not include
5 the second-hand containment. Maybe I could turn you
6 to one of the maps of the facility. Okay. So I have
7 CX1 up, which we have had a lot of discussion of this
8 aerial photo of the site. We see the two white tanks
9 and plenty of testimony that those are the large
10 asphalt cement tanks. One of those is the 2,348,000-
11 gallon tanks that you're doing your math based on; is
12 that right?

13 A Yes.

14 Q And sort of a rectangle at the bottom left
15 corner, the corner is cut off. That's what we know as
16 the secondary containment wall; is that right?

17 A Correct.

18 Q And within that is what you're calling the
19 manmade depression; is that right?

20 A Yes, but a, a portion of it is underground,
21 is below grade.

22 Q I understand. It's, it's graded down
23 towards the tanks at a lower elevation than the, the
24 property immediately south of that wall?

25 A Well, there's literally a approximately 1.9-

1 foot depression --

2 Q Yes, I understand that.

3 A -- that, that extends the -- like below the
4 containment wall.

5 Q Yes, I understand that. Just, just to be
6 fair, so you call it a manmade depression, calling
7 this the area of secondary containment I think is not
8 exactly relevant to my question to be too particular
9 on that.

10 A Okay.

11 Q So but you're saying that that 1,400,000
12 gallons would be captured there?

13 A Correct.

14 Q You are saying that you're only doing your
15 wave height calculation based on 948,000 gallons,
16 that's correct?

17 A Correct.

18 Q So I just want to understand this right
19 because math is difficult. The difference -- you're
20 saying that 1,400,000 gallons would not be subject to
21 gravity or momentum under the Guo model?

22 A What we're saying is, is that we're -- in
23 this first initial, we're trying to, to model that
24 initial wave. So there's this instantaneous sort of
25 thing that we assumed that it breaks, it fills up that

1 1.9 feet, and the wave coming over is what we're
2 calculating here at .57.

3 Q Sure.

4 A And then that volume that comes over is
5 related to the 948,000.

6 Q So the wave is, in fact, higher than you
7 calculated? You're saying that gravity and momentum
8 do apply to that 1,400,000 gallons?

9 A We're assuming -- we're assuming in this
10 that this wave height is going to apply outside, even
11 though in reality, that would be knocked down. We're
12 just -- we're just making an assumption here that,
13 that this is -- since we're trying to calculate this
14 in worst case, that we're, we're reducing the volume
15 of the spill but not the wave itself.

16 Q Right. So you're only calculating the wave
17 based on the smaller volume of the rules?

18 A No, no, no, incorrect. The wave is
19 calculated based on the full volume. It's just that
20 the volume is then reduced by the 1.4 million gallons,
21 I believe, if I understand your question, that's my
22 understanding.

23 Q I'm going to turn you to the -- lower down,
24 the spill angle line. Do you see that? The spill
25 angle, 360 degrees.

1 A Correct.

2 Q So we're assuming that your initial splash
3 is based on a testimony earlier, a tank column
4 collapse, full 360-degree positive containment.

5 A Yeah, it would be similar in this case.

6 Q What would be similar in this case?

7 A The 360-degree angle.

8 Q Right. So that's how you're calculating
9 this, this is the whole tank collapse?

10 A Right.

11 Q So this is not based on a 180-degree
12 collapse or a quarter-tank collapse?

13 A Well, for the initial phase, we were using
14 360, but then when you try to do a total distance,
15 then we're limiting that to a 45-degree angle.

16 Q Sure. My question is just about this
17 initial phase.

18 A Okay.

19 Q So you've only done this characterization
20 based on a full tank collapse --

21 A Right.

22 Q -- 360 degrees?

23 A Yeah.

24 Q And the distance to travel here is 271 feet-
25 plus sign, do I have that right?

1 A Well, that's sort of an assumed value in the
2 model. The final radius of travel is an assumed value
3 to, to calculate this, we calculate the wave height.

4 Q And why do you assume that height?

5 A I'd have to go back to the model and look at
6 the parameters, but you have to assume some distance,
7 and that's, that's the average property boundary.

8 Q Right. So at -- based on your assumption,
9 at 271 feet, you're saying the wave height is a little
10 more than half a foot, .57 feet?

11 A Well, no, that's not the -- in this
12 particular case, the final radius of travel is really
13 not -- we're not saying that that's the -- that that's
14 the extent of this phase. We're just using -- it's an
15 iterative model, so then we're using what we're
16 developing in this to put into the second phase. So
17 the final radius or final distance is in the next
18 calculation.

19 Q All right. And so at 271 feet, the model
20 calculates it would reach that distance in 21 seconds,
21 .99?

22 A Correct.

23 Q You testified that the asphalt would cool so
24 quickly I think was the quote. Would it cool in 21
25 seconds?

1 A No, that's, that's why we assume time --
2 that's why we assume that instantaneous --

3 Q Sure. Would it cool from 250 degrees to 150
4 degrees in 30 minutes?

5 A Well, I think that we have a table that
6 explains the flow rate. So this -- we have Graph 2
7 here where it starts at 300 in a 60-minute interval,
8 it's cooling to I think about 180 or --

9 Q Right. So in 30 minutes, it won't cool to
10 150 degrees; is that right?

11 A Right.

12 Q Have you been to many oil spill responses?

13 A Yes.

14 Q How many?

15 A More than 20.

16 Q Are these are what you might characterize as
17 a large spill? And if so, please describe what large
18 means to you.

19 A Well, large is really relative to where the
20 spill happens, so I mean I, I've had small spills in a
21 storm drain and they're a serious issue. I've had
22 large spills, so basically in an open area and they --
23 and they're not a problem, so --

24 Q Sure. So we can appreciate that risk from a
25 spill changes based on certain circumstances, right?

1 A Right.

2 Q So given that, is it your conclusion that a
3 potential 200 million-gallon asphalt spill, 200 feet
4 from the Sacramento River Deep Water Ship Channel is
5 not a risk?

6 A I think the way that we modeled it, it shows
7 that it doesn't leave that back boundary, and it cools
8 and --

9 Q Right. And when you say back boundary, you
10 mean the property north of the tanks?

11 A The southern -- the southern boundary.

12 Q Right. So you didn't model the flow moving
13 to the south, did you?

14 A Well, the site -- the site model takes into
15 account the slope, so yes, it would.

16 Q Are these slopes intended to capture the
17 gravity and momentum of a 2,000,000-gallon asphalt
18 tank collapse?

19 A Well, the model itself does. I mean the Guo
20 model itself does.

21 Q But you testified based on your experience
22 as an SPCC engineer --

23 A Oh, I'm not an engineer, but --

24 Q But you've produced many SPCC plans?

25 A Yes.

1 Q Okay. So you also testified that you've
 2 done a lot of storm water work.
 3 A Yes.
 4 Q So you understand storm water drainage very
 5 well.
 6 A Yes.
 7 Q Right. Would you agree with me this
 8 facility is really designed to channel storm water
 9 towards the north facility?
 10 A Correct.
 11 Q Is this facility designed to capture or
 12 deflect a 2,000,000-gallon asphaltic cement discharge
 13 exclusively to the north?
 14 A From when our report --
 15 (Simultaneous discussion.)
 16 Q And that's the only circumstance you can
 17 envision? It's only going to flow to the north? Is
 18 that your testimony?
 19 A No, but if it flows across the side, but
 20 it's dictated by the topography at some point, so we
 21 try to model where it initially goes and then where it
 22 goes after that and if it's going to follow the
 23 direction of storm water.
 24 Q And you had testified you applied the Guo
 25 model to the initial splash, and have you reviewed the

1 Roche model?
 2 A Yes.
 3 Q And have you applied the Roche model?
 4 A No. Because the Roche model doesn't really
 5 have a model created within it.
 6 Q So you haven't applied any of the
 7 formulations or considerations of the Roche paper?
 8 A I've looked at them, but I -- but no.
 9 Q Your testimony or your -- I'm sorry, not
 10 your testimony, CX23, your report mentions that you
 11 only have to model a portion of the worst case
 12 discharge; is that right?
 13 A Correct.
 14 Q And what portion is that?
 15 A Well, that's what it says in the regulation.
 16 That's what's ambiguous.
 17 Q Is it really? I'll read this to you from
 18 5.1 of Appendix C and you can tell me if this is what
 19 you believe is ambiguous. "The owner or operator must
 20 evaluate the likelihood where portions of a worst-case
 21 discharge would reach navigable waters via open
 22 channel flow or from sheet flow across the land or be
 23 prevented from reaching navigable waters when trapped
 24 in natural manmade depressions, excluding secondary
 25 containment structures." So you believe it's

1 ambiguous that the word 'portions' there doesn't
 2 modify worst-case discharge reaching navigable waters?
 3 A Well --
 4 MR. MCNEIL: Objection, Your Honor, this
 5 calls for a legal conclusion.
 6 MR. HELMLINGER: She told me she was
 7 confused by it, and I need to understand this because
 8 it clearly weighs into the application of the FRP.
 9 JUDGE BIRO: Well, she's an expert. This is
 10 the ground, something she should know. Go ahead.
 11 Overruled.
 12 THE WITNESS: Well, I believe -- I mean it's
 13 -- the way that it's written, it implies that a
 14 portion, you're only -- you're only -- even a worst-
 15 case discharge a portion of it gets there, not --
 16 MR. HELMLINGER: Agreed, agreed.
 17 THE WITNESS: Right, yeah.
 18 MR. HELMLINGER: The consideration really is
 19 that you're planning for a worst-case discharge
 20 because a portion may have reached the navigable
 21 water. You're not planning for a portion of a worst-
 22 case discharge and how that would follow. Is that
 23 fair?
 24 THE WITNESS: Okay.
 25 BY MR. HELMLINGER:

1 Q Do you agree with me?
 2 A Yeah.
 3 Q In your report, you refer to a manmade berm
 4 on the southern edge of the property. Is that what
 5 has been described in the earlier testimony today as
 6 the K rails and Jersey walls?
 7 A Yeah, yeah.
 8 Q And have you reviewed any engineering
 9 designs on those K rails or Jersey walls?
 10 A No.
 11 Q Do you understand them to be impervious?
 12 A Well, I do -- I mean I do understand that
 13 there was a dirt berm on the other side of it for a
 14 period of time that I observed. And subsequent, they
 15 have completed that and, and from my understanding
 16 sealed that.
 17 Q So it's containable?
 18 A Well, it's divergent.
 19 Q Divergent. Is divergent and containable
 20 different?
 21 A In this instance, yes.
 22 Q How so?
 23 A Because containable implies that you're
 24 trying to contain the volume of a particular tank,
 25 where divergent means that you're trying to divert

1 whatever might reach that, whether it be water or a
 2 spill.
 3 Q Is that, in your mind, a difference -- you
 4 testified that you have experience creating SPCC
 5 plans.
 6 A Correct.
 7 Q Do you understand that SPCC can take many
 8 different forms because it's not prescriptive; is that
 9 right?
 10 A Correct.
 11 Q It leaves it to the facility to design
 12 containment structures?
 13 A Correct.
 14 Q Right. So if the first wall -- and you
 15 understand that the FRP calculations don't allow you
 16 to include a secondary tank, would you agree on that?
 17 A Yes.
 18 Q All right. So if you don't have the wall in
 19 CX1 here that makes that rectangle around the two
 20 tanks, would the southern boundary contain any release
 21 in the facility, these K rails?
 22 A We don't -- we don't -- well, are you -- so
 23 you're calling that a containment wall?
 24 Q Well, I'm asking if you're calling it a
 25 containment wall.

1 A No, I'm not calling it a containment wall.
 2 Q All right. Do you believe that that is
 3 something that would stop flow of oil?
 4 A Yes.
 5 Q Is it itself a depression?
 6 A No.
 7 Q In your report, you note that storm drains
 8 exist in the facility, correct?
 9 A Correct.
 10 Q And in your report, you note that the route
 11 of any discharge through a storm drain would go to the
 12 Sacramento Deep Water Ship Channel; is that correct?
 13 A Right.
 14 Q And you note that that would take
 15 approximately 2,490 feet distance to the storm drain;
 16 is that correct?
 17 A No, I have to look at that. What page are
 18 you on?
 19 Q This is on Page 10.
 20 A Where -- I don't -- I don't -- I'm not sure
 21 where you're referring?
 22 Q I'm sorry, I think I gave a wrong page
 23 reference there. I shouldn't be making notes on the
 24 fly. On Page 12. Do you see in the last paragraph
 25 there, it begins, "The discharge point," can you read

1 that?
 2 A Correct.
 3 Q Does that refresh your recollection as to
 4 the distance the storm drain runs where the water
 5 reaches the Sacramento Deep Water Ship Channel?
 6 A Yes, correct.
 7 Q I don't believe it matters, but 2,490 feet
 8 is less than a half-mile, is it not?
 9 A Okay, sure.
 10 Q And the facility itself, these two large
 11 tanks are within a half-mile of Sacramento's Deep
 12 Water Ship Channel, is it not?
 13 A Yes.
 14 MR. HELMLINGER: No more questions.
 15 MR. MCNEIL: No redirect, Your Honor.
 16 BY JUDGE BIRO:
 17 Q Can I just ask you a few questions? Can you
 18 -- you said you did 30 SPCC reports.
 19 A Correct.
 20 Q How many FRP reports have you done?
 21 A This is the first FRP I've done, yes.
 22 Q And did your calculations take into account
 23 the ambient temperature or the temperature of the
 24 land?
 25 A Yes, it's built into the model.

1 Q And what temperature did you end up using?
 2 A I can't -- I can't be totally sure. I think
 3 it's 70 degrees -- yeah, it's in there.
 4 Q Was it the worst-case scenario?
 5 A Well, but it's just a parameter I modeled
 6 considering an average ambient temperature.
 7 Q And if it turned out that there wasn't an
 8 initial 360-degree collapse, if instead, it collapsed
 9 on one side of the seam, would that, in fact, overflow
 10 the boundary, the depression and flow towards the
 11 water quicker because it wouldn't -- the value
 12 wouldn't have a greater area to expand to?
 13 A Well --
 14 Q Do you understand my question?
 15 A Yeah, I understand what you're saying, and
 16 strictly speaking, yes, because the angle that that
 17 tank raised can dictate the flow, so if you're doing
 18 it at 45, which is, in this case, I think presumed to
 19 be the worst case scenario, then that material flows
 20 out, but what I think restricts it in this case is
 21 because you have this depression that that material
 22 can't escape. So it has to overflow that first and
 23 then you're -- and then you're assuming that the other
 24 containment wall isn't there, which is what the FRP
 25 requires you to design the model, but so you're really

1 sort of even creating a 360 in this particular case
 2 because it sort of over -- because it fills up and
 3 overflows --
 4 Q So you --
 5 A -- it fills up and overflows --
 6 Q -- think it would have to fill -- the
 7 asphalt cement would have to fill all of the area
 8 around to be --
 9 A To be --
 10 Q -- so if it cracked on the seam on the south
 11 side, it would flow and evenly fill up all of the
 12 depression area before it flew -- it went over the
 13 barrier?
 14 A Well, that particular instance would have to
 15 be modeled specifically because then you're, you're
 16 really determining that wave height. So if that wave
 17 like, you know, gets over all of the wall and then the
 18 topography and then this barrier in the back, then it,
 19 it could potentially. It's just whether that really
 20 actually happens within that tank break and if that's
 21 realistic to assume. So --
 22 Q Okay. So what happens to everything else?
 23 Let's say there is a catastrophic failure and 2.4
 24 million gallons of asphalt, hot asphalt leak out, what
 25 happens to the other tanks that are there. Now,

1 another large tank and there's another smaller tank
 2 onsite?
 3 A I don't believe that -- I mean it could
 4 cause damage to those tanks, but I don't -- I don't
 5 believe on the same level.
 6 Q They wouldn't call a breach?
 7 A I don't -- I wouldn't know for sure.
 8 Q Okay. And you said that you thought that a
 9 modified FRP would be acceptable in this case, is
 10 that --
 11 A Well, that was my understanding after the
 12 meeting was that we would, you know, work on sort of
 13 systematically trying to put this together. So if we
 14 were going to, you know, do the FRP or we going to do
 15 the SPCC, that was our first iteration of that plan,
 16 and then we were going to try to address, you know,
 17 some of the, the conditions of the FRP, and so to work
 18 towards that.
 19 Q So you were -- I'm still confused by this
 20 whole modified or, you know --
 21 A It was presented as an -- as an idea because
 22 we do these things on all these plans, and this is not
 23 a typical plan. They're not typically recorded like
 24 this. We do -- we try to consolidate -- allow
 25 different emergency response and contingency plans

1 sort of in one document, so we -- the idea was
 2 still -- I mentioned that, you know, this is what we
 3 do, and I think that they, it was my understanding
 4 from the feedback I got was maybe that would work, so
 5 that was --
 6 Q Maybe that would meet their --
 7 A -- that let's put that in and we'll see what
 8 -- we'll be able to see.
 9 Q So that's the impression you got --
 10 A That was --
 11 Q -- EPA said put in what you normally do and
 12 we'll see if that's sufficient?
 13 A That's the impression I got from the
 14 meeting, yes.
 15 Q Okay. All right. Did you confirm that with
 16 EPA in writing, that that's what you were doing, you
 17 weren't going to do a whole separate FRP, but you were
 18 going to put together your normal consolidated plan?
 19 A I didn't put -- I did not, no.
 20 JUDGE BIRO: All right. Did my questions
 21 raise any questions?
 22 MR. MCNEIL: No, Your Honor.
 23 MR. HELMLINGER: I have two, Your Honor, if
 24 I may.
 25 JUDGE BIRO: Of course, come on.

1 MR. HELMLINGER: I'm sorry. I'm sorry.
 2 RE-CROSS-EXAMINATION
 3 BY MR. HELMLINGER:
 4 Q I'm curious about this understanding. If
 5 you understood that a hybrid SPCC or modified SPCC
 6 would be appropriate, I don't understand -- could you
 7 explain how information and even your higher plan, how
 8 might it have satisfied if you did a standalone FRP
 9 that would be incomplete?
 10 A Well, we were looking at the -- we were
 11 looking at some of the -- I mean I'm -- we were
 12 looking at some of the contingency plan stuff, and we
 13 felt like we had some of the flow analysis covered in
 14 the SPCC and then we were trying to develop some
 15 training, additional training requirements, although
 16 that was still submitted sort of in this draft
 17 document.
 18 Q Sure. And if I understood right, this is
 19 your first effort at preparing an FRP in 2014?
 20 A Yes.
 21 Q I have one other question. The discussion
 22 about your testimony was certain spill scenarios
 23 aren't realistic, and so you've discounted them.
 24 A Well, I don't know if that's --
 25 Q Do you understand the FRP or SPCC

1 regulations to require you to model potential spills
 2 based on what's realistic?
 3 A Well, potential, I don't -- I don't think
 4 I'd use that specific term.
 5 Q Well, the regulations, the way they describe
 6 worst-case discharge, they actually limit you to just
 7 one tank; isn't that right?
 8 A Well, the max tank volume, correct.
 9 Q Right, a single tank.
 10 A Yeah.
 11 Q But in a real sort of realistic worst case,
 12 like a 6.5 or 7 earthquake, is one tank really
 13 realistic?
 14 A It could be, yeah. I mean --
 15 Q It could be, but realistic, it could also be
 16 a southern flow towards the Sacramento River Deep
 17 Water Ship Channel then, couldn't it?
 18 A Well, well, are you with or without slope
 19 containment? That's the question because in the FRP,
 20 we can't account for that --
 21 Q Exactly.
 22 A -- and so any --
 23 Q That's exactly my point. So you agree with
 24 me that the FRP regulations give you a prescribed
 25 formula to apply, regardless of being realistic and

REPORTER'S CERTIFICATE

DOCKET NO.: OPA-09-2018-00002
 CASE TITLE: VSS International, Inc.
 HEARING DATE: May 17, 2019
 LOCATION: San Francisco, California

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the United States Environmental Protection Agency, Office of Administrative Law Judges.

Date: May 17, 2019

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1 you can't just sort of choose what you'd like from
 2 that?
 3 MR. MCNEIL: Objection, Your Honor. This is
 4 argumentative.
 5 MR. HELMLINGER: Withdrawn.
 6 JUDGE BIRO: Okay. All right. Can we
 7 release her? Yes, okay. Thank you very much.
 8 THE WITNESS: Thank you.
 9 JUDGE BIRO: Okay. It's 4:30, and I am
 10 still on East Coast Time. So we're going to stop for
 11 today. Can we pick up Monday at 9:00 a.m.? Yes.
 12 Okay. Well, have a good weekend. See you then.
 13 MR. HELMLINGER: Do we have an idea of his
 14 order for Monday?
 15 THE COURT REPORTER: Are we off the record?
 16 JUDGE BIRO: Yes.
 17 (Whereupon, at 4:37 p.m., the hearing in the
 18 above-entitled matter adjourned, to reconvene at 9:00
 19 a.m. on Monday, May 20, 2019.)
 20 //
 21 //
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 23 //
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 25 //

A				
a.m 254:14	354:24 360:4	466:10	396:14 416:18	339:10 373:6
258:2 397:18	360:11,24	adjourned	443:17 472:25	386:4 494:15
503:11,19	375:15 382:25	503:18	473:4 474:4,7	499:24
A/C 458:11	383:2,6,10	Administration	474:19 475:3,5	allowed 417:8
AB2588 442:10	387:8 471:18	386:21	475:12,16	469:10,11,12
abilities 423:22	471:21 489:15	administrative	504:12	allowing 287:10
ability 461:13	496:22 502:20	254:1,5,16	agency's 475:12	385:23 416:3
able 263:21	accounted 341:9	261:11 393:9	ago 265:21	allows 379:20,20
283:20 350:10	471:5	440:12 504:12	326:1 336:8,9	469:8
384:2 386:24	accounting	admit 258:14	366:21 373:18	alluding 314:6
395:3 411:11	388:1 458:11	259:12 272:1,5	413:11 424:24	ambient 361:5
472:7 500:8	accounts 275:13	369:18	429:23 436:7	383:12 384:9
above-entitled	accurate 433:11	admitted 258:21	446:4	387:9,12
388:8 503:18	463:11 483:3	259:14 267:8	agree 268:13	496:23 497:6
absolute 387:2,5	accurately	368:25 369:24	283:8,9,13	ambiguous
412:12 482:4,8	327:19,20	admitting 258:8	315:21 318:7	491:16,19
absolutely	504:9	259:20	465:13,16	492:1
265:12 298:23	achieve 415:20	adopt 271:22	474:14 475:16	amendment
341:10 382:4	achieving	adopted 289:11	483:4 490:7	258:18
384:15 395:25	424:14	370:9	493:1 494:16	American
396:10,16,21	acquired 261:6	advance 399:5	502:23	262:25
399:7 411:14	Act 472:20	advancing	agreed 266:15	amount 331:6
411:14	action 262:1	336:10 354:13	492:16,16	335:8 339:18
abstract 326:25	398:20	356:10,12,24	agreement	345:2 357:3
academic	actions 473:25	357:4 358:1	259:11,12,13	358:25 363:22
309:14	active 262:24	361:12,13	259:19 302:15	387:4 395:5
academics	277:4 434:7	adverse 372:5	agrees 465:3	411:11 418:15
262:21	actively 402:20	advise 261:15,16	agricultural	analogies
Academy's	416:9	advising 263:4	393:17 443:6	291:12
263:2	activities 264:6	advisor 260:25	ahead 258:13	analogous
accept 374:7,8	264:10	advisory 261:15	272:1,18 368:7	325:19
445:5 474:9,13	activity 316:17	aerial 483:8	369:20 390:5	analog 292:15
acceptable	actual 342:11	affect 272:25	401:3 405:13	analysis 263:18
454:6 499:9	363:14 424:6	290:21,22,25	416:8 441:21	298:24 306:9
accepted 284:6	424:10	291:2 383:14	442:16 450:15	310:8,22 311:8
301:25 383:2	add 344:11	383:16	459:23 460:6	311:12 312:17
accompanying	364:5 371:7	affirmative	492:10	319:2 321:2
400:2	adding 475:2	409:21	AI 356:11	323:8 328:20
account 273:7	addition 265:8	afraid 327:20	aimed 389:7	336:1 363:7,10
273:13 275:14	446:22	afternoon	air 362:14 384:9	363:11 371:18
290:12 292:1	additional	390:14,15	384:12 391:22	408:8 411:21
299:8 311:7	267:20 408:2,5	439:13	441:18 442:7	455:4 468:6
315:8 316:19	437:16 446:21	ag 393:17	472:18	469:1 470:19
317:8 331:13	447:9 501:15	agencies 397:1	Aldrich 285:8	501:13
332:24,25	address 465:20	425:7 443:9,13	289:9	analyzed 301:15
333:16 334:1	499:16	443:21 473:24	align 329:21	465:14
337:4 341:11	addressed	474:8	aligns 338:1	analyzing
344:6,23 345:6	397:20 408:20	agency 254:1,4	allegation	466:21
345:7,25 346:9	477:24	254:20 391:17	474:20	Andrea 403:21
	adequate 464:22	395:10,10	allow 290:15	Andrew 254:19

407:2 445:13	491:18	293:4 300:5	arrive 400:4	487:23 489:3
anecdotal 308:9	applicability	320:21 352:8	466:13	489:17 498:7
Angeles 255:7	267:2 277:21	396:19 454:11	arrived 399:23	498:24,24
angle 332:2,4,12	278:5 279:23	466:21 467:14	art 318:17	asphaltenes
375:20 377:7	280:12 281:4	approaches	article 330:13	385:12,17
485:24,25	297:13 305:4,8	273:15	articles 309:7,11	asphaltic 292:13
486:7,15	305:11 310:9	approaching	articulate	490:12
497:16	310:22 311:12	329:17	375:25	assembled
annual 430:20	316:23 319:2	appropriate	ASAP 405:18	354:24 390:24
answer 265:7,10	321:2 323:8	302:12 334:3	ascertain 336:5	assertion 475:12
277:20 297:17	352:13,22	387:25 430:14	asked 258:7	assessment
303:13 304:3	370:14 371:15	468:6,13 501:6	297:13 305:5	261:25
317:3,25	371:18 446:15	approximately	313:15 315:6	assignment
319:20 320:17	462:23 466:21	338:21 343:3	317:25 322:12	354:25 406:9
320:20,20,22	470:20	391:18 423:18	348:3 364:18	447:17
329:8 345:16	applicable	444:16 445:8	400:15 401:2	assignments
348:5 350:5,20	299:24 301:19	483:25 495:15	402:2 406:10	405:5
364:20 371:8	324:3 467:15	April 407:25	409:19 425:14	assist 394:21
409:21 417:10	479:14	436:9	429:9 435:4	assistance 417:5
429:7 446:19	application	APS 397:25	444:21 448:10	assisted 452:16
464:2,5,23	302:15 352:15	area 273:3,3	460:10 462:21	452:17
answers 308:6	352:23 372:24	275:25 277:6,9	asking 330:13	assisting 449:3
311:19 318:2	492:8	277:10 284:19	414:8 417:20	Association
331:21 380:7	applications	284:22,22	437:19 439:14	262:25
anybody 308:21	466:6 467:16	285:10 286:3	469:10 477:7	assume 289:1
318:7 351:20	applied 279:20	287:18 288:12	480:3 494:24	320:9,11
400:1 404:2,4	279:24 280:2	289:22 290:8,8	asks 393:3	322:22 333:12
415:5 417:12	351:18 377:6	290:9,10,13,18	409:23 416:6	338:7 341:21
445:16,22	378:5 440:20	298:22 299:12	asphaltic 386:17	471:16 478:6,8
453:9	466:1 469:19	306:8 311:16	asphaltic 383:7	487:4,6 488:1
anyway 276:11	490:24 491:3,6	314:3 345:19	383:21 386:14	488:2 498:21
325:22	applies 379:13	375:3 376:17	asphalt 280:18	assumed 277:5
apologies	379:15	400:25 412:17	284:10,22	341:24 348:6
422:16	apply 266:5	433:12,21	285:10 286:3	484:25 487:1,2
apologize	277:18 278:24	457:4 458:9,17	291:8,13,17,17	assumes 290:1,2
258:10 322:16	280:11 323:7	458:18,22	294:23 296:5	301:18 349:15
342:18 355:7	382:13 418:7	484:7 488:22	296:11 298:9	assuming
356:3 435:3	464:7,12 465:4	497:12 498:7	300:15,18	288:25 302:22
457:15 460:11	465:14,16	498:12	302:1 303:1	316:10 339:1
465:2	485:8,10	areas 284:17	314:3 319:6	347:14 358:23
appear 335:1	502:25	299:3,4,7,8,8	323:21 335:8	362:9 485:9,9
381:18 423:4	applying 278:19	argue 259:17	338:19 352:23	486:2 497:23
480:6	281:18 330:24	argumentative	353:20 374:6	assumption
APPEARAN...	416:25	340:3 503:4	375:3 383:24	275:2,4 277:11
254:17 255:1	appointed 263:1	arguments	384:4 385:5,10	278:1 285:2,2
Appears 456:22	263:5	389:25	385:11 386:6	297:14 301:6
456:23	appreciate	Army 274:22	386:16,19,23	316:16 331:15
appendix	488:24	aromatic 385:12	386:24 387:10	332:7 333:19
370:19,24	approach 266:3	arrange 400:6	392:1 419:16	338:11 387:11
372:6 469:5	266:7,17 278:6	arrival 417:20	457:4 483:10	468:14 485:12

487:8	awareness 435:8	284:19 285:1,2	282:20,25	346:3 432:10
assumptions		286:20 288:5	283:2,3 285:6	475:11 476:2
264:23 265:16	B	290:22 297:5	308:15 313:9	beyond 296:13
265:18 266:1	B 257:1 346:9	297:17 304:8	315:7 325:16	303:9 311:11
268:7 315:19	347:4 356:20	309:3,5 316:14	325:25 332:17	311:22 335:5,7
320:13 346:7	465:8,8,20,21	328:23 333:7	338:4 341:19	337:6,13 338:5
348:9 364:8	B2 467:5	337:24 341:25	343:18,19	344:11,16
AST 286:3	bachelor's	345:5 352:11	346:24 348:6	345:4,9,13,15
337:13 343:25	262:10 440:18	357:1 377:11	348:10 362:2	345:23 351:6
344:10,11	back 276:7,19	379:13 383:8	393:22 398:23	354:18,20,22
365:20	286:24 288:9	407:7 450:17	398:25 399:10	356:10,18
atoms 385:14	288:15 307:21	455:2 483:11	400:3,11	357:13,18
attach 439:21	315:3 325:22	484:15 485:17	403:21 404:6	358:6 365:12
attachment	330:10 336:4	485:19 486:3	410:18 414:19	422:19 450:9
370:19,21	336:18 338:18	486:11,20	418:21 422:6	big 476:13
attempt 424:4	342:13,18	487:8 488:25	428:2,17	biggest 466:25
attend 406:22	349:4 354:12	489:21 502:2	429:22 431:9	Bill 260:8
407:4 444:25	360:14 374:16	basic 269:1,8	437:4 443:7	binder 420:25
attendance	388:3 389:4	351:22 363:25	446:8 447:25	binder's 322:13
390:20 448:2,4	401:15 409:2,8	380:5,5,6	448:12 449:6	binders 267:7
attended 393:14	414:2 415:14	427:9,15,23	451:24 457:25	397:4 420:3,5
395:11 396:7	420:25 425:11	428:10,19	459:3,4 464:6	Biro 254:5,15
446:10	425:15 446:25	463:23 464:4	467:5 468:11	258:3,15
attention 394:4	451:5,10 454:2	464:23	471:5 480:20	259:11,15,18
401:20 456:24	455:3 460:6	basically 316:3	482:3,15	260:1,5,9
attorney 437:2,3	470:13 472:12	316:6 393:3	485:21 491:19	270:21 272:3,5
437:5	475:9 480:11	443:20 488:22	491:25 492:12	279:3,19 280:7
attorneys 393:8	480:16 487:5	basin 349:13	495:2 496:7	280:10,14
audit 392:23	489:7,9 498:18	350:23 364:25	499:3,5	281:2,13,17
audits 392:22	back-and-forth	basins 366:6	believed 481:6	285:16,19
August 313:1	401:11 404:9	470:22	bene 408:12	303:19,23
409:12	background	basis 286:17,17	berm 317:12	304:1,20 305:1
authenticity	262:7 265:13	289:11 430:5	336:17,19,22	307:12,15,19
258:12	393:16 415:22	bathroom	381:22,24	307:21,25
authors 321:20	bad 383:13	415:11	483:1 493:3,13	327:17 339:13
available 310:14	ballpark 411:22	batter 300:9	best 315:2	342:3,5 353:19
310:14 351:23	411:24	batter's 300:10	326:17 355:4	353:23 355:5,9
417:18 418:24	bank 341:16	300:14	362:12,12	356:19 367:17
463:12	banking 412:17	beach 301:2,2,4	363:3 399:22	367:24 368:4,6
Ave 254:10	barrier 301:9	Bear 382:3	399:24 403:5,7	368:9,13,17,20
average 275:1	351:6 498:13	beginning	405:13 407:1	368:23 369:9
341:25 487:7	498:18	329:14,14	408:22 413:19	369:12,18,23
497:6	barriers 299:2	389:17 407:16	417:12 421:24	378:23 382:1,3
avoid 416:3	349:8 381:19	begins 293:2,3,3	422:4 424:7,22	382:9,11 383:6
aware 313:12	383:23	381:9 495:25	432:6 433:2	383:11,20
399:20 418:14	base 344:22	behalf 447:20	436:13,19,25	384:7,11,16,22
424:9 428:21	345:7 355:14	454:8	445:10 455:8	385:1 386:8,12
433:23,25	355:18 458:11	behaved 362:20	461:13 462:20	387:8,15,19,21
435:4 453:10	based 265:23	behaving 329:12	463:10	387:23 388:1,6
455:13 463:2	279:7 282:2,23	believe 279:8,12	better 307:11	389:3,8,11,15

389:20,24	368:12 443:25	briefly 435:3	358:9,9,10,11	280:8 281:4,12
390:3,5 413:4	474:15	briefs 389:22	358:13,17	281:23 284:1
415:1,3,7,11	boards 473:3	bring 261:16	359:6,11,15,16	284:12 285:1
415:14 416:8	body 306:24,25	416:11,20	359:19,20	289:9,12 292:3
422:23 423:2	307:2	419:22,23	370:22,23	292:4 295:21
426:24 427:1,4	book 476:8	broad 265:11	371:2 382:18	298:20 299:23
427:7,11,15,19	born 308:18	broaden 262:22	387:5 466:5	305:11,25
427:21,23,25	Boston 293:21	broader 265:3	485:13 487:3,3	306:25 315:4
428:6,8,12,16	308:9	brought 401:20	calculated	325:25 330:14
428:19,22,25	bottom 283:11	407:14 420:3	268:21 275:15	330:21 346:10
429:3,10,13,16	286:6 324:16	434:5 474:3,6	276:7 287:18	352:10 360:3
429:20 430:2,7	324:17 336:14	481:4	287:21 290:20	371:4 379:16
430:10,17,25	337:16,17,18	brown 381:17	298:9 338:4	379:19,23,25
431:4,6,10,19	337:20 341:14	BS 393:17	341:25 345:22	383:10 386:20
431:23 432:4,7	357:25 358:8	buck 417:6	485:7,19	464:25 466:16
432:11,22	359:10 376:10	build 320:15	calculates	466:18 469:23
433:1,4,8,13	377:10 381:8	405:12	487:20	494:15 496:22
433:18,25	381:13,15	Building 254:9	calculating	California
434:3,12,17,20	397:11,17	built 496:25	268:19 281:22	254:11,21
434:22,24	470:15 483:14	bulk 284:22	311:16 337:5	255:4,7 301:1
435:21 437:8	boundaries	285:10 287:17	371:17 372:24	372:17 383:13
437:10 438:14	265:6	289:22 298:21	485:2,16 486:8	439:25 443:20
438:18,22,24	boundary	314:2 443:7,7	calculation	466:1 473:3
439:3 441:19	303:12 334:21	457:4	268:18 271:20	504:6
441:21 442:16	335:13 471:20	Bureau 391:22	272:16 274:12	call 260:5
444:8 450:11	487:7 489:7,9	Burton 254:8	274:14 278:7	277:25 298:20
450:15 465:17	489:11 494:20	business 396:13	281:9 282:5,14	309:15 329:4
472:2,6,9,11	497:10	412:22 413:7	283:12,13,21	329:21 347:1
476:7,9 477:11	bounded 357:24	413:14,23	288:20 289:11	350:24 352:5
477:13 492:9	357:25 358:1	427:5,14	290:1,1,7,11	355:12,19,22
496:16 500:20	box 277:16,18	432:10 440:13	296:6 302:23	355:22 356:9
500:25 503:6,9	342:15	440:20	304:6,7,8,15	356:10,11,22
503:16	bracket 364:10	businesses 443:1	304:16 305:8	375:17 377:23
bisects 375:23	branches 273:9	by-side 452:18	305:21 306:1,6	378:1 380:15
bit 262:8 267:12	breach 499:6	<hr/>	314:1,8,13	382:7 389:14
267:13 280:14	break 303:18,21	C	316:8 326:2	399:11 439:4
292:9 301:2	307:14,15	C 256:1 258:1	329:6 331:3,8	478:18 484:6
330:17 333:15	362:1 367:19	365:18 370:19	337:13 338:15	499:6
340:25 343:19	368:2,3 415:12	465:8,9,20	339:11 344:15	called 260:13
359:21 378:4	438:23 468:12	466:19 491:18	346:2 347:17	337:2 367:2
384:16 411:15	498:20	C3 370:19	352:7,7 357:17	390:10 392:15
422:18 446:24	breaks 484:25	Cache 278:15	358:14 371:12	425:5 432:16
472:18	Brian 438:7,8	calculate 268:24	373:3 382:17	439:9
black 374:23	brick 311:1,6	274:9,16	382:18 411:5	calling 483:18
476:8,9	bridge 446:23	275:23 276:20	467:6,7 469:9	484:6 494:23
blocks 294:9	447:2	289:17 290:5,6	469:21 481:23	494:24 495:1
blue 374:9,13	brief 307:20	297:4 305:19	484:15 487:18	calls 260:7 439:6
375:21,23	368:8 415:13	322:24 337:3	calculations	492:5
BMW 392:1	439:2 453:23	345:21 346:18	268:19 276:3,3	capacity 263:16
board 270:22,25	472:10	357:16,17	276:18 279:21	263:23 279:20

281:15 287:18	492:22 497:18	418:15 421:18	327:4,8 359:10	263:22
287:21 288:11	497:19,20	451:16 464:21	360:12,20	Chezy 269:16
290:5 382:19	498:1 499:9	488:25 501:22	475:4	270:6
382:19,22	502:11 504:4	certainly 278:19	channel 272:22	Chief 254:16
caps 400:24	504:11	308:24 312:12	272:22 273:7,8	chiefly 452:9
419:3,9	cases 280:17,18	312:23 319:4	273:9,12,22,22	choose 503:1
caption 286:2	281:7,9 333:9	351:23 465:19	273:24,25	chronological
capture 362:7	346:7 348:7	469:2	274:10,10,21	422:13
489:16 490:11	351:1 360:7	CERTIFICA...	275:4,5,16	circle 288:9
captured 484:12	Casey 256:9	504:1	278:15 283:6	316:8,20
cardinal 375:20	439:6,8,13	certifications	286:16,19,20	344:25 345:1
care 289:3,4	444:5,11	262:14	298:13,18	349:17 350:8
392:21 413:20	457:15 462:8	certified 418:16	301:20,23	circles 374:5
413:22	472:15	441:8 443:16	303:14 304:18	376:17
career 263:15	casual 419:7	443:17	306:2,18	circumference
264:19 392:25	catastrophic	certify 504:8	314:24 317:9	331:5
393:11	498:23	cetera 261:7	319:6,14	circumstance
Carolina 391:12	catch 349:13	277:1 299:9	321:11,12	277:3 490:16
391:14,21	350:22 364:25	CFO 412:19	334:14,22,24	circumstances
392:4,13	366:6 470:22	CFR 267:3	343:6 350:22	352:25 372:20
carry 314:13	categorical	372:1 463:24	366:5 367:1	425:9 488:25
cars 294:10	392:16	chairman	371:11 376:23	cited 330:14
400:24 419:4,8	cause 306:20	413:10	381:22 467:1	361:19
419:8,16	403:10 416:16	challenging	471:10 489:4	city 294:9
case 271:12	499:4	264:16	490:8 491:22	392:18
277:24 279:16	cautions 287:5	change 275:19	495:12 496:5	civil 263:15
280:25 281:2,6	cautious 287:10	275:20,20	496:12 502:17	279:7 286:11
291:5,7 293:14	caveat 286:13	282:16,17	Channing	CL 355:13
297:22 301:14	CC 461:4	291:25 295:20	269:16	clarification
301:20 305:7	cement 286:3	296:2,10 314:3	characterizati...	475:14,15,21
305:23,23	291:9,13	324:12,19	486:19	clarified 314:21
306:12,17	292:13 294:23	331:10 333:16	characterize	clarify 268:10
310:16 316:23	303:1 383:7,22	347:1,3 356:15	313:17 488:16	271:18 288:5
318:11 323:9	383:25,25	357:6 358:17	charge 405:2	303:10 325:12
330:14,19,23	384:14 386:14	360:9,22 361:2	charges 385:15	334:16 382:11
330:25 331:25	386:24 483:10	361:4 378:4	checking 340:17	462:22
335:19 339:2	490:12 498:7	386:21 474:17	checklist 460:14	classic 293:18
346:25 348:6	cements 386:17	475:17	476:21,22	clean 262:1
350:20 371:19	center 316:11	changed 474:19	478:5	270:20 430:15
372:3 382:13	332:9 355:7,13	475:1,12	checklists	435:10
382:21 383:7	355:13	changes 304:11	410:18	cleanup 262:2
384:18 385:10	CEO 412:19	323:22 326:16	chemical 262:10	265:4,22
386:23 389:17	427:24 446:7	326:23 327:1,2	263:7,13,22	clear 268:10
425:22 443:23	certain 264:6	327:12 332:24	278:20 279:6	278:23 305:10
460:19 461:24	265:25 275:19	333:10,24	279:14 291:24	353:17 371:9
461:25 465:14	313:20 315:22	345:19 346:8	385:4,6 413:13	373:12 375:25
466:11 467:15	326:19 336:15	348:24 351:4	457:20	475:9 480:24
482:8 485:14	336:15 340:20	378:2 471:21	chemicals	cleared 398:3,20
486:5,6 487:12	345:2 347:16	475:3 488:25	294:23	clearly 457:11
491:11 492:15	357:3 385:9,11	changing 323:20	chemistry	492:8

client 263:25 265:21,24 266:9 278:7 353:10 474:5,7	379:6 380:2 458:15 486:3	common 291:11 374:1	426:6	concept 284:7 370:8 371:19 373:12 379:24 380:13
client's 306:5	columns 326:7	commonly 292:15 335:17	complexity 349:7	concepts 381:22
clients 278:22 297:16 320:19 443:1 475:23	combination 331:2 426:11 452:10 458:10	Commonwealth 262:18,19	compliance 391:7 392:11 392:25 393:3 398:10,13,17 407:15,16,17 416:5,11,14,20 416:22 417:4,5 417:7,14 419:23 420:16 424:14,17 442:6,13 447:23,23 450:5,21 454:22 474:10 474:12,14 475:6,22 478:22	conceptualize 375:19
close 338:9 339:18	combined 479:9	communication 410:15 420:8 425:12,15,15	compliance-re... 441:16	concern 434:8
closer 326:20	come 263:24,25 264:13,15,22 265:11 274:15 298:5 311:19 317:22 320:22 330:10 336:23 338:18 339:4 349:2 350:5 351:8 357:2 365:3 376:4,6 379:21 388:3 393:23 396:15 402:11 409:5 424:8,17 444:11 453:12 482:25 500:25	community 262:3	compliant 266:6 398:15 401:24 405:16 406:11 461:19	concerns 259:17 259:17 481:13
closes 376:18	comes 282:18 290:4 359:15 359:21 369:16 432:18 485:4	community 262:3 405:13	compliance-re... 441:16	conclude 306:10 306:15
closing 389:19 389:21 396:9 401:5,7,11	comment 400:24 402:4 410:9 419:7	comp 431:14	compliance-re... 441:16	concluded 306:19 314:14
Coast 503:10	commentary 401:1 409:2,8 409:9 446:25	companies 443:4,4	compliance-re... 441:16	conclusion 290:25 291:1,2 306:22 307:8 313:19,24 314:1 316:20 401:7 416:7 454:19 466:9 466:14 468:9 471:7 481:16 489:2 492:5
coconut 280:20	commented 407:10	company 260:22 261:4,6 398:16 412:14,16,22 413:12 416:3 416:10 419:19 428:5 429:1,8 431:1 432:23 439:23,24	compliance-re... 441:16	conclusions 290:22 314:4 348:9 409:5
code 380:5,6	comments 264:10 382:12 400:22 401:13 401:16 404:18 454:2 460:5 461:22 462:6	company's 417:3,6 423:22 434:9 450:20	compliance-re... 441:16	concrete 268:8 272:22
coefficient 269:23 272:21 273:11,13	commented 407:10	company-desi... 390:17	compliance-re... 441:16	condition 294:1 297:10 324:3 335:7,11,11 362:17
coefficients 273:19	commented 407:10	comparable 276:10,11	compliance-re... 441:16	conditional 313:18
coincidence 383:13	commented 407:10	compare 276:5 380:2	compliance-re... 441:16	conditions 273:14 275:14 297:11 308:23 323:13 325:3 363:14 372:5 456:20 463:1,5 499:17
collapse 299:1 300:1 302:11 302:14,23 303:8,8 322:21 325:25 336:1 351:16 365:18 372:19 378:9 378:16 379:3,6 380:3 486:4,9 486:12,12,20 489:18 497:8	commented 407:10	compared 276:6 276:13 324:23	compliance-re... 441:16	conditional 313:18
collapseds 294:4 497:8	commented 407:10	Complainant 254:5,18 256:3 257:2 260:7	compliance-re... 441:16	conditions 273:14 275:14 297:11 308:23 323:13 325:3 363:14 372:5 456:20 463:1,5 499:17
collapses 303:3 303:4	commented 407:10	Complainant's 259:4,21,22 270:14 272:6,9	compliance-re... 441:16	Condor 394:22 394:23 395:3 396:3,4 404:23 449:6,7
colleagues 261:16	commented 407:10	complaints 444:13	compliance-re... 441:16	conduct 271:19
collection 414:12	commented 407:10	complete 424:17 436:20	compliance-re... 441:16	conducted 396:6
column 302:14 322:21 324:4 325:24 335:6 335:25 344:3,4 346:16 351:15 378:9,16 379:3	commented 407:10	completed 354:10 493:15	compliance-re... 441:16	
	commented 407:10	completely 346:8	compliance-re... 441:16	
	commented 407:10	completion	compliance-re... 441:16	

418:20 422:3 430:18,22 433:14,16 conducts 393:7 conference 310:4 396:9 401:5,7,11 confidence 364:3,4 configuration 324:23 345:12 379:14 confirm 421:9 423:16 436:23 500:15 conflated 477:16 confluence 376:3 confused 492:7 499:19 confusing 307:5 connection 467:2 consensus 339:15 446:17 consent 393:8,8 conservative 277:25 278:1,6 471:14 consider 258:7 289:13 291:8 293:14 295:7 298:20 311:12 311:21,23 315:15 373:4,6 408:25 416:4 418:8 425:18 468:16,16 470:5 consideration 273:24 293:13 422:22 492:18 considerations 287:5 293:17 295:11 491:7 considered 296:20 373:21 398:2 considering	298:23 497:6 considers 378:25 379:1 consistent 375:13 457:12 consolidate 499:24 consolidated 285:7,7 310:18 321:7,15,16 364:16 446:20 452:2 500:18 constant 269:23 333:12 342:1 346:5 348:4,7 349:16 359:10 constructed 287:4 construction 310:16,18 311:20 312:16 412:18 443:4 constructive 409:2,9 410:9 consultant 396:23 408:12 433:6 449:2,11 consultants 407:15 424:22 435:10 consuming 379:18 contact 272:24 274:7 395:1,24 contacted 399:15 contacting 403:2 contain 286:16 288:11 380:22 384:2 493:24 494:20 containable 493:17,19,23 contained 345:19 459:15 471:17 482:12 482:19 504:9 container 290:2 324:8,24	354:16 containment 280:24 284:10 284:13,17,21 284:25 285:4,9 286:3 287:15 287:19,24 288:22 289:19 289:24 290:1,8 294:18 298:21 313:14,21 323:13 324:1 324:11 326:12 344:7 370:16 373:2,4 374:24 375:24 382:14 382:17 383:14 430:7 457:4 458:1 464:23 465:9,22 466:11,16 468:25 469:13 470:4,6 471:3 482:14,25 483:5,16 484:4 484:7 486:4 491:25 494:12 494:23,25 495:1 497:24 502:19 contaminants 266:3 contemplates 373:1 contemplation 372:25 contents 309:19 347:16 457:8 contest 308:21 context 265:3,6 265:12 305:4 425:24 464:3 contingency 433:21 451:17 499:25 501:12 continue 258:5 334:1 347:7 404:23 continues 479:17	continuing 306:13 continuously 441:4 contour 298:20 contoured 299:12 contours 340:15 346:22 349:8 364:6,17 366:20 379:5 contract 264:2,7 264:9 280:17 354:5 383:8 435:9 436:17 contracted 404:25 435:12 435:13 contractor 424:15 contracts 261:13 264:3,3 264:5,5,12 435:15 436:21 control 391:13 426:18 472:24 conversation 338:12 453:23 481:16,16 conversations 395:25 398:7 412:19 conversion 269:10 convert 269:13 conveyed 475:22 cool 294:1 384:5 384:8 487:23 487:24 488:3,9 cooled 294:1 cooling 291:22 300:15 361:5 488:8 cools 291:20 471:13 489:7 cooperate 396:25 407:19 424:22 434:10 cooperation	263:7 424:19 424:23 cooperation's 396:12 copies 436:12 copy 368:24 369:1,13,15 408:21 435:17 461:3 core 391:5,9 corner 376:16 376:16 477:19 483:15,15 corporate 391:1 corporation 427:9,12 428:1 428:20 504:19 corporations 428:10,13,23 Corps 274:22 correct 269:24 270:2 277:13 278:11 280:13 281:16 282:21 282:25 283:4 291:6 302:6 308:12,15 310:10 313:2 313:16,18 314:9 322:8 323:1,2,4 328:14,16,18 328:21 329:1 332:7,11 334:5 334:5,7 336:1 337:25 342:2 342:12 346:13 352:1 360:18 363:20 366:9 366:12,12 372:2,7 373:8 378:6,7 384:10 391:25 394:19 395:17,18 405:4 406:7,17 420:9,10 421:1 448:20 449:22 455:19 456:15 456:22,23 458:23 460:8
---	---	---	---	--

462:2,15,18	326:2 336:8	463:21 466:20	curves 325:4	305:21,22,25
463:18 465:6	338:14 427:1	critical 298:24	326:14,16	306:1,13,22
466:12 468:1	429:23 436:3	331:21	cut 333:24 465:2	307:9 370:22
469:14,16	454:2 460:10	critique 266:12	483:15	371:2,2
471:24 472:25	466:17 470:1	cross 256:2	cuts 374:10	D4 267:17,24
473:1,5 477:1	479:9	303:17 307:13	CX 258:19	467:11
478:1 479:3,23	course 280:2	472:3	381:2 425:3	dad 308:18
482:1,6,10,17	315:16 325:13	CROSS-EXA...	CX1 483:7	dailies 418:4
482:21 483:17	363:18 413:4	308:1 415:15	494:19	daily 418:3
484:13,16,17	420:14,15	472:13	CX12 460:13	dam 354:17
486:1 487:22	441:9 481:15	cross-reference	CX14 322:14	361:25,25
490:10 491:13	500:25	478:18,20,21	334:9 365:15	362:10
494:6,10,13	court 254:14	480:7,12	375:14	damage 499:4
495:8,9,12,16	268:1 279:15	cross-section	CX15 285:15	data 306:3 325:6
496:2,6,19	503:15	273:4 286:25	288:16	326:15,24
502:8	Courthouse	362:7	CX17 373:14	date 398:3
corrected 398:2	254:9	cross-sectional	377:21 420:24	414:13 423:8
459:10 465:19	courtroom	285:9	421:2 425:2,4	423:12 424:4,6
correcting	254:10 267:15	crosswalk	452:4 456:1	424:8 429:13
402:20	452:14	478:15,17	CX23 462:7	448:24 449:20
correction 398:3	cover 431:10,12	479:4 480:7	468:19 481:18	452:1 454:24
corrections	431:13	crosswalk'	491:10	455:9 477:20
313:8 455:23	covered 335:21	478:8,11	CX24 460:13	477:22 504:5
461:8,9	446:13 501:13	Crowell 255:3,6	CX35 411:19	504:15
correctly 269:22	cracked 498:10	CSRA 260:21	CX36 411:20	dated 313:1
283:22 479:9	Craig 405:25	cubic 338:19	CX53 267:7	397:17 407:25
correspondence	421:8 448:2,4	339:2 342:21	CX55 270:19	408:18 459:11
398:8	456:11	343:10,23	271:6 272:1,13	day 388:9
corroborate	crashes 301:3	culminate	282:7,8	399:18 434:3
309:18	create 321:14	451:20	CX9 381:3,7	437:23 481:7
corrosion 418:1	377:16,20	culminated	CXP 381:4	481:13
cost 412:7	378:19 385:14	479:10		days 293:25
432:23 433:9	created 467:17	culvert 268:8	D	383:21 402:22
costs 411:3,8	491:5	272:22	D 258:1 283:12	431:9,9
433:17	creates 323:17	CUPA 395:14	372:6 464:16	deal 262:4
couched 265:2	347:8,9 376:8	395:16,22,22	467:10	266:25 364:3
counsel 422:21	376:21	396:6 425:13	D.C 504:20	367:2 370:21
counter 362:22	creating 361:15	443:14,16	D1 267:16,23	dealing 261:24
counteracting	376:5 494:4	curious 318:4	268:5 278:6	263:16 267:1
362:23	498:1	327:24 501:4	281:8 467:6,11	286:20 292:2
counteraction	creation 378:11	current 261:21	D2 267:17,23	467:11
362:23 383:19	credentials	394:13 432:25	268:6,7 281:9	deals 370:23
countermeasure	400:15 441:6	435:5 440:5	D3 267:17,23	dealt 395:14
426:18	credit 469:11,13	currently	268:17,19,21	debris 295:25
county 395:16	crested 301:9	260:19,21	268:24 269:2	decades 412:23
395:20 396:3	crews 432:1,1	439:15 440:6	269:22 278:3	decision 348:10
443:14,23	criteria 286:23	currents 263:19	281:10,22	459:22
473:14,15	287:2 306:16	curve 325:8	304:6,7,10,15	declaration
couple 284:18	313:20 452:1	326:24,25	304:16 305:7	258:23 271:11
308:5 313:8	455:5 462:11	327:1	305:11,14,20	271:14,17,17

271:19,22 313:3,9,13 457:6 declination 342:3,5,7 decreased 432:7 decrees 393:9 deemed 258:20 258:23 deep 273:22 274:21,23,25 278:14 298:12 303:14 304:17 306:17 314:23 319:13 371:11 376:23 381:21 489:4 495:12 496:5,11 502:16 defects 372:13 defensible 266:7 deficiencies 396:9 461:22 define 350:10 384:22 385:3 defined 371:25 373:9,11 defines 365:13 365:14 definitely 279:2 definition 371:23 deflect 490:12 degrade 291:24 degree 263:13 263:20 297:3 297:23 349:5 349:21 393:17 440:18,22 degrees 292:14 292:17,24 293:2,2,25 295:19,24 298:9,10,10,11 298:11 303:3 315:24 316:2 332:3,3,3 383:14,21 384:1,12,13 393:13 485:25	486:22 488:3,4 488:10 497:3 Delano 452:13 452:13 453:8 462:16 delaying 416:15 delineations 377:15 delivered 293:24 delta 282:17 demarcated 377:1 demarcating 458:8 demarcation 375:5 376:7,11 demographic 451:14 demonstrate 361:20 demonstrated 471:11 densities 386:17 density 384:18 386:9,9,13,19 387:4 department 263:3,4 391:13 443:15 472:24 department's 472:21 depending 359:4 447:7 depends 363:18 474:5 depict 367:11 depicted 468:19 depiction 456:24 483:3 depression 332:18 333:11 333:12,13,14 344:18 354:25 355:1 366:16 373:9 376:21 377:8,16,21,25 469:24 470:3,6 482:16,20 483:19 484:1,6	495:5 497:10 497:21 498:12 depression' 377:18 depressions 334:6 373:7 469:12 482:23 491:24 depth 274:10,14 274:20 283:6 320:6,6 describe 261:8 261:18,21 262:7 263:9 264:21 267:16 286:1 292:14 295:10 297:20 299:22 371:21 372:25 379:6 381:23 396:1 412:20 417:24 473:8 488:17 502:5 described 308:22 373:19 396:19 411:7 493:5 description 268:4 381:9 440:5 470:3 descriptive 274:1 design 263:17 286:15,17,17 286:19,22 287:1 372:13 494:11 497:25 designated 279:6,9 407:4 444:5 designation 279:12 374:18 designed 287:13 346:15 380:22 380:25 490:8 490:11 designs 287:15 493:9 desire 405:17 Detail 286:2	detailed 274:12 314:7 details 310:15 detective 393:4 determination 281:23 462:12 determinative 348:8 determine 269:17 274:20 283:17 300:4,5 300:6 359:25 424:3,6 426:12 determined 275:9 284:20 336:2 344:19 365:12 371:10 372:6 determines 393:5 determining 281:3 370:14 371:14 382:14 498:16 devastated 412:18 develop 341:8 394:11 395:6 406:11 424:16 501:14 developed 266:13 328:4 328:13,23 352:2,16 363:1 426:16 453:13 developing 262:1 395:4 404:15 487:16 development 263:7 264:15 352:18 395:23 405:8 433:17 434:9 developments 259:16 DHEC 391:12 diagram 285:9 285:11,24 286:1,5,19 289:8 456:7,10	diameter 331:5 379:15 dictate 497:17 dictated 348:11 490:20 died 294:4 diesel 429:24 difference 310:21 343:23 344:5 361:10 412:3 484:19 494:3 different 259:19 261:4,10,15,17 264:1,3,5 266:17 270:9 272:18 273:18 274:8 276:23 284:18 285:1,2 292:8 294:22 294:23 295:12 295:13 296:1 296:19 298:5 300:14 301:14 302:7,9 317:5 317:6,7,7,10 317:14 321:13 324:20,21,22 325:3 327:7,8 330:17 349:9,9 349:11,14,18 349:18,20 351:5 352:5 362:20 379:12 386:16,16,16 386:17,22,22 418:10 450:7 453:14 472:20 473:23 479:4 479:15,18 493:20 494:8 499:25 differently 302:20 327:14 349:12 differs 456:17 difficult 356:3 379:17 484:19 digestion 378:16 dike 286:3
--	--	---	--	--

dimension 286:8 337:1,2 357:1	491:12,21 492:2,15,19,22 495:11,25 502:6	281:24 282:1,4 282:23 304:11 304:17 306:8 306:11 307:8,9 314:7 331:10 341:18,19 345:17,21 347:16 348:20 349:1 355:19 355:19 359:3 365:11 371:2 486:14,24 487:6,17,20 495:15 496:4	259:1,20 274:23 400:17 410:24 411:22 411:22 414:12 449:16 460:12 460:18 462:1 477:15,15 478:22 479:5,7 479:24 480:1	327:19,20 336:17 340:20 344:24 345:1 355:3 366:2 456:24
dimensionless 325:1 349:1	disclosure 353:19		460:18 462:1 477:15,15 478:22 479:5,7 479:24 480:1	drawing 287:8 328:1 336:20 366:23
dimensions 310:19 312:5,6	discounted 501:23		doing 265:24 277:21 300:12 310:22 319:2 350:9 370:15 378:20 392:6 401:24 402:22 407:18 424:22 432:15 483:11 484:14 497:17 500:16	drew 313:24 365:23
DIRE 256:2	discussed 266:14 278:20 278:24 378:25 404:10 409:17 436:14 447:3 447:24 448:7 448:11 473:2	distinction 328:1	dominant 347:20 361:22 361:22	drills 430:22 435:6
direct 256:2 260:15 297:1 390:12 422:19 439:11 457:16 467:17	discuss 274:4 276:16 396:18 407:15 415:4 481:5	distress 412:15	dominate 347:25	drinking 464:19 465:4,13
directed 417:11 422:25	discussing 289:23 300:24 374:7 378:10 411:4 423:24 448:8	district 392:5	dominated 361:10	drive 424:21
directing 295:14	discussion 268:14,17 316:21 330:8 353:15 361:3 367:22 368:11 372:10 373:18 378:3,8 404:12 404:17 407:6 446:14 447:25 448:17 467:8 475:8 481:2 483:7 490:15 501:21	districts 392:4	dominating 347:23	driving 344:21
direction 296:2 299:6 301:14 301:23 311:10 312:21 315:13 317:9,10 319:15,18,20 320:3,23 350:21,22 359:14 361:16 404:14 405:16 447:14,19 451:3,3 470:22 470:25 490:23	discussing 289:23 300:24 374:7 378:10 411:4 423:24 448:8	divergent 493:18,19,19 493:25	downstream 275:17 305:16	drop 276:1
directional 295:15 298:5 311:15 315:8 317:6 332:6 359:5	discussion 268:14,17 316:21 330:8 353:15 361:3 367:22 368:11 372:10 373:18 378:3,8 404:12 404:17 407:6 446:14 447:25 448:17 467:8 475:8 481:2 483:7 490:15 501:21	divert 493:25	dozens 261:20 280:3	dropoff 356:17
directions 295:16 317:14 343:21 350:19	discussion 268:11 409:3 412:13 413:20 419:10 426:14 434:5	divided 273:2,3	draft 425:17,24 451:21,23 459:8,12,14 460:5 479:21 501:16	dropping 293:1
directly 451:25	discussions 268:11 409:3 412:13 413:20 419:10 426:14 434:5	division 261:1 284:2,3	drafts 425:11	DSS 286:4 411:12 450:18
dirty 493:13	displace 290:13 290:16	DLM 450:23	drains 470:22 471:1 495:7	DT 281:7
disagree 468:5	distance 268:5,7 268:12 269:2,8 271:20 275:19 275:20 281:8,8	DOCKET 504:3	dramatic 404:21	DTSC 443:25 472:24
disagreed 265:15		document 267:10 270:12 272:7 287:12 321:19,20 369:4 370:1 398:7 421:6,10 430:16 456:13 456:16 462:10 462:14 463:3 463:11 476:13 476:18 477:3,6 477:20 478:4 479:17,19 480:6,6 481:10 481:20 500:1 501:17	draw 318:9 319:1 327:17	duly 260:13 390:10 439:9
disagreement 267:17		documentation 400:12,16 401:2 409:23 435:5 436:5,8		duplicate 258:9
disaster 294:11 294:12		documents 258:8,12,14,18		duties 391:6,20 443:10
discharge 293:14 317:20 370:25 371:19 372:3,5,12 482:4,8 490:12				dynamic 316:17 387:2

E

E 256:1 257:1
258:1,1 389:1
389:1
earlier 279:11
308:6 313:19
314:8,18
322:18 340:6
349:3 360:15
364:11 398:24
401:6 411:19
414:11 435:4
450:4,20
453:15 457:5

479:13 486:3 493:5 earliest 423:13 early 405:11 459:9 Earth 282:18,24 340:9 394:22 449:6,7 earthen 361:25 earthquake 372:17 502:12 easel 368:12 easier 375:19 easiest 369:9 396:12 east 374:12 457:3 503:10 easy 258:11 278:24 306:1,6 369:8 ecological 261:25 265:4 econ 393:17 Economic 263:6 economics 262:12 393:17 edge 301:9 321:10 325:9 326:22 343:11 343:12,14,21 345:24 358:2 359:24,25 360:2 365:12 493:4 education 262:8 262:9 263:10 440:15 effect 290:20 315:9 361:5 430:3,4,10 469:22 effective 290:17 319:11 effectively 306:5 efficient 352:10 efficiently 378:20 effort 447:8 463:21 474:11 476:24 501:19	efforts 474:9 eight 263:14 eighth 297:24,25 303:8 either 264:23 271:1,1 359:2 363:20 380:10 392:15 410:24 471:10 electrical 263:11 element 261:14 elements 459:15 elevation 282:16 282:17,17 288:25 290:19 321:12 336:15 336:21,23 340:19 341:15 364:18,18 365:17 366:4 366:15 381:20 483:23 elevations 321:24 email 397:8,17 398:6,7 399:11 407:22 408:1,4 408:21,21 409:11,12,13 409:19 421:11 436:15 437:15 embankment 334:14 338:3 emergencies 425:25 emergency 425:19 426:7 446:21 447:9 480:1,5 499:25 emissions 391:23 emphasis 263:9 employed 260:20,21 391:3,10,15 439:15 441:3 441:11 employee 431:7 431:8 employees	413:15,22,23 431:13,23 432:4 437:19 437:24 438:3 employment 391:11 441:1 emptied 357:19 empty 319:8 emulsion 400:25 encapsulates 379:10 enclosure 367:6 encountered 455:10 endpoint 358:4 enforced 425:18 enforcement 393:1,6,7 416:21 473:25 engage 394:20 404:23 406:4 engaged 448:23 engagement 445:6 engineer 262:15 262:16 279:6,7 279:14 286:10 286:12,15,22 286:25 287:7,9 287:11 291:13 297:12 306:4 320:18 372:13 372:16,20 413:13,13 451:13 489:22 489:23 engineered 275:4 377:19 engineering 261:1 262:10 263:10,13,16 263:22 265:14 408:7 422:5 423:5 439:16 439:19 441:11 493:8 engineers 274:23 452:11 452:12 engulfed 294:8	enjoy 413:17,24 ensure 417:4 entail 440:8 enter 275:23 305:13 346:17 346:18 enters 268:8 entire 316:5 418:1 424:20 451:11 entirely 268:10 entities 395:13 entitled 455:5 460:14 entity 396:13 environment 263:23 304:10 304:19 305:18 306:7,15,19,21 314:25 317:21 370:18 464:18 environmental 254:1,3,20 391:1,7,13 393:25 394:20 431:21 432:20 439:16 440:19 440:23 441:10 443:9 444:13 449:2 464:19 504:11 environmenta... 432:2 envision 490:17 EPA 261:24 263:25,25 264:2,4,13,15 264:22 265:16 278:7,22 280:17 351:22 351:23 354:6 392:23 395:15 398:24 401:12 402:9 403:2,9 403:13,20 404:2,13 405:6 405:10,17 406:11,16,19 406:24 407:10 407:22 408:2	408:15,25 409:4,7 410:10 411:5 414:13 423:23 435:5 435:18 436:6 436:15 437:1,3 437:19 443:20 444:1,2 445:1 445:12 447:13 448:18 449:10 449:12 451:8 453:13,21 454:9,11 455:12 459:13 459:14,17 460:5 473:8,22 479:2 480:20 481:4,6,13 500:11,16 EPA's 417:18 EPA-funded 354:3 equal 269:7 342:24 344:14 equals 269:22 equation 269:8 269:9,15,16,18 270:1,7 274:18 360:17 equations 292:2 equipment 277:1 error 363:1,2,10 364:5 457:7,13 458:25 459:1,5 escape 482:14 497:22 escapes 482:20 escort 400:9 esoteric 304:24 especially 284:24 Esquire 254:19 254:19 255:3,6 essentially 269:1 275:4,8 278:14 302:5 316:18 404:19 454:4 457:10 470:15 478:14 482:15
--	---	---	---	--

establish 265:22	272:10 370:4	413:21	expertise 278:20	280:21 281:5
established	504:9	exercise 338:1	405:15 424:21	287:9,15
266:11 306:24	exact 292:18	exercises 435:6	experts 382:7	289:19 292:11
323:11	411:10 412:9	exhibit 259:4,6	407:14 409:7,7	295:8 306:11
establishing	422:8 449:20	259:21,22,23	explain 267:21	370:17 371:17
277:1	exactly 298:4	270:14 272:6,9	270:9,22 271:9	372:4,24 374:4
estimate 274:10	310:5 428:25	285:16,17	272:18 288:7	374:25 377:7
340:18 362:25	480:3 484:8	368:23 369:6	292:7 302:8	380:12 382:15
363:3,4,22	502:21,23	369:19,23	305:2 314:12	392:13,18
412:10 433:1,2	examination	370:3 397:4	345:12 346:2	394:12 400:10
433:8 437:24	260:15 369:17	408:17 422:23	349:5 354:23	407:11 411:3
453:1,2	370:5 390:12	436:14 437:23	355:2 366:18	420:15,17
estimated	435:1 437:13	exhibits 257:3,7	419:6 501:7	424:10,13,16
298:14 354:13	439:11	259:23 411:18	explained	425:19 426:3,7
estimates 294:5	examine 297:16	exist 457:1	266:13,13	426:19 429:17
294:7 471:14	examined	495:8	267:22 314:9	433:20 443:5
et 261:7 277:1	260:14 390:11	expand 383:8	324:6	444:14 451:24
299:8	439:10	497:12	explaining	460:3 464:5,7
evaluate 297:13	example 261:22	expanded	457:6	469:9 471:1
312:14 317:16	262:5 264:7	404:19,21	explains 488:6	473:17 478:2,5
317:18 323:12	265:3,20 273:8	expectation	explanation	480:21 481:14
349:20 351:2,5	293:18 295:15	318:23 320:1	291:16 300:3	483:6 490:8,9
491:20	300:23 309:17	471:8,9	329:10	490:11 494:11
evaluated	310:11 317:11	expectations	explicitly 346:1	494:21 495:8
323:25 324:4	319:7 349:12	372:12	exponential	496:10
evaluates 393:5	358:20,21,21	expected 316:24	284:1	facing 374:22
evaluating	383:12 384:17	409:8	expressed	fact 292:5 298:3
263:2 278:5	425:22 443:18	expecting	334:10 343:24	301:12 304:6
evaluation	443:22 474:9	410:15	453:15	336:10,14
262:25 352:23	examples	experience	extend 304:16	350:1 382:25
370:15	293:17	262:22 275:3	extends 484:3	392:22 447:16
evaluations	exceed 302:23	283:16 284:5	extent 487:14	485:6 497:9
353:1	303:5,13	302:3 371:16	exterior 343:17	factor 269:10
evenly 498:11	exceeded 301:16	372:23 373:25	external 418:15	311:21 341:5
event 310:7	exceeds 305:22	380:20,24	422:2	348:8 465:9
425:17 430:8	Excel 379:19	415:21 416:2	extremely	470:20
465:20 466:3,4	380:6,10	419:22 474:18	401:23 412:24	factored 332:19
469:22	exchange	475:18 489:21	eyes 374:20	332:20,21
eventually	303:25 397:8	494:4		factors 298:5
296:12 300:20	407:22 409:13	experienced	F	308:23 316:19
everybody	exchanging	279:2	F 356:22,22,22	331:14 379:2,4
293:11 327:23	462:1	experiences	356:24 357:4	383:19
342:18 354:23	excluding	265:15	389:1	facts 295:7
397:16 458:4	491:24	expert 263:6	F1 464:8 466:10	475:5,11,22
465:3	exclusively	278:18 279:6,7	facilities 377:20	fade 335:16,24
everybody's	490:13	279:9,12,13	392:2,8 443:7	fail 295:14,18
423:11	excuse 312:20	281:18 406:2,2	444:1 450:24	296:24 298:4
everything's	excused 387:22	418:8 422:19	facility 267:1	319:18,21,24
402:2	438:19	444:5 492:9	268:13 277:19	470:7
evidence 259:10	executive	expert's 450:10	278:10 280:18	failed 297:8

fails 294:18	fanning 350:2	489:3 495:15	480:9	305:18 306:7
failure 295:22	far 304:16	496:7	fine 315:1	306:14,18
296:21,25	331:23 338:13	feet- 486:24	331:23 332:13	314:24 317:20
297:7 311:9,10	358:10,10,12	felt 398:17	368:17,24	370:17
317:5 498:23	358:14 359:1	501:13	389:20 442:24	fish- 464:17,18
failures 297:6	359:13,14	field 294:13	480:14	fit 345:16 359:8
fair 275:4 301:6	367:7 390:21	301:25 302:1	finer 325:21	359:11,22
313:23 318:25	408:14 414:20	fifth-level	377:14	451:16,18
377:24 380:11	453:20 458:8	465:15	fines 402:5	fitted 383:17
439:19 449:10	458:15 461:18	fighting 386:3	finish 472:7	five 264:4
469:15 484:6	465:21	figure 273:1,5,6	fire 294:10	342:16 368:5
492:23	far-ranging	273:17 321:17	443:15	418:14 423:23
fairly 262:24	436:22	321:21,25	firm 354:5	432:12 438:25
264:16 274:11	fashion 300:11	322:2,3 339:16	394:21	472:4
294:11 328:9	415:20	340:5,7 364:16	first 263:14	five- 429:22
329:5 352:8	fast 275:10	364:17 365:17	269:22 271:16	five-foot 276:1
378:13	325:9 441:19	366:5 411:7	276:19,24	flavor 441:13
fall 316:6 383:1	father 427:17	468:21,22	284:1 293:1	442:25
falling 383:22	favor 464:16	470:14,16	305:12 306:6	Fletcher 405:25
falls 296:11	features 344:6	figured 409:9	308:7 311:25	421:7,8,15
familiar 266:19	federal 254:8	figures 344:5,8	313:24 319:14	448:2,4,10
267:4 268:21	386:20 401:21	344:8 468:19	326:8,8,16,17	456:14
269:4 293:8,10	402:1 424:9	figuring 269:8	327:5,9,10,11	Fletcher's
299:15,20	444:2 472:20	file 426:5	327:12,15,20	456:11
309:20,23	478:17	fill 267:21 299:2	329:9,19	flew 498:12
310:2 340:2,3	feedback 453:17	299:5 358:18	330:22 333:5	Flipping 349:4
371:18 373:22	453:18 454:16	498:6,7,11	335:4 342:15	flood 262:4
379:7,24	454:17 455:12	filled 316:5	342:17 343:2,9	293:22,23
380:12 406:3	459:16,17	fills 484:25	343:10 344:4	flooding 262:4
418:6,10	500:4	498:2,5	344:13 347:19	Floor 254:10
437:16 448:19	feel 363:23	final 425:1,8,14	348:4,20	255:4,7
453:5 463:6	417:3 453:5	425:21 426:1,4	356:15,21,22	flow 272:21
469:4 478:8,10	feet 269:12	426:12,19	356:24 360:23	273:1,2,6
familiarity	274:23,25	451:21 461:19	361:8 364:10	280:1,24
456:17	283:7 286:24	487:2,12,17,17	370:15 382:18	286:21 289:6
familiarize	302:24 303:5,9	finalization	382:18 390:16	291:17 292:3
271:8 278:9	303:10,12,13	395:23 396:4	395:2,11 397:3	292:15 295:7
340:4 476:15	320:8,10	finalize 460:2	397:24 400:16	295:12,15,16
families 413:20	334:10,10	finalized 395:7	407:11,11	295:17,17
family 415:7	338:14,16,17	460:6	409:14 414:2	296:3,17,18
427:13,16	338:19 339:2	finally 432:23	422:2,11,12	297:3 298:6
family- 427:4,11	341:19,20	433:4	453:17 454:5	299:11,24
family-owned	342:21 343:10	financial 423:22	462:16 467:14	300:7 301:4,5
413:7	343:12,13,20	423:24	470:2 476:10	302:2,14,14
fan 311:16 332:2	343:24 344:25	find 275:22	484:23 494:14	312:2,20 315:6
332:4,5,9,13	346:4,5 364:12	305:17 306:14	496:21 497:22	315:9,13,15
336:25 349:4,9	364:12 366:21	318:22 319:9	499:15 501:19	319:18,19
349:11,17,20	366:21 376:12	320:17 369:12	first-hand	320:23 331:19
350:1 359:3	377:1 485:1	379:13 421:2	308:25	331:20 332:6
fan' 332:17	487:9,10,19	422:10 426:4	Fish 304:9,19	335:10 336:25

337:5 345:24	284:3 301:11	372:10	266:5	501:19,25
348:1 359:5	374:16 405:24	formally 309:12	Francisco	502:19,24
370:23 373:3,5	434:14 451:8	406:4	254:11,21	FRP- 432:12
385:2,24 386:3	454:14 455:21	format 378:17	440:23 445:3	FRPs 279:18
386:4,20	490:22 492:22	478:16	481:5 504:6	frying 300:10
466:24 467:1,4	follow-up 402:7	forming 331:18	free-borne	fuel 280:25
467:7,11,14	402:15	forms 337:2	288:12,13,14	fueling 443:7
488:6 489:12	followed 420:20	494:8	frequency 383:5	full 267:5 305:7
490:17 491:22	421:25 467:24	formula 268:23	friction 272:25	305:21,24
491:22 495:3	following	269:1,22 270:5	325:19,20	342:24 351:7
497:10,17	403:12 404:22	270:22 276:16	362:15,15	358:23 416:20
498:11 501:13	405:6 406:20	276:19 373:1	Friday 254:12	447:6 454:21
502:16	409:12 410:2	502:25	388:9	485:19 486:4
flow-related	480:3 481:24	formulas 268:25	front 267:8	486:20
292:4	follows 260:14	formulations	285:21 322:14	full-time 431:20
flowable 291:19	390:11 439:10	491:7	362:4 436:14	fully 504:9
Flower 255:7	466:25	forth 348:17	477:9 481:20	funny 350:9,12
flowing 300:16	food 293:12	425:11,16	FRP 278:19	350:17
300:22 323:19	foot 484:1	454:2	279:9 280:11	further 359:18
386:2	487:10	forward 266:16	280:12 281:5	367:16 381:25
flows 300:24	foot-two 288:17	301:12 398:22	281:19 310:9	414:22 426:25
317:6 325:17	foot-two-inches	408:14 479:25	310:22 311:12	434:12 437:6
325:17 385:19	286:9	forwards 393:6	316:23 352:13	471:25
385:22 490:19	footage 290:8	found 283:21	352:22 370:14	
497:19	footprint 290:3	284:18,18	404:11,15	G
fluid 285:11	296:13,14	287:25 288:10	405:8 410:18	G 258:1
286:7,7 287:6	324:7,8,14	325:2 329:11	411:9 415:24	G-A-U 299:16
287:10 288:2	329:16 337:14	333:8 368:15	426:10,13	G-U-O 299:17
288:22 290:24	343:25 344:10	417:13	433:4,17	299:18 330:2
291:19 294:17	344:11,21,22	foundation	434:11 435:11	gallon 293:15
294:18,20	345:4,9,14,15	279:8,17	435:14 444:25	429:23 483:11
312:7 329:12	345:23 354:16	450:13	446:15,24	gallons 294:6
329:16,18	354:19 356:23	four 279:24	447:6 451:5,16	339:3 342:25
344:19,20,20	357:4,16	280:11,16	451:19 453:15	358:24,24
344:23 346:22	361:11,12,13	342:16 404:7	453:18,21	359:8,16,22,23
354:13,15,17	force 325:21	407:25 429:22	454:20,21	429:24 464:6
354:22 356:11	forced 362:14	464:4 465:3	455:4,15,25	464:20 482:3
356:12 357:18	forces 294:20	four- 288:16	459:16 460:14	482:14 484:12
358:1 385:19	323:16,21	four-foot 291:3	461:16,19	484:15,20
385:19,21,22	347:20,25	four-foot-two	463:24 466:22	485:8,20
fluidized 362:22	361:17,22,23	288:3 291:3	473:9,19	498:24
fluids 386:6	361:23 362:16	four-foot-zero	476:22,24	gap 446:23
flux 426:20	362:24 385:7	288:6,10	478:4 479:6,10	gap' 447:2
fly 495:24	385:10,14,18	289:10	479:11 480:21	Gate 254:10
focus 262:12	385:23 386:1	fourth 280:25	480:25 481:5,6	gather 455:17
263:21 419:19	forefront 394:8	frame 394:3,18	481:14 492:8	462:16
434:8 451:12	foreseeable	402:16,19	494:15 496:20	gathering 308:7
focused 263:20	372:5,12,14,16	431:16 434:6	496:21 497:24	Gau 299:15
466:24	372:19	464:21	499:9,14,17	GDIT 260:23
follow 258:17	foreseeable'	framework	500:17 501:8	general 260:22

261:14 267:23	279:1 286:21	470:1 471:19	361:9,14,15,17	granular 325:18
267:24 311:3	287:7 292:8,18	471:20 472:12	375:17 389:3	362:13,21
326:18 391:19	295:20 297:16	480:9,16	391:23 401:14	graph 282:8
404:8 440:6,12	298:6 300:23	482:11 487:5	401:17,19	488:6
440:12 441:15	319:7 320:19	492:10 495:11	408:25 413:1	graphs 479:9
442:13 444:19	340:12 345:7,8	goal 305:10	415:14,19	graphs' 479:12
446:12,14,17	345:9,13 360:2	474:15	419:19 420:1	gravity 295:3
447:4 449:20	363:9 409:15	goals 262:1	422:20 423:11	301:13 327:4
450:24 451:15	412:12 420:4	265:23	425:11 434:11	347:21 361:14
463:22 465:24	422:10 433:1	goes 304:6	438:16 446:18	361:21 386:4
470:24 474:11	433:11 441:13	331:23 333:14	448:12 451:5	484:21 485:7
generally	442:24 443:12	333:15 338:4,9	452:3 453:3	489:17
261:18 266:22	502:24	377:9 387:6	465:20 467:13	great 261:23
283:24 284:6	given 265:13	432:1 450:9	470:13 472:11	293:22 311:4
294:12 295:10	266:3 271:23	465:21 490:21	485:10,23	329:10 332:22
301:25 312:12	281:24 284:23	490:22	490:17,22	388:5 398:15
325:13 374:22	292:12,14	going 258:13,17	499:14,14,16	398:15,16
380:19 383:2	293:13,15	259:12 262:4	500:17,18	402:21 413:11
387:11 396:1	298:3,8 349:7	269:5 270:19	503:10	413:19 416:18
406:8 415:23	350:1 352:25	272:5,25	Golden 254:10	great-grandfa...
415:24 416:13	363:24 372:23	273:10 275:11	good 258:3	413:9
417:2,8 425:7	373:17 375:12	281:18 289:6	260:17,18	greater 306:23
450:22 469:4	416:2 446:18	290:15,15,16	275:2 294:14	497:12
generated	454:19 478:7	295:23,24,25	294:19 304:1	Greenwood
365:23	489:2	296:1,2,11,14	306:3 308:3,4	394:25 396:20
gentleman	gives 273:3	297:16,16	314:5 330:19	396:21 414:1,4
413:11 431:16	298:3 402:22	299:4,5,7	332:12 342:7,8	grey 374:5
gentlemen 400:8	470:3	300:10,15	364:2 381:5	381:17
geographic	giving 421:2	301:7,12,17	383:10 390:14	grid 311:6
316:19	475:2	304:11 305:7	390:15 393:12	grid' 311:1
geographical	glean 323:7	307:21 313:11	398:17 409:11	gross 411:23,24
280:19	go 258:13 267:7	314:19 315:3	409:18 439:13	412:3,6
geography	268:1 269:18	318:10 322:17	448:16 503:12	ground 383:22
317:8 329:2	272:1,18	324:12 330:4,6	Google 282:18	384:9,12,13
geometric 331:2	274:11 281:2	331:6,14,15,16	282:24 340:9	472:19 473:6
331:8 346:2,20	326:5 330:5	331:17 332:8,9	gotten 335:9	492:10
347:9 348:23	339:16 340:19	336:4 337:6	governor 417:11	group 263:6
348:25 357:24	342:10,13,18	338:12 339:16	grab 385:25	439:17,20
geometry 274:9	345:2 349:16	340:10,11,12	420:5	groups 262:21
346:1 347:8	358:11,11,13	349:11,14,21	grade 386:24	guess 312:24
352:9,11 364:2	363:20 367:25	350:1,2,6,7,8	483:21	315:14 318:4,4
George 428:14	368:7 369:20	353:17 355:12	graded 483:22	329:4 335:14
473:18	370:20 389:4	355:13,23	grades 386:16	348:2 351:15
getting 276:19	390:5 401:3	356:15,16,17	386:23	363:12 374:11
410:8 419:18	408:14 413:23	356:18,22	grading 298:21	399:4 400:21
422:18 432:10	415:11 416:8	357:6,8,11,14	386:18	414:10 432:6
432:10	420:25 441:21	358:6,10,11,13	graduate 263:20	446:17 455:4
Gigi 504:18	442:16 445:6	358:17,18,25	grains 325:19	guessing 308:16
give 267:23	450:15 451:10	359:8,11 360:7	grandfather	guidance 265:9
274:13 278:3	459:22 463:22	360:8,10,22	413:9,10	322:24

Honor 258:7 271:25 278:17 279:4 281:20 303:15,16 304:25 307:24 339:9 367:16 368:14 378:21 382:2,5 388:5 389:18 390:24 413:3 414:23 415:6 422:16 426:25 434:16 439:5 444:4 446:4,6 472:1 492:4 496:15 500:22,23 503:3	278:20 hydrological 263:17 hydrology 263:17,18 hydrostatic 361:10 hypothetical 316:4 334:18 335:18 377:6 hypothetically 304:12	307:1 314:2 361:6 412:16 469:24 impacted 307:4 307:4 impactful 348:13 impacts 289:23 348:22 impervious 493:11 implement 267:5 implementation 265:19 411:9 implementing 416:23 implicate 320:23 implies 492:13 493:23 important 272:23 288:23 288:24 401:23 impression 267:16 401:18 450:19 500:9 500:13 improbable 296:22 improper 378:22 improvement 475:21 improving 476:24 in-house 430:25 in-person 403:13 405:6 inappropriate 436:25 inch 307:1 inches 290:21 320:7 incident 279:22 incidents 280:15 incline 275:11 275:12 301:3 include 329:20 367:13 378:10	463:16 469:11 479:20 483:4 494:16 included 285:8 303:11 315:12 336:6 337:12 365:7,10 379:2 446:21 460:13 470:14 479:24 includes 346:20 including 334:6 430:21 income 412:3,11 incoming 424:5 incomplete 501:9 incorporate 463:2 incorrect 314:19 322:7 362:11 485:18 incorrectly 458:1 increase 432:9 increased 432:7 indicate 359:17 indicated 279:11 340:23 423:25 indicates 355:20 456:11 indicating 355:17 426:17 indication 454:5 indicators 263:8 individual 394:23 395:19 416:10 individuals 404:7 428:5 437:18 industrial 391:24,25 442:19 449:25 industries 392:14,14 442:25 industry 392:15 392:16 396:12 412:18 418:6	443:6 infinite 312:11 317:3 318:5,8 318:12,16 319:3 inflections 326:15 inflow 297:1 468:12 inform 278:7 information 260:22 271:18 274:22 275:18 275:22 276:4 284:20,23 310:17,20 311:7 314:22 314:23 321:2,7 321:8,10,11,18 325:7 344:17 352:9 403:3 409:1,8 414:16 414:18 423:25 428:4 437:17 447:7 463:11 467:19 475:2,2 479:21,25 480:10 501:7 informed 453:13 initial 284:16 299:1,25 300:4 300:6 302:16 313:25 315:18 316:2,15,16 322:21 323:14 324:23,24 325:3 326:8,11 327:9 329:12 329:16 331:1 333:19 335:6 342:20 344:3 346:21 347:15 347:19,24 348:4,13,16,20 349:10,10,25 352:3 356:8,9 361:21 362:17 394:2,3 402:17 468:10 471:16
Honor's 469:2 HONORABLE 254:15 hoping 422:21 hot 383:22 442:8 498:24 hour 269:5,5,6,7 294:8 388:2 hours 269:13 276:25,25 277:8,8 278:1 281:25 282:2,4 333:3 431:6,15 432:12 HT 286:7 Humboldt 440:18 hundreds 280:4 hurdle 320:3 husbands 413:15 hybrid 501:5 hydraulic 263:18 274:6 280:1,1 286:15 312:7 hydraulics 263:16 hydrocarbons 265:23 266:4 hydrodynamic 292:3 hydrologic	I idea 432:18 499:21 500:1 503:13 identification 259:3 270:13 368:18 369:5 identified 257:3 257:7 272:8 370:2 398:19 457:8,11,25 458:1 474:4 identify 353:9 397:7 421:5 477:3 illustrate 294:15 338:11 illustrated 340:23 365:11 illustration 267:8 288:15 294:19 295:4 330:20 366:18 368:11 374:3 374:11 375:17 375:25 377:4 381:9 illustrative 310:11 images 340:9 341:7,7 imagine 297:2 300:8 immediately 483:24 impact 289:18 304:11 306:21			

481:23 482:18	402:14,16,17	420:16 423:17	361:25	454:8
484:23,24	410:1,2 417:16	448:1,13	involved 269:15	January 398:2
486:2,13,17	417:16,17,20	intellectual	280:18,20	410:19 459:23
490:25 497:8	418:11 419:1,3	351:17	395:22 401:18	460:14,20
initially 321:6	422:3 423:12	intend 380:22	406:8 441:10	461:1 476:21
324:10,12	448:18,19	intended 278:23	462:13 473:25	Jeff 399:25
326:21 327:14	453:22 454:18	366:22 489:16	474:1	427:21,25
346:24 400:14	454:19 455:10	intent 407:13,16	involvement	438:11
453:3 471:15	455:18,24	424:16,19	395:10 473:8	Jeffrey 427:20
490:21	459:19	425:8,10,13	involving	445:24 477:24
initiated 394:15	inspections	intention 307:7	470:21	Jersey 380:15
injure 306:11	393:11 401:17	interaction	Irvine 255:4	381:19 493:6,9
injured 294:5	402:12 417:22	443:25	issuance 451:21	job 320:18
injury 306:20	417:22,23	interactions	issue 259:19	390:25 391:5,6
ink 356:4	421:7 430:5	350:3 385:21	313:14 382:13	391:19 392:5
inlaid 470:17	435:6 436:22	interest 424:23	405:19 406:15	392:20 431:20
innocuous	inspector	interested 362:8	409:16 416:24	431:25 440:5
400:21	391:23 392:3	404:13	420:23 446:24	jobs 392:6
innumerable	393:1,4 401:21	interesting	448:25 459:23	412:21
311:17	402:1,22 416:2	351:9,9	460:1 465:17	Jordan 255:6
input 322:21	418:17	interface 443:8	473:19,23	428:3
331:21 332:1	inspectors 392:5	interfaced	488:21	Josh 403:21
334:9 346:15	instance 319:7	394:24 395:20	issued 393:8	journal 309:16
347:11 348:18	493:21 498:14	interfacing	459:8	310:3
348:25 357:6	instances 466:3	396:3	issues 262:5	Judge 254:5,16
360:16 365:13	475:4	intermolecular	263:5 392:20	258:3,15
inputs 276:11,13	instantaneous	323:16,20	394:4 402:3,20	259:11,15,18
283:17 304:7	484:24 488:2	325:20,21	407:10 444:13	260:1,5,9
304:15 321:14	instantaneously	362:16,23	444:24 447:23	270:21 272:3,5
329:1,2 330:9	316:5	385:10,23	it'll 299:6,6	279:3,19 280:7
330:24,24	Institute 262:11	International	324:20,21,21	280:10,14
331:24 332:2	instruct 405:11	254:6 428:15	361:4	281:2,13,17
347:10,10,12	instructed	504:4	item 342:16	285:16,19
363:18 364:19	396:17 455:21	interpret 265:19	405:24	303:19,23
367:13 467:24	instructions	interpretation	items 398:19	304:1,20 305:1
inside 289:22	396:22,24	318:25 338:24	411:12	307:12,15,19
insignificant	414:4 455:2	interpreted	iterate 379:20	307:21,25
341:4	insufficient	279:13 409:22	iteration 479:20	327:17 339:13
insisted 417:21	284:21 288:1	interrupt	499:15	342:3,5 353:19
insofar 466:19	313:22	327:23 358:20	iterations	353:23 355:5,9
inspected	intake 464:19	441:25	466:17 474:9	356:19 367:17
392:21 421:18	465:4	interrupting	478:22	367:24 368:4,6
421:23 422:5	integrated	356:3 457:16	iterative 345:1	368:9,13,17,20
inspecting	420:23 424:25	intersection	487:15	368:23 369:9
391:25 392:7,7	425:5	263:22	<hr/>	369:12,18,23
417:25	integrity 284:25	interval 410:11	J	378:23 382:1,3
inspection 396:6	285:3 313:20	488:7	J 254:19 255:3	382:9,11 383:6
396:7,8 398:1	405:21 406:2	Inventory	407:2	383:11,20
398:19,24	409:18 417:17	457:20	J.J 432:19	384:7,11,16,22
399:5,20 401:8	418:16 420:8	involve 331:11	Janice 453:23	385:1 386:8,12

387:8,15,19,21	494:21	knocked 294:9	340:19 341:15	499:20 500:2
387:23 388:1,6	Kari 256:9	294:10 485:11	345:6,14 346:1	501:24
389:3,8,11,15	439:6,8	know 263:12,17	347:2,4,5,12	knowledge
389:20,24	keep 258:11	264:7,13 265:8	347:20 349:8	308:25 395:8
390:3,5 413:4	338:11 453:9	265:17,22,25	349:16,25	403:5,7 405:14
415:1,3,7,11	keeping 385:7	266:8,9,15	350:1,5,8,21	410:7 414:21
415:14 416:8	386:1	267:6 268:4	350:24 351:3	419:21,23
422:23 423:2	Keller 432:19	269:3,4,11,18	351:10 352:5,8	421:24 429:11
426:24 427:1,4	key 330:24	270:4 274:24	352:25 353:4	436:13,19
427:7,11,15,19	331:24 332:1,2	275:9,18,24	354:19 357:10	437:1 450:10
427:21,23,25	kill 392:19	276:10 277:5	357:11,14,14	450:12 455:14
428:6,8,12,16	kind 263:21	277:21,24	357:20,20,21	461:20 463:10
428:19,22,25	274:13 276:25	278:2,4 279:25	357:22 358:6,7	known 293:22
429:3,10,13,16	280:5 292:2,19	280:1,19 288:6	358:7,9,16	knows 330:7
429:20 430:2,7	298:24 300:11	292:6 293:10	359:13,17	
430:10,17,25	301:19,21	293:20 294:2,5	360:8 364:6	L
431:4,6,10,19	302:15 304:23	294:15,17,20	367:1 371:10	L 254:5 504:20
431:23 432:4,7	308:6 309:9	294:21 295:1	372:2 373:11	label 285:11
432:11,22	312:5 314:11	295:17 296:4	373:21 380:5	346:14,16
433:1,4,8,13	323:20 324:2	297:8,9,9,12	383:15 384:1	355:13,23
433:18,25	324:23 325:1,7	297:15 298:4	385:20 386:4,5	458:6
434:3,12,17,20	326:18,20,22	300:7 304:3	386:13 394:14	labeled 288:21
434:22,24	327:6 330:11	305:12,17,19	396:10 397:13	laboratory
435:21 437:8	330:23 331:2,7	305:20,24	399:15,15	362:3
437:10 438:14	331:15,25	306:12 308:8	400:15,23	lack 466:10
438:18,22,24	333:21 336:14	309:11,13,15	401:20,22,25	laid 279:9
439:3 441:19	344:21 348:23	309:15,23	402:2,20	Lakes 261:23
441:21 442:16	350:3 363:7,10	310:4,6 311:9	404:11,12,16	land 331:16
444:8 450:11	376:16 377:9	311:13,15,17	405:15 406:2	333:13 340:13
450:15 465:17	379:11,13	312:3,3,9,10	407:14,18	355:15,16,18
472:2,6,9,11	381:16 385:6	315:22 316:7,7	408:3,14	355:20 357:21
476:7,9 477:11	385:17,25	316:17,18,19	410:14,23	357:25 358:3
477:13 492:9	390:23 391:5	317:7,9,14,23	411:1,10 412:8	364:5,6 366:25
496:16 500:20	393:15 396:1	318:2,5,6,7,9	412:15,23,25	375:11 387:9
500:25 503:6,9	401:25 404:9	318:22,24,24	415:20 417:19	491:22 496:24
503:16	410:9 430:1	320:6,7,8,12	417:21,22	large 374:5,6
Judges 254:1	432:15 441:14	320:16,21	418:3 421:19	483:9 488:17
504:13	441:14 443:3	321:9,20	422:9,17	488:17,19,22
July 408:18,25	451:6,17	322:10,12	423:10,22	496:10 499:1
410:7 441:2	452:22 477:15	324:2,6,13,16	426:9 428:3	larger 277:4,9
jump 464:16	481:1	325:21 326:6	432:24 436:5,8	312:5 331:5
jumped 268:6	kindly 439:14	326:13,21	436:21 443:20	largest 288:11
June 397:17	kinds 273:14	327:1,6,7	446:8 451:1,1	290:2,2 372:4
398:4 423:12	295:25 317:7	328:1,1 329:9	451:2 454:5	382:20,22
455:9	kinematic 387:3	330:2,11 331:9	460:17 463:7	466:6
	387:6	331:13,21	470:24 471:2	Lastra 504:18
K	kitchen 294:2	333:11 335:17	471:20 473:17	late 367:24
K 367:4,7	knew 311:5	336:19,24	481:10 483:15	400:5
380:11,13	386:23	338:11 339:20	492:10 498:17	latex 429:23
381:18 493:6,9	knock 471:15	340:8,13,17,18	499:7,12,14,16	laundry 330:23

law 254:1,5,16 264:23 504:12	level 261:25 289:1,2 327:15 329:15 384:3 413:21,21 417:5 499:5	liquid 280:21 286:17 288:23 289:5 290:15 290:16,19 323:24	271:20	336:9,9,13 340:8 350:21 350:22 351:1 362:19 364:11 420:7 466:15 466:16 467:16 470:21,23 471:2 491:8
lawyer 279:15	levels 262:1 265:4 333:13 418:10	list 258:10,16,17 264:9 272:2 330:23 357:2 436:15,16,20 437:17 438:3,5 458:13 461:4	longstanding 266:10	looking 275:15 282:15 288:22 291:16 298:25 312:1,2,4 316:13 333:2 342:19,20 344:3,4 346:16 370:16 404:18 414:6 422:24 424:5,24 436:11 464:1,1 464:2 467:5 480:8 501:10 501:11,12
lawyers 415:7	levies 367:3	listed 396:9 455:23	look 270:10,20 274:9 275:16 277:23,23 283:11 288:15 290:7 292:16 293:16 294:21 295:15,17 296:10 297:18 297:21 298:19 305:12,16,16 308:20 311:13 312:13 314:2 317:21 319:12 319:12 322:13 322:17 324:20 324:21,21 325:24 326:14 326:14 333:4,7 333:9 334:8 336:16 340:8 344:9 346:6,8 349:21 350:10 350:19 351:4,8 356:16,18 357:8,14 359:2 364:9 365:2,16 371:23 377:3 397:4 407:20 407:23 408:17 409:11 420:4 420:11 421:20 438:5 451:15 452:4 455:7 456:1 458:7 462:7 465:21 482:23 487:5 495:17	376:3,9 381:15 421:10 425:5
lay 320:14 376:24	levy 335:19,25 338:8 339:20 339:20,21 341:12 366:24 367:2 381:22 381:24	listing 264:8	looks 272:15 325:4 327:5,7 354:19,20,20 355:8,9 364:24 376:3,9 381:15 421:10 425:5	Los 255:7
laying 272:15	license 328:15	literally 483:25	lose 291:23	lot 264:14 273:9 273:18 294:20 306:3 313:11 328:11 353:14 361:13 367:21 372:10 378:3 395:24 400:22 401:1,20 404:16 405:15 413:14 419:21 422:9 430:24 463:20 465:25 483:7 490:2
layout 456:18 463:6,14	licensed 262:15	literature 273:19	loud 397:24	Louisiana 262:4
layperson 291:12	licenses 441:6	litigation 460:12	low 278:4 299:3 299:7,8 376:8 377:5,9 471:12	low-grade 471:6
leading 262:8 301:8 325:9 326:22 329:18 343:5,11 359:24,25 360:2 378:22 434:6	life 413:24	little 258:9 262:8 267:12 267:13 280:14 292:9 300:14 301:2 305:4 330:17 333:15 340:25 343:19 359:21 361:8 378:4 381:3 384:16 420:1 422:18 446:23 487:9	lower 278:3	low 278:4 299:3 299:7,8 376:8 377:5,9 471:12
leak 430:8 498:24	lift 295:23	live 300:25 413:24	long 261:2 307:12 391:3 391:15 401:22	longhand
learned 405:10	lifted 362:5	LMS 432:16	longer 277:11 277:12 282:3 290:3 315:23 326:13 437:25 438:3,8	
leave 367:22 489:7	likelihood 491:20	local 443:14,14		
leaves 465:7 494:11	limit 502:6	location 277:19 278:10 280:19 338:20 343:9 353:20 370:17 457:11 504:6		
Lee 452:13,13	limiting 486:15	locations 456:12		
left 273:16 284:3 286:5 326:5 358:2 366:5,10 412:7 481:17 483:14	line 275:16 282:15 318:9 319:1 336:17 336:20 341:12 341:14 343:15 354:13 355:7 355:10,12,14 355:17,21,23 355:24,24,25 356:14,20 364:10 374:9 374:14,18,23 374:23,25 375:6,22,23 376:1,7,18 379:23 409:14 482:12,13 485:24	lodging 422:21		
legal 416:6 492:5	linear 327:6,7 341:21,25	long 261:2 307:12 391:3 391:15 401:22		
length 274:7	lines 340:21,24 344:12 375:9 376:4,6 381:17 407:25 419:8	longer 277:11 277:12 282:3 290:3 315:23 326:13 437:25 438:3,8		
let's 304:12 318:23,24 325:23,23 330:5 334:8 335:17 358:21 358:24 367:25 368:6,9 381:1 384:11 398:12 400:4 405:16 405:17 407:11 411:22 420:24 421:5,9 435:22 454:21 474:6 498:23 500:7	lip 347:4			
letter 403:10,12 421:7 477:24				

326:22 376:25	392:11 413:21	267:20 291:18	290:23 466:1	316:18 321:15
483:23 485:23	414:20 432:25	292:16,20	502:8	332:13 335:12
LUDWIG 255:6	440:7 441:8	293:15,20	max' 289:7	338:10 340:3
422:12 467:9	manifestations	294:23 296:5	maximum	349:6 360:21
lunch 367:24	261:5	306:19 323:11	285:11 287:22	367:2 401:23
387:24 388:2	manifests 424:5	323:12 324:7,9	288:2,20,23	417:24 434:3
	manmade	325:12,14,18	289:2,4 482:5	450:22 454:8
	332:18 373:6,9	331:6 335:13	McNairy 399:25	474:25,25
M	377:18,25	336:16 337:13	414:19 429:8	480:24 481:9
M 272:19,20	469:12,24	343:25 344:9	438:9	488:20 489:10
ma'am 416:1,17	470:5 482:16	344:10,11	McNeil 255:3	489:19 492:12
417:1 418:13	482:19,22	345:3,8 346:17	272:4 279:3,4	493:12 499:3
418:13,18,25	483:19 484:6	348:12 360:10	303:16,22	501:11 502:14
418:25 421:13	491:24 493:3	362:5,14,17,18	307:12,14,18	meaning 291:18
421:16,22	Manning 269:16	362:21 383:7	307:23,24	332:5 392:3
422:1 423:7,20	270:6 273:13	384:25 401:14	308:2 327:22	430:5 463:1,5
424:2,12,19	Manning's	429:23 467:3	328:5 339:9,14	471:22
425:3,21	272:20 273:10	469:22 471:13	339:24 342:4,6	means 339:17
426:21 427:3,6	manufacturing	471:14 497:19	342:9 353:9	372:4 373:13
427:10,14,22	284:19 458:9	497:21	354:1 356:2,6	375:11 392:12
428:11,21,24	458:17,22	materials	358:19 367:15	488:18 493:25
429:2,18 430:9	map 266:12	291:21 362:20	369:22 372:11	meant 342:17,20
430:16,19	373:17,20	362:20 428:15	378:21 382:2,4	measurements
431:5,22	374:12,21	441:8,17 442:5	387:19,20	331:12
432:14 433:7	375:12,20,21	479:15	389:12,13,18	measures
433:14,24	376:24 377:8	math 304:24	389:23 390:1,4	430:14,24,24
macro 378:17	377:14,21	314:11 342:23	390:13 413:2,5	measuring
379:24 380:1,3	451:14 457:3	358:22 364:1	414:22 416:6	292:19
380:9	470:18	370:11 378:13	422:16 426:25	mechanical
macros 380:4,5	maple 292:21	483:11 484:19	434:14,16,21	263:10
Madam 260:9	mapping 457:11	mathematic	434:23 435:2	mechanisms
389:3 390:6	457:11	378:11	435:20 437:9	264:1
472:11	maps 275:25	mathematical	437:12,14	mediation
main 405:15	483:6	280:7 281:4	438:13,17,20	449:21
451:12	March 477:23	284:6	438:23 439:1,3	medicine 393:15
major 347:11	Margaret 428:7	mathematics	439:5,12	meet 287:4
402:3 404:20	428:8	440:20	441:24 442:17	306:16 395:3
429:25	margin 363:1,2	matter 254:2	442:21 444:4,9	406:13 500:6
majority 339:16	363:10	260:1 291:15	444:10 450:17	meeting 398:16
making 391:24	mark 355:10	314:6 323:16	451:4 465:19	403:13,20
392:7 412:6	356:19 368:18	340:16 350:20	466:8 467:12	404:22 405:6
485:12 495:23	marked 259:2	368:10 388:8	471:25 492:4	406:19,25
man-made	270:13 369:5	396:22 441:15	496:15 500:22	407:7,13,16
366:15	377:4	503:18	503:3	408:2 445:1,2
manage 261:11	marry 340:14	matters 258:4	mean 267:24	445:6,11
261:12	Massachusetts	261:17 314:17	269:19 270:3,7	446:10,13
management	262:18	449:12 474:3	276:14 280:4	447:3,15,22
261:11 416:15	master's 262:11	496:7	285:5 286:11	448:3,11
433:20 440:9	440:22	max 286:6,7	286:14,18	449:10,15
440:24 442:6,6	material 264:24	288:17,21	299:4 311:25	451:8 480:18
manager 391:2				

481:10 499:12 500:14 meetings 430:22 member 396:23 memory 269:19 270:3 mention 312:20 452:2 481:8 mentioned 263:24 270:6 281:7 285:3 296:20 302:4 303:11 325:12 347:13 348:23 349:3,15 350:12 354:18 366:21 400:9 419:2 451:7 463:8 473:7 480:19 500:2 mentioning 285:24 457:23 mentions 491:10 merged 261:6 met 254:13 313:20 320:3 335:7,11 method 369:10 methodology 265:24 352:7 378:11 391:25 406:13 methods 265:18 Michael 395:21 395:24 396:6 397:8,20 420:8 421:11 Michaud 256:4 260:8,12,17 270:21 278:18 279:19 281:18 281:22 286:10 304:5 308:3 310:13 356:2 368:1 370:7 382:6 Michaud's 468:2 Michelin 392:1 mid- 400:4	middle 374:10 398:12 403:16 407:17 426:13 might've 293:17 296:20 402:21 434:5 migration 470:21 mile 371:1,11 miles 269:5,6,7 276:2,7,8 282:2,6,23 283:13,18 294:8 305:19 305:20,22 307:3,4 million 294:6 342:25 358:24 411:23 482:19 485:20 498:24 million-gallon 294:3 458:13 489:3 mind 325:23 397:23 494:3 minimal 290:20 minimized 347:17 minimizing 310:6 minimum 288:25 289:3,4 289:5 minor 429:19 440:20 minute 357:8 360:19 361:9 435:21 455:7 minutes 333:5 357:9 360:19 361:9 368:5,7 370:11 373:18 414:25 415:4 438:21 446:4 472:4 488:4,9 mischaracteri... 353:16 465:12 misidentified 458:5 misinterpreta...	475:16 missed 303:24 353:7 missing 340:22 mistake 297:14 misunderstan... 475:20 misunderstood 348:15 mitigation 262:5 mixture 266:3,4 385:5 model 296:9,17 299:13,15,20 299:22,23,25 300:1,2,17 301:11,11,17 301:17,18,21 301:22,24 302:5,10,14 312:3 316:25 322:20,22 323:3,8,10,11 323:25 325:7 327:24,25 328:6,12,13,13 328:17,19,23 328:24 329:2,2 329:3,5,19,20 329:22,22 330:10,11,25 331:9,18 332:16,22,23 333:1,4,18,19 333:23 335:2,4 335:6,12 339:19 341:1,2 343:20 346:12 346:19,20 347:9,12 348:19,19 349:2,5,15,23 349:23 350:4 350:14 351:12 351:14,16,22 352:2,3,6,18 353:15,16 354:25 356:7 357:2,7 360:13 361:1 362:3,6	362:16 363:1 363:16,16,16 364:8,19 365:7 365:22 373:5 378:5,6,9,9,16 378:25 379:1,1 379:1,3,7,11 380:3 387:6 424:10,13 467:18,25 468:5,8,9,10 468:11,14 471:12 481:24 484:21,23 487:2,5,15,19 489:12,14,19 489:20 490:21 490:25 491:1,3 491:4,5,11 496:25 497:25 502:1 modeled 324:22 327:5,6 349:13 362:6,12 363:14 489:6 497:5 498:15 modeling 325:16 328:11 331:20 336:13 362:22 386:21 467:16 468:12 models 336:12 362:9 378:3,17 379:2 modified 323:15 323:15 352:4 447:11 451:6,6 453:15,18 479:18 499:9 499:20 501:5 modify 492:2 molasses 292:22 292:24 293:6 293:22,22,24 293:24 294:7 294:25 384:17 384:19 386:7 386:12 molecular 361:23 385:7	molecule 385:8 385:24 molecules 323:18,22 385:21 moment 271:8 311:9 326:1 342:13 364:9 366:21 382:3 413:3 420:4 426:22 451:6 456:2 476:14 Moments 424:24 momentum 295:3 296:3 301:12,13 327:4 347:21 361:16,21 484:21 485:7 489:17 Monday 503:11 503:14,19 money 312:13 monies 306:5 monitoring 442:9 month 281:25 409:12 months 398:22 401:19 402:11 402:11,18 436:7 459:24 Moring 255:3,6 morning 258:3 260:17,18 267:9 308:3,4 400:5,5 mornings 400:6 motor 293:7,8 move 295:24 300:10 306:23 323:18,23 324:15 325:9 325:10 344:25 345:18 346:23 349:11,21 350:6 358:16 359:14,14,21 360:1 361:17
---	--	---	--	---

380:11 385:19 409:6 465:18 moved 266:16 325:1 326:12 345:3 357:13 375:21 392:18 moves 275:10 300:19 306:25 307:3 331:4 347:15 348:24 361:16 375:23 moving 269:3 275:11 296:11 324:17,18 326:22 327:13 354:18,20,22 355:21 359:17 359:18 375:8 375:16 387:10 398:22 489:12 multiple 351:4 391:17 multiplication 284:2,2 multiply 339:4 municipal 443:2 municipalities 392:12,21 must've 461:3 mutual 417:14	474:19 navigable 268:9 268:13 305:13 371:1 491:21 491:23 492:2 492:20 navigation 275:5 near 277:22 334:20,21 338:21 343:5 nearest 370:25 necessarily 416:17 necessary 305:9 need 265:11 267:4,21 273:6 307:14 318:11 368:2,15 369:15 371:3 382:6 383:17 387:4,4 404:20 420:1 423:10 431:13 451:1,2 452:23 492:7 needed 352:24 392:22 394:5,6 394:7,8 395:11 426:4 436:16 436:17 452:21 460:1,2 needs 286:23 287:3 341:9 384:2 395:3 negated 475:25 476:2 negative 385:15 neighborhood 294:8 net 412:3,7,10 never 351:7,7 380:24 410:25 458:2 new 264:13 266:9 333:22 360:2 news 309:7 nice 273:11,12 300:11 306:2 350:8	nine 263:15 non-hydrocar... 385:13 non-transport... 372:4 non-zero 307:6 314:10 337:1 noncompliance 393:10 Nope 421:4 normal 500:18 normally 439:21 451:18 500:11 north 349:12 366:11 375:8 375:16,17,21 376:15,16,21 489:10 490:9 490:13,17 northeast 374:12 northerly 470:25 northern 366:7 366:8 northwesterly 375:18 Nos 259:4,6 note 422:18 430:13 495:7 495:10,14 noted 374:13 454:20 461:22 notes 334:13 349:5 364:13 364:15 495:23 504:10 notice 254:13 402:8 notified 399:5,7 399:9 474:7 November 398:25 423:9 448:18 Nowlin 399:25 438:11 number 274:15 276:9,9 283:20 283:20 285:16 285:17 291:23	304:14 312:9 317:4 318:12 319:17,23 325:2 339:5 342:21 345:5 351:4 381:2 383:21 386:9 386:14 411:10 419:13 421:18 428:10 430:23 433:12 442:4 476:6 numbers 350:15 386:9,25 412:10 458:14	<hr/> O <hr/> O 256:1 258:1 389:1,1,1 Oakdale 404:25 439:25 440:1 object 279:5 353:19,22 369:22 436:24 465:11 objection 272:3 272:4 279:5 281:17 368:15 378:21 390:4 416:6 422:21 444:7 450:9,14 492:4 503:3 objections 353:6 objective 320:18 320:20 objects 389:19 observed 293:17 322:19,20 493:14 obvious 452:22 obviously 265:5 265:9 267:4 274:24 275:11 293:24 308:17 387:13 occur 311:10,18 312:8,11 316:18 317:24 318:1 362:17 372:17 475:24	occurred 293:21 293:23 308:9 402:13 411:1 429:21 October 420:22 425:23 459:11 ODBRs 442:14 OES 443:19 office 254:1 261:23,24 264:14 401:15 432:17 439:24 451:22 452:10 504:12 officed 440:3 officer 393:1,1,3 393:6,7 Official 504:18 oh 303:22 304:2 342:16 365:1 389:15,18,20 395:9 411:14 413:6 434:21 434:22 445:22 458:16 464:17 470:13 477:13 489:23 oil 266:19 280:20,25 284:17 290:2 293:7,9 319:6 371:16 380:23 382:22 488:12 495:3 oil-type 281:1 okay 258:15 259:11,15,18 259:19,24 260:5 272:5 277:10 280:10 280:14 281:17 287:1 298:3 299:19 307:12 307:15,19,22 307:25 308:13 309:6,9 311:1 311:4,20 314:5 314:15 319:22 320:2,4 322:9 322:15 325:11
<hr/> N <hr/> N 256:1,1 258:1 270:8,8 389:1 389:1,1 N.W 504:20 name 351:11 428:6 473:17 named 351:13 names 427:19 428:12 436:16 national 261:23 263:2 264:9 natural 491:24 nature 392:9 393:6,9 402:23 406:13 410:9 412:22 418:2,5 426:14 430:6 431:14 444:19					

325:22 328:8	447:1 448:6,16	operations	Originally 436:7	owners 428:1
328:19 329:7	449:9,14,17	283:22,24,25	Orr 438:7,8	ownership
330:3,9 332:18	451:20 453:5	414:20 419:20	outcomes	428:4
333:22 334:16	455:7,15,17	419:21 429:6	312:15	owns 427:15,23
335:22,22	458:20 460:23	432:25 440:6	outlined 420:19	
337:7,15 338:6	463:19 464:14	440:13	outlines 300:2	P
338:18 339:1,9	465:1 469:17	operator 491:19	468:24	P 258:1
339:14 341:4	469:21 470:10	opine 283:15	output 276:16	p.m 388:7,9
342:8,10 343:7	472:2,9 476:11	opinion 287:23	276:17 283:17	389:2 503:17
345:14 346:14	477:17 478:10	288:4,5 289:21	outputs 276:14	page 272:12
348:15 351:11	478:20 483:6	348:12 424:25	348:19	282:7,7,8
353:23 354:2	484:10 486:18	481:17	outside 277:10	285:15,20
355:3,11 356:5	490:1 492:24	opportunities	296:7 324:10	288:16 313:11
357:7,12	496:9 498:22	262:20 280:11	347:5 375:24	325:24 334:8
358:24 359:22	499:8 500:15	opportunity	383:14 394:20	365:16,16
363:13 364:23	503:6,7,9,12	265:14 271:23	431:1 433:5	366:11 373:15
365:1,1,15	old 308:20	278:9 284:11	485:10	374:22 377:21
366:13 367:9	480:11	287:14 289:13	outwards	381:7,8 397:7
367:17 368:2,4	oldest 413:13	289:17 291:7	296:12	397:11 421:3,3
369:18,23	once 268:16	293:14 295:6	over- 363:21	421:9,14,19
373:16 381:6,7	271:2 277:15	297:4 313:7	overall 468:23	430:20 435:22
382:9 384:22	280:21 289:5	370:25 389:25	470:23	452:3 456:2
386:8 387:15	300:6 301:3	393:24 396:18	overflow 497:9	457:18,18,19
387:19,21	331:9 345:16	446:19	497:22	458:21 462:17
388:1,3,6	347:23 349:9	opposed 418:11	overflows 498:3	470:2,8,13,15
389:4,8,11,23	357:15,15	option 416:21	498:5	476:14 477:2,5
390:1,3 393:18	371:10 383:4	order 265:10	overland 280:24	477:9,11
394:11 395:9	425:6,6 461:5	267:5 273:5,5	370:23 373:3	481:19,22
397:12,16,16	461:25 462:19	283:22,24,25	386:20 466:24	495:17,19,22
398:5 399:11	one-degree	287:4 290:6,11	467:1,7,11,14	495:24
399:14 402:6	349:22 359:3	293:4 332:25	469:4	paid 281:13
403:23 404:22	ones 313:12	349:19 364:8	Overruled	312:13,14
407:21 409:10	429:19	387:5 402:2	416:8 450:15	351:10,25
410:13 413:2	online 424:4	475:1 478:16	492:11	433:5
414:22 417:15	432:17	503:14	oversaw 392:12	pan 300:10
420:2 421:4,5	onshore 372:3	orderly 300:11	oversee 391:8	pancake 300:9
422:7,23 423:2	onsite 396:16	orders 261:13	oversight 392:3	paper 300:2
423:21 424:3	431:17 432:21	393:8,9,10	395:10 440:12	323:19 327:19
426:22 428:16	433:16 499:2	organization	oversimplifica...	333:4 361:19
428:22 429:16	OPA-09-2018-...	263:1,6	387:13	491:7
433:18 434:12	254:3 504:3	organized	overtop 351:3	papers 361:20
434:17,17,22	open 488:22	415:20 420:2	overtopping	paragraph
435:20 437:6,8	491:21	orientate 457:2	335:13	272:12,13
437:10,24	open-door	orientation	Overview	370:24 397:24
438:2,7,13,18	396:14	431:9	381:10	407:24 420:13
438:22 439:18	open-ended	oriented 374:12	owned 427:5,8	495:24
440:3,14,21,25	264:12,17,20	original 314:4	427:12,12	parallel 367:5
441:9,21,23	481:1,17	324:7 354:16	428:9,19	parameter
442:12 443:8	opening 389:16	368:24 474:19	owner 427:24	497:5
444:8 445:2,22	390:2	475:23	469:9 491:19	parameters

325:1 336:6 357:2 363:8 379:11,16 467:17 487:6 pardon 298:19 332:15 Park 255:4 part 264:19 266:20 267:3 296:24 306:6 321:2 327:5,7 328:23 331:8 332:20,21 335:6,25 346:11 348:11 352:18 360:5,5 360:16,23 365:12 368:15 372:1,7 376:25 392:25 405:14 411:20,20 412:24 436:9 439:22 443:9 457:19 463:24 463:24 470:4 481:15 participant 434:8 participate 262:20,23 participated 414:12 participation 434:7 particular 316:25 347:17 407:9 477:5 484:8 487:12 493:24 498:1 498:14 Particularly 287:17 parties 254:13 partner 409:4 parts 266:24 349:9,11 passed 413:10 Pat 399:25 414:18 438:9 Patriot 435:9	patterns 463:16 pavement 294:21 pay 423:25 peak 299:3 301:16,19,22 peer 262:21 peers 379:7 pen 355:5 356:4 penalties 402:5 424:1 penalty 411:4,4 411:21 pending 397:25 422:17 people 261:12 270:10 294:4,4 294:24,25 302:20 351:15 380:15 412:20 416:19 425:20 436:16 462:1 percent 357:12 357:15 358:22 360:1 363:6,6 417:13 466:1,6 perfect 392:24 442:12 perform 365:25 performance 263:8 performed 392:22 393:10 443:2 perimeter 322:21 380:12 381:10 perimeters 379:12 period 293:1 300:19 327:13 360:23 396:2 419:18 493:14 permission 469:3 permit 450:1 permits 442:14 442:18 474:9 permitting 441:18 442:8	442:13 472:18 perpendicular 319:19 person 297:12 406:19 407:4 432:21 personal 429:10 450:11 personally 452:24 personnel 404:6 405:24 426:7 petroleum 265:23 472:20 phase 299:25 300:1 301:8 302:11,11,12 302:13,16,22 329:12,13,15 329:20,21,23 342:21 347:19 348:13 360:25 361:21 486:13 486:17 487:14 487:16 phases 329:11 329:19 Phillip 254:8 Phone 442:15 phonetic 263:19 329:25 331:4 331:13 398:1 405:18 450:23 471:17 photo 381:9 483:8 photograph 369:3 phrase 377:10 377:18,25 447:2 478:8,10 479:12 phrased 307:10 physical 291:24 physically 327:3 369:13 pick 277:15 503:11 picks 329:23 picture 298:6	381:14,16 pictures 430:16 piece 314:22 331:11 336:25 382:24 480:9 pieces 348:23 pipng 418:1 place 291:22 319:19 331:14 338:7 341:15 345:20 347:24 360:19 369:13 398:1 433:5 places 332:23 364:3,5 plan 267:1 285:7 285:7,8 310:18 321:8,9,15,16 364:16 371:18 372:24 394:6,9 394:13,14 395:4,6,7,12 395:23 396:4 404:12,20 407:11 409:20 411:3 420:19 420:23,23 423:16 424:11 424:14,16,25 425:1,5,6,8,18 425:19,23,25 426:2,4,5,7,11 426:11,18,19 430:3 433:22 446:20 451:5,6 451:11,12,17 451:24 452:2,4 455:3,4,9 459:7,8,10,11 459:23 461:8 462:25 476:24 478:16 479:11 479:14 480:1,5 480:8,9 499:15 499:23 500:18 501:7,12 planes 331:19 331:19,20 planning 271:20 276:23,24	277:7 281:7,8 281:24 282:1,4 305:9,10 314:7 416:3 464:25 492:19,21 plans 277:14 411:9 441:23 442:1 444:6 472:18 478:7 479:3,14 480:11,17 489:24 494:5 499:22,25 plant 353:20 375:3 392:19 393:19,25 398:14 399:17 400:25 405:21 452:24 plants 392:14 plate 362:4,5 platform 380:6 play 311:17 365:4 Plaza 255:4 please 258:3 260:6,10 270:4 281:19 304:1 304:25 307:25 313:17 335:15 389:13 390:6 397:3,24 415:4 420:11 421:3 421:14 422:11 426:22 438:17 472:12 488:17 plenty 389:24 483:9 plotted 325:4 326:15 plug 276:18 plugged 276:9 plus 258:22 276:25 277:8 288:12 344:12 344:13 432:20 486:25 point 261:7 275:17,17 294:9 296:12
---	---	--	--	--

300:16,20	261:2,3,9	preferred	371:9 395:1	procedures
301:9,16	262:8 390:25	281:24	415:22 431:19	447:10
305:14,20	390:25 391:16	preliminarily	453:5 471:13	proceed 260:2
315:22 326:12	392:3	260:2 312:25	Prev 257:4,5,8,9	281:19 304:1
326:23 329:18	positions 391:17	preliminary	257:10,11,12	367:18,19,20
333:20 334:20	positive 304:14	258:4 368:10	257:13	368:9 389:12
334:24 335:1,5	385:15 486:4	preparation	prevented	447:17 472:2
335:7,9,19,25	possibilities	411:9 444:6	491:23	472:12
336:3,15 338:9	318:6,8,18	455:25 462:14	prevention	proceeded 392:2
338:21 339:21	319:3,5	462:25	266:19 371:17	392:10
339:23 343:17	possibility	preparations	418:1 426:15	proceeding
345:24 346:9,9	318:13,14	441:16,23	426:18	457:5 465:8,18
347:1,2,3,4	471:12	prepare 307:13	previous 479:21	proceedings
349:17,18,19	possible 297:19	449:16 462:21	480:17	390:18 504:8
355:22 356:9	308:19 320:19	prepared	previously	process 278:9
357:22 360:15	423:13 447:13	307:23 352:17	259:2 272:8	281:3 291:22
360:16,16,20	possibly 310:4	410:17,19,19	370:2 372:11	323:20 372:25
360:21 366:25	448:10	452:9 462:12	377:4 378:4	produced
376:8 377:5,9	post- 302:11	478:21 481:18	pride 398:16,16	284:13 460:12
383:25 390:1	389:21	preparing	402:21 413:19	460:18 481:24
403:2 413:6	post-high 262:9	501:19	416:18	489:24
424:15 426:16	393:13 440:14	prescribe	primary 309:16	product 284:19
429:17 434:1	posture 475:17	273:15,20	394:25 408:12	287:18 412:6
453:4 454:20	potential 284:12	prescribed	416:22	424:6 458:8,12
470:2,6 490:20	289:18,23	276:22 502:24	principally	458:16,22
495:25 502:23	310:8 416:16	prescriptive	394:24 395:20	471:4
pointing 422:15	444:25 447:23	277:15 494:8	405:2 473:6	profession 280:5
points 275:16	466:21 470:20	presence 373:1	print 350:14	professional
340:19,20	470:21 474:4,8	present 267:21	prior 391:11	262:15,16,22
341:17 347:8	481:5 489:3	389:7 399:1,2,3	392:17 400:16	262:23 275:3
349:20 371:7	502:1,3	403:19 406:24	417:20	279:20 281:14
policy 262:12,13	potentially	410:16 445:11	priorities 264:9	283:16 284:5
265:10,14	498:19	445:17,19	privy 428:3	372:20 373:25
396:11,15,17	pour 300:9,9	446:20 448:17	probability	380:19 418:16
pollution 266:19	PowerPoint	448:21 455:18	298:12,16,17	432:19 443:10
371:16	430:20	presentation	probable 296:21	proffered
Polytechnic	Powers 422:5	310:4	296:23	279:12
262:11	423:4	presented	probably 261:20	profile 321:14
port 277:4,9,10	practice 286:11	264:23 265:16	280:3 281:11	program 261:23
277:22,23	301:25	265:24 313:13	286:18 305:21	392:23 398:10
portion 334:17	practiced	389:7 400:14	306:6 318:7	404:21 406:3
381:13 431:15	263:14	454:6 499:21	330:6 339:6	406:12 416:24
431:25 483:20	pre 324:2,2	pressure 361:10	352:4 358:22	442:10 443:17
491:11,14	pre-veterinary	387:12	384:5 390:2	programs
492:14,15,20	393:15	presumed	418:22 433:12	415:24,25
492:21	preceding	497:18	452:22,23	443:14
portions 452:20	479:24	pretreat 392:17	453:4 476:3	project 354:3
491:20	precise 348:9	pretreatment	problem 389:15	408:13 440:9
portions' 492:1	predict 312:15	392:11	390:5 420:21	452:16,18
position 260:24	prefer 371:23	pretty 324:14	436:4 488:23	projects 261:13

261:15,17,19	478:15,17	qualified 339:6	308:5 311:11	rain 466:3,4
261:21,21,22	provided 274:18	444:8	312:1,7,8	rainfall 382:25
262:2,2,6	286:4 308:6	qualify 281:18	318:21 326:2	383:18
264:18,20,22	314:7,8 456:13	qualitative	381:25 387:16	raise 346:21
264:25 265:1	461:3	340:12	387:16,16	387:16 500:21
352:20 440:10	providing	quality 391:22	400:23 417:15	raised 405:20
440:11 441:11	475:11	442:7	419:24 426:23	446:16 497:17
441:14 449:24	province 279:15	quantitative	427:2 434:13	Randall 256:7
450:18,24	proximity	314:12	434:15 436:3	389:14 390:9
promise 437:9	464:18	quantitatively	437:7 446:16	Randy 397:8
437:12,12	public 262:12	310:12 363:11	446:19 460:10	409:18 445:24
prompted	465:4	Quarry 473:18	462:22 464:2,4	449:15 454:20
459:22	publications	quarter 298:1	464:9,24	461:3
prong 466:10	309:7,8	303:4	466:23,25	range 295:19
pronouncing	publicly 428:23	quarter-tank	496:14,17	296:4 297:11
299:16,18	published	486:12	500:20,21	297:18,19,21
proper 404:14	309:12 310:3	question 265:2	quick 368:3	298:3,7,8
406:12	351:14	277:20 288:7	435:13	311:19 312:9
properly 392:6	pull 385:15	292:6,9 299:14	quicker 497:11	312:14 315:10
392:7 399:15	469:3	304:3,5,21	quickly 268:6	316:13,14
properties 291:8	purchased	307:11 314:21	275:12 277:6	317:23 318:5,8
291:24 428:18	328:13	315:14,25	278:3 362:5	319:3 321:13
property 293:16	Purdue 393:14	317:2,15,25	471:13 487:24	341:20 363:2
303:12 321:10	purport 456:9	318:2,19	quiet 400:21	386:19 433:3
334:20,21	purpose 271:13	325:11 329:8	401:1	450:24 454:25
338:22 339:25	276:21 278:19	330:22 331:22	quite 293:5	ranking 264:8
341:12,14	380:25	335:16 345:17	411:15	rapidly 378:20
351:18,24	purposes 309:14	353:15 371:8	quote 479:14	rate 273:2,6
483:24 487:7	316:8,22 338:6	378:22 380:7	487:24	384:7 488:6
489:10 493:4	369:2 371:6,14	383:10 402:2		rating 273:1
property's	465:8	409:19 410:7	R	ratio 357:10
353:11	pursuant 254:13	411:17 414:10	R 258:1 270:8	rational 320:21
proposal 279:10	pushing 324:17	417:10 419:3	272:19 274:4,5	rationale 266:14
propose 371:25	361:14,15	422:17 423:21	274:6 389:1	266:16 267:5
proposed 411:4	put 286:18,18	425:4 429:9	R-E-E-D 427:21	314:10
411:21 444:21	286:18 298:16	444:25 460:9	radius 274:6	reach 268:9
proprietary	304:7,12 352:9	460:17 464:17	315:23 322:23	298:17 303:8
327:24 328:3	363:22 378:13	464:22 475:7	331:1 333:22	303:14 307:8
protection 254:1	379:21,22	475:10 480:13	335:5 487:2,12	319:13 336:2
254:3,20	430:2,4,10	480:16 481:1,3	487:17	338:2 466:9
351:18 504:12	433:4 442:4	484:8 485:21	radiuses 280:2	468:9 469:2
protective	448:12 487:16	486:16 497:14	rail 380:13	471:9 482:25
430:24	499:13 500:7	501:21 502:19	400:24 419:3,8	487:20 491:21
proud 392:24	500:11,18,19	questions 265:4	419:8,15 471:4	494:1
412:23	putting 363:24	265:5,10	471:4	reach-out
provide 265:6,7	pyroclastic	267:25 271:15	railcars 419:14	444:12
273:20 305:3	325:16	271:16 279:25	railroad 317:11	reached 305:20
322:23 401:3	Q	279:25 280:22	rails 367:4,8	429:7 492:20
409:1,24 412:9	Q&A 264:10	280:23 284:9	380:11 381:19	reaches 306:20
414:7 431:1		291:16 294:16	493:6,9 494:21	339:19 496:5

reaching 298:12 318:23 319:6 491:23 492:2	492:18 497:25 498:16,19 502:12	recalling 270:4	417:17,18,20 418:22,23	398:6,6 411:23 463:11
react 323:12	realm 416:20	receipt 403:12	recross 256:2 382:1,2	reflected 364:21 364:23
read 258:16 272:17 308:10 309:5 338:24 367:9,10,10 372:1 373:23 374:17,17,21 375:5 376:6 397:24 407:24 409:14 420:13 491:17 495:25	reason 282:20 282:24 283:3 283:15 311:24 319:22	received 257:3,7 259:9 272:10 370:4 402:4,7 402:15 404:19 410:23,25 414:18 444:12	RECROSS-E... 436:1 501:2	refresh 496:3
ready 260:3 438:21	reasonable 266:16 295:13 298:16,17 311:14,21 312:14,17 315:8,10,11,23 317:16,23,23 318:22 319:17 319:23 320:1,2 320:9,11,13,16 372:11,21 403:18 420:20 471:8,9	receiving 402:14 410:10	rectangle 355:11 483:14 494:19	refresher 313:18
real 273:14 275:13 279:22 363:17 502:11	reasonably 316:24 319:25 374:1	recess 307:16,20 368:6,8 387:24 388:4 415:3,13 438:24 439:2 472:10	rectified 459:5	regard 266:23
realistic 498:21 501:23 502:2 502:11,13,15 502:25	reasons 413:17 437:25 438:4	recognize 267:9 282:10 295:22 476:17	redirect 256:2 370:5 426:24 435:1 437:13 496:15	regarding 310:15 395:12 398:9 444:12 444:24 463:14 471:7 481:11
reality 485:11	REBECCA 254:19	recognized 278:18	reduced 485:20	regardless 307:9 434:9 502:25
realized 394:5	rebuttal 382:7	recollection 315:2 321:25 322:6 326:17 362:13 399:23 399:24 400:13 403:19 407:1 408:1,22 409:15 422:4 445:10 462:20 496:3	reducing 485:14	regards 441:17 473:9
really 266:2,9 266:10,25 288:23 294:14 294:19 306:1 311:11,13,14 311:16 312:2,5 312:5 316:17 316:20 320:14 322:23 329:10 331:2,7,18,20 332:5 336:7 344:19,21 348:25 350:3 350:20 356:4 361:21 362:8 364:1 366:17 374:10 375:18 378:16 379:4,9 379:10 413:17 419:18 422:17 423:17 427:11 467:1,11 471:19 477:15 487:12 488:19 490:8 491:4,17	rebuttals 389:10	recessed 388:8	Reed 427:16,21 427:25 428:2,3 428:14,15 446:1,3,3 473:18 477:25	regional 443:24 473:2
	recall 268:17 270:5 321:21 325:14 336:8 336:13 338:16 353:25 377:13 401:10 403:8 403:13 404:2,3 405:20 406:18 406:24 407:3 410:8,10 411:2 411:8 414:2 417:16 419:4 419:10,12 422:2 444:16 444:19 445:16 445:18,19 446:12 447:6 447:24 453:21 457:9 458:4 461:1	recognize 267:9 282:10 295:22 476:17	Reed's 428:6	regs 281:19 464:4
		recommended 421:15	refer 311:21 351:14 439:18 447:2 468:19 480:11 493:3	regular 430:5 431:17
		reconvene 388:8 503:18	reference 282:18,24 285:4 286:13 287:17 364:15 411:19 470:11 495:23	regulation 267:5 274:2,3 279:13 473:4 475:14 475:15,17,21 491:15
		record 258:21 272:6 278:23 283:23 307:21 353:17 368:16 368:25 369:19 369:24 389:4 392:24 415:14 422:10 423:13 449:11 465:12 472:12 475:10 503:15	referencing 369:16	regulations 263:3 265:6,8 265:20 266:20 266:23,24,25 267:3 269:9 270:18 273:15 273:19 274:13 274:19 276:21 276:23 277:11 278:19,21 279:1,10 307:2 311:25 312:1 318:1,11,25 371:17 372:1 373:12 416:24 417:2 424:10 424:13 430:21 463:24 478:14 478:17 480:22 502:1,5,24
		recorded 499:23	referred 259:1 270:12 272:7 314:18 322:11 334:17 369:4 370:1 403:10 410:18 411:18 446:6 458:20	regulator 415:21 416:11
		records 396:15	refers 334:13 354:14 458:18	
			reflect 334:4 335:15 366:15	

416:14 417:5,8 regulatory 262:13 265:3 265:14,18 395:13 396:11 396:14,25 401:22 405:12 416:24 419:22 443:9 rehash 371:3 reinspection 437:19 reissued 461:16 reiterated 259:21 relate 295:1 334:18 related 344:8 356:25 372:4 411:8 432:13 442:7 473:25 485:5 relation 393:2 relationship 266:10,11 327:3 357:5 405:2 419:15 relationships 405:12 relative 294:2 370:17 488:19 relatively 281:10 326:6 400:19,25 471:12 release 296:19 297:5 305:13 315:16 334:18 347:15,15 361:6,9 382:6 430:8 438:16 469:23 471:9 494:20 503:7 released 294:17 295:2 298:10 312:4 351:6 382:21 384:4 releases 429:17 429:21,25 430:11	relevance 268:12 353:14 relevant 268:16 312:21 484:8 relied 361:18 425:25 remain 417:7 remained 268:16 remains 301:21 remedial 262:1 remember 321:4 399:8,13 400:7,19 401:13,16 402:7,10,14,16 403:1,11 404:8 410:4 417:19 437:21 remind 428:25 remove 324:11 357:15 362:15 removed 323:14 324:2 Rensselaer 262:11 repeat 441:22 463:4 repeating 460:11 rephrase 292:9 report 285:8 306:22 313:1,4 313:8,25 314:4 314:20 315:5 322:12,14 325:15,23 328:20 335:23 352:17,17 393:4 396:8 402:14,16 406:15 423:5 428:5 430:15 451:21,21,23 454:18 455:24 456:11 482:3,7 490:14 491:10 493:3 495:7,10 reported 309:10 504:10	Reporter 260:9 389:3 390:6 472:11 503:15 504:18 REPORTER'S 504:1 reporting 442:8 504:19 reports 282:14 302:4 496:18 496:20 represent 355:16 374:5 374:24 375:9 representation 330:20 363:17 representations 267:18 representative 390:18 representatives 406:19,20 407:23 represented 336:7 364:16 representing 374:3 445:11 reproduce 283:19,20 request 403:3 444:5 requested 310:15 437:17 requesting 415:22 require 502:1 required 392:16 418:4 447:7 448:14 requirement 287:4 465:23 requirements 267:1 406:14 420:16 424:18 425:6 446:15 462:23 466:22 478:14,15 501:15 requires 322:22 497:25	research 264:14 265:2 352:18 361:18 researched-fo... 263:1 researchers 329:10 reserve 438:15 reservoir 362:4 reset 292:9 334:3 resolve 444:24 resolved 476:2,3 resource 306:12 306:20 Resources 427:9 427:15,23 428:10,19 respectfully 279:5 444:4 respond 378:15 407:9 425:25 435:11 461:9 responded 462:5 Respondent 254:7 255:2 256:6 257:7 270:18 284:13 302:10 382:8 439:6 respondent's 259:6,22,23 276:4 282:14 302:4 368:23 369:6,23 370:3 response 264:10 267:1 276:25 277:12 278:2 282:3 318:20 371:18 372:24 407:11 411:3 416:4 424:10 424:14,16 425:20 426:19 435:13,14 436:20 446:21 447:9 455:12 475:1,3 480:1 480:5 499:25	responses 430:13 488:12 responsibilities 261:9 391:6,9 391:20 responsibility 393:20 417:3,7 rest 369:17 389:8,9 421:18 restate 304:25 restricts 497:20 result 314:12 317:5,6,19 319:5,10 402:5 461:15 resulting 404:18 results 333:7 retained 281:14 retaining 313:20 reverse 301:13 review 264:10 277:22 279:24 284:11,16 287:14 305:5 313:8 321:1 340:4 393:24 394:2,15,16 401:15 409:20 417:18 465:15 466:13 468:8 477:3 reviewed 284:15 321:5,6,7 481:10 490:25 493:8 reviewing 377:6 400:17 revise 313:25 314:1 revised 314:20 revision 394:6 revisions 433:10 rewrite 451:11 Rewriting 455:15 RFP 434:9 RICHARD 255:3 rider 450:1 right 259:18
--	--	--	---	--

273:21 274:3	490:7 491:12	400:19	319:13 371:11	442:5 491:15
278:12 284:3	492:17 494:9	routines 380:1	374:4 376:23	scale 286:4
292:25,25	494:14,18	row 343:24	381:21 393:19	292:24 325:21
299:16,18	495:2,13	rule-making	393:25 398:14	355:6 366:22
300:12 302:22	500:15,20	264:11	398:25 399:17	375:12
305:24 309:1,2	501:18 502:7,9	rules 485:17	405:21 444:14	scenario 295:7
309:10 310:9	503:6	run 271:11	448:24 452:24	296:17 297:2
312:22 313:1,4	right-hand	296:9 329:14	478:2 489:4	297:11,15,17
313:6 315:18	356:14	333:1,20,23,25	495:12 496:5	299:1 312:14
316:6 318:11	rigid 385:18	351:7 364:8	502:16	315:23 316:4
318:13 323:6	rings 442:15	367:5 440:9,9	Sacramento's	316:10,15
325:14 326:3,5	rise 293:4	443:19	496:11	317:17,18,19
330:16,18	risk 261:25	run-off 302:22	safe 432:2	319:14 320:15
335:20,21	265:4 289:23	run-out 301:5	safely 430:15	359:4 365:18
337:16 338:20	391:8 416:3,15	302:11,16,24	safety 263:7	382:13,21,24
341:1,2 342:5	433:19 488:24	360:25	391:2,7 430:22	497:4,19
343:6,7,11,14	489:5	running 350:14	431:21 432:20	scenarios
343:16 344:9	risk-based	354:24	sake 272:1	295:13 296:19
346:12 347:18	265:25	runs 301:4	sales 411:23,25	297:5,18 298:7
348:13,22	risk-manage...	375:2 379:16	412:3	298:8,15
354:2,12	415:24	427:13 496:4	San 254:11,21	301:15 311:14
355:21 359:17	risk-type 266:5	ruptured 294:4	440:23 445:2	311:18 312:10
361:7 363:15	River 273:22	RX 258:18,21	481:5 504:6	312:10 315:7
366:6,8,10	274:21 278:14	RX105 377:4	sat 396:8	315:10 316:9
367:16 368:13	489:4 502:16	482:23	satisfactory	316:13 317:4,5
369:11 371:3	Roche 323:3	RX14 407:20	453:16	317:15,22,24
373:23 374:10	325:15 328:24	RX22 408:18	satisfied 501:8	318:12 319:9
374:11 375:2	349:2 357:2	RX23 476:4,14	satisfy 425:6	319:12,17,24
375:22 376:16	361:19,25	RX47 397:7	save 268:1	501:22
384:11,18	378:5,17 379:1	RX52 409:11	saw 289:9 310:5	schedule 406:12
385:24 397:2,2	379:7,11 491:1	420:3,7	435:15,17,17	420:19,20
399:8 400:1	491:3,4,7	RX53 420:4,11	460:21,25	421:15,20,24
401:25 403:17	Rock 473:18	RX54 422:11	461:21,25	448:13,14
404:15 405:10	role 261:15	RX65 423:11,11	saying 316:3	scheduled
421:12 423:19	416:23		328:22,25	403:14
425:5 454:25	roles 261:8,10	S	335:14 341:6,7	schlemiel
458:8,9,15	261:11,12	S 256:1 257:1	365:1 442:17	313:11
464:13 468:6	391:20	258:1 270:8	454:8 458:21	scholarly 309:6
468:22 476:25	roughly 358:6	272:19 275:6,7	458:24 462:23	309:8
477:19 478:18	392:4,11	275:8,23	465:2 478:12	school 262:9
479:15,22	394:17 422:5	304:16 389:1,1	482:12,14	393:13 440:14
480:2 481:25	430:20 441:4	389:1 431:12	484:11,14,20	science 261:1
482:9,12,17,22	roughness	SA 293:8	484:22 485:7	393:16 440:19
483:1,2,12,16	272:20 273:7	SA30- 293:8	487:9,13	scope 311:22
483:19 484:18	round 404:23	Sac 449:12	497:15	422:19 450:10
485:16 486:8	437:4,11	Sacramento	says 286:6 326:8	468:24
486:10,21,25	route 495:10	273:22 274:21	326:8,9 335:12	screening
487:8,19 488:9	routes 471:10	277:22,23	338:23 366:4	261:25
488:10,11,25	routine 378:18	278:14 298:12	374:21 375:2	sealed 493:16
489:1,9,12	379:25 380:3	304:17 306:17	376:20 417:8	seam 297:8

311:5 482:8	section 370:22	340:12,15	379:10 482:25	shown 337:10
497:9 498:10	370:24 469:4,5	418:20 443:12	shaped 282:17	337:12 456:25
seam' 310:23	480:12	sensitive 304:10	379:12	457:8 468:18
search 429:7	sections 370:21	304:19 305:18	shapes 325:3	shows 365:9
Sears 395:21	451:17	306:7,15,18	share 309:25	366:4,25
396:6 397:9,21	sediment 262:2	314:25 317:20	354:14 390:23	421:17 468:23
398:8 400:3,9	265:23	370:18 464:18	440:17	489:6
409:13,17	see 267:6 271:6	464:19	shared 351:22	side 301:4
414:1,7 420:8	282:8,18 286:5	sent 258:19	sharing 308:8	317:12 319:22
421:11,21	288:16,21	403:9 406:16	sharp 275:10	319:24 366:5,6
Sears' 398:10	305:17,22	408:1 435:18	she'd 407:5	366:8,10,11
season 421:17	306:7 315:5	436:8,15 437:4	shearing 384:25	377:7 396:12
seated 258:4	322:2 324:15	separate 500:17	sheer 331:13	401:22 407:5
second 269:12	325:20,22	separately	sheet 296:17,18	457:3 471:23
269:15,25	326:18,19,24	349:24,24	299:24 300:7	482:8 490:19
271:11,13,17	334:11,14	September	300:19,24	493:13 497:9
277:7 313:13	335:12 337:15	410:3,6,8,20	301:5 302:1,13	498:11
324:20 326:8,9	351:24 356:4	453:22 454:24	302:14 335:10	side- 452:17
327:6,12,16	364:11,13	455:11,18	491:22	sign 400:25
329:9,13,20	365:5,17 374:9	460:15 461:21	ship 273:22	436:17 486:25
331:11 337:17	374:13,25	461:23 462:3	274:21 298:12	signed 287:12
337:18,23	375:19,22	series 350:15	298:17 301:23	287:12 435:9
338:1,8,20	376:5,10,15	serious 434:4	303:14 304:18	435:15 436:12
343:4 357:9	377:19 379:21	488:21	306:18 350:21	significance
410:1 413:14	381:1,8,10,13	service 281:14	367:1 371:11	310:7
420:13 421:2	381:16,20,23	414:14 429:4	376:23 381:21	significant
421:19 422:10	397:4,17 400:4	429:14	489:4 495:12	270:23 294:11
470:14 477:2	402:4 408:20	services 443:3,6	496:5,12	377:16,20,23
487:16	408:21 420:21	set 264:10,17	502:17	392:15 395:5
second-hand	447:10 451:16	265:5 300:1	shipping 301:20	significantly
309:9 483:5	461:23 470:12	311:14 389:25	314:24 319:6	291:25
secondary	477:19 483:8	440:11 458:14	319:14 321:11	similar 325:5
280:23 284:10	485:24 495:24	sets 421:20	321:12	486:5,6
284:12,16,20	500:7,8,12	seventh 342:16	shooting 336:22	similarly 283:6
287:15,19,24	503:12	severe 412:15	shop 396:24	simple 337:8
289:18,24,25	seeing 321:21	shallow 275:12	short 303:17	357:17
313:14,21	seemingly 465:3	shape 273:7	307:14,15	simplicity 348:7
370:16 373:1,4	seen 460:19	324:4,11,19,22	438:23	simplification
373:4 374:24	462:3 474:18	325:7 326:19	shorthand	357:23
375:24 382:16	474:22,25	326:23 327:12	274:13 332:12	simplified
464:22 465:9	476:18 481:8	340:13 345:10	shortly 393:23	366:17
465:22 466:11	Segment 332:14	345:13,16	should've	simplifying
466:16 469:13	332:16	349:1 350:9,10	420:18 459:1	364:7
483:16 484:7	self-explanatory	350:12,17	show 364:17	simply 377:25
491:24 494:16	326:7	351:8 354:19	366:19,20,24	390:16 419:22
seconds 303:15	send 425:15	357:24,25	367:4,8 375:16	Simultaneous
324:20,21	senior 260:25	358:16,17,18	403:10 407:18	316:21 330:8
339:10 347:20	413:21	359:9,10,23	456:9 469:24	361:3 467:8
356:16 357:9	sense 267:24	360:4,5,12	showed 276:14	475:8 490:15
487:20,25	295:20 340:12	365:14,14	285:11 414:13	single 312:13

317:17 320:15	slices 350:4,23	snow 471:17	500:1 501:16	480:21,24
350:4 399:18	350:25 351:1,5	socialistic 331:4	502:11 503:1	489:22,24
482:5 502:9	slight 258:18	societies 262:24	sound 372:7	494:4,7 496:18
sir 399:2,21	slightly 290:17	solidifies 291:20	403:17 411:24	499:15 501:5,5
403:4,7 404:3	290:18 291:1	somebody	421:12 423:13	501:14,25
406:21,23	302:19 338:4	408:10	432:3 454:25	SPCC-related
410:5,12,22,25	375:20	somewhat	sounds 372:2	473:23
411:6 412:1,4	slope 275:8,13	271:20 277:15	388:5 403:18	SPCCs 441:16
414:5,9,15	275:15,21	292:22 294:15	source 322:25	466:5
435:16 438:1	276:6,7 283:2	son 413:11,13	sources 288:14	speak 392:19
438:10,12	301:18,19	427:17 428:3	south 255:7	speaking 497:16
sit 309:25 313:6	320:24 326:16	soon 303:20	338:22 343:13	speciality
site 308:23	326:24 327:1	306:19	366:10 374:21	286:12
321:24 329:3	332:2,20,24	sophisticated	375:8 377:7,22	specific 261:13
335:13 336:5	333:10,11,12	328:9 329:5	391:12,14,21	267:25 268:3
340:5 353:2	333:17,19,24	337:8	392:4,12	268:18 297:5,7
363:14 366:7	333:24,25	sorry 262:19	483:24 489:13	297:8,8,10
392:17 417:25	334:10,18,23	297:20 303:24	498:10	322:20 352:25
418:1 430:24	334:25 336:24	304:2 318:3	Southeast	379:5,14
432:3,5 453:3	338:2 341:11	326:25 327:22	381:10	386:25 463:1,5
453:6,10	341:13,14,22	332:8 342:4,16	southerly	463:6 481:8,11
455:10 456:17	341:25 342:11	353:7,24	343:15,16,17	502:4
456:20 459:8	343:5 346:8	358:20 381:3	376:11 471:22	specifically
459:10 460:1,7	347:1 349:14	433:2 434:21	southern 335:13	266:25 267:2
463:1,5,14,25	349:16,17,18	441:20,25	339:19,21	284:11 298:1
468:16,23	349:19 360:8	450:16 457:15	341:12,14	300:18 315:17
470:23 473:11	364:10 375:13	458:3 463:4	367:5,5 376:25	394:6 417:19
473:13,14	378:1,2 471:18	470:13 491:9	471:20 489:11	419:12 426:10
482:13 483:3,8	471:21,22	495:22 501:1,1	489:11 493:4	429:5 446:8
489:14,14	483:1 489:15	sort 264:22	494:20 502:16	451:10 474:25
sites 264:8	502:18	277:14 291:11	span 393:11	498:15
391:24 392:1	slope-dominant	299:11 300:25	spared 370:10	specificity
474:24	341:1	301:4 313:12	spatial 343:8	369:15
situation 281:1	slopes 280:1	313:18 324:8	spatially 343:4	speculate
295:22 296:21	334:2,21 367:1	327:25 351:17	SPCC 394:9,13	280:20
296:23 301:7	489:16	371:3 375:2,18	394:14 395:23	spelled 264:6
324:6 332:25	sloping 321:1	375:25 376:7	404:19,21	spent 395:5
333:9 412:17	346:24 355:17	381:14 404:9	409:20 415:23	411:12
457:22 474:7	355:18,21	406:12 411:9	420:19,23	sphere 393:20
situations	358:3 375:11	418:11 446:17	426:5 430:3	spill 293:19
298:10,11	Slough 278:15	446:23 447:11	431:11 432:12	335:18,24
317:8 325:17	slow 273:8	449:11 451:11	441:23 442:1	394:6 418:1
six 264:4 342:16	slower 384:8	451:16 452:19	444:6,24	426:11,15,17
402:18	slowly 300:9	457:7 458:10	446:22 450:1	458:1 464:20
skin 331:18	small 488:20	463:23 471:5	451:11,12	464:22 465:5
slice 349:5,22,23	smaller 261:6	471:15,16	455:24 472:18	485:15,24,24
349:24,24	375:23 430:11	473:23 475:6	472:21 473:9	488:12,17,20
350:4,25	485:17 499:1	481:3 483:1,14	473:10,19,20	488:25 489:3
slice-by-slice	smooth 273:11	484:24 487:1	478:7,14,16	494:2 501:22
350:9	273:12	498:1,2 499:12	479:6,10	spills 429:17,20

488:20,22 502:1 splash 299:25 300:4,6 301:8 302:12,13,17 315:18,20 316:2,11,15 322:21,23 329:21 331:1 333:22 335:5 347:15,24 348:16 349:10 468:10 486:2 490:25 split 482:9 spots 442:8 spread 320:12 320:12 331:6 spreads 331:9 spreadsheet 379:19 square 290:8 staff 396:16,23 405:11 stamped 287:12 stand 307:16 313:4 368:6 387:24 388:4 407:12 415:3 438:24 465:19 standalone 479:6 501:8 standard 264:6 280:25 283:24 283:25 352:8 378:13 430:17 standards 418:6 454:6 standpoint 311:15 417:14 426:15 stands 443:16 start 296:6,11 304:13 305:14 312:7 324:5 326:13 331:17 333:21 337:11 415:21 424:6 437:10 472:5 started 261:5,5	326:21 340:7 391:12,22 393:23 413:8 418:19 429:1 453:3 462:1 starting 299:3 305:14 324:15 326:11 332:8 379:21 383:25 421:3 422:11 423:17 432:9 starts 327:15 331:3 347:24 420:14 488:7 state 262:17,19 266:22 283:23 353:5,11,20,25 440:19 443:25 472:19,25 473:3,3,24 stated 313:9 statement 314:10 353:8 389:16 states 254:9 370:25 482:3,7 504:11 station 294:10 status 314:23 393:25 398:9 398:14 statute 416:25 statutes 265:9 stay 368:24 415:9 steady 341:21 step 312:17 steps 333:2 408:7 451:7 stick 330:6 stickiness 292:20 323:18 323:22 385:1 stipulate 258:8 258:13 stipulated 272:2 stipulation 258:12,19 stock 280:5 458:11	stone 264:17 stood 410:14 stop 333:18 345:23 495:3 503:10 stopped 359:24 stops 300:16,21 417:6 storage 284:19 284:22 285:10 287:18 289:22 298:21 314:3 458:9,16,18,22 471:5 472:20 store 382:19 stores 464:6 stories 309:10 storing 284:17 storm 268:5,8 317:21 383:3,3 383:4 393:2,10 442:14,17,19 442:20 449:25 467:2,4,5,6 470:22 471:1 488:21 490:2,4 490:8,23 495:7 495:11,15 496:4 story 308:9 309:9 straight 273:12 273:25 306:2 336:17,20,21 355:25 375:21 417:11 straightforward 279:1 streamlining 263:3 street 254:20 255:7 294:22 504:20 stress 412:20,25 strictly 431:24 497:16 strong 263:18 350:3 stronger 291:1 structural	286:10,21,25 287:11 296:25 structure 294:18 381:14 382:19 383:1 470:4 structures 377:19 381:18 385:18 471:3 491:25 494:12 studied 294:12 studies 262:21 309:11,13,20 study 263:2 309:18 310:2 330:15,19,23 331:25 361:25 467:21 studying 393:15 stuff 295:2 441:17 446:22 452:21 501:12 subbing 284:4 subject 384:5 389:9 422:20 484:20 submit 408:15 425:13 437:1,3 447:9 449:16 457:6 460:2 submittal 425:1 447:11 448:13 submitted 313:13 409:1,8 414:13 423:24 425:7,17 435:5 435:9 436:6,20 436:21 437:2 451:23,25 455:3 459:7,12 459:14 460:5 461:17 476:1 479:2 501:16 submitting 447:8 454:4 Subsection 466:19 subsequent 460:24 475:22 479:20 493:14	subsequently 459:8 subsidiary 427:8 428:9 substance 404:8 substances 385:9 472:24 substantial 452:1 455:5 462:11 463:20 465:10 466:20 466:22 subsurface 470:5 successful 402:24 sudden 324:1 suddenly 295:2 323:14 sufficiency 287:23 289:24 sufficient 279:8 288:11,12 291:5 307:17 313:21 371:6 382:14 500:12 SUGERMAN 254:19 414:24 415:2,16 416:12 422:14 422:25 423:3 426:22 436:2 437:6 suggest 291:14 378:15 suggested 447:13 478:16 480:8 suggesting 376:11 suggests 268:23 288:16 Suite 504:19 summary 481:22 sun 379:5 superfluous 390:2 supplied 333:4 support 264:8
--	---	--	---	--

264:11 414:7 443:6 supporting 261:24 supposed 418:15 461:7 sure 261:10 262:23 263:12 265:17 267:6 267:14 268:11 268:20 269:10 269:14,20 272:20 276:12 278:8 280:16 285:14 287:5 288:10 291:15 292:10,17 293:18 295:6 295:12 299:10 299:14 301:7 301:24 303:19 304:2 306:4 310:5 315:25 319:4 326:4,11 337:4 338:12 340:21 348:2 351:23 352:14 352:24 353:13 368:19 369:8 369:14,14,20 371:5,13,24 376:19 380:7 391:24 392:6,7 392:20 396:5 401:24 402:1 405:16 406:10 412:21 413:22 415:1 419:14 419:25 420:6 424:2 432:2 435:22 436:11 436:24 438:24 465:12 472:6 474:14 478:9 478:13 483:4 485:3 486:16 488:3,24 495:20 496:9 497:2 499:7 501:18	surface 273:2,3 331:16,17 345:11 473:6 surrounding 462:22 survey 321:18 321:24 340:20 366:20 373:18 451:13 463:8 surveys 373:23 survive 412:16 413:1 Susan 254:5,15 sustained 378:23,23 Swackhammer 267:16,22 305:6 swear 260:10 390:6 switch 329:24 switched 457:14 sworn 260:13 390:10 439:9 syrup 292:21,24 system 264:8 378:20 398:3 432:16 systematically 499:13 systems 263:17 263:18	457:16 458:6,7 465:7 478:19 478:20,21 481:22 482:13 482:18 488:5 tables 315:3 take 270:20 271:8 273:6,13 274:1,14 275:14 277:11 277:14 290:6 290:12 291:22 299:8 303:17 303:20 306:3 315:8 316:19 322:13 325:23 331:14 332:25 333:16 334:1 337:4 344:5,23 345:5,7 346:9 347:25 356:13 358:24 359:25 360:11,24 367:21,24 378:18 382:25 383:1,6 388:2 397:4 398:15 401:14 402:21 404:13 407:20 408:17 409:10 413:19,22 415:12 416:13 421:19 422:22 423:10 430:14 430:16 432:17 433:19 438:5 462:7 469:11 469:13 471:13 471:17,21,21 472:4 476:14 480:13 494:7 495:14 496:22 takeaway 448:9 taken 307:20 368:8 383:9 398:20 415:13 430:23 439:2 454:12 472:10 takes 331:12 393:4 398:16	489:14 talked 276:17 315:17 340:6 370:19 384:16 404:11 414:2,3 469:7 talking 299:10 346:12 348:16 376:1 382:12 384:18,20 420:24 423:5 426:10 427:18 433:21 talks 408:4 tank 288:11 289:14,15,22 290:2,3,4,5,14 290:14,15 293:15 294:3,6 295:13,16,18 295:24 296:5,6 296:8,13,14,21 296:24,25 297:6,8,25 298:2,4,6 302:23 303:3,4 303:7,8 308:23 308:24 309:19 310:16,19,19 310:23 311:20 312:16 314:2 316:5,7,25 317:5,13 319:7 319:18,21 320:6 324:8 332:8,9 334:25 335:19,24 336:18,23 337:6 342:24 343:12,13,14 343:15,17,17 343:20 344:7,7 344:15,16 345:18 346:21 346:23 348:24 355:1,8,12,14 355:14,17,18 356:14 358:2 358:16,23 359:18 364:25	365:12 366:8 366:16 367:6 372:13,19 374:10 375:22 375:24 377:9 379:14 382:20 382:22 384:2 405:21 406:2 409:16 414:13 417:17,17 418:11,17 419:11,16 424:4 429:3 432:22 448:1 456:18,25 457:7,14,22,24 458:12,14,14 459:2 466:2,7 468:12,12 482:2,5,9 486:3,9,20 489:18 493:24 494:16 497:17 498:20 499:1,1 502:7,8,9,12 tanks 374:6 376:22,22,25 377:22 418:7 419:16 420:17 421:18,23 422:6 456:11 458:8 469:25 483:8,10,11,23 489:10 494:20 496:11 498:25 499:4 tapes 504:10 task 261:13 264:13 405:5 405:23 408:10 451:9 tasks 264:16 team 261:12 430:13 technical 260:25 261:14,17 263:23 264:23 265:18 414:7 452:21 technically
	T			
	T 256:1,1 257:1 276:17,19 304:16 389:1 table 282:9,10 282:12,13 283:11 287:7 325:24 334:8 335:12,14,21 335:22 336:4,7 337:11 338:23 339:17 342:14 342:18 349:4 354:12 364:9 364:22,24 365:2,3,4,5,7,9 375:13 457:13			

264:16 266:2	346:1 379:15	thank 259:25	410:14 412:21	420:22,24
Technologies	383:16 395:4	266:18 267:14	418:5 426:14	421:20 422:18
394:22 449:6,7	396:4 401:11	267:14 279:18	430:6,13,23	423:12 425:10
technology	408:7 417:6	281:20 285:19	431:14 436:17	426:21 427:7
260:22 440:19	424:14 456:18	288:14 307:11	463:7 470:1	428:17 432:11
tell 260:19	test 269:19	307:24 325:11	499:22	436:7,19
280:14 335:15	270:3 320:14	356:6 382:10	think 258:6,8	437:15 442:4
340:10,11	tested 285:5	387:21 389:13	260:3 265:21	445:9 447:5
353:5,10	420:18	391:10 393:12	266:2,14	448:1 455:20
370:10 371:24	testified 260:14	393:18 398:5	267:21,24	463:7 465:1
386:18 399:3	283:2 318:20	409:10 413:2	268:4,5,6	467:6 468:13
412:12,24	322:18,19	415:2 422:14	269:21 270:18	471:11 473:22
427:19 429:20	337:24 378:5	426:23 434:16	270:24 272:16	474:11 479:12
439:14 452:4	390:11 403:9	434:17,19	272:23 278:24	479:13 480:23
455:22 476:17	405:20 410:3	435:21 437:8	280:18 289:8	480:24 481:6
491:18	411:3,12	438:13,14,23	291:13 292:11	484:7 487:24
telling 475:7	439:10 450:20	439:1,5 440:25	294:24,24,25	488:5,8 489:6
tells 303:20	455:20 481:24	444:9 447:1	295:1,21	495:22 497:2
345:17,18	487:23 489:21	480:18 503:7,8	297:13 300:8	497:18,20
temperature	490:1,24 494:4	thee 264:6	302:12 305:6	498:6 500:3
292:23 361:6	testifies 453:8	thereabout	307:10 308:13	502:3
383:8,12 384:8	testify 305:6	406:6	308:21 309:12	thinking 272:21
384:13 387:9,9	382:8 422:20	thermoplastic	309:14,21	301:1 402:10
387:12 496:23	testifying 316:2	291:8,18,21	314:5,21 316:1	third 326:9
496:23 497:1,6	testimony	293:16 294:13	316:3,23 318:6	329:15,23
temperatures	271:23 278:22	thick 292:21,21	318:20,20	337:15,20
291:14	279:7 289:14	292:22 293:6	319:4 321:17	354:13 355:23
template 331:25	304:9,18	thicken 293:3	322:11,11	355:24 364:10
ten 303:15	353:17 370:7	thickness	324:16 325:18	482:13
414:24 415:3	398:24 403:1,9	292:19	328:22 330:19	third-generati...
422:6 432:12	410:17,21	thing 268:2,3	335:17 342:15	413:15
tend 264:18	415:4 427:8	270:20 275:9	348:3,14	third-party
tendency 385:2	450:5 455:8	300:25 305:12	350:25 352:3	435:10
tension 384:6	463:20 468:3	319:14 322:16	353:14,16,17	this' 355:10
tentatively	472:17 479:8	351:7 360:25	356:4 364:11	thought 267:22
407:4	479:13 481:4	370:15 374:1	367:15 368:21	275:1 303:22
term 307:6	482:17,24	401:25 411:10	369:2,16	389:16 407:5
310:23 311:1	483:9 486:3	413:25 432:14	370:19 371:4	446:23 499:8
318:16,17	490:18 491:9	453:20 454:2	373:15,19	three 276:25
332:17 335:18	491:10 493:5	473:22 484:25	374:20 375:19	277:8 326:7,10
342:8 380:17	501:22	things 263:19	377:10 381:1,3	329:11 342:15
401:6 502:4	testing 391:23	264:11 272:23	383:5,17,24	362:19 400:11
termination	391:24 405:21	284:18 290:13	384:3 386:2,12	404:7 413:11
278:15	406:12,12	291:21 292:1	387:15 390:1	431:9,9 459:23
terms 280:10	409:16,19	296:1 309:3,4	393:22 394:5	three- 286:8
284:24,24	418:16 420:9	309:5 324:17	401:5 403:1	three-foot-two
295:14 308:20	420:16 423:17	336:12 347:23	405:20 407:5	287:22 290:23
308:22 314:23	432:22 448:13	360:12 392:8	407:13 414:3	three-foot-two...
314:24 318:10	text 366:18	393:5,9 405:13	414:10 415:22	287:13,25
326:18 332:24	452:20	406:13 409:6	419:7 420:2,19	Tilford 256:7

390:14 397:8	276:20,23	374:13,17,23	501:15	try 311:7 317:18
398:5 412:2	277:15 279:19	375:5,9 376:7	tran 343:3	317:22,25
413:2 415:17	279:24 280:3,4	376:18 377:8	transition 326:8	319:9 320:14
435:3 437:15	290:10 291:23	377:14,15,21	326:9,18	321:14 339:7
438:15 444:12	300:19 339:7	379:5	327:10,11,16	339:10 402:22
445:24 447:20	377:19 425:11	topographical	327:16,21	405:13 413:19
450:2,19	425:14 433:15	321:1,18,22	329:9,9 335:10	415:19 421:5
455:21 460:10	453:1,4 465:25	355:1	338:1,8,21	486:14 490:21
Tilford's 450:4	tired 374:20	topography	343:4,9,10	499:16,24
time 264:4 268:1	title 390:25	275:25 298:23	344:4,13 345:3	trying 258:11
269:2,13,23	391:8 414:19	299:2 301:10	348:5,21	268:1 273:16
272:1 276:19	446:9 504:4	320:24 329:3	356:22,23,25	311:13,17,18
276:20,20,22	titled 457:19	334:6 336:5	358:12	318:21 320:16
276:24,25	today 271:23	340:5,10,11,16	translate 339:2	348:3,17 351:2
277:8,12	309:25 313:6	340:18 341:4	387:1	355:16 375:25
281:24 282:3	338:7 370:8	344:24 345:7	transmit 478:4	412:16 419:22
292:5 293:25	388:3 439:19	345:21,25	479:25	424:3 434:10
306:3 315:16	450:5 452:14	347:5,22 349:8	transmitted	457:2 459:16
315:21 319:11	493:5 503:11	351:4 355:8	414:17 461:2	484:23 485:13
320:15 324:12	told 308:10	360:4 463:7,17	transparent	493:24,25
325:2,9 333:1	309:3 343:3	468:16,23,24	365:4,7	499:13 501:14
345:2 356:15	396:14 409:21	470:17,24,24	transport	Tuolumne
357:3,6 382:23	449:15 454:23	490:20 498:18	335:16,24	473:14,15
383:18 386:22	481:13 492:6	tops 381:18	469:5	turn 267:12
388:3 393:23	top 282:7 286:6	total 290:4,5,7,8	Transportation	270:17,19
394:3,15,18	299:12 326:6	296:7 372:19	263:4	285:15 373:14
395:5 396:2	331:18 336:11	404:7 431:6	transports	381:1,7 420:3
398:9 402:16	336:11,17,22	482:2 486:14	464:6	421:9,14
402:19 405:14	337:1,2 338:2	totally 497:2	transpositional	425:20 426:8
408:22 414:19	339:19 341:13	Toxic 472:24	457:7	476:4,13 477:2
414:23 416:5	341:16 343:5	toxics 442:8	trapped 482:16	481:19,19
416:13 417:13	358:1,7 359:11	tracks 317:11	491:23	483:5 485:23
419:1,17,18,21	363:22 371:24	trade 280:5	travel 299:7	turned 329:19
420:17 423:11	375:17 386:18	traded 428:23	358:25 471:15	497:7
424:20 429:8	407:24,24	traditional	486:24 487:2	turning 272:12
429:18 431:15	409:15 417:11	263:15	487:12	325:22 354:12
432:8,17	443:21 477:19	tragedy 308:8	traveling 294:8	twice 289:8
433:11 434:6	topic 378:4	308:21	treat 300:7	two 265:21
435:13 444:11	404:10	tragic 295:4	treating 335:23	268:25 275:15
444:18 449:20	topically 313:12	train 294:10	335:23 443:5	276:23 284:25
451:14 453:12	topics 446:13	392:5 430:21	treatment	286:23 294:3,9
459:6,9 460:4	topo 377:11	trained 430:12	392:13,18	307:3 314:17
462:23 464:21	topographic	430:13,14	trees 273:9	320:7 324:21
472:1 475:7,10	275:18,25	training 264:11	triangle- 282:16	329:19 331:19
479:18 488:1	321:8,9 340:14	430:18 431:1,2	tried 283:19	331:19,20
493:14 503:10	340:21,24	431:7,17,23	416:9 451:15	332:1 333:3
time- 379:17	344:6,17	432:12,16,18	463:2	341:17 342:15
times 265:17	346:22 351:6	432:21 433:15	trouble 270:4	344:5,11
269:2,6,23,23	373:17,18,20	433:16,17	trucking 443:4	350:23 351:1
270:8,8 274:14	373:22 374:9	436:16 501:15	trust 266:11	352:24 357:4,5

357:8 358:13 360:19 361:9 361:23 374:4,6 376:17 381:16 381:18 392:4 395:13 407:10 410:18 411:18 423:18 444:1 455:8 457:13 459:23 465:2,3 483:8 494:19 496:10 500:23 two-foot 286:21 type 265:1 277:6 293:19 295:7 325:18 332:25 352:9 423:5 467:3 types 264:17,20 265:5 279:25 311:11 385:9 385:13 392:1 442:25 443:1 typical 499:23 typically 264:1 277:21 305:4 305:15,24,25 350:18 363:9 380:17 400:6 417:13 426:9 426:10 466:5 499:23	363:21 underground 483:20 underneath 381:17 understand 265:11 267:4 278:13 279:10 292:11,13 295:8 301:24 304:20 310:24 311:2 312:24 315:25 326:10 328:2 348:18 361:24 367:7 371:21 373:7 376:23 380:20 415:23 417:4 419:14 422:14 454:3,7,11 466:2 472:19 477:7 478:12 478:13 483:22 484:2,5,18 485:21 490:4 492:7 493:11 493:12 494:7 494:15 497:14 497:15 501:6 501:25 understandable 292:15 understanding 266:23 267:23 271:16 310:9 315:6 334:20 337:25 348:11 370:9 372:3 373:10 394:12 398:13 399:4 407:8 408:24 409:6 412:2,5 418:9 419:15 433:19 444:20 447:12 449:1 453:13 460:4 461:6 462:20 463:23 465:23 469:8,11,17 475:5,11	480:20,25 482:11 485:22 493:15 499:11 500:3 501:4 understands 305:1 understood 269:21 299:14 335:18 405:9 474:8 479:8 501:5,18 undertake 444:21,22 447:17 Unified 443:17 uniform 332:10 unit 458:16 United 254:9 504:11 units 269:11,11 269:14 326:6 University 309:13,17 393:14 440:19 440:23 unknown 409:21 update 313:19 uphill 471:22 upper 376:16 upstream 275:17 upwards 336:24 use 269:1 270:21 270:25 273:21 274:5 275:1,6 275:18 276:24 283:22 291:2 299:24 301:21 302:13 310:7 312:3 316:16 318:24 319:11 335:4,10,17 352:24 355:9 358:21 368:3 377:24 380:18 386:19,19,24 387:1,7 426:15 447:2 466:3,6 467:23 468:14	502:4 useful 295:4 305:8,9 usefulness 352:12 users 392:15,16 uses 332:16,16 usually 389:25 443:14 451:2 475:25 UTs 273:20	424:5 version 352:3 versions 479:18 versus 297:25 311:5 343:14 379:15 384:12 vertical 310:23 311:5 358:4 vertically 286:6 vessels 277:6 viable 413:23 view 312:18,19 365:18 381:21 450:7 453:14 453:14 viewed 409:4 416:20,21 violation 402:8 474:20 475:1 475:13,18,24 violations 393:5 397:25 474:4,8 480:21 481:5,7 481:9,11,14 virtually 376:5 vis-a-vis 466:22 viscosity 280:23 292:4,5,18,18 293:2,3 300:21 323:14,16,17 327:4 331:12 331:20 347:10 347:11,17,24 348:12 360:15 360:22,24 361:2 362:24 384:19,21,23 386:22 387:2,2 387:3,5 viscous 280:21 293:20 294:17 294:18 323:10 323:12,24,24 325:12,14 385:22 visited 453:10 visual 418:12 visually 350:15 VOIR 256:2 volcanic 325:17
U				
U.S 254:1 274:22 Uh-huh 342:22 386:11 436:18 440:2 444:3 450:6 474:23 ultimately 479:10 unanswered 481:3 uncertainty 363:10 414:11 unclear 284:24 uncomfortable 266:8 underestimate				

volume 284:12	409:2,24 410:2	312:3 315:5,8	490:2,4,8,23	264:2 267:25
287:19 288:12	411:23 412:11	320:20 327:17	492:21 494:1	288:9 303:20
289:14,18,21	413:6 418:7	338:10 367:19	495:12 496:4,5	307:15 355:12
290:4,6,10,13	423:23,24	367:23 369:1,1	496:12 497:11	355:22 367:24
290:17,18	424:15 425:1	369:18 378:19	502:17	369:20 388:4
292:3 308:23	427:4 428:9	402:1 415:9	water-tight	389:19 404:13
309:18 312:4	435:5,9 436:20	421:19 422:17	380:20	404:13 415:3
316:5 324:14	437:1,18,25	438:15 441:22	waters 491:21	420:4 421:9
324:24,25	438:4,9,11	450:14 452:17	491:23 492:2	438:24 453:8
332:21 336:16	444:13 445:22	472:2 480:13	wave 294:7	500:7,8,12
337:3,5,10,13	446:7 447:20	484:18	298:25 299:1,6	we're 258:11,13
342:14,19,24	448:18,23	wanted 292:6	301:2,3 308:24	259:11,12,19
343:25 344:9	449:3,12,24	354:23 382:11	309:22 324:5	260:3 269:4
344:10,10	462:21 463:25	389:16 396:10	324:12,16	272:5 304:1
345:8,9,15,16	478:2,5 480:21	396:15 401:23	326:19 329:18	307:21 327:13
345:19,20,22	504:4	401:24 407:6	336:10,11	331:24 346:12
345:22 346:17	VSS's 310:8	407:18,19	348:17 471:16	346:16 368:21
348:16,24	450:8	409:5 434:11	481:23 484:15	389:3 390:2
349:25 357:13		444:25	484:24 485:1,6	404:12 405:16
358:9,15,18	W	warmer 384:9	485:10,15,16	415:14 422:18
360:1,5,7	W 439:18	Washington	485:18 487:3,9	425:21 432:16
383:16 384:2	wait 417:8	504:20	498:16,16	433:20 435:22
466:7 469:22	435:21	wasn't 268:10	waves 299:10	438:16,21
471:2,2,18	waiting 402:10	429:6 447:4	300:24 481:23	452:3 472:11
476:9,10 482:2	402:10 416:4	497:7	way 266:4 271:1	484:22,22,23
482:5 485:4,14	426:6	waste 392:17	279:1 284:8	485:1,9,9,11
485:17,19,20	walkers 418:3	441:18 442:6	292:19 294:15	485:12,13,14
493:24 502:8	walkthrough	wastewater	298:16 300:1,8	485:14 486:2
volumes 457:14	400:16,18	392:13,18	300:17 305:11	486:15 487:13
volumetric	419:2	water 268:9,13	310:12 319:21	487:14,15,15
311:15 331:8	wall 272:24	272:24 273:22	323:15 327:7,8	503:10
344:15 345:11	274:8 284:25	274:7,21	329:13 332:10	we've 276:17
345:11 357:17	285:3,10 286:3	275:10,11	335:4 340:3	374:6 402:23
358:14 365:14	286:16,23	278:14 286:20	352:10 355:4	420:23 424:20
379:16,22	287:2,3,13,22	298:12 303:14	360:13 361:16	425:11 430:4
382:17	288:2,6,20,24	304:17 305:13	361:17 362:22	430:23,23,23
VSS 254:6	288:25 289:1,1	306:18,24,25	363:21 378:14	463:20
277:19 278:10	289:3 290:23	307:2 314:23	380:10 383:4	weather 372:5
287:15 289:19	291:3 313:20	319:13 321:12	386:21 396:5	wedge 336:18
292:11 295:8	344:7,7 356:13	341:16,16	399:16 404:15	337:3,3 358:6
325:13 374:4	374:24 482:23	362:1,9,18	423:25 428:20	358:7,8 359:3
389:14 390:18	483:16,24	368:1 371:1,11	466:25 479:11	359:12 364:25
390:25 391:11	484:4 494:14	376:23 381:21	480:13 489:6	377:10 482:25
393:18 394:21	494:18,23,25	386:2,9 393:2	492:13 502:5	wedging 359:9
395:3 398:10	495:1 497:24	393:11 442:14	ways 274:8	week 265:20
401:12 403:2,9	498:17	442:17,19,20	278:25 295:13	412:21,25,25
403:14 404:4	walls 380:15	449:25 464:7	302:7,8 337:8	weekend 503:12
405:3 406:4,19	493:6,9	464:19 465:4	352:5,14	weeklies 418:5
407:8,9,23	want 267:7	465:13 473:3,3	382:20	weeks 265:21
408:2,4 409:1	280:19 288:7	473:6,7 489:4	we'll 259:17	weighs 492:8

weight 259:17 324:18 361:13 467:3	winding 273:9	Witul 399:10,23 400:1,9,14 401:14 403:2,8 403:25 405:20 407:3 410:3 411:2 453:25 454:8 455:10 461:23	395:6 396:13 405:10 406:11 413:18 414:1 416:18,19 472:23 473:24	377:5
weird 304:24	winter 421:17	Witul's 410:17	works 431:16	X1-2 358:12
well-documen... 320:21	wiped 294:9	wives 413:16	worksheet 372:6	X2 355:22
went 330:11 370:18 402:11 429:14 460:6 466:23 498:12	wish 346:2	wood 443:5,5	world 273:14 275:14 279:22 363:17 387:13	X3 355:24
weren't 308:16 400:22 500:17	Withdrawn 503:5	word 289:7 372:9 400:22 462:24 476:2 492:1	worst 293:14 371:19 372:3 382:13,21 482:4,8 485:14 491:11 497:19 502:11	<hr/> Y <hr/>
Wesley 394:25	witness 260:4,5 260:10,14 271:1,4 279:23 280:9,13,16 281:6,16 285:22 304:22 305:3 327:18 328:3 339:23 342:7 353:24 355:6,11 356:5 356:7,21 368:3 382:7,16 383:9 383:15,24 384:10,15,20 384:24 385:4 386:11,15 387:11,22 389:5 390:7,11 415:6,9 416:9 427:3,6,10,13 427:16,20,22 427:24 428:2,7 428:11,14,17 428:21,24 429:2,5,12,15 429:18,22 430:4,9,12,19 431:3,5,8,12 431:21,24 432:6,9,14,24 433:2,7,10,14 433:23 434:2,4 434:19 438:19 438:21 439:4 439:10 441:20 441:22 442:19 450:16,22 465:25 467:10 476:6,8,11 477:17 492:12 492:17,24 503:8	work 261:20 263:24,25 264:4,14,18 266:18 332:23 333:14 354:6,8 394:7 396:10 396:25 404:24 405:11,17,18 409:5 413:16 413:18 416:10 417:12 432:1 443:24 451:13 460:1 472:18 472:19,23 474:1 478:7 490:2 499:12 499:17 500:4	worst-case 491:20 492:2 492:19 497:4 502:6	y'all 425:12
West 374:4 393:19,25 398:14,25 399:17 405:21 444:13 448:23 449:12 452:23 478:2	WH 445:20	work 261:20 263:24,25 264:4,14,18 266:18 332:23 333:14 354:6,8 394:7 396:10 396:25 404:24 405:11,17,18 409:5 413:16 413:18 416:10 417:12 432:1 443:24 451:13 460:1 472:18 472:19,23 474:1 478:7 490:2 499:12 499:17 500:4	would've 370:10 394:17 402:17 402:18 414:20 416:9 425:24 462:5	yards 277:4
whatnot 299:11	WHF 321:15 404:25 405:2,5 405:15,23 408:10,12 409:7 439:16 439:18,19,24 441:1,3,11 449:10 463:1	worked 262:3 279:17 281:10 353:12 392:23 402:20 411:5 441:15 449:23 449:23 450:2 450:18,23 452:17	wouldn't 311:20 318:11 325:23 378:12 465:16 468:5 482:14 497:11,12 499:6,7	yeah 261:20 263:12 269:19 271:4 273:18 285:14 286:2 291:15 293:12 297:22 303:23 305:3 319:4 320:2 322:8 323:10 332:5 337:19 339:25 342:8 350:16 350:18,25 352:19 359:7 367:10 413:6 422:14 439:21 442:4 447:15 448:7 449:4,8 449:18 451:3 456:5,23 457:10 459:21 461:10 462:24 464:9 467:10 467:10 470:1 470:18 473:22 474:16,21 479:16 486:5 486:23 492:17 493:2,7,7 497:3,15 502:10,14
whichever 479:13	white 381:17 420:25 483:8	work 261:20 263:24,25 264:4,14,18 266:18 332:23 333:14 354:6,8 394:7 396:10 396:25 404:24 405:11,17,18 409:5 413:16 413:18 416:10 417:12 432:1 443:24 451:13 460:1 472:18 472:19,23 474:1 478:7 490:2 499:12 499:17 500:4	writing 442:13 451:12 474:18 474:22 475:23 500:16	year 308:14 352:2,17 406:20 410:2 429:13,13 432:11 444:16 460:18
wholly 427:8 428:9	wide 450:23	workers 431:14	written 286:6 380:1,4 381:3 402:7 403:3 452:19 492:13	year-plus 455:11
width 273:24	width 273:24	working 261:22 263:6 278:21 284:10 295:3,3 301:14 392:8	wrote 449:25	yearly 430:17
wife 413:12 427:17	wife's 428:6		<hr/> X <hr/>	years 261:4 263:15 278:21 280:3 293:21
Wildlife 304:10 304:19 305:18 306:7,14,18 314:24 317:20 370:18	Wildlife 304:10 304:19 305:18 306:7,14,18 314:24 317:20 370:18		X 257:1	
William 256:4 260:12	William 256:4 260:12		X1 355:19 356:3	
willingness 474:13	witnesses 256:2 389:7 469:7			

336:8,9 383:4	357:12,15	141,247 344:13	2.38 458:13	424:24 425:1
391:18 412:11	358:21 360:1	147 477:9,11	2.4 498:23	425:23 444:18
412:13,14,23	363:6 368:6	15 254:10 269:4	2.5-million	445:8 459:12
413:11 418:14	402:23 481:19	269:4,6,7	293:15	480:6,9,19
419:13 423:18	495:19	278:1 281:24	2.53 283:13,17	501:19
423:23 429:23	10,000 464:20	281:25 282:2	2/3s 270:8	2015 407:9,12
441:4,10	10:20 307:16	285:18 339:10	20 276:2,7	407:25 408:18
452:18	100 332:3	347:20 441:4,9	282:23 305:20	408:25 409:12
yesterday	384:11,12	15-hour 276:24	305:22 307:4	410:7 420:22
258:10 267:9	421:5	150 294:4 488:3	325:24 333:5,6	421:17 422:5
267:15 268:14	100-degree	488:10	347:19,20	455:4,9 459:9
289:14 304:9	350:25	16 325:24	357:9 365:16	459:23 478:22
305:6 370:8,20	100.0 376:9	437:18	365:16 446:4	480:6,8
388:2	100.5 374:19	17 254:12 334:9	488:15 503:19	2016 313:1,25
yesterday's	101 258:22	388:9 421:1	20-some-thou...	314:20 315:5
304:18	259:8,24	461:1,16,21,23	433:3	322:14 328:20
Yolo 395:16,20	101.0 375:7,7	462:3 476:21	20,000 433:13	352:4,16 410:2
443:22	102 364:18	504:5,15	200 292:23	410:6,8 423:9
	366:21	172,635 343:10	293:2 302:24	423:12,18
Z	103 421:3	344:13	303:5,9,10,12	432:23 453:22
zero 296:8	104 257:13	18 391:18	303:13 341:19	454:24 455:11
306:23 337:1	258:23 259:9	180 298:10,14	359:20 489:3,3	455:18 459:20
344:12	259:24 421:14	332:3 488:8	2000 355:1	2017 410:19,20
zeroes 304:8	105 257:14	180-degree	20005-4018	460:15,20
	368:21,23	302:23 486:11	504:20	477:23 478:23
0	369:7,24 370:3	180-degrees	2001 310:16	479:10
0.008 364:12	107 456:2	295:18 298:2	317:1 355:1	2019 254:12
0.057 334:10,17	11 272:12	18th 254:10	365:20 366:16	388:9 503:19
035 273:23	11:54 367:17,18	19.62 276:8	414:13 419:11	504:5,15
09 412:17	110 466:1,6	1919 293:21	419:16 424:4	206 504:19
	112 266:20	308:14	429:3	20th 255:4
1	112.2 372:1	1920 308:18	2004 441:2	21 294:4 414:14
1 257:4,8 258:19	112.20 463:24	19th 398:2	2006 453:4	487:20,24
258:21 259:4,6	11220 267:3	1st 398:4	2008 323:5	213 255:8
259:21,23	1128C6 420:16		412:17	217,892 339:12
347:1 355:24	12 276:25 392:3	2	2011 391:4	339:13,14,14
397:7,11	398:2,4 437:18	2 347:2 355:24	393:23 429:2,3	339:18
1,000 386:10	469:5 495:24	365:17 477:9	2012 394:17	22 373:15
1,400 386:13	12:32 387:23	477:11 488:6	395:3,10,11	377:21
1,400,000	388:7	2,000,000-gall...	397:3,17	22.4 282:1
482:13 484:11	120 383:13,20	490:12	398:13 399:1	220 341:20
484:20 485:8	1220 504:20	2,000,0000-gal...	414:2 417:15	23 261:4 313:1
1.4 386:13	125 377:1	489:17	417:16 426:5	455:9 476:7
482:19 485:20	13 285:15,20	2,348,000 482:3	448:18	23,000 359:6
1.9 485:1	288:16	2,348,000-	2013 414:14	230,000 359:7,8
1.9- 483:25	131 456:2	483:10	2014 285:7	359:22,22
1:30 388:4	140 359:19	2,490 495:15	321:16,19,19	234,000 358:24
1:31 388:9 389:2	140-some	496:7	403:17 405:7	24 257:8 258:21
10 261:12	430:20	2,348 342:25	406:6 420:23	259:7,23 277:8
305:19 324:19	140,000 359:16	358:23	421:17 423:17	407:25 425:23

457:18	315:24 316:2	295:19 298:11	<u>7</u>
24-hour 383:2,3	485:25 486:14	298:15 332:2	7 282:7,7 321:25
383:3 466:3,4	486:22 498:1	370:11 497:18	322:3 364:16
24th 459:11	360- 297:2	45- 297:22	364:17 502:12
25 363:6 383:4	360-degree	45-101 257:12	7.4 339:7
411:23	295:16 296:20	45-degree 303:7	7.4805 339:4
25-foot 294:7	315:17,20	320:12 359:5	70 497:3
25-year 383:3	316:11 320:11	486:15	711 428:15
466:4	343:20 344:24	450 254:10	75 254:20
250 292:13,17	486:4,7 497:8	472 256:9	78 476:14
293:1 298:9	369 257:14	48 257:4 258:20	798-1381 255:5
384:1 488:3	37 258:22 259:7	259:5,21	
259 257:4,5,8,9	259:23	343:12,13,20	<u>8</u>
257:10,11,12	37-43 257:11	344:25 346:4,5	805 339:8
257:13	370 256:4		865 289:15
260 256:4 293:1	257:14	<u>5</u>	290:14 314:2
384:1	390 256:7	5 272:12 334:9	456:25 457:7
27 282:4 399:1	3A 347:4	335:12,14	457:12,22,24
448:18 477:23		342:14 349:4	458:20
27-hour 277:7	<u>4</u>	370:22,24	880 457:25
270 257:6	4 325:24 335:21	468:21,22	458:6 459:2
271 486:24	335:22 336:4,8	470:16	881 457:12
487:9,19	337:11 342:18	5-feet 282:17	8th 408:18
272 257:6	354:12 365:2,3	5.0 469:4	
28,159 411:7,13	381:7 397:17	5.1 491:18	<u>9</u>
29 257:9 258:21	457:19 481:22	5.5 370:24	9 272:12
259:7,23 470:2	482:13	5:00 472:8	9:00 503:11,18
470:8,13,15	4:30 503:9	50 384:12	9:01 254:14
29,128 338:19	4:37 503:17	411:23	258:2
339:2	40 267:2 293:25	50-foot-tall	9:51 397:18
	320:8,10 333:6	294:6	90 298:11,14
<u>3</u>	333:6 372:1	501 256:9	303:3
3 255:4 347:3,4	463:24	515 255:7	90-degrees
347:5 355:24	40-degree 303:7	52 257:5 258:20	298:1
30 274:23,25	40-grade 293:8	259:5,22	90071 255:7
283:7 347:20	40.4 282:6	54 257:5 258:20	92614 255:4
402:22 410:6	40CFR 266:20	259:5,22	94105 254:21
442:2,3 453:4	40th 255:7	422:25	948 482:20
488:4,9 496:18	41 470:10	55 257:6 270:15	948,000 484:15
300 488:7	415 254:21	271:2 272:5,6	485:5
308 256:4	256:7	272:9	949 255:5
313,882 342:21	42,000 464:6	57 485:2 487:10	972-3904 254:21
344:12,12,14	43 258:22 259:8		99 364:17,18
32 257:10	43,45 259:24	<u>6</u>	366:21 376:11
258:22 259:7	435 256:7	6 364:9	487:21
259:23 290:21	436 256:7	6.5 502:12	99.5 376:20
34 280:2	437 256:8	60 333:6 432:6	99.9 417:13
35 294:8	439 256:9	60-minute 488:7	
360 295:19,24	443-5524 255:8	62 392:12	
298:2,10	45 258:22 259:8	667 274:14	