

SUPREME COURT OF THE UNITED STATES
No. 142, Original

STATE OF FLORIDA,)
Plaintiff,)
V.) VOLUME IX
STATE OF GEORGIA)
Defendants.)

TRANSCRIPT OF PROCEEDINGS

The above-entitled matter came on for HEARING before SPECIAL MASTER RALPH I. LANCASTER, held in the U. S. Bankruptcy Court, at 537 Congress Street, Portland, Maine, on November 14, 2016, commencing at 9:00 a.m., before Claudette G. Mason, RMR, CRR, a Notary Public in and for the State of Maine.

APPEARANCES:

For the State of Florida: PHILIP J. PERRY, ESQ.
JAMIE L. WINE, ESQ.
ABID R. QURESHI, ESQ.
BENJAMIN M. LAWLESS, ESQ.

For the State of Georgia: CRAIG S. PRIMIS, ESQ.
BRITNEY A. LEWIS, ESQ.
CHRISTIAN REIGSTAD, ESQ.

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1 PROCEEDINGS
2 SPECIAL MASTER LANCASTER: Good morning,
3 counsel.
4 MR. PRIMIS: Good morning, your Honor.
5 MR. PERRY: Good morning, your Honor.
6 SPECIAL MASTER LANCASTER: Happily, I
7 was wrong when I suggested that you not go
8 out this weekend without your umbrellas.
9 It's a good thing, because given Friday's
10 winds, you would have looked like Mary
11 Poppins out there.
12 Proceed.
13 MR. PERRY: Thank you, your Honor. I
14 would like to talk just a bit about the
15 schedule for this week, if I might.
16 SPECIAL MASTER LANCASTER: Sure.
17 MR. PERRY: So today is going to be a
18 little unusual for us. In the normal course,
19 we would have called two more hydrologists,
20 Drs. Lettermaier and Shanahan, to follow
21 Dr. Hornberger. But one of Georgia's counsel
22 had a scheduling issue, so we're going to go
23 a little out of sequence.
24 And we agreed to do two things today.
25 One is to play the deposition designation of

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INDEX

<u>Witness</u>	<u>Direct</u>	<u>Cross</u>	<u>Redirect</u>	<u>Recross</u>
Jason M. Wisniewski (By Video)	2187			
Gail Cowie, Ph.D.	2192	2193	2287	2321

EXHIBITS

<u>Number</u>	<u>Page Referenced</u>
JX-21	2188, 2214, 2292
JX-31	2240, 2297
JX-57	2326
JX-69	2264
JX-105	2276
JX-132	2196
JX-154	2270
JX-160	2309

FX-5	2194
FX-17	2227
FX-23	2189
FX-24	2306, 2255, 2299, 2324
FX-36	2237
FX-42	2190
FX-46	2216
FX-48	2241
FX-49b	2286
FX-49g	2225
FX-49h	2225
FX-51	2269
FX-55	2281
FX-69a	2278
FX-72	2233
FX-86	2257
FX-97	2189, 2263
FX-99	2188
FX-104	2188
FX-285	2251
FX-312	2208
FX-536	2260
FX-880	2238
FX-881	2188
FX-882	2190
FX-878	2195

GX-1247	2243, 2329
GX-1249	2314

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1 Mr. Jason Wisniewski, who is an aquatic
2 biologist and zoologist with Georgia's
3 Department of Natural Resources, Wildlife
4 Resources Division. But second, we would
5 call a hostile witness, Dr. Gail Cowie, who
6 is an assistant branch chief currently in
7 Georgia's Environmental Protection Division.
8 So that's our plan today.
9 Our plan Wednesday is to bring back the
10 two hydrologists, Dr. Lettenmaier and
11 Dr. Shanahan. And that would be followed by
12 Dr. Mathias Kondolf, who is an expert on the
13 Apalachicola River and some of the issues we
14 heard about the river. Thursday we expect to
15 have Dr. Sunding, who is our economic and
16 natural resources economist. He will likely
17 be our last nonrebuttal witness in this case.
18 So that's Thursday.
19 We have reached an agreement with
20 Georgia that two witnesses, one of ours and
21 one of theirs, will be submitted to your
22 Honor through prefiled direct without cross.
23 SPECIAL MASTER LANCASTER: Great. Thank
24 you for that.
25 MR. PERRY: And we are working with the

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2187	<p>1 Court to look at the schedule for Georgia's</p> <p>2 witnesses and to try to economize and be</p> <p>3 concise for the weeks after that.</p> <p>4 SPECIAL MASTER LANCASTER: Good.</p> <p>5 MR. PERRY: Okay. So, your Honor, if I</p> <p>6 might, I would like to start with the</p> <p>7 deposition testimony of Mr. Wisniewski.</p> <p>8 And if I might approach, I will hand</p> <p>9 out --</p> <p>10 SPECIAL MASTER LANCASTER: Please.</p> <p>11 MR. PERRY: -- the binders.</p> <p>12 So, your Honor, as we have in the past,</p> <p>13 this particular testimony is on behalf of</p> <p>14 both parties. So we are playing both our</p> <p>15 designations and Georgia's cross-designations</p> <p>16 at the same time.</p> <p>17 It's on the screen, and we start in the</p> <p>18 first several clips with the witness's</p> <p>19 background.</p> <p>20 (Whereupon the video was played.)</p> <p>21 MR. PERRY: Your Honor, as you might</p> <p>22 have heard there, one of the counsel had a</p> <p>23 cold, so I apologize for the sound quality.</p> <p>24 SPECIAL MASTER LANCASTER: That's fine.</p> <p>25 MR. PERRY: So the next set of clips</p> <p style="text-align: center;">THE REPORTING GROUP Mason & Lockhart</p>	2189	<p>1 MR. PERRY: This particular clip is</p> <p>2 Florida Exhibit 881.</p> <p>3 (Whereupon the video was played.)</p> <p>4 MR. PERRY: And this is FX-23.</p> <p>5 (Whereupon the video was played.)</p> <p>6 MR. PERRY: And, likewise, here we're on</p> <p>7 Florida Exhibit 23.</p> <p>8 (Whereupon the video was played.)</p> <p>9 MR. PERRY: We're still here, your</p> <p>10 Honor, on Florida Exhibit 23.</p> <p>11 (Whereupon the video was played.)</p> <p>12 MR. PERRY: This clip, your Honor,</p> <p>13 remains on Florida Exhibit 23.</p> <p>14 (Whereupon the video was played.)</p> <p>15 MR. PERRY: So the next group of clips</p> <p>16 relates to Florida Exhibit 97. And I'll note</p> <p>17 that on Florida Exhibit 97, there are some</p> <p>18 redactions because there are specific</p> <p>19 locations identified for endangered mussels</p> <p>20 in the State of Georgia.</p> <p>21 (Whereupon the video was played.)</p> <p>22 MR. PERRY: Your Honor, this next clip</p> <p>23 continues to relate Florida Exhibit 97. The</p> <p>24 specific focal point is the page GA 931314.</p> <p>25 (Whereupon the video was played.)</p> <p style="text-align: center;">THE REPORTING GROUP Mason & Lockhart</p>
2188	<p>1 have to do with Georgia's endangered species</p> <p>2 project statement, which is Florida Exhibit</p> <p>3 104.</p> <p>4 (Whereupon the video was played.)</p> <p>5 MR. PERRY: Now, this clip continues to</p> <p>6 address Florida Exhibit 104, and the</p> <p>7 particular page is GA 724353.</p> <p>8 (Whereupon the video was played.)</p> <p>9 MR. PERRY: Next, your Honor, we go to</p> <p>10 Florida Exhibit 99, and the clip relates to a</p> <p>11 presentation by Mr. Wisniewski titled Impacts</p> <p>12 of Federally Listed Mussels to Georgia.</p> <p>13 (Whereupon the video was played.)</p> <p>14 MR. PERRY: This clip is, likewise,</p> <p>15 Florida Exhibit 99. The page number is GA</p> <p>16 1284553.</p> <p>17 (Whereupon the video was played.)</p> <p>18 MR. PERRY: Your Honor, the next set of</p> <p>19 testimony -- and there are a number of clips</p> <p>20 here relating to Joint Exhibit 21 -- that's</p> <p>21 the 2006 plan that we talked about -- Florida</p> <p>22 Exhibit 881 and Florida Exhibit 23. This</p> <p>23 particular clip is the Joint Exhibit 21, the</p> <p>24 2006 plan.</p> <p>25 (Whereupon the video was played.)</p> <p style="text-align: center;">THE REPORTING GROUP Mason & Lockhart</p>	2190	<p>1 MR. PERRY: This next clip remains on</p> <p>2 Florida Exhibit 97. It's the same page, GA</p> <p>3 931314, a little bit up the page.</p> <p>4 (Whereupon the video was played.)</p> <p>5 MR. PERRY: The next clip relates to two</p> <p>6 documents. One is Florida Exhibit 882, and</p> <p>7 the other is Florida Exhibit 42. The first</p> <p>8 particular entry here is on 882.</p> <p>9 (Whereupon the video was played.)</p> <p>10 MR. PERRY: Now, the next series of</p> <p>11 clips actually relate to the Peterson study,</p> <p>12 and that's Florida Exhibit 42.</p> <p>13 (Whereupon the video was played.)</p> <p>14 MR. PERRY: This next clip continues to</p> <p>15 relate Florida Exhibit 42.</p> <p>16 (Whereupon the video was played.)</p> <p>17 MR. PERRY: Still on Florida Exhibit 42,</p> <p>18 your Honor.</p> <p>19 (Whereupon the video was played.)</p> <p>20 MR. PERRY: And, again, we're on Florida</p> <p>21 Exhibit 42 here, page 110.</p> <p>22 (Whereupon the video was played.)</p> <p>23 MR. PERRY: Still on Exhibit FX-42, your</p> <p>24 Honor.</p> <p>25 (Whereupon the video was played.)</p> <p style="text-align: center;">THE REPORTING GROUP Mason & Lockhart</p>

2191

1 MR. PERRY: Your Honor, we're nearing
 2 the end of these clips. And this particular
 3 set of clips by the parties has to do with 30
 4 percent annual average discharge versus
 5 what's called a 7Q10 measurement of flow.
 6 The subject matter is, again, Florida Exhibit
 7 42.
 8 (Whereupon the video was played.)
 9 MR. PERRY: Same topic here, your Honor.
 10 I believe it's page 121 of Florida Exhibit
 11 42.
 12 (Whereupon the video was played.)
 13 MR. PERRY: We're still on Florida
 14 Exhibit 42, this time page 120.
 15 (Whereupon the video was played.)
 16 MR. PERRY: And lastly, your Honor, this
 17 is a clip about the same page of Florida
 18 Exhibit 42.
 19 (Whereupon the video was played.)
 20 MR. PERRY: Your Honor, those are the
 21 end of the clips. And we are prepared, so
 22 long as Georgia is, to call Dr. Cowie as a
 23 hostile witness at this time.
 24 SPECIAL MASTER LANCASTER: You may.
 25 THE CLERK: Please raise your right
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2192

1 hand.
 2 Do you solemnly swear that the testimony
 3 you shall give in the cause now in hearing
 4 shall be the truth, the whole truth, and
 5 nothing but the truth, so help you God?
 6 THE WITNESS: I do.
 7 THE CLERK: Please be seated.
 8 Pull yourself right up to the microphone
 9 and please state your name and spell your
 10 last name.
 11 THE WITNESS: Gail Cowie, G A I L,
 12 C O W I E.
 13 MR. PRIMIS: Good morning, your Honor.
 14 May I approach with the direct testimony?
 15 SPECIAL MASTER LANCASTER: Please.
 16 MR. PRIMIS: Your Honor, Mr. Perry has
 17 referred to Dr. Cowie as a hostile witness.
 18 I think you will find her to be maybe an
 19 adverse witness, but far from hostile.
 20 DIRECT EXAMINATION.
 21 BY MR. PRIMIS:
 22 Q. And with that introduction, Dr. Cowie, I have
 23 placed before you your written direct testimony.
 24 Do you adopt this as your sworn testimony in this
 25 case?
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2193

1 A. Yes, I do.
 2 Q. Thank you.
 3 MR. PRIMIS: We'll tender the witness.
 4 CROSS-EXAMINATION.
 5 BY MR. PERRY:
 6 Q. Good morning, Dr. Cowie.
 7 A. Good morning.
 8 Q. It's nice to see you again.
 9 A. You, also.
 10 MR. PERRY: Your Honor, may I approach
 11 to hand up the binders?
 12 SPECIAL MASTER LANCASTER: Please.
 13 BY MR. PERRY:
 14 Q. Dr. Cowie, I would like to start, if I might,
 15 with paragraph 9 of your prefiled direct
 16 testimony that Mr. Primis just handed you. Do
 17 you have that open?
 18 A. Yes.
 19 Q. And just for a moment, I would like to focus on
 20 the first sentence there, which refers to
 21 Director Reheis. You know Director Reheis; do
 22 you not?
 23 A. Yes.
 24 Q. And Director Reheis served as director from
 25 roughly 1991 through 2003?
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2194

1 A. Yes.
 2 Q. And there in paragraph 9 you write about a
 3 moratorium that Dr. Reheis put in place; is that
 4 correct?
 5 A. Yes.
 6 Q. Could you, please, turn with me to your tab
 7 No. 2. And what I would like to do, if I might,
 8 is start today where Director Reheis's testimony
 9 two weeks ago left off. And with your eyes still
 10 on paragraph 9 of your prefiled direct, do you
 11 see a mention there of a backlog of
 12 applications --
 13 A. Yes.
 14 Q. -- at the bottom?
 15 Okay. I want to talk about the backlog.
 16 But let me, if I might, tee up my questions on
 17 this topic by referring you to FX-5, Florida
 18 Exhibit 5, which is at tab 2. And could you look
 19 with me, please, down to the fourth paragraph
 20 there. It starts with, I do believe, and then
 21 indicates cap on water depletions. Are you with
 22 me?
 23 A. Yes.
 24 Q. All right. What I would like to do is talk about
 25 the number and acreage of permits granted in
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2195

1 Georgia's part of the ACF Basin since the time of
 2 FX-5, which is dated April 16, 1999. Okay?
 3 **A. Yes.**
 4 **Q.** Okay. Could you please turn with me to tab 7 of
 5 your binder, which is Florida Exhibit 878. Do
 6 you recognize tab 7?
 7 **A. Yes, I do.**
 8 **Q.** And that's a report on a data run from Georgia's
 9 agricultural permitting database. Is that
 10 correct?
 11 **A. Yes.**
 12 **Q.** Do you see the name at the bottom, T. Coppage?
 13 **A. Yes.**
 14 **Q.** Could you describe who that is?
 15 **A. Tammy Coppage is a data analyst in our**
 16 **agricultural permitting unit.**
 17 **Q.** Did you request that she do this analysis?
 18 **A. I did not request it. I did receive it from the**
 19 **permitting unit.**
 20 **Q.** And you believe the numbers on this page FX-878
 21 to be an accurate depiction as of the time this
 22 was run; is that correct?
 23 **A. Yes.**
 24 **Q.** I would like to talk a little bit about the
 25 numbers that can be obtained from the

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2196

1 agricultural permitting database year after year
 2 after year since the 1999 moratorium. We have
 3 actually used the agricultural permitting
 4 database, which is at Joint Exhibit 132, to do
 5 such a run. And I would invite your attention,
 6 if I might, to tab 8, please, where you will find
 7 a demonstrative and a date accomplished.
 8 So what I would like to do, if I could,
 9 Dr. Cowie, is walk through some key dates from
 10 your prefiled testimony using the data and
 11 material on -- at tab 8, the demonstrative.
 12 **MR. PERRY:** And if I could, I'm going
 13 to, your Honor, try to actually mark on the
 14 electronic copy on this on the screen, if I
 15 could.
 16 **BY MR. PERRY:**
 17 **Q.** I'm going to first ask you about -- I didn't do a
 18 very good job of making that mark; but it's the
 19 moratorium in 1999 that you referred to a moment
 20 ago. Do you recall that that moratorium began in
 21 roughly November of 1999; is that correct?
 22 **A. Yes.**
 23 **Q.** And can you see on the exhibit at tab 8 that
 24 there are quite a number of permits granted after
 25 the time of that moratorium?

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2197

1 **A. Yes.**
 2 **MR. PRIMIS:** Your Honor, I'm just going
 3 to simply note for the record that Florida
 4 asked for the courtesy of when there were
 5 going to be demonstratives used from large
 6 compiled databases, that we provide it to
 7 them, which we did. That was not
 8 reciprocated. So Dr. Cowie hasn't seen this
 9 before, and neither have I. But we'll do our
 10 best to answer the questions that Mr. Perry
 11 has.
 12 **SPECIAL MASTER LANCASTER:** Thank you,
 13 counsel.
 14 **MR. PERRY:** I might respond that we're
 15 engaging in the same course of conduct that
 16 we have seen in the last few days.
 17 **SPECIAL MASTER LANCASTER:** Thank you.
 18 **BY MR. PERRY:**
 19 **Q.** So let's start, if we could, at 1999. And if we
 20 look down the row -- the columns, do you see
 21 number of permits there?
 22 **A. Yes.**
 23 **Q.** And then you see acres beside it?
 24 **A. Yes.**
 25 **Q.** Okay. So have you endeavored to do this type of

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2198

1 analysis yourself?
 2 **A. I have not, and so I'm trying to understand.**
 3 **Let me just make sure I'm understanding what's**
 4 **shown here. These are numbers of permits issued**
 5 **in a year, and these are the permitted acres**
 6 **associated with those permits. Is that what this**
 7 **table shows?**
 8 **Q.** That's exactly right. And it's consistent with
 9 the exhibit by Ms. Coppage at tab 7.
 10 So if we could take a look here, in your
 11 prefiled direct testimony you first mentioned
 12 1999 as a year when Director Reheis instituted a
 13 moratorium. Right?
 14 **A. Yes.**
 15 **Q.** And you see, as you read across from 1999, that
 16 there were quite a number of permits and
 17 permitted acres associated with 2000. In other
 18 words, the permits were issued that year. Do you
 19 see 104,000 acres there?
 20 **A. Yes.**
 21 **Q.** And as you read down, do you see there's quite a
 22 bit of permitting going on even up to 2006, which
 23 is another relevant time period in your prefiled
 24 direct testimony. Right?
 25 **A. Yes.**

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2199

1 Q. Okay. And then 2006 was the date when the 2006
 2 Flint River Regional Conservation Plan was
 3 issued. Right?
 4 A. Yes.
 5 Q. Okay. And then you see after that quite a number
 6 of acres of permits granted throughout the rest
 7 of the period on this graph up to 2015. Right?
 8 A. Yes.
 9 I can address some of these, if you would
 10 like me to do so.
 11 Q. I will a little bit later as we go forward.
 12 A. Okay.
 13 Q. Probably in about 10 minutes.
 14 A. Okay.
 15 Q. So let's walk through here, if we could. And
 16 then also another relevant date in your prefiled
 17 direct is 2012 when Director Turner in roughly
 18 June proposed and then executed a new moratorium;
 19 is that right?
 20 A. That's correct.
 21 Q. And you see there from 2012 to the end there are
 22 another 75,000 acres worth of permits; is that
 23 right?
 24 A. Yes.
 25 Q. Now, just for ease of reference, can I invite
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2200

1 your attention, please, to tab 9.
 2 And here -- here we can see a summary of the
 3 acreage that's on tab 8. And do you see at the
 4 top it says 1.1 million total acres in ACF Basin?
 5 A. Yes.
 6 Q. Okay. And then approximately 788,000 in October
 7 1999?
 8 A. Yes. I see that.
 9 Q. And then 315,000 since that October 1999 date?
 10 And do you see the notation at the bottom
 11 that that is a 40 percent increase in all of
 12 permitted acres in the ACF Basin for Georgia
 13 since October 1999?
 14 A. Yes, I do.
 15 Q. Okay. So can I invite your attention now,
 16 please, to tab 12.
 17 A. Would it be possible for me to get a pen to make
 18 some notes about the things I would like to
 19 address since you're going to be asking a series
 20 of questions before I get an opportunity to do
 21 so?
 22 Q. I have no -- I have no objection to that if your
 23 counsel would like to -- or I can, actually,
 24 provide you with a pen, I believe.
 25 MR. PERRY: May I approach to provide
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2201

1 the witness with a pen?
 2 SPECIAL MASTER LANCASTER: Please.
 3 A. Thank you, I appreciate that.
 4 Q. Okay. It's a good pen.
 5 A. Thank you.
 6 Q. Okay. Back on the exhibit -- or, pardon me,
 7 tab 12, if I might, which is the direct testimony
 8 of Mr. Judson Turner. Let me know when you're
 9 with me.
 10 A. Uh-huh.
 11 Q. Okay. So Judson Turner was the director from
 12 roughly January of 2012 until maybe June of this
 13 year; is that correct?
 14 A. Correct, yes.
 15 Q. And you worked for Mr. Turner?
 16 A. Yes, I did.
 17 Q. Okay. You are the -- you had responsibilities
 18 specifically for, among many other things, issues
 19 in the ACF Basin. Right?
 20 A. That's correct.
 21 Q. Can you please turn with me to page 37 of that
 22 prefiled direct testimony for former Director
 23 Turner. And there I would like to invite you to
 24 read to yourself paragraph 125 to start.
 25 A. I have read it.
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2202

1 Q. Okay. Do you see the reference there to
 2 Georgia's agricultural permitting database?
 3 A. Yes, I do.
 4 Q. And we have just been discussing that. There's
 5 another reference there to Georgia's wetted
 6 acreage permitting data. Are you familiar with
 7 that?
 8 A. Yes, in general terms.
 9 Q. Could you describe what that is?
 10 A. It's a database that's been compiled and evolved
 11 over the years that provides snapshots depending
 12 on which iteration you look at of the estimates
 13 of wetted acreage in -- across the state.
 14 Q. And that would be irrigated acreage?
 15 A. Yes. The terms are used interchangeably
 16 generally, irrigated, wetted.
 17 Q. So the idea would be that the wetted acreage
 18 database captures the actual number of acres that
 19 are irrigated using irrigation equipment?
 20 A. It captures that. So the information is
 21 collected in a couple of different ways. Some of
 22 it's from -- depending on which snapshot you're
 23 looking at, some of it was direct reports. Some
 24 of it was from remote-sent images. Some of it
 25 was from on-the-ground mapping. So it's pieced
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2203

1 **together in a couple of different ways. So it's**

2 **estimates.**

3 **Q.** And you're aware that Georgia's experts in this

4 case relied on that information from the wetted

5 acreage database?

6 **A. Oh, certainly, yes. It's, you know, good**

7 **information; but it is estimates that need to be**

8 **taken into account.**

9 **Q.** Okay. Can you skip down then to paragraph 127 on

10 that same page and read it to yourself.

11 **A. I have read it.**

12 **Q.** All right. So you see the reference there to the

13 Governor of Georgia appointing a special task

14 force to address this question that we're talking

15 about now?

16 **A. Yes.**

17 **Q.** Okay. Are you part of that special task force?

18 **A. I am not.**

19 **Q.** Can you tell us who is on that special task

20 force?

21 **A. I have seen the announcement. I don't have all**

22 **the names in my head. I know the chair is Allen**

23 **Barnes. I know Lucius Atkins is one of the**

24 **members. I don't recall others at this point.**

25 **Q.** Are any members of the agricultural permitting

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2204

1 unit within EPD on that task force?

2 **A. Not to my knowledge, no.**

3 **Q.** So a few sentences down in the paragraph you

4 read -- 127 is the paragraph number -- in

5 Director Turner's prefiled direct testimony,

6 there is a reference to EPD issuing 30 notices of

7 violation. Do you see that?

8 **A. Yes.**

9 **Q.** Do you know who is responsible for issuing those

10 notices?

11 **A. I believe the notices were issued either by the**

12 **agricultural permitting unit or by the compliance**

13 **unit at the watershed protection branch. It was**

14 **within the watershed protection branch.**

15 SPECIAL MASTER LANCASTER: Excuse me,

16 counsel.

17 Could you move the microphone.

18 THE WITNESS: Yes, sir. I apologize.

19 SPECIAL MASTER LANCASTER: Thank you.

20 BY MR. PERRY:

21 **Q.** So, Dr. Cowie -- I'm sorry.

22 So, Dr. Cowie, were you involved in any way

23 in issuing those 30 notices of violation?

24 **A. No. That's not part of my direct responsibility.**

25 **Q.** Do you know how many permits were subject to the

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2205

1 report that they were being illegally irrigated?

2 **A. I'm not sure I understand your question.**

3 **Q.** Sure. So we talked a moment ago about the wetted

4 acreage permitting database. It's mentioned in

5 paragraph 125. And that was compared with the

6 agricultural permitting database to see if there

7 were discrepancies. You know that; don't you?

8 **A. I know what I have read in the direct testimony.**

9 **Q.** Do you know how many actual permits had more

10 irrigated acres than were permitted?

11 **A. What I know about this came from the direct**

12 **testimony and the information here. So no, I do**

13 **not.**

14 **Q.** So you have never seen the materials that Florida

15 has provided to Georgia's counsel and to EPD

16 reporting more than 2,500 violations?

17 **A. I have not seen those materials, no.**

18 **Q.** How many total permits do you estimate have been

19 issued for irrigation in Georgia's part of the

20 ACF Basin?

21 **A. The -- the number that is -- yes, the number that**

22 **I have in my head right now for permits in the**

23 **Flint Basin is about 6,600.**

24 **Q.** How about the entire ACF Basin, including the

25 Chattahoochee?

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2206

1 **A. I'm talking about the ACF Basin.**

2 **Q.** Okay.

3 **A. I'm sorry. I thought that's what you asked for.**

4 **Q.** I thought you said the Flint which is --

5 **A. No. I was talking about the ACF Basin.**

6 **Q.** Okay. But you -- do you have any other --

7 SPECIAL MASTER LANCASTER: That

8 microphone needs to be right in front of you.

9 THE WITNESS: Okay.

10 SPECIAL MASTER LANCASTER: Thank you.

11 BY MR. PERRY:

12 **Q.** Okay. So you have no role in these 30 notices of

13 violation, nor do you have any knowledge of the

14 violations that Florida has reported to Georgia;

15 is that correct?

16 **A. No. I do not have responsibility for**

17 **enforcement.**

18 **Q.** Okay. Can you turn with me, please, to tab 13.

19 And there is a copy with the name redacted of an

20 agricultural permit. Do you see that?

21 **A. I do.**

22 **Q.** All right. Is this a -- the type of document you

23 would be familiar with?

24 **A. I'm familiar with the permits in general, yes.**

25 **Q.** Okay. If I might invite your attention to the

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2207

1 last paragraph on the first page where it says
 2 usage, do you see that?
 3 **A. Yes.**
 4 **Q.** And then in the second line, do you see an
 5 indication that the maximum area for irrigation
 6 under this permit would be 100 acres?
 7 **A. Yes.**
 8 **Q.** Okay. Do you see this is a permit for irrigation
 9 in Spring Creek?
 10 **A. In the Spring Creek watershed, yes.**
 11 **Q.** Using drawing from the Floridan Aquifer, do you
 12 see that in the second paragraph?
 13 **A. Yes.**
 14 **Q.** Okay. Could you turn with me to the second page
 15 of that permit, please.
 16 And under Standard Conditions, do you see the
 17 second item, Use Limitations?
 18 **A. Yes.**
 19 **Q.** And an indication that the use of groundwater is
 20 limited to the quantity and purpose specified in
 21 this permit?
 22 **A. Yes.**
 23 **Q.** Do you see that?
 24 Now, if you could look down the page with me
 25 to Revocability, do you see that?

THE REPORTING GROUP
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2209

1 **Q.** And then unpermitted acres, 34?
 2 **A. Yes.**
 3 **Q.** Okay. Have you ever seen this particular
 4 document we're looking at?
 5 **A. I have not.**
 6 **Q.** Okay. Now, are you -- do you have any
 7 understanding of how many acres in Spring Creek
 8 these 2,500 illegal permits may affect?
 9 **A. I have no information on that. I do know that**
 10 **there is a step that needs to be taken to -- as I**
 11 **said, these wetted -- this wetted acre database**
 12 **is a snapshot in time. The agricultural**
 13 **permitting database gets updated on a very**
 14 **regular basis. So there is a step that needs to**
 15 **be taken to identify and resolve any**
 16 **discrepancies between those --**
 17 **Q.** Yes.
 18 **A. -- to ensure that there isn't information that --**
 19 **some of these changes may have been in the**
 20 **pipeline -- some of the changes may have been in**
 21 **the pipeline, that would mean some of these are**
 22 **in compliance, not necessarily aren't. Like,**
 23 **maybe a portion of them; I don't know. But I**
 24 **don't know -- I don't have the kind of details**
 25 **you're talking about. I haven't seen this**

THE REPORTING GROUP
Mason & Lockhart

2208

1 **A. Yes.**
 2 **Q.** And at C it reads, noncompliance with any
 3 condition of this permit.
 4 You agree with me, don't you, that it's
 5 within EPD's authority to revoke permits for
 6 agricultural irrigation for noncompliance with
 7 acreage limits. Right?
 8 **A. Yes.**
 9 **Q.** Okay. Could you turn with me, please, to tab 14.
 10 And I -- I would invite your attention to the
 11 last line on tab 14. These are examples, only 30
 12 of the 2,500 examples of unpermitted irrigation
 13 acres. But that last line is labeled
 14 A-98-100-0564. Do you see that?
 15 **A. Yes.**
 16 **Q.** And if you could page back to tab 13, which is
 17 Exhibit FX-312, do you see that's the permit
 18 number of the particular permit we were looking
 19 at?
 20 **A. Yes, I see that.**
 21 **Q.** Now, if you could with me, please, run your eyes
 22 across the page -- and I'm going to try to draw
 23 again with my finger on the screen. Do you see
 24 where it says total wetted acreage, 134?
 25 **A. Yes.**

THE REPORTING GROUP
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2210

1 **information before.**
 2 **Q.** And on Thursday, Dr. Sunding can explain how he
 3 looked at both databases to compile this
 4 information.
 5 **A. But that -- the point is one database changes**
 6 **regularly. The other is a snapshot, and it**
 7 **doesn't change regularly. So looking at both is**
 8 **not going to address that problem.**
 9 **Q.** Do you know when the wetted acreage database was
 10 produced to Florida in this case?
 11 **A. I do not.**
 12 **Q.** In February? Do you know that?
 13 **A. I do not know.**
 14 **Q.** Okay. So let's, if we could, please go to
 15 tab 16.
 16 And I'm sorry to say, this is a little bit
 17 challenging to read because the type is so small.
 18 But this is an organization chart for the
 19 Environmental Protection Division. Is that
 20 right?
 21 **A. That's correct.**
 22 **Q.** And do you see your name in the upper left corner
 23 there?
 24 **A. Yes.**
 25 **Q.** Okay. And I would like to focus just for a

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2211

1 little while on the agricultural permitting unit
 2 you identified before, which is in the third
 3 column.
 4 MR. PERRY: Thank you.
 5 BY MR. PERRY:
 6 Q. On the screen Mr. Walton has enlarged it.
 7 Is it still the case that roughly six
 8 individuals are affiliated with the agricultural
 9 permitting unit?
 10 A. **There are now eight.**
 11 Q. There are eight. And how many permits --
 12 agricultural permits are there in the entire
 13 State of Georgia that this group of eight people
 14 has authority to address.
 15 A. **There are approximately 21,000.**
 16 Q. Okay. And not all of the people on this list
 17 actually do enforcement; is that correct?
 18 A. **That's correct.**
 19 Q. Only three or four of them do enforcement; is
 20 that correct?
 21 A. **The compliance -- to be precise, the enforcement**
 22 **responsibilities -- I want to draw a distinction**
 23 **between compliance and enforcement. So**
 24 **compliance, identifying actions that need to be**
 25 **taken to determine whether or not someone is in**
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2212

1 **compliance, those responsibilities rest with the**
 2 **agricultural permitting unit. When enforcement**
 3 **action needs to be taken following the steps in**
 4 **the statute, that gets transferred to the**
 5 **compliance unit.**
 6 Q. Okay. And how many people are in the compliance
 7 unit?
 8 A. **So that watershed compliance program is in the**
 9 **next column over, and you can see the people**
 10 **listed there.**
 11 Q. And which element of the watershed compliance
 12 unit are you talking about?
 13 A. **So the program manager there, Louis Hayes, would**
 14 **assign that to specific individuals depending on**
 15 **the workload at the time.**
 16 Q. Which of those specific individuals are on the
 17 Governor's task force at this time?
 18 A. **None, but the EPD staff is assisting that task**
 19 **force and its work.**
 20 Q. And the agricultural permitting unit, that is
 21 assisting that task force?
 22 A. **Cliff Lewis is the point contact. The agency as**
 23 **a whole is available to assist that task force.**
 24 Q. Okay. So the disclosure that we were reading in
 25 the prefiled direct testimony from Florida to
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2213

1 Georgia was from August of 2016. Do you recall
 2 seeing that?
 3 A. **I'm sorry. Could you repeat that question,**
 4 **please?**
 5 Q. I can, but it's perhaps easier to go back to
 6 tab 12, page 37. And I'm in particular referring
 7 to paragraph 125. Do you see the reference to
 8 early August 2016?
 9 A. **Yes.**
 10 Q. It's been about three months since then. It's
 11 the case, isn't it, that nobody within EPD knew
 12 about this particular issue we're discussing with
 13 illegally irrigated acres until Florida disclosed
 14 it to Georgia in August 2016?
 15 A. **I cannot answer about the -- who at EPD knew**
 16 **about that. As I said, enforcement is not part**
 17 **of my direct responsibility. So I'm not aware of**
 18 **what was known or what actions were taken on**
 19 **that.**
 20 Q. Did you -- pardon me. I didn't mean to interrupt
 21 you.
 22 A. **That's fine. I'm finished.**
 23 Q. Did you hear anything at all about these types of
 24 issues prior to August of 2016?
 25 A. **Yes. I have heard of enforcement activities for**
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2214

1 **folks who are either irrigating without permits**
 2 **or irrigating beyond the limits of their permits.**
 3 Q. And when I asked you during the deposition
 4 whether anybody had been subject to that type of
 5 enforcement, you told me no. Correct?
 6 A. **I believe I mentioned that I was aware of notices**
 7 **of violation being issued.**
 8 Q. Not in any recent time period. Correct?
 9 A. **I believe I said I wasn't aware -- I wasn't sure**
 10 **what the time period was.**
 11 Q. Okay. So I would like to invite your attention
 12 now to the 2006 plan, which is at Exhibit 17 --
 13 or pardon me, tab 17. It's Joint Exhibit 21.
 14 Now, you did have a role in preparing this
 15 plan; did you not?
 16 A. **I did not have a role in preparing the plan. I**
 17 **have had a role in helping to implement it.**
 18 Q. Okay. And your testimony relates in several
 19 paragraphs to how this plan was developed and
 20 then implemented. Right?
 21 A. **Yes.**
 22 Q. Okay. If -- if I can ask you to turn again to
 23 tab 18 for a moment, there's a letter there
 24 from the U.S. Fish and Wildlife Service dated
 25 January 13, 2006. Do you see that?
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2215

1 **A. I do.**
 2 **Q.** And have you seen this letter before?
 3 **A. I have.**
 4 **Q.** It was in your files when you came to EPD; is
 5 that correct?
 6 **A. It was in the files I received from my**
 7 **predecessor in my current position.**
 8 **Q.** We have had a fair amount of testimony about this
 9 letter, including in the deposition designations
 10 of Director Turner and from former Director
 11 Reheis, so I won't spend a lot of time with you
 12 on this. But I would like to ask you a few
 13 questions, if I might, starting with page 2 of
 14 this letter.
 15 MR. PERRY: And I will on that page invite
 16 Mr. Walton to highlight where it says Reasonable
 17 Use Doctrine in the second paragraph about midway
 18 down.
 19 BY MR. PERRY:
 20 **Q.** And, Dr. Cowie, I would invite you to read the
 21 sentence that includes Reasonable Use Doctrine,
 22 once you find it.
 23 **A. I have read it.**
 24 **Q.** Are you with me?
 25 This is going to be a little bit complicated
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2216

1 because we're turning between a couple exhibits.
 2 But with that concept in mind, could you please
 3 turn to page 43 of tab 17, which is JX-21. And
 4 do you see the third paragraph on page 43 of tab
 5 17, JX-21, where there is a reference to
 6 Regulated Riparian State?
 7 **A. Yes.**
 8 **Q.** Could you read that paragraph to yourself for a
 9 moment, please.
 10 **A. I have read it.**
 11 **Q.** Okay. Now, if you could turn back to tab 18 to
 12 the second page that we were looking at, and just
 13 below, on that second page, the word reasonable
 14 use doctrine, there is another reference to the
 15 current over-allocation of water in the next
 16 sentence. Could you read that sentence to
 17 yourself, please.
 18 **A. I have read it.**
 19 **Q.** Now, do you have an understanding of the term
 20 over-allocation?
 21 **A. I mean, I understand what the dictionary**
 22 **definition is. I'm not sure I understand**
 23 **precisely what is meant in this letter.**
 24 **Q.** Okay. Is it fair to say that an over-allocation
 25 is often used in a riparian rights context to
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2217

1 refer to too many water users simultaneously
 2 withdrawing water?
 3 **A. I'm not sure I have heard it used in that way.**
 4 **So, I mean, if you want to use it in that way.**
 5 **Q.** All right. Can you turn with me to the
 6 conclusion section of Florida Exhibit 46 at
 7 tab 18. It's labeled Summary Comments.
 8 And in particular, I'm interested in the very
 9 last page where that carries over to the last
 10 paragraph before Ms. Tucker's signature. And do
 11 you see the first full sentence there that begins
 12 more fundamentally, however?
 13 **A. I do.**
 14 **Q.** Okay. Now, the 2006 plan, Joint Exhibit 21, does
 15 not affect water use under pre-existing permits;
 16 does it?
 17 **A. Permits in place at the time, that's correct.**
 18 **Q.** In place in 2006. Correct?
 19 **A. Correct.**
 20 **Q.** And it's fair to say, isn't it, that in issuing
 21 the 2006 plan, Director Couch did not take the
 22 advice of U.S. Fish and Wildlife with respect to
 23 eliminating some of the over-allocation in the
 24 Flint River Basin?
 25 **A. The concerns raised by Fish and Wildlife Service**
 THE REPORTING GROUP
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2218

1 **in this letter were part of the consideration in**
 2 **the development of the plan. So that was among**
 3 **the deliberations that led to the recommendations**
 4 **in the plan and the permitting provisions that**
 5 **were applied to new permits that went beyond**
 6 **the -- the restrictions placed on new permits**
 7 **that went beyond those that were already in**
 8 **place.**
 9 **Q.** We'll get to the new permits in a little bit.
 10 But I'm focused now on the pre-existing permits
 11 and the concept that they themselves, without any
 12 new permits, were an over-allocation of
 13 groundwater and surface water. And in
 14 particular, I would like to frame this next
 15 question by referring you to page 4 of this U.S.
 16 Fish and Wildlife letter, if I could, please.
 17 And in particular on that page I refer you to the
 18 section that says Recommendation for Regulatory
 19 Reform. Do you see that section?
 20 **A. I do.**
 21 **Q.** And in particular, recommendation No. 2. Now,
 22 it's true, is it not, that Director Couch in 2006
 23 did not accept U.S. Fish and Wildlife's
 24 recommendation to modify current, then-existing
 25 permits to eliminate over-allocation of water.
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2219

1 Right?

2 **A. Correct. The permits were not modified.**

3 **Q.** Okay. Now, if you could turn back one page to

4 page 3, please. And there I would like to refer

5 you to the paragraph titled Strategies for

6 Management. Do you see that?

7 **A. I do.**

8 **Q.** And I'm particularly interested in the last

9 sentence, and I would ask you to read it to

10 yourself, please.

11 **A. The last sentence of that paragraph with that**

12 **label?**

13 **Q.** Thank you. That's correct. I'm sorry I was

14 ambiguous.

15 Actually, I should ask you to read the last

16 two sentences, please.

17 **A. I have read it.**

18 **Q.** It's true, isn't it, that Georgia lost a once

19 large and viable mussel population in the middle

20 reaches of Spring Creek despite having a

21 moratorium on new water withdrawal permits?

22 **A. The population is not lost. Subsequent to this**

23 **letter with Fish and Wildlife Service as an**

24 **active partner, we have implemented an**

25 **augmentation system to maintain that population.**

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2220

1 **And Ms. Tucker was one of the leads on that.**

2 **Q.** Now, that augmentation system is just in Spring

3 Creek; is it not?

4 **A. It is in Spring Creek. It's specifically on the**

5 **population she's addressing.**

6 **Q.** So a little bit later I would like to show you a

7 photograph of what you're calling an augmentation

8 system. So we'll do that in about an hour.

9 But now, I would like to invite your

10 attention back to the same page, page 3. And do

11 you see the next to last paragraph where it says,

12 the strategy to reduce irrigation by 20 percent

13 during a drought year?

14 **A. I do.**

15 **Q.** And do you see where it says, the minimum flows

16 will continue to be significantly lower despite

17 that strategy?

18 **A. I do.**

19 **Q.** All right. Can you turn with me, please, to

20 page 23 of the 2006 plan, which is Joint Exhibit

21 21 at tab 17. And, again, it was page 23. I'm

22 looking at paragraph 6. Now -- are you with me,

23 ma'am?

24 **A. I am, yes.**

25 **Q.** Now, it's true, isn't it, that the 2006 plan

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2221

1 authorized additional permits to be granted?

2 **A. With the restrictions specified in the plan,**

3 **correct.**

4 **Q.** And we'll talk about those restrictions in a

5 little bit. But the rationale in part for

6 allowing existing -- or allowing new permits to

7 be granted was the anticipated use of the Flint

8 River Drought Protection Act in severe drought

9 years. Correct?

10 **A. That's one of the technical findings in the plan**

11 **is not one of the permitting and management**

12 **actions specified.**

13 **Q.** Okay. So if we might, let's go to the

14 stakeholder recommendations, which you will find

15 at pages 55 through 56. Are you familiar with

16 who the stakeholders were and who they

17 represented?

18 **A. Yes. There was -- in a general sense. It was**

19 **water users and water-related interests in the**

20 **basin. The names of the individuals are included**

21 **in the plan.**

22 **Q.** On page 48 to 49, is that right?

23 **A. Yes. I would have to look at the page to be able**

24 **to recall it. So I assume you have.**

25 **Q.** I would invite you to look at it.

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2222

1 Do you see the reference on page 48 to

2 farmers and agribusiness representatives and the

3 like?

4 **A. Yes.**

5 **Q.** Now, back to page 55. And I'm going to ask you

6 in particular about an item under the heading

7 2.9, Stakeholder Recommendations for Regulatory

8 and Statutory Reform. And that item is on page

9 56. It's item 4. And I would ask you to read

10 that to yourself, please. It's on page 56 of tab

11 17, Joint Exhibit 21.

12 **A. I have read it.**

13 **Q.** Do you see where it says, the funding should be

14 expanded for the Flint River Drought Protection

15 Act to pay higher per acre prices?

16 **A. I do.**

17 **Q.** That never happened; did it?

18 **A. Not to my knowledge.**

19 **Q.** Now, if I could invite your attention to the end

20 of the page, same page, same share -- excuse me,

21 stakeholder recommendations, this time item 10.

22 Are you with me, Dr. Cowie?

23 **A. Yes.**

24 **Q.** It says there, alternatives to issuing permits

25 based on rated pump capacity. Up to this point

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2223

2225

1 in time -- in fact, up to now, all permits for
 2 agricultural water use allowed withdrawers,
 3 farmers, to pump as much as their pumps will
 4 allow. Isn't that right?
 5 **A. They -- yes, that's correct. The permits specify**
 6 **pump capacity and acreage limitations.**
 7 **Q.** And there is no way that a particular farmer
 8 could apply that much water to any crop; isn't
 9 that right?
 10 **A. Would apply. I mean, they -- because of the --**
 11 **it would damage the crop. I mean, it doesn't**
 12 **make good business sense. They wouldn't do it**
 13 **for that reason.**
 14 **Q.** It's a huge amount of water that can physically
 15 be pumped from one of these pumping mechanisms;
 16 isn't it?
 17 **A. I mean, if you ran a pump 24 hours a day, but**
 18 **there is no reason one would do that.**
 19 **Q.** It's true, isn't it, that the State of Georgia
 20 has never limited the amount of irrigation water
 21 that can be applied per acre by any farmer?
 22 Right?
 23 **A. The -- the permits specify pump capacity and**
 24 **acreage, so in the sense of a pump capacity**
 25 **limit, but not in other ways.**

THE REPORTING GROUP
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1 **A. I do.**
 2 **Q.** Can you turn the page with me to the discussion
 3 of that committee on the next page, page 50 of
 4 Joint Exhibit 21. And I would invite your
 5 attention to the sentence on the -- in the top
 6 paragraph. It's the next to last sentence that
 7 begins with, experts who were selected who were
 8 specialists in their field. Do you see that?
 9 **A. I do.**
 10 **Q.** And those names there include Dr. Steve Golladay.
 11 You know Dr. Golladay; don't you?
 12 **A. I do.**
 13 **Q.** And Mr. Woody Hicks from the Jones Ecological
 14 Research Center. Do you see that name?
 15 **A. Yes.**
 16 **Q.** Okay. Now, could I invite your attention at this
 17 point to Exhibit -- or pardon me -- to tab 19,
 18 which contains Exhibit FX-49g and h. Now, FX-49g
 19 is titled Indicators of Long-Term Hydrologic
 20 Change in the Flint River. Have you ever seen
 21 this document before?
 22 **A. I may have. I don't recall it.**
 23 **Q.** And you see the names of the same gentlemen I
 24 mentioned a moment ago, Dr. Golladay and
 25 Mr. Hicks. Right?

THE REPORTING GROUP
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2224

2226

1 **Q.** There's no particular per acre limit on the
 2 amount of inches of water that can be applied to
 3 any crop in Georgia at this time. Right?
 4 **A. That's correct.**
 5 **Q.** All right. And you are aware, are you not, that
 6 Florida actually does, in its part of the ACF
 7 Basin, have a specific restriction on the number
 8 of inches of water that can be applied to crops
 9 in that area?
 10 **A. I'm not aware.**
 11 **Q.** Okay.
 12 MR. PERRY: Your Honor --
 13 SPECIAL MASTER LANCASTER: Would this be
 14 a convenient time?
 15 MR. PERRY: Yes, your Honor.
 16 SPECIAL MASTER LANCASTER: Thank you.
 17 (Time Noted: 10:36 a.m.)
 18 (Recess Called)
 19 (Time Noted: 10:50 a.m.)
 20 BY MR. PERRY:
 21 **Q.** So, Dr. Cowie, I am still on tab 17, which is
 22 Joint Exhibit 21, the 2006 plan. And I invite
 23 your attention now to page 49, please. And in
 24 particular, do you see 2.3, Technical Advisory
 25 Committee, at the bottom of that page?

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1 **A. Uh-huh, yes.**
 2 **Q.** Okay. And there's a note near the top of that
 3 page that reads, 2013 Georgia Water Resources
 4 Conference at UGA. Do you see that?
 5 **A. Yes.**
 6 **Q.** Did you attend that conference?
 7 **A. Yes.**
 8 **Q.** All right. Were you present for the presentation
 9 of this material?
 10 **A. I don't recall it. I may have. There's a lot**
 11 **that goes on at those conferences, but I don't**
 12 **recall this particular paper.**
 13 **Q.** And Georgia's Environmental Protection Division
 14 sponsored that conference; is that correct?
 15 **A. They were among the organizations that sponsor**
 16 **it, yes.**
 17 **Q.** Okay. Might I invite your attention and ask you
 18 to read the last portion of the abstract which
 19 begins with, our results indicate that human
 20 water use is causing increased severity and
 21 duration of low flows.
 22 **A. I have read it.**
 23 **Q.** And do you see towards the end of that section of
 24 the abstract the phrase, current rates of water
 25 use are likely unsustainable?

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2227

2229

1 **A. I do.**
 2 **Q.** Okay. And that, as you understand it, applied to
 3 rates of water use in the Flint Basin. Right?
 4 **A. Presumably that's the analysis that they are**
 5 **reporting on, yes.**
 6 **Q.** Okay. Now, in the very next set of pages which
 7 are labeled FX-49h, there are a series of
 8 PowerPoint slides. Do you see those?
 9 **A. I'm sorry. Where -- where are you going?**
 10 **Q.** Well, it's tab 19.
 11 **A. I don't have those in my notebook. I don't have**
 12 **any PowerPoint slides.**
 13 **Q.** Okay. Well, we'll fix that and come back to it
 14 then.
 15 **A. Okay.**
 16 **Q.** Do you remember a PowerPoint presentation from
 17 Mr. Hicks and Dr. Golladay?
 18 **A. From -- I have seen a number of PowerPoint**
 19 **presentations from them, so I'm not sure what you**
 20 **would be referring to.**
 21 **Q.** Okay. We'll come back to that.
 22 **A. Okay.**
 23 **Q.** So I would like now, if I might, to refer to
 24 tab 22, please, which is FX-17. And you have
 25 seen the letter from the U.S. Fish and Wildlife

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1 begins with more fundamentally?
 2 **A. Yes.**
 3 **Q.** And it was your understanding at this time that
 4 U.S. Fish and Wildlife believed EPD was not
 5 sufficiently providing for sustainable flow and
 6 reasonable use and that EPD should make changes
 7 to the way it managed agricultural locations.
 8 Right?
 9 **A. I was reading. I'm going to have to ask you to**
 10 **repeat that. I apologize.**
 11 **Q.** Okay. Let me focus on a particular sentence. It
 12 reads, quote, more fundamentally, however -- do
 13 you see that sentence?
 14 **A. I do.**
 15 **Q.** -- It's our belief, U.S. Fish and Wildlife, that
 16 water conservation to provide for sustainable
 17 flow and reasonable use will not be achieved
 18 without significant changes to current water use.
 19 Do you see that?
 20 **A. I do.**
 21 **Q.** You were aware of U.S. Fish and Wildlife's
 22 position in 2008. Were you not?
 23 **A. I was not. As I said, I was not directly**
 24 **involved in ACF Basin management issues on a**
 25 **day-to-day basis at that time.**

THE REPORTING GROUP
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2228

2230

1 at FX -- Florida Exhibit -- 47 before. Right?
 2 **A. I have.**
 3 **Q.** And this is in your files?
 4 **A. Yes. It was in, again, the files that I received**
 5 **from my predecessor when I came into my current**
 6 **position.**
 7 **Q.** So let's frame this a little bit in time, if we
 8 might. 2007 was a severe drought in Georgia;
 9 wasn't it?
 10 **A. That's correct.**
 11 **Q.** As was at least a portion of 2008. Correct?
 12 **A. Yes.**
 13 **Q.** And do you recall Ms. Tucker of Fish and Wildlife
 14 writing to Director Couch and complaining that
 15 EPD had not implemented the 2006 plan
 16 appropriately?
 17 **A. I heard reference to it. I was not directly**
 18 **involved in the -- in a day-to-day way with ACF**
 19 **Basin issues at the time.**
 20 **Q.** And the Flint River Drought Protection Act was
 21 not exercised in either 2007 or 2008. Right?
 22 **A. That's correct.**
 23 **Q.** Can you turn with me to the last page of FX-47,
 24 please. And do you see the sentence in that last
 25 paragraph -- the last multi-line paragraph that

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1 **Q.** Okay. Can you turn with me back to your prefiled
 2 direct testimony for a moment, please.
 3 **A. Yes.**
 4 **Q.** And there I would like you to turn to
 5 paragraph 19 of that testimony. It's on page 7.
 6 And the particular paragraph I'm interested in
 7 is titled Low Flow Protection Plans. I believe
 8 you mentioned low flow protection plans a little
 9 bit earlier today. Am I right?
 10 **A. I don't know if I did explicitly. I did mention**
 11 **the restrictions that were placed in the '06**
 12 **plan.**
 13 **Q.** Okay. So that's what I would like to talk about
 14 is the restriction in the '06 plan. And in this
 15 particular paragraph, which is titled Low Flow
 16 Protection Plans, there's a reference to surface
 17 water withdrawal permits in the first line. Do
 18 you see that?
 19 **A. Yes.**
 20 **Q.** And then a few lines down, there's a reference to
 21 25 percent average annual discharge. And that 25
 22 percent average annual discharge under the 2006
 23 plan applied to new surface water permits; isn't
 24 that right?
 25 **A. That's correct.**

THE REPORTING GROUP
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2231

2233

- 1 **Q.** How many of those permits are there?
- 2 **A. I don't have a precise number. It's less than**
- 3 **30.**
- 4 **Q.** Less than 30 out of 8,000 permits in the basin?
- 5 **A. I don't believe there are 8,000 permits in the**
- 6 **basin, but it's less than 30.**
- 7 **Q.** It's less than one-half of 1 percent of all the
- 8 permits in the basin?
- 9 **A. It's a very small number, yes.**
- 10 **Q.** Okay. So those permits in particular are meant
- 11 when a specific low flow is meant to cut off
- 12 irrigation as to those particular surface water
- 13 users; is that correct?
- 14 **A. Could you repeat that? I'm sorry.**
- 15 **Q.** Sure. Let's focus for a moment on the 25 percent
- 16 average annual discharge requirement, and I want
- 17 to make sure that we understand exactly what that
- 18 is. So for these less than 30 surface water
- 19 permits, those individuals are not allowed to
- 20 irrigate. They must stop pumping water from
- 21 rivers when flows get to 25 percent of average
- 22 annual discharge; is that correct?
- 23 **A. That's the low flow threshold applied to those**
- 24 **new permits in those watersheds. For other**
- 25 **permits, the older permits, they have a different**

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- 1 **A. Do you have a tab number, sir?**
- 2 **Q.** Yes. It's tab 23.
- 3 And do you see there an e-mail from Cliff
- 4 Lewis?
- 5 **A. I do.**
- 6 **Q.** Do you see your name there?
- 7 **A. Yes.**
- 8 **Q.** Cliff Lewis is with the agricultural permitting
- 9 unit; is that correct?
- 10 **A. He manages that unit, yes.**
- 11 **Q.** Okay. And do you see a number of U.S. gaging
- 12 stations listed in the text of the e-mail?
- 13 **A. Yes.**
- 14 **Q.** And then a column for 25 percent AAD?
- 15 **A. Yes.**
- 16 **Q.** And I'm going to show you a few gage readings
- 17 just to see if the particular streams that we're
- 18 talking about here are actually meeting the 25
- 19 percent AAD requirement we discussed. But the
- 20 first is for permit 02353500. It's about five
- 21 entries down. Do you see that?
- 22 **A. So it would be the gage numbers, not permit**
- 23 **numbers.**
- 24 **Q.** You're right. I made a mistake.
- 25 **A. All right. Just to clarify.**

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2232

2234

- 1 **low flow threshold. It is lower, but they do**
- 2 **have a low flow threshold unless they're a very**
- 3 **small stream.**
- 4 **Q.** And you're referring to a lower flow threshold
- 5 than 7Q10?
- 6 **A. That's correct.**
- 7 **Q.** And how many permits have 7Q10 as a low flow
- 8 threshold?
- 9 **A. I don't have that number.**
- 10 **Q.** We believe it's about 64.
- 11 **A. If that's from the electronic database, that will**
- 12 **not reflect the permits. They're in the paper**
- 13 **files. Not all of those conditions have been**
- 14 **entered into the electronic database --**
- 15 **Q.** Okay.
- 16 **A. -- which is partly why I don't have that number.**
- 17 **Q.** Okay. Do you believe that number is more than
- 18 100?
- 19 **A. I don't know. I don't have any estimate because**
- 20 **of the paper file versus electronic file issue.**
- 21 **Q.** And how old is the paper file?
- 22 **A. It goes back to the start of the permitting**
- 23 **program.**
- 24 **Q.** All right. So can you turn with me, please, to
- 25 FX-72.

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- 1 **Q.** It's gage number. Thank you for correcting me.
- 2 And this is in 2014 that this information is
- 3 listed. Correct?
- 4 **A. Yes. That's correct.**
- 5 **Q.** Okay. Do you see that number 2353500?
- 6 **A. Yes.**
- 7 **Q.** Can you turn with me to -- to tab 24. Now, on
- 8 tab 24 -- you may recall this from your
- 9 deposition -- we marked for the last eight or so
- 10 years since the 2006 plan how frequently that 25
- 11 percent AAD requirement had been violated. You
- 12 would agree with me, wouldn't you, that that
- 13 happened very frequently in dry to drought years?
- 14 **A. The -- there's a -- the violation word confuses**
- 15 **me because a requirement is applied to individual**
- 16 **water withdrawal permit holders. And so it means**
- 17 **that when the streamflow drops below that level,**
- 18 **they need to cease withdrawing. If they cease**
- 19 **withdrawing, there is no violation.**
- 20 **Q.** Okay.
- 21 **A. It's not the streamflow itself that's a**
- 22 **violation.**
- 23 **Q.** Let me rephrase that question so we can talk
- 24 about what's actually happening on this river.
- 25 So in every one of those yellow boxes you

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2235

1 would agree with me that the low flow threshold
 2 for 25 percent average annual discharge is not
 3 met?
 4 **A. The flow is below 25 percent annual average**
 5 **discharge. That threshold is specified -- the**
 6 **flows below 25 percent annual average discharge**
 7 **as a monthly mean, those are the data you have**
 8 **put in front of me, I absolutely agree with that.**
 9 **Q.** Okay.
 10 **A. The threshold is specified as a short-term flow**
 11 **for permitting purposes for that individual to**
 12 **cease withdrawing. So they're two different**
 13 **streamflow parameters.**
 14 **Q.** Well, with --
 15 **A. And it's not a threshold for flow in the stream**
 16 **on a monthly mean basis.**
 17 **Q.** And do you see in 2011 that there were six months
 18 on Ichawaynochaway Creek at Milford in which that
 19 threshold is not met?
 20 **A. I see that there are six months in which the**
 21 **flow -- monthly mean flow is below 25 percent**
 22 **annual average discharge, yes.**
 23 **Q.** And you see that there are seven such months in
 24 2012. Correct?
 25 **A. I do see that, yes.**

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2236

1 **Q.** Now, can you turn with me, please, to tab 25.
 2 **A. Okay.**
 3 **Q.** This tab contains the same 25 percent AAD low
 4 flow criteria that we have been discussing. And
 5 you see, don't you, that 2011 and 2012 for many
 6 months are quite a bit below that 25 percent AAD
 7 criteria?
 8 **A. So I will point out again that that criteria in**
 9 **the plan is based on a short-term basis. These**
 10 **are monthly means, and it's applied to individual**
 11 **withdrawal permits.**
 12 **Q.** And that criteria is even below the monthly mean.
 13 Right?
 14 Excuse me. The monthly mean is even below
 15 that criteria. In other words, the average of
 16 all flows in these yellow monthly mean boxes is
 17 below the criteria you're specifying?
 18 **A. The monthly mean is below 25 percent of annual**
 19 **average discharge in these -- in these tables.**
 20 **Correct.**
 21 **Q.** Okay. So let's look in particular on this table
 22 which is at tab 25. It's for Spring Creek near
 23 Iron City. And do you see the flows in 2011 in
 24 August, 5?
 25 **A. Yes.**

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2237

1 **Q.** That was the average flow in August of 2011,
 2 monthly mean.
 3 And then in September, zero; and in October,
 4 zero; and in November, zero. Do you see all
 5 those?
 6 **A. I do. That's why, as I said earlier, it was a**
 7 **dry record in the basin.**
 8 **Q.** Now, let's go to the next tab, might we, tab 26.
 9 And this is for Spring Creek farther south near
 10 Lake Seminole, near Reynoldsville, Georgia. And
 11 do you see the same phenomenon in 2011 and 2012
 12 there?
 13 **A. The same phenomenon being --**
 14 **Q.** The monthly --
 15 **A. -- the flows below 25 percent?**
 16 **Q.** Yes.
 17 **A. Average annual discharge, yes.**
 18 **Q.** Okay. Now, I would like to invite your
 19 attention, if I might, to FX-36 which is at tab
 20 27. You have seen this document before; haven't
 21 you?
 22 **A. Yes.**
 23 **Q.** This is a study or a recommended method to
 24 protect in-streamflows by Georgia's Department of
 25 Natural Resources Wildlife Resources Division?

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2238

1 **A. Sorry. I went to the wrong tab. Let me catch up**
 2 **with you.**
 3 **Q.** That's all right. It's FX-36 at tab 27.
 4 **A. I'm there now. Thank you.**
 5 **Q.** Thank you for alerting me to that.
 6 **A. And I have seen this document before, yes.**
 7 **Q.** Okay. Thank you.
 8 Now, the Wildlife Resources Division is
 9 responsible for ensuring the health of aquatic
 10 species, among others. Right?
 11 **A. Managing, yes, correct.**
 12 **Q.** And if you could turn with me in the executive
 13 summary there -- it's on the very first page of
 14 text -- to the first paragraph. And if you could
 15 read that paragraph to yourself, I would
 16 appreciate it.
 17 **A. I've read it.**
 18 **Q.** All right. Do you see the first reference in
 19 that paragraph to 7Q10 in about the fifth or
 20 sixth line?
 21 **A. Yes.**
 22 **Q.** And you mentioned 7Q10 just a little bit ago.
 23 Didn't you?
 24 **A. Yes.**
 25 **Q.** And do you see there that the authors of this

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2239

1 document from the Wildlife Resources Division in
 2 Georgia indicate there's an overwhelming
 3 consensus among aquatic resource managers that
 4 higher flows are necessary to support fish and
 5 wildlife?
 6 **A. Yes. I see that.**
 7 **Q.** Okay. Can you turn with me to Roman IV, which is
 8 only a few more pages. Are you with me?
 9 **A. Yes, I am.**
 10 **Q.** Okay. There's a table there, isn't there?
 11 **A. Yes.**
 12 **Q.** Okay.
 13 **A. I see it.**
 14 **Q.** I'm sorry. I may not have heard you. I
 15 apologize.
 16 And do you see the heading in the table
 17 Recommended Protective Flow from the Wildlife
 18 Resources Division?
 19 **A. Yes.**
 20 **Q.** And do you see 30 percent average annual
 21 discharge --
 22 **A. I do.**
 23 **Q.** -- for unregulated streams?
 24 **A. I do.**
 25 **Q.** And then for regulated streams, a series of
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2240

1 requirements by date, 30 percent, 60 percent,
 2 40 percent?
 3 **A. Yes, I do.**
 4 **Q.** Okay. Now, I would like to move, if I could, to
 5 discussion of another issue that you identified
 6 in your prefiled direct testimony. And it's
 7 Georgia's Comprehensive Statewide Water
 8 Management Plan. And you will find that at tab
 9 28, and it's Joint Exhibit 31.
 10 And here I would invite your attention to
 11 page 38. Now, in Georgia there are a number of
 12 water planning regions; are there not?
 13 **A. That's correct. There are 11.**
 14 **Q.** And there is a particular water planning region
 15 for the Upper Flint. Right?
 16 **A. Yes.**
 17 **Q.** And for the Lower Flint-Ochlockonee?
 18 **A. Yes.**
 19 **Q.** And for the Middle Chattahoochee?
 20 **A. Yes.**
 21 **Q.** And do you see a map of those planning regions at
 22 page 39?
 23 **A. I do.**
 24 **Q.** And Georgia's Environmental Protection Division
 25 was required to review recommended plans from
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2241

1 each of those planning regions and approve or
 2 require changes; is that correct?
 3 **A. That's correct.**
 4 **Q.** Okay. So let's, if we could, look, please, at
 5 U.S. Fish and Wildlife's comments before the
 6 plans were adopted. And you will find that at
 7 tab 29. It's FX-48. Are you with me?
 8 **A. I am.**
 9 **Q.** So this is a June 23, 2011, letter. I presume
 10 you have seen it before?
 11 **A. I have.**
 12 **Q.** Okay. And do you see the first sentence
 13 indicates that this document is providing
 14 comments on the initial draft regional water
 15 plans?
 16 **A. I do.**
 17 **Q.** Okay. And beginning on page 2, there are a list
 18 of general concerns in this U.S. Fish and
 19 Wildlife letter from 2011. And I would invite
 20 your attention to No. 1. Do you see that?
 21 **A. I do.**
 22 **Q.** Do you recall that U.S. Fish and Wildlife was
 23 concerned that the Georgia water planning process
 24 did not adequately protect natural water systems?
 25 **A. I mean, I see that in front of me.**
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2242

1 **Q.** And referring to the last paragraph, is it your
 2 recollection that U.S. Fish and Wildlife was, in
 3 particular, concerned sustained inadequate low
 4 flow may result in long-term changes in fish,
 5 mussel, and other aquatic species distribution
 6 and abundance?
 7 **A. I can see that in front of me as well.**
 8 **Q.** Okay. Then I would ask you to turn with me to
 9 page 7, and I'm focusing now on item 7 on that
 10 page. And there you agree, don't you, that
 11 Georgia's water doctrine is one of reasonable
 12 use. Right?
 13 **A. That's the underlying doctrine in the state, yes.**
 14 **Q.** And that means that water users must not use
 15 water to the extent downstream users cannot also
 16 make reasonable use of that -- of water available
 17 to them; is that right?
 18 **A. I think those are the guiding approaches, yes.**
 19 **Q.** And do you see a little bit farther down that
 20 paragraph a reference to estuary commercial
 21 fishermen being the type of downstream users that
 22 U.S. Fish and Wildlife was particularly concerned
 23 about?
 24 **A. I mean, that's among the list of users, yes.**
 25 **Q.** Okay. Could I invite your attention, please, to
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2243

1 page 9 of this same document.

2 And here I'm interested in the very last

3 paragraph.

4 You know Sandy Tucker; don't you?

5 **A. I do.**

6 **Q.** Do you recall communications with her about this

7 time where she expressed the view written here in

8 this letter that over-allocation of groundwater

9 in the Lower Flint requires immediate attention?

10 **A. I'm sorry. I was reading, I believe, a different**

11 **paragraph than you were trying to point me to.**

12 **What is the paragraph?**

13 **Q.** It's the very last two sentences on page 9.

14 **A. Oh, I was looking at the last full paragraph.**

15 **I'm sorry.**

16 **Okay.**

17 **Q.** And it's the paragraph that refers to immediate

18 attention.

19 **A. I do not recall such communication with her, no.**

20 **Q.** Okay. Let's look at one of the regional water

21 plans, if we could. And I would like to start

22 with the Upper Flint, please. And that's

23 Georgia's Exhibit 1247. It's at tab 30.

24 **A. I'm there.**

25 **Q.** Now, I'm going to ask you an incredibly obvious

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2244

1 question, but I feel compelled to do it. The

2 Upper Flint River flows into the Lower Flint

3 River. Right?

4 **A. That's correct.**

5 **Q.** Okay. And I would like to invite your attention

6 to page 5-1, if I might.

7 Now, Bainbridge is a town in the Lower Flint.

8 Right?

9 **A. That's correct.**

10 **Q.** And it's affected by the Upper Flint?

11 **A. The flow in the Lower Flint River is affected by**

12 **flow in the Upper Flint River; that's correct.**

13 **Q.** And there is a USGS United States Geological

14 Survey, flow gage at Bainbridge. Isn't there?

15 **A. Correct.**

16 **Q.** Okay. Now, you're aware, aren't you, that there

17 is a significant shortfall that modeled results

18 showed for flows at the Bainbridge Gage. Right?

19 **A. There -- the modeled results showed a shortfall**

20 **at the Bainbridge Gage; that's correct.**

21 **Q.** And if you take a look at the second full

22 paragraph on page 5-1, it says, 1200 -- I'm

23 sorry. Have I lost you?

24 **A. I'm not sure exactly where you are. So 5-1,**

25 **surface water availability comparison?**

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2245

1 **Q.** Yes.

2 **A. Okay.**

3 **Q.** Do you see the maximum shortfall for the

4 Bainbridge Gage --

5 **A. Okay.**

6 **Q.** -- calculated with the model was 1,295 cubic feet

7 per second?

8 **A. Yes.**

9 **Q.** And you would agree with me that that's a

10 substantial shortfall at the Bainbridge Gage.

11 Wouldn't you?

12 **A. That was a shortfall that was identified on one**

13 **day in a modeling exercise.**

14 **Q.** It was -- I'm sorry. Please.

15 **A. I was just going to say it was a shortfall**

16 **identified on one day in a modeling exercise that**

17 **had some artificially high demand placed for the**

18 **purposes of this planning exercise. So with**

19 **those caveats, a substantial amount of water.**

20 **Q.** Do you know what the flows were at the Bainbridge

21 Gage in the summer of 2012?

22 **A. Not off the top of my head, no. But this model**

23 **was not intended to replicate what actually**

24 **occurred on the river.**

25 **Q.** Well, let's talk about what actually occurred on

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2246

1 the river for a moment, if we could.

2 That particular 1,295 flow criteria which is

3 the sustainability requirement was based on a

4 particular flow calculated for that day for

5 sustainability purposes of 2,506 cfs. Right?

6 **A. See, I don't understand that question.**

7 **Q.** Okay. I'll tell you what. We'll look at the

8 graph in just a little bit. But if you could

9 turn to the next page for me -- I'm sorry, page

10 5-6.

11 **A. 5-6, okay.**

12 **Q.** And do you see in section 5.4 on that page --

13 **A. Yes.**

14 **Q.** -- in the second bullet there's a reference to a

15 substantial shortfall in meeting EPA's

16 sustainability criteria?

17 **A. Yes. That's the modeled result.**

18 **Q.** Okay. Now, I would like to talk for a little

19 bit, if I can now, about the means that the

20 regional water plan identified to try to remedy

21 that problem. All right?

22 So could you turn with me, please, to page

23 6-6, and table 6-1. Do you see that?

24 **A. I do.**

25 **Q.** Okay. So do you see the item at the top of that

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2247

1 page in the left column that says, high priority
 2 management practice?
 3 **A. I do.**
 4 **Q.** This is listed in September of 2011; isn't it?
 5 **A. That's correct.**
 6 **Q.** Okay. And it relates to storage options in the
 7 Upper Flint, which are essentially the
 8 possibility of reservoirs or cofferdams. Is that
 9 right?
 10 **A. It would be either new reservoirs or utilizing**
 11 **existing reservoirs more effectively.**
 12 **Q.** Okay. Can you see where it says, eliminating the
 13 modeled gap in the first bullet?
 14 **A. Yes.**
 15 **Q.** And it indicates that that would require the
 16 addition of storage to augment supply and flows?
 17 **A. Yes.**
 18 **Q.** And that has not happened; has it?
 19 **A. We have been looking at the potential to use**
 20 **existing reservoirs for flow augmentation.**
 21 **Q.** And if I go down one other -- one further
 22 recommendation, it says, evaluate streamflow
 23 augmentation via direct pumping from aquifers.
 24 Other than the Spring Creek augmentation that
 25 we talked about, that has not happened either?

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2248

1 **A. The evaluation of it has. That's exactly what**
 2 **the Spring Creek project is giving us.**
 3 **Q.** So there is a study. But other than the Spring
 4 Creek augmentation -- and we'll look at a photo
 5 later -- that has not been implemented anywhere
 6 in the Flint Basin?
 7 **A. The study is important for us to understand how**
 8 **this works, both from a biologic and hydrologic**
 9 **standpoint.**
 10 **Q.** Are you familiar with the term comprehensive
 11 plan?
 12 **A. Yes.**
 13 **Q.** Comprehensive study?
 14 **A. Oh, the ACF comprehensive study?**
 15 **Q.** When did that start?
 16 **A. In the '80's.**
 17 **Q.** So that --
 18 **A. I don't know the precise year.**
 19 **Q.** 24, 25 years ago?
 20 **A. Yes. Presumably, yes.**
 21 **Q.** And Georgia is still studying?
 22 **A. It's responsible water management to study the**
 23 **systems and understand the effectiveness,**
 24 **particularly when you're looking at biological**
 25 **response.**

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2249

1 **Q.** And your testimony is, isn't it, that you don't
 2 yet know despite 25 years of study what the
 3 appropriate level of flow is to ensure
 4 appropriate biological response. Right?
 5 **A. I was actually speaking about something**
 6 **different.**
 7 **Q.** Okay.
 8 **A. So we were talking specifically about the**
 9 **management practice here and implementing**
 10 **streamflow augmentation for more narrowly-defined**
 11 **purposes.**
 12 **Q.** Okay. But let me focus on what I was just asking
 13 you, if I might, please. There is no particular
 14 low flow criteria to protect aquatic health at
 15 this time in Georgia; is there?
 16 **A. We have an in-stream flow policy that was adopted**
 17 **for that general purpose. It is a general**
 18 **statewide policy.**
 19 **Q.** Is 7Q10 the appropriate standard that Georgia
 20 implements in almost all places for in-stream
 21 flow protection of aquatic species?
 22 **A. There -- that's a -- the -- what gets implemented**
 23 **in different places depends on the withdrawal;**
 24 **and there are -- there's a different -- there are**
 25 **different approaches to 7Q10. So there is annual**

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2250

1 **7Q10, monthly 7Q10. So it's not a simple answer.**
 2 **Q.** Now, you remember just a bit ago when we talked
 3 about 7Q10 and the Wildlife Resources Division?
 4 **A. Yes.**
 5 **Q.** All right. Okay. Now, there's not currently an
 6 effort to replace surface water withdrawals in
 7 the Flint Basin with groundwater withdrawals.
 8 Right?
 9 **A. It specifies, as you can see on the page in front**
 10 **of you, that management -- that recommendation or**
 11 **management practices applies where feasible. And**
 12 **there is detailed work underway right now by**
 13 **where it's feasible.**
 14 **Q.** So a study is underway. Is that right?
 15 **A. It's a necessary first step to be able to**
 16 **implement that management practice.**
 17 **Q.** Okay. So this recommendation here is from five
 18 years ago?
 19 **A. That's correct.**
 20 **Q.** And this --
 21 **A. This study was -- the scoping of that study was**
 22 **undertaken in 2012. We have had that work under**
 23 **contract initially by -- some of the work was**
 24 **contracted in 2013. We have had pieces of that**
 25 **work underway since. Again, it's -- these are**

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2251

1 **complex systems; and it is -- we're taking**
 2 **responsible steps to understand how to implement**
 3 **these effectively.**
 4 **Q.** By studies?
 5 **A. Getting information is responsible as the first**
 6 **step to do this.**
 7 **Q.** Okay. Might I turn with you to Exhibit 33,
 8 please.
 9 MR. PRIMIS: Tab or exhibit?
 10 MR. PERRY: Yes, tab 33.
 11 **A. Yes, I'm there.**
 12 **Q.** And it's Exhibit FX-285. You have seen this
 13 before. Haven't you?
 14 **A. I have.**
 15 **Q.** And this is issued by American Rivers and Flint
 16 River. Is that correct?
 17 **A. That's correct.**
 18 **Q.** And you know Gordon Rogers; don't you?
 19 **A. I do.**
 20 **Q.** We have just looked at the plan for the Upper
 21 Flint a little bit ago from the Regional Water
 22 Council; and now I would like to look with you,
 23 please, at page 10 of this report. And do you
 24 see the reference to the Flint flows at the fall
 25 line suffering a 70 percent decline in the upper

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2252

1 right-hand paragraph of this report?
 2 **A. I do.**
 3 **Q.** Now, from time to time you have worked with
 4 Mr. Gordon Rogers; haven't you?
 5 **A. I have.**
 6 **Q.** And he's the Flint riverkeeper; is that right?
 7 **A. That's correct.**
 8 **Q.** Has he ever expressed his view to you that EPD is
 9 the problem and not the solution to the Upper
 10 Flint issues?
 11 **A. I don't know if I have heard it put in those**
 12 **terms.**
 13 **Q.** Have you ever attempted to work with him in the
 14 localities on these Upper Flint issues?
 15 **A. We -- the -- as -- after this report was**
 16 **published, American Rivers and Flint riverkeeper**
 17 **convened the water utilities in the basin to talk**
 18 **about next steps. EPD was initially invited to**
 19 **that meeting and then was disinvited.**
 20 **Q.** And you don't recall Mr. Rogers explaining to you
 21 why EPD was disinvited?
 22 **A. It was not Mr. Rogers who was contacting us. It**
 23 **was the American Rivers representative, Ben**
 24 **Emanuel. And he did explain to me why we were**
 25 **disinvited. They felt like it would be a more**

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2253

1 **productive discussion if the agency that**
 2 **regulated the water utilities was not in the**
 3 **room.**
 4 **That group continues to meet to date, and we**
 5 **have spoken with both utilities and Mr. Rogers**
 6 **and Mr. Emanuel about the progress that they're**
 7 **making.**
 8 MR. PERRY: Mr. Walton, could you
 9 please pull up the deposition testimony of
 10 Mr. Rogers on this topic? It's from his
 11 deposition, page 146 to 148.
 12 BY MR. PERRY:
 13 **Q.** I can provide you with the full transcript if you
 14 would like.
 15 **A. That's fine. I mean, I can't see this; so you**
 16 **will have to --**
 17 **Q.** It's on your screen. Can you see your screen?
 18 Now, I'm going to start -- and I'll try to do
 19 it quickly because I don't want to belabor the
 20 point. Following along with this transcript from
 21 page 146, line 23, to 148, line 6, are you with
 22 me in the transcript?
 23 **A. Yes.**
 24 **Q.** Okay. Thank you.
 25 And in particular, I would start on page 147

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2254

1 where the question is, could you describe the
 2 nature of that input?
 3 It's a reference to input from EPD.
 4 Answer. Yes. Back when we originally met
 5 with Linda McGregor, who then worked at EPD, and
 6 Gail Cowie about the work we were getting ready
 7 to do, you remember me referring to that, they
 8 told us very frankly that if changes were going
 9 to occur in the Upper Flint or the Lower Flint,
 10 that that was going to be a bottom-up political
 11 process, meaning that we needed to engage local
 12 stakeholders, whether that be upper or Lower
 13 Flint, and push for change from the bottom up
 14 politically. So we did that and here's the
 15 evidence. We're also doing it in the Lower
 16 Flint, though not in as formal a way. He didn't
 17 stop working from the top down, which means the
 18 Governor's office and the legislature, but we
 19 took their advice and went to work.
 20 And when we began to produce results, EPD
 21 wanted to have a representative at our meeting
 22 almost immediately. We asked the group and they
 23 did not want EPD in the room. They viewed EPD as
 24 the source of the problem.
 25 Now, this goes to be supposing that they all

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2255

1 think that. I'm just talking about the vocal
 2 ones.
 3 Are we talking about your membership now --
 4 that's a question. And the answer is, no. We're
 5 talking about all these stakeholders.
 6 Do you see that?
 7 **A. I do.**
 8 **Q.** Now, has Gordon Rogers, Mr. Rogers, ever
 9 indicated to you that he thinks EPD is
 10 chronically underfunded and incapable of
 11 regulating in the Upper Flint or Lower Flint?
 12 **A. I have heard Mr. Rogers and other colleagues of**
 13 **his publicly state that they think EPD is**
 14 **underfunded.**
 15 **Q.** Okay. Can we go, please, to tab 35. And there
 16 in particular I'm talking about page 3-6 in
 17 Florida Exhibit 24. Now, Dr. Cowie, a moment ago
 18 we talked about a shortfall at Bainbridge of
 19 1,295. And I would invite your attention to the
 20 Bainbridge Gage listed on table 3-1 on this
 21 chart. Are you with me?
 22 **A. Yes.**
 23 **Q.** And do you see a shortfall there of 1,376 cfs?
 24 **A. Yes.**
 25 **Q.** And do you see a flow regime target of 2,506 --
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2256

1 **A. Yes.**
 2 **Q.** -- listed there?
 3 And do you know that at Bainbridge, the flows
 4 were substantially less than that number through
 5 2011 and 2012 in many months?
 6 **A. The flow regime target that is in this table is**
 7 **related to the single day on which that maximum**
 8 **shortfall occurred. It's not specified as a**
 9 **target for the river in any particular day.**
 10 **Q.** There is data, however, specifying every day's
 11 target for the river; is there not?
 12 **A. There is the -- the target that was applied in**
 13 **the modeling exercise. That is correct. And**
 14 **there is data that applies to every day within**
 15 **that modeling exercise, yes.**
 16 **Q.** And is it not true that in 2011 and 2012 for many
 17 months in a row the actual flows were far below
 18 that modeled criteria?
 19 **A. That wouldn't surprise me.**
 20 **Q.** Okay.
 21 **A. It was a severe drought year, so that would be**
 22 **expected.**
 23 **Q.** Has that ever occurred prior to 1990?
 24 **A. Well, the modeled criteria is a monthly 7Q10. By**
 25 **definition, there are periods in which the flow**
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2257

1 **will be below that metric.**
 2 **Q.** The annual 7Q10 that has been calculated is based
 3 on an historical amount of flow. Is it not?
 4 **A. It's based on the historical record, yes.**
 5 **Q.** And that annual 7Q10 is 2,500 cfs; is it not?
 6 **A. I don't know that number. So I'll take your word**
 7 **for it.**
 8 **Q.** Okay. So -- for Bainbridge. So let's, if we
 9 could please, go to tab 37 which is FX-85.
 10 And you did --
 11 **A. I'm there. I'm sorry.**
 12 **Q.** That's fine. Thank you very much.
 13 And FX-85 is an exhibit you recognize. Isn't
 14 it?
 15 **A. Yes.**
 16 **Q.** This was prepared by Mr. Napoleon Caldwell.
 17 Right?
 18 **A. That's correct.**
 19 **Q.** And he is -- he oversees the agricultural
 20 permitting unit within EPD. Doesn't he?
 21 **A. He did formerly. He's retired.**
 22 **Q.** Okay. When I deposed him, he was still an
 23 employee. Right?
 24 **A. I assume so.**
 25 **Q.** Now, I'd like to invite your attention to the
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2258

1 second page where it says Options. You know this
 2 document was prepared in early 2012. Right?
 3 **A. Yes.**
 4 **Q.** And it was prepared for purposes of a discussion
 5 about what to do about the Flint River Drought
 6 Protection Act in 2012. Right?
 7 **A. That's correct.**
 8 **Q.** And it's fair to say, isn't it, that
 9 Mr. Caldwell's advice at that time was, quote, be
 10 forthright. Right?
 11 **A. Mr. Caldwell was not offering advice in this**
 12 **document. He was laying out ideas as part of an**
 13 **initial brainstorming collecting of ideas for**
 14 **consideration -- discussion by staff and**
 15 **consideration by the branch chief leading to a**
 16 **conversation with the director.**
 17 **Q.** Okay. So he was laying out potential advice that
 18 the director be forthright about the results of
 19 the Flint River Drought Protection Act matrix.
 20 Right?
 21 **A. That's one of the pieces of the -- one of the**
 22 **options he's laid out. Correct.**
 23 **Q.** And also be forthright about the lack of
 24 available funds to implement the Flint River
 25 Drought Protection Act. Right?
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2259

1 **A. Correct.**
 2 **Q.** And then he identifies in paragraph 1 that there
 3 are likely other considerations other than being
 4 forthright. Do you remember what those other
 5 considerations were?
 6 **A. I'm not sure he's saying other than being**
 7 **forthright.**
 8 **Q.** Okay. Do you remember --
 9 **A. I don't think that's what that sentence says.**
 10 **Q.** Do you remember any other considerations?
 11 **A. Well, I think what he's saying is there's the**
 12 **drought protection matrix which lays out specific**
 13 **criteria to evaluate; and then there's other**
 14 **factors that may need to be looked at.**
 15 **Q.** What other factors?
 16 **A. Well, I know one other factor that was looked at**
 17 **was a consideration of what may happen going**
 18 **forward with streamflows given how low the**
 19 **groundwater levels already were because we were**
 20 **in the second year of a drought.**
 21 **Q.** 2011 was the first year of that drought?
 22 **A. That is correct.**
 23 **Q.** And in 2011 the Flint River Drought Protection
 24 Act was not -- or at least the irrigation auction
 25 was not triggered; is that right?

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2260

1 **A. That's correct.**
 2 **Q.** All right. So Options, item 2, do you see that
 3 Mr. Caldwell advises that EPD recognize the
 4 implications of current major commodity prices?
 5 Do you see that?
 6 **A. Yes, I do.**
 7 **Q.** And those would be the implications for the
 8 irrigation auction under the Flint River Drought
 9 Protection Act. Right?
 10 **A. That's correct.**
 11 **Q.** Okay. Now, could you turn with me, please, to
 12 tab 38, which is Exhibit FX-536.
 13 **A. I'm there.**
 14 **Q.** And do you see the title there where it says
 15 Wei's Modifications?
 16 **A. I do.**
 17 **Q.** Who is Wei?
 18 **A. Dr. Wei Zeng. He's the head of our hydrology**
 19 **unit.**
 20 **Q.** And this is a draft press release. Is it not?
 21 **A. I'm not sure. I don't recall seeing it before.**
 22 **I may have seen it.**
 23 **Q.** You didn't see this during your deposition?
 24 **A. I don't believe I did. If so, I don't recall it.**
 25 **Q.** Can you turn to the next page? Do you see it

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2261

1 says Kennedy's Modifications?
 2 **A. I do.**
 3 **Q.** And that's Jim Kennedy?
 4 **A. That's correct.**
 5 **Q.** He's the state geologist?
 6 **A. That's correct.**
 7 **Q.** Okay. Let's pause on the Kennedy Modifications
 8 if we might. And I would invite your attention
 9 four paragraphs down to the paragraph that begins
 10 along those tributaries. Do you see that?
 11 **A. I do.**
 12 **Q.** Okay. Could you read that to yourself, please.
 13 **A. I've read it.**
 14 **Q.** And you recall, don't you, that EPD internally
 15 concluded that there would indeed be flow
 16 benefits associated with suspending irrigation in
 17 certain areas of the Flint River Basin. Right?
 18 **A. I actually do not recall that. I was involved in**
 19 **some of the initial conversations. I was --**
 20 **there was a portion of the technical analysis I**
 21 **was not involved in. And then I was involved in**
 22 **some of the discussions with the people in the**
 23 **basin after the decision was made to not to**
 24 **declare a drought. In my involvement, I did**
 25 **not -- do not recall.**

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2262

1 **Q.** And you know where Ichawaynochaway Creek is.
 2 Don't you?
 3 **A. I do.**
 4 **Q.** It's in the Lower Flint Basin?
 5 **A. Yes.**
 6 **Q.** Okay. Now, there's a parenthetical in the middle
 7 of that paragraph. Do you see that?
 8 **A. Yes.**
 9 **Q.** And do you see it refers, towards the end, to
 10 involuntary suspension of Ag water use?
 11 **A. I do.**
 12 **Q.** Do you recall any discussion of that from this
 13 time period?
 14 **A. There was some discussion of that. I know I**
 15 **contributed to that because there was a question**
 16 **about if there was an auction -- so the mechanism**
 17 **in the law is there is an ability to**
 18 **involuntarily suspend irrigation for a portion of**
 19 **permit holders that -- but what's required for**
 20 **that is triggering the auction. There was a**
 21 **question about how many permit holders that would**
 22 **affect.**
 23 **Q.** Okay. And do you see the last sentence of this
 24 paragraph where it indicates that Georgia's
 25 drought protection fund doesn't contain the

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2263

1 financial resources necessary to finance
 2 suspension?
 3 **A. I do.**
 4 **Q.** Yes. And even if an involuntary suspension was
 5 invoked, that would require payment?
 6 **A. It does; correct.**
 7 **Q.** All right. Now, I would like to invite your
 8 attention, please, to tab 39, which is FX-97.
 9 And, Dr. Cowie, were you here when we played the
 10 deposition excerpts from Mr. Wisniewski this
 11 morning?
 12 **A. For part of the time.**
 13 **Q.** And you know Mr. Wisniewski. Don't you?
 14 **A. I do.**
 15 **Q.** Okay. In this particular document, I would like
 16 to invite your attention to the page that is
 17 labeled at the bottom, GA 45746. Do you see
 18 that?
 19 At the top it's No. 3, Ichawaynochaway.
 20 **A. Yes. I see it.**
 21 **Q.** Have you seen this particular page before?
 22 **A. Yes, I have.**
 23 **Q.** And you would agree with me -- you would agree
 24 with me, wouldn't you, that Ichawaynochaway Creek
 25 may be critical to the -- let me rephrase that --

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2264

1 that the flow of Ichawaynochaway Creek may be
 2 critical to the recovery of certain listed
 3 mussels?
 4 **A. Correct. Yes.**
 5 **Q.** Now --
 6 MR. PRIMIS: I'm sorry, Mr. Perry. I
 7 may just not have the right document. Is it
 8 FX-97 that you're in?
 9 Okay. I might have different Bates
 10 numbers. Where are you looking? I'm sorry.
 11 MR. PERRY: Your Honor, if I may have a
 12 moment to help counsel find the document.
 13 SPECIAL MASTER LANCASTER: Sure.
 14 MR. PERRY: I've resolved the issue.
 15 BY MR. PERRY:
 16 **Q.** And so, Dr. Cowie, I invite your attention now to
 17 JX-69, which is at tab 40.
 18 **A. I'm sorry. Tab what? I'm sorry.**
 19 **Q.** Four-zero.
 20 Now, I would like you to look through this
 21 page, this press release, at tab 40 and see if
 22 you find any reference to Ichawaynochaway Creek.
 23 **A. The -- there is not a specific reference to**
 24 **Ichawaynochaway Creek. It's a general press**
 25 **release about conditions in the basin.**

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2265

1 **Q.** It's a press release about deciding not to invoke
 2 the Flint River Drought Protection Act auction in
 3 2012. Isn't it?
 4 **A. To not declare a severe drought, correct. And it**
 5 **describes conditions in the basin in relation to**
 6 **that decision.**
 7 **Q.** And there was a decision made not to invoke the
 8 act with respect to Ichawaynochaway Creek.
 9 Right?
 10 **A. Well, it applies -- the decision applies to the**
 11 **whole basin, so yes, because Ichawaynochaway**
 12 **Creek is in the basin, yes.**
 13 **Q.** Okay. Do you see the third paragraph there where
 14 there's a reference to no funds currently
 15 appropriated for the Flint River Basin?
 16 **A. I do.**
 17 **Q.** Okay. And do you see at the bottom paragraph of
 18 the press release it says, there's no doubt we
 19 need a viable management tool, quoting former
 20 Director Turner?
 21 **A. I do.**
 22 **Q.** Okay. And it's your view at this time when this
 23 press release was issued that there was no viable
 24 management tool to manage drought in the Flint
 25 River Basin?

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2266

1 **A. It's my view that the drought conditions in 2012**
 2 **gave us new information about the way in which --**
 3 **ways in which the tools we had did not work and**
 4 **that that new information pointed us in**
 5 **directions of improvements that were needed and**
 6 **that we have been working on those since then.**
 7 **Q.** How long had you known before 2012 that there
 8 were no appropriated funds to conduct an
 9 irrigation auction?
 10 **A. The -- I mean, I can't answer that because I**
 11 **don't have that direct engagement with the**
 12 **funding. But that's not the new information I**
 13 **was referencing. It was the hydrologic**
 14 **conditions in the basin and the -- the effect of**
 15 **the multi-year droughts.**
 16 **Q.** Can you turn with me, please, to tab 41 where we
 17 can look at what happened in Ichawaynochaway
 18 Creek after the Flint River Drought Protection
 19 Act was not implemented.
 20 **A. I'm there.**
 21 **Q.** Okay. And do you see in the -- near the top
 22 there is a reference to proceedings of the 2015
 23 Georgia Water Resources Conference?
 24 **A. I do.**
 25 **Q.** Okay. Did you attend that?

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2267

1 **A. I did.**
 2 **Q.** All right. Now, do you know Mr. McCormick and
 3 Ms. Baron?
 4 **A. I know Mr. McCormick.**
 5 **Q.** Now, I would invite your attention here to a
 6 couple photographs on page 3 of Ichawaynochaway
 7 Creek.
 8 MR. PERRY: And, Mr. Walton, might you
 9 put those up on the screen.
 10 BY MR. PERRY:
 11 **Q.** The photographs are enlarged -- there you go.
 12 Now, you're aware, aren't you, that the
 13 historic pre-irrigation flows for November of --
 14 pardon me -- the historic pre-irrigation flows on
 15 Ichawaynochaway Creek were quite a bit higher
 16 than what we saw in July of 2012. Is that right?
 17 **A. Yes. There's a -- depending on how**
 18 **pre-irrigation is defined, that post-irrigation**
 19 **period includes more frequent and to some extent**
 20 **more severe droughts. So you see that effect as**
 21 **well.**
 22 **Q.** In particular, in 2012 after the Flint River
 23 Drought Protection Act was not implemented for
 24 Ichawaynochaway Creek. Right?
 25 **A. I'm not sure what the question is, sir.**

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2268

1 **Q.** Okay. Let me ask it again.
 2 There were particularly low flows, were there
 3 not, in the summer of 2012 after the Flint River
 4 Drought Protection Act was not invoked for
 5 Ichawaynochaway Creek?
 6 **A. That is correct.**
 7 **Q.** All right. And could you please direct your
 8 attention to page 3 where it says Conclusions and
 9 Future Work. And if you could, please read the
 10 top two bullets in that section.
 11 **A. I have read them.**
 12 **Q.** Now, you would agree, wouldn't you, that
 13 increased agricultural water demand has caused a
 14 20-fold reduction in the flows of Ichawaynochaway
 15 Creek from the pre-irrigation era?
 16 **A. That goes to the point I just made that there's**
 17 **the influence of more frequent dry and drought**
 18 **years in the -- what this paper would term the**
 19 **post-irrigation era. So you have both factors**
 20 **affecting those flows.**
 21 **Q.** You agree with me, don't you, that agricultural
 22 pumping for irrigation purposes has exacerbated
 23 the impact of drought in recent years?
 24 **A. Yes.**
 25 **Q.** Okay. Now, continuing to look at the effect on

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2269

1 the endangered mussels of not invoking the Flint
 2 River Drought Protection Act in 2012, I would
 3 invite your attention to tab 43. And there we
 4 have Florida Exhibit 51, another study. And in
 5 particular I would invite your attention to
 6 page 4. Let me start with the Conclusion
 7 section.
 8 Are you with me, Dr. Cowie?
 9 **A. Yes, I am.**
 10 **Q.** Do you see where it says, the minimum one-day
 11 flow of record on Ichawaynochaway Creek was in
 12 July of 2012?
 13 **A. I do.**
 14 **Q.** All right. And can you see the chart on the
 15 upper right side of the page for mussel
 16 abundance?
 17 **A. I do.**
 18 **Q.** All right. And that has -- that reflects both
 19 Spring and Ichawaynochaway Creeks; doesn't it?
 20 **A. Yes.**
 21 **Q.** Have you seen data about the impacts of low flows
 22 in Ichawaynochaway Creek on the critical
 23 population of endangered mussels there?
 24 **A. Not before this, no.**
 25 **Q.** Okay.

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2270

1 MR. PERRY: Your Honor, it's about eight
 2 minutes to noon, and I've got maybe 20
 3 minutes left. I'm happy to continue, or we
 4 can do it after lunch.
 5 SPECIAL MASTER LANCASTER: We'll recess.
 6 (Time Noted: 11:51 a.m.)
 7 (Recess Called)
 8 (Time Noted: 12:58 a.m.)
 9 MR. PERRY: Good afternoon, your Honor.
 10 SPECIAL MASTER LANCASTER: Good
 11 afternoon, Mr. Perry.
 12 BY MR. PERRY:
 13 **Q.** Good afternoon, Dr. Cowie.
 14 **A. Good afternoon.**
 15 **Q.** Dr. Cowie, if you could turn to tab 45 of your
 16 binder, and there find Joint Exhibit 154, please.
 17 **A. Yes.**
 18 **Q.** Okay. This is a document you created. Correct?
 19 **A. That's correct.**
 20 **Q.** And it's a meeting summary from what's called a
 21 stakeholder meeting. Is that right?
 22 **A. That's right.**
 23 **Q.** And this meeting involved both people from the
 24 Georgia Environmental Protection Division and a
 25 number of people from southwest Georgia.

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2271

1 Correct?

2 **A. That's correct.**

3 **Q.** And you attended this meeting; didn't you?

4 **A. Yes. And there were people from other parts of**

5 **the state as well.**

6 **Q.** And Director Turner attended the meeting, too.

7 Right?

8 **A. That's correct.**

9 **Q.** And Cliff Lewis from EPD attended the meeting.

10 Right?

11 **A. That is correct.**

12 **Q.** Okay. Could I invite your attention, please, to

13 the bottom of the first page. And there you

14 write, Florida's equitable apportionment

15 action -- do you see that clause?

16 **A. Uh-huh.**

17 **Q.** -- can be a challenge and can seem overwhelming.

18 You wrote those words; didn't you?

19 **A. They were a summary of some of the statements**

20 **Director Turner made at the meeting.**

21 **Q.** And in the next sentence it's accurately

22 depicting the fact that Director Turner

23 emphasized the importance of taking steps today

24 rather than freezing to see what happens to

25 address issues in the Flint River Basin.

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2272

1 Correct?

2 **A. That's correct.**

3 **Q.** Now, if you could move down that second page of

4 Exhibit JX-154 with me. Do you see where it

5 says, EPD's initial analysis, there?

6 **A. Yes.**

7 **Q.** Okay. And then there's a list of potential

8 measures that Georgia could take to address low

9 flows in the Flint River Basin during drought

10 years. Right?

11 **A. That's correct.**

12 **Q.** Some of them actually apply beyond drought years.

13 Right?

14 **A. Yeah. I mean, you can think about them as what's**

15 **called drought mitigation. So you take steps in**

16 **advance to decrease drought impacts.**

17 **Q.** So the first one is transferring water users to

18 deeper aquifers. That would, I take it, mean

19 that people in certain parts of the Lower Flint

20 would no longer be drawing water from the Upper

21 Floridan Aquifer. Is that correct?

22 **A. Yes, surface water or Floridan Aquifer users.**

23 **Q.** Okay. That's fair. I should have mentioned that

24 would transfer potential surface water

25 withdrawals from the river itself potentially to

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2273

1 deeper aquifers that wouldn't have an immediate

2 impact on the rivers. Is that right?

3 **A. Rivers or streams, correct.**

4 **Q.** Okay. And augmenting streamflow from groundwater

5 would have a similar effect; wouldn't it?

6 **A. It would be intended to support low flows during**

7 **droughts. So in that sense, yes, it would have a**

8 **similar effect.**

9 **Q.** And there you would be drilling down to deeper

10 aquifers and not the Upper Floridan Aquifer that

11 impacts the Flint and its tributaries?

12 **A. That would be the preferred approach, yes.**

13 **Q.** Okay. Now, aquifer storage and recovery is a

14 method for creating essentially underground

15 reservoirs. Right?

16 **A. That's probably not the way I would describe it.**

17 **I think some people probably describe it that**

18 **way. It's an approach of taking water during**

19 **drier periods and storing it or injecting it into**

20 **aquifers for use -- I'm sorry. Taking water**

21 **during wetter periods, storing it, injecting it**

22 **in aquifers for storage for use in drier periods.**

23 **Q.** Okay. So supplementing flows in dry periods with

24 water that was excess or not needed during wet

25 periods; is that right?

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2274

1 **A. It could be used to supplement flows. It could**

2 **be used for other purposes as well.**

3 **Q.** Now, acquiring easements for permanent removal

4 from irrigation, that's buying out permanently

5 irrigation rights; isn't it?

6 **A. So we don't have irrigation rights in that sense**

7 **in Georgia. It would be people either getting**

8 **tax benefits or direct payment for any ante-legal**

9 **agreement to either take their land out of**

10 **agricultural production entirely or take their**

11 **land out of irrigated production.**

12 **Q.** And that's something that Georgia is actively

13 considering to address Flint River low flow

14 issues; is that correct?

15 **A. That is correct.**

16 **Q.** Now, temporary removal of land from irrigation is

17 what the Flint River Drought Protection Act would

18 have done. Right?

19 **A. That's correct.**

20 **Q.** Now, none of these things that I have just

21 mentioned have been implemented. Have they?

22 **A. Well, we're -- as I referenced earlier, we're**

23 **undertaking the technical studies that are the**

24 **essential first steps for the transferring water**

25 **users to deeper aquifers and for using those**

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2275

1 **deeper aquifers for the other purposes there**
 2 **augmenting streamflow.**
 3 **Q.** Now, in your deposition you told me, didn't you,
 4 that a number of those technical studies would
 5 have been complete by this summer.
 6 **A. That was our target date. There were a couple of**
 7 **reasons why we were unable to meet that target**
 8 **date.**
 9 **Q.** Okay. Now, can I invite your attention back to
 10 the first page of this same meeting summary.
 11 And there at the bottom of the page there's a
 12 reference to Director Turner. Do you see that?
 13 **A. A couple -- yes.**
 14 **Q.** It's the last paragraph.
 15 **A. Okay.**
 16 **Q.** And then there's a reference to amendments to the
 17 Flint River Drought Protection Act. Do you see
 18 that?
 19 **A. I do.**
 20 **Q.** And do you see it says, he, Director Turner,
 21 described the 2014 amendments to the Drought
 22 Protection Act as modest steps?
 23 **A. I do.**
 24 **Q.** You agree with that; don't you?
 25 **A. Yes.**

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2276

1 **Q.** So let's turn, if we could, to the 2014
 2 amendments to the Flint River Drought Protection
 3 Act, which you will find at tab 46, which is
 4 JX-105, Joint Exhibit 105.
 5 Now, I just want to make clear, this is
 6 Senate Bill 213. Right?
 7 **A. Yes.**
 8 **Q.** And that's -- these are the amendments to the
 9 Flint River Drought Protection Act in 2014.
 10 Right?
 11 **A. That's correct.**
 12 **Q.** Okay. Can you turn with me, please, in JX-105 to
 13 page 3, and in particular section 4 of the Flint
 14 River Drought Protection Act. And I'm looking
 15 specifically at page 3, section 4(a) there. Do
 16 you see where it says, on or before March 1 of
 17 each year the Division may issue?
 18 **A. I do.**
 19 **Q.** And that was a change from will issue?
 20 **A. That's correct.**
 21 **Q.** So this has become discretionary in 2014 rather
 22 than mandatory. Right?
 23 **A. That's correct. That -- that's the learning from**
 24 **the 2012 drought that this tool was not**
 25 **appropriate under all hydrologic conditions in**

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2277

1 **the basin.**
 2 **Q.** Now, let me just ask. I have not seen any press
 3 release in 2015 or 2016 evaluating whether or not
 4 to invoke the Flint River Drought Protection Act.
 5 Was any such evaluation done in either of those
 6 years?
 7 **A. The conditions in the basin were evaluated, yes.**
 8 **Q.** So there was an evaluation as there was in 2011
 9 and 2012 and the like?
 10 **A. There was an evaluation of conditions in the**
 11 **basin. I am not aware of whether there was a**
 12 **documented application of the matrix or not in**
 13 **the same manner.**
 14 **Q.** And has the matrix changed since 2011 and 2012?
 15 **A. The matrix has not changed, no.**
 16 **Q.** And isn't it true that the state geologist, Jim
 17 Kennedy, suggested that the matrix be changed in
 18 2011?
 19 **A. Jim Kennedy developed a groundwater-based**
 20 **methodology and suggested that that might be an**
 21 **alternative.**
 22 **Q.** Okay. Now, if you could look with me, please, in
 23 section 4(b) on page 3 of Joint Exhibit 105; and
 24 it reads, quote, if severe drought conditions are
 25 predicted or otherwise declared, the Division may

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2278

1 determine the total number of acres to be subject
 2 to an irrigation auction.
 3 Do you see that?
 4 **A. I do.**
 5 **Q.** And there again, the word will has been stricken
 6 and replaced with may. Right?
 7 **A. That's correct.**
 8 **Q.** All right. Now, I would like to invite your
 9 attention to tab 48, please. And there you see
 10 an e-mail from Cliff Lewis to you?
 11 **A. I do.**
 12 **Q.** And that was attaching Cliff Lewis's notes from
 13 the same November 21, 2014, meeting that was the
 14 subject matter of JX-154 at tab 45. Is that
 15 right?
 16 **A. Yes.**
 17 **Q.** And you asked him for these notes to aid you in
 18 preparing your summary of the meeting. Didn't
 19 you?
 20 **A. That's correct.**
 21 **Q.** And he attended the meeting. Right?
 22 **A. That's correct.**
 23 **Q.** Okay. Can you turn -- this is tab 48, FX-69a.
 24 And I would like to invite your attention to the
 25 bottom of the first page under the heading

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2279

1 Drought Protection in the Flint EPD Actions. Do
 2 you see that?
 3 **A. I do.**
 4 **Q.** Now, Mr. Lewis is with the agricultural
 5 permitting unit at EPD. Right?
 6 **A. That's correct.**
 7 **Q.** And he writes, quote, we have to manage our house
 8 together or a federal judge will do it for us,
 9 unquote. Do you remember that statement at the
 10 meeting?
 11 **A. I see it in the notes here. I don't have a**
 12 **specific recall of it.**
 13 **Q.** Okay. Can you turn with me on FX-69a to the page
 14 that's numbered on the bottom GA 291505. Are you
 15 with me?
 16 **A. Yes. I'm sorry.**
 17 **Q.** Okay. Do you see the heading there Funding?
 18 **A. Yes.**
 19 **Q.** That was a discussion of how to fund potential
 20 actions to improve low flows in the Lower Flint
 21 Basin?
 22 **A. It was a discussion about how those actions might**
 23 **be funded, yes.**
 24 **Q.** And do you know Doug Wilson?
 25 **A. Yes.**

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2280

1 **Q.** Doug Wilson is affiliated with the policy
 2 center --
 3 **A. The Georgia Water Planning and Policy Center at**
 4 **Albany State University.**
 5 **Q.** And do you recall Doug Wilson at this meeting
 6 with EPD and stakeholders saying, quote, realize
 7 it will be a big number. We've been blessed and
 8 other states spent far more money than we have
 9 to. We may have to, quote, afford it, unquote,
 10 in the future.
 11 **A. I don't remember him using those exact words. I**
 12 **do remember him making a statement to the effect**
 13 **of we have a resource here that's been beneficial**
 14 **to us. We haven't had to spend a lot of money on**
 15 **it in the past. We may have to spend money in**
 16 **the future.**
 17 **Q.** Now, can you look with me to the prior page,
 18 which is GA 291504 of FX -- Florida Exhibit --
 19 69a, please.
 20 **A. Yes.**
 21 **Q.** And there you see the name Mike Newberry about
 22 three lines down?
 23 **A. Yes.**
 24 **Q.** Now, in the second line it reads, quote, Spring
 25 Creek has been augmented (Band-Aid).

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2281

1 Do you see that?
 2 **A. Yes.**
 3 **Q.** Do you recall Mr. Newberry making that comment?
 4 **A. I don't specifically. Again, I see it on the**
 5 **page. I don't recall him specifically making**
 6 **that comment.**
 7 **Q.** All right. Can you turn with me, please, to
 8 tab 51 and Florida Exhibit 55.
 9 **A. I'm there.**
 10 **Q.** Okay. First, let's look and see what the Spring
 11 Creek augmentation project looks like. And I
 12 would invite your attention in Florida Exhibit 55
 13 to GA 946289. It's a picture titled Spring Creek
 14 Augmentation Project. Are you with me?
 15 **A. Yes.**
 16 **Q.** Is that the Spring Creek Augmentation Project?
 17 **A. That's the pipe that delivers the water to the**
 18 **stream. There are two wells associated with it**
 19 **and about 800 feet or probably 700 feet of hose**
 20 **that runs to that pipe.**
 21 **Q.** Okay. Now, could you turn, please, to the second
 22 page of FX-55, which is GA 946279, please.
 23 **A. I'm there.**
 24 **Q.** I'm interested in particular in the last
 25 paragraph in the first bullet there.

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2282

1 **A. The paragraph at the top of the page, sir? I'm**
 2 **sorry.**
 3 **Q.** I'm sorry. It's the last paragraph on the page.
 4 We're almost done, so I'm trying to hurry through
 5 here.
 6 **A. The Spring Creek augmentation paragraph?**
 7 **Q.** It says, the counsel received a briefing.
 8 **A. Oh, okay. I'm with you. I'm sorry.**
 9 **Q.** Yes, my fault. So do you see the first bullet,
 10 Flint River Drought Protection Act?
 11 **A. Yes.**
 12 **Q.** And do you see Mark Masters listed there?
 13 **A. I do.**
 14 **Q.** You know Mark Masters; don't you?
 15 **A. I do.**
 16 **Q.** He's going to testify in this case in roughly a
 17 week from now.
 18 All right. Now, Mark Masters was on the
 19 Regional Water Council that did the Lower
 20 Flint-Ochlockonee Plan. Right?
 21 **A. Mark was staff who assisted in the development of**
 22 **that plan.**
 23 **Q.** Okay. And then if you look at the second
 24 sentence there, it reads, he also reminded them
 25 that voluntary implementation of the Act as a way

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2283

1 to mitigate low streamflows was a central
 2 management practice in their adopted plan.
 3 Do you recall that statement from Mark
 4 Masters?
 5 **A. I don't recall it. I can see it on the page**
 6 **here.**
 7 **Q.** Okay. Now, if we could please turn to Exhibit --
 8 pardon me -- tab 54, which is Exhibit FX-880.
 9 Now, were you the editor of this document?
 10 **A. I was.**
 11 **Q.** What year was that?
 12 **A. I believe it was 2000.**
 13 **Q.** Okay.
 14 **A. 2002.**
 15 **Q.** Now, I would like to invite your attention, if I
 16 might, to page 24 of this document.
 17 **A. I'm there.**
 18 **Q.** Okay. Do you see figure 9?
 19 **A. I do.**
 20 **Q.** Identifying, quotes, practicable cost
 21 alternatives with minimal environmental impact?
 22 **A. Yes.**
 23 **Q.** Now, this is in a section called Evaluation of
 24 Water Supply Alternatives. Right?
 25 **A. Yes.**

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2284

1 **Q.** All right. Now, I would like to ask you about
 2 the next to last paragraph on this page and, in
 3 particular, the last sentence of that next to
 4 last paragraph where it refers to, quote,
 5 practicable cost. Tell me when you've found
 6 that.
 7 **A. I see it.**
 8 **Q.** All right. Now, do you see the figure \$3.5
 9 million for each million gallons of water per
 10 day?
 11 **A. I do.**
 12 **Q.** Did you write that?
 13 **A. No. I didn't write any of these sections.**
 14 **Q.** You were the editor?
 15 **A. I edited; that's correct.**
 16 **Q.** But that \$3.5 million per million gallons a day
 17 was a number meant to apply to practicable cost
 18 in Georgia for saving that much water?
 19 **A. Yes, apparently. I would have to review this in**
 20 **a little more detail to -- it's been some number**
 21 **of years. So just looking at the one sentence**
 22 **without reading the full context, I can't really**
 23 **say.**
 24 **Q.** Okay. Do you know that in this case Florida has
 25 identified in its expert opinions a number of

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2285

1 solutions for low flows throughout the Flint
 2 Basin and elsewhere that would cost substantially
 3 less than 3.5 million for each millions of
 4 gallons of water per day?
 5 **A. I have seen some of those reports, yes.**
 6 **Q.** Okay. Now, earlier today we talked about
 7 Dr. Golladay and Mr. Hicks when we talked about
 8 the technical advisory committee to the 2006
 9 plan. Do you remember that?
 10 **A. Yes.**
 11 **Q.** All right. And I was going to show you a
 12 PowerPoint, which I didn't at that time have; but
 13 I now have it.
 14 MR. PERRY: So, your Honor, if I might
 15 bring it up.
 16 **A. Thank you.**
 17 **Q.** I believe, Dr. Cowie, you testified that you
 18 attended the 2013 Georgia Water Conference where
 19 this was presented. Is that right?
 20 **A. I did attend the conference, yes.**
 21 **Q.** Do you have any memory sitting through this
 22 PowerPoint presentation today?
 23 **A. I do not.**
 24 **Q.** Are you aware that this PowerPoint presentation
 25 includes slides that parallel the analysis by

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2286

1 Dr. Hornberger, Florida's -- one of Florida's
 2 hydrologists in this case?
 3 **A. I'm not aware of that, no.**
 4 **Q.** Okay. Just one more moment on the 2014 meeting
 5 that you address your meeting summary of.
 6 **A. Yes.**
 7 **Q.** Do you recall a presentation at that meeting by
 8 Mr. Hicks?
 9 **A. I recall that Mr. Hicks made a presentation, yes.**
 10 **Q.** And he made it through a series of PowerPoint
 11 slides. Is that right?
 12 **A. He did, yes.**
 13 **Q.** All right. Can you turn with me to tab 47 where
 14 you will find FX-49b.
 15 **A. I'm there.**
 16 **Q.** Do you recall sitting through this presentation
 17 during the November 2014 meeting with
 18 stakeholders?
 19 **A. I recall seeing Mr. Hicks's presentation at that**
 20 **meeting, yes.**
 21 MR. PERRY: Okay. Nothing further at
 22 this time, your Honor.
 23 SPECIAL MASTER LANCASTER: Thank you.
 24 MR. PRIMIS: Just a minute to get set
 25 up, your Honor. I have to return some of

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2287

1 Mr. Perry's belongings.
 2 May I proceed?
 3 SPECIAL MASTER LANCASTER: Please.
 4 MR. PRIMIS: Thank you.
 5 REDIRECT EXAMINATION
 6 BY MR. PRIMIS:
 7 **Q.** Good afternoon, Dr. Cowie.
 8 **A. Good afternoon.**
 9 **Q.** Dr. Cowie, I want to follow up on some of the
 10 issues that Mr. Perry asked you about. But
 11 before I do, I just want to make sure the Court
 12 understands your own personal background. So
 13 could you briefly describe your educational
 14 experience for the Court.
 15 **A. Yes. I have a Bachelor's in Biology from Wells**
 16 **College. I have a Master's in Zoology from the**
 17 **University of Georgia, and I have a Doctorate in**
 18 **Public Administration also from the University of**
 19 **Georgia.**
 20 SPECIAL MASTER LANCASTER: Thank you.
 21 BY MR. PRIMIS:
 22 **Q.** And just to make sure we know where you fit in,
 23 what is your position at EPD, and what are your
 24 responsibilities?
 25 **A. I'm the assistant branch chief of the watershed**
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2288

1 **protection branch at EPD. I'm responsible for**
 2 **coordinating our nonroutine water-related**
 3 **programs in the river basins in the northern and**
 4 **western half of the state. I also have**
 5 **significant responsibility for coordinating and**
 6 **supporting our statewide water planning**
 7 **activities.**
 8 **Q.** Dr. Cowie, I want to turn to the Flint River
 9 Basin Regional Water Development and Conservation
 10 Plan that you discussed with Mr. Perry. Okay?
 11 **A. Yes.**
 12 **Q.** And is that sometimes called the 2006 plan?
 13 **A. Yes, it is.**
 14 **Q.** Or the 2006 Flint River Plan?
 15 **A. Yes.**
 16 **Q.** Okay. There's been a lot of discussion of that
 17 plan in this case; but I'm not sure the full
 18 picture about that plan has come out. So I would
 19 like you to provide some additional information
 20 to the Court about that document.
 21 First, why did EPD -- and that's Georgia's
 22 Environmental Protection Division -- why did it
 23 create the 2006 plan?
 24 **A. The 2006 plan was undertaken in response to the**
 25 **1999 moratorium on agricultural water withdrawal**
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2289

1 **permitting in the Flint Basin. The drivers**
 2 **behind that were the droughts that had been**
 3 **experienced preceding that and increase in**
 4 **irrigation use in the basin and some scientific**
 5 **studies that came out in the mid-'90's that**
 6 **provided new information about the effects of**
 7 **irrigation use on the water resources in the**
 8 **basin. That suite of drivers was the impetus to**
 9 **creating the 2006 plan.**
 10 **That plan was based on seven years of**
 11 **scientific study, a -- an extensive set of**
 12 **technical modeling, surface water and groundwater**
 13 **modeling, and the input of the scientific and**
 14 **technical advisory committees.**
 15 **Q.** Dr. Cowie, I just want to make sure we linked up
 16 connections because it's been some time since
 17 Mr. Reheis -- Director Reheis was here. But you
 18 mentioned the 1999 moratorium. That was Director
 19 Reheis's decision?
 20 **A. Yes.**
 21 **Q.** And then he had mentioned something called the
 22 sound science initiative. Can you tie that into
 23 what's going on here with the 2006 plan?
 24 **A. Yes. So the sound science initiative is that**
 25 **seven years of studies that I referred to and**
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2290

1 **then the technical modeling that was done. So**
 2 **it's a combination of both collecting additional**
 3 **information on agricultural water use to fill one**
 4 **of the big question marks from the prior studies**
 5 **and then -- so collection of information on**
 6 **agricultural water use, the response of the**
 7 **resources to that water use, and then modeling to**
 8 **evaluate how that might look in the future.**
 9 **Q.** Dr. Cowie, did EPD lift the moratorium from 1999
 10 in that 2006 plan?
 11 **A. Yes. That decision to lift the moratorium was**
 12 **based on the results of those studies as**
 13 **documented and summarized in that 200-page plan.**
 14 **It lays out the way in which additional**
 15 **permitting would be done in the basin, the**
 16 **restrictions that would be applied to that**
 17 **permitting that was put on top of the provisions**
 18 **that were already in place.**
 19 **Q.** Now, Dr. Cowie, I don't recall if Mr. Perry did
 20 so with you. But with other witnesses certainly
 21 and with Mr. Reheis, he's read passages from that
 22 2006 plan that recognize a connection between
 23 groundwater pumping and streamflows. Are you
 24 familiar with those passages?
 25 **A. Yes.**
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2291

1 Q. And does Georgia take the position that

2 groundwater pumping has no impact or no potential

3 impact on streamflow?

4 A. **No. The plan does document and track some of**

5 **those impacts and then provides for, as I said,**

6 **permitting restrictions to address those in the**

7 **basin in the permitting going forward.**

8 Q. Well, that was my next question. In light of

9 what EPD learned through the studies and the

10 technical work, why was the Division comfortable

11 reopening permitting in 2006 if it had been

12 learned that there can be impacts on streamflow

13 from pumping?

14 A. **So one of the results was to identify the range**

15 **of sensitivity in the watersheds in the basin to**

16 **those pumping impacts. So depending on where**

17 **pumping occurs and some of the characteristics in**

18 **those different watersheds, the effect of that**

19 **groundwater withdrawal on the stream may be**

20 **larger or smaller. So the plan categorizes those**

21 **watersheds into three different categories based**

22 **on that sensitivity.**

23 Q. Okay. Now, I want to ask you about those three

24 categories; but before I do, I just want to make

25 sure I understand what you just said and see if

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2292

1 you can tell me. Are you saying that different

2 pumps in different locations can have different

3 impacts on the streamflow?

4 A. **Yes.**

5 Q. And are some greater and some lesser depending on

6 where that pump happens to be?

7 A. **Yes.**

8 Q. Okay. Now, can you describe the zones that were

9 set up as part of this permitting process and

10 explain the significance of those zones for the

11 Court, please.

12 A. **Yes. So the watersheds were put into three**

13 **categories. One is -- the first and most**

14 **sensitive category is called the capacity use**

15 **areas. Those are colored red on the maps in the**

16 **plan, so they're all called red zones.**

17 Q. Let me pause for one second because I know the

18 Court likes to know where the document addresses

19 that. And so --

20 A. **It helps me, too.**

21 Q. -- I don't want you to read the whole document.

22 We're way past that in this case. But can you

23 just turn to page 23 of tab 17, which is JX-21.

24 MR. PRIMIS: And, your Honor, that's

25 where you will find the passage she's going

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2293

1 to describe right now.

2 A. **And the maps I'm referencing actually start on**

3 **the following page, so that you can see the**

4 **categorization there.**

5 **So that as I said, the --**

6 Q. Wait a minute.

7 MR. PRIMIS: Your Honor, are you there?

8 BY MR. PRIMIS:

9 Q. Okay. Please proceed, Dr. Cowie.

10 A. **The most sensitive of watersheds are identified**

11 **as capacity use areas. In those areas**

12 **permitting -- new permits were no longer allowed**

13 **except for those permits that were already**

14 **in-house and in the so-called backlog permits or**

15 **those permits that straddled the boundary into**

16 **the other less sensitive. So farms that were on**

17 **the boundary area, there were some allowed there.**

18 **So that's how the most sensitive watersheds,**

19 **those red ones, were handled.**

20 **The yellow watersheds, the next most**

21 **sensitive, new permits there required four**

22 **specific irrigation efficiency technologies be**

23 **applied to make sure that the water was used**

24 **efficiently. And then the green watersheds,**

25 **which were identified as the least sensitive,**

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2294

1 **required two of those irrigation efficiency**

2 **technologies.**

3 Q. Dr. Cowie, with this new regulatory and

4 permitting regime that was adopted in 2006, were

5 you comfortable with the EPD issuing new permits

6 in the basin?

7 A. **The permitting since that time has followed those**

8 **provisions plus some other ones in the plan that**

9 **also include limiting permits based on**

10 **proximity -- restricting permits, actually not**

11 **allowing permits, based on proximity to streams,**

12 **springs, and other wells. And so the permitting**

13 **has been done under those since then.**

14 Q. And, again, just to be clear, the red zone was

15 the most sensitive and the most restrictive; is

16 that right --

17 A. **Yes.**

18 Q. -- in terms of new permits?

19 A. **Yes.**

20 Q. And then yellow and green, progressively less so

21 as the sensitivity declined?

22 A. **That's correct.**

23 Q. Thank you, Dr. Cowie.

24 I would now like to ask you about one of the

25 other provisions of the 2006 plan that Mr. Perry

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2295

1 asked you about. And he showed you some gage
 2 data and talked about the average annual
 3 discharge measurement. Do you recall that?
 4 **A. I do.**
 5 **Q.** I will confess I found that to be very
 6 complicated when I first was introduced to this
 7 case. In plain language, English, can you
 8 explain to the Court what that discussion you
 9 were having was about?
 10 **A. Yes. So in terms of what it means in the '06**
 11 **plan, as I said earlier, there are low flow**
 12 **protection provisions in the water withdrawal**
 13 **permits. Those mean that when the flow drops**
 14 **below that level, that individual withdrawer**
 15 **needs to stop withdrawing so that flow can pass.**
 16 **What the '06 plan did is it said in two of the**
 17 **sub-basins, the Spring Creek and the**
 18 **Ichawaynochaway sub-basin, which were identified**
 19 **to be the most sensitive in this basin plan, that**
 20 **that low flow protection criteria would be raised**
 21 **so that a larger volume of flow would need to be**
 22 **passed by any new permit holder after 2006.**
 23 **Q.** Now, Dr. Cowie, I think there was a bit of a
 24 debate between you and Mr. Perry as to what it
 25 means to violate this 25 percent average annual

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2296

1 discharge. And can you just explain for the
 2 Court what your understanding -- based on the '06
 3 plan, what, if anything, is actually violated?
 4 **A. Well, what is violated is if that individual**
 5 **withdrawer does not stop withdrawing when the**
 6 **flow is below that, the fact that the flow drops**
 7 **below that is not in and of itself a violation.**
 8 **You actually expect that to happen because**
 9 **there's a distribution of flows. It's like when**
 10 **you have an average, you expect flows to be below**
 11 **average. This is a portion of the average. So**
 12 **some flows are going to be below that.**
 13 **Q.** And just to be clear, is -- is it a violation of
 14 state law of Georgia if a flow goes below 25
 15 percent average annual discharge in those two
 16 basins?
 17 **A. It is not.**
 18 MR. PRIMIS: And just for the Court, the
 19 discussion we're having here -- and it may
 20 come up in other -- with other witnesses.
 21 BY MR. PRIMIS:
 22 **Q.** This is -- could you just confirm, Dr. Cowie, if
 23 this provision is identified at page 35 of the
 24 2006 plan which is JX-21.
 25 **A. That is correct. It's paragraph 7A on that page.**

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2297

1 **Q.** Dr. Cowie, I would like to switch gears now and
 2 talk about the state water plan. I think you may
 3 be the first witness who has really touched on
 4 the state water plan in Georgia. And can you
 5 explain for the Court what that process is.
 6 **A. So the state water plan was adopted under state**
 7 **law in 2008. It establishes a comprehensive set**
 8 **of guiding policies for water management in the**
 9 **state and also establishes the framework for**
 10 **statewide regional water planning.**
 11 MR. PRIMIS: And, your Honor, this --
 12 when we touched on it before, it appears at
 13 tab 28. It's JX-31.
 14 BY MR. PRIMIS:
 15 **Q.** And, Dr. Cowie, this document -- we're not going
 16 to spend a lot of time on this document because
 17 it's kind of a formation document. Right?
 18 **A. Yes.**
 19 **Q.** What happened -- what flowed from this document,
 20 JX-31, which is the statewide water management
 21 plan?
 22 **A. The development of the regional water plans**
 23 **across the state.**
 24 **Q.** How did -- why does Georgia have this statewide
 25 water planning process?

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2298

1 **A. The statewide water planning process is an**
 2 **essential element of the responsible water**
 3 **management that we have evolved towards. It's**
 4 **kind of the next step in our responsible water**
 5 **management program because it brings us to the**
 6 **place where we do statewide assessment of what we**
 7 **expect to need in terms of water demand and**
 8 **wastewater discharge. It takes a look at the**
 9 **capacity of resources to meet those demands. It**
 10 **involves people -- water users from all over the**
 11 **state in talking about how to put management**
 12 **practices in place to meet those demands in the**
 13 **future. And then there's some identification of**
 14 **what the state needs to do long term as well.**
 15 **Q.** Now, you mentioned that the state water plan
 16 process proceeds through regional planning; is
 17 that right?
 18 **A. Yes.**
 19 **Q.** And with regard to the regional plans, can you --
 20 just as it relates to the regions in the ACF
 21 Basin, can you tell the Court what process was
 22 followed?
 23 **A. So the -- this was true of all of the regions,**
 24 **but in particular to the ones in the ACF Basin.**
 25 **There was -- the council identified an appointed**

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2299

2301

1 **group of 30 folks. They went through a process**
 2 **of developing recommended plans that specified a**
 3 **divisional goal for the region. They -- EPD**
 4 **provided technical information to them on**
 5 **projected demands in their region, the capacity**
 6 **of that water resources to meet those demands.**
 7 **The council laid out the management practices**
 8 **that fit their vision and goals for their region**
 9 **to meet those projected demands and then also**
 10 **made recommendations to the State for what we**
 11 **needed to do to improve water management and the**
 12 **planning process.**
 13 **Q.** Dr. Cowie, I want to turn now to two concepts.
 14 One is the surface water availability analysis in
 15 these plans, and then after that we're going to
 16 come to groundwater sustainable yield.
 17 **A. Yes.**
 18 **Q.** Right now I want to focus on surface water
 19 availability. Is that one of the concepts that
 20 was looked at as part of the planning process?
 21 **A. Yes. That's one of the pieces of technical**
 22 **information that EPD provided to the regional**
 23 **water planning councils as the building blocks**
 24 **for their regional plans.**
 25 **Q.** Can you turn to tab 35 in the binder that
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1 **A. I do, yes.**
 2 **Q.** Okay. What is shown here?
 3 **A. So it shows the results of the modeling exercise**
 4 **that was done to evaluate the ability of the**
 5 **surface water, in this case the rivers, in the**
 6 **Lower Flint-Ochlockonee region to meet demands.**
 7 **Q.** Dr. Cowie, we want -- I think Mr. Perry focused
 8 you on the row that said Bainbridge. Is that
 9 right?
 10 **A. That's correct.**
 11 **Q.** And is that a reference to the Bainbridge Gage?
 12 **A. Yes, the U.S. Geologic Survey gage.**
 13 **Q.** Okay. And the particular column he looked at was
 14 Maximum Shortfall in cfs. Right?
 15 **A. Yes.**
 16 **Q.** And that was 1,376 cfs?
 17 **A. Yes.**
 18 **Q.** And this is -- I find this complicated. And I
 19 asked you if you could prepare a demonstrative
 20 that might be helpful to guide this discussion.
 21 Did you do that?
 22 **A. Yes.**
 23 MR. PRIMIS: Okay. Can I approach, your
 24 Honor?
 25 SPECIAL MASTER LANCASTER: You may.
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2300

2302

1 Mr. Perry gave you. We have there FX-24. And
 2 can you describe for the Court what FX-24 is and
 3 how it fits into the state water planning
 4 process.
 5 **A. It's the final regional water plan for the Lower**
 6 **Flint-Ochlockonee region. It's one of the 10**
 7 **regional water plans that was adopted in 2011.**
 8 **Q.** And geographically where is Lower
 9 Flint-Ochlockonee?
 10 **A. It's in the far southwest corner of the state.**
 11 **So it includes much of the Lower Flint River**
 12 **Basin and a portion of the Chattahoochee River**
 13 **Basin.**
 14 **Q.** Okay. Now, Mr. Perry focused your attention on a
 15 chart in this document; and it's on page 3-6.
 16 It's called table 3-1.
 17 MR. PRIMIS: And, your Honor, these are
 18 oddly-paged documents. I don't know if you
 19 figured out the system yet, but they have
 20 sections where they repaginate each one. So
 21 we're on 3-6, table 3.1.
 22 BY MR. PRIMIS:
 23 **Q.** And, Dr. Cowie, what does this table show; and do
 24 you recall Mr. Perry asked you about this one
 25 specifically?
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1 BY MR. PRIMIS:
 2 **Q.** Okay. So, Dr. Cowie, using this demonstrative --
 3 we'll call it Cowie demonstrative 1 -- can you
 4 explain to the Court what that 1,376 maximum
 5 shortfall actually resembles or signifies?
 6 It's important because counsel for Florida
 7 mentioned it in his opening. He's questioned
 8 witnesses about it. We just need to have a clear
 9 record of what that number actually is because
 10 Florida is asking the Court to make decisions
 11 based on that figure.
 12 **A. So the place to start is the reason that this**
 13 **analysis was done. It was undertaken to identify**
 14 **areas where the water planning councils should**
 15 **pay attention during the planning process. So we**
 16 **were comparing demand with estimated capacity of**
 17 **the water resource and identifying those where**
 18 **there may be shortfalls based on some indicators**
 19 **chosen to identify potential local or regional**
 20 **impacts. These were modeling exercises. They**
 21 **were not exercises that observed conditions in**
 22 **the river themselves.**
 23 **Because it was being done for that planning**
 24 **purpose, this -- this assessment in particular**
 25 **used an artificially high demand.**
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2303

1 **Q.** Let me pause you on that. What do you mean when
 2 you say artificially high demand?
 3 And what you're doing now is you're setting
 4 up a demand number and then a potential supply
 5 number, and that's going to be the maximum
 6 shortfall. Correct?
 7 **A. Yes. The two are compared.**
 8 **Q.** Okay. So why is it an artificially high demand
 9 in this modeling exercise?
 10 **A. The way this exercise was constructed is the**
 11 **demand that was used started with the reported**
 12 **demand over a five-year period. Each month the**
 13 **highest demand that was seen for that month**
 14 **during the five years was chosen, so the highest**
 15 **January over the five years, the highest February**
 16 **over the five years, and so on over that -- for**
 17 **12 months.**
 18 **So we take a constructed 12 months of demand**
 19 **that is not like any 12 months that has ever**
 20 **occurred, but it's the highest -- each month it's**
 21 **the highest it has ever been observed, and then**
 22 **apply that 12 months over the 68 years of**
 23 **observed streamflow.**
 24 **So we have an artificially high demand that**
 25 **is applied to the 68 years of observed**

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2304

1 **streamflow. And what's recorded here as the**
 2 **1,376 shortfall occurs on a single day when that**
 3 **artificially high demand gets compared with the**
 4 **68 years of streamflow.**
 5 **Q.** Now, the last bullet in your slide says it's not
 6 a sustainability requirement. What does that
 7 mean?
 8 **A. Yes. The way a shortfall is estimated is we're**
 9 **trying to look at the ability of the water**
 10 **resources to meet off-stream demand and also**
 11 **in-stream flow. We used a threshold for**
 12 **in-stream flow that was adapted from the state's**
 13 **in-stream flow policy. That in-stream flow**
 14 **policy is specified for individual water**
 15 **withdrawal permit holders. We adapted it for**
 16 **this planning purpose to use it as a threshold to**
 17 **identify a shortfall, to say these are time**
 18 **periods in which we're seeing a shortfall;**
 19 **planning councils, you need to pay attention to**
 20 **as you look at your planning for the future.**
 21 **So it's not a sustainability requirement. It**
 22 **was a criteria used for this planning exercise.**
 23 **Q.** Dr. Cowie, during opening statements, counsel for
 24 Florida said that this 1,376 cfs is the amount
 25 of -- the amount flow on the Flint River was

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2305

1 short under, quote, Georgia's own sustainability
 2 requirements. Given your experience in the
 3 Division and your knowledge of how this number
 4 was constructed, is that true?
 5 **A. It's the amount that was short in this modeling**
 6 **exercise. It's not an amount that was in the**
 7 **river. It's not a measurement of a shortfall in**
 8 **the river, and it's not a requirement to be met**
 9 **in the river.**
 10 **Q.** Counsel also said in opening statement that this
 11 table -- and we can go back to it in the LFO
 12 plan -- suggests that there is, quote, not enough
 13 water in the river. Do you agree with that?
 14 **A. No.**
 15 **Q.** Why not?
 16 **A. For the reasons I just laid out. It's not an**
 17 **assessment of the water that's in the river.**
 18 **It's a modeling exercise to evaluate under the**
 19 **assumptions that I laid out can off-stream demand**
 20 **be met with this threshold that we used.**
 21 **Q.** Under conditions that don't exist in the real
 22 world?
 23 **A. That have not been observed in the real world.**
 24 **Correct.**
 25 **Q.** Dr. Cowie, thank you for clarifying that.

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2306

1 I now would like to turn to the groundwater
 2 sustainable yield analysis that's also in this
 3 Lower Flint Plan. Are you familiar with that?
 4 **A. Yes, I am.**
 5 **Q.** Okay. And similar arguments have been made about
 6 the meaning of those numbers in a very comparable
 7 way, and I want to walk through that methodology
 8 so the Court has a clear picture what the
 9 groundwater sustainable yield is.
 10 For this one, let's turn to page 3-9; and
 11 it's table 3-3 of Exhibit FX-24. And do you
 12 recognize that chart?
 13 **A. Yes, I do.**
 14 **Q.** Okay. Can you describe to the chart -- to the
 15 Court what this table shows?
 16 **A. So it shows the result of the similar assessment**
 17 **that was done for groundwater resources in the**
 18 **Lower Flint-Ochlockonee River Basin, the three**
 19 **aquifers that were evaluated as to their capacity**
 20 **to meet demand.**
 21 **Q.** And in particular, focusing on the row called
 22 Upper Floridan Aquifer, can you say what's
 23 depicted there?
 24 **A. Yes. There is estimates of current groundwater**
 25 **withdrawals. And then in the second -- or the**

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2307

1 **final column is the estimate that we produced of**
 2 **what was called sustainable yield from that**
 3 **aquifer. Again, that was a -- in the same way**
 4 **that the surface water analysis was done, that**
 5 **was a modeling exercise designed to identify for**
 6 **the councils resources that needed their**
 7 **attention during the planning process.**
 8 **Q.** And I'll just point out that the estimated
 9 current groundwater withdrawal for Upper
 10 Floridan, it exceeds what's reported as the
 11 sustainable yield in this chart. Right?
 12 **A. That's correct.**
 13 **Q.** And just -- in Mr. Perry's opening statement, he
 14 played some video from Napoleon Caldwell. Do you
 15 know Mr. Caldwell?
 16 **A. I do.**
 17 **Q.** And there was also video deposition testimony
 18 that Mr. Caldwell played and where he addresses
 19 this very chart. And the passage or the quote
 20 from Mr. Caldwell that the estimated groundwater
 21 withdrawals were incongruent with sustainable
 22 yield -- and this is the rest of his quote -- as
 23 determined by the sustainable yield criteria used
 24 in the groundwater assessment. When Mr. Caldwell
 25 uses that phrase, as determined by the

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2308

1 sustainable yield criteria, do you know what that
 2 means?
 3 **A. Yes. He's referring to the way that analysis was**
 4 **done. So again, similar to the surface water**
 5 **analysis, we selected some criteria to identify**
 6 **potential local or regional impacts to**
 7 **identify -- highlight for the councils these are**
 8 **areas to which you need to pay attention in the**
 9 **planning process. So there were particular**
 10 **criteria specified.**
 11 **In the case of this aquifer, the criteria**
 12 **that determined the sustainable yield was a**
 13 **criteria based on the flow of groundwater to the**
 14 **streams and the change in that flow of**
 15 **groundwater to the streams with increase in**
 16 **groundwater pumping.**
 17 **Q.** Dr. Cowie, this can get very technical. Is there
 18 a technical document in the record that explains
 19 this if the Court ever wants to figure it out
 20 later?
 21 **A. Yes. In March of 2010 we produced a summary of**
 22 **those analyses and released them actually for**
 23 **public comment so those who wanted to get into**
 24 **the technical details could see them.**
 25 **Q.** Is it the synopsis report for groundwater

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2309

1 availability assessment?
 2 **A. Yes.**
 3 MR. PRIMIS: May I approach, your Honor?
 4 For the record, this is JX-160.
 5 BY MR. PRIMIS:
 6 **Q.** And, Dr. Cowie, is there a figure in here that
 7 would help you explain how Georgia came up with
 8 the sustainable yield number for that Upper
 9 Floridan Aquifer on the Dougherty Plain?
 10 **A. Yes, there is.**
 11 **Q.** Can you turn to page S-30 in there in JX-160.
 12 **A. The figure is immediately preceding S-30. It**
 13 **doesn't have a page number of its own.**
 14 MR. PRIMIS: I'll just give the Court a
 15 moment to get there because it's a map, and
 16 it's important.
 17 Your Honor, I'm going to walk over to
 18 the map because it will be helpful, I think,
 19 to Dr. Cowie. I have my microphone on my
 20 jacket, so hopefully that helps.
 21 BY MR. PRIMIS:
 22 **Q.** Dr. Cowie, can you explain what this map depicts
 23 for the Court and how it contributes to setting
 24 that sustainable yield number?
 25 **A. So the -- what the map shows -- the initial thing**

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2310

1 **to look at is the red line which shows the area**
 2 **that was evaluated for the Upper Floridan Aquifer**
 3 **in the Dougherty Plain.**
 4 **Q.** And even before we go there, just 101, does this
 5 show where the state lines are so we know where
 6 we're talking about?
 7 **A. Yes. So there is a gray line near the left.**
 8 **That shows the Alabama-Georgia line. And then**
 9 **four-fifths of the way to the bottom of the page**
 10 **is the gray line that shows the Georgia-Florida**
 11 **line.**
 12 **Q.** And is that where I've got my pointer here?
 13 **A. I can't see over the computer.**
 14 **Q.** The Georgia-Florida line --
 15 **A. Yes.**
 16 **Q.** -- runs right into the legend of the map?
 17 **A. That is.**
 18 **Q.** Okay. And so I interrupted you. Can you explain
 19 to the Court how this map helps you explain the
 20 sustainable yield.
 21 **A. Right. So the red line that's kind of oblong**
 22 **that covers most of the map shows the area**
 23 **evaluated. That's where the Upper Floridan in**
 24 **the Dougherty Plain lies. The chunks of color,**
 25 **the blocks of color, show the surface water**

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2311

1 **drainage areas where the different -- the change**
 2 **in groundwater flow to streamflow was evaluated.**
 3 **And the colored -- the blue and the green lines**
 4 **indicate the streams that are represented on the**
 5 **model.**
 6 **Q.** Now, Dr. Cowie, where in this whole map is the
 7 section of stream where the sustainable yield
 8 trigger was met, thereby setting the sustainable
 9 yield number for this whole basin? Where is
 10 that?
 11 **A.** **So it shows the -- in the upper central area**
 12 **right there, where it's a pattern of blue and**
 13 **white hatching, is the stream segment. This**
 14 **analysis -- it's the stream segment that**
 15 **triggered that sustainable yield criteria. This**
 16 **analysis was designed, as I said, to identify**
 17 **potential local or regional impacts. So once**
 18 **that sustainable yield threshold was crossed in**
 19 **any single stream segment, that set the**
 20 **sustainable yield for the whole area being**
 21 **evaluated, the whole upper Florida aquifer in the**
 22 **Dougherty Plain.**
 23 **Q.** So this little stretch up here, what is that
 24 called?
 25 **A.** **Muckaloochee Creek.**

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2312

1 **Q.** And when the sustainable yield was hit for
 2 Muckaloochee Creek, using those criteria that
 3 Mr. Caldwell mentioned, that set the number for
 4 this whole basin?
 5 **A.** **When the threshold -- that change in groundwater**
 6 **flow to the stream, when that threshold was hit,**
 7 **that set the lower end of the sustainable yield**
 8 **for that whole aquifer area, yes.**
 9 **Q.** And in the legend, do you see where the little
 10 train track type figure is, it says violated
 11 river baseflow criteria?
 12 **A.** **Yes.**
 13 **Q.** What does that mean?
 14 **A.** **That's a shorthand statement of that sustainable**
 15 **yield criteria, the one that controlled, that**
 16 **determined the sustainable yield -- lower end**
 17 **sustainable yield measure.**
 18 **Q.** Now, Muckaloochee Creek is pretty far from the
 19 state line; isn't it?
 20 **A.** **That's correct.**
 21 **Q.** What effect does the sustainable yield criteria
 22 being violated up here in this little stretch
 23 north in the basin -- what effect does that have
 24 on streamflows down at the state line in the
 25 mainstem of the Flint?

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2313

1 **A.** **It's a small stream -- relatively small stream**
 2 **compared to the river. A change in the**
 3 **baseflow -- baseflow is the groundwater flow that**
 4 **occurs -- that supports that streamflow. So a**
 5 **change in the baseflow is a small change in a**
 6 **small stream. Compared to during -- during dry**
 7 **periods when you're seeing baseflow, the flow**
 8 **you're going to see in that Muckaloochee Creek**
 9 **compared to the flow in the Flint River near the**
 10 **state line would be less than half a percent.**
 11 **Q.** Dr. Cowie, was the sustainable yield criterion,
 12 the one that Mr. Caldwell mentioned that was used
 13 to conduct this analysis, was it intended to
 14 present a limitation on groundwater availability
 15 throughout the whole basin?
 16 **A.** **No. It was intended to identify resources to**
 17 **which the water councils should attend in the**
 18 **planning process and identify management**
 19 **practices to support those resources in the**
 20 **future.**
 21 **Q.** And was the analysis that the state water
 22 planning council went through, was it intended to
 23 reflect flows at the state line based on
 24 groundwater pumping in the northern part of the
 25 basin?

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2314

1 **A.** **No. The -- actually, the model is not competent**
 2 **to do that.**
 3 **Q.** And, Dr. Cowie, I wanted to go through this in
 4 some detail because it is technical but very
 5 important. Did you discuss this in your written
 6 direct testimony?
 7 **A.** **Yes.**
 8 **Q.** Is it at pages 15 to 17 of your testimony?
 9 **A.** **Yes.**
 10 **Q.** Dr. Cowie, you mentioned that these regional
 11 water councils made recommendations for actions
 12 that could be taken. Do you recall that?
 13 **A.** **Yes.**
 14 **Q.** Have any of those been implemented?
 15 **A.** **Yes.**
 16 **Q.** Let me hand you a document that we marked as
 17 GX-1249.
 18 Can you please identify GX-1249?
 19 **A.** **It's a -- slides from a presentation I made at a**
 20 **regional water conference in 2014.**
 21 **Q.** Can you turn to slide 8 of your presentation.
 22 MR. PRIMIS: We're on page 8, your
 23 Honor.
 24 BY MR. PRIMIS:
 25 **Q.** Dr. Cowie, what is depicted at page 8 of slide 8

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2315

1 of your October 22nd, 2014, presentation?

2 **A. It's a tally of the implementation activities**

3 **that were documented in implementation status**

4 **reports produced in June of 2014.**

5 **Q.** The first row on this table says, demand

6 management practices.

7 **A. Yes.**

8 **Q.** And so what does the 25 next to that under Lower

9 Flint-Ochlockonee mean?

10 **A. It's the -- that the reports documented 25**

11 **practices that were implemented to decrease**

12 **demand on water resources in the Lower**

13 **Flint-Ochlockonee region.**

14 **Q.** Can you provide just one or two examples of that?

15 **A. Sure. For the municipal water users, they**

16 **replaced waterlines and water meters in order to**

17 **decrease leaks. For agricultural water users,**

18 **they -- they documented \$6.1 million in**

19 **cost-share funds coming into the region to**

20 **improve agricultural efficiency and for also**

21 **adoption of agricultural efficiency performance**

22 **standards in state law in the 2014 amendments to**

23 **the Flint River Drought Protection Act.**

24 **Q.** Dr. Cowie, the next one says water supply

25 practices, and 14 of them for Lower Flint. Can

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2316

1 you give just an example or two of what water

2 supply practices were done?

3 **A. Yes. One of the practices that was documented**

4 **was an evaluation of the feasibility of**

5 **transferring surface water users -- your surface**

6 **water irrigators in the Ichawaynochaway Basin**

7 **from surface water to groundwater. And there was**

8 **also a demonstration project conducted to assess**

9 **the feasibility of aquifer storage and recovery**

10 **in southwest Georgia.**

11 **Q.** Dr. Cowie, you -- I wanted to ask you just one

12 question I forgot to ask. When we were talking

13 about the average annual discharge provision of

14 the new permits after 2006, do you recall that

15 discussion?

16 **A. Yes.**

17 **Q.** And I think Mr. Perry asked you how many permits

18 had that, and you said 30.

19 **A. I said less than 30.**

20 **Q.** Less than 30. And there was a suggestion that

21 that was very few. And I just wanted to ask you

22 why are there fewer than 30 permits with the AAD

23 requirement?

24 **A. Well, surface water is actually not a preferred**

25 **resource in the basin. So there just haven't**

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2317

1 **been that many applications that have come**

2 **through.**

3 **Q.** So few surface water permits were actually asked

4 for and given?

5 **A. Correct, yes. I mean, that -- that provision was**

6 **applied to all of the permits that were issued in**

7 **those areas.**

8 **Q.** Dr. Cowie, one last topic, and it's an issue that

9 the Special Master has actually asked a number of

10 witnesses about; and he might have been gearing

11 up to ask you.

12 MR. PRIMIS: So I'm sorry if I steal

13 your thunder, your Honor.

14 BY MR. PRIMIS:

15 **Q.** But are you familiar with the ACF Stakeholders

16 and their Sustainable Management Plan?

17 **A. Yes, I am.**

18 **Q.** What is ACFS or ACF Stakeholders?

19 **A. It's a nongovernmental organization with members**

20 **from the array of water-interest users and**

21 **interests in the Basin from all three states.**

22 **Q.** And how did you become familiar with this

23 organization, ACF Stakeholders?

24 **A. They -- the ACF Stakeholders, when they became**

25 **active, invited observers from all three states.**

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2318

1 **When I took on responsibilities for -- related to**

2 **the ACF Basin, I became Georgia's observer to**

3 **their meetings. So I got to attend.**

4 **Q.** And did you stop attending at some point?

5 **A. Yes, I did. When the ACF Stakeholders adopted**

6 **confidentiality policies, it required membership**

7 **and signing those confidentiality policies. They**

8 **don't -- they intentionally do not have**

9 **governmental -- state governmental members. So I**

10 **was unable to sign those confidentiality**

11 **policies, and I stopped attending.**

12 **Q.** Did you stay abreast of the general goings-on of

13 the stakeholders?

14 **A. Informally, as much as I could. Their**

15 **confidentiality policies were rather stringent,**

16 **and they were respected by the folks I spoke**

17 **with. So it was informal.**

18 **Q.** Are you familiar with the Sustainable Management

19 Plan that ACFS issued?

20 **A. Yes. I read it when it came out.**

21 **Q.** And what is the plan?

22 **A. It's the document that they adopted by consensus**

23 **to, in their view, move the basin -- with**

24 **recommendations that in their view would move**

25 **towards more sustainable management that meets**

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2319

2321

1 **the goals of multiple water-use sectors.**

2 **Q.** Dr. Cowie, having been a participant at the

3 meetings, can you just comment on your view of

4 the process that was employed by the stakeholder

5 group?

6 **A. Yes. It was -- they invested a lot of time in**

7 **listening to each other, hearing about other**

8 **people's realities in terms of how they used the**

9 **water, what they relied upon, what they**

10 **experienced. They set a very high bar for**

11 **themselves because of the consensus rule that**

12 **they adopted. And they were able to weather**

13 **through that -- the decision-making that was**

14 **required to reach that very high bar to produce**

15 **that plan. And I think that was a very admirable**

16 **accomplishment.**

17 **Q.** And do you have a view on people across states

18 talking to each other?

19 **A. Yes. That -- that's actually what I researched**

20 **for my dissertation because I think it's a really**

21 **interesting way to change policy. It's a -- it's**

22 **a good thing to -- it's a way to advance resource**

23 **management, to share those kinds of information**

24 **on realities.**

25 **Q.** Now, Dr. Cowie, did you have any views when you

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1 **Q.** Okay.

2 MR. PRIMIS: And Dr. Zeng will be here

3 next week, your Honor, we hope.

4 I have no further questions for

5 Dr. Cowie.

6 SPECIAL MASTER LANCASTER: Recross,

7 Mr. Perry?

8 MR. PERRY: Yes, your Honor. Yes.

9 RE-CROSS-EXAMINATION

10 BY MR. PERRY:

11 **Q.** So, Dr. Cowie, let's just pick up with this

12 discussion of the ACF Stakeholders process.

13 Katherine Zitsch was involved in that; wasn't

14 she?

15 **A. Yes, she was.**

16 **Q.** And she's affiliated with the Atlanta Regional

17 Council of Government?

18 **A. That's correct.**

19 **Q.** And Ms. Zitsch opposed throughout the process any

20 consumption cap on Georgia. Didn't she?

21 **A. I don't know.**

22 **Q.** It was a consensus process. And if she opposed

23 that, then you couldn't reach a consensus on

24 consumption caps; could you?

25 **A. So let me be very clear. I was an observer**

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2320

2322

1 finally got to read the end product about the

2 plan?

3 **A. Yes, I did. I think there's -- the plan included**

4 **some parts that had very straightforward**

5 **recommendations. It was easy to see how they**

6 **could -- the base rationale and how they could**

7 **improve the resources. There were some other**

8 **parts of the plan that the -- there were some**

9 **ambiguity; and it was less clear to me what the**

10 **base rationale or the benefits to the resource**

11 **might be.**

12 **So it's a thick plan, a lot of information in**

13 **it; but there were definitely some ambiguities**

14 **and some question marks that I was left with.**

15 **Q.** Did the plan mention the Army Corps of Engineers

16 at all?

17 **A. Yes. There is a very key set of recommendations**

18 **related to the Army Corps of Engineers.**

19 **Q.** Does it involve Army Corps involvement?

20 **A. Operation change, yes.**

21 **Q.** And over at EPD, are you the Army Corps person;

22 or is there someone else that we should talk to

23 about that part of the plan?

24 **A. I am definitely not the Army Corps person.**

25 **Dr. Wei Zeng is.**

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1 **through part of the process. I was not a**

2 **participant. So the part of the process that I**

3 **observed, there was a lot of back-and-forth among**

4 **all the water users -- all the stakeholders. I**

5 **say water users because I mean everyone who has**

6 **an interest in different kinds of water use.**

7 **But anyway, there was a lot of back-and-forth**

8 **on all the different perspectives. You can**

9 **approach management this way. You can do it this**

10 **way. You can do that.**

11 **Once the confidentiality provisions went into**

12 **place, I could no longer observe. So I'm not**

13 **aware of some of the final negotiations. Sounds**

14 **like you may be talking about some of those.**

15 **Q.** Well -- and we can talk to Mr. Masters and some

16 others about those when he arrives.

17 **But let's talk about a part of it that was**

18 **public for a moment, and that's the**

19 **recommendations. Now, it's true, isn't it, that**

20 **the ACF Stakeholders recommended that additional**

21 **flows come down the Apalachicola River. Right?**

22 **A. There were some specific recommendations about**

23 **flows related to the Apalachicola River as part**

24 **of the -- what they recommended be treated as a**

25 **complete package.**

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2323

1 **Q.** And they did it in two different ways; didn't
 2 they?
 3 They had one proposal that was 9,000 cfs for
 4 four weeks and another proposal they studied was
 5 14,000 cfs for a similar period. Right?
 6 **A. They evaluated different approaches to that.**
 7 **They made a set of recommendations that had a set**
 8 **of pulse flows and specifically emphasized that**
 9 **it should be treated as the package -- the**
 10 **recommendation should be treated as a package,**
 11 **that one part should not be implemented without**
 12 **the other part.**
 13 **Q.** But it was a consensus recommendation, wasn't it,
 14 that the Apalachicola River and Apalachicola Bay
 15 receive more water?
 16 **A. The -- the whole water plan -- the whole**
 17 **sustainable water plan was adopted by consensus**
 18 **with the emphasis that the whole package be**
 19 **treated together.**
 20 **Q.** And it's your understanding, isn't it, that even
 21 Katherine Zitsch of the Atlanta Regional Council
 22 of Government voted to send more water to
 23 Apalachicola River and Apalachicola Bay. Right?
 24 **A. I don't have that specific understanding. What I**
 25 **do know is that the plan was adopted by**

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2324

1 **consensus, that it included pulse flows to the**
 2 **Apalachicola, and that it had the strong emphasis**
 3 **that all of the recommendations be treated**
 4 **together, including those related to the Corps of**
 5 **Engineers.**
 6 **Q.** Can you tell me who Hailian Luang is, please?
 7 **A. I'm not sure who you're referencing.**
 8 **Q.** I'm sorry. It might be my fault. I may not be
 9 pronouncing it well. But is there a person who
 10 works for Mr. Wei Zeng within EPD named something
 11 like Hailian Luang?
 12 And I apologize for my mispronunciation.
 13 **A. Hailian Luang?**
 14 **Q.** Is that right?
 15 **A. I think so, yes. That's the closest I can get**
 16 **from what you're saying.**
 17 **Q.** And, I'm sorry. It's my fault.
 18 **A. Okay.**
 19 **Q.** All right. And you know that that individual did
 20 extensive work on what's called the Bainbridge
 21 gap. Right?
 22 **A. Oh, yes. It is Hailian Luang who did that, yes.**
 23 **Q.** I'm sorry. Could we turn, please, back to tab
 24 35; and it's FX -- Florida Exhibit -- 24. And
 25 it's page 3-6 with table 3-1.

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2325

1 **A. I'm there.**
 2 **Q.** Okay. And I would like to spend a little time on
 3 this -- on this row related to Bainbridge.
 4 Now, internally at EPD, they refer or you all
 5 refer to this issue as the Bainbridge gap. Don't
 6 you?
 7 **A. That's correct. When we looked at the difference**
 8 **between the modeled demand and the shortfall -- I**
 9 **mean, the modeled demand and the flow, if there**
 10 **was a shortfall, we called it gap.**
 11 **Q.** Okay. And it's true, isn't it, that the gap is
 12 substantial not just for one day but for a
 13 lengthy time period. Isn't it?
 14 **A. The time period that -- at which there was a gap**
 15 **over that 68 -- in which there was a gap over**
 16 **that 68-year period of record is shown in the**
 17 **first column. The maximum shortfall occurred on**
 18 **a single day.**
 19 **Q.** Okay. Let's focus very specifically on the
 20 maximum shortfall. You're not suggesting, are
 21 you, that there wasn't a significant shortfall on
 22 other days; are you?
 23 **A. The shortfall -- actually, there's a distribution**
 24 **in the size of the shortfall. And so we more**
 25 **recently have broken it down and looked at that**

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2326

1 **size. It -- the shortfall -- the vast majority**
 2 **of the days on which there was a shortfall, they**
 3 **are much smaller.**
 4 **Q.** Well, we have the charts that were modeled; and
 5 we'll work with -- Dr. Wei, is it?
 6 **A. Dr. Zeng.**
 7 **Q.** -- Dr. Zeng on that.
 8 But they are not anywhere close to zero; are
 9 they? They're significant?
 10 **A. They -- they go from zero to 1,376.**
 11 **Q.** Right. But there are --
 12 **A. There's a distribution of them, absolutely.**
 13 **Q.** Depending on the season, right?
 14 **A. It depends on the year and the flows --**
 15 **Q.** Now --
 16 **A. -- and the time period in which there are low**
 17 **flows. So, yes.**
 18 **I apologize for interrupting you.**
 19 **Q.** And, likewise, I'm sorry, too.
 20 So when you're talking about the Bainbridge
 21 Gage, you recognize, don't you, that the flows
 22 have been lower in the most recent 2011-2012 time
 23 period at the Bainbridge Gage than ever in
 24 history. Right?
 25 **A. Yes.**

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2327

1 Q. Okay. So I would also like to talk for a minute
 2 about the -- the groundwater stainability
 3 requirements. And there I would like to
 4 refer you to tab 36, please, which is Florida
 5 Exhibit -- I'm sorry, Joint Exhibit 57. Are you
 6 with me?
 7 A. Yes. Sorry.
 8 Q. Can you turn with me, please, to page 8, page 9.
 9 A. I'm there.
 10 Q. Actually, I'm sorry, let's start with page 7.
 11 And do you see on page 7 where it says,
 12 sustainable yield estimate?
 13 A. Yes.
 14 Q. And then it says, the Tennant method, in the very
 15 first words of the second paragraph.
 16 A. I do.
 17 Q. That Tennant method was the methodology employed.
 18 Right?
 19 A. That was the basis for the threshold chosen for
 20 the -- what is called on the figure we looked at
 21 the violated baseflow criterion.
 22 Q. Okay. I understood when Mr. Primis walked
 23 through that figure with you, but I want to show
 24 you something a little different; and that's on
 25 page 8, if we might.

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2328

1 A. 8?
 2 Q. Page 8 of tab 36 --
 3 A. Okay.
 4 Q. -- Joint Exhibit 57.
 5 And do you see at the bottom of the second
 6 paragraph the sentence that starts with, due to
 7 the cumulative effect on baseflow criterion, it
 8 became necessary to make reductions to the
 9 multipliers until the baseflow criterion was no
 10 longer violated?
 11 A. I do.
 12 Q. All right. That's not one little river segment;
 13 is it?
 14 A. No, but that's not how the sustainable yield
 15 number was set.
 16 Q. But --
 17 A. That's the method that was -- I mean, that's a
 18 step in the method that was employed prior to the
 19 results you saw.
 20 Q. Right. But there were reductions in baseflow
 21 across a whole range of streams, right, including
 22 all of those different sub-basins on table 1 and
 23 table 2 and table 3 on pages 9 and 10. Right?
 24 A. Absolutely, yes.
 25 Q. And so saying it was one little stream and that

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2329

1 stream didn't affect Florida ignores the impact
 2 of table 1, table 2, and table 3 and the baseflow
 3 reductions in all the sub-basins listed there?
 4 A. Is there a question?
 5 Q. I meant to end with an inflection that suggested
 6 a question.
 7 A. Oh.
 8 Q. All right. So let me now, if I might, go to
 9 Exhibit -- it's at tab 30, and it's Exhibit
 10 GX-1247.
 11 A. I'm there.
 12 Q. Okay. So this is the groundwater table in the
 13 Upper Flint version which includes also the Upper
 14 Floridan Aquifer and the Dougherty Plain. It's
 15 table 5-1 on page 5-3.
 16 A. I'm there.
 17 Q. Okay. The Dougherty Plain is in the Lower Flint.
 18 Right?
 19 A. That's correct.
 20 Q. It's not a small area. It's a pretty large area;
 21 isn't it?
 22 A. Yes.
 23 Q. Okay. Estimated 2050 groundwater withdrawals in
 24 millions of gallons per day, in parentheses. Do
 25 you see that at the top of the second column?

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2330

1 A. Yes.
 2 Q. All right. And then for Upper Floridan Aquifer,
 3 the estimated 2050 withdrawal in a 75th
 4 percentile dry year is 681.
 5 Do you see that?
 6 A. I do.
 7 Q. Now, if you read the figure directly to the right
 8 of that under the title Sustainable Yield, the
 9 75th percentile dry year is 328 for the
 10 sustainable yield of that Upper Floridan Aquifer
 11 in the Dougherty Plain. Right?
 12 A. The range in the sustainable yield is not based
 13 on -- the range in the sustainable yield was
 14 determined in a different way. But the number is
 15 328. That's correct.
 16 Q. I'm just referring to the note below that table
 17 when I say 75th percentile.
 18 A. That relates to the column with the estimated
 19 groundwater withdrawal.
 20 Q. Yes, okay. That's right.
 21 And that's 681, which is more than twice the
 22 sustainable yield number 328; isn't it?
 23 A. That's correct.
 24 Q. Now, a moment ago you, I believe, referred to
 25 those surface water permits that have low flow

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2331

1 protections; and you referred to 7Q10 and 25
 2 percent AAD. Right?
 3 **A. Yes.**
 4 **Q.** And those -- those requirements, those low flow
 5 protections don't apply to any groundwater
 6 permits. Right?
 7 **A. No. Because they -- the -- they are based on the**
 8 **flow that's in the stream.**
 9 **Q.** Okay. So let's talk about how many surface water
 10 permits there are in total in the entire ACF
 11 Basin. Do you know?
 12 **A. I don't have that number, no.**
 13 **Q.** It's 1598. And your testimony, I believe, was
 14 that there are fewer than 30 that have the 25
 15 percent AAD low flow protection. Is that
 16 correct?
 17 **A. Those are the permits that are subject -- that**
 18 **were issued since the '06 plan was adopted and**
 19 **are subject to that, yes.**
 20 **Q.** Okay. And we have talked a little bit about
 21 7Q10. But let's focus on those that -- those
 22 surface water permits that have a 7Q10 low flow
 23 protection level. I believe you said you didn't
 24 know how many of those there were.
 25 **A. That's correct.**

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2332

1 **Q.** Would you be surprised if it's fewer than 100?
 2 **A. I actually would be surprised.**
 3 **Q.** And you don't know as you sit here today?
 4 **A. I don't know; but I would be surprised, as I said**
 5 **before, because of the number of permits we have**
 6 **and the paper records in which those would be**
 7 **documented. But I don't know.**
 8 **Q.** Grandfathered surface water permits do not have
 9 7Q10 low flow protection; do they?
 10 **A. That's correct.**
 11 **Q.** And there are quite a number of those; aren't
 12 there?
 13 **A. There -- yes. There is a portion of those that**
 14 **would be substantial, yes.**
 15 **Q.** Okay. Now, I believe Mr. Primis asked you about
 16 the 2014 amendments; and he referred to an
 17 irrigation efficiency number. Is that right?
 18 2014 amendments to the Flint River Drought
 19 Protection Act.
 20 **A. Yes. There were 2014 amendments.**
 21 **Q.** And there was a number for irrigation efficiency
 22 in there. Right?
 23 **A. A performance standard for irrigation efficiency**
 24 **was amended into the statute.**
 25 **Q.** That is the statute that you called modest in

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2333

1 your 2014 stakeholder write-up; isn't it?
 2 **A. That -- that is correct. Those changes were**
 3 **considered modest.**
 4 **Q.** Okay. Now, all right. I think you mentioned
 5 wastewater discharge just briefly when you were
 6 talking to Mr. Primis a moment ago. Do you
 7 recall that?
 8 **A. Yes.**
 9 **Q.** Now, wastewater discharge is something that EPD
 10 manages as a matter of implementing the Clean
 11 Water Act. Right?
 12 **A. That's correct.**
 13 **Q.** And there's a certain amount of water that's
 14 necessary to accommodate municipal and industrial
 15 permit discharges from upstream permittees.
 16 Correct?
 17 **A. I'm not sure I understand the question.**
 18 **Q.** All right. So EPD issues permits for municipal
 19 and industrial uses. Right?
 20 **A. Wastewater discharges.**
 21 **Q.** And it is governed in that exercise by Clean
 22 Water Act requirements. Right?
 23 **A. That's correct.**
 24 **Q.** Including NPDES, National Pollutant Discharge
 25 Elimination System requirements, right?

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2334

1 **A. That's correct.**
 2 **Q.** And in order to ensure that those discharges do
 3 not create a Clean Water Act problem, it's
 4 necessary to meet a certain flow criteria; is it
 5 not?
 6 **A. That is not correct, no. The -- there are**
 7 **certain flow levels that are assumed in**
 8 **determining the pollutant loads that are written**
 9 **into the permits.**
 10 **Q.** And if you are below those particular assumed low
 11 flow criteria, you could have a significant
 12 problem under the Clean Water Act; couldn't you?
 13 **A. I think it depends on what's going on and how the**
 14 **permit is written. I think there's a number of**
 15 **specific -- there's not a general answer to that**
 16 **question. It depends on the specifics.**
 17 **Q.** And you know, don't you, that the criteria for
 18 Bainbridge -- the annual criteria for Bainbridge
 19 under the NPDES permits was 2,500 cfs for
 20 wastewater simulation?
 21 **A. I'm not aware of what annual criteria you're**
 22 **speaking of.**
 23 **Q.** I'm talking about the annual criteria identified
 24 in the 2006 plan. Are you familiar with that?
 25 **A. The -- the annual criteria for the wastewater**

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2335

1 **permits?**
 2 **Q.** Yes.
 3 **A.** **Those permits are reevaluated every five years.**
 4 **Q.** Right. But they hadn't changed as of 2006; had
 5 they?
 6 **A.** **That's no longer true.**
 7 **Q.** All right. Does Mr. -- is it Zeng, Zung?
 8 **A.** **Zeng.**
 9 **Q.** Zeng. Does he -- is he involved in that process?
 10 **A.** **He is not.**
 11 **Q.** And is Mr. -- is Ms. Luang involved in that
 12 process?
 13 **A.** **She is not.**
 14 **Q.** All right.
 15 **A.** **She's watershed manager.**
 16 **Q.** And as of 2006 was the number 2,500?
 17 **A.** **I don't know.**
 18 **Q.** Okay.
 19 **A.** **I don't have that number.**
 20 **I'm still not sure exactly what number you're**
 21 **talking about. They're permit-specific numbers,**
 22 **so that's why I'm unclear.**
 23 **Q.** All right. Now, let's go, if we could, to tab
 24 11, please.
 25 **A.** **I'm there.**

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2336

1 **Q.** Okay. Now, I believe that Mr. Primis asked you
 2 about the sensitivity of Spring Creek and
 3 Ichawaynochaway Creek when he talked about the
 4 2006 plan. You referred to red capacity and
 5 restricted -- and orange capacity restricted use
 6 areas. Right?
 7 **A.** **Yeah. There are portions of those red and**
 8 **yellow -- portions of those two sub-basins,**
 9 **Ichawaynochaway and Spring Creek, are identified**
 10 **as red and yellow areas.**
 11 **Q.** It's true -- I'm sorry.
 12 **A.** **I'm done.**
 13 **Q.** It's true, is it not, that the number of
 14 permitted acres in all of those areas, all of
 15 those capacity-use areas, have increased since
 16 1999; isn't it?
 17 **A.** **Yes. Because there are those -- that was**
 18 **specifically specified in the '06 plan that that**
 19 **would happen. And there were restrictions on the**
 20 **ways in which those permits would be granted.**
 21 **Q.** But it would have been possible in 2006 or,
 22 indeed, beforehand to stop granting new
 23 permits --
 24 **A.** **Those --**
 25 **Q.** -- in those restricted capacity use areas;

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2337

1 wouldn't it?
 2 **A.** **Those -- that was one of the options evaluated.**
 3 **The plan was adopted after evaluation of that,**
 4 **among other options. And the approach to**
 5 **permitting those plans was specific**
 6 **restrictions -- I mean, permitting those**
 7 **applications with specific restrictions was**
 8 **adopted in the way I just -- I described earlier.**
 9 **Q.** And United States Fish and Wildlife Service
 10 disagreed with that approach. Didn't they?
 11 **A.** **The United States Fish and Wildlife Service is**
 12 **focused on one particular outcome in the basin.**
 13 **Georgia EPD has responsibility for multiple uses**
 14 **and balancing those uses. And we continue to**
 15 **work in a very cordial and constructive manner**
 16 **with Fish and Wildlife Service on the mussel**
 17 **issues in the basin.**
 18 **Q.** Thank you. Is there currently a habitat
 19 conservation plan in place in the Flint River
 20 Basin with U.S. Fish and Wildlife?
 21 **A.** **There is not.**
 22 MR. PERRY: Thank you, your Honor.
 23 MR. PRIMIS: No further questions, your
 24 Honor.
 25 SPECIAL MASTER LANCASTER: You're going

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2338

1 to have to help me. Is the ACF Stakeholders
 2 water management plan which Mr. Primis asked
 3 you about the one that was issued on March
 4 13, 2015 -- May 13, 2015?
 5 THE WITNESS: I believe that's the date.
 6 2015 is the year in which it was issued.
 7 SPECIAL MASTER LANCASTER: And am I
 8 correct that you have been identified to
 9 provide testimony on Georgia's management of
 10 water use?
 11 THE WITNESS: Yes, sir.
 12 SPECIAL MASTER LANCASTER: You're not
 13 called upon to testify as to causation?
 14 THE WITNESS: I -- I'm not sure I
 15 understand the distinction.
 16 SPECIAL MASTER LANCASTER: Well, Florida
 17 says that the problems arise because of
 18 mismanagement by Georgia of excessive water
 19 use. And you're not testifying that -- in
 20 defense of Georgia on that point, you're not
 21 testifying as to causation in that legal
 22 context?
 23 THE WITNESS: What I'm trying to do is
 24 provide information to you about what we do
 25 in our approach to reasonable water use in

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2339

1 implementing our responsible water management
 2 program in the Basin. I'm not sure I have
 3 the legal background to answer your question,
 4 sir.
 5 SPECIAL MASTER LANCASTER: I'm not sure
 6 I phrased it properly.
 7 Let me ask you another question, and
 8 then I'm done. Is diagnosing the causal
 9 factors of change at the ecosystem level
 10 difficult?
 11 THE WITNESS: It is, because there are
 12 so many potential factors. So if you think
 13 about a -- here I could talk about causation,
 14 not from a legal standpoint --
 15 SPECIAL MASTER LANCASTER: Right.
 16 THE WITNESS: -- but from an
 17 environmental standpoint.
 18 If you think about an end point, you
 19 observe an end point result; and you think
 20 about the different factors that can lead to
 21 that. In the environment you have so many of
 22 those occurring at the same time, and they
 23 vary so much.
 24 The other factor that contributes to the
 25 difficulty in it is the lag in time. So a
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2340

1 factor may change here, but the effect of it
 2 may become evident at this point in time. So
 3 it is -- it is a significant challenge.
 4 SPECIAL MASTER LANCASTER: You've got
 5 precipitation; you've got evaporation, among
 6 others. And those factors change depending
 7 upon season and drought, for example?
 8 Thank you.
 9 Questions?
 10 MR. PERRY: Nothing further, your Honor.
 11 MR. PRIMIS: Nothing further, your
 12 Honor.
 13 SPECIAL MASTER LANCASTER: You're off
 14 the hook.
 15 THE WITNESS: So, your Honor, I spilled
 16 water here. I need to clean it up. I'm
 17 sorry.
 18 MR. PRIMIS: We'll clean up after.
 19 Don't worry about it, Doctor.
 20 THE WITNESS: Thank you.
 21 MR. PERRY: Your Honor, due to what I
 22 mentioned this morning about accommodating
 23 schedules for our hydrologists, we don't have
 24 a witness readily available at this time.
 25 SPECIAL MASTER LANCASTER: Are you
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2341

1 suggesting we're done for the day?
 2 MR. PRIMIS: If it pleases the Court,
 3 your Honor.
 4 SPECIAL MASTER LANCASTER: It pleases me
 5 very much.
 6 As you're aware, the bankruptcy judge,
 7 Judge Cary, has been very generous in letting
 8 us use the facilities. He needs them
 9 tomorrow. And so we won't be back here until
 10 Wednesday.
 11 I'm sure you're also aware that tonight
 12 is the night of the supermoon. I would
 13 suggest that you go and have a good meal
 14 somewhere, stare at the sky and see the
 15 supermoon. It will be another 18 years
 16 before it happens again. I at least won't be
 17 here. You probably will, but I certainly
 18 won't.
 19 And while I'm on this topic, let me just
 20 suggest to you all -- and this is just a
 21 suggestion -- and it applies for everyone,
 22 not just the lawyers, Jon Walton, Mr. Smith,
 23 all of you. I, for one, would enjoy it very
 24 much if you would, when you're done, if we
 25 are ever done, when you are finished with
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2342

1 having eaten in these several places, if,
 2 without consulting with someone else, you
 3 would tell me -- give me your opinion of the
 4 food. Good food? Too expensive? Good
 5 accommodations? That sort of thing. If you
 6 want, I'll share the results either
 7 anonymously or directly with you. But I
 8 would appreciate it. And that's just me.
 9 We're adjourned.
 10 MR. PRIMIS: Thank you, your Honor.
 11 MR. PERRY: Thank you.
 12 SPECIAL MASTER LANCASTER: See you all
 13 Wednesday.
 14 (Time Noted: 2:30 p.m.)
 15 (Proceeding adjourned to Wednesday,
 16 November 16, 2016, at 9:00 a.m.)
 17 (End of day)
 18 - - - - -
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CERTIFICATE

I, Claudette G. Mason, a Notary Public
in and for the State of Maine, hereby certify
that the foregoing pages are a correct
transcript of my stenographic notes of the
Proceedings.

I further certify that I am a
disinterested person in the event or outcome
of the above-named cause of action.

IN WITNESS WHEREOF, I subscribe my hand
this 7th day of December, 2016.

/s/ Claudette G. Mason
Claudette G. Mason, RMR, CRR
Court Reporter

My Commission Expires
June 9, 2019.

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•	<p>13 [5] - 2206:18, 2208:16, 2214:25, 2338:4</p> <p>132 [1] - 2196:4</p> <p>134 [1] - 2208:24</p> <p>14 [4] - 2183:13, 2208:9, 2208:11, 2315:25</p> <p>14,000 [1] - 2323:5</p> <p>142 [1] - 2183:1</p> <p>146 [2] - 2253:11, 2253:21</p> <p>147 [1] - 2253:25</p> <p>148 [2] - 2253:11, 2253:21</p> <p>15 [1] - 2314:8</p> <p>154 [1] - 2270:16</p> <p>1598 [1] - 2331:13</p> <p>16 [3] - 2195:2, 2210:15, 2342:16</p> <p>17 [9] - 2214:12, 2214:13, 2216:3, 2216:5, 2220:21, 2222:11, 2224:21, 2292:23, 2314:8</p> <p>18 [4] - 2214:23, 2216:11, 2217:7, 2341:15</p> <p>19 [3] - 2225:17, 2227:10, 2230:5</p> <p>1990 [1] - 2256:23</p> <p>1991 [1] - 2193:25</p> <p>1999 [14] - 2195:2, 2196:2, 2196:19, 2196:21, 2197:19, 2198:12, 2198:15, 2200:7, 2200:9, 2200:13, 2288:25, 2289:18, 2290:9, 2336:16</p>	<p>2000 [2] - 2198:17, 2283:12</p> <p>2002 [1] - 2283:14</p> <p>2003 [1] - 2193:25</p> <p>2006 [37] - 2188:21, 2188:24, 2198:22, 2199:1, 2214:12, 2214:25, 2217:14, 2217:18, 2217:21, 2218:22, 2220:20, 2220:25, 2224:22, 2228:15, 2230:22, 2234:10, 2285:8, 2288:12, 2288:14, 2288:23, 2288:24, 2289:9, 2289:23, 2290:10, 2290:22, 2291:11, 2294:4, 2294:25, 2295:22, 2296:24, 2316:14, 2334:24, 2335:4, 2335:16, 2336:4, 2336:21</p> <p>2007 [2] - 2228:8, 2228:21</p> <p>2008 [4] - 2228:11, 2228:21, 2229:22, 2297:7</p> <p>2010 [1] - 2308:21</p> <p>2011 [16] - 2235:17, 2236:5, 2236:23, 2237:1, 2237:11, 2241:9, 2241:19, 2247:4, 2256:5, 2256:16, 2259:21, 2259:23, 2277:8, 2277:14, 2277:18, 2300:7</p> <p>2011-2012 [1] - 2326:22</p> <p>2012 [23] - 2199:17, 2199:21, 2201:12, 2235:24, 2236:5, 2237:11, 2245:21, 2250:22, 2256:5, 2256:16, 2258:2, 2258:6, 2265:3, 2266:1, 2266:7, 2267:16, 2267:22, 2268:3, 2269:2, 2269:12, 2276:24, 2277:9, 2277:14</p> <p>2013 [3] - 2226:3, 2250:24, 2285:18</p> <p>2014 [16] - 2234:2, 2275:21, 2276:1, 2276:9, 2276:21, 2278:13, 2286:4, 2286:17, 2314:20,</p>	<p>2315:22, 2332:16, 2332:18, 2332:20, 2333:1</p> <p>2015 [6] - 2199:7, 2266:22, 2277:3, 2338:4, 2338:6</p> <p>2016 [8] - 2183:13, 2213:1, 2213:8, 2213:14, 2213:24, 2277:3, 2342:16, 2343:11</p> <p>2019 [1] - 2343:17</p> <p>2050 [2] - 2329:23, 2330:3</p> <p>21 [9] - 2188:20, 2188:23, 2214:13, 2217:14, 2220:21, 2222:11, 2224:22, 2225:4, 2278:13</p> <p>21,000 [1] - 2211:15</p> <p>213 [1] - 2276:6</p> <p>2187 [1] - 2184:3</p> <p>2188 [4] - 2184:6, 2184:19, 2184:20, 2184:22</p> <p>2189 [2] - 2184:12, 2184:19</p> <p>2190 [2] - 2184:13, 2184:23</p> <p>2192 [1] - 2184:4</p> <p>2193 [1] - 2184:4</p> <p>2194 [1] - 2184:11</p> <p>2195 [1] - 2184:23</p> <p>2196 [1] - 2184:9</p> <p>22 [1] - 2227:24</p> <p>2208 [1] - 2184:21</p> <p>2214 [1] - 2184:6</p> <p>2216 [1] - 2184:14</p> <p>2225 [2] - 2184:15, 2184:16</p> <p>2227 [1] - 2184:11</p> <p>2233 [1] - 2184:18</p> <p>2237 [1] - 2184:13</p> <p>2238 [1] - 2184:22</p> <p>2240 [1] - 2184:7</p> <p>2241 [1] - 2184:14</p> <p>2243 [1] - 2184:24</p> <p>2251 [1] - 2184:20</p> <p>2255 [1] - 2184:12</p> <p>2257 [1] - 2184:18</p> <p>2260 [1] - 2184:21</p> <p>2263 [1] - 2184:19</p> <p>2264 [1] - 2184:8</p> <p>2269 [1] - 2184:16</p> <p>2270 [1] - 2184:9</p> <p>2276 [1] - 2184:8</p> <p>2278 [1] - 2184:17</p> <p>2281 [1] - 2184:17</p> <p>2282 [1] - 2184:15</p>	<p>2287 [1] - 2184:4</p> <p>2292 [1] - 2184:6</p> <p>2297 [1] - 2184:7</p> <p>2299 [1] - 2184:12</p> <p>22nd [1] - 2315:1</p> <p>23 [10] - 2188:22, 2189:7, 2189:10, 2189:13, 2220:20, 2220:21, 2233:2, 2241:9, 2253:21, 2292:23</p> <p>2306 [1] - 2184:12</p> <p>2309 [1] - 2184:10</p> <p>2314 [1] - 2184:25</p> <p>2321 [1] - 2184:4</p> <p>2324 [1] - 2184:12</p> <p>2326 [1] - 2184:7</p> <p>2329 [1] - 2184:24</p> <p>2353500 [1] - 2234:5</p> <p>24 [7] - 2223:17, 2234:7, 2234:8, 2248:19, 2255:17, 2283:16, 2324:24</p> <p>25 [25] - 2230:21, 2231:15, 2231:21, 2233:14, 2233:18, 2234:10, 2235:2, 2235:4, 2235:6, 2235:21, 2236:1, 2236:3, 2236:6, 2236:18, 2236:22, 2237:15, 2248:19, 2249:2, 2295:25, 2296:14, 2315:8, 2315:10, 2331:1, 2331:14</p> <p>26 [1] - 2237:8</p> <p>27 [2] - 2237:20, 2238:3</p> <p>28 [2] - 2240:9, 2297:13</p> <p>29 [1] - 2241:7</p> <p>291504 [1] - 2280:18</p> <p>291505 [1] - 2279:14</p> <p>2:30 [1] - 2342:14</p>	
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0					
02353500 [1] - 2233:20					
1	<p>1 [7] - 2231:7, 2241:20, 2259:2, 2276:16, 2302:3, 2328:22, 2329:2</p> <p>1,295 [3] - 2245:6, 2246:2, 2255:19</p> <p>1,376 [6] - 2255:23, 2301:16, 2302:4, 2304:2, 2304:24, 2326:10</p> <p>1.1 [1] - 2200:4</p> <p>10 [5] - 2199:13, 2222:21, 2251:23, 2300:6, 2328:23</p> <p>100 [3] - 2207:6, 2232:18, 2332:1</p> <p>101 [1] - 2310:4</p> <p>104 [2] - 2188:3, 2188:6</p> <p>104,000 [1] - 2198:19</p> <p>105 [2] - 2276:4, 2277:23</p> <p>10:36 [1] - 2224:17</p> <p>10:50 [1] - 2224:19</p> <p>11 [2] - 2240:13, 2335:24</p> <p>110 [1] - 2190:21</p> <p>11:51 [1] - 2270:6</p> <p>12 [7] - 2200:16, 2201:7, 2213:6, 2303:17, 2303:18, 2303:19, 2303:22</p> <p>120 [1] - 2191:14</p> <p>1200 [1] - 2244:22</p> <p>121 [1] - 2191:10</p> <p>1247 [1] - 2243:23</p> <p>125 [3] - 2201:24, 2205:5, 2213:7</p> <p>127 [2] - 2203:9, 2204:4</p> <p>1284553 [1] - 2188:16</p> <p>12:58 [1] - 2270:8</p>	<p>2</p> <p>2 [8] - 2194:7, 2194:18, 2215:13, 2218:21, 2241:17, 2260:2, 2328:23, 2329:2</p> <p>2,500 [6] - 2205:16, 2208:12, 2209:8, 2257:5, 2334:19, 2335:16</p> <p>2,506 [2] - 2246:5, 2255:25</p> <p>2.3 [1] - 2224:24</p> <p>2.9 [1] - 2222:7</p> <p>20 [2] - 2220:12, 2270:2</p> <p>20-fold [1] - 2268:14</p> <p>200-page [1] - 229</p>	<p>2000 [2] - 2198:17, 2283:12</p> <p>2002 [1] - 2283:14</p> <p>2003 [1] - 2193:25</p> <p>2006 [37] - 2188:21, 2188:24, 2198:22, 2199:1, 2214:12, 2214:25, 2217:14, 2217:18, 2217:21, 2218:22, 2220:20, 2220:25, 2224:22, 2228:15, 2230:22, 2234:10, 2285:8, 2288:12, 2288:14, 2288:23, 2288:24, 2289:9, 2289:23, 2290:10, 2290:22, 2291:11, 2294:4, 2294:25, 2295:22, 2296:24, 2316:14, 2334:24, 2335:4, 2335:16, 2336:4, 2336:21</p> <p>2007 [2] - 2228:8, 2228:21</p> <p>2008 [4] - 2228:11, 2228:21, 2229:22, 2297:7</p> <p>2010 [1] - 2308:21</p> <p>2011 [16] - 2235:17, 2236:5, 2236:23, 2237:1, 2237:11, 2241:9, 2241:19, 2247:4, 2256:5, 2256:16, 2259:21, 2259:23, 2277:8, 2277:14, 2277:18, 2300:7</p> <p>2011-2012 [1] - 2326:22</p> <p>2012 [23] - 2199:17, 2199:21, 2201:12, 2235:24, 2236:5, 2237:11, 2245:21, 2250:22, 2256:5, 2256:16, 2258:2, 2258:6, 2265:3, 2266:1, 2266:7, 2267:16, 2267:22, 2268:3, 2269:2, 2269:12, 2276:24, 2277:9, 2277:14</p> <p>2013 [3] - 2226:3, 2250:24, 2285:18</p> <p>2014 [16] - 2234:2, 2275:21, 2276:1, 2276:9, 2276:21, 2278:13, 2286:4, 2286:17, 2314:20,</p>	<p>2315:22, 2332:16, 2332:18, 2332:20, 2333:1</p> <p>2015 [6] - 2199:7, 2266:22, 2277:3, 2338:4, 2338:6</p> <p>2016 [8] - 2183:13, 2213:1, 2213:8, 2213:14, 2213:24, 2277:3, 2342:16, 2343:11</p> <p>2019 [1] - 2343:17</p> <p>2050 [2] - 2329:23, 2330:3</p> <p>21 [9] - 2188:20, 2188:23, 2214:13, 2217:14, 2220:21, 2222:11, 2224:22, 2225:4, 2278:13</p> <p>21,000 [1] - 2211:15</p> <p>213 [1] - 2276:6</p> <p>2187 [1] - 2184:3</p> <p>2188 [4] - 2184:6, 2184:19, 2184:20, 2184:22</p> <p>2189 [2] - 2184:12, 2184:19</p> <p>2190 [2] - 2184:13, 2184:23</p> <p>2192 [1] - 2184:4</p> <p>2193 [1] - 2184:4</p> <p>2194 [1] - 2184:11</p> <p>2195 [1] - 2184:23</p> <p>2196 [1] - 2184:9</p> <p>22 [1] - 2227:24</p> <p>2208 [1] - 2184:21</p> <p>2214 [1] - 2184:6</p> <p>2216 [1] - 2184:14</p> <p>2225 [2] - 2184:15, 2184:16</p> <p>2227 [1] - 2184:11</p> <p>2233 [1] - 2184:18</p> <p>2237 [1] - 2184:13</p> <p>2238 [1] - 2184:22</p> <p>2240 [1] - 2184:7</p> <p>2241 [1] - 2184:14</p> <p>2243 [1] - 2184:24</p> <p>2251 [1] - 2184:20</p> <p>2255 [1] - 2184:12</p> <p>2257 [1] - 2184:18</p> <p>2260 [1] - 2184:21</p> <p>2263 [1] - 2184:19</p> <p>2264 [1] - 2184:8</p> <p>2269 [1] - 2184:16</p> <p>2270 [1] - 2184:9</p> <p>2276 [1] - 2184:8</p> <p>2278 [1] - 2184:17</p> <p>2281 [1] - 2184:17</p> <p>2282 [1] - 2184:15</p>	<p>2287 [1] - 2184:4</p> <p>2292 [1] - 2184:6</p> <p>2297 [1] - 2184:7</p> <p>2299 [1] - 2184:12</p> <p>22nd [1] - 2315:1</p> <p>23 [10] - 2188:22, 2189:7, 2189:10, 2189:13, 2220:20, 2220:21, 2233:2, 2241:9, 2253:21, 2292:23</p> <p>2306 [1] - 2184:12</p> <p>2309 [1] - 2184:10</p> <p>2314 [1] - 2184:25</p> <p>2321 [1] - 2184:4</p> <p>2324 [1] - 2184:12</p> <p>2326 [1] - 2184:7</p> <p>2329 [1] - 2184:24</p> <p>2353500 [1] - 2234:5</p> <p>24 [7] - 2223:17, 2234:7, 2234:8, 2248:19, 2255:17, 2283:16, 2324:24</p> <p>25 [25] - 2230:21, 2231:15, 2231:21, 2233:14, 2233:18, 2234:10, 2235:2, 2235:4, 2235:6, 2235:21, 2236:1, 2236:3, 2236:6, 2236:18, 2236:22, 2237:15, 2248:19, 2249:2, 2295:25, 2296:14, 2315:8, 2315:10, 2331:1, 2331:14</p> <p>26 [1] - 2237:8</p> <p>27 [2] - 2237:20, 2238:3</p> <p>28 [2] - 2240:9, 2297:13</p> <p>29 [1] - 2241:7</p> <p>291504 [1] - 2280:18</p> <p>291505 [1] - 2279:14</p> <p>2:30 [1] - 2342:14</p>
	2		3		
	<p>2 [8] - 2194:7, 2194:18, 2215:13, 2218:21, 2241:17, 2260:2, 2328:23, 2329:2</p> <p>2,500 [6] - 2205:16, 2208:12, 2209:8, 2257:5, 2334:19, 2335:16</p> <p>2,506 [2] - 2246:5, 2255:25</p> <p>2.3 [1] - 2224:24</p> <p>2.9 [1] - 2222:7</p> <p>20 [2] - 2220:12, 2270:2</p> <p>20-fold [1] - 2268:14</p> <p>200-page [1] - 229</p>	<p>2000 [2] - 2198:17, 2283:12</p> <p>2002 [1] - 2283:14</p> <p>2003 [1] - 2193:25</p> <p>2006 [37] - 2188:21, 2188:24, 2198:22, 2199:1, 2214:12, 2214:25, 2217:14, 2217:18, 2217:21, 2218:22, 2220:20, 2220:25, 2224:22, 2228:15, 2230:22, 2234:10, 2285:8, 2288:12, 2288:14, 2288:23, 2288:24, 2289:9, 2289:23, 2290:10, 2290:22, 2291:11, 2294:4, 2294:25, 2295:22, 2296:24, 2316:14, 2334:24, 2335:4, 2335:16, 2336:4, 2336:21</p> <p>2007 [2] - 2228:8, 2228:21</p> <p>2008 [4] - 2228:11, 2228:21, 2229:22, 2297:7</p> <p>2010 [1] - 2308:21</p> <p>2011 [16] - 2235:17, 2236:5, 2236:23, 2237:1, 2237:11, 2241:9, 2241:19, 2247:4, 2256:5, 2256:16, 2259:21, 2259:23, 2277:8, 2277:14, 2277:18, 2300:7</p> <p>2011-2012 [1] - 2326:22</p> <p>2012 [23] - 2199:17, 2199:21, 2201:12, 2235:24, 2236:5, 2237:11, 2245:21, 2250:22, 2256:5, 2256:16, 2258:2, 2258:6, 2265:3, 2266:1, 2266:7, 2267:16, 2267:22, 2268:3, 2269:2, 2269:12, 2276:24, 2277:9, 2277:14</p> <p>2013 [3] - 2226:3, 2250:24, 2285:18</p> <p>2014 [16] - 2234:2, 2275:21, 2276:1, 2276:9, 2276:21, 2278:13, 2286:4, 2286:17, 2314:20,</p>	<p>2315:22, 2332:16, 2332:18, 2332:20, 2333:1</p> <p>2015 [6] - 2199:7, 2266:22, 2277:3, 2338:4, 2338:6</p> <p>2016 [8] - 2183:13, 2213:1, 2213:8, 2213:14, 2213:24, 2277:3, 2342:16, 2343:11</p> <p>2019 [1] - 2343:17</p> <p>2050 [2] - 2329:23, 2330:3</p> <p>21 [9] - 2188:20, 2188:23, 2214:13, 2217:14, 2220:21, 2222:11, 2224:22, 2225:4, 2278:13</p> <p>21,000 [1] - 2211:15</p> <p>213 [1] - 2276:6</p> <p>2187 [1] - 2184:3</p> <p>2188 [4] - 2184:6, 2184:19, 2184:20, 2184:22</p> <p>2189 [2] - 2184:12, 2184:19</p> <p>2190 [2] - 2184:13, 2184:23</p> <p>2192 [1] - 2184:4</p> <p>2193 [1] - 2184:4</p> <p>2194 [1] - 2184:11</p> <p>2195 [1] - 2184:23</p> <p>2196 [1] - 2184:9</p> <p>22 [1] - 2227:24</p> <p>2208 [1] - 2184:21</p> <p>2214 [1] - 2184:6</p> <p>2216 [1] - 2184:14</p> <p>2225 [2] - 2184:15, 2184:16</p> <p>2227 [1] - 2184:11</p> <p>2233 [1] - 2184:18</p> <p>2237 [1] - 2184:13</p> <p>2238 [1] - 2184:22</p> <p>2240 [1] - 2184:7</p> <p>2241 [1] - 2184:14</p> <p>2243 [1] - 2184:24</p> <p>2251 [1] - 2184:20</p> <p>2255 [1] - 2184:12</p> <p>2257 [1] - 2184:18</p> <p>2260 [1] - 2184:21</p> <p>2263 [1] - 2184:19</p> <p>2264 [1] - 2184:8</p> <p>2269 [1] - 2184:16</p> <p>2270 [1] - 2184:9</p> <p>2276 [1] - 2184:8</p> <p>2278 [1] - 2184:17</p> <p>2281 [1] - 2184:17</p> <p>2282 [1] - 2184:15</p>	<p>2287 [1] - 2184:4</p> <p>2292 [1] - 2184:6</p> <p>2297 [1] - 2184:7</p> <p>2299 [1] - 2184:12</p> <p>22nd [1] - 2315:1</p> <p>23 [10] - 2188:22, 2189:7, 2189:10, 2189:13, 2220:20, 2220:21, 2233:2, 2241:9, 2253:21, 2292:23</p> <p>2306 [1] - 2184:12</p> <p>2309 [1] - 2184:10</p> <p>2314 [1] - 2184:25</p> <p>2321 [1] - 2</p>	

<p>3-9 [1] - 2306:10 3.1 [1] - 2300:21 3.5 [3] - 2284:8, 2284:16, 2285:3 30 [19] - 2191:3, 2204:6, 2204:23, 2206:12, 2208:11, 2231:3, 2231:4, 2231:6, 2231:18, 2239:20, 2240:1, 2243:23, 2299:1, 2316:18, 2316:19, 2316:20, 2316:22, 2329:9, 2331:14 31 [1] - 2240:9 315,000 [1] - 2200:9 328 [3] - 2330:9, 2330:15, 2330:22 33 [2] - 2251:7, 2251:10 34 [1] - 2209:1 35 [4] - 2255:15, 2296:23, 2299:25, 2324:24 36 [2] - 2327:4, 2328:2 37 [3] - 2201:21, 2213:6, 2257:9 38 [2] - 2240:11, 2260:12 39 [2] - 2240:22, 2263:8</p>	<p>2224:23 5 5 [2] - 2194:18, 2236:24 5-1 [4] - 2244:6, 2244:22, 2244:24, 2329:15 5-3 [1] - 2329:15 5-6 [2] - 2246:10, 2246:11 5.4 [1] - 2246:12 50 [1] - 2225:3 51 [2] - 2269:4, 2281:8 537 [1] - 2183:12 54 [1] - 2283:8 55 [4] - 2221:15, 2222:5, 2281:8, 2281:12 56 [3] - 2221:15, 2222:9, 2222:10 57 [2] - 2327:5, 2328:4</p>	<p>2256:24, 2257:2, 2257:5, 2331:1, 2331:21, 2331:22, 2332:9 7th [1] - 2343:11 8 8 [12] - 2196:6, 2196:11, 2196:23, 2200:3, 2314:21, 2314:22, 2314:25, 2327:8, 2327:25, 2328:1, 2328:2 8,000 [2] - 2231:4, 2231:5 800 [1] - 2281:19 878 [1] - 2195:5 881 [2] - 2188:22, 2189:2 882 [2] - 2190:6, 2190:8</p>	<p>2250:15, 2319:12 above-entitled [1] - 2183:10 above-named [1] - 2343:9 abreast [1] - 2318:12 absolutely [3] - 2235:8, 2326:12, 2328:24 abstract [2] - 2226:18, 2226:24 abundance [2] - 2242:6, 2269:16 accept [1] - 2218:23 accommodate [1] - 2333:14 accommodating [1] - 2340:22 accommodations [1] - 2342:5 accomplished [1] - 2196:7 accomplishment [1] - 2319:16 account [1] - 2203:8 accurate [1] - 2195:21 accurately [1] - 2271:21 ACF [24] - 2195:1, 2200:4, 2200:12, 2201:19, 2205:20, 2205:24, 2206:1, 2206:5, 2224:6, 2228:18, 2229:24, 2248:14, 2298:20, 2298:24, 2317:15, 2317:18, 2317:23, 2317:24, 2318:2, 2318:5, 2321:12, 2322:20, 2331:10, 2338:1 ACFS [2] - 2317:18, 2318:19 achieved [1] - 2229:17 acquiring [1] - 2274:3 acre [4] - 2209:11, 2222:15, 2223:21, 2224:1 acreage [13] - 2194:25, 2200:3, 2202:6, 2202:13, 2202:14, 2202:17, 2203:5, 2205:4, 2208:7, 2208:24, 2210:9, 2223:6, 2223:24 acres [17] - 2197:23, 2198:5, 2198:17, 2198:19, 2199:6, 2200:4,</p>	<p>2200:12, 2202:18, 2205:10, 2207:6, 2208:13, 2209:1, 2209:7, 2213:13, 2278:1, 2336:14 act [1] - 2265:8 Act [28] - 2221:8, 2222:15, 2228:20, 2258:6, 2258:19, 2258:25, 2259:24, 2260:9, 2265:2, 2266:19, 2267:23, 2268:4, 2269:2, 2274:17, 2275:17, 2275:22, 2276:3, 2276:9, 2276:14, 2277:4, 2282:10, 2282:25, 2315:23, 2332:19, 2333:11, 2333:22, 2334:3, 2334:12 action [3] - 2212:3, 2271:15, 2343:9 actions [7] - 2211:24, 2213:18, 2221:12, 2279:1, 2279:20, 2279:22, 2314:11 active [2] - 2219:24, 2317:25 actively [1] - 2274:12 activities [3] - 2213:25, 2288:7, 2315:2 actual [3] - 2202:18, 2205:9, 2256:17 adapted [2] - 2304:12, 2304:15 addition [1] - 2247:16 additional [5] - 2221:1, 2288:19, 2290:2, 2290:14, 2322:20 address [11] - 2188:6, 2199:9, 2200:19, 2203:14, 2210:8, 2211:14, 2271:25, 2272:8, 2274:13, 2286:5, 2291:6 addresses [2] - 2292:18, 2307:18 addressing [1] - 2220:5 adequately [1] - 2241:24 adjourned [2] - 2342:9, 2342:15 Administration [1] - 2287:18 admirable [1] - 2319:15</p>
<p>4 4 [4] - 2218:15, 2222:9, 2269:6, 2276:13 4(a) [1] - 2276:15 4(b) [1] - 2277:23 40 [4] - 2200:11, 2240:2, 2264:17, 2264:21 41 [1] - 2266:16 42 [9] - 2190:7, 2190:12, 2190:15, 2190:17, 2190:21, 2191:7, 2191:11, 2191:14, 2191:18 43 [3] - 2216:3, 2216:4, 2269:3 45 [2] - 2270:15, 2278:14 45746 [1] - 2263:17 46 [2] - 2217:6, 2276:3 47 [2] - 2228:1, 2286:13 48 [4] - 2221:22, 2222:1, 2278:9, 2278:23 49 [2] - 2221:22,</p>	<p>6 6 [2] - 2220:22, 2253:21 6,600 [1] - 2205:23 6-1 [1] - 2246:23 6-6 [1] - 2246:23 6.1 [1] - 2315:18 60 [1] - 2240:1 64 [1] - 2232:10 68 [4] - 2303:22, 2303:25, 2304:4, 2325:15 68-year [1] - 2325:16 681 [2] - 2330:4, 2330:21 69a [1] - 2280:19 7 7 [8] - 2195:4, 2195:6, 2198:9, 2230:5, 2242:9, 2327:10, 2327:11 70 [1] - 2251:25 700 [1] - 2281:19 724353 [1] - 2188:7 75,000 [1] - 2199:22 75th [3] - 2330:3, 2330:9, 2330:17 788,000 [1] - 2200:6 7A [1] - 2296:25 7Q10 [17] - 2191:5, 2232:5, 2232:7, 2238:19, 2238:22, 2249:19, 2249:25, 2250:1, 2250:3,</p>	<p>9 9 [10] - 2193:15, 2194:2, 2194:10, 2200:1, 2243:1, 2243:13, 2283:18, 2327:8, 2328:23, 2343:17 9,000 [1] - 2323:3 931314 [2] - 2189:24, 2190:3 946279 [1] - 2281:22 946289 [1] - 2281:13 97 [4] - 2189:16, 2189:17, 2189:23, 2190:2 99 [2] - 2188:10, 2188:15 9:00 [2] - 2183:14, 2342:16 A A-98-100-0564 [1] - 2208:14 a.m [6] - 2183:14, 2224:17, 2224:19, 2270:6, 2270:8, 2342:16 AAD [8] - 2233:14, 2233:19, 2234:11, 2236:3, 2236:6, 2316:22, 2331:2, 2331:15 ABID [1] - 2183:18 ability [3] - 2262:17, 2301:4, 2304:9</p>		

<p>adopt [1] - 2192:24 adopted [14] - 2241:6, 2249:16, 2283:2, 2294:4, 2297:6, 2300:7, 2318:5, 2318:22, 2319:12, 2323:17, 2323:25, 2331:18, 2337:3, 2337:8 adoption [1] - 2315:21 advance [2] - 2272:16, 2319:22 adverse [1] - 2192:19 advice [5] - 2217:22, 2254:19, 2258:9, 2258:11, 2258:17 advises [1] - 2260:3 Advisory [1] - 2224:24 advisory [2] - 2285:8, 2289:14 affect [4] - 2209:8, 2217:15, 2262:22, 2329:1 affected [2] - 2244:10, 2244:11 affecting [1] - 2268:20 affiliated [3] - 2211:8, 2280:1, 2321:16 afford [1] - 2280:9 afternoon [6] - 2270:9, 2270:11, 2270:13, 2270:14, 2287:7, 2287:8 Ag [1] - 2262:10 agency [2] - 2212:22, 2253:1 ago [12] - 2194:9, 2196:20, 2205:3, 2225:24, 2238:22, 2248:19, 2250:2, 2250:18, 2251:21, 2255:17, 2330:24, 2333:6 agree [12] - 2208:4, 2234:12, 2235:1, 2235:8, 2242:10, 2245:9, 2263:23, 2268:12, 2268:21, 2275:24, 2305:13 agreed [1] - 2185:24 agreement [2] - 2186:19, 2274:9 agribusiness [1] - 2222:2 agricultural [30] - 2195:9, 2195:16, 2196:1, 2196:3, 2202:2, 2203:25, 2204:12, 2205:6, 2206:20, 2208:6,</p>	<p>2209:12, 2211:1, 2211:8, 2211:12, 2212:2, 2212:20, 2223:2, 2229:7, 2233:8, 2257:19, 2268:13, 2268:21, 2274:10, 2279:4, 2288:25, 2290:3, 2290:6, 2315:17, 2315:20, 2315:21 aid [1] - 2278:17 Aid [1] - 2280:25 Alabama [1] - 2310:8 Alabama-Georgia [1] - 2310:8 Albany [1] - 2280:4 alerting [1] - 2238:5 Allen [1] - 2203:22 allocation [7] - 2216:15, 2216:20, 2216:24, 2217:23, 2218:12, 2218:25, 2243:8 allow [1] - 2223:4 allowed [4] - 2223:2, 2231:19, 2293:12, 2293:17 allowing [3] - 2221:6, 2294:11 almost [3] - 2249:20, 2254:22, 2282:4 alternative [1] - 2277:21 alternatives [3] - 2222:24, 2283:21, 2283:24 ambiguities [1] - 2320:13 ambiguity [1] - 2320:9 ambiguous [1] - 2219:14 amended [1] - 2332:24 amendments [8] - 2275:16, 2275:21, 2276:2, 2276:8, 2315:22, 2332:16, 2332:18, 2332:20 American [3] - 2251:15, 2252:16, 2252:23 amount [11] - 2215:8, 2223:14, 2223:20, 2224:2, 2245:19, 2257:3, 2304:24, 2304:25, 2305:5, 2305:6, 2333:13 analyses [1] - 2308:22 analysis [16] - 2195:17, 2198:1</p>	<p>2227:4, 2261:20, 2272:5, 2285:25, 2299:14, 2302:13, 2306:2, 2307:4, 2308:3, 2308:5, 2311:14, 2311:16, 2313:13, 2313:21 analyst [1] - 2195:15 announcement [1] - 2203:21 annual [23] - 2191:4, 2230:21, 2230:22, 2231:16, 2231:22, 2235:2, 2235:4, 2235:6, 2235:22, 2236:18, 2237:17, 2239:20, 2249:25, 2257:2, 2257:5, 2295:2, 2295:25, 2296:15, 2316:13, 2334:18, 2334:21, 2334:23, 2334:25 anonymously [1] - 2342:7 answer [8] - 2197:10, 2213:15, 2250:1, 2254:4, 2255:4, 2266:10, 2334:15, 2339:3 ante [1] - 2274:8 ante-legal [1] - 2274:8 anticipated [1] - 2221:7 anyway [1] - 2322:7 Apalachicola [8] - 2186:13, 2322:21, 2322:23, 2323:14, 2323:23, 2324:2 apologize [6] - 2187:23, 2204:18, 2229:10, 2239:15, 2324:12, 2326:18 APPEARANCES [1] - 2183:16 application [1] - 2277:12 applications [3] - 2194:12, 2317:1, 2337:7 applied [14] - 2218:5, 2223:21, 2224:2, 2224:8, 2227:2, 2230:23, 2231:23, 2234:15, 2236:10, 2256:12, 2290:16, 2293:23, 2303:25, 2317:6 applies [5] - 2250:11, 2256:14, 2265:10,</p>	<p>apply [6] - 2223:8, 2223:10, 2272:12, 2284:17, 2303:22, 2331:5 appointed [1] - 2298:25 appointing [1] - 2203:13 apportionment [1] - 2271:14 appreciate [3] - 2201:3, 2238:16, 2342:8 approach [12] - 2187:8, 2192:14, 2193:10, 2200:25, 2273:12, 2273:18, 2301:23, 2309:3, 2322:9, 2337:4, 2337:10, 2338:25 approaches [3] - 2242:18, 2249:25, 2323:6 appropriate [4] - 2249:3, 2249:4, 2249:19, 2276:25 appropriated [2] - 2265:15, 2266:8 appropriately [1] - 2228:16 approve [1] - 2241:1 April [1] - 2195:2 aquatic [6] - 2186:1, 2238:9, 2239:3, 2242:5, 2249:14, 2249:21 Aquifer [10] - 2207:11, 2272:21, 2272:22, 2273:10, 2306:22, 2309:9, 2310:2, 2329:14, 2330:2, 2330:10 aquifer [6] - 2273:13, 2307:3, 2308:11, 2311:21, 2312:8, 2316:9 aquifers [9] - 2247:23, 2272:18, 2273:1, 2273:10, 2273:20, 2273:22, 2274:25, 2275:1, 2306:19 area [10] - 2207:5, 2224:9, 2293:17, 2310:1, 2310:22, 2311:11, 2311:20, 2312:8, 2329:20 areas [13] - 2261:17, 2292:15, 2293:11, 2302:14, 2308:8,</p>	<p>2336:6, 2336:10, 2336:14, 2336:15, 2336:25 arguments [1] - 2306:5 arise [1] - 2338:17 Army [5] - 2320:15, 2320:18, 2320:19, 2320:21, 2320:24 array [1] - 2317:20 arrives [1] - 2322:16 artificially [6] - 2245:17, 2302:25, 2303:2, 2303:8, 2303:24, 2304:3 assess [1] - 2316:8 assessment [6] - 2298:6, 2302:24, 2305:17, 2306:16, 2307:24, 2309:1 assign [1] - 2212:14 assist [1] - 2212:23 assistant [2] - 2186:6, 2287:25 assisted [1] - 2282:21 assisting [2] - 2212:18, 2212:21 associated [4] - 2198:6, 2198:17, 2261:16, 2281:18 assume [2] - 2221:24, 2257:24 assumed [2] - 2334:7, 2334:10 assumptions [1] - 2305:19 Atkins [1] - 2203:23 Atlanta [2] - 2321:16, 2323:21 attaching [1] - 2278:12 attempted [1] - 2252:13 attend [5] - 2226:6, 2266:25, 2285:20, 2313:17, 2318:3 attended [5] - 2271:3, 2271:6, 2271:9, 2278:21, 2285:18 attending [2] - 2318:4, 2318:11 attention [40] - 2196:5, 2200:1, 2200:15, 2206:25, 2208:10, 2214:11, 2220:10, 2222:19, 2224:23, 2225:5, 2225:16, 2226:17, 2237:19, 2240:10, 2241:20, 2242:25,</p>
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<p>2243:9, 2243:18, 2244:5, 2255:19, 2257:25, 2261:8, 2263:8, 2263:16, 2264:16, 2267:5, 2268:8, 2269:3, 2269:5, 2271:12, 2275:9, 2278:9, 2278:24, 2281:12, 2283:15, 2300:14, 2302:15, 2304:19, 2307:7, 2308:8 auction [7] - 2259:24, 2260:8, 2262:16, 2262:20, 2265:2, 2266:9, 2278:2 augment [1] - 2247:16 augmentation [12] - 2219:25, 2220:2, 2220:7, 2247:20, 2247:23, 2247:24, 2248:4, 2249:10, 2281:11, 2281:14, 2281:16, 2282:6 augmented [1] - 2280:25 augmenting [2] - 2273:4, 2275:2 August [6] - 2213:1, 2213:8, 2213:14, 2213:24, 2236:24, 2237:1 authority [2] - 2208:5, 2211:14 authorized [1] - 2221:1 authors [1] - 2238:25 availability [5] - 2244:25, 2299:14, 2299:19, 2309:1, 2313:14 available [4] - 2212:23, 2242:16, 2258:24, 2340:24 average [21] - 2191:4, 2230:21, 2230:22, 2231:16, 2231:21, 2235:2, 2235:4, 2235:6, 2235:22, 2236:15, 2236:19, 2237:1, 2237:17, 2239:20, 2295:2, 2295:25, 2296:10, 2296:11, 2296:15, 2316:13 aware [16] - 2203:3, 2213:17, 2214:6, 2214:9, 2224:5, 2224:10, 2229:21, 2244:16, 2267:12,</p>	<p>2277:11, 2285:24, 2286:3, 2322:13, 2334:21, 2341:6, 2341:11 B Bachelor's [1] - 2287:15 back-and-forth [2] - 2322:3, 2322:7 background [3] - 2187:19, 2287:12, 2339:3 backlog [3] - 2194:11, 2194:15, 2293:14 Bainbridge [20] - 2244:7, 2244:14, 2244:18, 2244:20, 2245:4, 2245:10, 2245:20, 2255:18, 2255:20, 2256:3, 2257:8, 2301:8, 2301:11, 2324:20, 2325:3, 2325:5, 2326:20, 2326:23, 2334:18 balancing [1] - 2337:14 Band [1] - 2280:25 Band-Aid [1] - 2280:25 Bankruptcy [1] - 2183:12 bankruptcy [1] - 2341:6 bar [2] - 2319:10, 2319:14 Barnes [1] - 2203:23 baron [1] - 2267:3 base [2] - 2320:6, 2320:10 based [18] - 2222:25, 2236:9, 2246:3, 2257:2, 2257:4, 2277:19, 2289:10, 2290:12, 2291:21, 2294:9, 2294:11, 2296:2, 2302:11, 2302:18, 2308:13, 2313:23, 2330:12, 2331:7 baseflow [10] - 2312:11, 2313:3, 2313:5, 2313:7, 2327:21, 2328:7, 2328:9, 2328:20, 2329:2 basin [32] - 2221:20, 2231:4, 2231:6, 2231:8, 2237:7,</p>	<p>2252:17, 2261:23, 2264:25, 2265:5, 2265:11, 2265:12, 2266:14, 2277:1, 2277:7, 2277:11, 2289:4, 2289:8, 2290:15, 2291:7, 2291:15, 2294:6, 2295:18, 2295:19, 2311:9, 2312:4, 2312:23, 2313:15, 2313:25, 2316:25, 2318:23, 2337:12, 2337:17 Basin [37] - 2195:1, 2200:4, 2200:12, 2201:19, 2205:20, 2205:23, 2205:24, 2206:1, 2206:5, 2217:24, 2224:7, 2227:3, 2228:19, 2229:24, 2248:6, 2250:7, 2261:17, 2262:4, 2265:15, 2265:25, 2271:25, 2272:9, 2279:21, 2285:2, 2288:9, 2289:1, 2298:21, 2298:24, 2300:12, 2300:13, 2306:18, 2316:6, 2317:21, 2318:2, 2331:11, 2337:20, 2339:2 basins [6] - 2288:3, 2295:17, 2296:16, 2328:22, 2329:3, 2336:8 basis [5] - 2209:14, 2229:25, 2235:16, 2236:9, 2327:19 Bates [1] - 2264:9 Bay [2] - 2323:14, 2323:23 became [3] - 2317:24, 2318:2, 2328:8 become [3] - 2276:21, 2317:22, 2340:2 beforehand [1] - 2336:22 began [2] - 2196:20, 2254:20 beginning [1] - 2241:17 begins [5] - 2217:11, 2225:7, 2226:19, 2229:1, 2261:9 behalf [1] - 2187:13 behind [1] - 2289:2 belabor [1] - 2253:19</p>	<p>belongings [1] - 2287:1 below [21] - 2216:13, 2234:17, 2235:4, 2235:6, 2235:21, 2236:6, 2236:12, 2236:14, 2236:17, 2236:18, 2237:15, 2256:17, 2257:1, 2295:14, 2296:6, 2296:7, 2296:10, 2296:12, 2296:14, 2330:16, 2334:10 Ben [1] - 2252:23 beneficial [1] - 2280:13 benefits [3] - 2261:16, 2274:8, 2320:10 BENJAMIN [1] - 2183:18 beside [1] - 2197:23 best [1] - 2197:10 between [6] - 2209:16, 2211:23, 2216:1, 2290:22, 2295:24, 2325:8 beyond [4] - 2214:2, 2218:5, 2218:7, 2272:12 big [2] - 2280:7, 2290:4 Bill [1] - 2276:6 binder [3] - 2195:5, 2270:16, 2299:25 binders [2] - 2187:11, 2193:11 biologic [1] - 2248:8 biological [2] - 2248:24, 2249:4 biologist [1] - 2186:2 Biology [1] - 2287:15 bit [22] - 2185:14, 2190:3, 2195:24, 2198:22, 2199:11, 2210:16, 2215:25, 2218:9, 2220:6, 2221:5, 2228:7, 2230:9, 2236:6, 2238:22, 2242:19, 2246:8, 2246:19, 2250:2, 2251:21, 2267:15, 2295:23, 2331:20 blessed [1] - 2280:7 blocks [2] - 2299:23, 2310:25 blue [2] - 2311:3, 2311:12 bottom [14] - 2194:14, 2200:10,</p>	<p>2224:25, 2254:10, 2254:13, 2263:17, 2265:17, 2271:13, 2275:11, 2278:25, 2279:14, 2310:9, 2328:5 bottom-up [1] - 2254:10 boundary [2] - 2293:15, 2293:17 boxes [2] - 2234:25, 2236:16 brainstorming [1] - 2258:13 branch [6] - 2186:6, 2204:13, 2204:14, 2258:15, 2287:25, 2288:1 briefing [1] - 2282:7 briefly [2] - 2287:13, 2333:5 bring [2] - 2186:9, 2285:15 brings [1] - 2298:5 BRITNEY [1] - 2183:20 broken [1] - 2325:25 building [1] - 2299:23 bullet [5] - 2246:14, 2247:13, 2281:25, 2282:9, 2304:5 bullets [1] - 2268:10 business [1] - 2223:12 buying [1] - 2274:4 BY [26] - 2192:21, 2193:5, 2193:13, 2196:16, 2197:18, 2204:20, 2206:11, 2211:5, 2215:19, 2224:20, 2253:12, 2264:15, 2267:10, 2270:12, 2287:6, 2287:21, 2293:8, 2296:21, 2297:14, 2300:22, 2302:1, 2309:5, 2309:21, 2314:24, 2317:14, 2321:10 C calculated [3] - 2245:6, 2246:4, 2257:2 Caldwell [10] - 2257:16, 2258:11, 2260:3, 2307:14, 2307:15, 2307:18, 2307:20, 2307:24,</p>
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<p>2312:3, 2313:12 Caldwell's [1] - 2258:9 cannot [2] - 2213:15, 2242:15 cap [2] - 2194:21, 2321:20 capacity [14] - 2222:25, 2223:6, 2223:23, 2223:24, 2292:14, 2293:11, 2298:9, 2299:5, 2302:16, 2306:19, 2336:4, 2336:5, 2336:15, 2336:25 capacity-use [1] - 2336:15 caps [1] - 2321:24 captures [2] - 2202:18, 2202:20 carries [1] - 2217:9 Cary [1] - 2341:7 case [14] - 2186:17, 2192:25, 2203:4, 2210:10, 2211:7, 2213:11, 2282:16, 2284:24, 2286:2, 2288:17, 2292:22, 2295:7, 2301:5, 2308:11 catch [1] - 2238:1 categories [3] - 2291:21, 2291:24, 2292:13 categorization [1] - 2293:4 categorizes [1] - 2291:20 category [1] - 2292:14 causal [1] - 2339:8 causation [3] - 2338:13, 2338:21, 2339:13 caused [1] - 2268:13 causing [1] - 2226:20 caveats [1] - 2245:19 cease [3] - 2234:18, 2235:12 center [2] - 2280:2, 2280:3 Center [1] - 2225:14 central [2] - 2283:1, 2311:11 certain [6] - 2261:17, 2264:2, 2272:19, 2333:13, 2334:4, 2334:7 certainly [3] - 2203:6, 2290:20, 2341:17 CERTIFICATE [1] - 2343:1</p>	<p>certify [2] - 2343:3, 2343:7 cfs [9] - 2246:5, 2255:23, 2257:5, 2301:14, 2301:16, 2304:24, 2323:3, 2323:5, 2334:19 chair [1] - 2203:22 challenge [2] - 2271:17, 2340:3 challenging [1] - 2210:17 change [15] - 2210:7, 2225:20, 2254:13, 2276:19, 2308:14, 2311:1, 2312:5, 2313:2, 2313:5, 2319:21, 2320:20, 2339:9, 2340:1, 2340:6 changed [4] - 2277:14, 2277:15, 2277:17, 2335:4 changes [9] - 2209:19, 2209:20, 2210:5, 2229:6, 2229:18, 2241:2, 2242:4, 2254:8, 2333:2 characteristics [1] - 2291:17 chart [8] - 2210:18, 2255:21, 2269:14, 2300:15, 2306:12, 2306:14, 2307:11, 2307:19 charts [1] - 2326:4 Chattahoochee [3] - 2205:25, 2240:19, 2300:12 chief [3] - 2186:6, 2258:15, 2287:25 chosen [3] - 2302:19, 2303:14, 2327:19 CHRISTIAN [1] - 2183:21 chronically [1] - 2255:10 chunks [1] - 2310:24 City [1] - 2236:23 clarify [1] - 2233:25 clarifying [1] - 2305:25 Claudette [4] - 2183:14, 2343:2, 2343:15, 2343:15 clause [1] - 2271:15 clean [2] - 2340:16, 2340:18 Clean [4] - 2333:10</p>	<p>2333:21, 2334:3, 2334:12 clear [7] - 2276:5, 2294:14, 2296:13, 2302:8, 2306:8, 2320:9, 2321:25 CLERK [2] - 2191:25, 2192:7 cliff [2] - 2212:22, 2233:8 Cliff [4] - 2233:3, 2271:9, 2278:10, 2278:12 clip [11] - 2188:5, 2188:10, 2188:14, 2188:23, 2189:1, 2189:12, 2189:22, 2190:1, 2190:5, 2190:14, 2191:17 clips [8] - 2187:18, 2187:25, 2188:19, 2189:15, 2190:11, 2191:2, 2191:3, 2191:21 close [1] - 2326:8 closest [1] - 2324:15 cofferdams [1] - 2247:8 cold [1] - 2187:23 colleagues [1] - 2255:12 collected [1] - 2202:21 collecting [2] - 2258:13, 2290:2 collection [1] - 2290:5 College [1] - 2287:16 color [2] - 2310:24, 2310:25 colored [2] - 2292:15, 2311:3 column [9] - 2211:3, 2212:9, 2233:14, 2247:1, 2301:13, 2307:1, 2325:17, 2329:25, 2330:18 columns [1] - 2197:20 combination [1] - 2290:2 comfortable [2] - 2291:10, 2294:5 coming [1] - 2315:19 commencing [1] - 2183:13 comment [4] - 2281:3, 2281:6, 2308:23, 2319:3 comments [2] - 2241:5, 2241:14</p>	<p>2217:7 commercial [1] - 2242:20 Commission [1] - 2343:17 Committee [1] - 2224:25 committee [2] - 2225:3, 2285:8 committees [1] - 2289:14 commodity [1] - 2260:4 communication [1] - 2243:19 communications [1] - 2243:6 comparable [1] - 2306:6 compared [6] - 2205:5, 2303:7, 2304:3, 2313:2, 2313:6, 2313:9 comparing [1] - 2302:16 comparison [1] - 2244:25 compelled [1] - 2244:1 competent [1] - 2314:1 compile [1] - 2210:3 compiled [2] - 2197:6, 2202:10 complaining [1] - 2228:14 complete [2] - 2275:5, 2322:25 complex [1] - 2251:1 compliance [10] - 2204:12, 2209:22, 2211:21, 2211:23, 2211:24, 2212:1, 2212:5, 2212:6, 2212:8, 2212:11 complicated [3] - 2215:25, 2295:6, 2301:18 Comprehensive [2] - 2240:7, 2248:13 comprehensive [3] - 2248:10, 2248:14, 2297:7 computer [1] - 2310:13 concept [2] - 2216:2, 2218:11 concepts [2] - 2299:13, 2299:19</p>	<p>2241:23, 2242:3, 2242:22 concerns [2] - 2217:25, 2241:18 concise [1] - 2187:3 concluded [1] - 2261:15 Conclusion [1] - 2269:6 conclusion [1] - 2217:6 Conclusions [1] - 2268:8 condition [1] - 2208:3 conditions [11] - 2232:13, 2264:25, 2265:5, 2266:1, 2266:14, 2276:25, 2277:7, 2277:10, 2277:24, 2302:21, 2305:21 Conditions [1] - 2207:16 conduct [3] - 2197:15, 2266:8, 2313:13 conducted [1] - 2316:8 Conferece [1] - 2285:18 conference [6] - 2226:4, 2226:6, 2226:14, 2266:23, 2285:20, 2314:20 conferences [1] - 2226:11 confess [1] - 2295:5 confidentiality [5] - 2318:6, 2318:7, 2318:10, 2318:15, 2322:11 confirm [1] - 2296:22 confuses [1] - 2234:14 Congress [1] - 2183:12 connection [1] - 2290:22 connections [1] - 2289:16 consensus [8] - 2239:3, 2318:22, 2319:11, 2321:22, 2321:23, 2323:13, 2323:17, 2324:1 conservation [2] - 2229:16, 2337:19 Conservation [2] - 2199:2, 2288:9 consideration [4] - 2218:1, 2258:14,</p>
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<p>2258:15, 2259:17 considerations [3] - 2259:3, 2259:5, 2259:10 considered [1] - 2333:3 considering [1] - 2274:13 consistent [1] - 2198:8 constructed [3] - 2303:10, 2303:18, 2305:4 constructive [1] - 2337:15 consulting [1] - 2342:2 consumption [2] - 2321:20, 2321:24 contact [1] - 2212:22 contacting [1] - 2252:22 contain [1] - 2262:25 contains [2] - 2225:18, 2236:3 context [3] - 2216:25, 2284:22, 2338:22 continue [3] - 2220:16, 2270:3, 2337:14 continues [4] - 2188:5, 2189:23, 2190:14, 2253:4 continuing [1] - 2268:25 contract [1] - 2250:23 contracted [1] - 2250:24 contributed [1] - 2262:15 contributes [2] - 2309:23, 2339:24 controlled [1] - 2312:15 convened [1] - 2252:17 convenient [1] - 2224:14 conversation [1] - 2258:16 conversations [1] - 2261:19 coordinating [2] - 2288:2, 2288:5 Coppage [3] - 2195:12, 2195:15, 2198:9 copy [2] - 2196:14, 2206:19 cordial [1] - 2337:15</p>	<p>corner [2] - 2210:22, 2300:10 Corps [6] - 2320:15, 2320:18, 2320:19, 2320:21, 2320:24, 2324:4 correct [112] - 2194:4, 2195:10, 2195:22, 2196:21, 2199:20, 2201:13, 2201:14, 2201:20, 2206:15, 2210:21, 2211:17, 2211:18, 2211:20, 2214:5, 2214:8, 2215:5, 2217:17, 2217:18, 2217:19, 2219:2, 2219:13, 2221:3, 2221:9, 2223:5, 2224:4, 2226:14, 2228:10, 2228:11, 2228:22, 2230:25, 2231:13, 2231:22, 2232:6, 2233:9, 2234:3, 2234:4, 2235:24, 2236:20, 2238:11, 2240:13, 2241:2, 2241:3, 2244:4, 2244:9, 2244:12, 2244:15, 2244:20, 2247:5, 2250:19, 2251:16, 2251:17, 2252:7, 2256:13, 2257:18, 2258:7, 2258:22, 2259:1, 2259:22, 2260:1, 2260:10, 2261:4, 2261:6, 2263:6, 2264:4, 2265:4, 2268:6, 2270:18, 2270:19, 2271:1, 2271:2, 2271:8, 2271:11, 2272:1, 2272:2, 2272:11, 2272:21, 2273:3, 2274:14, 2274:15, 2274:19, 2276:11, 2276:20, 2276:23, 2278:7, 2278:20, 2278:22, 2279:6, 2284:15, 2294:22, 2296:25, 2301:10, 2303:6, 2305:24, 2307:12, 2312:20, 2317:5, 2321:18, 2325:7, 2329:19, 2330:15, 2330:23, 2331:16, 2331:25, 2332:10, 2333:2, 2333:12, 2333:1^ 2333:23, 2334:1</p>	<p>2334:6, 2338:8, 2343:4 correcting [1] - 2234:1 cost [5] - 2283:20, 2284:5, 2284:17, 2285:2, 2315:19 cost-share [1] - 2315:19 Couch [3] - 2217:21, 2218:22, 2228:14 council [3] - 2298:25, 2299:7, 2313:22 Council [4] - 2251:22, 2282:19, 2321:17, 2323:21 councils [7] - 2299:23, 2302:14, 2304:19, 2307:6, 2308:7, 2313:17, 2314:11 counsel [12] - 2185:3, 2185:21, 2187:22, 2197:13, 2200:23, 2204:16, 2205:15, 2264:12, 2282:7, 2302:6, 2304:23, 2305:10 couple [6] - 2202:21, 2203:1, 2216:1, 2267:6, 2275:6, 2275:13 course [2] - 2185:18, 2197:15 COURT [1] - 2183:1 Court [23] - 2183:12, 2187:1, 2287:11, 2287:14, 2288:20, 2292:11, 2292:18, 2295:8, 2296:2, 2296:18, 2297:5, 2298:21, 2300:2, 2302:4, 2302:10, 2306:8, 2306:15, 2308:19, 2309:14, 2309:23, 2310:19, 2341:2, 2343:16 courtesy [1] - 2197:4 covers [1] - 2310:22 Cowie [59] - 2184:4, 2186:5, 2191:22, 2192:11, 2192:17, 2192:22, 2193:6, 2193:14, 2196:9, 2197:8, 2204:21, 2204:22, 2215:20, 2222:22, 2224:21, 2254:6, 2255:17, 2263:9, 2264:16, 2269:8, 2270:13,</p>	<p>2287:7, 2287:9, 2288:8, 2289:15, 2290:9, 2290:19, 2293:9, 2294:3, 2294:23, 2295:23, 2296:22, 2297:1, 2297:15, 2299:13, 2300:23, 2301:7, 2302:2, 2302:3, 2304:23, 2305:25, 2308:17, 2309:6, 2309:19, 2309:22, 2311:6, 2313:11, 2314:3, 2314:10, 2314:25, 2315:24, 2316:11, 2317:8, 2319:2, 2319:25, 2321:5, 2321:11 CRAIG [1] - 2183:20 create [2] - 2288:23, 2334:3 created [1] - 2270:18 creating [2] - 2273:14, 2289:9 Creek [40] - 2207:9, 2207:10, 2209:7, 2219:20, 2220:3, 2220:4, 2235:18, 2236:22, 2237:9, 2247:24, 2248:2, 2248:4, 2262:1, 2263:24, 2264:1, 2264:22, 2264:24, 2265:8, 2265:12, 2266:18, 2267:7, 2267:15, 2267:24, 2268:5, 2268:15, 2269:11, 2269:22, 2280:25, 2281:11, 2281:13, 2281:16, 2282:6, 2295:17, 2311:25, 2312:2, 2312:18, 2313:8, 2336:2, 2336:3, 2336:9 Creeks [1] - 2269:19 criteria [32] - 2236:4, 2236:7, 2236:8, 2236:12, 2236:15, 2236:17, 2246:2, 2246:16, 2249:14, 2256:18, 2256:24, 2259:13, 2295:20, 2304:22, 2307:23, 2308:1, 2308:5, 2308:10, 2308:11, 2308:13, 2311:15, 2312:2, 2312:11, 2312:15, 2312:21, 2312:4, 2334:11,</p>	<p>2334:17, 2334:18, 2334:21, 2334:23, 2334:25 criterion [4] - 2313:11, 2327:21, 2328:7, 2328:9 critical [3] - 2263:25, 2264:2, 2269:22 crop [3] - 2223:8, 2223:11, 2224:3 crops [1] - 2224:8 cross [2] - 2186:22, 2187:15 CROSS [1] - 2193:4 Cross [1] - 2184:2 cross-designations [1] - 2187:15 CROSS- EXAMINATION [1] - 2193:4 crossed [1] - 2311:18 CRR [2] - 2183:14, 2343:15 cubic [1] - 2245:6 cumulative [1] - 2328:7 current [9] - 2215:7, 2216:15, 2218:24, 2226:24, 2228:5, 2229:18, 2260:4, 2306:24, 2307:9 cut [1] - 2231:11</p> <hr/> <p style="text-align: center;">D</p> <p>damage [1] - 2223:11 data [9] - 2195:8, 2195:15, 2196:10, 2202:6, 2235:7, 2256:10, 2256:14, 2269:21, 2295:2 database [15] - 2195:9, 2196:1, 2196:4, 2202:2, 2202:10, 2202:18, 2203:5, 2205:4, 2205:6, 2209:11, 2209:13, 2210:5, 2210:9, 2232:11, 2232:14 databases [2] - 2197:6, 2210:3 date [9] - 2196:7, 2199:1, 2199:16, 2200:9, 2240:1, 2253:4, 2275:6, 2275:8, 2338:5 dated [2] - 2195:2, 2214:24 dates [1] - 2196:9</p>
---	---	---	---	--

<p>day's [1] - 2256:10</p> <p>day-to-day [2] - 2228:18, 2229:25</p> <p>days [3] - 2197:16, 2325:22, 2326:2</p> <p>debate [1] - 2295:24</p> <p>December [1] - 2343:11</p> <p>deciding [1] - 2265:1</p> <p>decision [7] - 2261:23, 2265:6, 2265:7, 2265:10, 2289:19, 2290:11, 2319:13</p> <p>decision-making [1] - 2319:13</p> <p>decisions [1] - 2302:10</p> <p>declare [2] - 2261:24, 2265:4</p> <p>declared [1] - 2277:25</p> <p>decline [1] - 2251:25</p> <p>declined [1] - 2294:21</p> <p>decrease [3] - 2272:16, 2315:11, 2315:17</p> <p>deeper [5] - 2272:18, 2273:1, 2273:9, 2274:25, 2275:1</p> <p>Defendants [1] - 2183:7</p> <p>defense [1] - 2338:20</p> <p>defined [2] - 2249:10, 2267:18</p> <p>definitely [2] - 2320:13, 2320:24</p> <p>definition [2] - 2216:22, 2256:25</p> <p>deliberations [1] - 2218:3</p> <p>delivers [1] - 2281:17</p> <p>demand [21] - 2245:17, 2268:13, 2298:7, 2302:16, 2302:25, 2303:2, 2303:4, 2303:8, 2303:11, 2303:12, 2303:13, 2303:18, 2303:24, 2304:3, 2304:10, 2305:19, 2306:20, 2315:5, 2315:12, 2325:8, 2325:9</p> <p>demands [6] - 2298:9, 2298:12, 2299:5, 2299:6, 2299:9, 2301:6</p> <p>demonstration [1] - 2316:8</p> <p>demonstrative [5] -</p>	<p>2196:7, 2196:11, 2301:19, 2302:2, 2302:3</p> <p>demonstratives [1] - 2197:5</p> <p>department [1] - 2237:24</p> <p>Department [1] - 2186:3</p> <p>depicted [2] - 2306:23, 2314:25</p> <p>depicting [1] - 2271:22</p> <p>depiction [1] - 2195:21</p> <p>depicts [1] - 2309:22</p> <p>depletions [1] - 2194:21</p> <p>deposed [1] - 2257:22</p> <p>deposition [11] - 2185:25, 2187:7, 2214:3, 2215:9, 2234:9, 2253:9, 2253:11, 2260:23, 2263:10, 2275:3, 2307:17</p> <p>describe [10] - 2195:14, 2202:9, 2254:1, 2273:16, 2273:17, 2287:13, 2292:8, 2293:1, 2300:2, 2306:14</p> <p>described [2] - 2275:21, 2337:8</p> <p>describes [1] - 2265:5</p> <p>designation [1] - 2185:25</p> <p>designations [3] - 2187:15, 2215:9</p> <p>designed [2] - 2307:5, 2311:16</p> <p>despite [3] - 2219:20, 2220:16, 2249:2</p> <p>detail [2] - 2284:20, 2314:4</p> <p>detailed [1] - 2250:12</p> <p>details [2] - 2209:24, 2308:24</p> <p>determine [2] - 2211:25, 2278:1</p> <p>determined [5] - 2307:23, 2307:25, 2308:12, 2312:16, 2330:14</p> <p>determining [1] - 2334:8</p> <p>developed [2] - 2214:19, 2277:19</p> <p>developing [1] - 2299:2</p>	<p>Development [1] - 2288:9</p> <p>development [3] - 2218:2, 2282:21, 2297:22</p> <p>diagnosing [1] - 2339:8</p> <p>dictionary [1] - 2216:21</p> <p>difference [1] - 2325:7</p> <p>different [24] - 2202:21, 2203:1, 2231:25, 2235:12, 2243:10, 2249:6, 2249:23, 2249:24, 2249:25, 2264:9, 2291:18, 2291:21, 2292:1, 2292:2, 2311:1, 2322:6, 2322:8, 2323:1, 2323:6, 2327:24, 2328:22, 2330:14, 2339:20</p> <p>difficult [1] - 2339:10</p> <p>difficulty [1] - 2339:25</p> <p>DIRECT [1] - 2192:20</p> <p>Direct [1] - 2184:2</p> <p>direct [24] - 2186:22, 2192:14, 2192:23, 2193:15, 2194:10, 2198:11, 2198:24, 2199:17, 2201:7, 2201:22, 2202:23, 2204:5, 2204:24, 2205:8, 2205:11, 2212:25, 2213:17, 2230:2, 2240:6, 2247:23, 2266:11, 2268:7, 2274:8, 2314:6</p> <p>directions [1] - 2266:5</p> <p>directly [4] - 2228:17, 2229:23, 2330:7, 2342:7</p> <p>Director [21] - 2193:21, 2193:24, 2194:8, 2198:12, 2199:17, 2201:22, 2204:5, 2215:10, 2217:21, 2218:22, 2228:14, 2265:20, 2271:6, 2271:20, 2271:22, 2275:12, 2275:20, 2289:17, 2289:18</p> <p>director [4] - 2193:24, 2201:11, 2258:16, 2258:18</p> <p>disagreed [1] -</p>	<p>discharge [20] - 2191:4, 2230:21, 2230:22, 2231:16, 2231:22, 2235:2, 2235:5, 2235:6, 2235:22, 2236:19, 2237:17, 2239:21, 2295:3, 2296:1, 2296:15, 2298:8, 2316:13, 2333:5, 2333:9, 2333:24</p> <p>discharges [3] - 2333:15, 2333:20, 2334:2</p> <p>disclosed [1] - 2213:13</p> <p>disclosure [1] - 2212:24</p> <p>discrepancies [2] - 2205:7, 2209:16</p> <p>discretionary [1] - 2276:21</p> <p>discuss [1] - 2314:5</p> <p>discussed [2] - 2233:19, 2288:10</p> <p>discussing [3] - 2202:4, 2213:12, 2236:4</p> <p>discussion [15] - 2225:2, 2240:5, 2253:1, 2258:4, 2258:14, 2262:12, 2262:14, 2279:19, 2279:22, 2288:16, 2295:8, 2296:19, 2301:20, 2316:15, 2321:12</p> <p>discussions [1] - 2261:22</p> <p>disinterested [1] - 2343:8</p> <p>disinvited [3] - 2252:19, 2252:21, 2252:25</p> <p>dissertation [1] - 2319:20</p> <p>distinction [2] - 2211:22, 2338:15</p> <p>distribution [4] - 2242:5, 2296:9, 2325:23, 2326:12</p> <p>division [3] - 2237:25, 2238:8, 2250:3</p> <p>Division [13] - 2186:4, 2186:7, 2210:19, 2226:13, 2239:1, 2239:18, 2240:24, 2270:24, 2276:17, 2277:25, 2288:22, 2305:3</p>	<p>divisional [1] - 2299:3</p> <p>Doctor [1] - 2340:19</p> <p>Doctorate [1] - 2287:17</p> <p>Doctrine [1] - 2215:17</p> <p>doctrine [4] - 2215:21, 2216:14, 2242:11, 2242:13</p> <p>document [28] - 2206:22, 2209:4, 2225:21, 2237:20, 2238:6, 2239:1, 2241:13, 2243:1, 2258:2, 2258:12, 2263:15, 2264:7, 2264:12, 2270:18, 2283:9, 2283:16, 2288:20, 2291:4, 2292:18, 2292:21, 2297:15, 2297:16, 2297:17, 2297:19, 2300:15, 2308:18, 2314:16, 2318:22</p> <p>documented [7] - 2277:12, 2290:13, 2315:3, 2315:10, 2315:18, 2316:3, 2332:7</p> <p>documents [2] - 2190:6, 2300:18</p> <p>done [18] - 2274:18, 2277:5, 2282:4, 2290:1, 2290:15, 2294:13, 2301:4, 2302:13, 2302:23, 2306:17, 2307:4, 2308:4, 2316:2, 2336:12, 2339:8, 2341:1, 2341:24, 2341:25</p> <p>doubt [1] - 2265:18</p> <p>Doug [3] - 2279:24, 2280:1, 2280:5</p> <p>Dougherty [7] - 2309:9, 2310:3, 2310:24, 2311:22, 2329:14, 2329:17, 2330:11</p> <p>down [19] - 2194:19, 2197:20, 2198:21, 2203:9, 2204:3, 2207:24, 2215:18, 2230:20, 2233:21, 2242:19, 2247:21, 2254:17, 2261:9, 2272:3, 2273:9, 2280:22, 2312:24, 2322:21, 2325:25</p> <p>downstream [2] - 2242:15, 2242:21</p>
---	---	---	---	--

<p>Dr [74] - 2185:21, 2186:5, 2186:10, 2186:11, 2186:12, 2186:15, 2191:22, 2192:17, 2192:22, 2193:6, 2193:14, 2194:3, 2196:9, 2197:8, 2204:21, 2204:22, 2210:2, 2215:20, 2222:22, 2224:21, 2225:10, 2225:11, 2225:24, 2227:17, 2255:17, 2260:18, 2263:9, 2264:16, 2269:8, 2270:13, 2270:15, 2285:7, 2285:17, 2286:1, 2287:7, 2287:9, 2288:8, 2289:15, 2290:9, 2290:19, 2293:9, 2294:3, 2294:23, 2295:23, 2296:22, 2297:1, 2297:15, 2299:13, 2300:23, 2301:7, 2302:2, 2304:23, 2305:25, 2308:17, 2309:6, 2309:19, 2309:22, 2311:6, 2313:11, 2314:3, 2314:10, 2314:25, 2315:24, 2316:11, 2317:8, 2319:2, 2319:25, 2320:25, 2321:2, 2321:5, 2321:11, 2326:5, 2326:6, 2326:7</p> <p>draft [2] - 2241:14, 2260:20</p> <p>drainage [1] - 2311:1</p> <p>draw [2] - 2208:22, 2211:22</p> <p>drawing [2] - 2207:11, 2272:20</p> <p>drier [2] - 2273:19, 2273:22</p> <p>drilling [1] - 2273:9</p> <p>drivers [2] - 2289:1, 2289:8</p> <p>drops [3] - 2234:17, 2295:13, 2296:6</p> <p>drought [23] - 2220:13, 2221:8, 2228:8, 2234:13, 2256:21, 2259:12, 2259:20, 2259:21, 2261:24, 2262:25, 2265:4, 2265:24, 2266:1, 2268:17,</p>	<p>2268:23, 2272:9, 2272:12, 2272:15, 2272:16, 2276:24, 2277:24, 2279:1, 2340:7</p> <p>Drought [23] - 2221:8, 2222:14, 2228:20, 2258:5, 2258:19, 2258:25, 2259:23, 2260:8, 2265:2, 2266:18, 2267:23, 2268:4, 2269:2, 2274:17, 2275:17, 2275:21, 2276:2, 2276:9, 2276:14, 2277:4, 2282:10, 2315:23, 2332:18</p> <p>droughts [4] - 2266:15, 2267:20, 2273:7, 2289:2</p> <p>Drs [1] - 2185:20</p> <p>dry [7] - 2234:13, 2237:7, 2268:17, 2273:23, 2313:6, 2330:4, 2330:9</p> <p>due [2] - 2328:6, 2340:21</p> <p>duration [1] - 2226:21</p> <p>during [15] - 2214:3, 2220:13, 2260:23, 2272:9, 2273:6, 2273:18, 2273:21, 2273:24, 2286:17, 2302:15, 2303:14, 2304:23, 2307:7, 2313:6</p>	<p>editor [2] - 2283:9, 2284:14</p> <p>educational [1] - 2287:13</p> <p>effect [11] - 2266:14, 2267:20, 2268:25, 2273:5, 2273:8, 2280:12, 2291:18, 2312:21, 2312:23, 2328:7, 2340:1</p> <p>effectively [2] - 2247:11, 2251:3</p> <p>effectiveness [1] - 2248:23</p> <p>effects [1] - 2289:6</p> <p>efficiency [7] - 2293:22, 2294:1, 2315:20, 2315:21, 2332:17, 2332:21, 2332:23</p> <p>efficiently [1] - 2293:24</p> <p>effort [1] - 2250:6</p> <p>eight [5] - 2211:10, 2211:11, 2211:13, 2234:9, 2270:1</p> <p>either [9] - 2204:11, 2214:1, 2228:21, 2247:10, 2247:25, 2274:7, 2274:9, 2277:5, 2342:6</p> <p>electronic [4] - 2196:14, 2232:11, 2232:14, 2232:20</p> <p>element [2] - 2212:11, 2298:2</p> <p>eliminate [1] - 2218:25</p> <p>eliminating [2] - 2217:23, 2247:12</p> <p>elimination [1] - 2333:25</p> <p>elsewhere [1] - 2285:2</p> <p>Emanuel [2] - 2252:24, 2253:6</p> <p>emphasis [2] - 2323:18, 2324:2</p> <p>emphasized [2] - 2271:23, 2323:8</p> <p>employed [3] - 2319:4, 2327:17, 2328:18</p> <p>employee [1] - 2257:23</p> <p>End [1] - 2342:17</p> <p>end [12] - 2191:2, 2191:21, 2199:21, 2222:19, 2226:23, 2262:9, 2312:7,</p>	<p>2329:5, 2339:18, 2339:19</p> <p>endangered [4] - 2188:1, 2189:19, 2269:1, 2269:23</p> <p>endeavored [1] - 2197:25</p> <p>enforcement [9] - 2206:17, 2211:17, 2211:19, 2211:21, 2211:23, 2212:2, 2213:16, 2213:25, 2214:5</p> <p>engage [1] - 2254:11</p> <p>engagement [1] - 2266:11</p> <p>engaging [1] - 2197:15</p> <p>Engineers [3] - 2320:15, 2320:18, 2324:5</p> <p>English [1] - 2295:7</p> <p>enjoy [1] - 2341:23</p> <p>enlarged [2] - 2211:6, 2267:11</p> <p>ensure [3] - 2209:18, 2249:3, 2334:2</p> <p>ensuring [1] - 2238:9</p> <p>entered [1] - 2232:14</p> <p>entire [3] - 2205:24, 2211:12, 2331:10</p> <p>entirely [1] - 2274:10</p> <p>entitled [1] - 2183:10</p> <p>entries [1] - 2233:21</p> <p>entry [1] - 2190:8</p> <p>environment [1] - 2339:21</p> <p>Environmental [6] - 2186:7, 2210:19, 2226:13, 2240:24, 2270:24, 2288:22</p> <p>environmental [2] - 2283:21, 2339:17</p> <p>EPA's [1] - 2246:15</p> <p>EPD [41] - 2204:1, 2204:6, 2205:15, 2212:18, 2213:11, 2213:15, 2215:4, 2228:15, 2229:4, 2229:6, 2252:8, 2252:18, 2252:21, 2254:3, 2254:5, 2254:20, 2254:23, 2255:9, 2255:13, 2257:20, 2260:3, 2261:14, 2271:9, 2279:1, 2279:5, 2280:6, 2287:23, 2288:1, 2288:21,</p>	<p>2294:5, 2299:3, 2299:22, 2320:21, 2324:10, 2325:4, 2333:9, 2333:18, 2337:13</p> <p>EPD's [2] - 2208:5, 2272:5</p> <p>equipment [1] - 2202:19</p> <p>equitable [1] - 2271:14</p> <p>era [2] - 2268:15, 2268:19</p> <p>ESQ [7] - 2183:17, 2183:17, 2183:18, 2183:18, 2183:20, 2183:20, 2183:21</p> <p>essential [2] - 2274:24, 2298:2</p> <p>essentially [2] - 2247:7, 2273:14</p> <p>establishes [2] - 2297:7, 2297:9</p> <p>estimate [4] - 2205:18, 2232:19, 2307:1, 2327:12</p> <p>estimated [7] - 2302:16, 2304:8, 2307:8, 2307:20, 2329:23, 2330:3, 2330:18</p> <p>estimates [4] - 2202:12, 2203:2, 2203:7, 2306:24</p> <p>estuary [1] - 2242:20</p> <p>evaluate [5] - 2247:22, 2259:13, 2290:8, 2301:4, 2305:18</p> <p>evaluated [8] - 2277:7, 2306:19, 2310:2, 2310:23, 2311:2, 2311:21, 2323:6, 2337:2</p> <p>evaluating [1] - 2277:3</p> <p>Evaluation [1] - 2283:23</p> <p>evaluation [6] - 2248:1, 2277:5, 2277:8, 2277:10, 2316:4, 2337:3</p> <p>evaporation [1] - 2340:5</p> <p>event [1] - 2343:8</p> <p>evidence [1] - 2254:15</p> <p>evident [1] - 2340:2</p> <p>evolved [2] - 2202:10, 2298:3</p> <p>exacerbated [1] - 2268:22</p>
E				
<p>draft [2] - 2241:14, 2260:20</p> <p>drainage [1] - 2311:1</p> <p>draw [2] - 2208:22, 2211:22</p> <p>drawing [2] - 2207:11, 2272:20</p> <p>drier [2] - 2273:19, 2273:22</p> <p>drilling [1] - 2273:9</p> <p>drivers [2] - 2289:1, 2289:8</p> <p>drops [3] - 2234:17, 2295:13, 2296:6</p> <p>drought [23] - 2220:13, 2221:8, 2228:8, 2234:13, 2256:21, 2259:12, 2259:20, 2259:21, 2261:24, 2262:25, 2265:4, 2265:24, 2266:1, 2268:17,</p>	<p>2268:23, 2272:9, 2272:12, 2272:15, 2272:16, 2276:24, 2277:24, 2279:1, 2340:7</p> <p>Drought [23] - 2221:8, 2222:14, 2228:20, 2258:5, 2258:19, 2258:25, 2259:23, 2260:8, 2265:2, 2266:18, 2267:23, 2268:4, 2269:2, 2274:17, 2275:17, 2275:21, 2276:2, 2276:9, 2276:14, 2277:4, 2282:10, 2315:23, 2332:18</p> <p>droughts [4] - 2266:15, 2267:20, 2273:7, 2289:2</p> <p>Drs [1] - 2185:20</p> <p>dry [7] - 2234:13, 2237:7, 2268:17, 2273:23, 2313:6, 2330:4, 2330:9</p> <p>due [2] - 2328:6, 2340:21</p> <p>duration [1] - 2226:21</p> <p>during [15] - 2214:3, 2220:13, 2260:23, 2272:9, 2273:6, 2273:18, 2273:21, 2273:24, 2286:17, 2302:15, 2303:14, 2304:23, 2307:7, 2313:6</p>	<p>editor [2] - 2283:9, 2284:14</p> <p>educational [1] - 2287:13</p> <p>effect [11] - 2266:14, 2267:20, 2268:25, 2273:5, 2273:8, 2280:12, 2291:18, 2312:21, 2312:23, 2328:7, 2340:1</p> <p>effectively [2] - 2247:11, 2251:3</p> <p>effectiveness [1] - 2248:23</p> <p>effects [1] - 2289:6</p> <p>efficiency [7] - 2293:22, 2294:1, 2315:20, 2315:21, 2332:17, 2332:21, 2332:23</p> <p>efficiently [1] - 2293:24</p> <p>effort [1] - 2250:6</p> <p>eight [5] - 2211:10, 2211:11, 2211:13, 2234:9, 2270:1</p> <p>either [9] - 2204:11, 2214:1, 2228:21, 2247:10, 2247:25, 2274:7, 2274:9, 2277:5, 2342:6</p> <p>electronic [4] - 2196:14, 2232:11, 2232:14, 2232:20</p> <p>element [2] - 2212:11, 2298:2</p> <p>eliminate [1] - 2218:25</p> <p>eliminating [2] - 2217:23, 2247:12</p> <p>elimination [1] - 2333:25</p> <p>elsewhere [1] - 2285:2</p> <p>Emanuel [2] - 2252:24, 2253:6</p> <p>emphasis [2] - 2323:18, 2324:2</p> <p>emphasized [2] - 2271:23, 2323:8</p> <p>employed [3] - 2319:4, 2327:17, 2328:18</p> <p>employee [1] - 2257:23</p> <p>End [1] - 2342:17</p> <p>end [12] - 2191:2, 2191:21, 2199:21, 2222:19, 2226:23, 2262:9, 2312:7,</p>	<p>2329:5, 2339:18, 2339:19</p> <p>endangered [4] - 2188:1, 2189:19, 2269:1, 2269:23</p> <p>endeavored [1] - 2197:25</p> <p>enforcement [9] - 2206:17, 2211:17, 2211:19, 2211:21, 2211:23, 2212:2, 2213:16, 2213:25, 2214:5</p> <p>engage [1] - 2254:11</p> <p>engagement [1] - 2266:11</p> <p>engaging [1] - 2197:15</p> <p>Engineers [3] - 2320:15, 2320:18, 2324:5</p> <p>English [1] - 2295:7</p> <p>enjoy [1] - 2341:23</p> <p>enlarged [2] - 2211:6, 2267:11</p> <p>ensure [3] - 2209:18, 2249:3, 2334:2</p> <p>ensuring [1] - 2238:9</p> <p>entered [1] - 2232:14</p> <p>entire [3] - 2205:24, 2211:12, 2331:10</p> <p>entirely [1] - 2274:10</p> <p>entitled [1] - 2183:10</p> <p>entries [1] - 2233:21</p> <p>entry [1] - 2190:8</p> <p>environment [1] - 2339:21</p> <p>Environmental [6] - 2186:7, 2210:19, 2226:13, 2240:24, 2270:24, 2288:22</p> <p>environmental [2] - 2283:21, 2339:17</p> <p>EPA's [1] - 2246:15</p> <p>EPD [41] - 2204:1, 2204:6, 2205:15, 2212:18, 2213:11, 2213:15, 2215:4, 2228:15, 2229:4, 2229:6, 2252:8, 2252:18, 2252:21, 2254:3, 2254:5, 2254:20, 2254:23, 2255:9, 2255:13, 2257:20, 2260:3, 2261:14, 2271:9, 2279:1, 2279:5, 2280:6, 2287:23, 2288:1, 2288:21,</p>	<p>2294:5, 2299:3, 2299:22, 2320:21, 2324:10, 2325:4, 2333:9, 2333:18, 2337:13</p> <p>EPD's [2] - 2208:5, 2272:5</p> <p>equipment [1] - 2202:19</p> <p>equitable [1] - 2271:14</p> <p>era [2] - 2268:15, 2268:19</p> <p>ESQ [7] - 2183:17, 2183:17, 2183:18, 2183:18, 2183:20, 2183:20, 2183:21</p> <p>essential [2] - 2274:24, 2298:2</p> <p>essentially [2] - 2247:7, 2273:14</p> <p>establishes [2] - 2297:7, 2297:9</p> <p>estimate [4] - 2205:18, 2232:19, 2307:1, 2327:12</p> <p>estimated [7] - 2302:16, 2304:8, 2307:8, 2307:20, 2329:23, 2330:3, 2330:18</p> <p>estimates [4] - 2202:12, 2203:2, 2203:7, 2306:24</p> <p>estuary [1] - 2242:20</p> <p>evaluate [5] - 2247:22, 2259:13, 2290:8, 2301:4, 2305:18</p> <p>evaluated [8] - 2277:7, 2306:19, 2310:2, 2310:23, 2311:2, 2311:21, 2323:6, 2337:2</p> <p>evaluating [1] - 2277:3</p> <p>Evaluation [1] - 2283:23</p> <p>evaluation [6] - 2248:1, 2277:5, 2277:8, 2277:10, 2316:4, 2337:3</p> <p>evaporation [1] - 2340:5</p> <p>event [1] - 2343:8</p> <p>evidence [1] - 2254:15</p> <p>evident [1] - 2340:2</p> <p>evolved [2] - 2202:10, 2298:3</p> <p>exacerbated [1] - 2268:22</p>

<p>exact [1] - 2280:11 exactly [5] - 2198:8, 2231:17, 2244:24, 2248:1, 2335:20 EXAMINATION [4] - 2192:20, 2193:4, 2287:5, 2321:9 example [2] - 2316:1, 2340:7 examples [3] - 2208:11, 2208:12, 2315:14 exceeds [1] - 2307:10 except [1] - 2293:13 excerpts [1] - 2263:10 excess [1] - 2273:24 excessive [1] - 2338:18 excuse [3] - 2204:15, 2222:20, 2236:14 executed [1] - 2199:18 executive [1] - 2238:12 exercise [13] - 2245:13, 2245:16, 2245:18, 2256:13, 2256:15, 2301:3, 2303:9, 2303:10, 2304:22, 2305:6, 2305:18, 2307:5, 2333:21 exercised [1] - 2228:21 exercises [2] - 2302:20, 2302:21 Exhibit [65] - 2188:2, 2188:6, 2188:10, 2188:15, 2188:20, 2188:22, 2188:23, 2189:2, 2189:7, 2189:10, 2189:13, 2189:16, 2189:17, 2189:23, 2190:2, 2190:6, 2190:7, 2190:12, 2190:15, 2190:17, 2190:21, 2190:23, 2191:6, 2191:10, 2191:14, 2191:18, 2194:18, 2195:5, 2196:4, 2208:17, 2214:12, 2214:13, 2217:6, 2217:14, 2220:20, 2222:11, 2224:22, 2225:4, 2225:17, 2225:18, 2228:1, 2240:9, 2243:23, 2251:7, 2251:12, 2255:17, 2260:12, 2269:4, 2270:16,</p>	<p>2272:4, 2276:4, 2277:23, 2280:18, 2281:8, 2281:12, 2283:7, 2283:8, 2306:11, 2324:24, 2327:5, 2328:4, 2329:9 exhibit [5] - 2196:23, 2198:9, 2201:6, 2251:9, 2257:13 exhibits [1] - 2216:1 EXHIBITS [1] - 2184:5 exist [1] - 2305:21 existing [6] - 2217:15, 2218:10, 2218:24, 2221:6, 2247:11, 2247:20 expanded [1] - 2222:14 expect [4] - 2186:14, 2296:8, 2296:10, 2298:7 expected [1] - 2256:22 expensive [1] - 2342:4 experience [2] - 2287:14, 2305:2 experienced [2] - 2289:3, 2319:10 expert [2] - 2186:12, 2284:25 experts [2] - 2203:3, 2225:7 Expires [1] - 2343:17 explain [11] - 2210:2, 2252:24, 2292:10, 2295:8, 2296:1, 2297:5, 2302:4, 2309:7, 2309:22, 2310:18, 2310:19 explaining [1] - 2252:20 explains [1] - 2308:18 explicitly [1] - 2230:10 expressed [2] - 2243:7, 2252:8 extensive [2] - 2289:11, 2324:20 extent [2] - 2242:15, 2267:19 eyes [2] - 2194:9, 2208:21</p>	<p>2259:15, 2268:19, 2339:9, 2339:12, 2339:20, 2340:6 fair [5] - 2215:8, 2216:24, 2217:20, 2258:8, 2272:23 fall [1] - 2251:24 familiar [11] - 2202:6, 2206:23, 2206:24, 2221:15, 2248:10, 2290:24, 2306:3, 2317:15, 2317:22, 2318:18, 2334:24 far [5] - 2192:19, 2256:17, 2280:8, 2300:10, 2312:18 farmer [2] - 2223:7, 2223:21 farmers [2] - 2222:2, 2223:3 farms [1] - 2293:16 fault [3] - 2282:9, 2324:8, 2324:17 feasibility [2] - 2316:4, 2316:9 feasible [2] - 2250:11, 2250:13 February [2] - 2210:12, 2303:15 federal [1] - 2279:8 Federally [1] - 2188:12 feet [3] - 2245:6, 2281:19 felt [1] - 2252:25 few [8] - 2197:16, 2204:3, 2215:12, 2230:20, 2233:16, 2239:8, 2316:21, 2317:3 fewer [3] - 2316:22, 2331:14, 2332:1 field [1] - 2225:8 fifth [1] - 2238:19 fifths [1] - 2310:9 figure [10] - 2283:18, 2284:8, 2302:11, 2308:19, 2309:6, 2309:12, 2312:10, 2327:20, 2327:23, 2330:7 figured [1] - 2300:19 file [3] - 2232:20, 2232:21 files [5] - 2215:4, 2215:6, 2228:3, 2228:4, 2232:13 fill [1] - 2290:3 final [3] - 2300:5,</p>	<p>finally [1] - 2320:1 finance [1] - 2263:1 financial [1] - 2263:1 findings [1] - 2221:10 fine [4] - 2187:24, 2213:22, 2253:15, 2257:12 finger [1] - 2208:23 finished [2] - 2213:22, 2341:25 first [32] - 2187:18, 2190:7, 2193:20, 2196:17, 2198:11, 2207:1, 2217:11, 2230:17, 2233:20, 2238:13, 2238:14, 2238:18, 2241:12, 2247:13, 2250:15, 2251:5, 2259:21, 2271:13, 2272:17, 2274:24, 2275:10, 2278:25, 2281:10, 2281:25, 2282:9, 2288:21, 2292:13, 2295:6, 2297:3, 2315:5, 2325:17, 2327:15 fish [2] - 2239:4, 2242:4 Fish [20] - 2214:24, 2217:22, 2217:25, 2218:16, 2218:23, 2219:23, 2227:25, 2228:13, 2229:4, 2229:15, 2229:21, 2241:5, 2241:18, 2241:22, 2242:2, 2242:22, 2337:9, 2337:11, 2337:16, 2337:20 fishermen [1] - 2242:21 fit [2] - 2287:22, 2299:8 fits [1] - 2300:3 five [7] - 2233:20, 2250:17, 2303:12, 2303:14, 2303:15, 2303:16, 2335:3 five-year [1] - 2303:12 fix [1] - 2227:13 Flint [85] - 2199:2, 2205:23, 2206:4, 2217:24, 2221:7, 2222:14, 2225:20, 2227:3, 2228:20, 2240:15, 2240:17, 2243:9, 2243:22, 2244:2, 2244:7, 2244:12, 2247:7, 2248:6, 2250:7, 2251:15, 2251:21, 2251:24, 2252:6, 2252:10, 2252:14, 2252:16, 2254:9, 2254:13, 2254:16, 2255:11, 2258:5, 2258:19, 2258:24, 2259:23, 2260:8, 2261:17, 2262:4, 2265:2, 2265:15, 2265:24, 2266:18, 2267:22, 2268:3, 2269:1, 2271:25, 2272:9, 2272:19, 2273:11, 2274:13, 2274:17, 2275:17, 2276:2, 2276:9, 2276:13, 2277:4, 2279:1, 2279:20, 2282:10, 2282:20, 2285:1, 2288:8, 2288:14, 2289:1, 2300:6, 2300:9, 2300:11, 2301:6, 2304:25, 2306:3, 2306:18, 2312:25, 2313:9, 2315:9, 2315:13, 2315:23, 2315:25, 2329:13, 2329:17, 2332:18, 2337:19 Flint-Ochlockonee [8] - 2240:17, 2282:20, 2300:6, 2300:9, 2301:6, 2306:18, 2315:9, 2315:13 FLORIDA [1] - 2183:3 Florida [52] - 2183:17, 2188:2, 2188:6, 2188:10, 2188:15, 2188:21, 2188:22, 2189:2, 2189:7, 2189:10, 2189:13, 2189:16, 2189:17, 2189:23, 2190:2, 2190:6, 2190:7, 2190:12, 2190:15, 2190:23, 2191:6, 2191:10, 2191:14, 2191:18, 2194:18, 2195:5, 2196:4, 2208:17, 2214:12, 2214:13, 2217:6, 2217:14, 2220:20, 2222:11, 2224:22, 2225:4, 2225:17, 2225:18, 2228:1, 2240:9, 2243:23, 2251:7, 2251:12, 2255:17, 2260:12, 2269:4, 2270:16,</p>
	<p>F</p>		
<p>facilities [1] - 2341:8 fact [3] - 2223:1, 2271:22, 2296:6 factor [3] - 2259:16, 2339:24, 2340:1 factors [7] - 2259:</p>	<p>2259:15, 2268:19, 2339:9, 2339:12, 2339:20, 2340:6 fair [5] - 2215:8, 2216:24, 2217:20, 2258:8, 2272:23 fall [1] - 2251:24 familiar [11] - 2202:6, 2206:23, 2206:24, 2221:15, 2248:10, 2290:24, 2306:3, 2317:15, 2317:22, 2318:18, 2334:24 far [5] - 2192:19, 2256:17, 2280:8, 2300:10, 2312:18 farmer [2] - 2223:7, 2223:21 farmers [2] - 2222:2, 2223:3 farms [1] - 2293:16 fault [3] - 2282:9, 2324:8, 2324:17 feasibility [2] - 2316:4, 2316:9 feasible [2] - 2250:11, 2250:13 February [2] - 2210:12, 2303:15 federal [1] - 2279:8 Federally [1] - 2188:12 feet [3] - 2245:6, 2281:19 felt [1] - 2252:25 few [8] - 2197:16, 2204:3, 2215:12, 2230:20, 2233:16, 2239:8, 2316:21, 2317:3 fewer [3] - 2316:22, 2331:14, 2332:1 field [1] - 2225:8 fifth [1] - 2238:19 fifths [1] - 2310:9 figure [10] - 2283:18, 2284:8, 2302:11, 2308:19, 2309:6, 2309:12, 2312:10, 2327:20, 2327:23, 2330:7 figured [1] - 2300:19 file [3] - 2232:20, 2232:21 files [5] - 2215:4, 2215:6, 2228:3, 2228:4, 2232:13 fill [1] - 2290:3 final [3] - 2300:5,</p>	<p>2259:15, 2268:19, 2339:9, 2339:12, 2339:20, 2340:6 fair [5] - 2215:8, 2216:24, 2217:20, 2258:8, 2272:23 fall [1] - 2251:24 familiar [11] - 2202:6, 2206:23, 2206:24, 2221:15, 2248:10, 2290:24, 2306:3, 2317:15, 2317:22, 2318:18, 2334:24 far [5] - 2192:19, 2256:17, 2280:8, 2300:10, 2312:18 farmer [2] - 2223:7, 2223:21 farmers [2] - 2222:2, 2223:3 farms [1] - 2293:16 fault [3] - 2282:9, 2324:8, 2324:17 feasibility [2] - 2316:4, 2316:9 feasible [2] - 2250:11, 2250:13 February [2] - 2210:12, 2303:15 federal [1] - 2279:8 Federally [1] - 2188:12 feet [3] - 2245:6, 2281:19 felt [1] - 2252:25 few [8] - 2197:16, 2204:3, 2215:12, 2230:20, 2233:16, 2239:8, 2316:21, 2317:3 fewer [3] - 2316:22, 2331:14, 2332:1 field [1] - 2225:8 fifth [1] - 2238:19 fifths [1] - 2310:9 figure [10] - 2283:18, 2284:8, 2302:11, 2308:19, 2309:6, 2309:12, 2312:10, 2327:20, 2327:23, 2330:7 figured [1] - 2300:19 file [3] - 2232:20, 2232:21 files [5] - 2215:4, 2215:6, 2228:3, 2228:4, 2232:13 fill [1] - 2290:3 final [3] - 2300:5,</p>	<p>2244:12, 2247:7, 2248:6, 2250:7, 2251:15, 2251:21, 2251:24, 2252:6, 2252:10, 2252:14, 2252:16, 2254:9, 2254:13, 2254:16, 2255:11, 2258:5, 2258:19, 2258:24, 2259:23, 2260:8, 2261:17, 2262:4, 2265:2, 2265:15, 2265:24, 2266:18, 2267:22, 2268:3, 2269:1, 2271:25, 2272:9, 2272:19, 2273:11, 2274:13, 2274:17, 2275:17, 2276:2, 2276:9, 2276:13, 2277:4, 2279:1, 2279:20, 2282:10, 2282:20, 2285:1, 2288:8, 2288:14, 2289:1, 2300:6, 2300:9, 2300:11, 2301:6, 2304:25, 2306:3, 2306:18, 2312:25, 2313:9, 2315:9, 2315:13, 2315:23, 2315:25, 2329:13, 2329:17, 2332:18, 2337:19 Flint-Ochlockonee [8] - 2240:17, 2282:20, 2300:6, 2300:9, 2301:6, 2306:18, 2315:9, 2315:13 FLORIDA [1] - 2183:3 Florida [52] - 2183:17, 2188:2, 2188:6, 2188:10, 2188:15, 2188:21, 2188:22, 2189:2, 2189:7, 2189:10, 2189:13, 2189:16, 2189:17, 2189:23, 2190:2, 2190:6, 2190:7, 2190:12, 2190:15, 2190:23, 2191:6, 2191:10, 2191:14, 2191:18, 2194:18, 2195:5, 2196:4, 2208:17, 2214:12, 2214:13, 2217:6, 2217:14, 2220:20, 2222:11, 2224:22, 2225:4, 2225:17, 2225:18, 2228:1, 2240:9, 2243:23, 2251:7, 2251:12, 2255:17, 2260:12, 2269:4, 2270:16,</p>
<p>THE REPORTING GROUP :10, 2244:11,</p>			
<p>Mason & Lockhart</p>			

<p>2302:10, 2304:24, 2310:10, 2310:14, 2311:21, 2324:24, 2327:4, 2329:1, 2338:16</p> <p>Florida's [3] - 2271:14, 2286:1</p> <p>Floridan [12] - 2207:11, 2272:21, 2272:22, 2273:10, 2306:22, 2307:10, 2309:9, 2310:2, 2310:23, 2329:14, 2330:2, 2330:10</p> <p>Flow [1] - 2239:17</p> <p>flow [69] - 2191:5, 2229:5, 2229:17, 2230:7, 2230:8, 2230:15, 2231:11, 2231:23, 2232:1, 2232:2, 2232:4, 2232:7, 2235:1, 2235:4, 2235:10, 2235:15, 2235:21, 2236:4, 2237:1, 2242:4, 2244:11, 2244:12, 2244:14, 2246:2, 2246:4, 2247:20, 2249:3, 2249:14, 2249:16, 2249:21, 2255:25, 2256:6, 2256:25, 2257:3, 2261:15, 2264:1, 2269:11, 2274:13, 2295:11, 2295:13, 2295:15, 2295:20, 2295:21, 2296:6, 2296:14, 2304:11, 2304:12, 2304:13, 2304:25, 2308:13, 2308:14, 2311:2, 2312:6, 2313:3, 2313:7, 2313:9, 2325:9, 2330:25, 2331:4, 2331:8, 2331:15, 2331:22, 2332:9, 2334:4, 2334:7, 2334:11</p> <p>flowed [1] - 2297:19</p> <p>flows [38] - 2220:15, 2226:21, 2231:21, 2235:6, 2236:16, 2236:23, 2237:15, 2239:4, 2244:2, 2244:18, 2245:20, 2247:16, 2251:24, 2256:3, 2256:17, 2267:13, 2267:14, 2268:2, 2268:14,</p>	<p>2268:20, 2269:21, 2272:9, 2273:6, 2273:23, 2274:1, 2279:20, 2285:1, 2296:9, 2296:10, 2296:12, 2313:23, 2322:21, 2322:23, 2323:8, 2324:1, 2326:14, 2326:17, 2326:21</p> <p>focal [1] - 2189:24</p> <p>focus [8] - 2193:19, 2210:25, 2229:11, 2231:15, 2249:12, 2299:18, 2325:19, 2331:21</p> <p>focused [4] - 2218:10, 2300:14, 2301:7, 2337:12</p> <p>focusing [2] - 2242:9, 2306:21</p> <p>folks [3] - 2214:1, 2299:1, 2318:16</p> <p>follow [2] - 2185:20, 2287:9</p> <p>followed [3] - 2186:11, 2294:7, 2298:22</p> <p>following [3] - 2212:3, 2253:20, 2293:3</p> <p>food [2] - 2342:4</p> <p>force [8] - 2203:14, 2203:17, 2203:20, 2204:1, 2212:17, 2212:19, 2212:21, 2212:23</p> <p>foregoing [1] - 2343:4</p> <p>forgot [1] - 2316:12</p> <p>formal [1] - 2254:16</p> <p>formation [1] - 2297:17</p> <p>former [3] - 2201:22, 2215:10, 2265:19</p> <p>formerly [1] - 2257:21</p> <p>forth [2] - 2322:3, 2322:7</p> <p>forthright [5] - 2258:10, 2258:18, 2258:23, 2259:4, 2259:7</p> <p>forward [3] - 2199:11, 2259:18, 2291:7</p> <p>four [6] - 2211:19, 2261:9, 2264:19, 2293:21, 2310:9, 2323:4</p> <p>four-fifths [1] - 2310:9</p> <p>four-zero [1] - 2264:19</p> <p>fourth [1] - 2194:19</p> <p>frame [2] - 2218:14</p>	<p>2228:7</p> <p>framework [1] - 2297:9</p> <p>frankly [1] - 2254:8</p> <p>freezing [1] - 2271:24</p> <p>frequent [2] - 2267:19, 2268:17</p> <p>frequently [2] - 2234:10, 2234:13</p> <p>Friday's [1] - 2185:9</p> <p>front [5] - 2206:8, 2235:8, 2241:25, 2242:7, 2250:9</p> <p>full [6] - 2217:11, 2243:14, 2244:21, 2253:13, 2284:22, 2288:17</p> <p>fund [2] - 2262:25, 2279:19</p> <p>fundamentally [3] - 2217:12, 2229:1, 2229:12</p> <p>funded [1] - 2279:23</p> <p>funding [2] - 2222:13, 2266:12</p> <p>Funding [1] - 2279:17</p> <p>funds [4] - 2258:24, 2265:14, 2266:8, 2315:19</p> <p>future [7] - 2268:9, 2280:10, 2280:16, 2290:8, 2298:13, 2304:20, 2313:20</p> <p>FX [3] - 2228:1, 2280:18, 2324:24</p> <p>FX-104 [1] - 2184:20</p> <p>FX-17 [2] - 2184:11, 2227:24</p> <p>FX-23 [2] - 2184:12, 2189:4</p> <p>FX-24 [4] - 2184:12, 2300:1, 2300:2, 2306:11</p> <p>FX-285 [2] - 2184:20, 2251:12</p> <p>FX-312 [2] - 2184:21, 2208:17</p> <p>fx-36 [1] - 2184:13</p> <p>FX-36 [2] - 2237:19, 2238:3</p> <p>FX-42 [2] - 2184:13, 2190:23</p> <p>FX-46 [1] - 2184:14</p> <p>FX-47 [1] - 2228:23</p> <p>FX-48 [2] - 2184:14, 2241:7</p> <p>FX-49b [2] - 2184:15, 2286:14</p> <p>FX-49c [1] - 2184:15</p>	<p>FX-49h [2] - 2184:16, 2227:7</p> <p>FX-5 [3] - 2184:11, 2194:17, 2195:2</p> <p>FX-51 [1] - 2184:16</p> <p>FX-536 [2] - 2184:21, 2260:12</p> <p>FX-55 [2] - 2184:17, 2281:22</p> <p>FX-69a [3] - 2184:17, 2278:23, 2279:13</p> <p>FX-72 [2] - 2184:18, 2232:25</p> <p>FX-85 [2] - 2257:9, 2257:13</p> <p>FX-86 [1] - 2184:18</p> <p>FX-878 [2] - 2184:23, 2195:20</p> <p>FX-880 [2] - 2184:22, 2283:8</p> <p>FX-881 [1] - 2184:22</p> <p>FX-882 [1] - 2184:23</p> <p>FX-97 [3] - 2184:19, 2263:8, 2264:8</p> <p>FX-99 [1] - 2184:19</p>	<p>generally [1] - 2202:16</p> <p>generous [1] - 2341:7</p> <p>gentlemen [1] - 2225:23</p> <p>geographically [1] - 2300:8</p> <p>Geologic [1] - 2301:12</p> <p>Geological [1] - 2244:13</p> <p>geologist [2] - 2261:5, 2277:16</p> <p>GEORGIA [1] - 2183:6</p> <p>Georgia [47] - 2183:20, 2186:20, 2188:12, 2189:20, 2191:22, 2200:12, 2203:13, 2206:14, 2211:13, 2213:1, 2213:14, 2219:18, 2223:19, 2224:3, 2226:3, 2228:8, 2237:10, 2239:2, 2240:11, 2241:23, 2248:21, 2249:15, 2249:19, 2266:23, 2270:24, 2270:25, 2272:8, 2274:7, 2274:12, 2280:3, 2284:18, 2285:18, 2287:17, 2287:19, 2291:1, 2296:14, 2297:4, 2297:24, 2309:7, 2310:8, 2310:10, 2310:14, 2316:10, 2321:20, 2337:13, 2338:18, 2338:20</p> <p>Georgia's [24] - 2185:21, 2186:2, 2186:7, 2187:1, 2187:15, 2188:1, 2195:1, 2195:8, 2202:2, 2202:5, 2203:3, 2205:15, 2205:19, 2226:13, 2237:24, 2240:7, 2240:24, 2242:11, 2243:23, 2262:24, 2288:21, 2305:1, 2318:2, 2338:9</p> <p>Georgia-Florida [2] - 2310:10, 2310:14</p> <p>given [4] - 2185:9, 2259:18, 2305:2, 2317:4</p> <p>goal [1] - 2299:3</p> <p>goals [2] - 2299:8, 2319:1</p> <p>God [1] - 2192:5</p>
G				
<p>GA [9] - 2188:7, 2188:15, 2189:24, 2190:2, 2263:17, 2279:14, 2280:18, 2281:13, 2281:22</p> <p>Gage [9] - 2244:18, 2244:20, 2245:4, 2245:10, 2245:21, 2255:20, 2301:11, 2326:21, 2326:23</p> <p>gage [6] - 2233:16, 2233:22, 2234:1, 2244:14, 2295:1, 2301:12</p> <p>gaging [1] - 2233:11</p> <p>Gail [4] - 2184:4, 2186:5, 2192:11, 2254:6</p> <p>gallons [4] - 2284:9, 2284:16, 2285:4, 2329:24</p> <p>gap [7] - 2247:13, 2324:21, 2325:5, 2325:10, 2325:11, 2325:14, 2325:15</p> <p>gearing [1] - 2317:10</p> <p>gears [1] - 2297:1</p> <p>general [9] - 2202:8, 2206:24, 2221:18, 2241:18, 2249:17, 2264:24, 2318:12,</p>				

<p>goings [1] - 2318:12 goings-on [1] - 2318:12 Golladay [5] - 2225:10, 2225:11, 2225:24, 2227:17, 2285:7 Gordon [3] - 2251:18, 2252:4, 2255:8 governed [1] - 2333:21 Government [2] - 2321:17, 2323:22 governmental [2] - 2318:9 Governor [1] - 2203:13 Governor's [2] - 2212:17, 2254:18 grandfathered [1] - 2332:8 granted [6] - 2194:25, 2196:24, 2199:6, 2221:1, 2221:7, 2336:20 granting [1] - 2336:22 graph [2] - 2199:7, 2246:8 gray [2] - 2310:7, 2310:10 great [1] - 2186:23 greater [1] - 2292:5 green [3] - 2293:24, 2294:20, 2311:3 ground [1] - 2202:25 groundwater [34] - 2207:19, 2218:13, 2243:8, 2250:7, 2259:19, 2273:4, 2277:19, 2289:12, 2290:23, 2291:2, 2291:19, 2299:16, 2306:1, 2306:9, 2306:17, 2306:24, 2307:9, 2307:20, 2307:24, 2308:13, 2308:15, 2308:16, 2308:25, 2311:2, 2312:5, 2313:3, 2313:14, 2313:24, 2316:7, 2327:2, 2329:12, 2329:23, 2330:19, 2331:5 groundwater-based [1] - 2277:19 group [6] - 2189:15, 2211:13, 2253:4, 2254:22, 2299:1, 2319:5 guide [1] - 2301:20</p>	<p>guiding [2] - 2242:18, 2297:8 GX-1247 [2] - 2184:24, 2329:10 GX-1249 [3] - 2184:25, 2314:17, 2314:18</p> <p style="text-align: center;">H</p> <p>habitat [1] - 2337:18 Hailian [4] - 2324:6, 2324:11, 2324:13, 2324:22 half [3] - 2231:7, 2288:4, 2313:10 hand [6] - 2187:8, 2192:1, 2193:11, 2252:1, 2314:16, 2343:10 handed [1] - 2193:16 handled [1] - 2293:19 happily [1] - 2185:6 happy [1] - 2270:3 hatching [1] - 2311:13 Hayes [1] - 2212:13 head [4] - 2203:22, 2205:22, 2245:22, 2260:18 heading [4] - 2222:6, 2239:16, 2278:25, 2279:17 health [2] - 2238:9, 2249:14 hear [1] - 2213:23 heard [8] - 2186:14, 2187:22, 2213:25, 2217:3, 2228:17, 2239:14, 2252:11, 2255:12 HEARING [1] - 2183:10 hearing [2] - 2192:3, 2319:7 held [1] - 2183:11 help [4] - 2192:5, 2264:12, 2309:7, 2338:1 helpful [2] - 2301:20, 2309:18 helping [1] - 2214:17 helps [3] - 2292:20, 2309:20, 2310:19 hereby [1] - 2343:3 Hicks [6] - 2225:13, 2225:25, 2227:17, 2285:7, 2286:8, 2286:9 Hicks's [1] - 2286:19 high [9] - 2245:17, 2247:1, 2302:25</p>	<p>2303:2, 2303:8, 2303:24, 2304:3, 2319:10, 2319:14 higher [3] - 2222:15, 2239:4, 2267:15 highest [5] - 2303:13, 2303:14, 2303:15, 2303:20, 2303:21 highlight [2] - 2215:16, 2308:7 historic [2] - 2267:13, 2267:14 historical [2] - 2257:3, 2257:4 history [1] - 2326:24 hit [2] - 2312:1, 2312:6 holder [1] - 2295:22 holders [4] - 2234:16, 2262:19, 2262:21, 2304:15 Honor [50] - 2185:4, 2185:5, 2185:13, 2186:22, 2187:5, 2187:12, 2187:21, 2188:9, 2188:18, 2189:10, 2189:12, 2189:22, 2190:18, 2190:24, 2191:1, 2191:9, 2191:16, 2191:20, 2192:13, 2192:16, 2193:10, 2196:13, 2197:2, 2224:12, 2224:15, 2264:11, 2270:1, 2270:9, 2285:14, 2286:22, 2286:25, 2292:24, 2293:7, 2297:11, 2300:17, 2301:24, 2309:3, 2309:17, 2314:23, 2317:13, 2321:3, 2321:8, 2337:22, 2337:24, 2340:10, 2340:12, 2340:15, 2340:21, 2341:3, 2342:10 hook [1] - 2340:14 hope [1] - 2321:3 hopefully [1] - 2309:20 Hornberger [2] - 2185:21, 2286:1 hose [1] - 2281:19 hostile [4] - 2186:5, 2191:23, 2192:17, 2192:19 hour [1] - 2220:8 hours [1] - 2223:17 house [2] - 2279:7,</p>	<p>huge [1] - 2223:14 human [1] - 2226:19 hurry [1] - 2282:4 hydrologic [4] - 2225:19, 2248:8, 2266:13, 2276:25 hydrologists [4] - 2185:19, 2186:10, 2286:2, 2340:23 hydrology [1] - 2260:18</p> <p style="text-align: center;">I</p> <p>Ichawaynochaway [22] - 2235:18, 2262:1, 2263:19, 2263:24, 2264:1, 2264:22, 2264:24, 2265:8, 2265:11, 2266:17, 2267:6, 2267:15, 2267:24, 2268:5, 2268:14, 2269:11, 2269:19, 2269:22, 2295:18, 2316:6, 2336:3, 2336:9 idea [1] - 2202:17 ideas [2] - 2258:12, 2258:13 identification [1] - 2298:13 identified [15] - 2189:19, 2211:2, 2240:5, 2245:12, 2245:16, 2246:20, 2284:25, 2293:10, 2293:25, 2295:18, 2296:23, 2298:25, 2334:23, 2336:9, 2338:8 identifies [1] - 2259:2 identify [12] - 2209:15, 2291:14, 2302:13, 2302:19, 2304:17, 2307:5, 2308:5, 2308:7, 2311:16, 2313:16, 2313:18, 2314:18 identifying [3] - 2211:24, 2283:20, 2302:17 ignores [1] - 2329:1 illegal [1] - 2209:8 illegally [2] - 2205:1, 2213:13 images [1] - 2202:24 immediate [3] - 2243:9, 2243:17, 2250:1</p>	<p>immediately [2] - 2254:22, 2309:12 impact [6] - 2268:23, 2273:2, 2283:21, 2291:2, 2291:3, 2329:1 Impacts [1] - 2188:11 impacts [10] - 2269:21, 2272:16, 2273:11, 2291:5, 2291:12, 2291:16, 2292:3, 2302:20, 2308:6, 2311:17 impetus [1] - 2289:8 implement [4] - 2214:17, 2250:16, 2251:2, 2258:24 implementation [3] - 2282:25, 2315:2, 2315:3 implemented [11] - 2214:20, 2219:24, 2228:15, 2248:5, 2249:22, 2266:19, 2267:23, 2274:21, 2314:14, 2315:11, 2323:11 implementing [3] - 2249:9, 2333:10, 2339:1 implements [1] - 2249:20 implications [2] - 2260:4, 2260:7 importance [1] - 2271:23 important [4] - 2248:7, 2302:6, 2309:16, 2314:5 improve [4] - 2279:20, 2299:11, 2315:20, 2320:7 improvements [1] - 2266:5 IN [1] - 2343:10 in-house [1] - 2293:14 in-stream [6] - 2249:16, 2249:20, 2304:11, 2304:12, 2304:13 in-streamflows [1] - 2237:24 inadequate [1] - 2242:3 incapable [1] - 2255:10 inches [2] - 2224:2, 2224:8 include [2] - 2225:10, 2294:9</p>
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<p>2338:12, 2338:16, 2339:5, 2339:15, 2340:4, 2340:13, 2340:25, 2341:4, 2342:12 land [3] - 2274:9, 2274:11, 2274:16 language [1] - 2295:7 large [3] - 2197:5, 2219:19, 2329:20 larger [2] - 2291:20, 2295:21 last [31] - 2186:17, 2192:10, 2197:16, 2207:1, 2208:11, 2208:13, 2217:9, 2219:8, 2219:11, 2219:15, 2220:11, 2225:6, 2226:18, 2228:23, 2228:24, 2228:25, 2234:9, 2242:1, 2243:2, 2243:13, 2243:14, 2262:23, 2275:14, 2281:24, 2282:3, 2284:2, 2284:3, 2284:4, 2304:5, 2317:8 lastly [1] - 2191:16 law [4] - 2262:17, 2296:14, 2297:7, 2315:22 LAWLESS [1] - 2183:18 lawyers [1] - 2341:22 laying [2] - 2258:12, 2258:17 lays [2] - 2259:12, 2290:14 lead [1] - 2339:20 leading [1] - 2258:15 leads [1] - 2220:1 leaks [1] - 2315:17 learned [2] - 2291:9, 2291:12 learning [1] - 2276:23 least [4] - 2228:11, 2259:24, 2293:25, 2341:16 led [1] - 2218:3 left [6] - 2194:9, 2210:22, 2247:1, 2270:3, 2310:7, 2320:14 legal [4] - 2274:8, 2338:21, 2339:3, 2339:14 legend [2] - 2310:16, 2312:9 legislature [1] -</p>	<p>2254:18 lengthy [1] - 2325:13 less [13] - 2231:2, 2231:4, 2231:6, 2231:7, 2231:18, 2256:4, 2285:3, 2293:16, 2294:20, 2313:10, 2316:19, 2316:20, 2320:9 lesser [1] - 2292:5 Lettenmaier [1] - 2186:10 letter [12] - 2214:23, 2215:2, 2215:9, 2215:14, 2216:23, 2218:1, 2218:16, 2219:23, 2227:25, 2241:9, 2241:19, 2243:8 Lettermaier [1] - 2185:20 letting [1] - 2341:7 level [5] - 2234:17, 2249:3, 2295:14, 2331:23, 2339:9 levels [2] - 2259:19, 2334:7 Lewis [6] - 2212:22, 2233:4, 2233:8, 2271:9, 2278:10, 2279:4 LEWIS [1] - 2183:20 Lewis's [1] - 2278:12 LFO [1] - 2305:11 lies [1] - 2310:24 lift [2] - 2290:9, 2290:11 light [1] - 2291:8 likely [3] - 2186:16, 2226:25, 2259:3 likewise [3] - 2188:14, 2189:6, 2326:19 limit [2] - 2223:25, 2224:1 limitation [1] - 2313:14 Limitations [1] - 2207:17 limitations [1] - 2223:6 limited [2] - 2207:20, 2223:20 limiting [1] - 2294:9 limits [2] - 2208:7, 2214:2 Linda [1] - 2254:5 line [21] - 2207:4, 2208:11, 2208:13, 2228:25, 2230:17, 2238:20, 2251:2</p>	<p>2253:21, 2280:24, 2310:1, 2310:7, 2310:8, 2310:10, 2310:11, 2310:14, 2310:21, 2312:19, 2312:24, 2313:10, 2313:23 lines [4] - 2230:20, 2280:22, 2310:5, 2311:3 linked [1] - 2289:15 list [4] - 2211:16, 2241:17, 2242:24, 2272:7 Listed [1] - 2188:12 listed [9] - 2212:10, 2233:12, 2234:3, 2247:4, 2255:20, 2256:2, 2264:2, 2282:12, 2329:3 listening [1] - 2319:7 loads [1] - 2334:8 local [4] - 2254:11, 2302:19, 2308:6, 2311:17 localities [1] - 2252:14 locations [3] - 2189:19, 2229:7, 2292:2 long-term [2] - 2225:19, 2242:4 look [27] - 2187:1, 2194:18, 2197:20, 2198:10, 2202:12, 2207:24, 2221:23, 2221:25, 2236:21, 2241:4, 2243:20, 2244:21, 2246:7, 2248:4, 2251:22, 2264:20, 2266:17, 2268:25, 2277:22, 2280:17, 2281:10, 2282:23, 2290:8, 2298:8, 2304:9, 2304:20, 2310:1 looked [10] - 2185:10, 2210:3, 2251:20, 2259:14, 2259:16, 2299:20, 2301:13, 2325:7, 2325:25, 2327:20 looking [12] - 2202:23, 2208:18, 2209:4, 2210:7, 2216:12, 2220:22, 2243:14, 2247:19, 2248:24, 2264:10, 2276:14, 2284:21 looks [1] - 2281:11</p>	<p>2219:22, 2244:23 Louis [1] - 2212:13 low [31] - 2226:21, 2230:7, 2230:8, 2230:15, 2231:11, 2231:23, 2232:1, 2232:2, 2232:7, 2235:1, 2236:3, 2242:3, 2249:14, 2259:18, 2268:2, 2269:21, 2272:8, 2273:6, 2274:13, 2279:20, 2283:1, 2285:1, 2295:11, 2295:20, 2326:16, 2330:25, 2331:4, 2331:15, 2331:22, 2332:9, 2334:10 lower [6] - 2220:16, 2232:1, 2232:4, 2312:7, 2312:16, 2326:22 Lower [23] - 2240:17, 2243:9, 2244:2, 2244:7, 2244:11, 2254:9, 2254:12, 2254:15, 2255:11, 2262:4, 2272:19, 2279:20, 2282:19, 2300:5, 2300:8, 2300:11, 2301:6, 2306:3, 2306:18, 2315:8, 2315:12, 2315:25, 2329:17 Luang [5] - 2324:6, 2324:11, 2324:13, 2324:22, 2335:11 Lucius [1] - 2203:23 lunch [1] - 2270:4</p> <p style="text-align: center;">M</p> <p>ma'am [1] - 2220:23 mail [3] - 2233:3, 2233:12, 2278:10 Maine [3] - 2183:13, 2183:15, 2343:3 mainstem [1] - 2312:25 maintain [1] - 2219:25 major [1] - 2260:4 majority [1] - 2326:1 manage [2] - 2265:24, 2279:7 managed [1] - 2229:7 management [27] - 2219:6, 2221:11, 2229:24, 2247:2, 2248:22, 2249:9, 2250:10, 2250:11, 2250:16, 2265:19,</p>	<p>2265:24, 2283:2, 2297:8, 2297:20, 2298:3, 2298:5, 2298:11, 2299:7, 2299:11, 2313:18, 2315:6, 2318:25, 2319:23, 2322:9, 2338:2, 2338:9, 2339:1 Management [3] - 2240:8, 2317:16, 2318:18 manager [2] - 2212:13, 2335:15 managers [1] - 2239:3 manages [2] - 2233:10, 2333:10 managing [1] - 2238:11 mandatory [1] - 2276:22 manner [2] - 2277:13, 2337:15 map [9] - 2240:21, 2309:15, 2309:18, 2309:22, 2309:25, 2310:16, 2310:19, 2310:22, 2311:6 mapping [1] - 2202:25 maps [2] - 2292:15, 2293:2 March [3] - 2276:16, 2308:21, 2338:3 mark [3] - 2196:13, 2196:18, 2282:21 Mark [4] - 2282:12, 2282:14, 2282:18, 2283:3 marked [2] - 2234:9, 2314:16 marks [2] - 2290:4, 2320:14 Mary [1] - 2185:10 Mason [4] - 2183:14, 2343:2, 2343:15, 2343:15 Master [1] - 2317:9 MASTER [39] - 2183:11, 2185:2, 2185:6, 2185:16, 2186:23, 2187:4, 2187:10, 2187:24, 2191:24, 2192:15, 2193:12, 2197:12, 2197:17, 2201:2, 2204:15, 2204:19, 2206:7, 2206:10, 2224:13, 2224:16, 2264:13, 2270:5, 2270:10, 2286:23,</p>
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2287:3, 2287:20, 2301:25, 2321:6, 2337:25, 2338:7, 2338:12, 2338:16, 2339:5, 2339:15, 2340:4, 2340:13, 2340:25, 2341:4, 2342:12	measure [1] - 2312:17 measurement [3] - 2191:5, 2295:3, 2305:7 measures [1] - 2272:8 mechanism [1] - 2262:16 mechanisms [1] - 2223:15 meet [10] - 2253:4, 2275:7, 2298:9, 2298:12, 2299:6, 2299:9, 2301:6, 2304:10, 2306:20, 2334:4 meeting [22] - 2233:18, 2246:15, 2252:19, 2254:21, 2270:20, 2270:21, 2270:23, 2271:3, 2271:6, 2271:9, 2271:20, 2275:10, 2278:13, 2278:18, 2278:21, 2279:10, 2280:5, 2286:4, 2286:5, 2286:7, 2286:17, 2286:20 meetings [2] - 2318:3, 2319:3 meets [1] - 2318:25 members [4] - 2203:24, 2203:25, 2317:19, 2318:9 membership [2] - 2255:3, 2318:6 memory [1] - 2285:21 mention [3] - 2194:11, 2230:10, 2320:15 mentioned [17] - 2198:11, 2205:4, 2214:6, 2225:24, 2230:8, 2238:22, 2272:23, 2274:21, 2289:18, 2289:21, 2298:15, 2302:7, 2312:3, 2313:12, 2314:10, 2333:4, 2340:22 met [6] - 2235:3, 2235:19, 2254:4, 2305:8, 2305:20, 2311:8 meters [1] - 2315:16 method [6] - 2237:23, 2273:14, 2327:14, 2327:17, 2328:17, 2328:18 methodology [3] - 2277:20, 2306:7, 2327:17	metric [1] - 2257:1 microphone [4] - 2192:8, 2204:17, 2206:8, 2309:19 mid-'90's [1] - 2289:5 middle [2] - 2219:19, 2262:6 Middle [1] - 2240:19 midway [1] - 2215:17 might [35] - 2185:15, 2187:6, 2187:8, 2187:21, 2193:14, 2194:7, 2194:16, 2196:6, 2197:14, 2201:7, 2206:25, 2215:13, 2221:13, 2226:17, 2227:23, 2228:8, 2237:8, 2237:19, 2244:6, 2249:13, 2251:7, 2261:8, 2264:9, 2267:8, 2277:20, 2279:22, 2283:16, 2285:14, 2290:8, 2301:20, 2317:10, 2320:11, 2324:8, 2327:25, 2329:8 Mike [1] - 2280:21 Milford [1] - 2235:18 million [7] - 2200:4, 2284:9, 2284:16, 2285:3, 2315:18 millions [2] - 2285:3, 2329:24 mind [1] - 2216:2 minimal [1] - 2283:21 minimum [2] - 2220:15, 2269:10 minute [3] - 2286:24, 2293:6, 2327:1 minutes [3] - 2199:13, 2270:2, 2270:3 mismanagement [1] - 2338:18 mispronunciation [1] - 2324:12 mistake [1] - 2233:24 mitigate [1] - 2283:1 mitigation [1] - 2272:15 model [4] - 2245:6, 2245:22, 2311:5, 2314:1 modeled [9] - 2244:17, 2244:19, 2246:17, 2247:13, 2256:18, 2256:24, 2325:8, 2325:9, 2326:4 2245:13, 2245:16, 2256:13, 2256:15, 2289:12, 2289:13, 2290:1, 2290:7, 2301:3, 2302:20, 2303:9, 2305:5, 2305:18, 2307:5 modest [3] - 2275:22, 2332:25, 2333:3 Modifications [3] - 2260:15, 2261:1, 2261:7 modified [1] - 2219:2 modify [1] - 2218:24 moment [16] - 2193:19, 2196:19, 2205:3, 2214:23, 2216:9, 2225:24, 2230:2, 2231:15, 2246:1, 2255:17, 2264:12, 2286:4, 2309:15, 2322:18, 2330:24, 2333:6 money [3] - 2280:8, 2280:14, 2280:15 month [3] - 2303:12, 2303:13, 2303:20 monthly [12] - 2235:7, 2235:16, 2235:21, 2236:10, 2236:12, 2236:14, 2236:16, 2236:18, 2237:2, 2237:14, 2250:1, 2256:24 months [11] - 2213:10, 2235:17, 2235:20, 2235:23, 2236:6, 2256:5, 2256:17, 2303:17, 2303:18, 2303:19, 2303:22 moratorium [12] - 2194:3, 2196:2, 2196:19, 2196:20, 2196:25, 2198:13, 2199:18, 2219:21, 2288:25, 2289:18, 2290:9, 2290:11 morning [8] - 2185:2, 2185:4, 2185:5, 2192:13, 2193:6, 2193:7, 2263:11, 2340:22 most [9] - 2292:13, 2293:10, 2293:18, 2293:20, 2294:15, 2295:19, 2310:22, 2326:22 move [5] - 2204:17, 2240:4, 2272:3, 2318:24	MR [104] - 2185:4, 2185:5, 2185:13, 2185:17, 2186:25, 2187:5, 2187:11, 2187:21, 2187:25, 2188:5, 2188:9, 2188:14, 2188:18, 2189:1, 2189:4, 2189:6, 2189:9, 2189:12, 2189:15, 2189:22, 2190:1, 2190:5, 2190:10, 2190:14, 2190:17, 2190:20, 2190:23, 2191:1, 2191:9, 2191:13, 2191:16, 2191:20, 2192:13, 2192:16, 2192:21, 2193:3, 2193:5, 2193:10, 2193:13, 2196:12, 2196:16, 2197:2, 2197:14, 2197:18, 2200:25, 2204:20, 2206:11, 2211:4, 2211:5, 2215:15, 2215:19, 2224:12, 2224:15, 2224:20, 2251:9, 2251:10, 2253:8, 2253:12, 2264:6, 2264:11, 2264:14, 2264:15, 2267:8, 2267:10, 2270:1, 2270:9, 2270:12, 2285:14, 2286:21, 2286:24, 2287:4, 2287:6, 2287:21, 2292:24, 2293:7, 2293:8, 2296:18, 2296:21, 2297:11, 2297:14, 2300:17, 2300:22, 2301:23, 2302:1, 2309:3, 2309:5, 2309:14, 2309:21, 2314:22, 2314:24, 2317:12, 2317:14, 2321:2, 2321:8, 2321:10, 2337:22, 2337:23, 2340:10, 2340:11, 2340:18, 2340:21, 2341:2, 2342:10, 2342:11 Muckaloochee [4] - 2311:25, 2312:2, 2312:18, 2313:8 multi [2] - 2228:25, 2266:15 multi-line [1] - 2228:25
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THE REPORTING GROUP

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<p>multi-year [1] - 2266:15 multiple [2] - 2319:1, 2337:13 multipliers [1] - 2328:9 municipal [3] - 2315:15, 2333:14, 2333:18 mussel [4] - 2219:19, 2242:5, 2269:15, 2337:16 Mussels [1] - 2188:12 mussels [4] - 2189:19, 2264:3, 2269:1, 2269:23 must [2] - 2231:20, 2242:14</p>	<p>2299:11, 2307:6 needs [7] - 2206:8, 2209:10, 2209:14, 2212:3, 2295:15, 2298:14, 2341:8 negotiations [1] - 2322:13 never [3] - 2205:14, 2222:17, 2223:20 new [22] - 2199:18, 2218:5, 2218:6, 2218:9, 2218:12, 2219:21, 2221:6, 2230:23, 2231:24, 2247:10, 2266:2, 2266:4, 2266:12, 2289:6, 2293:12, 2293:21, 2294:3, 2294:5, 2294:18, 2295:22, 2316:14, 2336:22</p>	<p>2197:3, 2226:2, 2330:16 notebook [1] - 2227:11 Noted [5] - 2224:17, 2224:19, 2270:6, 2270:8, 2342:14 notes [5] - 2200:18, 2278:12, 2278:17, 2279:11, 2343:5 nothing [4] - 2192:5, 2286:21, 2340:10, 2340:11 notices [6] - 2204:6, 2204:10, 2204:11, 2204:23, 2206:12, 2214:6 November [7] - 2183:13, 2196:21, 2237:4, 2267:13, 2278:13, 2286:17, 2342:16 NPDES [2] - 2333:24, 2334:19 number [56] - 2188:15, 2188:19, 2194:25, 2196:24, 2197:21, 2198:16, 2199:5, 2202:18, 2204:4, 2205:21, 2208:18, 2224:7, 2227:18, 2231:2, 2231:9, 2232:9, 2232:16, 2232:17, 2233:1, 2233:11, 2234:1, 2234:5, 2240:11, 2256:4, 2257:6, 2270:25, 2275:4, 2278:1, 2280:7, 2284:17, 2284:20, 2284:25, 2302:9, 2303:4, 2303:5, 2305:3, 2309:8, 2309:13, 2309:24, 2311:9, 2312:3, 2317:9, 2328:15, 2330:14, 2330:22, 2331:12, 2332:5, 2332:11, 2332:17, 2332:21, 2334:14, 2335:16, 2335:19, 2335:20, 2336:13 Number [1] - 2184:6 numbered [1] - 2279:14 numbers [8] - 2195:20, 2195:25, 2198:4, 2233:22,</p>	<p>2306:6, 2335:21 O objection [1] - 2200:22 oblong [1] - 2310:21 observe [2] - 2322:12, 2339:19 observed [6] - 2302:21, 2303:21, 2303:23, 2303:25, 2305:23, 2322:3 observer [2] - 2318:2, 2321:25 observers [1] - 2317:25 obtained [1] - 2195:25 obvious [1] - 2243:25 occur [1] - 2254:9 occurred [6] - 2245:24, 2245:25, 2256:8, 2256:23, 2303:20, 2325:17 occurring [1] - 2339:22 occurs [3] - 2291:17, 2304:2, 2313:4 Ochlockonee [8] - 2240:17, 2282:20, 2300:6, 2300:9, 2301:6, 2306:18, 2315:9, 2315:13 October [5] - 2200:6, 2200:9, 2200:13, 2237:3, 2315:1 oddly [1] - 2300:18 oddly-paged [1] - 2300:18 OF [4] - 2183:1, 2183:3, 2183:6, 2183:9 off-stream [2] - 2304:10, 2305:19 offering [1] - 2258:11 office [1] - 2254:18 often [1] - 2216:25 old [1] - 2232:21 older [1] - 2231:25 on-the-ground [1] - 2202:25 once [4] - 2215:22, 2219:18, 2311:17, 2322:11 one [58] - 2185:21, 2185:25, 2186:20, 2186:21, 2187:22, 2190:6, 2203:23, 2210:5, 2219:3,</p>	<p>2221:11, 2223:15, 2223:18, 2231:7, 2234:25, 2242:11, 2243:20, 2245:12, 2245:16, 2247:21, 2258:21, 2259:16, 2269:10, 2272:17, 2284:21, 2286:1, 2286:4, 2290:3, 2291:14, 2292:13, 2292:17, 2294:24, 2299:14, 2299:19, 2299:21, 2300:6, 2300:20, 2300:24, 2306:10, 2312:15, 2313:12, 2315:14, 2315:24, 2316:3, 2316:11, 2317:8, 2323:3, 2323:11, 2325:12, 2328:12, 2328:25, 2337:2, 2337:12, 2338:3, 2341:23 one-day [1] - 2269:10 one-half [1] - 2231:7 ones [4] - 2255:2, 2293:19, 2294:8, 2298:24 open [1] - 2193:17 opening [4] - 2302:7, 2304:23, 2305:10, 2307:13 operation [1] - 2320:20 opinion [1] - 2342:3 opinions [1] - 2284:25 opportunity [1] - 2200:20 opposed [2] - 2321:19, 2321:22 Options [2] - 2258:1, 2260:2 options [4] - 2247:6, 2258:22, 2337:2, 2337:4 orange [1] - 2336:5 order [2] - 2315:16, 2334:2 organization [3] - 2210:18, 2317:19, 2317:23 organizations [1] - 2226:15 Original [1] - 2183:1 originally [1] - 2254:4 otherwise [1] - 2277:25 outcome [2] - 2337:12, 2343:8 over-allocation [7] -</p>
N				
<p>name [8] - 2192:9, 2192:10, 2195:12, 2206:19, 2210:22, 2225:14, 2233:6, 2280:21 named [2] - 2324:10, 2343:9 names [4] - 2203:22, 2221:20, 2225:10, 2225:23 Napoleon [2] - 2257:16, 2307:14 narrowly [1] - 2249:10 narrowly-defined [1] - 2249:10 national [1] - 2333:24 Natural [1] - 2186:3 natural [3] - 2186:16, 2237:25, 2241:24 nature [1] - 2254:2 near [7] - 2226:2, 2236:22, 2237:9, 2237:10, 2266:21, 2310:7, 2313:9 nearing [1] - 2191:1 necessarily [1] - 2209:22 necessary [6] - 2239:4, 2250:15, 2263:1, 2328:8, 2333:14, 2334:4 need [11] - 2203:7, 2211:24, 2234:18, 2259:14, 2265:19, 2295:21, 2298:7, 2302:8, 2304:19, 2308:8, 2340:16 needed [5] - 2254:11, 2266:5, 2273:24,</p>	<p>Newberry [2] - 2280:21, 2281:3 next [29] - 2187:25, 2188:9, 2188:18, 2189:15, 2189:22, 2190:1, 2190:5, 2190:10, 2190:14, 2212:9, 2216:15, 2218:14, 2220:11, 2225:3, 2225:6, 2227:6, 2237:8, 2246:9, 2252:18, 2260:25, 2271:21, 2284:2, 2284:3, 2291:8, 2293:20, 2298:4, 2315:8, 2315:24, 2321:3 nice [1] - 2193:8 night [1] - 2341:12 nobody [1] - 2213:11 noncompliance [2] - 2208:2, 2208:6 none [2] - 2212:18, 2274:20 nongovernmental [1] - 2317:19 nonrebuttal [1] - 2186:17 nonroutine [1] - 2288:2 noon [1] - 2270:2 normal [1] - 2185:18 north [1] - 2312:23 northern [2] - 2288:3, 2313:24 Notary [2] - 2183:15, 2343:2 notation [1] - 2200:10 note [4] - 2189:16, THE REPORTING GROUP :1, 2221:10,</p>	<p>2197:3, 2226:2, 2330:16 notebook [1] - 2227:11 Noted [5] - 2224:17, 2224:19, 2270:6, 2270:8, 2342:14 notes [5] - 2200:18, 2278:12, 2278:17, 2279:11, 2343:5 nothing [4] - 2192:5, 2286:21, 2340:10, 2340:11 notices [6] - 2204:6, 2204:10, 2204:11, 2204:23, 2206:12, 2214:6 November [7] - 2183:13, 2196:21, 2237:4, 2267:13, 2278:13, 2286:17, 2342:16 NPDES [2] - 2333:24, 2334:19 number [56] - 2188:15, 2188:19, 2194:25, 2196:24, 2197:21, 2198:16, 2199:5, 2202:18, 2204:4, 2205:21, 2208:18, 2224:7, 2227:18, 2231:2, 2231:9, 2232:9, 2232:16, 2232:17, 2233:1, 2233:11, 2234:1, 2234:5, 2240:11, 2256:4, 2257:6, 2270:25, 2275:4, 2278:1, 2280:7, 2284:17, 2284:20, 2284:25, 2302:9, 2303:4, 2303:5, 2305:3, 2309:8, 2309:13, 2309:24, 2311:9, 2312:3, 2317:9, 2328:15, 2330:14, 2330:22, 2331:12, 2332:5, 2332:11, 2332:17, 2332:21, 2334:14, 2335:16, 2335:19, 2335:20, 2336:13 Number [1] - 2184:6 numbered [1] - 2279:14 numbers [8] - 2195:20, 2195:25, 2198:4, 2233:22,</p>	<p>2306:6, 2335:21 O objection [1] - 2200:22 oblong [1] - 2310:21 observe [2] - 2322:12, 2339:19 observed [6] - 2302:21, 2303:21, 2303:23, 2303:25, 2305:23, 2322:3 observer [2] - 2318:2, 2321:25 observers [1] - 2317:25 obtained [1] - 2195:25 obvious [1] - 2243:25 occur [1] - 2254:9 occurred [6] - 2245:24, 2245:25, 2256:8, 2256:23, 2303:20, 2325:17 occurring [1] - 2339:22 occurs [3] - 2291:17, 2304:2, 2313:4 Ochlockonee [8] - 2240:17, 2282:20, 2300:6, 2300:9, 2301:6, 2306:18, 2315:9, 2315:13 October [5] - 2200:6, 2200:9, 2200:13, 2237:3, 2315:1 oddly [1] - 2300:18 oddly-paged [1] - 2300:18 OF [4] - 2183:1, 2183:3, 2183:6, 2183:9 off-stream [2] - 2304:10, 2305:19 offering [1] - 2258:11 office [1] - 2254:18 often [1] - 2216:25 old [1] - 2232:21 older [1] - 2231:25 on-the-ground [1] - 2202:25 once [4] - 2215:22, 2219:18, 2311:17, 2322:11 one [58] - 2185:21, 2185:25, 2186:20, 2186:21, 2187:22, 2190:6, 2203:23, 2210:5, 2219:3,</p>	<p>2221:11, 2223:15, 2223:18, 2231:7, 2234:25, 2242:11, 2243:20, 2245:12, 2245:16, 2247:21, 2258:21, 2259:16, 2269:10, 2272:17, 2284:21, 2286:1, 2286:4, 2290:3, 2291:14, 2292:13, 2292:17, 2294:24, 2299:14, 2299:19, 2299:21, 2300:6, 2300:20, 2300:24, 2306:10, 2312:15, 2313:12, 2315:14, 2315:24, 2316:3, 2316:11, 2317:8, 2323:3, 2323:11, 2325:12, 2328:12, 2328:25, 2337:2, 2337:12, 2338:3, 2341:23 one-day [1] - 2269:10 one-half [1] - 2231:7 ones [4] - 2255:2, 2293:19, 2294:8, 2298:24 open [1] - 2193:17 opening [4] - 2302:7, 2304:23, 2305:10, 2307:13 operation [1] - 2320:20 opinion [1] - 2342:3 opinions [1] - 2284:25 opportunity [1] - 2200:20 opposed [2] - 2321:19, 2321:22 Options [2] - 2258:1, 2260:2 options [4] - 2247:6, 2258:22, 2337:2, 2337:4 orange [1] - 2336:5 order [2] - 2315:16, 2334:2 organization [3] - 2210:18, 2317:19, 2317:23 organizations [1] - 2226:15 Original [1] - 2183:1 originally [1] - 2254:4 otherwise [1] - 2277:25 outcome [2] - 2337:12, 2343:8 over-allocation [7] -</p>

<p>2216:15, 2216:20, 2216:24, 2217:23, 2218:12, 2218:25, 2243:8 oversees [1] - 2257:19 overwhelming [2] - 2239:2, 2271:17 own [3] - 2287:12, 2305:1, 2309:13</p>	<p>2282:1, 2282:3, 2283:5, 2283:16, 2284:2, 2292:23, 2293:3, 2296:23, 2296:25, 2300:15, 2306:10, 2309:11, 2309:13, 2310:9, 2314:22, 2314:25, 2324:25, 2327:8, 2327:10, 2327:11, 2327:25, 2328:2, 2329:15</p>	<p>parenthetical [1] - 2262:6 part [20] - 2195:1, 2203:17, 2204:24, 2205:19, 2213:16, 2218:1, 2221:5, 2224:6, 2258:12, 2263:12, 2292:9, 2299:20, 2313:24, 2320:23, 2322:1, 2322:2, 2322:17, 2322:23, 2323:11, 2323:12 participant [2] - 2319:2, 2322:2 particular [48] - 2187:13, 2188:7, 2188:23, 2189:1, 2190:8, 2191:2, 2208:18, 2209:3, 2213:6, 2213:12, 2217:8, 2218:14, 2218:17, 2218:21, 2222:6, 2223:7, 2224:1, 2224:24, 2226:12, 2229:11, 2230:6, 2230:15, 2231:10, 2231:12, 2233:17, 2236:21, 2240:14, 2242:3, 2246:2, 2246:4, 2249:13, 2253:25, 2255:16, 2256:9, 2263:15, 2263:21, 2267:22, 2269:5, 2276:13, 2281:24, 2284:3, 2298:24, 2301:13, 2302:24, 2306:21, 2308:9, 2334:10, 2337:12 particularly [4] - 2219:8, 2242:22, 2248:24, 2268:2 parties [2] - 2187:14, 2191:3 partly [1] - 2232:16 partner [1] - 2219:24 parts [4] - 2271:4, 2272:19, 2320:4, 2320:8 pass [1] - 2295:15 passage [2] - 2292:25, 2307:19 passages [2] - 2290:21, 2290:24 passed [1] - 2295:22 past [3] - 2187:12, 2280:15, 2292:22 pattern [1] - 2311:12</p>	<p>2292:17, 2303:1 pay [4] - 2222:15, 2302:15, 2304:19, 2308:8 payment [2] - 2263:5, 2274:8 pen [4] - 2200:17, 2200:24, 2201:1, 2201:4 people [13] - 2211:13, 2211:16, 2212:6, 2212:9, 2261:22, 2270:23, 2270:25, 2271:4, 2272:19, 2273:17, 2274:7, 2298:10, 2319:17 people's [1] - 2319:8 per [8] - 2222:15, 2223:21, 2224:1, 2245:7, 2284:9, 2284:16, 2285:4, 2329:24 percent [29] - 2191:4, 2200:11, 2220:12, 2230:21, 2230:22, 2231:7, 2231:15, 2231:21, 2233:14, 2233:19, 2234:11, 2235:2, 2235:4, 2235:6, 2235:21, 2236:3, 2236:6, 2236:18, 2237:15, 2239:20, 2240:1, 2240:2, 2251:25, 2295:25, 2296:15, 2313:10, 2331:2, 2331:15 percentile [3] - 2330:4, 2330:9, 2330:17 performance [2] - 2315:21, 2332:23 perhaps [1] - 2213:5 period [13] - 2198:23, 2199:7, 2214:8, 2214:10, 2262:13, 2267:19, 2303:12, 2323:5, 2325:13, 2325:14, 2325:16, 2326:16, 2326:23 periods [8] - 2256:25, 2273:19, 2273:21, 2273:22, 2273:23, 2273:25, 2304:18, 2313:7 permanent [1] - 2274:3 permanently [1] - 2274:4</p>	<p>2207:6, 2207:8, 2207:15, 2207:21, 2208:3, 2208:17, 2208:18, 2233:20, 2233:22, 2234:16, 2262:19, 2262:21, 2295:22, 2304:15, 2333:15, 2334:14, 2335:21 permit-specific [1] - 2335:21 permits [80] - 2194:25, 2196:24, 2197:21, 2198:4, 2198:6, 2198:16, 2198:18, 2199:6, 2199:22, 2204:25, 2205:9, 2205:18, 2205:22, 2206:24, 2208:5, 2209:8, 2211:11, 2211:12, 2214:1, 2214:2, 2217:15, 2217:17, 2218:5, 2218:6, 2218:9, 2218:10, 2218:12, 2218:25, 2219:2, 2219:21, 2221:1, 2221:6, 2222:24, 2223:1, 2223:5, 2223:23, 2230:17, 2230:23, 2231:1, 2231:4, 2231:5, 2231:8, 2231:10, 2231:19, 2231:24, 2231:25, 2232:7, 2232:12, 2236:11, 2293:12, 2293:13, 2293:14, 2293:15, 2293:21, 2294:5, 2294:9, 2294:10, 2294:11, 2294:18, 2295:13, 2316:14, 2316:17, 2316:22, 2317:3, 2317:6, 2330:25, 2331:6, 2331:10, 2331:17, 2331:22, 2332:5, 2332:8, 2333:18, 2334:9, 2334:19, 2335:1, 2335:3, 2336:20, 2336:23 permitted [5] - 2198:5, 2198:17, 2200:12, 2205:10, 2336:14 permittees [1] - 2333:15 permitting [37] - 2195:9, 2195:16, 2195:19, 2196:1, 2196:3, 2198:22,</p>
P				
<p>p.m [1] - 2342:14 package [4] - 2322:25, 2323:9, 2323:10, 2323:18 Page [1] - 2184:6 page [115] - 2188:7, 2188:15, 2189:24, 2190:2, 2190:3, 2190:21, 2191:10, 2191:14, 2191:17, 2195:20, 2201:21, 2203:10, 2207:1, 2207:14, 2207:24, 2208:16, 2208:22, 2213:6, 2215:13, 2215:15, 2216:3, 2216:4, 2216:12, 2216:13, 2217:9, 2218:15, 2218:17, 2219:3, 2219:4, 2220:10, 2220:20, 2220:21, 2221:22, 2221:23, 2222:1, 2222:5, 2222:8, 2222:10, 2222:20, 2224:23, 2224:25, 2225:2, 2225:3, 2226:3, 2228:23, 2230:5, 2238:13, 2240:11, 2240:22, 2241:17, 2242:9, 2242:10, 2243:1, 2243:13, 2244:6, 2244:22, 2246:9, 2246:12, 2246:22, 2247:1, 2250:9, 2251:23, 2253:11, 2253:21, 2253:25, 2255:16, 2258:1, 2260:25, 2263:16, 2263:21, 2264:21, 2267:6, 2268:8, 2269:6, 2269:15, 2271:13, 2272:3, 2275:10, 2275:11, 2276:13, 2276:15, 2277:23, 2278:25, 2279:13, 2280:17, 2281:5, 2281:22,</p>	<p>paged [1] - 2300:18 pages [6] - 2221:15, 2227:6, 2239:8, 2314:8, 2328:23, 2343:4 paper [6] - 2226:12, 2232:12, 2232:20, 2232:21, 2268:18, 2332:6 paragraph [54] - 2193:15, 2194:2, 2194:10, 2194:19, 2201:24, 2203:9, 2204:3, 2204:4, 2205:5, 2207:1, 2207:12, 2213:7, 2215:17, 2216:4, 2216:8, 2217:10, 2219:5, 2219:11, 2220:11, 2220:22, 2225:6, 2228:25, 2230:5, 2230:6, 2230:15, 2238:14, 2238:15, 2238:19, 2242:1, 2242:20, 2243:3, 2243:11, 2243:12, 2243:14, 2243:17, 2244:22, 2252:1, 2259:2, 2261:9, 2262:7, 2262:24, 2265:13, 2265:17, 2275:14, 2281:25, 2282:1, 2282:3, 2282:6, 2284:2, 2284:4, 2296:25, 2327:15, 2328:6 paragraphs [2] - 2214:19, 2261:9 parallel [1] - 2285:25 parameters [1] - 2235:13 pardon [6] - 2201:6, 2213:20, 2214:13, 2225:17, 2267:14, 2283:8 parentheses [1] - 2329:24</p>	<p>parenthetical [1] - 2262:6 part [20] - 2195:1, 2203:17, 2204:24, 2205:19, 2213:16, 2218:1, 2221:5, 2224:6, 2258:12, 2263:12, 2292:9, 2299:20, 2313:24, 2320:23, 2322:1, 2322:2, 2322:17, 2322:23, 2323:11, 2323:12 participant [2] - 2319:2, 2322:2 particular [48] - 2187:13, 2188:7, 2188:23, 2189:1, 2190:8, 2191:2, 2208:18, 2209:3, 2213:6, 2213:12, 2217:8, 2218:14, 2218:17, 2218:21, 2222:6, 2223:7, 2224:1, 2224:24, 2226:12, 2229:11, 2230:6, 2230:15, 2231:10, 2231:12, 2233:17, 2236:21, 2240:14, 2242:3, 2246:2, 2246:4, 2249:13, 2253:25, 2255:16, 2256:9, 2263:15, 2263:21, 2267:22, 2269:5, 2276:13, 2281:24, 2284:3, 2298:24, 2301:13, 2302:24, 2306:21, 2308:9, 2334:10, 2337:12 particularly [4] - 2219:8, 2242:22, 2248:24, 2268:2 parties [2] - 2187:14, 2191:3 partly [1] - 2232:16 partner [1] - 2219:24 parts [4] - 2271:4, 2272:19, 2320:4, 2320:8 pass [1] - 2295:15 passage [2] - 2292:25, 2307:19 passages [2] - 2290:21, 2290:24 passed [1] - 2295:22 past [3] - 2187:12, 2280:15, 2292:22 pattern [1] - 2311:12</p>	<p>2292:17, 2303:1 pay [4] - 2222:15, 2302:15, 2304:19, 2308:8 payment [2] - 2263:5, 2274:8 pen [4] - 2200:17, 2200:24, 2201:1, 2201:4 people [13] - 2211:13, 2211:16, 2212:6, 2212:9, 2261:22, 2270:23, 2270:25, 2271:4, 2272:19, 2273:17, 2274:7, 2298:10, 2319:17 people's [1] - 2319:8 per [8] - 2222:15, 2223:21, 2224:1, 2245:7, 2284:9, 2284:16, 2285:4, 2329:24 percent [29] - 2191:4, 2200:11, 2220:12, 2230:21, 2230:22, 2231:7, 2231:15, 2231:21, 2233:14, 2233:19, 2234:11, 2235:2, 2235:4, 2235:6, 2235:21, 2236:3, 2236:6, 2236:18, 2237:15, 2239:20, 2240:1, 2240:2, 2251:25, 2295:25, 2296:15, 2313:10, 2331:2, 2331:15 percentile [3] - 2330:4, 2330:9, 2330:17 performance [2] - 2315:21, 2332:23 perhaps [1] - 2213:5 period [13] - 2198:23, 2199:7, 2214:8, 2214:10, 2262:13, 2267:19, 2303:12, 2323:5, 2325:13, 2325:14, 2325:16, 2326:16, 2326:23 periods [8] - 2256:25, 2273:19, 2273:21, 2273:22, 2273:23, 2273:25, 2304:18, 2313:7 permanent [1] - 2274:3 permanently [1] - 2274:4</p>	<p>2207:6, 2207:8, 2207:15, 2207:21, 2208:3, 2208:17, 2208:18, 2233:20, 2233:22, 2234:16, 2262:19, 2262:21, 2295:22, 2304:15, 2333:15, 2334:14, 2335:21 permit-specific [1] - 2335:21 permits [80] - 2194:25, 2196:24, 2197:21, 2198:4, 2198:6, 2198:16, 2198:18, 2199:6, 2199:22, 2204:25, 2205:9, 2205:18, 2205:22, 2206:24, 2208:5, 2209:8, 2211:11, 2211:12, 2214:1, 2214:2, 2217:15, 2217:17, 2218:5, 2218:6, 2218:9, 2218:10, 2218:12, 2218:25, 2219:2, 2219:21, 2221:1, 2221:6, 2222:24, 2223:1, 2223:5, 2223:23, 2230:17, 2230:23, 2231:1, 2231:4, 2231:5, 2231:8, 2231:10, 2231:19, 2231:24, 2231:25, 2232:7, 2232:12, 2236:11, 2293:12, 2293:13, 2293:14, 2293:15, 2293:21, 2294:5, 2294:9, 2294:10, 2294:11, 2294:18, 2295:13, 2316:14, 2316:17, 2316:22, 2317:3, 2317:6, 2330:25, 2331:6, 2331:10, 2331:17, 2331:22, 2332:5, 2332:8, 2333:18, 2334:9, 2334:19, 2335:1, 2335:3, 2336:20, 2336:23 permitted [5] - 2198:5, 2198:17, 2200:12, 2205:10, 2336:14 permittees [1] - 2333:15 permitting [37] - 2195:9, 2195:16, 2195:19, 2196:1, 2196:3, 2198:22,</p>
THE REPORTING GROUP [18] - 2206:20, Mason & Lockhart				

<p>2202:2, 2202:6, 2203:25, 2204:12, 2205:4, 2205:6, 2209:13, 2211:1, 2211:9, 2212:2, 2212:20, 2218:4, 2221:11, 2232:22, 2233:8, 2235:11, 2257:20, 2279:5, 2289:1, 2290:15, 2290:17, 2291:6, 2291:7, 2291:11, 2292:9, 2293:12, 2294:4, 2294:7, 2294:12, 2337:5, 2337:6</p> <p>PERRY [68] - 2183:17, 2185:5, 2185:13, 2185:17, 2186:25, 2187:5, 2187:11, 2187:21, 2187:25, 2188:5, 2188:9, 2188:14, 2188:18, 2189:1, 2189:4, 2189:6, 2189:9, 2189:12, 2189:15, 2189:22, 2190:1, 2190:5, 2190:10, 2190:14, 2190:17, 2190:20, 2190:23, 2191:1, 2191:9, 2191:13, 2191:16, 2191:20, 2193:5, 2193:10, 2193:13, 2196:12, 2196:16, 2197:14, 2197:18, 2200:25, 2204:20, 2206:11, 2211:4, 2211:5, 2215:15, 2215:19, 2224:12, 2224:15, 2224:20, 2251:10, 2253:8, 2253:12, 2264:11, 2264:14, 2264:15, 2267:8, 2267:10, 2270:1, 2270:9, 2270:12, 2285:14, 2286:21, 2321:8, 2321:10, 2337:22, 2340:10, 2340:21, 2342:11</p> <p>Perry [15] - 2192:16, 2197:10, 2264:6, 2270:11, 2287:10, 2288:10, 2290:19, 2294:25, 2295:24, 2300:1, 2300:14, 2300:24, 2301:7, 2316:17, 2321:7</p> <p>Perry's [2] - 2287:1, 2307:13</p>	<p>person [4] - 2320:21, 2320:24, 2324:9, 2343:8</p> <p>personal [1] - 2287:12</p> <p>perspectives [1] - 2322:8</p> <p>Peterson [1] - 2190:11</p> <p>Ph.D [1] - 2184:4</p> <p>phenomenon [2] - 2237:11, 2237:13</p> <p>PHILIP [1] - 2183:17</p> <p>photo [1] - 2248:4</p> <p>photograph [1] - 2220:7</p> <p>photographs [2] - 2267:6, 2267:11</p> <p>phrase [2] - 2226:24, 2307:25</p> <p>phrased [1] - 2339:6</p> <p>physically [1] - 2223:14</p> <p>pick [1] - 2321:11</p> <p>picture [3] - 2281:13, 2288:18, 2306:8</p> <p>pieced [1] - 2202:25</p> <p>pieces [3] - 2250:24, 2258:21, 2299:21</p> <p>pipe [2] - 2281:17, 2281:20</p> <p>pipeline [2] - 2209:20, 2209:21</p> <p>place [10] - 2194:3, 2217:17, 2217:18, 2218:8, 2290:18, 2298:6, 2298:12, 2302:12, 2322:12, 2337:19</p> <p>placed [4] - 2192:23, 2218:6, 2230:11, 2245:17</p> <p>places [3] - 2249:20, 2249:23, 2342:1</p> <p>Plain [7] - 2309:9, 2310:3, 2310:24, 2311:22, 2329:14, 2329:17, 2330:11</p> <p>plain [1] - 2295:7</p> <p>Plaintiff [1] - 2183:4</p> <p>Plan [8] - 2199:2, 2240:8, 2282:20, 2288:10, 2288:14, 2306:3, 2317:16, 2318:19</p> <p>plan [76] - 2186:8, 2186:9, 2188:21, 2188:24, 2214:12, 2214:15, 2214:16, 2214:19, 2217:14, 2217:21, 2218:2, 2218:4, 2220:20</p>	<p>2220:25, 2221:2, 2221:10, 2221:21, 2224:22, 2228:15, 2230:12, 2230:14, 2230:23, 2234:10, 2236:9, 2246:20, 2248:11, 2251:20, 2282:22, 2283:2, 2285:9, 2288:12, 2288:17, 2288:18, 2288:23, 2288:24, 2289:9, 2289:10, 2289:23, 2290:10, 2290:13, 2290:22, 2291:4, 2291:20, 2292:16, 2294:8, 2294:25, 2295:11, 2295:16, 2295:19, 2296:3, 2296:24, 2297:2, 2297:4, 2297:6, 2297:21, 2298:15, 2300:5, 2305:12, 2318:21, 2319:15, 2320:2, 2320:3, 2320:8, 2320:12, 2320:15, 2320:23, 2323:16, 2323:17, 2323:25, 2331:18, 2334:24, 2336:4, 2336:18, 2337:3, 2337:19, 2338:2</p> <p>planning [27] - 2240:12, 2240:14, 2240:21, 2241:1, 2241:23, 2245:18, 2280:3, 2288:6, 2297:10, 2297:25, 2298:1, 2298:16, 2299:12, 2299:20, 2299:23, 2300:3, 2302:14, 2302:15, 2302:23, 2304:16, 2304:19, 2304:20, 2304:22, 2307:7, 2308:9, 2313:18, 2313:22</p> <p>plans [14] - 2230:7, 2230:8, 2230:16, 2240:25, 2241:6, 2241:15, 2243:21, 2297:22, 2298:19, 2299:2, 2299:15, 2299:24, 2300:7, 2337:5</p> <p>play [1] - 2185:25</p> <p>played [27] - 2187:20, 2188:4, 2188:8, 2188:13, 2188:17, 2188:25, 2188:28, 2188:31, 2188:32, 2188:33, 2188:34, 2188:35, 2188:36, 2188:37, 2188:38, 2188:39, 2188:40, 2188:41, 2188:42, 2188:43, 2188:44, 2188:45, 2188:46, 2188:47, 2188:48, 2188:49, 2188:50, 2188:51, 2188:52, 2188:53, 2188:54, 2188:55, 2188:56, 2188:57, 2188:58, 2188:59, 2188:60, 2188:61, 2188:62, 2188:63, 2188:64, 2188:65, 2188:66, 2188:67, 2188:68, 2188:69, 2188:70, 2188:71, 2188:72, 2188:73, 2188:74, 2188:75, 2188:76, 2188:77, 2188:78, 2188:79, 2188:80, 2188:81, 2188:82, 2188:83, 2188:84, 2188:85, 2188:86, 2188:87, 2188:88, 2188:89, 2188:90, 2188:91, 2188:92, 2188:93, 2188:94, 2188:95, 2188:96, 2188:97, 2188:98, 2188:99, 2188:100</p>	<p>2189:11, 2189:14, 2189:21, 2189:25, 2190:4, 2190:9, 2190:13, 2190:16, 2190:19, 2190:22, 2190:25, 2191:8, 2191:12, 2191:15, 2191:19, 2263:9, 2307:14, 2307:18</p> <p>playing [1] - 2187:14</p> <p>pleases [2] - 2341:2, 2341:4</p> <p>plus [1] - 2294:8</p> <p>point [16] - 2189:24, 2203:24, 2210:5, 2212:22, 2222:25, 2225:17, 2236:8, 2243:11, 2253:20, 2268:16, 2307:8, 2318:4, 2338:20, 2339:18, 2339:19, 2340:2</p> <p>pointed [1] - 2266:4</p> <p>pointer [1] - 2310:12</p> <p>policies [5] - 2297:8, 2318:6, 2318:7, 2318:11, 2318:15</p> <p>policy [7] - 2249:16, 2249:18, 2280:1, 2280:3, 2304:13, 2304:14, 2319:21</p> <p>political [1] - 2254:10</p> <p>politically [1] - 2254:14</p> <p>pollutant [2] - 2333:24, 2334:8</p> <p>Poppins [1] - 2185:11</p> <p>population [5] - 2219:19, 2219:22, 2219:25, 2220:5, 2269:23</p> <p>portion [8] - 2209:23, 2226:18, 2228:11, 2261:20, 2262:18, 2296:11, 2300:12, 2332:13</p> <p>portions [2] - 2336:7, 2336:8</p> <p>Portland [1] - 2183:13</p> <p>position [5] - 2215:7, 2228:6, 2229:22, 2287:23, 2291:1</p> <p>possibility [1] - 2247:8</p> <p>possible [2] - 2200:17, 2336:21</p> <p>post [2] - 2267:18, 2268:19</p> <p>post-irrigation [2] - 2189:18, 2268:19</p>	<p>potential [11] - 2247:19, 2258:17, 2272:7, 2272:24, 2279:19, 2291:2, 2302:19, 2303:4, 2308:6, 2311:17, 2339:12</p> <p>potentially [1] - 2272:25</p> <p>PowerPoint [8] - 2227:8, 2227:12, 2227:16, 2227:18, 2285:12, 2285:22, 2285:24, 2286:10</p> <p>practicable [3] - 2283:20, 2284:5, 2284:17</p> <p>practice [4] - 2247:2, 2249:9, 2250:16, 2283:2</p> <p>practices [9] - 2250:11, 2298:12, 2299:7, 2313:19, 2315:6, 2315:11, 2315:25, 2316:2, 2316:3</p> <p>pre [6] - 2217:15, 2218:10, 2267:13, 2267:14, 2267:18, 2268:15</p> <p>pre-existing [2] - 2217:15, 2218:10</p> <p>pre-irrigation [4] - 2267:13, 2267:14, 2267:18, 2268:15</p> <p>preceding [2] - 2289:3, 2309:12</p> <p>precipitation [1] - 2340:5</p> <p>precise [3] - 2211:21, 2231:2, 2248:18</p> <p>precisely [1] - 2216:23</p> <p>predecessor [2] - 2215:7, 2228:5</p> <p>predicted [1] - 2277:25</p> <p>preferred [2] - 2273:12, 2316:24</p> <p>prefiled [12] - 2186:22, 2193:15, 2194:10, 2196:10, 2198:11, 2198:23, 2199:16, 2201:22, 2204:5, 2212:25, 2230:1, 2240:6</p> <p>prepare [1] - 2301:19</p> <p>prepared [4] - 2191:21, 2257:16, 2258:2, 2258:4</p> <p>preparing [3] -</p>
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<p>2214:14, 2214:16, 2278:18 present [2] - 2226:8, 2313:14 presentation [12] - 2188:11, 2226:8, 2227:16, 2285:22, 2285:24, 2286:7, 2286:9, 2286:16, 2286:19, 2314:19, 2314:21, 2315:1 presentations [1] - 2227:19 presented [1] - 2285:19 press [7] - 2260:20, 2264:21, 2264:24, 2265:1, 2265:18, 2265:23, 2277:2 presumably [2] - 2227:4, 2248:20 presume [1] - 2241:9 pretty [2] - 2312:18, 2329:20 prices [2] - 2222:15, 2260:4 PRIMIS [38] - 2183:20, 2185:4, 2192:13, 2192:16, 2192:21, 2193:3, 2197:2, 2251:9, 2264:6, 2286:24, 2287:4, 2287:6, 2287:21, 2292:24, 2293:7, 2293:8, 2296:18, 2296:21, 2297:11, 2297:14, 2300:17, 2300:22, 2301:23, 2302:1, 2309:3, 2309:5, 2309:14, 2309:21, 2314:22, 2314:24, 2317:12, 2317:14, 2321:2, 2337:23, 2340:11, 2340:18, 2341:2, 2342:10 Primis [6] - 2193:16, 2327:22, 2332:15, 2333:6, 2336:1, 2338:2 priority [1] - 2247:1 problem [6] - 2210:8, 2246:21, 2252:9, 2254:24, 2334:3, 2334:12 problems [1] - 2338:17 proceed [3] - 2185:12, 2287:2, 2293:9 Proceeding [1] -</p>	<p>2342:15 PROCEEDINGS [2] - 2183:9, 2185:1 proceedings [1] - 2266:22 Proceedings [1] - 2343:6 proceeds [1] - 2298:16 process [24] - 2241:23, 2254:11, 2292:9, 2297:5, 2297:25, 2298:1, 2298:16, 2298:21, 2299:1, 2299:12, 2299:20, 2300:4, 2302:15, 2307:7, 2308:9, 2313:18, 2319:4, 2321:12, 2321:19, 2321:22, 2322:1, 2322:2, 2335:9, 2335:12 produce [2] - 2254:20, 2319:14 produced [4] - 2210:10, 2307:1, 2308:21, 2315:4 product [1] - 2320:1 production [2] - 2274:10, 2274:11 productive [1] - 2253:1 program [5] - 2212:8, 2212:13, 2232:23, 2298:5, 2339:2 programs [1] - 2288:3 progress [1] - 2253:6 progressively [1] - 2294:20 project [6] - 2188:2, 2248:2, 2281:11, 2281:14, 2281:16, 2316:8 projected [2] - 2299:5, 2299:9 pronouncing [1] - 2324:9 properly [1] - 2339:6 proposal [2] - 2323:3, 2323:4 proposed [1] - 2199:18 protect [3] - 2237:24, 2241:24, 2249:14 protection [15] - 2204:13, 2204:14, 2230:7, 2230:8, 2230:16, 2249:21, 2259:12, 2262:25, 2279:1, 2288:1,</p>	<p>2295:12, 2295:20, 2331:15, 2331:23, 2332:9 Protection [29] - 2186:7, 2210:19, 2221:8, 2222:14, 2226:13, 2228:20, 2240:24, 2258:6, 2258:19, 2258:25, 2259:23, 2260:9, 2265:2, 2266:18, 2267:23, 2268:4, 2269:2, 2270:24, 2274:17, 2275:17, 2275:22, 2276:2, 2276:9, 2276:14, 2277:4, 2282:10, 2288:22, 2315:23, 2332:19 protections [2] - 2331:1, 2331:5 Protective [1] - 2239:17 provide [9] - 2197:6, 2200:24, 2200:25, 2229:16, 2253:13, 2288:19, 2315:14, 2338:9, 2338:24 provided [4] - 2205:15, 2289:6, 2299:4, 2299:22 provides [2] - 2202:11, 2291:5 providing [2] - 2229:5, 2241:13 provision [3] - 2296:23, 2316:13, 2317:5 provisions [6] - 2218:4, 2290:17, 2294:8, 2294:25, 2295:12, 2322:11 proximity [2] - 2294:10, 2294:11 public [2] - 2308:23, 2322:18 Public [3] - 2183:15, 2287:18, 2343:2 publicly [1] - 2255:13 published [1] - 2252:16 Pull [1] - 2192:8 pull [1] - 2253:9 pulse [2] - 2323:8, 2324:1 pump [7] - 2222:25, 2223:3, 2223:6, 2223:17, 2223:23, 2223:24, 2292:6</p>	<p>pumping [11] - 2223:15, 2231:20, 2247:23, 2268:22, 2290:23, 2291:2, 2291:13, 2291:16, 2291:17, 2308:16, 2313:24 pumps [2] - 2223:3, 2292:2 purpose [4] - 2207:20, 2249:17, 2302:24, 2304:16 purposes [8] - 2235:11, 2245:18, 2246:5, 2249:11, 2258:4, 2268:22, 2274:2, 2275:1 push [1] - 2254:13 put [7] - 2194:3, 2235:8, 2252:11, 2267:9, 2290:17, 2292:12, 2298:11</p> <p style="text-align: center;">Q</p> <p>quality [1] - 2187:23 quantity [1] - 2207:20 questioned [1] - 2302:7 questions [7] - 2194:16, 2197:10, 2200:20, 2215:13, 2321:4, 2337:23, 2340:9 quickly [1] - 2253:19 quite [7] - 2196:24, 2198:16, 2198:21, 2199:5, 2236:6, 2267:15, 2332:11 quote [12] - 2229:12, 2258:9, 2277:24, 2279:7, 2280:6, 2280:9, 2280:24, 2284:4, 2305:1, 2305:12, 2307:19, 2307:22 quotes [1] - 2283:20 quoting [1] - 2265:19 QURESHI [1] - 2183:18</p> <p style="text-align: center;">R</p> <p>raise [1] - 2191:25 raised [2] - 2217:25, 2295:20 RALPH [1] - 2183:11 ran [1] - 2223:17 range [4] - 2291:14, 2328:21, 2330:12, 2332:13</p>	<p>rated [1] - 2222:25 rates [2] - 2226:24, 2227:3 rather [3] - 2271:24, 2276:21, 2318:15 rationale [3] - 2221:5, 2320:6, 2320:10 reach [2] - 2319:14, 2321:23 reached [1] - 2186:19 reaches [1] - 2219:20 read [33] - 2198:15, 2198:21, 2201:24, 2201:25, 2203:10, 2203:11, 2204:4, 2205:8, 2210:17, 2215:20, 2215:23, 2216:8, 2216:10, 2216:16, 2216:18, 2219:9, 2219:15, 2219:17, 2222:9, 2222:12, 2226:18, 2226:22, 2238:15, 2238:17, 2261:12, 2261:13, 2268:9, 2268:11, 2290:21, 2292:21, 2318:20, 2320:1, 2330:7 readily [1] - 2340:24 reading [4] - 2212:24, 2229:9, 2243:10, 2284:22 readings [1] - 2233:16 reads [6] - 2208:2, 2226:3, 2229:12, 2277:24, 2280:24, 2282:24 ready [1] - 2254:6 real [2] - 2305:21, 2305:23 realities [2] - 2319:8, 2319:24 realize [1] - 2280:6 really [3] - 2284:22, 2297:3, 2319:20 reason [3] - 2223:13, 2223:18, 2302:12 Reasonable [1] - 2215:16 reasonable [7] - 2215:21, 2216:13, 2229:6, 2229:17, 2242:11, 2242:16, 2338:25 reasons [2] - 2275:7, 2305:16 receive [2] - 2195:18, 2323:15 received [3] - 2215:6, 2228:4, 2282:7</p>
--	--	--	--	--

<p>recent [3] - 2214:8, 2268:23, 2326:22 recently [1] - 2325:25 recess [1] - 2270:5 Recess [2] - 2224:18, 2270:7 reciprocated [1] - 2197:8 recognize [6] - 2195:6, 2257:13, 2260:3, 2290:22, 2306:12, 2326:21 recollection [1] - 2242:2 recommendation [8] - 2218:18, 2218:21, 2218:24, 2247:22, 2250:10, 2250:17, 2323:10, 2323:13 Recommendations [1] - 2222:7 recommendations [12] - 2218:3, 2221:14, 2222:21, 2299:10, 2314:11, 2318:24, 2320:5, 2320:17, 2322:19, 2322:22, 2323:7, 2324:3 recommended [5] - 2237:23, 2240:25, 2299:2, 2322:20, 2322:24 Recommended [1] - 2239:17 record [8] - 2197:3, 2237:7, 2257:4, 2269:11, 2302:9, 2308:18, 2309:4, 2325:16 recorded [1] - 2304:1 records [1] - 2332:6 recovery [3] - 2264:2, 2273:13, 2316:9 recross [1] - 2321:6 Recross [1] - 2184:2 RECROSS [1] - 2321:9 RECROSS-EXAMINATION [1] - 2321:9 red [9] - 2292:15, 2292:16, 2293:19, 2294:14, 2310:1, 2310:21, 2336:4, 2336:7, 2336:10 redacted [1] - 2206:19 redactions [1] - 2189:18 REDIRECT [1] -</p>	<p>2287:5 Redirect [1] - 2184:2 reduce [1] - 2220:12 reduction [1] - 2268:14 reductions [3] - 2328:8, 2328:20, 2329:3 reevaluated [1] - 2335:3 refer [7] - 2217:1, 2218:17, 2219:4, 2227:23, 2325:4, 2325:5, 2327:4 reference [24] - 2199:25, 2202:1, 2202:5, 2203:12, 2204:6, 2213:7, 2216:5, 2216:14, 2222:1, 2228:17, 2230:16, 2230:20, 2238:18, 2242:20, 2246:14, 2251:24, 2254:3, 2264:22, 2264:23, 2265:14, 2266:22, 2275:12, 2275:16, 2301:11 referenced [1] - 2274:22 Referenced [1] - 2184:6 referencing [3] - 2266:13, 2293:2, 2324:7 referred [7] - 2192:17, 2196:19, 2289:25, 2330:24, 2331:1, 2332:16, 2336:4 referring [9] - 2194:17, 2213:6, 2218:15, 2227:20, 2232:4, 2242:1, 2254:7, 2308:3, 2330:16 refers [4] - 2193:20, 2243:17, 2262:9, 2284:4 reflect [2] - 2232:12, 2313:23 reflects [1] - 2269:18 reform [1] - 2218:19 Reform [1] - 2222:8 regard [1] - 2298:19 regime [3] - 2255:25, 2256:6, 2294:4 region [8] - 2240:14, 2299:3, 2299:5, 2299:8, 2300:6, 2301:6, 2315:13, 2315:19</p>	<p>Regional [6] - 2199:2, 2251:21, 2282:19, 2288:9, 2321:16, 2323:21 regional [16] - 2241:14, 2243:20, 2246:20, 2297:10, 2297:22, 2298:16, 2298:19, 2299:22, 2299:24, 2300:5, 2300:7, 2302:19, 2308:6, 2311:17, 2314:10, 2314:20 regions [5] - 2240:12, 2240:21, 2241:1, 2298:20, 2298:23 regular [1] - 2209:14 regularly [2] - 2210:6, 2210:7 regulated [3] - 2216:6, 2239:25, 2253:2 regulating [1] - 2255:11 Regulatory [1] - 2222:7 regulatory [2] - 2218:18, 2294:3 Reheis [9] - 2193:21, 2193:24, 2194:3, 2198:12, 2215:11, 2289:17, 2290:21 Reheis's [2] - 2194:8, 2289:19 REIGSTAD [1] - 2183:21 relate [3] - 2189:23, 2190:11, 2190:15 related [8] - 2221:19, 2256:7, 2288:2, 2318:1, 2320:18, 2322:23, 2324:4, 2325:3 relates [7] - 2188:10, 2189:16, 2190:5, 2214:18, 2247:6, 2298:20, 2330:18 relating [1] - 2188:20 relation [1] - 2265:5 relatively [1] - 2313:1 release [7] - 2260:20, 2264:21, 2264:25, 2265:1, 2265:18, 2265:23, 2277:3 released [1] - 2308:22 relevant [2] - 2198:23, 2199:16 relied [2] - 2203:4, 2319:9 remains [2] - 2189:13,</p>	<p>remedy [1] - 2246:20 remember [10] - 2227:16, 2250:2, 2254:7, 2259:4, 2259:8, 2259:10, 2279:9, 2280:11, 2280:12, 2285:9 reminded [1] - 2282:24 remote [1] - 2202:24 remote-sent [1] - 2202:24 removal [2] - 2274:3, 2274:16 reopening [1] - 2291:11 repaginate [1] - 2300:20 repeat [3] - 2213:3, 2229:10, 2231:14 rephrase [2] - 2234:23, 2263:25 replace [1] - 2250:6 replaced [2] - 2278:6, 2315:16 replicate [1] - 2245:23 report [6] - 2195:8, 2205:1, 2251:23, 2252:1, 2252:15, 2308:25 reported [3] - 2206:14, 2303:11, 2307:10 Reporter [1] - 2343:16 reporting [2] - 2205:16, 2227:5 reports [4] - 2202:23, 2285:5, 2315:4, 2315:10 representative [2] - 2252:23, 2254:21 representatives [1] - 2222:2 represented [2] - 2221:17, 2311:4 request [2] - 2195:17, 2195:18 require [3] - 2241:2, 2247:15, 2263:5 required [6] - 2240:25, 2262:19, 2293:21, 2294:1, 2318:6, 2319:14 requirement [9] - 2231:16, 2233:19, 2234:11, 2234:15, 2246:3, 2304:6, 2304:21, 2305:8, 2316:23 requirements [6] -</p>	<p>2327:3, 2331:4, 2333:22, 2333:25 requires [1] - 2243:9 Research [1] - 2225:14 researched [1] - 2319:19 resembles [1] - 2302:5 reservoirs [5] - 2247:8, 2247:10, 2247:11, 2247:20, 2273:15 resolve [1] - 2209:15 resolved [1] - 2264:14 resource [6] - 2239:3, 2280:13, 2302:17, 2316:25, 2319:22, 2320:10 Resources [4] - 2186:3, 2186:4, 2239:1, 2239:18 resources [19] - 2186:16, 2226:3, 2237:25, 2238:8, 2250:3, 2263:1, 2266:23, 2289:7, 2290:7, 2298:9, 2299:6, 2304:10, 2306:17, 2307:6, 2313:16, 2313:19, 2315:12, 2320:7 respect [2] - 2217:22, 2265:8 respected [1] - 2318:16 respond [1] - 2197:14 response [4] - 2248:25, 2249:4, 2288:24, 2290:6 responsibilities [5] - 2201:17, 2211:22, 2212:1, 2287:24, 2318:1 responsibility [5] - 2204:24, 2206:16, 2213:17, 2288:5, 2337:13 responsible [9] - 2204:9, 2238:9, 2248:22, 2251:2, 2251:5, 2288:1, 2298:2, 2298:4, 2339:1 rest [3] - 2199:6, 2212:1, 2307:22 restricted [3] - 2336:5, 2336:25 restricting [1] - 2294:10</p>
---	---	---	--	---

<p>restriction [2] - 2224:7, 2230:14</p> <p>restrictions [9] - 2218:6, 2221:2, 2221:4, 2230:11, 2290:16, 2291:6, 2336:19, 2337:6, 2337:7</p> <p>restrictive [1] - 2294:15</p> <p>result [4] - 2242:4, 2246:17, 2306:16, 2339:19</p> <p>results [10] - 2226:19, 2244:17, 2244:19, 2254:20, 2258:18, 2290:12, 2291:14, 2301:3, 2328:19, 2342:6</p> <p>retired [1] - 2257:21</p> <p>return [1] - 2286:25</p> <p>review [2] - 2240:25, 2284:19</p> <p>Revocability [1] - 2207:25</p> <p>revoke [1] - 2208:5</p> <p>Reynoldsville [1] - 2237:10</p> <p>right-hand [1] - 2252:1</p> <p>rights [3] - 2216:25, 2274:5, 2274:6</p> <p>riparian [2] - 2216:6, 2216:25</p> <p>River [49] - 2186:13, 2199:2, 2217:24, 2221:8, 2222:14, 2225:20, 2228:20, 2244:2, 2244:3, 2244:11, 2244:12, 2251:16, 2258:5, 2258:19, 2258:24, 2259:23, 2260:8, 2261:17, 2265:2, 2265:15, 2265:25, 2266:18, 2267:22, 2268:3, 2269:2, 2271:25, 2272:9, 2274:13, 2274:17, 2275:17, 2276:2, 2276:9, 2276:14, 2277:4, 2282:10, 2288:8, 2288:14, 2300:11, 2300:12, 2304:25, 2306:18, 2313:9, 2315:23, 2322:21, 2322:23, 2323:14, 2323:23, 2332:18, 2337:19</p> <p>river [17] - 2186:14,</p>	<p>2234:24, 2245:24, 2246:1, 2256:9, 2256:11, 2272:25, 2288:3, 2302:22, 2305:7, 2305:8, 2305:9, 2305:13, 2305:17, 2312:11, 2313:2, 2328:12</p> <p>riverkeeper [2] - 2252:6, 2252:16</p> <p>rivers [4] - 2231:21, 2273:2, 2273:3, 2301:5</p> <p>Rivers [3] - 2251:15, 2252:16, 2252:23</p> <p>RMR [2] - 2183:14, 2343:15</p> <p>Rogers [9] - 2251:18, 2252:4, 2252:20, 2252:22, 2253:5, 2253:10, 2255:8, 2255:12</p> <p>role [4] - 2206:12, 2214:14, 2214:16, 2214:17</p> <p>Roman [1] - 2239:7</p> <p>room [2] - 2253:3, 2254:23</p> <p>roughly [6] - 2193:25, 2196:21, 2199:17, 2201:12, 2211:7, 2282:16</p> <p>row [6] - 2197:20, 2256:17, 2301:8, 2306:21, 2315:5, 2325:3</p> <p>rule [1] - 2319:11</p> <p>run [4] - 2195:8, 2195:22, 2196:5, 2208:21</p> <p>runs [2] - 2281:20, 2310:16</p>	<p>2289:11, 2289:13</p> <p>scoping [1] - 2250:21</p> <p>screen [7] - 2187:17, 2196:14, 2208:23, 2211:6, 2253:17, 2267:9</p> <p>season [2] - 2326:13, 2340:7</p> <p>seated [1] - 2192:7</p> <p>second [22] - 2186:4, 2207:4, 2207:12, 2207:14, 2207:17, 2215:17, 2216:12, 2216:13, 2244:21, 2245:7, 2246:14, 2258:1, 2259:20, 2272:3, 2280:24, 2281:21, 2282:23, 2292:17, 2306:25, 2327:15, 2328:5, 2329:25</p> <p>section [12] - 2217:6, 2218:18, 2218:19, 2226:23, 2246:12, 2268:10, 2269:7, 2276:13, 2276:15, 2277:23, 2283:23, 2311:7</p> <p>sections [2] - 2284:13, 2300:20</p> <p>sectors [1] - 2319:1</p> <p>see [146] - 2193:8, 2194:11, 2195:12, 2196:23, 2197:20, 2197:23, 2198:15, 2198:19, 2198:21, 2199:5, 2199:21, 2200:2, 2200:3, 2200:8, 2200:10, 2202:1, 2203:12, 2204:7, 2205:6, 2206:20, 2207:2, 2207:4, 2207:8, 2207:12, 2207:16, 2207:23, 2207:25, 2208:14, 2208:17, 2208:20, 2208:23, 2210:22, 2212:9, 2213:7, 2214:25, 2216:4, 2217:11, 2218:19, 2219:6, 2220:11, 2220:15, 2222:1, 2222:13, 2224:24, 2225:8, 2225:14, 2225:23, 2226:4, 2226:23, 2227:8, 2228:24, 2229:13, 2229:19, 2230:18, 2233:3,</p>	<p>2233:17, 2233:21, 2234:5, 2235:17, 2235:20, 2235:23, 2235:25, 2236:5, 2236:23, 2237:4, 2237:11, 2238:18, 2238:25, 2239:6, 2239:13, 2239:16, 2239:20, 2240:21, 2241:12, 2241:20, 2241:25, 2242:7, 2242:19, 2245:3, 2246:6, 2246:12, 2246:23, 2246:25, 2247:12, 2250:9, 2251:24, 2253:15, 2253:17, 2255:6, 2255:23, 2255:25, 2260:2, 2260:5, 2260:14, 2260:23, 2260:25, 2261:10, 2262:7, 2262:9, 2262:23, 2263:17, 2263:20, 2264:21, 2265:13, 2265:17, 2266:21, 2267:20, 2269:10, 2269:14, 2271:15, 2271:24, 2272:4, 2275:12, 2275:17, 2275:20, 2276:16, 2278:3, 2278:9, 2279:2, 2279:11, 2279:17, 2280:21, 2281:1, 2281:4, 2281:10, 2282:9, 2282:12, 2283:5, 2283:18, 2284:7, 2284:8, 2291:25, 2293:3, 2308:24, 2310:13, 2312:9, 2313:8, 2320:5, 2327:11, 2328:5, 2329:25, 2330:5, 2341:14, 2342:12</p> <p>seeing [5] - 2213:2, 2260:21, 2286:19, 2304:18, 2313:7</p> <p>seem [1] - 2271:17</p> <p>segment [4] - 2311:13, 2311:14, 2311:19, 2328:12</p> <p>selected [2] - 2225:7, 2308:5</p> <p>Seminole [1] - 2237:10</p> <p>Senate [1] - 2276:6</p> <p>send [1] - 2323:22</p> <p>sense [5] - 2221:18, 2223:12, 2223:24,</p>	<p>2273:7, 2274:6</p> <p>sensitive [8] - 2292:14, 2293:10, 2293:16, 2293:18, 2293:21, 2293:25, 2294:15, 2295:19</p> <p>sensitivity [4] - 2291:15, 2291:22, 2294:21, 2336:2</p> <p>sent [1] - 2202:24</p> <p>sentence [20] - 2193:20, 2215:21, 2216:16, 2217:11, 2219:9, 2219:11, 2225:5, 2225:6, 2228:24, 2229:11, 2229:13, 2241:12, 2259:9, 2262:23, 2271:21, 2282:24, 2284:3, 2284:21, 2328:6</p> <p>sentences [3] - 2204:3, 2219:16, 2243:13</p> <p>September [2] - 2237:3, 2247:4</p> <p>sequence [1] - 2185:23</p> <p>series [5] - 2190:10, 2200:19, 2227:7, 2239:25, 2286:10</p> <p>served [1] - 2193:24</p> <p>Service [6] - 2214:24, 2217:25, 2219:23, 2337:9, 2337:11, 2337:16</p> <p>set [16] - 2187:25, 2188:18, 2191:3, 2227:6, 2286:24, 2289:11, 2292:9, 2297:7, 2311:19, 2312:3, 2312:7, 2319:10, 2320:17, 2323:7, 2328:15</p> <p>setting [3] - 2303:3, 2309:23, 2311:8</p> <p>seven [3] - 2235:23, 2289:10, 2289:25</p> <p>several [3] - 2187:18, 2214:18, 2342:1</p> <p>severe [6] - 2221:8, 2228:8, 2256:21, 2265:4, 2267:20, 2277:24</p> <p>severity [1] - 2226:20</p> <p>shall [2] - 2192:3, 2192:4</p> <p>Shanahan [2] - 2185:20, 2186:11</p> <p>share [4] - 2222:20,</p>
<p>S</p>				
<p>S-30 [2] - 2309:11, 2309:12</p> <p>sandy [1] - 2243:4</p> <p>saving [1] - 2284:18</p> <p>saw [2] - 2267:16, 2328:19</p> <p>schedule [2] - 2185:15, 2187:1</p> <p>schedules [1] - 2340:23</p> <p>scheduling [1] - 2185:22</p> <p>science [2] - 2289:22, 2289:24</p> <p>scientific [3] - 228</p>	<p>THE REPORTING GROUP</p> <p>Mason & Lockhart</p>			

<p>2315:19, 2319:23, 2342:6 short [4] - 2235:10, 2236:9, 2305:1, 2305:5 short-term [2] - 2235:10, 2236:9 shortfall [27] - 2244:17, 2244:19, 2245:3, 2245:10, 2245:12, 2245:15, 2246:15, 2255:18, 2255:23, 2256:8, 2301:14, 2302:5, 2303:6, 2304:2, 2304:8, 2304:17, 2304:18, 2305:7, 2325:8, 2325:10, 2325:17, 2325:20, 2325:21, 2325:23, 2325:24, 2326:1, 2326:2 shortfalls [1] - 2302:18 shorthand [1] - 2312:14 show [7] - 2220:6, 2233:16, 2285:11, 2300:23, 2310:5, 2310:25, 2327:23 showed [3] - 2244:18, 2244:19, 2295:1 shown [3] - 2198:4, 2301:2, 2325:16 shows [10] - 2198:7, 2301:3, 2306:15, 2306:16, 2309:25, 2310:1, 2310:8, 2310:10, 2310:22, 2311:11 side [1] - 2269:15 sign [1] - 2318:10 signature [1] - 2217:10 significance [1] - 2292:10 significant [7] - 2229:18, 2244:17, 2288:5, 2325:21, 2326:9, 2334:11, 2340:3 significantly [1] - 2220:16 signifies [1] - 2302:5 signing [1] - 2318:7 similar [6] - 2273:5, 2273:8, 2306:5, 2306:16, 2308:4, 2323:5 simple [1] - 2250:1</p>	<p>simply [1] - 2197:3 simulation [1] - 2334:20 simultaneously [1] - 2217:1 single [4] - 2256:7, 2304:2, 2311:19, 2325:18 sit [1] - 2332:3 sitting [2] - 2285:21, 2286:16 six [3] - 2211:7, 2235:17, 2235:20 sixth [1] - 2238:20 size [2] - 2325:24, 2326:1 skip [1] - 2203:9 sky [1] - 2341:14 slide [3] - 2304:5, 2314:21, 2314:25 slides [5] - 2227:8, 2227:12, 2285:25, 2286:11, 2314:19 small [8] - 2210:17, 2231:9, 2232:3, 2313:1, 2313:5, 2313:6, 2329:20 smaller [2] - 2291:20, 2326:3 Smith [1] - 2341:22 snapshot [3] - 2202:22, 2209:12, 2210:6 snapshots [1] - 2202:11 so-called [1] - 2293:14 solemnly [1] - 2192:2 solution [1] - 2252:9 solutions [1] - 2285:1 someone [3] - 2211:25, 2320:22, 2342:2 sometimes [1] - 2288:12 somewhere [1] - 2341:14 sorry [34] - 2204:21, 2206:3, 2210:16, 2213:3, 2219:13, 2227:9, 2231:14, 2238:1, 2239:14, 2243:10, 2243:15, 2244:23, 2245:14, 2246:9, 2257:11, 2264:6, 2264:10, 2264:18, 2273:20, 2279:16, 2282:2, 2282:3, 2282:8, 2317:12, 2324:8</p>	<p>2324:17, 2324:23, 2326:19, 2327:5, 2327:7, 2327:10, 2336:11, 2340:17 sort [1] - 2342:5 sound [3] - 2187:23, 2289:22, 2289:24 sounds [1] - 2322:13 source [1] - 2254:24 south [1] - 2237:9 southwest [3] - 2270:25, 2300:10, 2316:10 speaking [2] - 2249:5, 2334:22 Special [1] - 2317:9 SPECIAL [39] - 2183:11, 2185:2, 2185:6, 2185:16, 2186:23, 2187:4, 2187:10, 2187:24, 2191:24, 2192:15, 2193:12, 2197:12, 2197:17, 2201:2, 2204:15, 2204:19, 2206:7, 2206:10, 2224:13, 2224:16, 2264:13, 2270:5, 2270:10, 2286:23, 2287:3, 2287:20, 2301:25, 2321:6, 2337:25, 2338:7, 2338:12, 2338:16, 2339:5, 2339:15, 2340:4, 2340:13, 2340:25, 2341:4, 2342:12 special [3] - 2203:13, 2203:17, 2203:19 specialists [1] - 2225:8 species [4] - 2188:1, 2238:10, 2242:5, 2249:21 specific [16] - 2189:18, 2189:24, 2212:14, 2212:16, 2224:7, 2231:11, 2259:12, 2264:23, 2279:12, 2293:22, 2322:22, 2323:24, 2334:15, 2335:21, 2337:5, 2337:7 specifically [10] - 2201:18, 2220:4, 2249:8, 2276:15, 2281:4, 2281:5, 2300:25, 2323:8, 2325:19, 2336:18</p>	<p>specified [10] - 2207:20, 2221:2, 2221:12, 2235:5, 2235:10, 2256:8, 2299:2, 2304:14, 2308:10, 2336:18 specifies [1] - 2250:9 specify [2] - 2223:5, 2223:23 specifying [2] - 2236:17, 2256:10 spell [1] - 2192:9 spend [5] - 2215:11, 2280:14, 2280:15, 2297:16, 2325:2 spent [1] - 2280:8 spilled [1] - 2340:15 spoken [1] - 2253:5 sponsor [1] - 2226:15 sponsored [1] - 2226:14 Spring [20] - 2207:9, 2207:10, 2209:7, 2219:20, 2220:2, 2220:4, 2236:22, 2237:9, 2247:24, 2248:2, 2248:3, 2269:19, 2280:24, 2281:10, 2281:13, 2281:16, 2282:6, 2295:17, 2336:2, 2336:9 springs [1] - 2294:12 staff [3] - 2212:18, 2258:14, 2282:21 stainability [1] - 2327:2 stakeholder [5] - 2221:14, 2222:21, 2270:21, 2319:4, 2333:1 Stakeholder [1] - 2222:7 Stakeholders [8] - 2317:15, 2317:18, 2317:23, 2317:24, 2318:5, 2321:12, 2322:20, 2338:1 stakeholders [7] - 2221:16, 2254:12, 2255:5, 2280:6, 2286:18, 2318:13, 2322:4 Standard [1] - 2207:16 standard [2] - 2249:19, 2332:23 standards [1] - 2315:22 standpoint [3] -</p>	<p>2339:17 stare [1] - 2341:14 start [15] - 2187:6, 2187:17, 2193:14, 2194:8, 2197:19, 2201:24, 2232:22, 2243:21, 2248:15, 2253:18, 2253:25, 2269:6, 2293:2, 2302:12, 2327:10 started [1] - 2303:11 starting [1] - 2215:13 starts [2] - 2194:20, 2328:6 state [29] - 2192:9, 2202:13, 2216:6, 2242:13, 2255:13, 2261:5, 2271:5, 2277:16, 2288:4, 2296:14, 2297:2, 2297:4, 2297:6, 2297:9, 2297:23, 2298:11, 2298:14, 2298:15, 2300:3, 2300:10, 2310:5, 2312:19, 2312:24, 2313:10, 2313:21, 2313:23, 2315:22, 2318:9 STATE [2] - 2183:3, 2183:6 State [9] - 2183:15, 2183:17, 2183:20, 2189:20, 2211:13, 2223:19, 2280:4, 2299:10, 2343:3 state's [1] - 2304:12 statement [7] - 2188:2, 2279:9, 2280:12, 2283:3, 2305:10, 2307:13, 2312:14 statements [2] - 2271:19, 2304:23 states [4] - 2280:8, 2317:21, 2317:25, 2319:17 States [3] - 2244:13, 2337:9, 2337:11 STATES [1] - 2183:1 Statewide [1] - 2240:7 statewide [7] - 2249:18, 2288:6, 2297:10, 2297:20, 2297:24, 2298:1, 2298:6 stations [1] - 2233:12 status [1] - 2315:3 statute [3] - 2212:4, 2332:24, 2332:25</p>
---	---	---	---	--

<p>Statutory [1] - 2222:8 stay [1] - 2318:12 steal [1] - 2317:12 stenographic [1] - 2343:5 step [6] - 2209:10, 2209:14, 2250:15, 2251:6, 2298:4, 2328:18 steps [7] - 2212:3, 2251:2, 2252:18, 2271:23, 2272:15, 2274:24, 2275:22 Steve [1] - 2225:10 still [10] - 2189:9, 2190:17, 2190:23, 2191:13, 2194:9, 2211:7, 2224:21, 2248:21, 2257:22, 2335:20 stop [6] - 2231:20, 2254:17, 2295:15, 2296:5, 2318:4, 2336:22 stopped [1] - 2318:11 storage [5] - 2247:6, 2247:16, 2273:13, 2273:22, 2316:9 storing [2] - 2273:19, 2273:21 straddled [1] - 2293:15 straightforward [1] - 2320:4 strategies [1] - 2219:5 strategy [2] - 2220:12, 2220:17 stream [23] - 2232:3, 2235:15, 2249:16, 2249:20, 2281:18, 2291:19, 2304:10, 2304:11, 2304:12, 2304:13, 2305:19, 2311:7, 2311:13, 2311:14, 2311:19, 2312:6, 2313:1, 2313:6, 2328:25, 2329:1, 2331:8 streamflow [15] - 2234:17, 2234:21, 2235:13, 2247:22, 2249:10, 2273:4, 2275:2, 2291:3, 2291:12, 2292:3, 2303:23, 2304:1, 2304:4, 2311:2, 2313:4 streamflows [5] - 2237:24, 2259:18, 2283:1, 2290:23,</p>	<p>2312:24 streams [9] - 2233:17, 2239:23, 2239:25, 2273:3, 2294:11, 2308:14, 2308:15, 2311:4, 2328:21 Street [1] - 2183:12 stretch [2] - 2311:23, 2312:22 stricken [1] - 2278:5 stringent [1] - 2318:15 strong [1] - 2324:2 studied [1] - 2323:4 studies [8] - 2251:4, 2274:23, 2275:4, 2289:5, 2289:25, 2290:4, 2290:12, 2291:9 study [13] - 2190:11, 2237:23, 2248:3, 2248:7, 2248:13, 2248:14, 2248:22, 2249:2, 2250:14, 2250:21, 2269:4, 2289:11 studying [1] - 2248:21 sub [5] - 2295:17, 2295:18, 2328:22, 2329:3, 2336:8 sub-basin [1] - 2295:18 sub-basins [4] - 2295:17, 2328:22, 2329:3, 2336:8 subject [7] - 2191:6, 2204:25, 2214:4, 2278:1, 2278:14, 2331:17, 2331:19 submitted [1] - 2186:21 subscribe [1] - 2343:10 subsequent [1] - 2219:22 substantial [5] - 2245:10, 2245:19, 2246:15, 2325:12, 2332:14 substantially [2] - 2256:4, 2285:2 suffering [1] - 2251:25 sufficiently [1] - 2229:5 suggest [2] - 2341:13, 2341:20 suggested [4] - 2185:7, 2277:17, 2277:20, 2329:5 suggesting [2] - 2325:20, 2341:1</p>	<p>suggestion [2] - 2316:20, 2341:21 suggests [1] - 2305:12 suite [1] - 2289:8 summarized [1] - 2290:13 Summary [1] - 2217:7 summary [8] - 2200:2, 2238:13, 2270:20, 2271:19, 2275:10, 2278:18, 2286:5, 2308:21 summer [3] - 2245:21, 2268:3, 2275:5 Sunding [2] - 2186:15, 2210:2 supermoon [2] - 2341:12, 2341:15 supplement [1] - 2274:1 supplementing [1] - 2273:23 supply [5] - 2247:16, 2283:24, 2303:4, 2315:24, 2316:2 support [3] - 2239:4, 2273:6, 2313:19 supporting [1] - 2288:6 supports [1] - 2313:4 supposing [1] - 2254:25 SUPREME [1] - 2183:1 surface [25] - 2218:13, 2230:16, 2230:23, 2231:12, 2231:18, 2244:25, 2250:6, 2272:22, 2272:24, 2289:12, 2299:14, 2299:18, 2301:5, 2307:4, 2308:4, 2310:25, 2316:5, 2316:7, 2316:24, 2317:3, 2330:25, 2331:9, 2331:22, 2332:8 surprise [1] - 2256:19 surprised [3] - 2332:1, 2332:2, 2332:4 Survey [2] - 2244:14, 2301:12 suspend [1] - 2262:18 suspending [1] - 2261:16 suspension [3] - 2262:10, 2263:2, 2263:4 tab [72] - 2194:6, 2194:18, 2195:4, 2195:6, 2196:6, 2196:11, 2196:23, 2198:9, 2200:1, 2200:3, 2200:16, 2201:7, 2206:18, 2208:9, 2208:11, 2208:16, 2210:15, 2213:6, 2214:13, 2214:23, 2216:3, 2216:4, 2216:11, 2217:7, 2220:21, 2222:10, 2224:21, 2225:17, 2227:10, 2227:24, 2233:1, 2233:2, 2234:7, 2234:8, 2236:1, 2236:3, 2236:22, 2237:8, 2237:19, 2238:1, 2238:3, 2240:8, 2241:7, 2243:23, 2251:9, 2255:15,</p>	<p>2246:3, 2246:5, 2246:16, 2304:6, 2304:21, 2305:1 sustainable [34] - 2229:5, 2229:16, 2299:16, 2306:2, 2306:9, 2307:2, 2307:11, 2307:21, 2307:23, 2308:1, 2308:12, 2309:8, 2309:24, 2310:20, 2311:7, 2311:8, 2311:15, 2311:18, 2311:20, 2312:1, 2312:7, 2312:14, 2312:16, 2312:17, 2312:21, 2313:11, 2318:25, 2323:17, 2327:12, 2328:14, 2330:10, 2330:12, 2330:13, 2330:22 Sustainable [3] - 2317:16, 2318:18, 2330:8 sustained [1] - 2242:3 swear [1] - 2192:2 switch [1] - 2297:1 sworn [1] - 2192:24 synopsis [1] - 2308:25 system [5] - 2219:25, 2220:2, 2220:8, 2300:19, 2333:25 systems [3] - 2241:24, 2248:23, 2251:1</p>	<p>2257:9, 2260:12, 2263:8, 2264:17, 2264:18, 2264:21, 2266:16, 2269:3, 2270:15, 2276:3, 2278:9, 2278:14, 2278:23, 2281:8, 2283:8, 2286:13, 2292:23, 2297:13, 2299:25, 2324:23, 2327:4, 2328:2, 2329:9, 2335:23 table [24] - 2198:7, 2236:21, 2239:10, 2239:16, 2246:23, 2255:20, 2256:6, 2300:16, 2300:21, 2300:23, 2305:11, 2306:11, 2306:15, 2315:5, 2324:25, 2328:22, 2328:23, 2329:2, 2329:12, 2329:15, 2330:16 tables [1] - 2236:19 tally [1] - 2315:2 Tammy [1] - 2195:15 target [7] - 2255:25, 2256:6, 2256:9, 2256:11, 2256:12, 2275:6, 2275:7 task [8] - 2203:13, 2203:17, 2203:19, 2204:1, 2212:17, 2212:18, 2212:21, 2212:23 tax [1] - 2274:8 Technical [1] - 2224:24 technical [15] - 2221:10, 2261:20, 2274:23, 2275:4, 2285:8, 2289:12, 2289:14, 2290:1, 2291:10, 2299:4, 2299:21, 2308:17, 2308:18, 2308:24, 2314:4 technologies [2] - 2293:22, 2294:2 tee [1] - 2194:16 temporary [1] - 2274:16 tender [1] - 2193:3 Tennant [2] - 2327:14, 2327:17 term [8] - 2216:19, 2225:19, 2235:10, 2236:9, 2242:4, 2248:10, 2268:18, 2298:14</p>
<p>T</p>				
<p>THE REPORTING GROUP</p>				
<p>Mason & Lockhart</p>				

<p>terms [7] - 2202:8, 2202:15, 2252:12, 2294:18, 2295:10, 2298:7, 2319:8</p> <p>testified [1] - 2285:17</p> <p>testify [2] - 2282:16, 2338:13</p> <p>testifying [2] - 2338:19, 2338:21</p> <p>testimony [30] - 2187:7, 2187:13, 2188:19, 2192:2, 2192:14, 2192:23, 2192:24, 2193:16, 2194:8, 2196:10, 2198:11, 2198:24, 2201:7, 2201:22, 2204:5, 2205:8, 2205:12, 2212:25, 2214:18, 2215:8, 2230:2, 2230:5, 2240:6, 2249:1, 2253:9, 2307:17, 2314:6, 2314:8, 2331:13, 2338:9</p> <p>text [2] - 2233:12, 2238:14</p> <p>THE [15] - 2183:1, 2191:25, 2192:6, 2192:7, 2192:11, 2204:18, 2206:9, 2338:5, 2338:11, 2338:14, 2338:23, 2339:11, 2339:16, 2340:15, 2340:20</p> <p>theirs [1] - 2186:21</p> <p>themselves [3] - 2218:11, 2302:22, 2319:11</p> <p>then-existing [1] - 2218:24</p> <p>thereby [1] - 2311:8</p> <p>thick [1] - 2320:12</p> <p>thinks [1] - 2255:9</p> <p>third [3] - 2211:2, 2216:4, 2265:13</p> <p>three [9] - 2211:19, 2213:10, 2280:22, 2291:21, 2291:23, 2292:12, 2306:18, 2317:21, 2317:25</p> <p>threshold [17] - 2231:23, 2232:1, 2232:2, 2232:4, 2232:8, 2235:1, 2235:5, 2235:10, 2235:15, 2235:19, 2304:11, 2304:16, 2305:20, 2311:18, 2312:5, 2312:6,</p>	<p>2327:19</p> <p>throughout [4] - 2199:6, 2285:1, 2313:15, 2321:19</p> <p>thunder [1] - 2317:13</p> <p>Thursday [3] - 2186:14, 2186:18, 2210:2</p> <p>tie [1] - 2289:22</p> <p>title [2] - 2260:14, 2330:8</p> <p>titled [6] - 2188:11, 2219:5, 2225:19, 2230:7, 2230:15, 2281:13</p> <p>today [9] - 2185:17, 2185:24, 2186:8, 2194:8, 2230:9, 2271:23, 2285:6, 2285:22, 2332:3</p> <p>together [4] - 2203:1, 2279:8, 2323:19, 2324:4</p> <p>tomorrow [1] - 2341:9</p> <p>tonight [1] - 2341:11</p> <p>took [2] - 2254:19, 2318:1</p> <p>tool [3] - 2265:19, 2265:24, 2276:24</p> <p>tools [1] - 2266:3</p> <p>top [12] - 2200:4, 2225:5, 2226:2, 2245:22, 2246:25, 2254:17, 2263:19, 2266:21, 2268:10, 2282:1, 2290:17, 2329:25</p> <p>topic [5] - 2191:9, 2194:17, 2253:10, 2317:8, 2341:19</p> <p>total [5] - 2200:4, 2205:18, 2208:24, 2278:1, 2331:10</p> <p>touched [2] - 2297:3, 2297:12</p> <p>towards [4] - 2226:23, 2262:9, 2298:3, 2318:25</p> <p>town [1] - 2244:7</p> <p>track [2] - 2291:4, 2312:10</p> <p>train [1] - 2312:10</p> <p>transcript [4] - 2253:13, 2253:20, 2253:22, 2343:5</p> <p>TRANSCRIPT [1] - 2183:9</p> <p>transfer [1] - 2272:24</p> <p>transferred [1] - 2212:4</p>	<p>transferring [3] - 2272:17, 2274:24, 2316:5</p> <p>treated [5] - 2322:24, 2323:9, 2323:10, 2323:19, 2324:3</p> <p>tributaries [2] - 2261:10, 2273:11</p> <p>trigger [1] - 2311:8</p> <p>triggered [2] - 2259:25, 2311:15</p> <p>triggering [1] - 2262:20</p> <p>true [13] - 2218:22, 2219:18, 2220:25, 2223:19, 2256:16, 2277:16, 2298:23, 2305:4, 2322:19, 2325:11, 2335:6, 2336:11, 2336:13</p> <p>truth [3] - 2192:4, 2192:5</p> <p>try [5] - 2187:2, 2196:13, 2208:22, 2246:20, 2253:18</p> <p>trying [5] - 2198:2, 2243:11, 2282:4, 2304:9, 2338:23</p> <p>Tucker [2] - 2220:1, 2243:4</p> <p>tucker [1] - 2228:13</p> <p>tucker's [1] - 2217:10</p> <p>turn [47] - 2194:6, 2195:4, 2201:21, 2206:18, 2207:14, 2208:9, 2214:22, 2216:3, 2216:11, 2217:5, 2219:3, 2220:19, 2225:2, 2228:23, 2230:1, 2230:4, 2232:24, 2234:7, 2236:1, 2238:12, 2239:7, 2242:8, 2246:9, 2246:22, 2251:7, 2260:11, 2260:25, 2266:16, 2270:15, 2276:1, 2276:12, 2278:23, 2279:13, 2281:7, 2281:21, 2283:7, 2286:13, 2288:8, 2292:23, 2299:13, 2299:25, 2306:1, 2306:10, 2309:11, 2314:21, 2324:23, 2327:8</p> <p>Turner [12] - 2199:17, 2201:8, 2201:11, 2201:15, 2201:23,</p>	<p>2271:6, 2271:20, 2271:22, 2275:12, 2275:20</p> <p>Turner's [1] - 2204:5</p> <p>turning [1] - 2216:1</p> <p>twice [1] - 2330:21</p> <p>two [20] - 2185:19, 2185:24, 2186:10, 2186:20, 2190:5, 2194:9, 2219:16, 2235:12, 2243:13, 2268:10, 2281:18, 2294:1, 2295:16, 2296:15, 2299:13, 2303:7, 2315:14, 2316:1, 2323:1, 2336:8</p> <p>type [6] - 2197:25, 2206:22, 2210:17, 2214:4, 2242:21, 2312:10</p> <p>types [1] - 2213:23</p>	<p>undertaking [1] - 2274:23</p> <p>underway [3] - 2250:12, 2250:14, 2250:25</p> <p>unit [17] - 2195:16, 2195:19, 2204:1, 2204:12, 2204:13, 2211:1, 2211:9, 2212:2, 2212:5, 2212:7, 2212:12, 2212:20, 2233:9, 2233:10, 2257:20, 2260:19, 2279:5</p> <p>UNITED [1] - 2183:1</p> <p>United [3] - 2244:13, 2337:9, 2337:11</p> <p>University [3] - 2280:4, 2287:17, 2287:18</p> <p>unless [1] - 2232:2</p> <p>unpermitted [2] - 2208:12, 2209:1</p> <p>unquote [2] - 2279:9, 2280:9</p> <p>unregulated [1] - 2239:23</p> <p>unsustainable [1] - 2226:25</p> <p>unusual [1] - 2185:18</p> <p>up [28] - 2190:3, 2192:8, 2193:11, 2194:16, 2198:22, 2199:7, 2222:25, 2223:1, 2238:1, 2253:9, 2254:10, 2254:13, 2267:9, 2285:15, 2286:25, 2287:9, 2289:15, 2292:9, 2296:20, 2303:4, 2309:7, 2311:23, 2312:22, 2317:11, 2321:11, 2333:1, 2340:16, 2340:18</p> <p>updated [1] - 2209:13</p> <p>Upper [22] - 2240:15, 2243:22, 2244:2, 2244:10, 2244:12, 2247:7, 2251:20, 2252:9, 2252:14, 2254:9, 2255:11, 2272:20, 2273:10, 2306:22, 2307:9, 2309:8, 2310:2, 2310:23, 2329:13, 2330:2, 2330:10</p> <p>upper [6] - 2210:22, 2251:25, 2254:12, 2269:15, 2311:11,</p>
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U

U.S. [16] - 2214:24, 2217:22, 2218:15, 2218:23, 2227:25, 2229:4, 2229:15, 2229:21, 2233:11, 2241:5, 2241:18, 2241:22, 2242:2, 2242:22, 2301:12, 2337:20

UGA [1] - 2226:4

umbrellas [1] - 2185:8

unable [2] - 2275:7, 2318:10

unclear [1] - 2335:22

under [18] - 2207:6, 2207:16, 2217:15, 2222:6, 2230:22, 2250:22, 2260:8, 2276:25, 2278:25, 2294:13, 2297:6, 2305:1, 2305:18, 2305:21, 2315:8, 2330:8, 2334:12, 2334:19

underfunded [2] - 2255:10, 2255:14

underground [1] - 2273:14

underlying [1] - 2242:13

understood [1] - 2327:22

undertaken [3] - 2250:22, 2288:24, 2288:13

<p>2311:21 upstream [1] - 2333:15 usage [1] - 2207:2 users [17] - 2217:1, 2221:19, 2231:13, 2242:14, 2242:15, 2242:21, 2242:24, 2272:17, 2272:22, 2274:25, 2298:10, 2315:15, 2315:17, 2316:5, 2317:20, 2322:4, 2322:5 uses [4] - 2307:25, 2333:19, 2337:13, 2337:14 USGS [1] - 2244:13 utilities [3] - 2252:17, 2253:2, 2253:5 utilizing [1] - 2247:10</p>	<p>2214:7, 2234:14, 2234:19, 2234:22, 2296:7, 2296:13 violations [2] - 2205:16, 2206:14 vision [1] - 2299:8 vocal [1] - 2255:1 VOLUME [1] - 2183:5 volume [1] - 2295:21 voluntary [1] - 2282:25 voted [1] - 2323:22</p>	<p>2280:3, 2281:17, 2283:24, 2284:9, 2284:18, 2285:4, 2285:18, 2288:2, 2288:6, 2288:25, 2289:7, 2289:12, 2290:3, 2290:6, 2290:7, 2293:23, 2295:12, 2297:2, 2297:4, 2297:6, 2297:8, 2297:10, 2297:20, 2297:22, 2297:25, 2298:1, 2298:2, 2298:4, 2298:7, 2298:10, 2298:15, 2299:6, 2299:11, 2299:14, 2299:18, 2299:23, 2300:3, 2300:5, 2300:7, 2301:5, 2302:14, 2302:17, 2304:9, 2304:14, 2305:13, 2305:17, 2307:4, 2308:4, 2310:25, 2313:17, 2313:21, 2314:11, 2314:20, 2315:12, 2315:15, 2315:16, 2315:17, 2315:24, 2316:1, 2316:5, 2316:6, 2316:7, 2316:24, 2317:3, 2317:20, 2319:1, 2319:9, 2322:4, 2322:5, 2322:6, 2323:15, 2323:16, 2323:17, 2323:22, 2330:25, 2331:9, 2331:22, 2332:8, 2333:13, 2338:2, 2338:10, 2338:18, 2338:25, 2339:1, 2340:16 water-interest [1] - 2317:20 water-related [2] - 2221:19, 2288:2 water-use [1] - 2319:1 waterlines [1] - 2315:16 watershed [7] - 2204:13, 2204:14, 2207:10, 2212:8, 2212:11, 2287:25, 2335:15 watersheds [9] - 2231:24, 2291:15, 2291:18, 2291:21, 2292:12, 2293:10, 2293:12, 2293:13, 2293:14, 2293:15 water [141] - 2194:21, 2216:15, 2217:1, 2217:2, 2217:15, 2218:13, 2218:25, 2219:21, 2221:19, 2223:2, 2223:8, 2223:14, 2223:20, 2224:2, 2224:8, 2226:3, 2226:20, 2226:24, 2227:3, 2229:16, 2229:18, 2230:17, 2230:23, 2231:12, 2231:18, 2231:20, 2234:16, 2240:12, 2240:14, 2241:14, 2241:23, 2241:24, 2242:11, 2242:14, 2242:15, 2242:16, 2243:20, 2244:25, 2245:19, 2246:20, 2248:22, 2250:6, 2252:17, 2253:2, 2262:10, 2266:23, 2268:13, 2272:17, 2272:20, 2272:22, 2272:24, 2273:18, 2273:22, 2273:24, 2274:2</p>	<p>2293:24 ways [6] - 2202:21, 2203:1, 2223:25, 2266:3, 2323:1, 2336:20 weather [1] - 2319:12 Wednesday [4] - 2186:9, 2341:10, 2342:13, 2342:15 week [3] - 2185:15, 2282:17, 2321:3 weekend [1] - 2185:8 weeks [3] - 2187:3, 2194:9, 2323:4 Wei [5] - 2260:17, 2260:18, 2320:25, 2324:10, 2326:5 Wei's [1] - 2260:15 Wells [1] - 2287:15 wells [2] - 2281:18, 2294:12 western [1] - 2288:4 wet [1] - 2273:24 wetted [10] - 2202:5, 2202:13, 2202:16, 2202:17, 2203:4, 2205:3, 2208:24, 2209:11, 2210:9 wetter [1] - 2273:21 WHEREOF [1] - 2343:10 white [1] - 2311:13 whole [15] - 2192:4, 2212:23, 2265:11, 2292:21, 2311:6, 2311:9, 2311:20, 2311:21, 2312:4, 2312:8, 2313:15, 2323:16, 2323:18, 2328:21 Wildlife [20] - 2186:3, 2214:24, 2217:22, 2217:25, 2218:16, 2219:23, 2227:25, 2228:13, 2229:4, 2229:15, 2239:1, 2239:17, 2241:19, 2241:22, 2242:2, 2242:22, 2337:9, 2337:11, 2337:16, 2337:20 wildlife [4] - 2237:25, 2238:8, 2239:5, 2250:3 Wildlife's [3] - 2218:23, 2229:21, 2241:5 Wilson [3] - 2279:24, 2280:1, 2280:5 THE REPORTING GROUP [1] - 2185:10</p>	<p>WINE [1] - 2183:17 Wisniewski [6] - 2184:3, 2186:1, 2187:7, 2188:11, 2263:10, 2263:13 withdrawal [12] - 2219:21, 2230:17, 2234:16, 2236:11, 2249:23, 2288:25, 2291:19, 2295:12, 2304:15, 2307:9, 2330:3, 2330:19 withdrawals [6] - 2250:6, 2250:7, 2272:25, 2306:25, 2307:21, 2329:23 withdrawer [2] - 2295:14, 2296:5 withdrawers [1] - 2223:2 withdrawing [6] - 2217:2, 2234:18, 2234:19, 2235:12, 2295:15, 2296:5 Witness [1] - 2184:2 WITNESS [13] - 2192:6, 2192:11, 2204:18, 2206:9, 2338:5, 2338:11, 2338:14, 2338:23, 2339:11, 2339:16, 2340:15, 2340:20, 2343:10 witness [9] - 2186:5, 2186:17, 2191:23, 2192:17, 2192:19, 2193:3, 2201:1, 2297:3, 2340:24 witness's [1] - 2187:18 witnesses [6] - 2186:20, 2187:2, 2290:20, 2296:20, 2302:8, 2317:10 woody [1] - 2225:13 word [4] - 2216:13, 2234:14, 2257:6, 2278:5 words [5] - 2198:18, 2236:15, 2271:18, 2280:11, 2327:15 workload [1] - 2212:15 works [2] - 2248:8, 2324:10 world [2] - 2305:22, 2305:23 worry [1] - 2340:19 worth [1] - 2199:22 write [5] - 2194:2,</p>	
<p>V</p>		<p>W</p>	<p>wait [1] - 2293:6 walk [4] - 2196:9, 2199:15, 2306:7, 2309:17 walked [1] - 2327:22 Walton [5] - 2211:6, 2215:16, 2253:8, 2267:8, 2341:22 wants [1] - 2308:19 wastewater [6] - 2298:8, 2333:5, 2333:9, 2333:20, 2334:20, 2334:25 Water [8] - 2240:7, 2251:21, 2282:19, 2288:9, 2333:11, 2333:22, 2334:3, 2334:12 water [141] - 2194:21, 2216:15, 2217:1, 2217:2, 2217:15, 2218:13, 2218:25, 2219:21, 2221:19, 2223:2, 2223:8, 2223:14, 2223:20, 2224:2, 2224:8, 2226:3, 2226:20, 2226:24, 2227:3, 2229:16, 2229:18, 2230:17, 2230:23, 2231:12, 2231:18, 2231:20, 2234:16, 2240:12, 2240:14, 2241:14, 2241:23, 2241:24, 2242:11, 2242:14, 2242:15, 2242:16, 2243:20, 2244:25, 2245:19, 2246:20, 2248:22, 2250:6, 2252:17, 2253:2, 2262:10, 2266:23, 2268:13, 2272:17, 2272:20, 2272:22, 2272:24, 2273:18, 2273:22, 2273:24, 2274:2</p>	<p>wait [1] - 2293:6 walk [4] - 2196:9, 2199:15, 2306:7, 2309:17 walked [1] - 2327:22 Walton [5] - 2211:6, 2215:16, 2253:8, 2267:8, 2341:22 wants [1] - 2308:19 wastewater [6] - 2298:8, 2333:5, 2333:9, 2333:20, 2334:20, 2334:25 Water [8] - 2240:7, 2251:21, 2282:19, 2288:9, 2333:11, 2333:22, 2334:3, 2334:12 water [141] - 2194:21, 2216:15, 2217:1, 2217:2, 2217:15, 2218:13, 2218:25, 2219:21, 2221:19, 2223:2, 2223:8, 2223:14, 2223:20, 2224:2, 2224:8, 2226:3, 2226:20, 2226:24, 2227:3, 2229:16, 2229:18, 2230:17, 2230:23, 2231:12, 2231:18, 2231:20, 2234:16, 2240:12, 2240:14, 2241:14, 2241:23, 2241:24, 2242:11, 2242:14, 2242:15, 2242:16, 2243:20, 2244:25, 2245:19, 2246:20, 2248:22, 2250:6, 2252:17, 2253:2, 2262:10, 2266:23, 2268:13, 2272:17, 2272:20, 2272:22, 2272:24, 2273:18, 2273:22, 2273:24, 2274:2</p>	<p>wait [1] - 2293:6 walk [4] - 2196:9, 2199:15, 2306:7, 2309:17 walked [1] - 2327:22 Walton [5] - 2211:6, 2215:16, 2253:8, 2267:8, 2341:22 wants [1] - 2308:19 wastewater [6] - 2298:8, 2333:5, 2333:9, 2333:20, 2334:20, 2334:25 Water [8] - 2240:7, 2251:21, 2282:19, 2288:9, 2333:11, 2333:22, 2334:3, 2334:12 water [141] - 2194:21, 2216:15, 2217:1, 2217:2, 2217:15, 2218:13, 2218:25, 2219:21, 2221:19, 2223:2, 2223:8, 2223:14, 2223:20, 2224:2, 2224:8, 2226:3, 2226:20, 2226:24, 2227:3, 2229:16, 2229:18, 2230:17, 2230:23, 2231:12, 2231:18, 2231:20, 2234:16, 2240:12, 2240:14, 2241:14, 2241:23, 2241:24, 2242:11, 2242:14, 2242:15, 2242:16, 2243:20, 2244:25, 2245:19, 2246:20, 2248:22, 2250:6, 2252:17, 2253:2, 2262:10, 2266:23, 2268:13, 2272:17, 2272:20, 2272:22, 2272:24, 2273:18, 2273:22, 2273:24, 2274:2</p>

<p>2271:14, 2284:12, 2284:13, 2333:1 write-up [1] - 2333:1 writes [1] - 2279:7 writing [1] - 2228:14 written [5] - 2192:23, 2243:7, 2314:5, 2334:8, 2334:14 wrote [1] - 2271:18</p>	<p>Z</p>
<p>Y</p>	<p>Zeng [9] - 2260:18, 2320:25, 2321:2, 2324:10, 2326:6, 2326:7, 2335:7, 2335:8, 2335:9 zero [6] - 2237:3, 2237:4, 2264:19, 2326:8, 2326:10 Zitsch [3] - 2321:13, 2321:19, 2323:21 zone [1] - 2294:14 zones [3] - 2292:8, 2292:10, 2292:16 zoologist [1] - 2186:2 Zoology [1] - 2287:16 Zung [1] - 2335:7</p>
<p>year [20] - 2196:1, 2196:2, 2198:5, 2198:12, 2198:18, 2201:13, 2220:13, 2248:18, 2256:21, 2259:20, 2259:21, 2266:15, 2276:17, 2283:11, 2303:12, 2326:14, 2330:4, 2330:9, 2338:6 years [23] - 2202:11, 2221:9, 2234:10, 2234:13, 2248:19, 2249:2, 2250:18, 2268:18, 2268:23, 2272:10, 2272:12, 2277:6, 2284:21, 2289:10, 2289:25, 2303:14, 2303:15, 2303:16, 2303:22, 2303:25, 2304:4, 2335:3, 2341:15 yellow [6] - 2234:25, 2236:16, 2293:20, 2294:20, 2336:8, 2336:10 yield [30] - 2299:16, 2306:2, 2306:9, 2307:2, 2307:11, 2307:22, 2307:23, 2308:1, 2308:12, 2309:8, 2309:24, 2310:20, 2311:7, 2311:9, 2311:15, 2311:18, 2311:20, 2312:1, 2312:7, 2312:15, 2312:16, 2312:17, 2312:21, 2313:11, 2327:12, 2328:14, 2330:10, 2330:12, 2330:13, 2330:22 Yield [1] - 2330:8 yourself [10] - 2192:8, 2198:1, 2201:24, 2203:10, 2216:8, 2216:17, 2219:10, 2222:10, 2238:15, 2261:12</p>	