



BEFORE THE DEPARTMENT OF WATER RESOURCES  
OF THE STATE OF IDAHO

Electronically Filed  
6/30/2021 9:53 AM  
Fifth Judicial District, Blaine County  
Jolynn Drage, Clerk of the Court  
By: April Pina, Deputy Clerk

IN THE MATTER OF BASIN 37 ) Docket No.  
ADMINISTRATIVE PROCEEDING ) AA-WRA-2021-001  
\_\_\_\_\_ )

VOLUME I  
(Pages 1-264)

BEFORE

HEARING OFFICER: GARY SPACKMAN

Date: June 7, 2021 - 9:01 a.m.

Location: Idaho Department of Water Resources  
322 East Front Street  
Boise, Idaho

REPORTED BY:

JEFF LAMAR, C.S.R. No. 640

Notary Public

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## 1 I N D E X

2

## 3 W I T N E S S E S

## 4 TESTIMONY OF SEAN VINCENT PAGE

5 Direct Examination by Ms. Carter 41

6 Cross-Examination by Mr. Rigby 49

7 Cross-Examination by Mr. Fletcher 60

8 Cross-Examination by Mr. Barker 61

9 Cross-Examination by Mr. Bromley 70

10 Examination by The Hearing Officer 74

11

## 12 TESTIMONY OF JENNIFER SUKOW

13 Direct Examination by Ms. Carter 77

14 Cross-Examination by Mr. Rigby 88

15 Cross-Examination by Mr. Barker 102

16 Cross-Examination by Ms. O'Leary 188

17 Cross-Examination by Mr. Moroney 203

18 Cross-Examination by Mr. Lawrence 211

19 Redirect Examination by Mr. Rigby 227

20

## 21 TESTIMONY OF PHILIP BLANKENAU

22 Direct Examination by Ms. Carter 235

23 Cross-Examination by Mr. Rigby 244

24 Cross-Examination by Mr. Barker 246

25 Cross-Examination by Mr. Lawrence 247

1 I N D E X (Continued)

2

3 E X H I B I T S

4 IDWR NO.	MARKED	RECEIVED
5 1 - Sean Vincent's Staff Memo	***	47
6 2 - Jennifer Sukow's Staff Memo	***	88
7 3 - Philip Blankenau's Staff Memo	***	244
8 5 - June 2021 SWSI data	***	49
9 SVGWD GGWD NO.		
10 14 - Groundwater-Flow Model for the	***	159
11 Wood River Valley Aquifer System,		
12 Version 1.1		
13 15 - Summary of Ground Water	***	163
14 Conditions in the Big Wood River		
15 Ground Water Management Area, 2019		
16 Update		
17 16 - Wood River Valley Aquifer Model	***	168
18 Version 1.1 Uncertainty Analysis		
19 18 - Map of water rights	***	192
20 36 - E-mails among Department staff	172	183
21 IDFG NO.		
22 2 - Water Right No. 37-07038	210	210
23 4 - Water Right No. 37-08271	207	208
24 6 - Water Right No. 37-08331	209	209

25

1 THE HEARING OFFICER: All right. The appointed  
2 hour has arrived. Thanks, everyone, for being here.  
3 Great to see everybody in full face. And I hope we're  
4 not sponsoring a super spreader here, but I am  
5 encouraged. So we will try to accommodate you as best  
6 we can today. Let's go on the record.

7 Are we on, Jeff?

8 THE COURT REPORTER: Yes.

9 THE HEARING OFFICER: And are we running, Megan?

10 MS. JENKINS: Yes.

11 THE HEARING OFFICER: Okay. Well, this is the  
12 time and place for an administrative hearing. And this  
13 particular contested case springs out of an  
14 administrative proceeding that I initiated pursuant to  
15 Idaho Code Section 42-237a.g.

16 And the focus of this particular hearing is  
17 the impacts of pumping within the Bellevue Triangle as  
18 shown on a map that was distributed, and groundwater  
19 pumping and depletions that may be caused by that  
20 pumping on surface water flows of the -- of Silver  
21 Creek and its tributaries, both upstream and  
22 downstream. I know some people have raised questions  
23 about that. That's the scope of the hearing today.

24 So we need to -- and previously I've  
25 defined the order of presentation of testimony. And



1 the Department witnesses will be on the witness stand  
2 today or in the witness chair and will be questioned by  
3 Department -- excuse me, deputies attorney general  
4 assigned to the Department of Water Resources. So they  
5 will be questioned briefly, and certainly not  
6 extensively. And then we'll start with examination or  
7 cross-examination.

8 Before we do that -- and we'll talk a  
9 little bit about the way in which that examination will  
10 proceed -- we have some pending motions today. And  
11 maybe before we get to those, we ought to have an  
12 introduction of counsel and parties today. And I think  
13 that will be helpful for the court reporter. So -- and  
14 we'll also introduce Department staff.

15 So again, I'm Gary Spackman, Director of  
16 the Idaho Department of Water Resources. And let's  
17 just go in a counterclockwise direction.

18 Megan.

19 MS. JENKINS: My name is a Meghan Jenkins. I'm  
20 Gary's assistant. And I will be doing part of the  
21 recording today, along with the court reporter.

22 MS. CARTER: Meghan Carter, deputy attorney  
23 general for the Department of Water Resources.

24 MR. VINCENT: I'm Sean Vincent, hydrology  
25 section manager at IDWR.

1 MR. FLETCHER: Kent Fletcher, attorney for Big  
2 Wood Canal Company.

3 MR. HENDRICKS: Chase Hendricks, Big Wood and  
4 Little Wood Water Users Association.

5 MR. RIGBY: Jerry Rigby, Rigby, Andrus & Rigby,  
6 also representing Big Wood and Little Wood Water Users  
7 Association. And actually, the particular members  
8 within their -- that have filed.

9 MR. BROMLEY: Hi. Chris Bromley, McHugh  
10 Bromley. I represent Sun Valley Company, as well as  
11 City of Bellevue today. My partner, Candice McHugh,  
12 hopefully will be back tomorrow from her out-of-country  
13 vacation. Thank you.

14 MR. SULLIVAN: I'm Greg Sullivan for Spronk  
15 Water Engineers. And I'm here for Bellevue, Hailey,  
16 Ketchum, and Sun Valley Company.

17 MR. LAWRENCE: I'm Mike Lawrence with Givens  
18 Pursley on behalf of City of Hailey.

19 MR. BARKER: Albert Barker for the South Valley  
20 Ground Water District.

21 MR. THOMPSON: Travis Thompson, South Valley  
22 Ground Water District.

23 MR. LASKI: Jim Laski for the Galena Ground  
24 Water District.

25 MS. O'LEARY: Heather O'Leary, also for the

1 Galena Ground Water District.

2 MR. MORONEY: Owen Moroney, deputy attorney  
3 general representing the Idaho Department of Fish and  
4 Game.

5 THE HEARING OFFICER: And then let's start back  
6 here just for everybody.

7 Mr. Arkoosh.

8 MR. JOHN ARKOOSH: I'm John Arkoosh. I'm  
9 president of the Big Wood and Little Wood Water Users  
10 Board.

11 MR. BILL ARKOOSH: Bill Arkoosh.

12 THE HEARING OFFICER: Thank you.

13 MR. ROBERTSON: Evan Robertson for the  
14 Sun Valley Water and Sewer District, Eccles Window Rock  
15 Ranch, LLC.

16 MR. SEMANKO: Morning. Norm Semanko for Eagle  
17 Creek Irrigation Company.

18 THE HEARING OFFICER: Mr. Simpson.

19 MR. SIMPSON: Morning, John Simpson for Idaho  
20 Power Company.

21 THE HEARING OFFICER: And then the back row.

22 MR. SHAW: Dave Shaw with ERO Resources.

23 MR. O'BANNON: Brian O'Bannon for City of  
24 Ketchum.

25 THE HEARING OFFICER: Thank you.

1 MR. BLANKENAU: Phil Blankenau,  
2 evapotranspiration analyst for IDWR.

3 THE HEARING OFFICER: Okay. Oh, I'm sorry I  
4 missed you, Eric.

5 MR. MILLER: That's all right. Eric Miller with  
6 Yellowstone Earth Science, representing Big Wood and  
7 Little Wood Water Users and Big Wood Canal Company.

8 THE HEARING OFFICER: All right. Now, have we  
9 missed anyone?

10 Okay. We have people listening through  
11 Zoom, I think we're connected through Zoom.

12 MS. CARTER: Yes.

13 THE HEARING OFFICER: And at least previously I  
14 stated that for purposes of presenting testimony today  
15 and examining witnesses people needed to be here in  
16 person. I wouldn't accommodate any of that questioning  
17 and answering by Zoom. But folks are welcome to listen  
18 in, but there's not an opportunity to directly  
19 participate.

20 So if there are witnesses who are parties  
21 who are listening in today that want to testify,  
22 they'll need to be here and coordinate with counsel or  
23 with the Hearing Officer or staff.

24 Now, one of the other points that I want to  
25 remind everybody of before we start in is I will

1 implore you honestly, and I'll actively ask and  
2 interrupt if I think that you're not speaking up  
3 enough. So if all of you will use your auditorium  
4 voices, please, because Jeff needs to hear, the  
5 reporter needs to hear, and we need to pick it up on  
6 the microphones. We have a couple of microphones here.  
7 I think one for the witness and let's see.

8 MS. JENKINS: There's one on the podium.

9 THE HEARING OFFICER: One on the podium. So if  
10 you are examining, I would ask the attorneys to step to  
11 the podium today, if that's okay. I think it will  
12 accommodate, then, the recording, as well as being  
13 close to the court reporter. And we have enough  
14 attorneys in the gallery here that if you're examining  
15 from a distance, it will create difficulty.

16 All right. I am ready to start talking  
17 about motions.

18 Are there any other matters we need to talk  
19 about as preliminary matters before we talk about the  
20 motions prior to hearing?

21 Okay. I received three motions in limine.  
22 And I'll ask counsel how you want to approach these  
23 motions. I received one from a group of attorneys. I  
24 also received one from South Valley Ground Water  
25 District, and then one from the surface water users.

1           So how do we want to approach these?

2           And let me just say that I see some real  
3 similarities in all three of these motions. So  
4 maybe -- maybe I should -- yes, Mr. Rigby.

5           MR. RIGBY: Mr. Director, may I address one that  
6 I think will then resolve that particular motion?

7           THE HEARING OFFICER: Okay.

8           MR. RIGBY: Thank you, Mr. Director. What I'm  
9 approaching or addressing is the file -- the filing by  
10 South Valley Ground Water District and Galena Ground  
11 Water District as to the motion in limine excluding  
12 testimony of three of the surface -- senior surface  
13 water users that we represent.

14           Although we believe that the pumping in the  
15 Galena -- or the Bellevue Triangle certainly impacts  
16 and injures them, in order to facilitate -- rather than  
17 argue that issue before the Director, just to say that  
18 we were somewhat confused as to just exactly how this  
19 would be approached by the Director, trying to  
20 interpret what your language said, in order to  
21 facilitate moving on with this, we will acknowledge  
22 that those three, although they are impacted by the --  
23 or at least we maintain that they're impacted by the  
24 groundwater pumping within the Triangle, they do  
25 receive their water from the Big Wood. And for that

1 reason we will acknowledge and remove them from any  
2 further testimony before the Director.

3 THE HEARING OFFICER: Thank you, Mr. Rigby. So  
4 your statement, Mr. Rigby, goes to the motion to  
5 exclude testimony or exclude three of the individuals  
6 who filed an intent to participate?

7 MR. RIGBY: And perhaps I should name them.

8 THE HEARING OFFICER: That would be helpful, for  
9 the record.

10 MR. RIGBY: It would be Martin Sabala, Nick  
11 Westendorf, and David Hults.

12 THE HEARING OFFICER: Okay. And so based on  
13 your stipulation, Mr. Rigby, and agreement that you  
14 have with the -- at least with South Valley and the  
15 other attorneys, you're willing to remove them as  
16 parties to this matter?

17 MR. RIGBY: Do I need --

18 THE HEARING OFFICER: No, you're fine.

19 MR. RIGBY: Yes, we are.

20 THE HEARING OFFICER: Okay. Thank you.

21 So your statement, Mr. Rigby, resolves a  
22 certain portion of these motions, but certainly doesn't  
23 address the remainder.

24 How does -- how does counsel want to  
25 approach these motions? I'll ask again, with at least

1 my expression of sentiment that I don't want a lot of  
2 oral argument. I've read the motions themselves. One  
3 of the reasons that we needed some time this morning is  
4 because there was very little time for anyone to  
5 respond to the motions.

6 And so I'm more interested in asking right  
7 now whether there is anybody that wants to argue  
8 against the motions that have been filed.

9 MR. FLETCHER: Director.

10 THE HEARING OFFICER: Yes.

11 MR. FLETCHER: I suggest that -- we filed ours  
12 first, perhaps we could go forward, let the other sides  
13 address theirs and respond to ours, and then we could  
14 respond if necessary to that.

15 THE HEARING OFFICER: That's fine, if that's  
16 what counsel wants to do. Again, I'll encourage some  
17 brevity in the presentations.

18 MR. FLETCHER: Would you like us to go forward  
19 now?

20 THE HEARING OFFICER: Sure. That would be fine.

21 MR. FLETCHER: Thank you. Do you still want us  
22 to go up to the podium?

23 THE HEARING OFFICER: Please.

24 MR. FLETCHER: Because the moved the microphones  
25 away.



1 THE HEARING OFFICER: Well, I think it's right  
2 there in front of Mr. Bromley. And I'm not sure why it  
3 was moved.

4 MS. JENKINS: It's -- it's just not working. It  
5 was, and then it just turned off. So I'm trying to  
6 figure out...

7 THE HEARING OFFICER: Do you need a moment?

8 MS. JENKINS: Possibly, yeah.

9 Sorry, guys.

10 THE HEARING OFFICER: Let's go off the record  
11 just for a minute, Jeff.

12 (Recess.)

13 THE HEARING OFFICER: Back on. Thanks, Jeff.

14 Mr. Fletcher.

15 MR. FLETCHER: Thank you, your Honor.

16 We filed a joint motion in limine. It's a  
17 pretty simple motion. It's based primarily upon the  
18 wording of the Director's notices and orders.

19 Basically, the notice defined the potential area of  
20 impact -- or excuse me, potential area of curtailment  
21 to be the Bellevue Triangle. That was further defined  
22 by subsequent notices and orders. And the pre-hearing  
23 order classified those outside the Bellevue Triangle  
24 but within Basin 37 as a third-party group.

25 Pertaining to that group, the Director

1 stated, "Director reserves the right to limit any  
2 testimony or cross-examination that is duplicative,  
3 repetitive or irrelevant."

4 The cities and Sun Valley Company have ID'd  
5 fact witnesses to talk about their use of water.  
6 They've also identified an expert witness, and they  
7 listed a litany of matters that he wants to testify to.

8 It's our position that the -- this -- first  
9 of all, the testimony of the fact witnesses would be  
10 irrelevant. It doesn't matter how Sun Valley, Hailey,  
11 or the other cities use their water for the purposes of  
12 this proceeding, since they are outside the area of  
13 curtailment. And secondly, it's our position that the  
14 testimony of another witness in this case, South Valley  
15 and Galena, have already identified three, would be  
16 duplicative and representative.

17 And even though he may have a different  
18 position than the other experts, I don't think the  
19 purpose of this hearing is just to have a multitude of  
20 experts give their opinions, particularly when their  
21 clients have no risk.

22 Those outside the Bellevue Triangle have no  
23 risk of curtailment, and yet they believe they're  
24 allowed to come in here and attack the seniors' case  
25 for those affected by irrigation within the Bellevue

1 Triangle.

2           It's our position the Director has limited  
3 this testimony. There are plenty of senior water users  
4 that aren't at the table today because of the  
5 limitations in the Director's order. We're not  
6 bringing them in to testify, and it would be  
7 inequitable and unjust to allow people outside the  
8 Bellevue Triangle to come forward and testify about the  
9 use of water and have their witness testify to whatever  
10 he wants to testify to.

11           So in an attempt to limit the extent of  
12 this hearing and to keep the issues focused on what the  
13 order in the notices state, we're asking that the Court  
14 exclude anyone outside the Bellevue Triangle from  
15 calling any witnesses or producing evidence in this  
16 action.

17           Thank you.

18           THE HEARING OFFICER: Thank you, Mr. Fletcher.

19           Response, Mr. Bromley, are you the  
20 spokesperson?

21           MR. BROMLEY: I am. Yeah, I am. Thank you,  
22 Director.

23           Chris Bromley on behalf of Sun Valley  
24 Company, City of Bellevue, and then also signed on to a  
25 joint motion with City of Ketchum and City of Hailey.

1 I'll be very brief.

2 We don't know right now, sitting here  
3 today, at this point in time and as the hearing goes  
4 forward whether anybody, be them seniors or the  
5 groundwater districts, may point up valley and say  
6 pumping in the upper valley has some effect on Silver  
7 Creek and tributaries.

8 If that happens, we need to be in a  
9 position to rebut that testimony. We believe it's  
10 outside the scope. We don't think anybody ought to be  
11 able to point the finger up valley. That's part of our  
12 motion.

13 The other piece of our motion, though, is  
14 whatever happens in this proceeding, we have serious  
15 and legitimate concern about being preclusive and  
16 binding against our clients in future proceedings. An  
17 example of that will be the model is going to be  
18 discussed. Probably very well probed, would be my  
19 guess. Uncertainty, how efficiencies are modeled.  
20 These are things that will be decided, we think, in  
21 this proceeding that then may be used against our  
22 clients in the future.

23 So the reason that we filed our motion was  
24 to say if in fact this case is limited to pumping in  
25 the Triangle and its effects on Silver Creek and

1 tributaries, then that's correct, we don't have a risk  
2 of curtailment.

3           However, issues like the model, and then we  
4 don't know if there's going to be testimony that's  
5 going to point the finger up valley to pumping in the  
6 upper valley that may have effects on flows  
7 downgradient.

8           So to the extent if that happens, we have  
9 to be entitled to put on testimony and evidence through  
10 Greg Sullivan, through fact witnesses. So that was the  
11 purpose of our motion in limine was to say "Okay,  
12 great. If the notice means what it means, then let's  
13 have an order saying that, and that it's only for the  
14 2021 irrigation season and that's it." And that could  
15 satisfy our interests.

16           But we have no control over what the other  
17 parties are going to do in this proceeding. So that's  
18 my response to Mr. Fletcher.

19           Thank you.

20           THE HEARING OFFICER: Thank you, Mr. Bromley.

21           Are there other responses?

22           MR. THOMPSON: Travis Thompson for the South  
23 Valley Ground Water District.

24           Are we just talking about the seniors'  
25 motion now?

1 THE HEARING OFFICER: Yes.

2 MR. THOMPSON: Yeah, we would oppose that, I  
3 guess, in the sense that if there is evidence and  
4 expert testimony to come in that would assist the  
5 Director on making that decision, we think it's worth  
6 considering. Just because they're not at risk of  
7 curtailment for this season doesn't mean they don't  
8 have evidence, don't have expert testimony that would  
9 be relevant to this proceeding.

10 So we would oppose that motion.

11 THE HEARING OFFICER: Okay. Thank you,  
12 Mr. Thompson.

13 Others?

14 Okay. I think I will reserve ruling on  
15 this motion until we hear the rest of them, because I  
16 think there are substantial similarities.

17 So let's see. I have two more, then.

18 Mr. Barker, maybe yours is the appropriate  
19 one to come next. Do you want to present anything  
20 regarding your motion in limine?

21 MR. THOMPSON: I think we took care of that.

22 MR. BARKER: That was the one that Mr. -- sorry.

23 THE HEARING OFFICER: Oh, I thought it was more  
24 extensive than that. I apologize.

25 MR. BARKER: So just -- yeah, just briefly, we

1 did have a second facet to it, but we think the whole  
2 thing is moot by the agreement of the Big Wood/Little  
3 Wood water user and individuals to withdraw those three  
4 names, so we have nothing further to ask.

5 THE HEARING OFFICER: Okay.

6 MR. RIGBY: Mr. Director.

7 THE HEARING OFFICER: Yes.

8 MR. RIGBY: If I may, Mr. Hendricks reminded me  
9 that actually, rather than remove them as parties, they  
10 should be in group three, as per their motion as well.

11 Is that okay?

12 MR. BARKER: I'm not going to argue against my  
13 motion.

14 MR. RIGBY: Just wondering.

15 THE HEARING OFFICER: Yeah. Thanks for the  
16 clarification. And I should have recognized that their  
17 change would just place them in a different group --

18 MR. RIGBY: Correct.

19 THE HEARING OFFICER: -- as we had previously  
20 identified.

21 Okay. And then we have a remaining motion.

22 Mr. Bromley, are you the spokesperson again  
23 for the joint motion?

24 MR. BROMLEY: I can be, Director. And I  
25 don't -- excuse me, I don't have anything else to add.

1 I think I kind of addressed it through comments to  
2 Mr. Fletcher. You've read the motions. You understand  
3 them. I don't want to take up time arguing something  
4 that I know you've read and considered.

5 So thank you.

6 THE HEARING OFFICER: Thank you.

7 Okay. Are there any responses to  
8 Mr. Bromley's motion?

9 Mr. Fletcher.

10 MR. FLETCHER: Just briefly, part of their  
11 motion was to strike part of the staff memos. You  
12 know, I hope that this hearing will not exclude  
13 testimony about the total water supply to the various  
14 people. Obviously, in any hearing the Director wants  
15 to know about the total water supply. The staff memo  
16 addresses that.

17 We intend on testifying about a total water  
18 supply, but we're not seeking injury to those supplies  
19 that are not affected by the Bellevue Triangle, and I  
20 think that's what the nature of this hearing is all  
21 about, at least that's my understanding of it. That  
22 wasn't addressed by Mr. Bromley, but we would  
23 definitely oppose striking any of the staff memos.  
24 Otherwise, I think we've talked about the other issues  
25 they've presented.



1 Thank you.

2 THE HEARING OFFICER: Thank you.

3 MR. BROMLEY: If I might just reply very  
4 quickly, Director.

5 THE HEARING OFFICER: Sure.

6 MR. BROMLEY: Mr. Fletcher's use of, you know,  
7 the phrase "total water supply," that's exactly the  
8 concern that we have. It's -- we understood that the  
9 notice was limited only to pumping in the Bellevue  
10 Triangle. Mr. Fletcher now is talking about -- and  
11 this has been our concern -- total water supply, which  
12 who knows what that means? That's the concern. That  
13 was the reason for the motion in limine.

14 If we see testimony of this variety going  
15 outside of the Triangle, that exceeds the scope of the  
16 notice, and we will be objecting. And we would like to  
17 have Mr. Sullivan, then, in a position to be able to  
18 rebut any testimony that might come in to that point.

19 Thank you.

20 THE HEARING OFFICER: Thank you.

21 All right. So let me rule on the motions  
22 in limine or those various motions we've discussed thus  
23 far.

24 So let me pick out the easy one that I  
25 think and start from the last argument and then go to

1 the front end.

2           So with respect to the proposal to strike  
3 out -- and I think it was primarily, if not  
4 exclusively, strike out portions of Tim Luke's staff  
5 memorandum. I read through and looked at the strikeout  
6 proposals, and I can tell you that the strikeouts  
7 proposed, in my opinion, are much too broad for me to  
8 just collectively throw out.

9           There are portions of those strikeouts that  
10 I think are relevant. And one of those areas I'll just  
11 point out is there's a proposal to strike out the whole  
12 discussion about the Milner/Gooding Canal and the  
13 delivery of water through the Milner/Gooding Canal.  
14 And I think that's -- that is very relevant to this  
15 matter. And I think, honestly, assists the  
16 respondents, as well as those who are senior water  
17 right holders.

18           And so I think it's too comprehensive. I  
19 think it's too large. And furthermore, I -- I view Tim  
20 Luke's narrative as being similar to a vicinity map, a  
21 narrative that explains the basin itself and the  
22 hydrology in it and really doesn't draw any conclusions  
23 about whether a junior water right holder should be  
24 curtailed or not. And so I think it's beneficial in a  
25 number of ways.

1           And so I'll deny the motion to at least  
2 strike out Mr. Luke's testimony.

3           And then in a large sense, I will also deny  
4 the motions in limine, all of them, because I want to  
5 have the ability to listen to testimony. And I'll  
6 allow the attorneys to object freely to the  
7 presentation of testimony, if they feel that that  
8 testimony is not relevant to the focus of this hearing.

9           And the focus of this hearing is whether  
10 groundwater users within the Bellevue Triangle, as  
11 identified, should be curtailed to then supply water to  
12 senior water right holders from Silver Creek and its  
13 tributaries.

14           And if it's not relevant to that particular  
15 subject, then I will exclude it from testimony. But I  
16 don't want at this point to grant a motion to limit  
17 testimony that will frustrate the ability of the  
18 Director to take testimony that I think is important in  
19 reaching a conclusion.

20           Now, let's see. There was one other -- oh,  
21 there was one other point.

22           Mr. Bromley, I think you were seeking a  
23 ruling that this hearing is only focused on the  
24 irrigation season in 2021. And I will also deny that  
25 particular motion. I think this hearing can have and

1 facts that are delivered and the ultimate decision can  
2 have a bearing on future decisions about a curtailment  
3 in the Bellevue Triangle. I don't want to -- I don't  
4 want to repeat this exercise next year again.

5 Okay. Have I missed something?

6 MR. FLETCHER: Director.

7 THE HEARING OFFICER: Yeah.

8 MR. FLETCHER: Just for clarification, they  
9 actually proposed strikeouts to all the staff memos,  
10 not just Mr. Luke's.

11 THE HEARING OFFICER: Yeah, I don't -- I don't  
12 remember seeing those. But I will -- I will deny their  
13 motion to strike --

14 MR. FLETCHER: Thank you.

15 THE HEARING OFFICER: -- the staff memorandums.

16 And certainly if there's information as the  
17 witness is examined that the attorneys feel is not  
18 relevant, is not pertinent to the subjects that we've  
19 identified, then I'll encourage attorneys to object.

20 Okay. Now, I have some other motions. I  
21 think there are three more. Let me collect myself just  
22 for a minute.

23 Maybe the next one we ought to address is  
24 the motion from Fish and Game.

25 And, Mr. Moroney, do you want to argue this

1 motion?

2 MR. MORONEY: Good morning. Owen Moroney for  
3 the Idaho Department of Fish and Game.

4 To not take up too much of anyone's time,  
5 our motion just really deals with excluding three  
6 nonconsumptive Fish and Game fish propagation rights  
7 from this proceeding and asking the Director for that  
8 relief.

9 If there are any questions -- do you have  
10 any questions?

11 THE HEARING OFFICER: Well, I have read the  
12 motion, and I've read the supporting affidavit. And  
13 certainly the water rights state that the use is  
14 supposed to be nonconsumptive.

15 And so I guess I want to ask the other --  
16 the other parties. Do the other parties object to this  
17 motion? Is there any objection?

18 MR. FLETCHER: Director, we just wanted some  
19 clarification. It's my understanding that one of the  
20 water rights does not state that it's nonconsumptive on  
21 its face. And I don't know what the Department's  
22 records show concerning whether these are consumptive  
23 or not. There's been no evidence addressing it.

24 So I -- we don't have an objection to the  
25 nonconsumptive use, the nonconsumptive rights, to the

1 extent they're nonconsumptive, being excluded from this  
2 proceeding.

3 THE HEARING OFFICER: And so, Mr. Moroney, based  
4 on Mr. Fletcher's statement and based on my own look at  
5 the motion and the supporting affidavit, I'm not  
6 certain that the use by Fish and Game is  
7 nonconsumptive, and consequently I'll deny the motion  
8 and ask you to presented evidence regarding the use of  
9 water at the fish hatchery.

10 Okay. All right. I have two more. One is  
11 a motion to take official notice pursuant to Rule 602  
12 of the Rules Of Procedure. And this was filed by Laird  
13 Stone on behalf of Dean Rogers.

14 And based on some filings late last week, I  
15 understood that perhaps Mr. Stone would not be here  
16 today and that Mr. Rogers would be perhaps represented,  
17 at least his interests, through your presentation and  
18 your representation, Mr. Barker. But I wasn't sure  
19 whether you were actually representing Mr. Rogers.

20 MR. BARKER: Thank you, your Honor -- or,  
21 Mr. Director.

22 We have not had direct communications with  
23 Mr. Stone about whether or not he wanted us to argue  
24 this motion on his behalf. I think what -- his motion  
25 to withdraw said he would rely upon the presentation of

1 the South Valley, so we don't have any position one way  
2 or the other on official notice. I think it might  
3 actually be subsumed in Mr. Lawrence and Mr. Bromley's  
4 motion for official notice of other records.

5 But I think he was just asking for notice  
6 of Mr. Rogers' rights, which as far as we were  
7 concerned, we were not going to put on evidence of  
8 every member of the Ground Water District's individual  
9 rights.

10 THE HEARING OFFICER: Okay.

11 MR. BARKER: So I guess -- I guess I don't have  
12 anything to say either in support or against that  
13 motion filed by -- on behalf of Mr. Rogers.

14 THE HEARING OFFICER: Any other comment on this  
15 particular motion?

16 MR. FLETCHER: Your Honor -- excuse me,  
17 Mr. Director.

18 THE HEARING OFFICER: Yes.

19 MR. FLETCHER: I would just suggest that we wait  
20 until he's called and see exactly what he wants to  
21 testify to. I think he wants the Department to take  
22 notice of measurement records and different things that  
23 I believe he has taken himself. But I'm not -- it's  
24 not clear to me from what he filed. So I would just  
25 suggest you reserve that.

1 THE HEARING OFFICER: Thank you.

2 I was confused by the document that came in  
3 to me. It actually asked me to take notice of water  
4 measurement records of the South Valley Ground Water  
5 District. And then there's some tabular information  
6 with numbers in it.

7 I'm assuming that those may be records of  
8 Water District 37, although I'm not sure. And so I  
9 really don't have the information that's necessary even  
10 to rule favorably on the motion. And so I'll deny the  
11 motion today, because I think it needs to be -- that  
12 evidence needs to come in with some foundational  
13 information about where they came from and what those  
14 numbers actually mean, whether they're water  
15 measurement numbers and data, I just don't know that  
16 without going back through the Black Books of the Water  
17 District. I can't establish it today. So I'll deny  
18 the motion.

19 Now, Mr. Bromley, I'm to No. 6. If  
20 you're -- or if you want to pick on somebody else here.  
21 Mr. Lawrence. I have several requests, I guess, for  
22 the Director to take official notice of the documents.

23 MR. LAWRENCE: That's correct, Mr. Director.  
24 Thank you.

25 There really are three categories of



1 documents that we're requesting the Director take  
2 official notice of. The first are agenda notes and  
3 minutes from the Advisory Committee meetings for the  
4 Big Wood Groundwater Management Area. As you know,  
5 this proceeding that we're in right now sprang from  
6 those meetings, essentially. And so we believe that  
7 those documents are -- are or may be relevant to this  
8 proceeding and should be available for the parties. It  
9 would be helpful if the parties had access to those and  
10 they were admitted into the record.

11           The second category similarly are agenda,  
12 notes, minutes, and other terms from the Modeling  
13 Technical Advisory Committee, the Wood River Valley  
14 Model Advisory Committee. We expect that the model is  
15 going to be, as Mr. Bromley put it, probed quite  
16 heavily in this proceeding. We believe that it would  
17 be helpful to the parties and the Department if those  
18 records were available in the record.

19           And then finally, the third category are  
20 documents, files, backfiles in the Department's records  
21 for all of the water rights listed on Tim Luke's  
22 Attachment A to his May 17th staff memo. It's fairly  
23 commonplace in proceedings that I've been involved with  
24 with the Department for the Hearing Officer to take  
25 official notice of the Department's own files on water

1 rights that are relevant to the proceeding.

2 So that, in a nutshell, is our request for  
3 official notice. Thank you.

4 THE HEARING OFFICER: Thank you, Mr. Lawrence.

5 Any responses?

6 Mr. Fletcher.

7 MR. FLETCHER: We don't really have any  
8 objection to the Advisory Committee meeting notes,  
9 other than there was some negotiation that took place  
10 there -- settlement negotiation. And so I -- I can  
11 leave it -- I believe we can leave it up to the  
12 Director to sift through that and determine what's  
13 relevant to this proceeding.

14 As far as the agenda notes from the  
15 modeling and the backfiles to the water rights, I don't  
16 believe we have any objection to those.

17 THE HEARING OFFICER: Okay. Mr. Rigby.

18 MR. RIGBY: Mr. Director, only to add to that,  
19 again, I wasn't at those. And Director was for -- as I  
20 understand it, for the most part, or at least a lot of  
21 that. And I, too, am concerned about anything that  
22 would have been stated or said in negotiations versus  
23 part of the committee assignment.

24 Other than that, I agree with Kent that as  
25 long as the Director recognizes that and sifts through

1 that which is negotiation versus the assignment of the  
2 committee, then I have no objection as well.

3 THE HEARING OFFICER: Any other commentary?

4 Mr. Barker.

5 MR. BARKER: Thank you, Director.

6 I think one of the things that I'd be  
7 concerned about is just a procedural matter. All of  
8 this stuff is fairly broad. Certainly if an expert  
9 wants to refer to something that was in the modeling  
10 meeting minutes, they ought to be -- or the Modeling  
11 Technical Advisory Committee minutes, they ought to be  
12 able to refer to that.

13 But if the documents start coming into  
14 evidence, it would be nice to have some kind of notice  
15 of which one of these documents, this fairly massive  
16 group of materials, is going to be actually introduced  
17 into evidence that people are going to discuss at the  
18 hearing.

19 And the second thing I'll say about the  
20 discussions at the Advisory Committee meeting is these  
21 are not 402 settlement discussions. They're simply not  
22 protected. And so whatever people said or didn't say  
23 about their position is certainly not off the table at  
24 all.

25 THE HEARING OFFICER: Okay. All right. Let me

1 start from the back end again. And I agree with  
2 Mr. Lawrence that the documents, files, and back-files  
3 in the Department's records for water rights listed in  
4 Attachment A, Tim Luke's staff memorandum, those water  
5 right files should be a part of the record. And so the  
6 Director will take official notice of those water right  
7 files.

8           The agenda, notes, minutes, and meeting  
9 materials in the Wood River Valley Modeling Technical  
10 Advisory Committee, I don't even know what those might  
11 be, how extensive they are. My -- my inclination is to  
12 say if somebody thinks something's important in those,  
13 refer to it and bring it forward. So I'll at least  
14 deny the motion. And I want some specific reference, I  
15 think, as Mr. Barker was asking for so that we know or  
16 exactly what it is that people want to bring into the  
17 record.

18           And it's not that those modeling minutes  
19 and meeting materials are unimportant. Certainly I --  
20 I think that technical committee and the inputs there  
21 from the various people who participate should be  
22 important for the record.

23           Now, the last one, I guess, I want to talk  
24 about is the meetings of the Advisory Committee for the  
25 Big Wood Groundwater Management Area. And I'm on the

1 fence on this particular question.

2 What do the parties want to do?

3 And I have some disclosure in this I want  
4 to be up front about. I attended every one of those  
5 meetings. And the reason that I attended them -- I  
6 didn't want to, but the reason that I attended those is  
7 because the public meeting law requires that either a  
8 member of the committee or the agency head attend. And  
9 in the middle of the pandemic, we weren't having  
10 anybody meet in person. So we were not requiring  
11 anybody from the committee to attend in person.

12 And so as a result, the deputies attorney  
13 general and the Department told me that we might be in  
14 trouble under the public meetings laws if I did not  
15 attend. So I attended those. I honestly don't think  
16 there is much in the way of discussion in those  
17 meetings about settlement negotiations.

18 But what do the parties want to do with  
19 respect to those notes? Any objections? Anybody?

20 MR. BARKER: No objection here.

21 THE HEARING OFFICER: All right. I'll take  
22 notice of those, but I'll also view them with a certain  
23 level of suspicion. But there was good information  
24 that came in.

25 I'm also, Mr. Rigby, concerned about your

1 concern, and that is that all of the parties who are  
2 participating in this proceeding did not participate in  
3 those meetings. And so again, I would encourage if  
4 there is something in those documents that people want  
5 to present or want to dwell on in this hearing, I'd ask  
6 that counsel bring that document forward and offer it  
7 as evidence. So that's a soft taking of notice, I'd  
8 characterize it as.

9           Okay. Have we worked through all the  
10 motions?

11           All right. Let's talk briefly about the  
12 order of presentation of testimony and the order of  
13 examination. So as I mentioned earlier, deputies  
14 attorney general for the Department of Water Resources  
15 will examine those Department staff members who  
16 prepared staff memorandums. And I expect that the  
17 examination will be brief and that the entire content  
18 of the staff memorandums will not be covered in the  
19 examination. You have them in your possession.

20           And the examination, I think, is more for  
21 the purpose of laying a foundation with that witness,  
22 and then creating some level of comfort before they're  
23 subjected to cross-examination. I find that's helpful  
24 in bringing Department staff in the witness chair.

25           And then I think it would be helpful if we

1 follow -- unless counsel has another idea, if we follow  
2 the order of Mr. Fletcher and Mr. Rigby, you can then  
3 examine the witnesses as well. And then I want to wrap  
4 around.

5           And, Mr. Barker, it seems to me that South  
6 Valley, as well as Galena to some extent, have the  
7 primary interest in this particular matter. And I'd  
8 ask you to cross-examine, either you or Mr. Thompson  
9 first, and then Galena second.

10           And then I think we have a couple of other  
11 parties. Let me -- well, let's establish that as we  
12 go. I don't want to take time.

13           And then once we finish with group one and  
14 group two, then I'll come to group three, and we'll see  
15 if you have additional questions. Okay?

16           And of course group four is excluded from  
17 examining. And then we'll go back through and have  
18 another round of rebuttal questions after we finish.

19           Is that acceptable?

20           Now, that will be today's proceeding.  
21 We'll need to consider how to present testimony from  
22 surface water users and how that testimony then is  
23 presented. I think one of the issues that always comes  
24 up, and will come up in this proceeding is -- and I  
25 think more as we get into group two, how you want to

1 present your testimony and whether each of the  
2 attorneys wants to protect their own presentation or  
3 whether we have a full presentation from a particular  
4 witness. And I don't know whether there are some  
5 witnesses that might be called twice.

6 I would prefer, particularly with the  
7 expert witnesses, if we could call them to testify and  
8 then have them in the chair once and then dismiss them  
9 and not call them back. But certainly they could be  
10 held in reserve, particularly for rebuttal. But we  
11 don't have to resolve that today. Let's think about  
12 it.

13 Mr. Barker, Mr. Laski, Ms. O'Leary, I think  
14 that would be your decision primarily. Let's see where  
15 it goes. But I want to protect your ability to put on  
16 your case and not have it diluted somehow through other  
17 examination. So I'll depend on you to tell me how you  
18 want to proceed.

19 Okay. Other questions?

20 All right. We'll all see how our endurance  
21 is.

22 Ready to call the first witness?

23 MS. CARTER: Yes.

24 THE HEARING OFFICER: Ms. Carter.

25 MS. CARTER: I call Sean Vincent.



1 THE HEARING OFFICER: If you'll come forward,  
2 Mr. Vincent. Raise your right hand.

3  
4 SEAN VINCENT,  
5 having been called as a witness by the Department and  
6 first duly sworn, testified as follows:

7  
8 THE HEARING OFFICER: Thank you.  
9 Please be seated.

10  
11 DIRECT EXAMINATION

12 BY MS. CARTER:

13 Q. Good morning. Please state your full name  
14 and spell it for the record.

15 A. Sean Vincent. That's S-e-a-n,  
16 V-i-n-c-e-n-t.

17 Q. You are an employee of the Idaho Department  
18 of Water Resources; correct?

19 A. Correct.

20 Q. What is your current job title?

21 A. I am the hydrology section manager.

22 Q. And what are your responsibilities in this  
23 position?

24 A. I manage a group of hydrologists,  
25 hydrogeologists, and water resource engineers. We do

1 data collection, data analysis, surface and groundwater  
2 modeling, oftentimes in support of decision-making by  
3 the Director and the Idaho Water Resource Board.

4 A big part of my role is to review the work  
5 products of hydrology section staff, including  
6 presentations and reports. I from time to time serve  
7 as an expert witness for the Department. I've done  
8 that for the A & B Irrigation delivery call matter, as  
9 well as for the M3 water right application proceeding.

10 And I manage a number of joint funding  
11 agreements. These are essentially contracts between  
12 the Department of Water Resources and the U.S.  
13 Geological Survey to have the Geological Survey provide  
14 technical services. The largest of those are stream  
15 gaging agreements, which includes stream gaging  
16 services across the state. But there's ten continuous  
17 stream gages currently in the Wood River Valley that  
18 are part of that agreement, and also the stream gage  
19 below Magic Reservoir is a part of that agreement,  
20 which is outside of Wood River Valley.

21 Q. So what specifically are your  
22 responsibilities related to water supply data?

23 A. Well, I follow the water supply, as do most  
24 hydrology section staff. I attend water supply  
25 committee meetings, which are run by David Hoekema,

1 who's a member of the hydrology section.

2 We also do put out reports which status  
3 different groundwater management areas and critical  
4 groundwater areas across the state looking at  
5 water-level trends through time.

6 Q. How long have you worked in your current  
7 position?

8 A. It will be 16 years at the end of July.

9 Q. And what did you do prior to working for  
10 the Department?

11 A. I had a brief stint with an environmental  
12 consulting firm in Meridian called Kleinfelder where I  
13 worked as a project manager on environmental projects.

14 Prior to that I worked for 15 years with  
15 Morrison Knudsen Corporation, which later was bought  
16 out by Washington Group International. I started as a  
17 quantitative hydrogeologist with them. I did also  
18 manage some projects.

19 One project involved capture zone  
20 delineation work, modeling essentially, in support of  
21 the source water assessment program, which is the  
22 public water supply systems in Idaho.

23 And then finally I also, towards the end of  
24 my tenure, managed the geoscience group at MK, which is  
25 similar to my current role here.

1 Q. Thank you.

2 What is your college education?

3 A. I have a bachelor of science in geology and  
4 a bachelor of arts in geology, both from the University  
5 of Kansas, and a master's in hydrology with a  
6 groundwater emphasis from the University of Idaho.

7 Q. And what professional credentials do you  
8 have?

9 A. I am registered in Idaho as a professional  
10 geologist.

11 Q. Okay. Did you prepare a memo discussing  
12 methods of predicting surface water supplies in the  
13 Wood River Basin?

14 A. I did.

15 MS. CARTER: May I?

16 THE HEARING OFFICER: Yes.

17 MS. CARTER: I have copies if anybody needs  
18 them.

19 Q. I have just handed you a memo marked IDWR  
20 Exhibit 1.

21 Is that the memo that you prepared?

22 A. It is.

23 Q. And why did you prepare this memo?

24 A. It was in response to the Director's  
25 request for staff memoranda dated May 11, 2021.

1 Q. And in this memo you describe different  
2 methods for predicting surface water supplies.

3 What were those methods you discussed?

4 A. I considered three: The Surface Water  
5 Supply Index, which is a product from the Natural  
6 Resources Conservation Service. I also looked at the  
7 predictive model that was developed by Dr. Kendra  
8 Kaiser at Boise State University for the Wood River  
9 Water Collaborative.

10 And then finally, I looked at the Northwest  
11 River Forecast Center ensemble streamflow prediction  
12 model.

13 Q. And which of those methods did you select  
14 for your analysis?

15 A. I chose the Surface Water Supply Index, or  
16 SWSI, as it's sometimes referred.

17 Q. And why did you select that method?

18 A. Well, I've outlined reasons in the  
19 memorandum. But I guess generally it's designed to  
20 look at irrigation water supplies. It's specific to  
21 the irrigation season, and it allows hydrologists,  
22 water users, water managers to put the projected water  
23 supply in an historical context.

24 Q. And the memo was looking at the upcoming  
25 2021 irrigation season, which we are now in.

1                   What were the predictions for Basin 37?

2           A.     This was as of April 1, the forecast that I  
3 looked at, and it was for a -- what I'd call a poor  
4 water supply year.

5           Q.     So there was -- the analog years showed a  
6 poor water supply year for this year?

7           A.     Yes. Based on the NRCS forecast, the water  
8 supply outlook was not good for the 2021 irrigation  
9 season.

10          Q.     Okay. And you just mentioned analog years.  
11                 What's the purpose of selecting analog  
12 years? How do those work?

13          A.     Well, again, I think it's helpful for water  
14 users, water managers, hydrologists to be able to put  
15 the forecast in an historical context. And the analog  
16 years are the years with the closest water supply  
17 volumes to the forecast.

18          MS. CARTER: Okay. Thank you.

19                 Your Honor, I move to admit Exhibit 1 into  
20 evidence.

21          THE HEARING OFFICER: Thank you.

22                 Any objections?

23          MR. BARKER: No objection.

24          MR. RIGBY: No.

25          THE HEARING OFFICER: Okay. The document that's

1 been marked as IDWR 1 is received into evidence.

2 (IDWR Exhibit 1 received.)

3 Q. (BY MS. CARTER): After you wrote your memo  
4 were there any updates to the water supply forecast?

5 A. Yeah. So the NRCS puts out a new SWSI  
6 table, I'll call it, monthly. And I used the April  
7 forecast, that was the latest one that had been  
8 published at the time I authored the memorandum. But  
9 since then they've published a May SWSI table. And I  
10 believe it was just over this weekend they published a  
11 June table as well.

12 Q. Did you have a chance to review those?

13 A. I did yesterday look at the June table.

14 Q. Let's see. I just handed you what is  
15 marked as IDWR Exhibit 5.

16 Could you tell us what that is.

17 A. So this is the SWSI table for the Big Wood  
18 River at Hailey gaging station for the June through  
19 September forecast.

20 Q. And what does that table tell you?

21 A. Well, in general terms, it tells me that  
22 the water supply outlook went from poor to much worse.  
23 In fact, it looks like this may be a historically bad  
24 year.

25 Q. Okay. Is there anything else that you

1 noted on this table when you were reviewing it?

2 A. If you look, the forecasts are put out for  
3 different exceedance forecast values. There's a  
4 10 percent, 30 percent, 50, 70, and 90 percent  
5 exceedance forecast. And then the measured historical  
6 values are also provided.

7 And you can see where the different  
8 exceedance forecasts relate to the historical years.  
9 And when I look at this table, I note that the  
10 50 percent exceedance forecast, which is the most  
11 likely, is less than the worst water supply for the  
12 June through September time frame going back 30 years  
13 to 1991. So it looks like this year is going to be  
14 worse than any in the preceding 30 years, at least for  
15 the June through September time frame.

16 MS. CARTER: Thank you.

17 I move to admit IDWR Exhibit 5 into the  
18 record.

19 MR. RIGBY: No objection.

20 THE HEARING OFFICER: Parties?

21 Mr. Bromley?

22 MR. BROMLEY: No objection.

23 THE HEARING OFFICER: Lawrence?

24 MR. LAWRENCE: No objection.

25 THE HEARING OFFICER: Mr. Laski?



1 MR. LASKI: No objection.

2 THE HEARING OFFICER: Mr. Barker?

3 MR. BARKER: No objection.

4 THE HEARING OFFICER: Okay.

5 (IDWR Exhibit 5 received.)

6 MS. CARTER: Those are all the questions I have  
7 for now.

8 THE HEARING OFFICER: Okay. All right.

9 And I'm sorry, Mr. Moroney, I did not --

10 MR. MORONEY: No objection.

11 THE HEARING OFFICER: Thank you. I'm trying to  
12 get all the way around the horn here. I'll get used to  
13 it.

14 Okay. Thank you for that introduction,  
15 Ms. Carter.

16 Mr. Rigby or Mr. Fletcher, one of you.

17 MR. RIGBY: I'll begin.

18 THE HEARING OFFICER: Thank you.

19 MR. RIGBY: Thank you, Mr. Director.

20

21 CROSS-EXAMINATION

22 BY MR. RIGBY:

23 Q. Good morning. How are you?

24 A. Good morning.

25 Q. If you don't mind, let's start with where

1 you just left off, which is the latest predictions.

2 According to Exhibit IDWR 5, the most  
3 recent June 1 -- or June prediction, or June NRCS  
4 prediction, is that what best to call it?

5 A. I call it the June SWSI table.

6 Q. Very good. You indicated that the most  
7 likely use of it would be the 50 percent exceedance  
8 forecast.

9 Why?

10 A. That's the most likely outcome. There are  
11 a couple of forecasts for the 10 percent and 30 percent  
12 exceedance values that are higher than 1994, which is  
13 the year with the lowest water supply for June to  
14 September time frame. And it -- that's what the NRCS  
15 prediction is, that the 50 percent exceedance forecast  
16 is less than was observed in 1994 for that time frame.  
17 In other words, there's a greater than 50 percent  
18 chance that the 2021 volume for that time period will  
19 be less than observed in 1994, which was 44,000  
20 acre-feet at the Hailey gage.

21 Q. And you say that that would be worst in the  
22 last 30 years.

23 Why 30 years? Why pick the 30 years?  
24 What's the significance of that?

25 A. Well, that's typical when looking at water

1 supplies and historical periods. You go too much  
2 further than 30 years, then you start getting changes  
3 in irrigation practices and a lot of other things that  
4 can affect it. So typically, we look at 30 years  
5 historical periods when, for example, looking at  
6 snow-water equivalent maps, also the SWSI index. But  
7 you can go back further in time.

8 Q. As a result of the newest forecast by  
9 Exhibit IDWR 5, what would you, if you were to  
10 re-create your memo, what major significance would it  
11 play in an update of your memo?

12 A. Well, I think that it paints a bleaker  
13 water supply outlook than when I wrote my memo and that  
14 it would result in the selection of different analog  
15 years.

16 Q. Do you have any in mind? And I realize  
17 this is on the fly. We're all trying to catch this up  
18 in this time frame. But do you have any in mind?

19 A. Well, the year with the measured streamflow  
20 at the Hailey gage that is most similar to the  
21 50 percent chance exceedance forecast is 1994. So that  
22 might be an analog year.

23 Q. In fact, 1994 has been used.

24 Was it in your memo or Mr. Luke's or  
25 Ms. Sukow's? I recognize one of them dealt with it.

1 Do you recall?

2 A. I don't -- I don't recall.

3 Q. Very good. Again, getting back to the  
4 three methodologies that were out there or that  
5 potentially could be used, what are some of the  
6 weaknesses that you saw in the other two as -- and why  
7 you chose the SWSI for this particular one? I  
8 recognize one of your reasons was the forecast for the  
9 current year; is that correct?

10 A. Well, I -- I don't know that I would say  
11 that the other two options are -- are weak. I guess I  
12 would say that the SWSI has really been developed with  
13 irrigation water supplies in mind. The way the output  
14 of the table has the historical values and the  
15 exceedance forecasts are positioned in relationship to  
16 those historical values for the preceding 30 years is  
17 very convenient. And the Department has used SWSI  
18 tables and continues to use SWSI tables. There's a  
19 level of comfort there, just familiarity. I think  
20 there's widespread acceptance both inside IDWR and  
21 outside.

22 Q. Do you know anyone else that's run the  
23 other two and would have a prediction significantly  
24 different than what you supplied?

25 A. We did -- and I think I described this in

1 the memo -- run the Wood River Water Collaborative  
2 Model. It's an R script. And as I mentioned in my  
3 deposition, you have to have the right libraries loaded  
4 in order to run an R script. And so there's some time  
5 spent there and -- but mostly in talking with  
6 Dr. Kaiser it sounded like there was still some  
7 modifications being made to the model. So we didn't  
8 choose that.

9 The other one, the Northwest River Forecast  
10 Center ensemble prediction model, again, it's just not  
11 as convenient for my purposes and I'm not as familiar  
12 with it. But I don't have anything bad to say about  
13 the forecast model.

14 Q. Do you have any reason to believe that any  
15 of the other two runs wouldn't result in a  
16 significantly different result than what you came up  
17 with in SWSI?

18 MR. BARKER: Objection. Lack of foundation.

19 THE HEARING OFFICER: Well, I'll overrule the  
20 objection. I think this is a little bit foundational  
21 anyway.

22 Go ahead.

23 THE WITNESS: The bottom line for me is it's  
24 going to be a very bad water supply year in 2021.

25 Q. (BY MR. RIGBY): In your staff memo -- and

1 I apologize, I don't have the exhibit number for that.

2 THE HEARING OFFICER: It's 1.

3 MR. RIGBY: Is it 1?

4 THE HEARING OFFICER: 1.

5 MR. RIGBY: Okay.

6 Q. In Exhibit 1, page 3, you indicate that --  
7 again, dealing with the SWSI and why it's a better  
8 choice for predicting the water supply in the Wood  
9 River Valley -- "as well as downstream users that don't  
10 have access to the Magic River -- Magic Reservoir but  
11 instead divert from Silver Creek and Little Wood."

12 Is that significant in using the SWSI? Is  
13 it a better prediction for those downstream users, in  
14 your opinion?

15 A. Than the alternatives or --

16 Q. I guess what I'm saying is, did it work for  
17 what you were attempting to do?

18 A. Well, I spoke of this a little bit in my  
19 deposition, but when I first -- when the focus first  
20 shifted over to the Little Wood and Silver Creek water  
21 users, I -- I realized that there wasn't a SWSI for  
22 Silver Creek. And so I had to satisfy myself that  
23 there was a correlation between the SWSI for the  
24 at-Hailey gage and the observed flows in Silver Creek.

25 And so I did a regression analysis and

1 looked both at the coefficient of determination and the  
2 chart that was -- compared those two things, and saw  
3 that there was a strong correlation between them, the  
4 flow in Silver Creek during the April through September  
5 time frame and the flow at the at-Hailey gage.

6 Q. So the results that were produced as a  
7 result of SWSI, for the purpose of the seniors  
8 downstream from -- in Silver Creek and Little Wood, you  
9 still maintain that, notwithstanding the new prediction  
10 or otherwise, that your analysis is correct; correct?

11 A. I believe that because the at-Hailey gage  
12 is pretty well correlated with the flows in Silver  
13 Creek during the irrigation season, the fact that there  
14 is a poor water supply year predicted for the at-Hailey  
15 gage would extend to Silver Creek. It's not a perfect  
16 correlation, but...

17 Q. Do you know of any other methodology out  
18 there or another way of addressing that if it's not  
19 perfect? Is there one that's better?

20 A. I suppose a different model could be  
21 developed, one that relied entirely on water levels in  
22 wells, for example. But I did not do that.

23 Q. As far as the modeling itself, and of  
24 course the model 1.1, we've heard testimony from  
25 others, is it the best science that we have right now?

1 MR. THOMPSON: Objection. We haven't heard from  
2 anybody yet.

3 MR. RIGBY: You're right.

4 Q. I'll represent to you that there are those  
5 who -- let me just ask you this. Strike that.

6 Is it the best science we have to deal with  
7 for the Wood River Valley at this given time?

8 MR. BROMLEY: Objection. What is "it"?

9 MR. RIGBY: The model 1.1.

10 MR. BARKER: So I think that's a problem,  
11 because that's not what Mr. Vincent's talking about.  
12 He's talking about the SWSI projections, not the model.

13 MR. RIGBY: I'm asking him about the model.  
14 I'll lay foundation.

15 Q. Are you familiar with the model 1.1?

16 A. I am familiar with the Wood River Valley  
17 groundwater flow model.

18 Q. And have you -- what's your familiarity  
19 with it?

20 A. Well, Jennifer Sukow is in the hydrology  
21 section, and I manage the hydrology section. And I  
22 also facilitate meetings of the Wood River Valley  
23 Modeling Technical Advisory Committee.

24 Q. So is that the extent of your review of the  
25 model?



1           A.    I reviewed the reports that have been  
2 generated for the model.

3           Q.    Go to your memo, please, page 2, item  
4 No. 4, "Method Selection." And it says -- and I hope  
5 I'm quoting it correctly -- "The SWSI tables also  
6 include an estimate of the adequate water supply volume  
7 which can be used to determine if the current year will  
8 have a shortage or surplus of irrigation water."

9                   Is that what it says?

10          A.    That's item 4?

11          Q.    Yes.

12          A.    I believe that's what it says, yes.

13          Q.    So has an adequate water supply volume in  
14 acre-feet been established for water users in the  
15 Little Wood/Silver Creek drainage, to your knowledge?

16          A.    I believe that the adequate water supply  
17 volume is for the Wood River Valley. And so that's a  
18 slightly different area than we're concerned with in  
19 this proceeding.

20          Q.    Larger than what we're dealing with right  
21 here?

22          A.    Well, larger and less extensive, both.  
23 It's different.

24          Q.    How so?

25          A.    Silver Creek is within the Wood River

1 Valley, but then we're also concerned about the water  
2 as it -- after it's flowed to past Picabo and is  
3 outside the Wood River Valley.

4 Q. So again, to your knowledge, has there been  
5 any -- is there any way to establish the -- what that  
6 water supply volume being adequate for the Little  
7 Wood/Silver Creek drainage for water users?

8 A. The -- I spoke with Ron Abramovich, who was  
9 involved in the development of the adequate water  
10 supply volumes when he was with the NRCS. He has since  
11 retired. And I asked him about the adequate water  
12 supply value for the above-Hailey gage, is how it's  
13 referred to.

14 And he mentioned that he had developed that  
15 by discussing the water years with the Water District  
16 37 watermaster, Kevin Lakey, and that he had reviewed  
17 data and had conversations with Mr. Lakey, and that  
18 they had arrived at this number based on those  
19 conversations and his review of gage data. But again,  
20 it applies to the Wood River Valley, that volume.

21 Q. One of the reasons for my inquiry as to  
22 this is that again on page 3, your last paragraph  
23 talking about the potential analog years for the Wood  
24 River Valley, this paragraph, as well as the staff  
25 memo, bases conclusions on the availability of 2021

1 irrigation season on the adequate water supply volume.  
2 And that's why I think it's important to know just  
3 what, if any, analysis or development of that  
4 determination as to definition or data is involved.

5 A. That's a fair question. In my  
6 conversations with Kevin Lakey and Ron Abramovich, I  
7 learned that there is essentially an above-Magic  
8 adequate water supply volume and a below-Magic adequate  
9 water supply volume. And I'm not sure that either of  
10 those really captures the area of concern for this  
11 proceeding.

12 Q. Why?

13 A. Because Silver Creek is the main focus in  
14 terms of water supply. And it's -- it heads in the  
15 Wood River Valley, but then it flows out of the Wood  
16 River Valley. So I'm just not sure that either Ron or  
17 Kevin had that area in mind when they developed this  
18 adequate water supply volume.

19 Q. But as far as you know, the two of them are  
20 the ones that have, quote, "developed" the adequate  
21 water supply for purposes of your addressing it within  
22 your memo?

23 A. It -- yes, I believe there were others. I  
24 just remember that Ron mentioned Kevin as being one of  
25 the people that he had worked with when developing that

1 number. And it's intended as a general guideline.  
2 It's kind of an inexact number, I think.

3 MR. RIGBY: Understood. I have no further  
4 questions.

5 Kent.

6 THE HEARING OFFICER: Thank you, Mr. Rigby.

7 Mr. Fletcher.

8 MR. FLETCHER: Thank you. I have very few  
9 questions.

10

11

CROSS-EXAMINATION

12 BY MR. FLETCHER:

13 Q. Based upon your exhibit -- oh, I'm Kent  
14 Fletcher, by the way, Mr. Vincent. I represent Big  
15 Wood Canal Company.

16 Based upon your Exhibit 5, is it fair to  
17 say there is no analog year meeting the conditions of  
18 this year?

19 A. I would say 1994 is very similar to the  
20 50 percent chance -- well, maybe not very similar.  
21 It's similar. If I had to choose one year in the  
22 previous 30, it would be 1994. But you're right, 1994  
23 has a higher projected June through September forecast  
24 than the measured volume -- or scratch that.

25 1994 has a higher measured streamflow value

1 for the period June through September than the  
2 50 percent chance exceedance forecast for 2021. There  
3 is still some probability that we will exceed the 1994  
4 measured volume, obviously. And this, I should  
5 emphasize, is only for the period June through  
6 September. It's not for the entire irrigation season.

7 Q. And 1994, to reiterate, is the worst year  
8 on record in the last 30 years?

9 A. In the last 30. We do have historical data  
10 going back to 1917, which I provided to Tim Luke and  
11 got from the NRCS. And there are worse years than 1994  
12 going back that far.

13 MR. FLETCHER: Thank you.

14 THE HEARING OFFICER: Thank you, Mr. Fletcher.

15 Mr. Barker.

16 MR. BARKER: Thank you, Mr. Director.

17

18 CROSS-EXAMINATION

19 BY MR. BARKER:

20 Q. Albert Barker on behalf of South Valley  
21 Ground Water District.

22 Sean, how are you? Having fun?

23 A. Been better. I'm doing all right.

24 Q. So you came here with some not-so-great  
25 news for us this morning; right?

1           A.    That's true.

2           Q.    The -- I want to follow up on something  
3 that you just said about -- you just emphasized that  
4 this is June to September SWSI forecast, correct,  
5 compared to the June to September runoff periods in the  
6 previous 30 years?

7           A.    That's correct.

8           Q.    Okay. And so this chart doesn't take into  
9 account the water supply that was available in March  
10 April and May?

11          A.    Yeah. We're typically focused on April  
12 through September. It doesn't include April or May,  
13 the flow past the Hailey gage, during that time frame.

14          Q.    And during those periods of time, there was  
15 greater flow than was shown on the current 2021 SWSI?

16          A.    There was flow obviously, yes.

17          Q.    Okay. So the adequate water supply that  
18 you discussed, we don't have any number for an adequate  
19 water supply for the Big Wood -- or sorry, the Little  
20 Wood and Silver Creek water users; is that correct?

21          A.    That's correct. I don't.

22          Q.    You mentioned when you first started that  
23 you were in charge of the stream gaging or you were at  
24 least in charge of the agreements with USGS on stream  
25 gaging?

1           A.     That's correct.

2           Q.     And are there stream gages on the Little  
3 Wood in addition to the ones that are monitored by the  
4 USGS?

5           A.     There is a stream gage at Station 10 and  
6 one at Station 54. There are gages upstream from the  
7 confluence of Silver Creek as well. There's one at  
8 Carrie, and I believe upstream from that even is  
9 another gage.

10          Q.     All right. And are those gages within your  
11 purview?

12          A.     I believe the USGS gage at Carrie may be  
13 sponsored by the Department, but I -- I don't recall.

14          Q.     And do you have any information about the  
15 gage at Station 10? Well, let me stop for a second.

16                   Is that gage at Station 10 managed by IDWR?

17          A.     It is currently monitored by a contractor  
18 under contract from Water District 37. We have  
19 installed equipment here recently, we're trying to  
20 improve the gaging that's done at Station 10.

21          Q.     Okay. So why is it necessary to improve  
22 the gaging at Station 10? What's wrong with it?  
23 What's there now?

24          A.     I'm perhaps not the best person to ask  
25 that. I know that Jennifer Sukow has been looking into

1 the data there.

2 Q. Okay. But suffice it to say, the  
3 Department's not satisfied with the data that they're  
4 getting out of the readings from Station 10?

5 A. There are some concerns, yes.

6 Q. You mentioned earlier that you found a very  
7 strong correlation between flows at Hailey on the Big  
8 Wood and flows in Silver Creek?

9 A. Reasonably strong. I'm not sure what  
10 adjective I used, but it's fairly strong.

11 Q. Maybe you used an adjective.

12 But you did use the word "strong"; right?

13 A. Fairly strong.

14 Q. Okay. And so how do you identify what  
15 it means when you say there's a strong correlation  
16 between the flows up above the Triangle at Hailey and  
17 the flows in Silver Creek?

18 A. Well, as I mentioned, I looked at the flow  
19 measured at the Sportsman's Access gage in Silver Creek  
20 going back in time for the period April through  
21 September, and compared that to the flows observed at  
22 the at-Hailey gage April through September going back  
23 in time. And I plotted those up, and visually I saw a  
24 fairly strong correlation. And I did a regression  
25 analysis and came up with an R-squared value for



1 different time frames.

2 Q. Okay. So can you recall the R-squared  
3 value that you found?

4 A. I remember that for the most recent ten  
5 years, the R-squared was above .8. And it was a little  
6 bit less than that if you go back 20 years and 30  
7 years. But there's a reasonable correlation indicated  
8 by that. It means that the variation is explained,  
9 let's say the correlation -- or the coefficient of  
10 determination, or R-squared value is .8. It means that  
11 80 percent of the variation is explained by the  
12 variation observed at Hailey.

13 Q. And so the higher the R-squared value -- it  
14 can't get above 1.0; right?

15 A. 1.0 would be perfect.

16 Q. Okay. So the higher it is, the stronger  
17 the correlation; is that how that works?

18 A. Yes.

19 Q. And an R-squared value of .6, for example,  
20 would be less strong of a correlation?

21 A. That's -- that's correct.

22 Q. Okay. Is there a stream gage on Silver  
23 Creek at Ragsdale? Are you familiar with that?

24 A. I am not familiar with it.

25 Q. Okay. I'm getting past your -- all right.

1 That's fine.

2 So both Ms. Carter and Mr. Rigby referred  
3 to you providing analysis. And I thought when we  
4 talked the other day in your deposition you simply said  
5 what you were doing was reporting the analysis that had  
6 been provided by NRCS in the SWSI tables and not doing  
7 your own analysis of the flows.

8 Is that right?

9 A. I believe what I said was that the analysis  
10 that I did was to look at the correlation between the  
11 at-Hailey gage flows and the flows at Silver Creek.  
12 And then based on the observed correlation -- that was  
13 my analysis -- I used the NRCS forecast.

14 Q. So your analysis was to say that the Hailey  
15 gage is the best measure of what the SWSI -- or sorry,  
16 what the 2021 water year would look like in the Big  
17 Wood?

18 A. That's correct.

19 Q. Okay. And then you also mentioned that you  
20 could go back to earlier years.

21 Didn't you ask NRCS for SWSI values going  
22 back into the '20s and '30s?

23 A. Back to 1917.

24 Q. Okay. So did you, for purposes of your  
25 memo, consider comparing SWSI values with years outside

1 of that 30-year period that is in table IDWR Exhibit 5?

2 A. I didn't feel that that would be necessary,  
3 and it's not in keeping with standard practice to go  
4 too far beyond 30 years. It can be done. And it's  
5 informative to see what the flows were. The gage is  
6 long established, but I didn't feel like it was  
7 important for my analysis, though.

8 Q. And Mr. Rigby asked you some questions  
9 about the Wood River Valley model 1.1.

10 You were in charge of the -- or at least  
11 supervised the MTAC meetings for that process; correct?

12 A. That's correct.

13 Q. Did you have anything to do with the  
14 uncertainty analysis that Allan Wylie prepared for  
15 that -- or reporting on the uncertainty analysis in  
16 model 1.1?

17 A. I reviewed the report, but the uncertainty  
18 analysis was not something I personally participated  
19 in, no.

20 Q. And did you -- did you disagree with his  
21 conclusions about any uncertainty report?

22 A. I did not.

23 MR. BARKER: Thank you, Mr. Director.

24 Thank you, Sean.

25 THE HEARING OFFICER: Thank you.

1 Galena? Mr. Laski?

2 MR. LASKI: We have no questions.

3 THE HEARING OFFICER: No questions?

4 MR. LASKI: No.

5 THE HEARING OFFICER: Okay. Group three?

6 And I will just mention at this point that  
7 there are two other individuals in -- well, I'm  
8 belated, I guess, in doing this. But there are two  
9 other individuals in group one who are not here, I  
10 don't think.

11 And then in group two -- let me just ensure  
12 that we're okay.

13 So, Mr. Robertson, you're representing  
14 Sun Valley Water and Sewer District. That would be in  
15 group three as well, even though I have it in group  
16 two.

17 MR. ROBERTSON: Yes, sir.

18 THE HEARING OFFICER: And I think Jim Speck has  
19 filed documentation stating that he would rely on  
20 others today.

21 So I think we're into group three now,  
22 Mr. Bromley. Sorry for the cleanup, as I look at who's  
23 representing whom.

24 MR. THOMPSON: Mr. Director, can I interrupt?

25 THE HEARING OFFICER: Yeah.

1 MR. THOMPSON: Who else is in group one? Sorry.  
2 You said --

3 THE HEARING OFFICER: Okay. I, at least in my  
4 list, so there's a large group of users that Jerry  
5 Rigby and Joe James represent. I didn't ask Chase.

6 Chase, are you with the Rigby law firm or  
7 are you Joe James?

8 MR. RIGBY: He's with me, sorry to say.

9 THE HEARING OFFICER: He's associated with you.  
10 That's what I assumed.

11 And then Kent Fletcher is representing Big  
12 Wood Canal Company and in group one. Lawrence Schoen  
13 and City of Gooding, Brendan Ash, I don't think he's  
14 here today. So that's group one.

15 Were you wanting more information than  
16 that?

17 MR. THOMPSON: No, that's fine.

18 THE HEARING OFFICER: Thanks, Travis.

19 MR. MORONEY: Mr. Director.

20 THE HEARING OFFICER: Yes.

21 MR. MORONEY: Just to clarify, Fish and Game's  
22 in group two; correct?

23 THE HEARING OFFICER: That is correct.

24 So do you have questions? I'm sorry,  
25 Mr. Moroney.

1 MR. MORONEY: No questions for Mr. Vincent.

2 THE HEARING OFFICER: Oh, and now I'm sorry.  
3 This summary I have does not include you, and it  
4 should.

5 Okay. Mr. Bromley.

6 MR. BROMLEY: Great. Just a few.

7

8 CROSS-EXAMINATION

9 BY MR. BROMLEY:

10 Q. Hi, Sean.

11 A. Morning.

12 Q. Let me just ask a quick question.

13 Did you say that the SWSI for the Big Wood  
14 above Hailey does not predict flows in Silver Creek and  
15 tributaries?

16 A. No, it's not -- the forecast is for flow at  
17 the -- at the at-Hailey gage.

18 Q. And that was the correlation, then, that  
19 you were --

20 A. That's right.

21 Q. That was the linkage?

22 A. That's correct.

23 Q. Okay. Thank you.

24 Mr. Vincent, are you familiar with the  
25 rules for conjunctive management?

1           A.    Somewhat, yes.

2           Q.    Aware that they exist?

3           A.    I am.

4           Q.    And when you put together your staff memo,  
5 did you look at all at the Conjunctive Management  
6 Rules?

7           A.    Not as part of this, no.

8           Q.    Okay. Thank you.

9                    When you were preparing your staff memo,  
10 Sean, did you do any analysis of changes in irrigation  
11 practices during the SWSI -- this 30-year period from  
12 1991 to 2021?

13           A.    I did not do that specifically,  
14 Mr. Bromley.

15           Q.    And, Mr. Vincent, you were testifying a  
16 little bit earlier about the model, the Big Wood model;  
17 is that correct?

18           A.    I was asked a question about it. I don't  
19 recall specifically what it was.

20           Q.    And that you have some general familiarity  
21 with the model?

22           A.    I do. I do.

23           Q.    Are you aware of what the calibration dates  
24 were within the model?

25           A.    We updated the model, let's see, in 2019 we

1 put out version 1.1. And if I'm not mistaken, the  
2 calibration period extends through 2014. But Jennifer  
3 Sukow would be a better one to ask about that.

4 Q. I was curious if you recalled when that  
5 calibration date started. So it's gone on through  
6 2014. My understanding is that the calibration started  
7 in 1995.

8 A. I believe it was about that time frame.  
9 There was a model warm-up period, too, in the first few  
10 years. And so the model during that time period isn't  
11 actually calibrating to those initial values. So I'm  
12 not -- the calibration period is a little different  
13 than the total simulation period.

14 Q. Okay. So if the model was -- if the start  
15 date of the calibration was 1995, then you'd agree that  
16 the 1994 SWSI that you're looking at predates that  
17 period?

18 A. If that's the case, I would agree with  
19 that.

20 Q. Okay. Thank you.

21 Have you analyzed the surface water supply  
22 that was available in 1994?

23 A. Only to look at the measured runoff volumes  
24 that are reported by the U.S. Geological Survey.

25 Q. Okay. And so then not diversions by river



1 users or pumping by groundwater users?

2 A. I did not do that, no.

3 MR. BROMLEY: Okay. That's all I have.

4 THE HEARING OFFICER: Okay.

5 MR. BROMLEY: Thank you.

6 THE HEARING OFFICER: Thank you.

7 Others in group three?

8 Mr. Simpson, I think I missed you once as  
9 we went through. Do you have questions for  
10 Mr. Vincent?

11 MR. SIMPSON: No questions.

12 THE HEARING OFFICER: Are there others in group  
13 three?

14 Mr. Robertson?

15 MR. ROBERTSON: No questions.

16 THE HEARING OFFICER: No questions.

17 Mr. Semanko?

18 All right. Let me check my list again.

19 Let's see. Did I pick up -- and I'm not sure my notes  
20 are good. I have Brian O'Bannon from the City of  
21 Ketchum.

22 MR. O'BANNON: Yes.

23 THE HEARING OFFICER: Yes, I thought you were  
24 here. Do you have questions?

25 MR. O'BANNON: No questions.

1 THE HEARING OFFICER: All right. Thank you,  
2 Brian.

3 All right. Very good. Let's come back  
4 around. Redirect.

5 Ms. Carter.

6 MS. CARTER: Just one clarification. Did we  
7 admit Exhibit 5 into the evidence?

8 THE HEARING OFFICER: Yeah, I wondered the same  
9 thing.

10 Mr. LaMar, can you tell us, or is there  
11 somebody who can tell?

12 THE COURT REPORTER: Yes, it has.

13 THE HEARING OFFICER: It's been admitted?

14 THE COURT REPORTER: It has.

15 THE HEARING OFFICER: Okay. That's what I  
16 thought. Thank you.

17 MS. CARTER: That's all I have.

18 THE HEARING OFFICER: Okay. Thank you.

19 Any other questions within the scope of  
20 redirect?

21 Okay. I have one question for Mr. Vincent.

22

23 EXAMINATION

24 BY THE HEARING OFFICER:

25 Q. In Exhibit 5 you've been talking about a

1 streamflow volume. And I'm assuming that you are  
2 looking at the column "Streamflow June through  
3 September."

4 Is that correct?

5 A. Correct.

6 Q. And will you just, for the record, clarify  
7 what the units are there and what those numbers  
8 represent.

9 A. Yes. Those are -- the units is thousand  
10 acre-feet at the upper right next to the red "1991 to  
11 2020," just to the right of that. It says "30 years"  
12 and then "Units KAF." It stands for thousand  
13 acre-feet.

14 Q. Okay.

15 A. What was the second part of your question?

16 Q. Well, I think you've answered the question  
17 because I wanted to know not only what it represented,  
18 but then what -- so in terms of units, so whether it  
19 was acre-feet or whether it was cubic feet per second.  
20 And then I wanted to know what the number represented,  
21 which is KAF or a thousand acre-feet. So I think  
22 you've answered the question.

23 So these numbers, both the streamflow and  
24 streamflow plus reservoir sum, those are both in  
25 thousands of acre-feet?



1 MS. CARTER: Thank you.

2

3 DIRECT EXAMINATION

4 BY MS. CARTER:

5 Q. Would you please state your full name and  
6 spell it for the record.

7 A. Jennifer Sue Sukow, J-e-n-n-i-f-e-r, S-u-e,  
8 S-u-k-o-w.

9 Q. And you are an employee of the Idaho  
10 Department of Water Resources; correct?

11 A. Correct.

12 Q. What is your current job title?

13 A. My job title is Technical Engineer II.

14 Q. And what are your responsibilities in this  
15 position?

16 A. I work in the hydrology section. And I  
17 work primarily with groundwater flow models, the model  
18 interaction of groundwater and surface water. I also  
19 do other various hydrologic and hydrogeologic analyses  
20 that come up from time to time.

21 Q. And how long have you worked in this  
22 position?

23 A. About 10 years. Or excuse me, 11 years.

24 Q. And prior to this position what other  
25 positions did you hold?

1           A.    I was a senior water engineer with a  
2 consulting firm called SPF Water Engineering for about  
3 six years prior to this position.

4           Q.    And what did you do in that position?

5           A.    I did design and permitting primarily for  
6 public water systems.  I designed public-water-supply  
7 wells and pumping stations and pressure reducing  
8 stations and other appurtenances for the water systems.

9           Q.    And did I ask you how long you were in that  
10 position?

11          A.    I don't think you did, but I think I said  
12 six years in my previous answer.

13          Q.    That's fine.

14          A.    Sorry.

15          Q.    That's okay.  What is your college  
16 education?

17          A.    I have a bachelor of science degree from  
18 University of North Dakota in environmental geology and  
19 technology, and a master's degree in civil engineering  
20 from the -- or excuse me, Utah State University.

21          Q.    And what professional credentials do you  
22 have?

23          A.    I am registered as a professional engineer  
24 with the State of Idaho and the State of Oregon.  And  
25 I'm registered as a professional geologist with the

1 State of Idaho.

2 Q. Okay. Did you prepare a memo discussing  
3 predicted hydrologic response in Silver Creek and the  
4 Little Wood Rivers?

5 A. Yes.

6 Q. Okay. I've just handed you a memo marked  
7 IDWR Exhibit 2.

8 Is this that memo?

9 A. Yes.

10 Q. And why did you prepare this memo?

11 A. I prepared this in response to a request  
12 for staff memoranda from the Director.

13 Q. Okay. Then I'm going to hand you a copy of  
14 the Director's scheduling order. On page 5 of the  
15 order, there is a mention of a correction to your staff  
16 memo and an attached graph.

17 Do you recognize that correction?

18 A. Yes.

19 Q. And what is that correction?

20 A. In the original staff memo in Figure 14, I  
21 pasted the incorrect graph in there. And the  
22 correction is the corrected graph.

23 Q. Okay. Are there any other corrections to  
24 your memo that we need to be aware of?

25 A. I think I also mentioned in here, in the

1 attachment, that the original memorandum said the well  
2 logs were in Attachment A, and they're actually in  
3 Attachment C. That was the other correction.

4 Q. Okay. Thank you.

5 So regarding the hydrogeology of the Wood  
6 River Basins, let's focus on Silver Creek, what is the  
7 connection between Silver Creek and its tributaries to  
8 the aquifer system?

9 A. So Silver Creek and its tributaries, their  
10 primary source of supply is the Wood River Valley  
11 aquifer system. They do get some -- seasonally get  
12 some smaller contributions of water from snowmelt  
13 runoff or direct infiltration or precipitation, but  
14 their headwaters is -- is in the aquifer and it is  
15 discharged from the aquifer. They are directly  
16 connected to the unconfined aquifer. The confined  
17 aquifer, which is also part of the system, is connected  
18 to the unconfined aquifer. And so for all practical  
19 purposes, they're all connected to Silver Creek.

20 Q. And how does a low water year affect the  
21 aquifer?

22 A. So there is a number of factors that  
23 affect -- well, aquifer water level affects the amount  
24 of discharge to Silver Creek, and there's a number of  
25 factors that affect aquifer water levels. So there's



1 multiple sources of aquifer stress that affect water  
2 level. Those include incidental recharge of surface  
3 water applied in excess of crop water needs and canal  
4 seepage. It includes natural recharge from tributary  
5 underflow and the infiltration of precipitation. And  
6 it includes groundwater withdrawals for irrigation and  
7 also natural discharge directly from the aquifer  
8 through evapotranspiration in wetlands and riparian  
9 areas.

10           During a year with a low water supply, we  
11 tend to have less recharge, both from natural recharge  
12 and from canal seepage and incidental irrigation water,  
13 plus we have the double whammy of tending to have  
14 higher groundwater withdrawals for irrigation, and also  
15 maybe potentially higher discharge from wetlands and ET  
16 for a hot and dry year.

17           Q. All right. Let's talk about the  
18 groundwater flow model.

19                   What is the purpose of the model?

20           A. The primary purpose of the model is to  
21 be -- serve as a tool to evaluate the interaction of  
22 groundwater and surface water, and to that end to serve  
23 as a tool for the conjunctive management and  
24 conjunctive administration of water in the -- in the  
25 model area.

1 Q. And what information do you get out of the  
2 model?

3 A. Well, and again, the model is -- the  
4 calibration of the model is optimized to look at the  
5 interaction between groundwater and surface water. The  
6 biggest advantages of the model are we can put -- you  
7 know, we can put a large amount of available data into  
8 the model and then be able to use the model to predict  
9 and separate out the impacts of those various types of  
10 aquifer stresses that I talked about previously.

11 So we could separate out the impacts of  
12 groundwater pumping on streamflow from the impacts of  
13 changes in incidental recharge from irrigation or  
14 changes in natural recharge on the streamflow.

15 Q. And what is the uncertainty of the model?

16 A. Well, like all groundwater flow models, the  
17 model is a simplification of the system, and there is  
18 inherently uncertainty in the model predictions. It's  
19 also not really possible to put a single number, as far  
20 as a plus-or-minus error bar, on -- on the groundwater  
21 flow model and all the predictions that it might make.

22 Allan Wylie did do uncertainty analysis for  
23 the most recent version of the model, version 1.1, and  
24 looked at the uncertainty associated with five specific  
25 predictions. And those are discussed briefly in my

1 staff memo.

2 Q. And how does that general uncertainty  
3 compare to other groundwater flow models?

4 A. I could compare it to the Eastern Snake  
5 Plain Aquifer model. I just recently published an  
6 uncertainty analysis for version 2.2 of the ESPA  
7 aquifer model. The numeric uncertainty in the analysis  
8 is lower for some predictions that Allan looked at and  
9 higher for others. But Allan was also looking at a  
10 simulated impact of a ten-month simulation and looking  
11 at a prediction from that.

12 In the ESPA, the ESPA predictive  
13 uncertainty analysis, we're looking at mostly  
14 steady-state predictions, and then we also looked at  
15 some that were a five-year simulation of the impacts of  
16 a managed recharge.

17 So numerically the predictions in the ESPA  
18 range -- the uncertainty ranged from very low to up to  
19 plus or minus 9 percent. And with the five predictions  
20 Allan looked at for this model, they ranged from very  
21 low at plus or minus .5 percent to plus or minus  
22 22 percent, but given the shorter time frame, that's  
23 actually reasonably good for the model.

24 MR. RIGBY: I'm sorry, I didn't catch that.

25 Q. (BY MS. CARTER): He didn't catch your last

1 couple...

2 A. I said that it's reasonably good for the  
3 short time frame of the simulation.

4 MR. RIGBY: Thank you. Sorry.

5 Q. (BY MS. CARTER): And would you say that  
6 the Wood River model is the best available science?

7 A. Yes, I -- I said that in my staff memo, or  
8 perhaps I quoted Allan Wylie stating that in the model  
9 documentation for the report. Also, his uncertainty  
10 analysis documents that it is a better tool than any  
11 available analytical methods that we could apply to  
12 make such a prediction.

13 And that's important because it  
14 incorporates -- it incorporates -- doing a numerical  
15 flow model allows you to incorporate a large number of  
16 data, whereas if you use an analytical method, you're  
17 doing more of a simplification and using a smaller  
18 amount of data.

19 Q. So in terms of this proceeding, how did you  
20 use the model?

21 A. I did two simulations of curtailment of  
22 groundwater pumping, which would -- which is adjusting  
23 the model stress or the aquifer stresses to -- or  
24 adjusting the model input to ask the question of what  
25 would have happened if there hadn't been any

1 groundwater pumping in a given area over a given time  
2 frame. And I used 2002 -- the year 2002 as a baseline  
3 dry year for these simulations.

4 Q. Okay. And why did you use 2002?

5 A. At the time that I started working on this,  
6 we were still using the March 1 SWSI prediction. And  
7 2002 was one of the analog years, the closest year to  
8 the 50 percent exceedance at that time.

9 Q. Okay. Do you by chance know how that  
10 compares to what is looking like a much drier year?

11 A. It is now looking like -- yeah, every SWSI  
12 prediction that's come out since then, and there's been  
13 an April one, a May one, and a June one, and it has  
14 gotten -- the streamflow prediction at Hailey has  
15 gotten worse every time. So we're looking at a drier  
16 year than 2002 at this point, it's looking like.

17 Q. And how would that -- do you know how that  
18 would affect the model runs, if you were to do them  
19 again today?

20 A. I would expect that the -- the supplemental  
21 water use -- supplemental groundwater use in the  
22 Triangle would likely be higher than it was in 2002,  
23 because for those users that do have surface water  
24 supplies, they will likely run out of surface water  
25 earlier in the season and -- or a lot of them will,

1 except for maybe the very most senior ones will run out  
2 of water earlier in the season, which would mean  
3 they'll pump more groundwater than they did in 2002,  
4 most likely.

5 Q. So you mentioned that you ran two different  
6 simulations.

7 What were they?

8 A. I did one simulation of curtailing  
9 groundwater pumping over the entire model domain, and a  
10 second one which simulated curtailment over a reduced  
11 area, which includes most of the model area south of  
12 Glendale Bridge.

13 Q. And why did you choose those two areas?

14 A. In the Director's request for staff  
15 memoranda, I was asked to do model simulations for the  
16 entire model domain and then to identify areas that had  
17 minimal predicted influence on Silver Creek, and run  
18 another model simulation that excluded those areas.

19 Q. And what did you learn from the curtailment  
20 runs of the first area?

21 A. So the curtailment runs of the first area,  
22 if we look at Attachment B of the staff memo, that  
23 summarizes the results of the simulations that I did.

24 And just to summarize with respect to  
25 Silver Creek, what I learned from the first simulation

1 is that there is a predicted significant increase in  
2 streamflow in Silver Creek at the Sportsman's Access  
3 gage if groundwater pumping is curtailed.

4 Q. And what did you learn from curtailment  
5 runs of the second area?

6 A. So the curtailment run of the second area  
7 also shows significant responses in increased  
8 streamflow in Silver Creek if groundwater pumping is  
9 curtailed, and shows that we could expect to realize  
10 about 99 percent of the benefit to increased streamflow  
11 in Silver Creek with that reduced area. So it shows  
12 that the areas that are in the model domain but outside  
13 of that reduced area that I ran in the second set of  
14 simulations is indeed minimal.

15 Q. So how did the results of your curtailment  
16 runs relate to the focus of this hearing?

17 A. Well, they give the predicted response at  
18 Silver Creek to curtailing pumping.

19 MS. CARTER: Thank you.

20 I move to admit IDWR Exhibit 2 into the  
21 record?

22 THE HEARING OFFICER: Mr. Rigby?

23 MR. RIGBY: No objection, your Honor.

24 THE HEARING OFFICER: Mr. Fletcher?

25 MR. FLETCHER: No.

1 THE HEARING OFFICER: Mr. Barker or Thompson?

2 MR. BARKER: No objection.

3 MR. THOMPSON: No objection.

4 THE HEARING OFFICER: Mr. Laski?

5 MR. LASKI: No objection.

6 THE HEARING OFFICER: Okay. And then group  
7 three, Mr. Bromley or Lawrence?

8 MR. BROMLEY: No objection.

9 THE HEARING OFFICER: Mr. Simpson?

10 MR. SIMPSON: None.

11 THE HEARING OFFICER: And, Mr. O'Bannon, is that  
12 correct? No objection.

13 Okay. Have I asked everybody now?

14 The document marked as IDWR Exhibit 2 is  
15 received into evidence.

16 (IDWR Exhibit 2 received.)

17 MS. CARTER: And that is all the questions I  
18 have for the witness, your Honor.

19 THE HEARING OFFICER: Okay. Thank you,  
20 Ms. Carter.

21 Mr. Rigby or Mr. Fletcher.

22

23 DIRECT EXAMINATION

24 BY MR. RIGBY:

25 Q. Good morning, Ms. Sukow. Jerry Rigby for



1 the senior water -- surface water users known as the  
2 Big Wood/Little Wood Surface Water -- excuse me, Big  
3 Wood/Little Wood Water Users Association. It's a long  
4 name.

5 Let me start first of all on -- asking  
6 concerning the years that were modeled and used. You  
7 indicated that in fact in your 2019 curtailment study  
8 you addressed using the year 2007, and in 2021 you've  
9 indicated 2002. And then Mr. Vincent just a moment ago  
10 or a few minutes ago indicated 2004.

11 Is there any -- as a result of the  
12 Exhibit No. 5, IDWR's Exhibit No. 5 that addresses the  
13 current -- if you can look at that, the current  
14 prediction.

15 I guess what I'm asking is, what year would  
16 you, if you were modeling it now, what year would you  
17 use?

18 A. Well, so out of the years that are closest  
19 to the 50 percent exceedance now, you know, the  
20 model -- the model simulation doesn't start -- the  
21 model dataset doesn't start until January 1, 1995. So  
22 we don't have 1992 or 1994 available to use as baseline  
23 years. Based on looking at this now, I would probably  
24 use 2001 or 2007.

25 Q. And why?

1           A.     Just because they're closer to the  
2     50 percent exceedance forecast.

3           Q.     In your report -- obviously you indicated  
4     the -- especially in the 2021 report, page 4,  
5     paragraph 1, you address that during years of low water  
6     supply there's a combination of factors. And obviously  
7     some of those factors are precipitation itself. But I  
8     want to obviously address the aquifer discharge to the  
9     streams issue.

10                   And I guess my question on that one is, you  
11     indicated a few moments ago that this year, being a  
12     drought year, that another factor that's added to and  
13     exacerbated it is the additional pumping that's going  
14     on.

15                   Why is that?

16           A.     Because a number of -- in the Triangle, a  
17     large percentage of the irrigated area is mixed-source.  
18     So they have both surface water and groundwater  
19     supplies available to them to irrigate. A lot of those  
20     are conditioned as supplemental, and they should be  
21     using the surface water first if it's available. But  
22     once the surface water runs out, they would  
23     understandably turn to their groundwater and --  
24     earlier, and then would likely pump more during the  
25     irrigation season.

1 Q. And according to your modeling, would that  
2 also then reduce the flows in the Silver Creek and  
3 Little Wood Stream?

4 A. Yes, the additional groundwater pumping  
5 would reduce aquifer head, and that would in turn  
6 reduce discharge to Silver Creek and its tributaries.

7 Q. As to your report in 2021, page 16,  
8 Figure 14, if you could turn to that, please. It's  
9 titled "Volume of curtailed consumptive use simulated  
10 in Sukow (2019)."

11 A. Yes. And that is the one that's corrected  
12 in the schedule.

13 Q. Understood.

14 A. Okay.

15 Q. Were the values represented in this figure  
16 used as the basis for your 2021 analysis of the '21  
17 Basin 37 administrative proceeding?

18 A. I used 2002 as a baseline year, so the 2002  
19 curtailed consumptive use that's shown in corrected  
20 Figure 14 was used, except that I should note that this  
21 is an annual volume that includes April through  
22 October, and we only looked at -- you know, the  
23 curtailment runs done in the -- done for this analysis  
24 started May 1, June 1, July 1, August 1. So the  
25 volumes are lower than the ones that started in April 1

1 in Figure 14, or corrected Figure 14.

2 Q. So I'm just trying to determine generally  
3 how these values were established.

4 Is your explanation part of what you just  
5 gave?

6 A. How which values were established?

7 Q. The values represented in that figure, in  
8 Figure 14?

9 A. These values in Figure 14 were established  
10 in the model simulations done for the two -- my 2019  
11 curtailment scenario report.

12 Q. So the value for Figure 14 for 2002 appears  
13 to be approximately 45,000 acre-feet for the entire  
14 domain.

15 Would you agree that that still is  
16 applicable?

17 A. Well, that's -- that's the original  
18 Figure 14, which includes the exempt domestic. So it's  
19 lower in the corrected Figure 14. It's, I believe,  
20 closer to 40,000 acre-feet.

21 Q. So it's gone down?

22 A. Well, again, the Figure 14 in the original  
23 memo was -- I put the wrong graph in there. That graph  
24 includes -- it says its "Volume of curtailed  
25 consumptive use," but I put the wrong graph in. And

1 that includes consumptive use by exempt domestic water  
2 users and some groundwater use that's already mitigated  
3 by nonuse of surface water and already managed in  
4 priority with the surface water.

5 So the corrected Figure 14 is the actual  
6 volume of curtailed consumptive use that was simulated  
7 in 2019 and would have been simulated on a monthly  
8 basis in this simulation, because I also did not -- I  
9 also did not include the exempt domestic or things that  
10 were already managed in priority.

11 Q. As a result of any current further drought,  
12 would that impact that further?

13 A. Well, again, if surface water supplies are  
14 lower this summer than they were in 2002, which it  
15 looks like they're going to be, you could arguably  
16 expect more consumptive use of groundwater if pumping  
17 continues throughout the irrigation season.

18 Q. And therefore, wouldn't you agree that the  
19 groundwater pumping in the potential area of  
20 curtailment does reduce streamflow discharge in the  
21 Little Wood/Silver Creek drainage, even though your  
22 numbers may have been modified?

23 A. Yes, I agree, whatever -- whatever volume  
24 of groundwater pumping there is in a given year will  
25 reduce the streamflow, yeah, to some extent.

1 Q. And according to your curtailment -- and  
2 you testified a curtailment would significantly  
3 increase -- I think your term was significantly  
4 increase the volume or the flow?

5 A. In Silver Creek, yes.

6 Q. In Silver Creek, sorry.

7 Back to your memo on page 22, last  
8 sentence. This sentence seems to imply that the  
9 consumptive use in the area of curtailment to the area  
10 south of the Glendale Bridge represents 70 percent of  
11 the consumptive use for the entire domain.

12 Can you explain that, or do you agree with  
13 that, continue to agree to that?

14 A. Yes. Can you tell me where you're --

15 Q. I'm on page --

16 A. Oh, bottom of the page.

17 Q. Sorry. Last sentence, page 22.

18 A. Yes. So of the consumptive use, the  
19 groundwater water use that we estimated with the  
20 model -- and this is just from looking at the volume  
21 curtailed in Attachment B for the two different runs,  
22 so the volume curtailed in the area south of Glendale  
23 Bridge is 70 percent of the volume curtailed in the  
24 model runs that I did for the entire model domain.

25 Q. So if it's 70 percent -- and of course, I

1 was doing the math for 45,000. 70 percent of 45,000  
2 would equate to about 31,500, and of course that would  
3 be lower if you go with the 40,000 as opposed to the  
4 45. However, the lower table on B1 of your 2021 staff  
5 memo shows a curtailed consumptive use volume of 22,611  
6 for May 1.

7 And so I'm trying to reconcile at that time  
8 what would have been the 8,000 almost 9,000 acre-foot  
9 difference.

10 A. And the difference, again, is that the  
11 tables in Attachment B for the May 1 run show the  
12 volume that was curtailed from May 1 to September 30th.  
13 The volumes shown in corrected Figure 14 is a volume  
14 curtailed from April 1 to October 31st. So it's a  
15 longer time period. And they had a -- there are some  
16 groundwater users that don't have any surface water  
17 that, you know, all their irrigation pumping is from  
18 groundwater.

19 So there is -- if there is any irrigation  
20 need in April or October, they -- they would be pumping  
21 groundwater during that time. So it's just -- the  
22 difference is just the time frame. There's more months  
23 included in Figure 14 than in Attachment B.

24 Q. Okay. So in your mind, then, there is no  
25 inconsistency there, it's just, as your explanation,

1 it's a different time frame, as opposed to -- with the  
2 two?

3 A. That's correct.

4 Q. Okay. Referring again to the Sukow staff  
5 memo, page B-3 and B-4.

6 Would you agree that if the curtailed  
7 consumptive use volume for your analysis for 2021  
8 Basin 37 administrative proceeding were higher than  
9 22,611 -- and of course, that's the number that has now  
10 been modified -- then your predicted responses for  
11 Silver Creek would be proportionally higher? So in  
12 other words, take the number, your new adjusted number,  
13 and say that -- I mean would it be proportionally  
14 higher, regardless of your concluding number?

15 A. If the -- if the volume of consumptive use  
16 of groundwater is higher than what was estimated in  
17 this model run, then the response at Silver Creek would  
18 be higher than the response predicted by this model  
19 run, yes.

20 Q. And response in what way? Higher or lower  
21 in volume? Excuse me. In stream.

22 A. If the -- if the consumptive use were  
23 higher, then the predicted response to curtailing that  
24 consumptive use would also be higher.

25 Q. Very good. Thank you.



1           In establishing the volume for consumptive  
2 use for the analysis for 2021 Basin 37 administrative  
3 proceeding, did you consider the volume of historic  
4 withdrawals for the 2021 irrigation season, historic  
5 withdrawals, the volume of historic withdrawals?

6           A.    I don't understand that question.

7           Q.    I guess let me just ask you, then, what  
8 kind of -- what did you use as your source to determine  
9 the consumptive use?

10          A.    Consumptive use is -- in the model  
11 consumptive use was calculated from irrigation demand,  
12 which was calculated from evapotranspiration and  
13 precipitation data, irrigated lands delineations, what  
14 water rights show about water source; if the water  
15 source was only groundwater, then the calculation's  
16 pretty simple. If the water source is only surface  
17 water, then obviously there's no groundwater  
18 consumptive use.

19                If there's mixed-source, then we had to  
20 take into account surface water availability. And we  
21 used Water District diversion records for the various  
22 canal service areas to determine how much surface water  
23 was available, and then we had to make estimates of  
24 canal seepage and the irrigation efficiency for the  
25 surface water. And then we would have a residual

1 irrigation demand that was left over that needed to be  
2 provided from the groundwater.

3 Now, in some cases we did have some  
4 groundwater pumping data, but for most of the Triangle  
5 for most of the model calibration period we had very  
6 little groundwater pumping data.

7 Q. Since the creation of this model, have you  
8 seen anything that would argue to you or imply that  
9 perhaps your percentage of consumptive use is either  
10 too high or too low?

11 A. I think it's a little bit difficult to  
12 compare because the years that had reasonably --  
13 appeared to have reasonably complete pumping data since  
14 the Water District started comparing pumping are 2016  
15 through -- well, during the Advisory Committee I looked  
16 at 2016 through 2019, and those compared reasonably  
17 well to our consumptive use estimates, with the  
18 exception of 2012 through 2014, which did appear to  
19 look a little bit high compared to those pumping data.  
20 But at the same time those pumping data, I believe, are  
21 from -- are not from the drier end of the years that  
22 we're looking at, you know, so they may not -- the  
23 pumping data that we've seen so far may not be that  
24 comparable to what we're looking at for this year.

25 Q. I believe that you've testified that --

1 well, let me ask you this.

2 In your analysis of 2021 Basin 37  
3 administrative proceeding in determining that  
4 consumptive use, did you consider the volume historical  
5 withdrawals for 2020 irrigation season?

6 A. No.

7 Q. Okay. And why?

8 A. I don't -- I didn't have that data, and  
9 also I don't have -- in order to do the model  
10 simulation, I need to go back to a year where we've  
11 developed the entire dataset, because we don't use this  
12 model in what we call superposition mode, which means  
13 we have to have data for all the other recharge  
14 components for this -- for a given time period to be  
15 able to run that model. So that's why we're running it  
16 with a baseline year that was included in the model  
17 simulation period is because we have the entire dataset  
18 for everything that's going on in the aquifer for that  
19 year. We don't have that for 2020.

20 Q. Can you describe how you calculated return  
21 flows, how they're -- excuse me, how they're calculated  
22 within the model itself, if you know?

23 A. Maybe you should define for me what you  
24 mean by "return flow," because that means different  
25 things to different people.

1 Q. Well, within the model is return flows  
2 determined or a calculation that's entered into the  
3 model itself?

4 A. Are we talking about a return flow to the  
5 stream or a return flow to the aquifer?

6 Q. Return flow to the stream. I apologize.

7 A. A return flow to the stream. Where we had  
8 known return flows to the stream, they are accounted  
9 for in the calculation of aquifer recharge and  
10 discharge. The return flows that we have records of  
11 are wastewater treatment plant discharge to the river,  
12 the fish hatcheries discharge to the creek. I think  
13 there may have been a couple others, but there aren't  
14 very many known return flows to the streams.

15 Q. So same question, then, as to the aquifer,  
16 which obviously the issue then becomes when it gets  
17 into the stream.

18 A. Well, but what some people call return flow  
19 to the aquifer is what I call the net aquifer recharge,  
20 so --

21 Q. Understood.

22 A. -- we're calculating that from the same --  
23 all the same data we used to calculate the pumping  
24 withdrawals, you know, we're also using those surface  
25 water diversions, the ET, the precipitation, all that

1 data to calculate recharge to the aquifer.

2 Q. And again, that -- how is it being  
3 computed? Just by those particular items that you've  
4 addressed?

5 A. How is what being computed?

6 Q. The recharge to the aquifer.

7 A. So recharge to the aquifer is computed  
8 by -- well, there's natural recharge from tributary  
9 underflow; we had a method for computing that. There's  
10 infiltration of precipitation; we had a method for  
11 computing that. There's the canal seepage and  
12 incidental recharge from surface water; there's a  
13 method of computing that.

14 There is -- because it's a three-layer  
15 model, we do -- we do model pumping and then model  
16 some -- some portion of that is recharge to the  
17 aquifer, and then the remaining portion is the  
18 consumptive use we look at here.

19 And we have wetlands discharge -- wetland  
20 and riparian area discharge that is calculated again  
21 from ET precipitation data, so...

22 Q. Very good. Again, your Sukow staff memo  
23 2021, page 17, paragraph 2. This paragraph indicates  
24 that the effects of the curtailment were simulated with  
25 the model for a period of approximately 12 years.

1           Do you have those 12 years? Were they  
2 consecutive? Were they -- what 12 years were used?

3           A. So the years I had the dataset for. So we  
4 started in 2002. The dataset for the model goes  
5 through the end of December 2014, so that's the  
6 approximately 12 years that I'm talking about.

7           MR. RIGBY: Very good.

8           I believe -- I think that's all the  
9 questions I have. Oh, wait a minute. No. That's  
10 good. Thanks.

11          MR. FLETCHER: I don't have any questions.

12          THE HEARING OFFICER: No questions,  
13 Mr. Fletcher?

14                 All right. Mr. Barker or Mr. Thompson?

15          MR. BARKER: Thank you, Mr. Director.

16

17                         CROSS-EXAMINATION

18          BY MR. BARKER:

19                 Q. Albert Barker on behalf of the South Valley  
20 Ground Water District.

21                         Okay if I call you "Jennifer"?

22                 A. It's okay.

23                 Q. Okay. Jennifer, when you were -- received  
24 your assignment in this project, was one of your  
25 assignments to determine what the average annual rate

1 of recharge of the aquifer was?

2 A. No.

3 Q. So nothing in what you did here today is a  
4 determination of whether or not pumping in the Triangle  
5 exceeds the average annual rate of recharge?

6 A. No.

7 Q. And the water supply for the Triangle, I  
8 think you mentioned primary water supply -- sorry,  
9 water supply for Silver Creek, you said the primary  
10 water supply was from the Wood River Aquifer; is that  
11 right?

12 A. Yes.

13 Q. So what's the water supply for the Wood  
14 River Aquifer?

15 A. Well, ultimately snowpack in the Wood River  
16 Basin.

17 Q. Okay. So how does the snowpack in the Wood  
18 River Basin get into the aquifer under the Triangle?

19 A. There is underflow from the aquifer north  
20 of the Triangle which comes from tributary underflow  
21 and --

22 Q. So can I just stop you right there.

23 Is that something that's measured in the  
24 model?

25 A. It's something that's computed in the

1 model.

2 Q. Sorry. Computed. All right. And is there  
3 a percentage of contribution to that -- of that  
4 tributary underflow to the Triangle aquifer?

5 A. I have not -- I have not calculated that in  
6 the model.

7 Q. Okay.

8 A. Or extracted that data from the model.

9 Q. Okay. And so what other sources of water,  
10 then, are there for the aquifer in the Triangle?

11 A. There is seepage of streamflow from the Big  
12 Wood River, there is incidental recharge associated  
13 with surface water diversions from the Big Wood River  
14 to the Triangle, and there is direct infiltration of  
15 snowmelt and precipitation.

16 Q. Okay. And is canal seepage part of the  
17 source of water supply for the groundwater in the  
18 Triangle?

19 A. Yes, that would be part of what I'm calling  
20 the incidental recharge associated with the surface  
21 water diversions.

22 Q. And we talked about this, I think earlier  
23 in your deposition, but is there a calculation of how  
24 much water gets into the Wood River Aquifer from canal  
25 seepage in the Triangle?



1 A. I'm sorry. Can you ask that again?

2 Q. Is there a calculation for output of the  
3 model that will tell you how much water supply to the  
4 aquifer there is from canal seepage in the Triangle?

5 A. So there is a calculation for each stress  
6 period in the model of how much of the surface water  
7 diverted is -- is put into the -- yes, put into aquifer  
8 recharge as canal seepage.

9 Q. And you said "stress period"; is that the  
10 word you used --

11 A. Yes.

12 Q. -- the phrase you used?

13 A. Yes.

14 Q. Okay. What does that mean?

15 A. A stress period is just a time period in  
16 the model. In the case of the Wood River Valley Model,  
17 it's a month.

18 Q. And do you know today what those -- what  
19 that contribution is?

20 A. It's in the data files, but I have not  
21 extracted that or summarized it.

22 Q. So there was a little bit of a conversation  
23 that you had with Mr. Rigby about assuming that there  
24 would be additional pumping in the Triangle in 2021  
25 compared to your model run year of 2020; right?

1 A. I did not do a model run of 2020.

2 Q. I'm sorry. 2000 -- I am sorry. I had my  
3 numbers transposed there. I'm a little dyslexic.

4 A. Yes.

5 Q. 2002, not 2020.

6 A. Yes.

7 Q. Okay. And so you said it might be  
8 something you could assume that there would be more  
9 pumping this year because the surface water wouldn't be  
10 on as long; is that right?

11 A. Yes.

12 Q. Do you know if pumping is taking place  
13 right now?

14 A. I do not.

15 Q. Do you have any understanding of what that  
16 additional amount of pumping might be?

17 A. For the -- if we go back to look at 2002  
18 where we have the ET data and -- and the -- we could go  
19 back at that and look and say, well, if they ran out of  
20 surface water earlier to meet that same routine, they  
21 would need X amount of additional pumping.

22 Q. And that's not something that you've done?

23 A. That is not something that I did.

24 Q. And so I'm going to use the word  
25 "speculate."

1           But you're just speculating that there may  
2 be more pumping this year than there was in 2002?

3           A.    Yes.  I mean there -- they could -- they  
4 could voluntarily choose to reduce their ET and then  
5 not have additional pumping.  I mean that could happen.

6           Q.    So do you know what changes have been made  
7 in irrigation practices in the Triangle between 2002  
8 and 2021?

9           A.    No.

10          Q.    And so have there been some that could have  
11 changed the amount of pumping that would be extracted  
12 in 2021 compared to 2002?

13          A.    Well, if they increased their efficiency,  
14 that might change the amount of pumping, but it would  
15 not reduce the amount of consumptive use.  So the  
16 impact would therefore be the same.

17          Q.    Okay.  So what consumptive use did you  
18 presume in 2002?

19          A.    The consumptive use was calculated from the  
20 actual METRIC evapotranspiration data and precipitation  
21 data.

22          Q.    And that was -- you used an 85 percent  
23 efficiency?

24          A.    No.  The 85 percent efficiency was not used  
25 in the model simulations.

1 Q. Okay. So is there a figure that could be  
2 back-calculated or that has been back-calculated to  
3 show what the efficiency was in 2002?

4 A. The only efficiency that's used is the  
5 surface water efficiency that was used to calculate the  
6 groundwater demand. And then the irrigate -- the  
7 irrigation efficiency for that, each entity, was also  
8 applied to the groundwater.

9 Q. Okay. And so what's an irrigation entity  
10 in the model?

11 A. It's an area over which diversions and  
12 consumptive use are aggravated.

13 Q. And is it -- for example, there's a  
14 District 45, Wood River Valley Irrigation District 45  
15 irrigation district, is there a consumptive use  
16 characterized over -- or sorry, used for that entire  
17 irrigation district?

18 A. So if -- yes. For areas that have one  
19 diversion heading that serves an entire area, we only  
20 have the data for what they divert from the river, so  
21 we have to aggregate over that area.

22 Q. And do you know what the surface  
23 efficiencies were calculated at for the Wood River  
24 Valley Irrigation District 45?

25 A. Not off the top of my head, no.

1 Q. Do you know what the surface-water  
2 irrigation efficiencies were generally in the model?

3 A. They generally ranged from -- the  
4 calibration bounds were 50 percent to 90 percent, I  
5 believe.

6 Q. All right. And based upon what factors  
7 were they calibrated to those different percentages?

8 A. They're -- the calibration can come up with  
9 any number in that allowable range, and it's trying to  
10 make a best fit to all of the observations that it's  
11 trying to match. So those would be aquifer head and  
12 reach gains in the streams.

13 Q. Okay. So I'm sorry, I may have lost you.  
14 I thought you were calculating efficiencies for the  
15 surface water deliveries.

16 A. Yes.

17 Q. So what does aquifer head have to do with  
18 the efficiencies of the surface water deliveries?

19 A. So the efficiency of the surface water  
20 deliveries is used to calculate the infiltration of --  
21 the infiltration of the recharge of excess surface  
22 water delivered to irrigation fields, and it's used to  
23 calculate the groundwater demand and the pumping. So  
24 what the model sees are those aquifer stresses that we  
25 calculate from that surface water efficiency. It

1 applies those stresses within the model, and then tries  
2 to match, as best it can, the aquifer head observations  
3 and the stream reach gain observations.

4 And it's doing -- during calibration doing  
5 an iterative process, and it goes back, and trial and  
6 error adjusts that range of efficiency and determines  
7 whether or not it has an effect. And if it does, it  
8 will adjust it accordingly.

9 Q. And so this model calibration you're  
10 talking about, that is -- that was done with data  
11 between 2010 and 2014; right?

12 A. No, that's not correct.

13 Q. The update for 1.1 wasn't done?

14 A. 1.1 included data from January of 1995  
15 through December of 2014.

16 Q. Okay. And the initial model stopped at  
17 2010?

18 A. Correct.

19 Q. So 1.1 added information between 2010 and  
20 2014?

21 A. That's correct.

22 Q. And it's true that there's no significant  
23 information in this model calibration about the amount  
24 of pumping that took place in the Triangle between  
25 2000 -- or between 1995 and 2014, no actual data?

1           A.    Well, I wouldn't say there's no  
2 information. I mean there's -- there's some measured  
3 data, first off. We did have measured data for about,  
4 over the entire model domain, I think about 20 percent  
5 of the groundwater diversions.

6           Q.    I'm talking about the diversions in the  
7 Triangle.

8           A.    And in the Triangle we have measured  
9 diversions for some of the wells as well.

10          Q.    You have very few measured diversions for  
11 wells in the Triangle in the model calibration?

12          A.    That -- yes, but I wouldn't say there's no  
13 information.

14          Q.    I didn't say --

15          A.    We have the information from the  
16 evapotranspiration and precipitation. We know there  
17 was irrigation demand. We know there's some limit on  
18 the surface water supply. So there is some  
19 information.

20          Q.    I don't think I said "no information." I  
21 said there's no measured pumping levels, pumping from  
22 the pumps in the Triangle, with the exception of a very  
23 small number of wells for that entire model calibration  
24 period?

25          A.    With the exception of the exchange wells

1 and a few others, there are not measured -- there are  
2 not measured pumping volumes for most of the  
3 calibration.

4 Q. And those exchange wells and a few others,  
5 what's the total amount of volume of pumping that you  
6 have for those?

7 A. I -- I'm not sure off the top of my head.  
8 Some of the exchange wells are fairly large, so it's  
9 not --

10 Q. But compared to the overall amount of  
11 pumping in the Triangle.

12 A. It's relatively small.

13 Q. Thank you.

14 So do you have water-level readings, actual  
15 water-level readings from groundwater levels in the  
16 Triangle that is included in the model calibration?

17 A. Yes.

18 Q. Okay. Where did you get those?

19 A. Some of them are from U.S. Geological  
20 Survey, some of them were measured by IDWR staff, some  
21 were measured by the Nature Conservancy.

22 And sorry, did you just ask in the  
23 Triangle?

24 Q. In the Triangle.

25 A. Yeah.



1 Q. Yeah. So in the Triangle isn't it the case  
2 that you -- that the modelers would like to see  
3 significantly more water-level data in order to confirm  
4 the model?

5 A. That was the case as of the 2010  
6 calibration. But one of the purposes of doing the  
7 recalibration that's in version 1.1 was to include data  
8 collected between 2011 and 2014, which did include a  
9 significant expansion of the IDWR water-level  
10 monitoring network.

11 Q. So but isn't it true that one of the  
12 recommendations of the 1.1 model run was to increase  
13 the amount of information for water-level data and  
14 pumping data in the Triangle?

15 A. I believe the recommendation was to  
16 continue the level of monitoring that had been -- the  
17 increased level of monitoring that had been expanded  
18 prior to the calibration of 1.1.

19 Q. Okay. And that would be in the model  
20 report?

21 A. Yes.

22 Q. And as we discussed before, I think the  
23 model report recognized that there were significant  
24 data gaps in the information available in the Triangle?

25 A. I believe we discussed that was the wording

1 Allan used in his report and that I disagree with that  
2 characterization.

3 Q. You disagree with that characterization?

4 A. [No audible response.]

5 Q. Today?

6 A. I think I disagreed with it in my  
7 deposition as well.

8 Q. Did you disagree with Allan at the time he  
9 wrote his report in 2019?

10 A. I don't recall that I focused very much on  
11 his wording. I agree with the recommendations to  
12 continue that monitoring, and we have been continuing  
13 that monitoring.

14 Q. So the answer is no, you did not tell Allan  
15 Wylie that there were not significant data gaps in the  
16 1.1 model?

17 A. I honestly don't recall. That was a couple  
18 years ago.

19 Q. Okay. And there's nothing in his report  
20 that suggests that you did tell him that; right?

21 A. No.

22 Q. And on page 2 of your memo, staff report --  
23 you got that? You say here that "Wylie" -- in the  
24 second full paragraph about two-thirds of the way down,  
25 "Wylie concluded there had been a long-term groundwater

1 level decline since '68 but water-level trends appear  
2 to be stabilized since the formation of the BWRGWMA in  
3 1991."

4 So would you agree that, that the  
5 water-level trends have stabilized since 1991?

6 A. I agree that the overall trend has  
7 stabilized since 1991.

8 Q. Okay. And that is because of what? To  
9 what do you attribute that stabilization?

10 A. One possibility is that it's because the  
11 groundwater management area formation basically put a  
12 stop to approval of new groundwater uses for  
13 consumptive use. So groundwater pumping has continued  
14 but at a similar level averaged year over year. I mean  
15 we expect that it's higher in low water supply years  
16 and less in good water supply years for the surface  
17 water. But overall it averages out to be about the  
18 same, whereas prior to 1991 consumptive use of  
19 groundwater would have been -- or was, you know,  
20 increasing as new water rights continued to be  
21 approved.

22 Q. And as water rights -- new water rights  
23 stopped being approved, except -- well, let me back up  
24 a step.

25 Is it true that there is no new water

1 rights for groundwater since 1991?

2 A. My understanding is that there should not  
3 be new consumptive use of groundwater. So there might  
4 be new water rights for nonconsumptive uses or new  
5 water rights if they are mitigated somehow.

6 Q. Okay. So how does -- how do you know as a  
7 modeler whether those new rights have been mitigated?

8 A. Well, that's a -- that's a water right  
9 condition.

10 Q. It doesn't factor into your calculation --  
11 your running of the model, whether or not those new  
12 rights are adequately mitigated or not?

13 A. I don't think that's really -- I mean it --  
14 in the model it would be -- it would be reflected in  
15 the recorded surface water diversions that we use in  
16 the model. But I don't need to know about it directly,  
17 because I'm using the diversion -- surface water  
18 diversion data.

19 Q. And I think you said that some -- when we  
20 talked last at your deposition, you didn't know whether  
21 or not the source of the mitigation water was from Big  
22 Wood or from Silver Creek for these new wells?

23 A. I -- I'm not sure. I'd have to go back and  
24 look at the data.

25 Q. And so to the extent that there was

1 mitigation from the Big Wood River, that would -- what  
2 effect would that have on the groundwater in the  
3 Triangle, if you mitigated from a right -- for a right  
4 by using surface water out of -- or by not using  
5 surface water in the Big Wood and pumping out of the  
6 ground, what effect would that have on the groundwater?

7 A. Well, I mean the idea with water rights  
8 that are able to be mitigated that way is that the well  
9 is so close to the river that its -- its -- that its  
10 depletions are actually coming directly from the river  
11 within a short period of time.

12 Q. And --

13 A. And so really in the scheme of the -- you  
14 know, the regional aquifer, there's not -- there  
15 shouldn't be an impact on the aquifer, basically.

16 Q. And you didn't analyze the wells with  
17 mitigation to determine if that was in fact the case?

18 A. I did not personally do that, no.

19 Q. On page 4 of your staff report you discuss  
20 these four wells that you use to compare groundwater  
21 trends with Silver Creek trends.

22 And I think you identified that there were  
23 two of them that were of primary interest to you in  
24 trying to determine that correlation; right?

25 A. I -- I determined there were two of them

1 that had sufficient records of measurement between 1995  
2 and 2014, which is the same time period we have the  
3 reach gains calculated for the model dataset.

4 Q. So there's only four wells in the entire  
5 Triangle that have data that goes back to 1995?

6 A. Well, there may be some others that have a  
7 small number of data points that -- that go back that  
8 far. I'm not sure.

9 Q. And then of the four, you discarded two of  
10 them, the Stalker Creek and the Picabo wells, because  
11 there was insufficient data between '95 and 2012, it  
12 looks like; right?

13 A. Well, I didn't do the correlation with  
14 them.

15 Q. And you didn't do the correlation with them  
16 because?

17 A. Because there's not a -- I didn't think  
18 there were enough records of measurement during the  
19 same time period as I had in the Silver Creek reach  
20 gain.

21 Q. Okay. And then you did a correlation  
22 between groundwater levels in those two wells.

23 If I look at Silver Creek on Figure 9 on  
24 page 9, that's your R-squared values --

25 A. Yes.

1 Q. -- right?

2 And so explain to me what the R-squared  
3 value of .64 for this -- which well is the one in  
4 purple. Is that the Stalker Creek well? No, that's  
5 the Baseline well, right, the unconfined aquifer well?

6 A. It's the -- yeah, that's the Baseline well.

7 Q. Okay. And then the other well, that's over  
8 by Willow Creek?

9 A. The other well is the Heart Rock Ranch  
10 well.

11 Q. Okay. I want to ask this question now, and  
12 I'm going to follow up with this other topic a little  
13 later, but did you have do a response function analysis  
14 on the Heart Rock Ranch well?

15 A. Yes, I did response functions for all of  
16 the model cells that had irrigation PODs in them. I  
17 did points of diversions in them.

18 Q. Okay. Do you remember what the response  
19 function was for the Heart Rock Ranch well?

20 A. I believe it was, for the confined aquifer  
21 represented by layer three, I believe it was between 20  
22 and 30 percent, somewhere in there.

23 Q. 20 and 30 percent?

24 A. Yeah. And that's the amount that accrues  
25 to Silver Creek between May 1 and September 30th. So

1 there would be additional water that would accrue to  
2 Silver Creek later in time.

3 Q. So Mr. Vincent testified today that the  
4 streamflows response function were at .8 between the  
5 Hailey gage readings and the Silver Creek readings at  
6 Sportsman's.

7 And that's a higher confidence level or a  
8 higher correlation than what you've got in these two  
9 well numbers; right?

10 A. Well, Sean didn't testify about response  
11 functions.

12 Q. I'm not asking you about response  
13 functions.

14 A. I thought you said "response functions."  
15 Sorry.

16 Q. I'm asking you about the R-squared values.  
17 He said that he did a correlation between the flows at  
18 Hailey --

19 A. Right.

20 Q. -- and the discharge at Silver Creek.

21 A. Yes.

22 Q. And you did the same thing. You did an  
23 R-squared value between the depth to water in these two  
24 wells?

25 A. Yes.



1 Q. He found a higher correlation between the  
2 flows at Hailey than you found in these two wells;  
3 right?

4 A. That may be true.

5 Q. And is there a reason for that?

6 A. Well --

7 Q. If -- go ahead.

8 A. Discharge in Silver Creek is related to  
9 aquifer water levels. It's also related to the  
10 discharge in Hailey. It's all related.

11 Q. And did you do -- attempt a correlation  
12 between the deliveries at the 45 or the Baseline canals  
13 and the flows at Silver Creek?

14 A. There are a number of irrigation diversions  
15 in the Triangle. There's no reason I would have  
16 focused on one particular diversion, so no.

17 Q. No. Even though the 45 is by far the  
18 largest in the Triangle?

19 A. Well, it's represented in the -- the  
20 diversions in the District 45 and all of the other  
21 surface water diversions are represented in the model.  
22 So in the model you're incorporating all of that data,  
23 not just the District 45. So there's no reason to look  
24 at District 45 in the model.

25 Q. So is it true that the groundwater levels

1 that you've got from these two wells are represented in  
2 the model?

3 A. Yes, they are.

4 Q. Okay. So it's important to represent  
5 those -- that correlation here, but not the other  
6 correlations that I just discussed, the 45 deliveries  
7 and the Hailey gage deliveries?

8 A. That was the decision I made when I wrote  
9 the memo, yes.

10 Q. And you decided not to include other  
11 correlations but just these groundwater levels?

12 A. I did not consider doing any other  
13 correlations.

14 Q. So turn over to page 15 of your report.  
15 And you addressed this a little bit with Ms. Carter  
16 earlier in your testimony, at the beginning of your  
17 testimony, about how there's uncertainty in all  
18 groundwater model predictions. And you said here in  
19 your memo that you have predictive uncertainty of .054  
20 [sic] to plus or minus 22 percent in the target reach.

21 So the .54 percent uncertainty represents  
22 what kind of information?

23 A. I -- can you rephrase that? I'm not sure  
24 what you're asking.

25 Q. So what does .54 percent uncertainty mean

1 in respect --

2 A. It means that a 95 percent confidence --  
3 that the uncertainty analysis that Allan did indicates  
4 that a 95 percent confidence interval the prediction  
5 could be .54 percent higher or lower than the predicted  
6 value.

7 Q. Okay. And this prediction is at a  
8 location, your memo says, north of Hailey; right?

9 A. Yes.

10 Q. And you -- can you explain why that  
11 uncertainty at the area north of Hailey is less than a  
12 percent?

13 A. The predictive uncertainty at the location  
14 north of Hailey -- and the target reach there is the  
15 Big Wood River above Hailey is inherently lower to  
16 begin with because of the geometry of the aquifer and  
17 the -- it's a relatively narrow valley at that point.  
18 And the location of the cell we applied the stress in  
19 is fairly close to the river, and there aren't other  
20 outlets for the water very -- in close proximity to  
21 that -- the location we applied the stress.

22 Q. Okay. And then there are three locations  
23 in the Triangle south of Bellevue that were included in  
24 this uncertainty analysis?

25 A. That's correct.

1 Q. And you got between 15-and-a-half plus or  
2 minus to 22-and-a-half plus or minus uncertainty at  
3 those locations.

4 So the uncertainty percentages, they mean  
5 it's uncertain as to where the water goes, how long it  
6 takes to get there, and how much? Does uncertainty  
7 bring in all those factors?

8 A. Yes.

9 Q. Okay. And so it's higher in the area south  
10 of Bellevue.

11 Why is that?

12 A. Again, because of the geometry of the  
13 aquifer and the outlets for water storage, so the --  
14 the uncertainty based on that is higher to begin with  
15 than it is in the narrow valley to the north. So in  
16 other words, as Allan would put it, if you were doing  
17 an analytical solution, your analytical solution in the  
18 Triangle would have a much higher uncertainty than your  
19 analytical solution in the narrow valley to the north.

20 And even though doing the numerical model  
21 allows you to lower that uncertainty to something less  
22 than what you would have with an analytical solution,  
23 it still is, you know, likely going to be higher in the  
24 Triangle no matter how much data you're able to put  
25 into the model because of that geometry of the system.

1 Q. Is there something in your staff memo where  
2 you recommend how to deal with this uncertainty?

3 A. No.

4 Q. Does the Department have any guidelines on  
5 how it should deal with model uncertainty?

6 A. Not -- not specific guidelines. There have  
7 been previous -- previous administrative proceedings  
8 involving -- involving the ESPA model that have dealt  
9 with that subject.

10 Q. Yeah. I thought you said -- and maybe it's  
11 here in your memo. But I thought you said that as  
12 we -- that this uncertainty prediction for the location  
13 south of Bellevue was 22 percent, but it would be  
14 higher in -- in looking at the three-month time period  
15 you're looking at here in this curtailment run than it  
16 would be for the ten-month period that Allan Wylie ran  
17 it for his uncertainty analysis; is that right?

18 A. I said that it may be higher.

19 Q. And is there any way to -- for you to know  
20 how much higher?

21 A. We would have to do another uncertainty  
22 analysis specific to the prediction we're looking at  
23 here, and unfortunately that's -- it's not something  
24 we're able to do in the limited time frame that we have  
25 for this proceeding.

1 Q. So how long would it take you to do that  
2 uncertainty analysis for a shortened period of time,  
3 given the fact you've already got an uncertainty  
4 analysis for a ten-month period?

5 A. I -- I'm not sure.

6 Q. Is that something you could do?

7 A. If given enough time, yes.

8 Q. On page 16 of your memo, you're referring  
9 here to the curtailments in 2007 and 2012 simulation.

10 But that's for that curtailment over the  
11 entire model period from '99 to 2014?

12 A. I'm sorry. Can you ask that again?

13 Q. Yeah. That was a terrible question.

14 So the curtailment scenario you ran in 2019  
15 was for that entire model period of '99 to 2014?

16 A. I did three simulations --

17 Q. Okay.

18 A. -- in the 2019 report. That was one of  
19 them.

20 Q. Okay. And then the other two were what?

21 A. The effects of curtailing groundwater use  
22 for a single irrigation season during the water year of  
23 2007, and then also a single irrigation season during  
24 2012.

25 Q. Okay. And so what was the -- what was the

1 different outcomes of those three model simulations?

2 A. So the continuous curtailment simulation  
3 from 1995 through 2014 shows the effects of -- the  
4 cumulative effects of groundwater use year to year. So  
5 it shows, you know, if you curtail for one year, you  
6 have some -- some water still remaining in aquifer  
7 storage at the beginning of next irrigation season. So  
8 when you curtail the next irrigation season, you're  
9 building from a little bit higher baseline, and it  
10 creates a cumulative effect.

11 And looking at the 1995 to 2014, it shows  
12 you -- it gives you a prediction of what that  
13 cumulative effect is and how much impact that has.  
14 Looking at just a single year shows you what the  
15 response would be if you just, you know, start now and  
16 go forward for one year.

17 Q. And so if you have a 2017 water year,  
18 that's going to skew the analysis, because it's such a  
19 big water year, of the long-term effects?

20 A. Well, and that's another thing the 1995  
21 through 2014 simulation can help you look at. We don't  
22 have 2017 in that dataset, but we did have other very  
23 wet water years in that dataset.

24 So for example, on the SWSI 1995 had a June  
25 through September flow that was greater than 2017, and

1 that is in the model simulation. And then '97 -- 1997  
2 and 1998 and 2011, for example, are also wet years.  
3 And yes, you will have different -- different predicted  
4 impacts in those years than in the dry years.

5 Q. So when you did your task to compare  
6 curtailment runs in 20 -- sorry, curtailment runs for  
7 2021 in this proceeding, you chose 2002 as your  
8 comparable year; right?

9 A. That's what I used as a baseline year.

10 Q. Okay. And then what you found is you did  
11 curtailments for four different time steps, May 1,  
12 June 1, July 1, and August 1?

13 A. Four different starting dates for the  
14 curtailment, yes.

15 Q. Okay. And those time steps are done on a  
16 monthly basis; right?

17 A. Well --

18 Q. So let me ask the question better.

19 A. Okay.

20 Q. Or try to ask the question better.

21 So the model would give you an output as of  
22 the end of the month of May if you started on May 1?

23 A. Well, the model will give you whatever  
24 output you ask it for, but I like -- I collected the  
25 output at the end of the month.



1 Q. So when you run your model, it doesn't tell  
2 you -- let's just use the July 1 time date.

3 It's not going to tell you how much water  
4 will accrue to the stream on July 1 with a curtailment?

5 A. You could run it that way, but I would  
6 recommend against that because it was calibrated to  
7 monthly -- with monthly stress periods.

8 Q. So what your report tells us is that if you  
9 curtail on July 1 that this will be the cumulative  
10 effect over the course of the month --

11 A. Correct.

12 Q. -- right?

13 And not necessarily what happens as that --  
14 what kind of curve there is in terms of what additional  
15 flows accrue during what period of time?

16 A. That's correct.

17 Q. And so one of the things you found when you  
18 did the model runs was that there was a significant  
19 portion, two-thirds of the curtailed water, that stayed  
20 in the aquifer after October 1st; right?

21 A. That's correct.

22 Q. And that's with a -- if we're curtailing  
23 just in the Triangle, that's with a plus or minus  
24 22 percent -- well, plus or minus 22 percent, so it  
25 could be as much as 80 percent of the water would stay

1 in the aquifer on October 1; right?

2 A. Yeah. The volume remaining in the aquifer  
3 October 1 could be -- the uncertainty goes both ways.  
4 It could be more; it could be less.

5 Q. And I think you said that there's some kind  
6 of Department experience in how to deal with those  
7 efficiencies -- those predictive error -- or not  
8 predictive errors, but the predictive uncertainty?

9 A. I said -- I think I said there's been  
10 some -- may be some direction in previous proceedings.

11 Q. Do you know what that is?

12 A. That's kind of getting into the legal --  
13 maybe the legal burdens of proof, which is a bit out of  
14 my area.

15 Q. So the answer is you don't know what those  
16 guidance are?

17 A. I not -- I can't really speak to that, no.

18 Q. I think you said earlier in response to  
19 some questions from Ms. Carter that the aquifer  
20 uncertainty calculations in the ESPAM 2.2 were  
21 somewhere between minimal and 9 percent?

22 A. Yes, for a steady state or five-year  
23 analysis.

24 Q. And you think that -- for a steady-state  
25 analysis.

1           So what kind of model is this?

2           A.    This is a transient analysis.

3           Q.    Okay.  So do transient analyses tend to  
4 have higher uncertainty factors?

5           A.    Yes.  And in the -- in the ESPAM there were  
6 some steady-state and there were some transient  
7 analyses for a five-year time frame.  And the transient  
8 analyses had somewhat higher uncertainty than the  
9 steady-state analyses.

10          Q.    And so I thought you said that because the  
11 time period was longer in the ESPAM model compared to  
12 the ten-month period that Allan Wylie used it, those  
13 numbers were comparable, the 22 percent and the  
14 9 percent?

15          A.    I don't know if they're comparable.  But I  
16 was just saying that I thought 22 percent was -- was  
17 probably a reasonable expectation for a shorter time  
18 period.

19          Q.    Okay.  And then as we get even shorter into  
20 the three-month time period, that expectation of the  
21 uncertainty would go up?

22          A.    Probably.

23          Q.    And no one's asked you to make that  
24 determination of what that uncertainty would be for the  
25 time period that we're dealing with here?

1 A. No.

2 Q. So let's talk about the model, the  
3 boundaries for your area of simulated curtailment.  
4 First let's discuss the southwest around Willow Creek.  
5 We're looking at pages 22 and 23.

6 A. Yes.

7 Q. So tell me how you adjusted the model  
8 boundary in the southwest around Willow Creek? What  
9 did you do?

10 A. I used the modeled extent of the confined  
11 aquifer in that area.

12 Q. So anything in the unconfined aquifer was  
13 excluded, anything in the confined aquifer was  
14 included?

15 A. Yes.

16 Q. And you made that decision because what?

17 A. Because pumping in the unconfined aquifer  
18 in the Willow Creek drainage area does not have a  
19 significant impact on Silver Creek. Pumping in the  
20 unconfined aquifer in that area primarily impacts  
21 discharge to Willow Creek and the Wood River below the  
22 dry bed.

23 Q. Okay. And so is there a response function  
24 for the wells in this confined aquifer in the southwest  
25 corner that you looked at?

1 A. Yes.

2 Q. And what was that?

3 A. Again, I think it was in the range of 20 to  
4 30 percent.

5 Q. On your map you've got some -- a number of  
6 wells to the west of the dry bed below the boundary  
7 line?

8 A. Yes.

9 Q. Are those included in the curtailment area,  
10 or not?

11 A. In the area south of Glendale Bridge?

12 Q. Yes.

13 A. The ones to the left of the orange line are  
14 not included.

15 Q. The ones to the -- so there's -- I see  
16 one -- oh, there's a couple. All right. So those are  
17 not included.

18 Why are they not included?

19 A. Because the model does not extend the  
20 confined aquifer to that location.

21 Q. Okay. But if I am going up above the area  
22 where the model extent of the confined aquifer is,  
23 there's a dry beds area that's highlighted in yellow,  
24 there are -- I don't know -- a dozen or so well points  
25 or points of diversion that are located west of the dry

1 beds and outside the confined aquifer?

2 A. Yes.

3 Q. So are those in the area of potential  
4 curtailment?

5 A. Yes.

6 Q. Okay. So how did you decide to include  
7 those in the area of potential curtailment?

8 A. So again, I looked at and provided  
9 transient response functions for layer one of the model  
10 and layer three of the model for every location that  
11 had an irrigation point of diversion from groundwater.

12 And in the unconfined aquifer there are  
13 significant impacts to Silver Creek if you are --  
14 unless you are in the area that's basically contained  
15 within the Willow Creek drainage area in the Big Wood  
16 below the dry bed. So unless you're right in that  
17 area, there is a significant impact.

18 So it was based on that analysis of the  
19 response function that helped guide where the areas  
20 that -- that had a minimal impact on Silver Creek were.

21 Q. So did you select the response function  
22 that was -- you thought was enough for there to be a  
23 significant impact on Silver Creek?

24 A. Not explicitly.

25 Q. So how did you decide that these areas to

1 the west had a response function high enough to include  
2 them?

3 A. Well, in the northern boundary I used  
4 the -- the beginning of the dry bed at Glendale Bridge  
5 to draw the northern boundary. So it was not based  
6 explicitly on a response function cutoff.

7 On the southwest, the ones I've excluded on  
8 the southwest and the southeast are very, very low  
9 response functions, and they jump to a very, very low  
10 response function in the confined aquifer as soon as  
11 you move into that Willow Creek drainage area and the  
12 lower -- you know, the Big Wood River below Heart Rock  
13 Ranch drainage area.

14 Q. So what I was trying to ask you about was  
15 the area west of the dry beds and inside the model  
16 boundary and south of the boundary that's drawn here.

17 A. Uh-huh.

18 Q. And so if what I'm trying to understand is  
19 how those wells were sorted to include -- to be  
20 included in the potential area of curtailment?

21 A. Well, I didn't do a direct cutoff based on  
22 a response function percentage, but I can see from the  
23 response functions that if I -- if I excluded those, I  
24 would not have -- if I had started excluding things  
25 that had that level of response function, I would not

1 be achieving the 99 percent volume of response at  
2 Silver Creek.

3 Q. Okay. So south of the line there's no --  
4 there's no response function cutoff that you used to  
5 decide whether a well should be or shouldn't be  
6 included?

7 A. Well, once you get -- I mean as you get  
8 south of the line, the response functions -- I'm not  
9 sure what your question is.

10 Q. So they vary -- the response functions can  
11 vary anywhere from a percent all the way to 60 percent,  
12 70 percent.

13 So what -- did you look at those response  
14 functions and say these wells are included and these  
15 wells are not, or did you just say everything below the  
16 line, with the exception of Willow Creek, is included?

17 A. Well, I looked at the response functions,  
18 and they are -- and there aren't -- it's not like if  
19 you go -- until you get down into Willow Creek or down  
20 by Picabo your response functions aren't going down. I  
21 mean it's not like I have a -- it's not like I have  
22 some point down here in the middle where their response  
23 function is suddenly 1 percent when everything else  
24 around it is higher. I'm not sure what your...

25 Q. So what was the response function that you



1 thought was sufficient to include a well in the area of  
2 curtailment?

3 A. Again, I didn't set a number. I looked at  
4 what could be excluded. And the ones that are excluded  
5 in the southwest and the southeast I believe are --  
6 they're very low. I believe they're around a percent  
7 or less.

8 Q. So what is it about the geology in the  
9 southeast around Picabo that leads you to exclude some  
10 of those wells to the -- in the area of Picabo?

11 A. Well, down -- so the Silver Creek and its  
12 tributaries are directly hydraulically connected to the  
13 aquifer upstream of the Sportsman's Access gage. Below  
14 the Sportsman's Access gage Silver Creek becomes  
15 perched above the aquifer. And, you know, if you're  
16 still -- you could be downstream of Sportsman's Access  
17 gage and still have impacts on Silver Creek, but at  
18 some point you get far enough away into that perched  
19 aquifer that your impacts become pretty minimal. And  
20 that's what's happening down in the vicinity of Picabo.  
21 Their impacts are primarily to -- it's not that they  
22 don't have impacts, but the impacts of the pumping  
23 primarily reduce aquifer outflow to the Eastern Snake  
24 Plain Aquifer.

25 Q. So that line you drew just to the west of

1 Picabo is further east than where the modeled extent of  
2 the confined aquifer is? So I'll try to ask the  
3 question again.

4 Is there a response function that you used  
5 to draw that line?

6 A. No. Again, on the -- the only place  
7 there's that significant difference between the  
8 unconfined -- or that distinction between the confined  
9 and unconfined aquifer is in the immediate drainage  
10 area of Willow Creek and the Big Wood River below Heart  
11 Rock Ranch, because that's the area where pumping in  
12 the unconfined primarily impacts Willow Creek and the  
13 Big Wood River below the dry bed. Everywhere else --  
14 everywhere else -- well, except for the southeast, then  
15 it primarily impacts groundwater flow to the ESPA, and  
16 that's why that's excluded.

17 Q. And so what I'm trying to understand is how  
18 you drew that orange line just to the west of Picabo.

19 What factors did you use to determine that  
20 wells on one side of the line were going to be  
21 curtailed and wells on the other side of the line were  
22 not?

23 A. Well, you can see there's quite a bit of  
24 distance between wells there, but the -- I drew the  
25 line to include these wells that have very low response

1 functions to Silver Creek. So they're -- they're zero  
2 to 1 percent, I believe, if I recall correctly.

3 Q. And is this map on Figure 17, does that  
4 include every well in the Triangle?

5 A. It includes all of the irrigation and  
6 municipal points of diversion.

7 Q. But not the domestic? That's the only  
8 thing that's excluded?

9 A. It doesn't include the domestic, and I  
10 don't believe it shows the fish propagation wells  
11 either.

12 Q. On page 23 of your memo you say that you're  
13 going to -- your simulated curtailment south of  
14 Glendale would affect water supply for 23,000 acres of  
15 land; is that right?

16 A. Yes, approximately.

17 Q. Okay. And that's determined based upon  
18 what information?

19 A. Well, that's determined -- I determined  
20 that from the model files. And that information was  
21 based on a combination of water right places of use and  
22 the water source, and also the irrigated lands  
23 delineation that I used with the curtailment scenario.

24 Q. And were you asked to determine what the --  
25 let me rephrase this.

1           Did you know what the impact of curtailing  
2 those 23,000 acres of land would be starting on July 1?

3           A.    No.

4           Q.    Have you looked at the irrigation places of  
5 use and the crop mix to determine whether or not that  
6 would have an adverse effect on the ability to grow  
7 crops in that area?

8           A.    I have not been asked to look at the  
9 effects of the curtailment.

10          Q.    And have you been asked to look at the  
11 benefits that would flow to the downstream water users  
12 as a result of this curtailment?

13          A.    Only to the extent that it's to predict the  
14 volume of water that would -- but nothing other than  
15 that.

16          Q.    And you don't know how many acres would  
17 benefit from this?

18          A.    No.

19          Q.    Or what their crop needs are?

20          A.    No.

21          Q.    So turn to page 26.  The second full  
22 paragraph I think you -- hold on a second.  Let me ask  
23 you to look at the third paragraph.  You say that the  
24 seepage losses between Sportsman's Access gage above  
25 Picabo and Station 10 are between 20 to 37 percent of

1 the inflow?

2 Do you see you report that?

3 A. Yes.

4 Q. What's that number? What are those  
5 calculations based on?

6 A. They are based on the USGS streamflow  
7 measurements at the Sportsman's Access gage, Water  
8 District 37 records of the Little Wood River at  
9 Station 10 gage, and Water District 37 records of 30  
10 diversions from Silver Creek that occur between those  
11 locations and two inflows to Silver Creek that occur  
12 between those two locations.

13 Q. Who did these calculations or these  
14 estimates?

15 A. I did the calculations.

16 Q. Okay. And how do you get a range of 20 to  
17 37 percent? Does that just depend on the year?

18 A. Well, I actually did them by -- I did the  
19 average monthly, used average monthly data. So there's  
20 a different value for each month.

21 Q. So is it you got greater losses with less  
22 flow or greater losses with greater flow?

23 A. You might note in my report that there's --  
24 I think there's a lot of uncertainty in these  
25 measurements. But in this case percentagewise we got a

1 lower percentage loss with lower flows.

2 Q. Okay. And so the 20 to 37, what months  
3 does that -- what months do those -- does that range  
4 stretch over?

5 A. May 2020 through August 2020.

6 Q. And so which -- does it go -- which way  
7 does it go? Is May 20 percent and August 37 percent?

8 A. From Table 3 on page 28 of the report,  
9 August is 20 percent, May is 36 percent.

10 Q. Okay. And I think Sean directed us to you  
11 to -- for some questions about the Department's  
12 concerns about the gage at Station 10.

13 Do you have -- do you know of any  
14 Department concerns about the accuracy of the gage at  
15 Station 10?

16 A. A little bit. And I'm not sure -- are you  
17 referring to our gage or are you referring to the  
18 watermaster's gage.

19 Q. So I don't know. Are there two different  
20 gages at the same location?

21 A. There are two different sensors at this  
22 location, yes.

23 Q. Okay. So is there a difference between the  
24 Department's numbers and the watermaster's numbers?

25 A. Well, that's not really the concern at this

1 point. The main concern at this point is that there  
2 have not been -- there haven't been -- I think the main  
3 concern is that there haven't been adequate -- an  
4 adequate number of manual measurements made to  
5 calibrate the rating curve.

6           And there are also, my understanding, some  
7 concerns about the different sensors. And the  
8 Department's sensor, we originally put that sensor in  
9 because we wanted to get wintertime data to collect  
10 seepage measurements for input into the Eastern Snake  
11 Plain Aquifer model.

12           The sensor that was put in there was put  
13 out in the stream. We've had a lot of problems with it  
14 freezing, and we're not getting the data for the  
15 winter, which is really what we wanted for the ESPA  
16 model, and is something that would have been helpful to  
17 see here to be able to look at seepage rates without  
18 having the uncertainty associated with all those --  
19 with those, you know, 32 diversions and inflows to  
20 the -- to the reach.

21           But unfortunately -- and the Department has  
22 been -- we have a staff member who's been working with  
23 Kevin Lakey's consultant to try and improve our gaging  
24 there. And he has just recently started making -- he's  
25 making periodic or much closer together manual

1 measurements there, and he's going to be making them  
2 this winter to improve the rating curve particularly  
3 for low flows.

4 Q. So do you know if there's a difference  
5 between what the Water District's ratings or  
6 measurements show and what the Department's  
7 measurements show? Are they both consistent with one  
8 another?

9 A. Well, up until just this last -- our staff  
10 had not been making manual measurements. We had been  
11 using the Water District's manual measurements and  
12 their rating curve to apply to our sensor.

13 And again, the main issue was that they  
14 haven't been making as many manual measurements as we  
15 would like to have. So we're starting doing that with  
16 our own staff.

17 Q. And you also, then, report that there's  
18 losses between Sportsman's Access and downstream of the  
19 bridge, the 93 bridge, on page 29 of your memo.

20 THE HEARING OFFICER: Could I ask you to speak  
21 up as you question, Mr. Barker.

22 MR. BARKER: I'll do my best.

23 THE HEARING OFFICER: As well as Ms. Sukow.

24 MR. BARKER: We both can just whisper and --  
25 sorry.



1           Q.     So my question is, on page 29 there's a  
2 reference to seepage losses between Sportsman's Access  
3 and the bridge. And there's a figure of between 7 and  
4 15 cfs.

5                     Do you see that?

6           A.     That is -- where is it on the page here?  
7 Oh, okay. There I am just quoting from one of the  
8 meeting minutes of the Big Wood River Groundwater  
9 Management Area Advisory Committee, where, as far as  
10 I'm concerned, this is anecdotal. I have not seen any  
11 of the measurement data that support this.

12                     But the comment was made in that meeting  
13 that seepage losses in the vicinity of the Highway 95  
14 bridge have been identified by water users as a  
15 concern, and that somebody claimed that Water  
16 District 37 has measured losses in the range of 7 to  
17 15 cfs.

18                     I requested data from Kevin Lakey. He did  
19 provide me coordinates of the location that he's  
20 measuring above the bridge and then further downstream  
21 at the Ragsdale site, which is below a few other  
22 diversions, but -- and I requested that he send me the  
23 measurement data from that, but he has not sent that to  
24 me as of the date of this memo or as of today.

25                     MR. BARKER: Mr. Director, I have a couple of

1 exhibits that I would like to share with the witness,  
2 if I may.

3 Or do you want to take a short --

4 THE HEARING OFFICER: We're well into the lunch  
5 hour. How much longer, Mr. Barker? Do you want to  
6 wait and come back?

7 MR. BARKER: We could take a quick break, a  
8 lunch break, if that's okay with you.

9 THE HEARING OFFICER: Everybody else?

10 MR. BARKER: Take a half an hour or more.

11 THE HEARING OFFICER: Is this an appropriate  
12 time?

13 Okay. Let's come back at two o'clock.

14 (Lunch recess.)

15 THE HEARING OFFICER: On the record. We're back  
16 on the record after the lunch recess.

17 Mr. Barker, you may continue to examine  
18 Ms. Sukow.

19 MR. BARKER: Thank you, Mr. Director.

20 Q. I hope everybody had a chance to catch  
21 their breath, particularly you, Jennifer. Thank you  
22 for your time this morning and afternoon.

23 Would you pull out your staff report,  
24 please, and look at page 21. Do you have that -- if  
25 I've got the right page, the predicted responses and

1 curtailment within the entire model boundary?

2 A. Yes.

3 Q. That's the right one? Okay. So what I  
4 want you to do is look at the heading "Big Wood Above  
5 Dry Bed."

6 And that refers to a response at what  
7 location on the river? Is that Glenwood Bridge? Is  
8 that somewhere further upstream? Where is that  
9 measured?

10 A. It's Glendale Bridge.

11 Q. And that's a modeled response; right?

12 A. Yes.

13 Q. And you've got -- if you did a curtailment,  
14 you would have somewhere -- you'd have  
15 10-and-a-half cfs in the river on a daily basis in  
16 July, 15.8 in August, 14.0 in September; right?

17 A. That would be the monthly average.

18 Q. Okay. The monthly average. But -- so we  
19 talked in your deposition about this idea that if  
20 there's water available in the river to be diverted  
21 into the Triangle by the canal system, that that water  
22 would allow the surface water rights to stay on longer;  
23 right?

24 A. Correct.

25 Q. So if there were this much additional water

1 at Glendale Bridge, there would be the ability to  
2 divert that much water either into the 45 or the  
3 Baseline canal systems?

4 A. Well, not necessarily. There's other  
5 canals, and they might have -- you know, there's canals  
6 that go to Poverty Flats. There's other canals that  
7 might have more senior rights that might get that  
8 water.

9 Q. And you didn't look at what those senior  
10 rights might be and where that water might be used if  
11 it were available in the river; right?

12 A. I did not.

13 Q. Okay. And if water is diverted into those  
14 canals, it would allow the surface water to stay on  
15 longer; right?

16 A. Correct.

17 Q. And that would also mean, in contrast to  
18 what you said earlier about turning wells on earlier,  
19 those wells might be able to stay off longer?

20 A. Well, in the curtailment scenario, those  
21 wells in the Triangle are already curtailed, so there's  
22 no effect.

23 Q. If there's additional surface water  
24 available to the water users, that would allow them to  
25 keep their wells off -- or not turn their wells on as

1 soon; right?

2 A. Well --

3 Q. Forget about the curtailment. Just as a  
4 general proposition?

5 A. If -- so you if curtail above Glendale  
6 Bridge and not with below Glendale Bridge and not in  
7 the Triangle, then yes.

8 Q. Okay. And when we talked, you -- there's  
9 also the ability to provide canal seepage from water  
10 that is diverted into the Triangle; right? That adds  
11 water to the source, to the groundwater, to the  
12 aquifer?

13 A. If there is more water diverted into the  
14 Triangle, yes, there would be more canal seepage.

15 Q. And if there's more canal seepage, there's  
16 more water in the aquifer?

17 A. Temporarily, yes.

18 Q. Okay. And -- but your temporary answer is  
19 always the case, right, whether it's canal seepage or  
20 any other source of water to the aquifer? There's  
21 nothing --

22 A. Yes. Any other stress there, yes.

23 Q. Okay. And so when we talked, I asked  
24 you -- at your deposition I asked you if you had any  
25 information about what those canal seepage rates were,

1 and you referred me to Appendix G to the 2010 USGS  
2 report.

3 Do you remember that?

4 A. Yes.

5 Q. Okay. And I didn't -- I didn't make an  
6 exhibit or copies for everybody, but I just want to  
7 read you a statement, and then I can show you this  
8 statement in the Appendix G. It says, "Large seepage  
9 losses. 60 percent are assigned to the District and  
10 Baseline bypass canal systems, based on Brockway and  
11 Grover 1978, and Merritt 1997."

12 And do you want to see if I accurately  
13 portrayed that?

14 A. I think I can take your word on that.

15 Q. Well, here.

16 A. If you'd like, I can look at it.

17 Q. Here. Just take a look. Yeah, you can  
18 look at it.

19 So is that 60 percent conveyance loss or  
20 seepage loss part of what is included in the model?

21 A. Yes. For the model calibration, there is a  
22 60 percent loss on those two canal systems. There's  
23 other canal systems that have different seepage rates.

24 Q. And you didn't -- you didn't change those  
25 numbers for the 45 and the Baseline bypass -- or bypass

1 for the 2014 model calibration; right?

2 A. No, we did not.

3 Q. Okay. Don't worry. It's not as bad as it  
4 looks. You have a binder with a yellow paper on the  
5 spine and on the front page. You have that? If you  
6 would turn to Exhibits 13 --

7 A. Uh-oh.

8 Q. Oh, did that fall apart?

9 A. This thing's going to be a mess. I'll get  
10 it.

11 Q. You got it?

12 A. No, no, no. I'll get it.

13 Q. Okay. Exhibit 13. I don't know whether  
14 you've ever seen this presentation that Greg Tesch made  
15 to the water users in January of last year.

16 A. Not that I recall.

17 Q. Okay. Turn to -- let's see. It doesn't  
18 have page numbers on it. So just turn until you get to  
19 the Big Wood.

20 Do you see there's a hydrograph for the Big  
21 Wood?

22 A. Yes.

23 Q. Okay. Have you ever seen those hydrographs  
24 before?

25 A. I don't specifically recall.

1 Q. Okay. Well, if you don't remember them,  
2 then we'll pass over.

3 Turn to Exhibit 14.

4 Do you have Exhibit 14 in front of you?

5 A. Yes.

6 Q. And this is the final report on the  
7 version 1.1 of the Wood River Valley Aquifer System  
8 Model; right?

9 A. Yes.

10 Q. And you're an author of this report?

11 A. I am listed as a co-author. I'm not the  
12 primary author.

13 Q. Okay. So what does a co-author mean?

14 A. In this case it means that Allan wanted to  
15 put our names on this report because we, myself and the  
16 other two co-authors, provided quite a bit of support  
17 in developing version 1.1 of the model, and then we  
18 also provided review of the report.

19 Q. Okay. Turn to page 26, the conclusion  
20 page.

21 Are you there?

22 A. Yes.

23 Q. So the last paragraph on that page -- and  
24 I'll read this -- "Despite these enhancements our  
25 understanding of the WRV Aquifer System remains



1 imperfect and more work needs to be done. Several  
2 significant gaps in data or in the understanding of the  
3 underlying hydrologic system have become apparent  
4 during this project."

5 Did I read that correct?

6 A. Yes.

7 Q. Okay. And it says this is based on "our  
8 understanding."

9 So that would be the understanding of the  
10 authors of the report?

11 A. That's what it says, is "our."

12 Q. Okay.

13 A. I don't know who he is referring to  
14 specifically.

15 Q. Okay. And you'd agree that your  
16 understanding of the aquifer system remains imperfect?

17 A. Yes.

18 Q. And you would agree that more work needs to  
19 be done?

20 A. I would agree that the model can be  
21 improved with additional data collection and  
22 incorporating that additional data into the model.

23 Q. But it doesn't say it would be nice to do.  
24 It says, "more work needs to be done";  
25 right?

1           A.    That's what he says.

2           Q.    Okay.  And you didn't -- again, you didn't  
3 disagree with that?

4           A.    I -- I don't think I would have worded it  
5 that way.

6           Q.    Well, you had the chance when you reviewed  
7 the report, didn't you?

8           A.    Just because I made a review comment does  
9 not mean that the primary author would be required to  
10 incorporate it into the report.

11          Q.    Okay.

12          A.    He doesn't need my -- every co-author's  
13 permission for every comment he makes in his report.

14          Q.    So are you telling me you made a comment to  
15 ask him to change that?

16          A.    I'm telling you I don't recall.

17          Q.    Okay.  And he also says in your report that  
18 "Several significant gaps in data have become  
19 apparent."

20                   And so those gaps in data are information  
21 about the water levels in the wells in Wood River  
22 Valley; is that right?  That's one of them?

23          A.    Well, primarily a lot of these he was -- I  
24 know he was really concerned about not having enough  
25 data in the tributaries in the Valley north of Hailey.

1 And so that -- one of his comments is that he wanted to  
2 install more -- or install transducers in tributary  
3 valley wells to the extent possible.

4 Q. Okay. So where --

5 A. And he started doing seepage surveys to  
6 look at the interaction between Trail Creek and Warm  
7 Springs Creek, which aren't directly explicitly  
8 modeled.

9 Q. So where are the observation wells that are  
10 referred to in (g)?

11 A. In (g)?

12 Q. Subpart (g).

13 A. Those are throughout the model area, and he  
14 had established the expanded monitoring network. He's  
15 just recommending that we continue monitoring that  
16 expanded network.

17 Q. Right. But you had only information that  
18 was up to 2014, so you didn't have very much  
19 information from any of these 45 observation wells at  
20 the time?

21 A. We only had a few years' worth of data.  
22 And I agree that the model could be improved if it were  
23 recalibrated in the future with more years of data from  
24 those wells.

25 Q. Okay. And so what are the significant gaps

1 in understanding of the hydrologic system that became  
2 apparent during the project?

3 A. Again, the things I remember Allan being  
4 particularly concerned about with version 1.1 was the  
5 lack of explicitly representing aquifer interaction  
6 with Trail Creek and possibly Warm Springs Creek, and  
7 with not being able to have enough measurements to  
8 better represent the tributary valleys in the upper end  
9 of the model.

10 Q. And that's not all that's listed in this  
11 additional future work that's necessary, is it?

12 A. Well, again, it's -- it's -- I think it's  
13 what's listed that's new. The other things he listed  
14 are to continue the monitoring that had already been  
15 begun.

16 Q. Yeah. I don't want to beat a dead horse,  
17 but he does say, and you agree as a co-author, that  
18 more work needs to be done, including finding out  
19 information about those water levels?

20 A. What I said is that incorporating  
21 additional water-level data into another recalibration  
22 of the model would improve it.

23 Q. Okay.

24 A. Allan also says in the next paragraph that  
25 "It's the best available tool for evaluating

1 interaction between groundwater and surface water in  
2 the Wood River Valley," and concludes that "calibration  
3 statistics indicate a good fit to observed data,  
4 providing confidence that the updated model provides an  
5 acceptable representation of the hydrologic system in  
6 the Wood River Valley."

7 Q. Okay. And you didn't have observed data  
8 from most of the groundwater wells at the time in 2014?

9 A. I don't think that's true. I think we had  
10 observed data from 2012 through 2014 for many of them.

11 Q. I thought you told me earlier today that  
12 only a very small number of wells in the Triangle you  
13 had observed data for for pumping?

14 A. For -- he's not talking about pumping.  
15 He's talking about the observation wells. He's talking  
16 about the model and the measurements.

17 Q. I'm talking about the pumping wells. You  
18 had very little information about wells -- water  
19 pumping and water-level data from the wells that were  
20 pumping in the valley because --

21 A. He's --

22 Q. -- that information had not been included  
23 in the update.

24 A. He's talking about observed water levels,  
25 not pumping data. Pumping data is not an observation

1 in the model. It is an input to the model.

2 Q. Okay. And you didn't have that information  
3 for the wells in the Triangle; yes or no?

4 A. Yes. I already answered that.

5 Q. Okay. Thank you.

6 Turn to Exhibit 15, please.

7 Do you recognize Exhibit -- oh, wait a  
8 minute. I'm sorry. I needed to do two things.

9 I would move the introduction of  
10 Exhibit 14.

11 MR. BROMLEY: Point of clarification, Director.

12 THE HEARING OFFICER: Mr. Bromley.

13 MR. BROMLEY: If we might just make sure that --  
14 these are the South Valley Ground Water District  
15 exhibits that you're talking about No. 14 -- we've  
16 already been using numbers. So I'm just wanting to  
17 make sure on the record when somebody goes back to read  
18 the transcript that we all know which exhibits, Al,  
19 you're talking about.

20 These are your exhibits; correct?

21 MR. BARKER: Yes.

22 MR. BROMLEY: So I don't have them in front of  
23 us, Al. You've just been using numbers. I'm just  
24 wanting to make sure the record is clear as to what  
25 we're looking at.

1 MR. BARKER: Okay. Well, we shared all the  
2 exhibits with everybody, Chris, and so --

3 MR. BROMLEY: Al, that's not what I'm saying.  
4 I'm saying --

5 MR. BARKER: Okay. Fine. Fine. South Valley  
6 Ground Water District/Galena Ground Water District  
7 Exhibit No. 14, we move the admission of that exhibit.

8 THE HEARING OFFICER: Any objections?

9 MR. RIGBY: No objection.

10 MR. FLETCHER: No.

11 MR. BROMLEY: None.

12 MR. LASKI: No.

13 MR. MORONEY: No objection.

14 THE HEARING OFFICER: Any objections from the  
15 gallery?

16 Mr. Robertson?

17 MR. ROBERTSON: No, none.

18 THE HEARING OFFICER: And Mr. O'Bannon?

19 MR. O'BANNON: None, Director.

20 MR. BARKER: Okay.

21 THE HEARING OFFICER: Okay. The document that's  
22 been marked -- let me try, SVGWD space GGWD Exhibit 14  
23 is received into evidence.

24 (SVGWD GGWD Exhibit 14 received.)

25 MR. BARKER: Thank you, Mr. Director.

1 Q. So, Ms. Sukow, would you turn to SVGWD GGWD  
2 Exhibit 15, please.

3 Got that?

4 A. Yes.

5 Q. Okay. And then I'm asking you to look at  
6 page 15 of that exhibit. Okay. And then if you look  
7 under Table 3 at the top of the page, there's some -- a  
8 description of the -- or a narrative that talks about  
9 the Mann-Kendall analysis for Wood River Valley wells.

10 Have you seen this before?

11 A. Yes.

12 Q. Okay. So I'm going to try and interpret  
13 this, and you can tell me where I get it wrong.

14 So what it appears to me to be saying is  
15 that since 1991 that the factors under this  
16 Mann-Kendall statistical analysis show that all of the  
17 factors are positive indicating rising groundwater  
18 levels in the -- in the Wood River Groundwater  
19 Management Area Aquifer; is that right?

20 A. Well, they're all positive, but most of  
21 them are not statistically significant.

22 Q. Okay. So the language of the narrative  
23 says, "These factors are all positive, indicating  
24 rising groundwater levels. However p is only  
25 statistically significant at the 95 percent confidence



1 level interval for the April data."

2 Isn't that what it says?

3 A. That's what it says.

4 Q. Okay. And so it also says that the April  
5 groundwater increase is about 0.18 feet per year.

6 Is that consistent with your -- the  
7 information that you have about the groundwater levels  
8 in the area, in the groundwater management area?

9 A. I have not done a separate analysis apart  
10 from what Allan did. I've just read what Allan did.

11 Q. So -- and that's -- that is over a 30-year  
12 period since 1991?

13 A. Not quite. This report was published in --

14 Q. 2019.

15 A. -- 2019. So it would be a few years less  
16 than 30 years.

17 Q. Right. So if I do math right, I don't know  
18 if he included 2019 data, but if he did, it would be 28  
19 years?

20 A. If he did, it would be -- well, he may not  
21 have had data for all of the years, but the total time  
22 period -- the total time span would be about that.

23 Q. Okay. So that's a little bit more than  
24 2 inches rise a year over that time period?

25 A. Yeah, that's about right.

1 Q. So that's almost like a 5-foot increase  
2 over 28 to 30 years?

3 A. For --

4 Q. For April.

5 A. For just April.

6 Q. All right. At the beginning of the  
7 irrigation season; right?

8 A. I haven't done the math, but that sounds  
9 about right.

10 MR. RIGBY: Okay. So, Mr. Director, I move the  
11 admission of SVGWD GGWD Exhibit 15.

12 THE HEARING OFFICER: Any objections?

13 Mr. Fletcher?

14 MR. FLETCHER: No objection.

15 THE HEARING OFFICER: Mr. Rigby?

16 MR. RIGBY: No.

17 THE HEARING OFFICER: Mr. Laski?

18 MR. LASKI: No.

19 THE HEARING OFFICER: Mr. Bromley?

20 MR. BROMLEY: No.

21 THE HEARING OFFICER: Mr. Simpson?

22 MR. SIMPSON: No.

23 THE HEARING OFFICER: Mr. Robertson?

24 MR. ROBERTSON: No.

25 THE HEARING OFFICER: Mr. Semanko?

1 MR. SEMANKO: No.

2 MR. MORONEY: No.

3 THE HEARING OFFICER: I got to pick you out from  
4 behind the witness. I'm sorry. No objection from Fish  
5 and Game. No objection from anyone.

6 The document marked as South Valley and  
7 Galena Exhibit 15 is received into evidence.

8 (SVGWD GGWD Exhibit 15 received.)

9 Q. (BY MR. BARKER): Would you next turn to  
10 Exhibit 16, please.

11 So, Jennifer, this is the uncertainty  
12 analysis that Allan Wylie performed on version 1.1 that  
13 we talked about earlier; is that correct?

14 A. Yes.

15 Q. And just for the record, SVGWD GGWD  
16 Exhibit 16; right?

17 A. [No audible response.]

18 Q. And you're familiar with this uncertainty  
19 analysis report?

20 A. Yes.

21 Q. So when an uncertainty analysis is done, is  
22 it -- what types of uncertainty are considered in the  
23 analysis? Is it simply probability uncertainty, or is  
24 there more to it than that?

25 A. It's calibration parameter uncertainty.

1 Q. Okay.

2 A. So it's looking at to what extent the model  
3 could have been similarly well calibrated to match the  
4 observation data with different values for the unknown  
5 parameters that it adjusts and how -- and then looking  
6 at how much difference that would make in the result  
7 for a specific prediction.

8 Q. So were you involved at all in assisting  
9 Mr. Wylie in doing this uncertainty analysis?

10 A. No.

11 Q. Or looking at the different parameters that  
12 he looked at to determine what levels of uncertainty  
13 there are?

14 A. No.

15 Q. Did -- does this report explain the --  
16 let's see if I can ask this question right. You  
17 probably will tell me I'm not asking it right.

18 But with the different types of  
19 uncertainties, do they all flow into the predictive  
20 uncertainty, or is there a different uncertainty, for  
21 example, on the model boundary that should be  
22 identified and said we're concerned about our  
23 uncertainty at the model boundary of plus or minus  
24 10 percent?

25 A. I don't understand what you're asking

1 there.

2 Q. Okay. What I'm asking is, you said that  
3 there are other types of uncertainty rather than  
4 predictive uncertainty.

5 And what I'm asking is, is the uncertainty  
6 analysis, should it have identified the levels of  
7 uncertainty at those other types of areas where there  
8 were uncertainty, rather than just in predictive  
9 uncertainty?

10 A. Well, other types of uncertainty, like, you  
11 know, involving questions of whether -- whether the --  
12 we had constructed the model differently. For example,  
13 if Trail Creek were explicitly represented as being  
14 hydraulically connected to the aquifer, and would  
15 that -- would that or would that not have any impact on  
16 model predictions is not something that you can  
17 numerically assign a number to. So it's not really  
18 possible to include that in this type of quantitative  
19 predictive uncertainty analysis.

20 Q. Okay. So the three -- the five examples  
21 that we used -- sorry. Go ahead.

22 The five locations that were used to  
23 evaluate uncertainty were from three areas in the  
24 Triangle and two areas up above.

25 Do you have any understanding as to how

1 those were selected?

2 A. In a vague sense. I mean he was trying to  
3 explore the predictive uncertainty in different areas  
4 of the model domain.

5 Q. So go to page 6. And I want to call your  
6 attention to Table 1.

7 Have you seen this table before?

8 A. Yes.

9 Q. And so you were talking about comparing an  
10 analytical model with the calibrated model and how much  
11 better off the calibrated model is than the analytical  
12 model, and I think you've explained that earlier. But  
13 what I want to ask or draw your attention to is the  
14 difference between the calibrated model and the Wood  
15 River 1.0, which I guess was the original model.

16 Do you see that difference?

17 A. Yes.

18 Q. So it dropped in the Silver Creek above  
19 Sportsman's from 25 and 26 to 22 percent?

20 A. Yes.

21 Q. And the Hailey-Stanton Crossing dropped  
22 either 21 or 11 percent -- or 21 to 15 or 11 to 11.

23 So is there -- would you have expected to  
24 see greater decline -- well, let me say this right.

25 Would you have expected to see this number

1 drop on Wood River No. 1 from 25 to 22 after the  
2 calibration has been done?

3 A. Well, the uncalibrated was 51 percent.

4 Q. No, no, no. I'm not talking about  
5 uncalibrated.

6 A. Yeah.

7 Q. I'm talking about the difference between  
8 what the model predicted when it was 2010, and then  
9 after 2014 when it was calibrated with additional data.

10 A. Well, I didn't go into this with any  
11 expectations. I just saw the results after Allan  
12 completed the analysis. So I think it shows what it  
13 shows, and I'm not -- I'm not really -- I didn't have  
14 any expectations.

15 Q. I'm sorry?

16 A. I didn't have any expectations.

17 Q. Okay. Were you surprised that the numbers  
18 weren't greater, the differences weren't greater?

19 A. Again, I didn't have any expectation. So  
20 no, I wasn't surprised one way or the other.

21 MR. BARKER: So, Mr. Director, I move the  
22 exhibit -- or move the admission of SVGWD GGWD  
23 Exhibit 16.

24 THE HEARING OFFICER: Mr. Fletcher?

25 MR. FLETCHER: No objection.

1 THE HEARING OFFICER: Mr. Rigby?

2 MR. RIGBY: No objection.

3 THE HEARING OFFICER: Mr. Laski?

4 MR. LASKI: No objection.

5 THE HEARING OFFICER: Mr. Moroney?

6 MR. MORONEY: No objection.

7 THE HEARING OFFICER: Mr. Bromley?

8 MR. BROMLEY: No.

9 THE HEARING OFFICER: Mr. Lawrence?

10 MR. LAWRENCE: No objection.

11 THE HEARING OFFICER: And, Mr. Simpson?

12 MR. SIMPSON: No objection.

13 THE HEARING OFFICER: Mr. Robertson?

14 MR. ROBERTSON: No, sir.

15 THE HEARING OFFICER: Mr. Semanko?

16 MR. SEMANKO: None.

17 THE HEARING OFFICER: Mr. O'Bannon?

18 MR. O'BANNON: No objection.

19 THE HEARING OFFICER: Great. The document  
20 marked as Exhibit No. 16 -- I'm sorry, South Valley and  
21 Galena Exhibit 16 is received into evidence to the  
22 extent that any of us understand it.

23 (SVGWD GGWD Exhibit 16 received.)

24 Q. (BY MR. BARKER): So we're almost -- well,  
25 I say "we." We are almost done. You're probably not.



1 Sorry about that. I have one more area I wanted to  
2 talk to you about.

3 And that was when we -- when we went  
4 through your deposition, you indicated you didn't  
5 remember when you first started work on this process.  
6 And before I go into that, one of the things that we  
7 talked about earlier this afternoon was if you were to  
8 try and do a new predictive uncertainty analysis on the  
9 three-month period as opposed to a ten-month period,  
10 you said it could be done.

11 Do you have any understanding of how long  
12 it would take for you or somebody else to do that?

13 A. Well, you know, really if you want to do a  
14 predictive uncertainty analysis specific for the  
15 prediction we're making here, you should look at, you  
16 know, a three month or five month, whichever one you're  
17 looking at, you know, you should look at that time  
18 period. And we should also look at the stress applied  
19 in the curtailment scenario. So that would be the  
20 pumping stress for either the entire model domain or  
21 the area south of Glendale Bridge.

22 And I did put a little bit of thought into  
23 whether or not that was something I could do in a short  
24 amount of time. And looking into it, really I think  
25 the most efficient way to do that would be to convert

1 the model to MODFLOW 6 first so you could use a  
2 separate .wel file, because one of the things that's  
3 difficult about doing that is that every iteration that  
4 it does when it tests the change, that a change in a  
5 parameter makes, it rewrites the .wel -- the baseline  
6 .wel file, and it also needs to rewrite the .wel file  
7 with the curtailment. And that's not a -- that's not a  
8 trivial task, because there's so many model cells. And  
9 it's a lot more difficult to run with this model than  
10 with, for example, the ESPA model, which we can run in  
11 superposition because we can just build a separate,  
12 static .wel file for the -- for the scenario part of  
13 it.

14           So I -- it would either require doing that  
15 or requiring a lot of coding to automate a rebuilding  
16 the scenario .wel file. And that's not something I  
17 have the capability to do in a short amount of time.  
18 And I think we'd be looking at something on the order  
19 of months to look at that.

20           Q.    Okay. So backing up to where I started  
21 just a minute ago, on the question of when you began to  
22 have -- to start your work on this project, you said I  
23 could find that information out from the files that you  
24 provided. It's not in your report, but in the files  
25 that were made available as part of our request for

1 information.

2 A. There are supporting files in there. And  
3 it would -- somebody who knows which -- you know, which  
4 ones are the results of the models would need to look  
5 at it, but you could tell from that, yes.

6 Q. Okay. Well, I can't -- I can't assert that  
7 I'm one of those people. But we did find some e-mails  
8 from you that we did not mark as exhibits, but we would  
9 like to ask you about.

10 And I would propose that we add this as our  
11 next exhibit, Exhibit 35.

12 MR. THOMPSON: 36.

13 MR. BARKER: 36. And let me just show you this  
14 set of e-mails.

15 THE HEARING OFFICER: These have been marked?

16 MR. BARKER: They have not. They have not been  
17 previously marked.

18 THE HEARING OFFICER: Do we have a set of  
19 stickers for marking?

20 MR. BARKER: I don't know. I didn't bring one.  
21 I hope somebody else has a sticker we could borrow.

22 MS. CARTER: I forgot them. I'll go grab them.

23 MR. BARKER: Do you need one, Jeff? Do you have  
24 a sticker?

25 THE COURT REPORTER: It's going to be different

1 than your other stickers, but yeah.

2 MR. BARKER: That's okay.

3 THE HEARING OFFICER: Oh, so Jeff actually  
4 brought some.

5 THE COURT REPORTER: I got all kinds of  
6 stickers.

7 THE HEARING OFFICER: I should have asked him.

8 MR. BARKER: I don't know if I could put  
9 SVGWD --

10 THE HEARING OFFICER: Yeah, is there enough room  
11 for the acronyms on those?

12 THE COURT REPORTER: Probably not.

13 MR. BARKER: But I will use the same one, I  
14 promise.

15 We're going to mark this as Exhibit 36; is  
16 that right?

17 (SVGWD GGWD Exhibit 36 marked.)

18 MR. RIGBY: Mr. Director, I just want to comment  
19 that this has not been produced to us until now, fully  
20 recognizing that all of us have been in a mad dash to  
21 get our exhibits to each other. I just want to know  
22 that the same leeway would be given to all sides when  
23 and if that becomes an issue.

24 THE HEARING OFFICER: And I was anticipating an  
25 objection.

1 MR. BARKER: Well, I will say that this was part  
2 of the information that was produced by the Department  
3 in response to the request for materials. So it's not  
4 like we hid it. It came from the Department.

5 MR. RIGBY: I understand that.

6 THE HEARING OFFICER: All you want is due  
7 consideration?

8 MR. RIGBY: I want due consideration.

9 MR. BARKER: You got it.

10 THE HEARING OFFICER: All right. We got the  
11 official blue. So we got two markings, I guess. All  
12 right.

13 Q. (BY MR. BARKER): Okay. So if you would  
14 turn to the second page. This is an e-mail from you to  
15 the Director and several other people in the Department  
16 about Wood River water administration, March 24, 2021.

17 And in this you are responding and saying  
18 that you "could generate response functions aka  
19 depletion functions with the model."

20 So what were you looking for to -- what was  
21 the reason that you were looking to generate response  
22 functions from the model and what were you going to  
23 look at?

24 A. I was asked if I could generate response  
25 functions from the model.

1 Q. And do you know why, what you were going to  
2 use -- what you would use them for?

3 A. I knew it was -- I knew it was related to  
4 this -- the previous e-mail, which was asking about the  
5 possibility of initiating conjunctive water  
6 administration in the Wood River Basin during the  
7 irrigation season of 2021.

8 Q. Okay. So "response functions" and  
9 "depletion functions" you're using interchangeably in  
10 this e-mail?

11 A. Yes.

12 Q. And so if I understand what this means is  
13 you're able to model the response of a particular point  
14 of diversion in the model?

15 A. A response function commonly is used to  
16 talk about, yeah, modeling the response at a specific  
17 reach to a stress in a specific model cell.

18 Q. And so it would tell you from if -- if a  
19 well was curtailed what -- which way the water would  
20 go? Would it go to the Big Wood? Would it go to  
21 Silver Creek?

22 A. It will tell you, if you apply a stress in  
23 a model cell, to which river reaches the impact will  
24 propagate.

25 Q. So what were you looking at doing in terms

1 of response functions? Were you going to model the  
2 entire basin? Were you going to pick certain wells  
3 out? What were you planning on doing with this  
4 response back to the Director?

5 A. Well, my e-mail is in response to the  
6 previous e-mail in which the question was asked, "Is  
7 there a possibility of establishing a trim line that  
8 would separate groundwater diversions primarily  
9 affecting the Big Wood River flows from groundwater  
10 diversions primarily affecting Silver Creek?"

11 Q. Okay. So how were you going to use  
12 response functions to establish a trim line?

13 A. Well, again, I looked at the response  
14 functions. And the extent I ended up using them is  
15 discussed in my staff memo. And I did also provide  
16 those response function files. So I don't really have  
17 anything new to add there.

18 Q. Okay. So you offer in item No. 1 under  
19 this to run a few test cells to get a preliminary idea  
20 how big a difference you're looking at.

21 Did you do that?

22 A. I did.

23 Q. Okay. And what areas did you select for  
24 test cells?

25 A. They were a sampling of the cells that are

1 in the version -- so the version that I sent out with  
2 the supporting files has all the cells. The test cells  
3 were just a smaller sampling of those that I ran first  
4 just to get an idea what they were going to look like.

5 Q. So I'm not sure I understood your  
6 explanation.

7 But were there a few test cells selected in  
8 particular geographic locations that you were going to  
9 run the depletion analysis on?

10 A. I spread them out over the area, over the  
11 Triangle.

12 Q. Did you go --

13 A. Over the Triangle.

14 Q. Just in the Triangle?

15 A. Yeah. I mean I went north of what we're  
16 now considering the area of potential curtailment, but  
17 I did not go very far north of the Triangle.

18 Q. Up to Bellevue?

19 A. I'd have to look at the map that's in the  
20 supporting files.

21 Q. So go up to your e-mail above this dated  
22 April 1st. And on the second page of this exhibit  
23 there's a statement in the first full paragraph that  
24 starts "As expected."

25 Do you see that?



1           It says -- well, I'll just read it, "As  
2 expected, the confining unit has a significant effect,  
3 and there are significant differences in the depletion  
4 to Silver Creek from pumping in the confined and  
5 unconfined aquifers."

6           Is that an accurate statement --

7           A.    Yes.

8           Q.    -- in your view, after having run the  
9 model?

10          A.    Yes.

11          Q.    Okay.  And what are those significant  
12 differences in depletions?

13          A.    In the -- as I discussed in my staff memo,  
14 in the southwest area we have significant contribution  
15 or significant impacts to Silver Creek from pumping in  
16 the confined aquifer, but within the Willow Creek  
17 drainage area, pumping in the unconfined aquifer would  
18 not have significant impacts to Silver Creek.  The  
19 impacts are largely to the Willow Creek and the Big  
20 Wood below the dry bed.

21          Q.    Okay.  So this doesn't mean -- you're just  
22 talking here about Willow Creek and the confined  
23 aquifer there, you're not talking about two wells side  
24 by side, one in the confined aquifer and one in the  
25 unconfined aquifer somewhere in the middle of the

1 Triangle?

2 A. If you're -- if you're further east in the  
3 Triangle, there are still differences between the  
4 percentage of the impacts that propagate to Silver  
5 Creek within the, for example, the July 1 curtailment,  
6 within the three-month time period.

7 And I guess for the response functions, I  
8 ran May 1 through September 30th. So those are the  
9 percentages that are in the response function.

10 So there are places further east where both  
11 the unconfined and confined aquifers, most of their  
12 response propagates to Silver Creek, but the amount  
13 that remains in storage at the -- as of October 1st is  
14 greater in one aquifer than the other.

15 Q. And that greater is in the confined  
16 aquifer; right?

17 A. I think that depends on the location. And  
18 I think there's some locations on the edge where it may  
19 actually be the opposite.

20 Q. Are there --

21 A. But you'd have to look at each individual  
22 location.

23 Q. Did you do that?

24 A. I did at one time. I don't recall every --  
25 I don't have them all committed to memory.

1 Q. Did you run a scenario where you could  
2 tease out the differences between the impacts of the  
3 wells in the confined aquifer and the wells in the  
4 unconfined aquifer?

5 A. Not other than the response functions. I  
6 did not do a larger scenario in that manner.

7 Q. So the next sentence in the paragraph below  
8 that where we were just looking at says you "can  
9 discuss timing of model predictions and how you'd like  
10 the model results to be evaluated."

11 What were you referring to there?

12 A. I think, again, at the time I was asked  
13 if -- if there was a possibility of looking at response  
14 functions and looking at the idea of, you know,  
15 delineating an area that -- that impacted Silver Creek  
16 and areas that didn't. And that's -- it was a  
17 pretty -- I think a somewhat vague assignment at the  
18 time. And I was just saying that we could discuss  
19 further what -- I was looking for further direction on  
20 any other analysis that they wanted.

21 Q. So are your questions about timing of model  
22 predictions mean timing of the dates of curtailment  
23 which you ultimately did, or does it refer to something  
24 else?

25 A. Oh, I see what you're -- so it was about,

1 yes, the -- what time frame they might want to be  
2 included in a curtailment scenario.

3 Q. Okay. And did you discuss with anyone at  
4 the Department about running a curtailment scenario  
5 that was limited to the unconfined aquifer to see what  
6 the results there would be?

7 A. No, I did not.

8 Q. And in the paragraph at the top of the page  
9 that begins on the page before, there's another  
10 discussion of uncertainty that we've talked about at  
11 some length today.

12 And I don't want to rehash that, but I do  
13 want to ask you, since you brought up to the Department  
14 the uncertainty in model predictions, was there some  
15 discussion about how you or someone else in the  
16 Department would handle the impact of that uncertainty  
17 in the model predictions?

18 A. Well, you know, my opinion on the model  
19 uncertainty is that while we acknowledge that there's  
20 model uncertainty, the best prediction we have is the  
21 model prediction.

22 Q. Okay.

23 A. We acknowledge there's some uncertainty.  
24 In my opinion as a scientist, I think it would be best  
25 to use the model prediction. I think from a legal

1 perspective there are other perspectives on uncertainty  
2 and who should -- if a party is going to benefit from  
3 uncertainty, which party that should be. And that's  
4 beyond my -- you know, my opinion. My opinion would be  
5 to use the most likely value or the best prediction we  
6 have, which I believe is the model prediction.

7 Q. The model plus or minus 22 percent on  
8 either side?

9 A. Well, you know, that predictive uncertainty  
10 analysis is based on a normal distribution, which is a  
11 bell-shaped curve. So in a normal distribution you're  
12 going way out into the tails to get to 95 percent. So  
13 your most likely value is still closer to your central  
14 prediction.

15 Q. Okay. So I want to go back to the question  
16 I asked you before you wanted to tell me about your  
17 view of model uncertainty.

18 My question was, did you have discussions  
19 with anyone in the Department about how the Department  
20 was going to handle model uncertainty in this  
21 proceeding?

22 A. No.

23 Q. Yeah. Thank you.

24 Okay. Now, just one more area. Can you  
25 take that purple book -- oh, wait a minute.

1 I would like to offer into evidence  
2 SVGWD GGWD 36.

3 THE HEARING OFFICER: Mr. Fletcher?

4 MR. FLETCHER: No objection.

5 THE HEARING OFFICER: Mr. Rigby?

6 MR. RIGBY: No objection.

7 THE HEARING OFFICER: Mr. Laski?

8 MR. LASKI: No objection.

9 THE HEARING OFFICER: And then the same crowd --  
10 oh, Mr. Moroney?

11 MR. MORONEY: No objection.

12 MR. BROMLEY: No objection.

13 THE HEARING OFFICER: Mr. Bromley?

14 Mr. Lawrence?

15 Mr. Simpson?

16 Mr. Robertson?

17 MR. SIMPSON: No.

18 MR. ROBERTSON: No.

19 THE HEARING OFFICER: Mr. Semanko?

20 MR. SEMANKO: No.

21 THE HEARING OFFICER: Mr. O'Bannon.

22 MR. O'BANNON: No.

23 THE HEARING OFFICER: Thank you.

24 The document marked as -- and this is  
25 combined or just South Valley?

1 MR. BARKER: Well, I put both on the --

2 THE HEARING OFFICER: Okay. My label isn't  
3 correct.

4 MR. BARKER: -- label.

5 MS. CARTER: Sorry.

6 THE HEARING OFFICER: Well, let's figure out  
7 which one is the actual exhibit.

8 MR. BARKER: Here. Let's use this one.

9 MR. FLETCHER: I thought the order said to put  
10 the attorney's name on there.

11 THE HEARING OFFICER: I think that's true.

12 MR. BARKER: There's too many attorneys.

13 THE HEARING OFFICER: Is that an objection,  
14 Mr. Fletcher?

15 MR. BARKER: Can't fit all of those on there  
16 either.

17 MR. FLETCHER: What's that?

18 THE HEARING OFFICER: Is that an objection?

19 MR. FLETCHER: No. Just a comment.

20 MR. BARKER: You would have to have stickers  
21 this big [indicating].

22 THE HEARING OFFICER: I'll grant you due  
23 consideration.

24 (SVGWD GGWD Exhibit 36 received.)

25 MR. FLETCHER: Mr. Barker has a point, there's a

1 lot of attorneys on that side, so it would be hard to  
2 get all those names on there.

3 Q. (BY MR. BARKER): So I put in front of you  
4 what is identified as the Picabo Livestock exhibits.  
5 And this is a report that was prepared by Dr. Chuck  
6 Brockway in 2017.

7 And I don't know, have you seen this report  
8 before?

9 A. Yes, I have.

10 Q. Okay. So would you turn to page 5. And  
11 right above where there's a conclusion, Dr. Brockway  
12 says that "The Big Wood model was not modified to  
13 reflect the actual nature of separation between layer  
14 and -- layer two and layer three, as this would require  
15 a significant effort to rework a section of the model."

16 Do you agree with that statement?

17 A. This report is referring to version 1 -- or  
18 the -- excuse me, the USGS original version of the  
19 model that was published in 2016. This report was  
20 written before the model was recalibrated and the -- to  
21 the extent that I would agree with their statements in  
22 here, Allan Wylie did revise the calibration of the  
23 confining unit in version 1.1 of the model to correct  
24 the deficiencies that were identified in this report,  
25 and it is no longer applicable to the current model.



1 Q. Okay. So you said to the extent you agree  
2 it was modified.

3 So tell me to what extent you don't agree  
4 and how it was not modified.

5 A. I'm not sure specifically. It's been  
6 awhile since I've looked at it. But Allan recalibrated  
7 the model to be consistent with -- with Moreland's 1977  
8 USGS delineation of the extent of the confined aquifer  
9 and the confining unit, and it does extend considerably  
10 further east than it did in this report.

11 If I recall correctly, I think they may  
12 imply in this report that the confining layer should  
13 have extended even further east. And I -- I -- if they  
14 did, I would disagree with that.

15 Q. Okay. And I think the ultimate conclusion  
16 of Dr. Brockway is that these three Picabo wells that  
17 are identified -- Picabo Livestock wells that are  
18 identified do not have an impact on flows in Silver  
19 Creek because they are -- obtain their water from the  
20 basalt layer below and they are cased into the basalt  
21 layer so they don't pick up the water from the layers  
22 above them.

23 And do you agree or disagree with that  
24 conclusion?

25 A. I disagree with their conclusion, because

1 their conclusion was just based on that the vertical --  
2 or the hydraulic conductivity of layer two was too high  
3 in the first version of the model in the vicinity of  
4 those wells, and they therefore assumed that the impact  
5 would also -- would be two orders of magnitude less  
6 because the conductivity was two orders of magnitude  
7 too high. And that was not a valid assumption. So the  
8 recalibrated model does represent that much lower  
9 vertical hydraulic conductivity in layer two and still  
10 shows that there's an impact to Silver Creek.

11 And the flaw in their reasoning there is  
12 that they're assuming that the only way for pumping in  
13 the confined aquifer to impact the unconfined aquifer,  
14 and hence Silver Creek, is through transmission  
15 directly vertically through the confining unit.

16 And that logic is flawed because the  
17 confining layer has a limited extent, and these wells  
18 are relatively close to the edge of it. And they --  
19 their impacts propagate upgradient to where the  
20 confined layer tapers out and the unconfined aquifer's  
21 connected directly to the confined aquifer.

22 So that's -- that's why even though we've  
23 recalibrated the model to address their concerns about  
24 having too high a conductance in layer two in that  
25 area, you still do see the impacts to Silver Creek.

1 Q. Did you do a response function analysis on  
2 these wells?

3 A. Yes, I did.

4 Q. What was the number that you found when  
5 you -- that was just recently; right?

6 A. That was back in April sometime apparently,  
7 March or April.

8 Q. Do you remember what the --

9 A. I don't remember that. We'd have to look  
10 in the files --

11 Q. Was it --

12 A. -- for the specific POD.

13 Q. -- more than 1 percent?

14 A. Oh, yes.

15 Q. More than 10 percent?

16 A. I think so.

17 Q. More than 25 percent?

18 A. I don't think so.

19 MR. BARKER: Jennifer, thank you. You've been  
20 more than patient with me today.

21 No further questions of the witness.

22 THE HEARING OFFICER: All right. Thank you,  
23 Mr. Barker.

24 Mr. Laski or Ms. O'Leary, you're next.

25 ///

1 CROSS-EXAMINATION

2 BY MS. O'LEARY:

3 Q. Good afternoon, Ms. Sukow. My name's  
4 Heather O'Leary. I am one of the attorneys for the  
5 Galena Ground Water District, and I just have a few  
6 questions for you this afternoon.

7 Mr. Barker asked you some questions about  
8 the curtailment area identified in the memo that you  
9 submitted to the Department earlier this year.

10 Do you recall that?

11 A. Yes.

12 Q. Okay. My understanding is that the  
13 curtailment area identified in Figure 17 in your  
14 memorandum is different than the curtailment area that  
15 was originally identified in the Department's notice,  
16 that May 4th, 2021 Notice of Administrative Proceeding.

17 Would you agree with that?

18 A. Yes.

19 Q. For instance, one of the changes would be  
20 that the northern boundary line for the proposed  
21 curtailment area was adjusted; right?

22 A. Yes.

23 Q. Can you explain to me why that boundary  
24 line was changed.

25 A. I explained in my staff memo the rationale

1 for the boundary that I used. I was not involved in  
2 drawing that other boundary, so I can't explain to you  
3 why that was drawn where it was.

4 Q. Okay. And can you explain the rationale  
5 for the reason why you drew the northern boundary line  
6 in your Figure 17?

7 A. Yes. It was drawn at the location of the  
8 model cell where Glendale Bridge crosses the Big Wood  
9 River, which is the start of the dry bed, which is a  
10 hydrologic feature where the riverbed is perched above  
11 the aquifer.

12 Q. And what significance does that have?

13 A. The significance of that is that -- and  
14 this isn't absolute, but north of that line groundwater  
15 or aquifer stresses tend to -- the impact of aquifer  
16 stresses tends to propagate to the Big Wood River above  
17 the dry bed, whereas south of that line they tend to  
18 propagate more to Silver Creek or the Big Wood River  
19 below the dry bed.

20 Q. And is that conclusion based on research  
21 that you've conducted?

22 A. That conclusion is based on -- it's based  
23 primarily on model simulations.

24 MS. O'LEARY: May I approach, Director?

25 THE HEARING OFFICER: Sure.

1 Q. (BY MS. O'LEARY): Ms. Sukow, I'm going to  
2 hand you -- I do believe you have this in your binder,  
3 but for simplicity purposes, I'll represent this is  
4 Exhibit 18 of the South Valley Ground Water District  
5 and Galena Ground Water District's joint exhibits.

6 If you could just take a look at that map.  
7 And I want to direct your attention to that northern  
8 boundary line. And I'm just wondering, if you look at  
9 two of the water rights specifically in the middle,  
10 37-2557T and 37-2557D.

11 Do you see those two?

12 A. Uh-huh, yes.

13 Q. Can you explain to me if you performed any  
14 type of analysis to determine the different impacts  
15 that either of those water rights may have.

16 A. I did run -- as I mentioned earlier, I did  
17 run transient response functions for layer one and  
18 layer three for all of the cells in the Triangle that  
19 have irrigation points of diversion, so those would  
20 have been included in that group.

21 Q. Correct. And I understand that.

22 A. Yeah.

23 Q. I'm just wondering if there was a  
24 difference between these two particular cells that has  
25 any significance as to why one was included and one was

1 excluded from the proposed curtailment area. They look  
2 like they're right next to each other.

3 A. They are very close. You know, the one  
4 that's further south has a slightly higher response to  
5 Silver Creek. But they -- the line -- I didn't draw  
6 that line by looking at those response functions. I  
7 drew the line at the model cell that includes Glendale  
8 Bridge, and I drew a -- I just included all the model  
9 cells in that row and went south from there. So that's  
10 how the line was drawn.

11 Q. Do you recall what the difference in the  
12 response function was between these two particular  
13 cells?

14 A. No.

15 MS. O'LEARY: Director, I'd like to move to have  
16 our South Valley Ground Water District and Galena  
17 Ground Water District Exhibit 18 admitted.

18 THE HEARING OFFICER: And this is the map that  
19 she's referring to?

20 MS. O'LEARY: Yes.

21 THE HEARING OFFICER: Okay. Any objection,  
22 Mr. Fletcher?

23 MR. FLETCHER: No.

24 THE HEARING OFFICER: Mr. Rigby?

25 MR. RIGBY: No.

1 THE HEARING OFFICER: Mr. Barker?

2 MR. BARKER: No objection.

3 THE HEARING OFFICER: And Mr. Bromley and  
4 Mr. Lawrence?

5 MR. BROMLEY: No.

6 MR. LAWRENCE: None.

7 THE HEARING OFFICER: Mr. Simpson?

8 MR. SIMPSON: No.

9 THE HEARING OFFICER: Mr. Moroney?

10 MR. MORONEY: No.

11 THE HEARING OFFICER: All right. Mr. Robertson?

12 MR. ROBERTSON: No, sir.

13 THE HEARING OFFICER: Mr. Semanko?

14 MR. SEMANKO: No.

15 THE HEARING OFFICER: Mr. O'Bannon?

16 MR. O'BANNON: No.

17 THE HEARING OFFICER: All right. The document  
18 marked as -- is this a combined, then, South Valley and  
19 Galena exhibit?

20 MS. O'LEARY: Yes, Director.

21 THE HEARING OFFICER: Numbered?

22 MS. O'LEARY: 18.

23 THE HEARING OFFICER: No. 18 is received into  
24 evidence.

25 (SVGWD GGWD Exhibit 18 received.)



1 Q. (BY MS. O'LEARY): Ms. Sukow, I believe  
2 that you testified earlier today through questioning  
3 from Mr. Barker that you performed two simulations on  
4 the model; is that correct?

5 A. I performed simulations for two different  
6 areas. There are actually four simulations for each.  
7 Sorry.

8 Q. Thank you for the clarification, yes.

9 A. Yes.

10 Q. You also mentioned a 99 percent benefit in  
11 streamflow under that second simulated area; is that  
12 right?

13 A. Yes.

14 Q. Okay. Were you instructed to look for a  
15 99 percent benefit?

16 A. Not specifically.

17 Q. Can you elaborate on what you mean by "not  
18 specifically."

19 A. I was asked to -- I was asked to delineate  
20 areas that had minimal impact on Silver Creek, and run  
21 a scenario without -- you know, that excluded those  
22 areas. And I was not given any specific numeric  
23 direction. And I decided that -- that approximately  
24 99 percent was a good result, so that was what I did.

25 Q. And good in comparison to what?

1           A.     Again, I wasn't given much direction, and  
2     that's -- that was the way I chose to look at it. So  
3     obviously, you know, you could run different areas and  
4     come up with a lower percentage than that, or you could  
5     try to get closer to 100 percent. That was just what  
6     I -- what I decided to run with the -- with the little  
7     direction I had.

8           Q.     I'd like to direct your attention back, I  
9     believe you have this in the binder -- or actually,  
10    this is what Mr. Barker just had admitted as  
11    Exhibit 36. It's the South Valley Ground Water  
12    District and Galena Ground Water District Exhibit 36.  
13    I believe it's that top piece of paper.

14          A.     Oh, the e-mail, uh-huh.

15          Q.     The e-mail. The first page, that last  
16    sentence in the first paragraph -- this is from an  
17    e-mail from you to Mr. Spackman and Mr. Baxter, dated  
18    April 5th, 2021.

19                   Do you see that?

20          A.     Yes.

21          Q.     Okay. The last sentence of the first  
22    paragraph reads, "For what it's worth, curtailing just  
23    within South Valley GWD boundaries would yield about  
24    98 percent of the total in-season depletions to Silver  
25    Creek."

1 Do you see that there?

2 A. Yes.

3 Q. We talked about your adjustment or your  
4 particular choosing of where to put that northern  
5 boundary line for the proposed curtailment area.

6 Was your particular placement of that  
7 boundary line impacted at all by the goal of achieving  
8 a 99 percent benefit, as opposed to the original  
9 98 percent yield that you mentioned in your April 5th  
10 e-mail?

11 A. Well, the April 5th e-mail was not --  
12 achieving 98 percent wasn't a goal. That was just I --  
13 at one point I had looked at, you know, whether or not  
14 the South Valley Ground Water District boundary would  
15 lend itself to, you know, being a -- a reasonable  
16 boundary to use in a modeling scenario, because it's  
17 already, you know, an administrative boundary for the  
18 groundwater district. So it seemed like that would be  
19 convenient.

20 Unfortunately, after I reviewed where the  
21 boundary was drawn, it's very hard to justify, from a  
22 modeling and hydrogeologic standpoint, using the  
23 groundwater district boundary because of the shape of  
24 the groundwater district boundary and because it  
25 includes -- South Valley Ground Water District includes

1 a couple of outages from Galena Ground Water District  
2 that are, you know, separate shapes. So they're not --  
3 there's parts of the South Valley Ground Water District  
4 that are not contiguous with the rest of it. So that  
5 made it pretty hard to try to justify that that made  
6 any sense at all from a modeling or scientific  
7 standpoint.

8 Q. Okay. So you didn't run any simulations,  
9 then, is it accurate to say, of just the South Valley  
10 Ground Water District boundary area?

11 A. I did back in early April, it looks like,  
12 is when I did that. And then I threw it out because I  
13 didn't think I could -- that I could justify using that  
14 from a scientific standpoint.

15 Q. Can you turn to the second-to-last page of  
16 this document. It's labeled as page 3. This is an  
17 e-mail from Gary Spackman to you, amongst other  
18 Department staff, and it's dated Wednesday, March 24,  
19 2021.

20 Are you with me?

21 A. Yes.

22 Q. Okay. The last sentence in this particular  
23 e-mail says, "Also Tim, can we identify just those  
24 water users who do not hold any AFRD No. 2 storage?"  
25 And I understand that this sentence is prefaced towards

1 Tim, I'm assuming Tim Luke, but I'm just wondering if  
2 you attempted to do any type of analysis as requested  
3 in this sentence here?

4 A. No, I did not review anything about the  
5 water users, with or without AFRD No. 2 storage.

6 Q. You've testified about various items  
7 regarding response functions within the proposed  
8 curtailment area today.

9 And I believe that you testified -- correct  
10 me if I'm wrong -- that you calculated the response  
11 functions for each well within the curtailment area; is  
12 that correct?

13 A. For each model cell that had an irrigation  
14 POD, I did a response function for both layer one and  
15 layer three.

16 Q. Okay.

17 A. If they were -- if both those layers were  
18 present.

19 Q. And that information was included in the  
20 .shp files that you produced; is that correct?

21 A. It was included in the supporting files.

22 Q. Okay.

23 A. And there are .shp files within that, yes.

24 Q. Okay. You might have already touched on  
25 this, and if you did, I apologize if I missed it, but

1 what time frame were the response functions in that  
2 data? Was it a three-month response function?

3 A. No. Those were, I believe, a five-month,  
4 May 1 to September 30th.

5 Q. Okay. So that -- those response functions  
6 weren't the total response to river reaches over the  
7 entire model time period, then?

8 A. No, they were just -- they were just what  
9 would accrue at the end of five months, so that there's  
10 still a significant amount of water left in aquifer  
11 storage, and there would be additional increases in  
12 reach gains to Silver Creek that occur after October 1.

13 Q. And when you're saying that you did the  
14 response function for each model cell, do you know  
15 which of those cells are connected to Galena Ground  
16 Water members versus South Valley Ground Water members?

17 A. I -- no. I just did them based on where  
18 there were irrigation water right points of diversion.  
19 I did not look at which groundwater district they were  
20 in, and I don't have any idea who's actually a member  
21 or not a member either.

22 Q. Okay. Did you perform any type of analysis  
23 on whether the response function decreases the further  
24 north you are in the Bellevue Triangle?

25 A. The -- there is a response function .shp

1 file in the supporting files. And yes, generally  
2 speaking, the response to Silver Creek decreases --  
3 you're talking about north of -- maybe I should back up  
4 and -- you're talking about at the north boundary or...

5 Q. Well, within the Bellevue Triangle.

6 A. Oh, okay.

7 Q. You start at the southern end of and move  
8 your way north.

9 A. Oh, okay.

10 Q. I'm staying within the curtailment area.

11 My question is, is the further north you go  
12 in that proposed curtailment area, does the response  
13 function decrease?

14 A. Not if you -- if you start at the south  
15 boundary, it gets more complicated than that, because  
16 there's -- you know, depending on where you are on the  
17 south end, it varies, and then you'll end up with a  
18 place where it's increasing as you go north and then  
19 starts decreasing in kind of a general sense, so...

20 Q. Do you know where that decrease starts? Is  
21 there any geographic landmark that you could reference?

22 A. I don't know what you -- well, I mean  
23 the -- the decrease occurs over a large area, so I'm  
24 not sure what exactly you're referring to there.

25 Q. Sure. And maybe if you want to look at

1 that Exhibit 18 -- our Exhibit 18 --

2 A. Which is this [indicating]?

3 Q. -- on the front top of that table that we  
4 were looking at earlier.

5 A. Okay.

6 Q. Just for point of reference, this grouping  
7 of water rights within the curtailment area, just below  
8 that northern boundary line, do you recall what the  
9 response functions were for any of those particular  
10 groundwater rights?

11 A. Not off the top of my head. But in this  
12 area they are generally decreasing as you go northward.

13 Q. And so that means that these -- the less  
14 response function, the less of an impact these rights  
15 would have on Silver Creek; is that correct?

16 A. Well, within the five-month time frame. So  
17 we haven't looked at what would happen if we ran it out  
18 longer. You know, some of them as you go further  
19 north, you have more water retained in storage. But  
20 then you also have more impacts to the Big Wood River  
21 above the dry bed. But within the -- within the time  
22 period of looking at May 1st and what accrues through  
23 September 30th, the ones that are further north have  
24 less impact to Silver Creek.

25 Q. Okay. You were asked about gages at



1 Station 10 earlier today, and I believe you said that  
2 there were two gages; is that correct?

3 A. There are -- my understanding is there are  
4 two sensors there currently, yes.

5 Q. Okay.

6 A. Well, actually, there's three now, because  
7 our staff just installed a new one last -- last week, I  
8 think.

9 Q. Okay.

10 A. So...

11 Q. So you have the new Department.

12 And then what are the other two sensors?

13 A. There's the old Department one, which I  
14 think we're -- ultimately the plan is to abandon that,  
15 but it does have a temperature sensor that I think  
16 we're planning to leave in there.

17 And then the other one is owned -- or the  
18 other one is operated by Water District 37's  
19 contractor. And I -- it's a different type of sensor,  
20 and I don't recall the details on that.

21 Q. Okay. Now, correct me if I'm wrong. I  
22 thought you testified that you had some concerns with  
23 those sensors, and that one of the concerns you had was  
24 that there were not adequate manual measurements to  
25 calibrate; is that correct?

1           A.    That's correct.

2           Q.    Okay.  So is it accurate to say that those  
3 sensors are not calibrated, then?

4           A.    Well, it's not that the sensors aren't  
5 calibrated.  It's that the sensors sense stage in the  
6 river, so the height of the water.  And then you need  
7 manual measurements to develop what they call a rating  
8 curve, which is basically an equation that says well,  
9 if I have this height of water, this stage, how much  
10 flow do I have.  And since this is a rated section,  
11 we're doing that by making frequent manual measurements  
12 that you have a flow, and then you develop a  
13 relationship between the flow and the stage.

14                   And you have to have -- you know, the more  
15 manual measurements you have, the better you're able to  
16 quantify that relationship.  And my understanding is,  
17 particularly at low flows, there haven't been very many  
18 manual measurements made at the Station 10 location.

19           Q.    Okay.  And that's why you're saying that  
20 there's an inadequate amount of -- to calibrate?

21           A.    Yeah.  I guess, you know, I'm calling the  
22 rated section the calibration, yes.

23           Q.    Okay.  And my question is -- and maybe I  
24 took a roundabout way of getting there, but what I'm  
25 trying to figure out is, is it standard for the

1 Department to rely upon uncalibrated measurements?

2 A. No. And I think I expressed in my staff  
3 memo that I felt that the attempt to calculate seepage  
4 losses between Sportsman's Access and Station 10 was --  
5 I think the terminology I used was frustrated by the --  
6 by, you know, measurement uncertainty at the --  
7 particularly at the Station 10 gage location.

8 Q. Okay. But we are relying on those  
9 measurements for this proceeding; is that not right?

10 A. I -- I am not -- I'm not sure what will be  
11 relied on, I guess, out of that data. But that was the  
12 best estimate I could come up with of seepage losses  
13 with the data that was available.

14 Q. Okay. I mean there's no other data that's  
15 been presented; right?

16 A. Right, yeah.

17 MS. O'LEARY: Okay. Director, those are all the  
18 questions I have.

19 Thank you.

20 THE HEARING OFFICER: Thank you, Ms. O'Leary.

21 Mr. Moroney, you may question Ms. Sukow.

22

23 CROSS-EXAMINATION

24 BY MR. MORONEY:

25 Q. Good afternoon, Ms. Sukow. I'm Owen

1 Moroney, here representing the Idaho Department of Fish  
2 and Game.

3 I wanted to start with some questions about  
4 your staff memo, IDWR Exhibit 2.

5 Did the curtailment scenario you conducted  
6 in that memo consider only consumptive groundwater  
7 rights?

8 A. Yes.

9 Q. So curtailment of nonconsumptive rights was  
10 specifically excluded from your analysis; correct?

11 A. That's correct.

12 Q. So in that memo, when I go to page 16, it  
13 talks about only analyzing consumptive rights, it  
14 doesn't mention nonconsumptive rights.

15 But the import of that should be that we're  
16 not considering nonconsumptive rights; correct?

17 A. Correct.

18 Q. Are you generally familiar with the Idaho  
19 Department of Fish and Game's fish production rights at  
20 Hayspur Hatchery?

21 A. I am somewhat familiar with them.

22 Q. In your curtailment scenario, did you  
23 specifically omit analyzing those nonconsumptive, those  
24 rights, those fish production rights?

25 A. So in the Baseline run for the curtailment

1 scenario, which is the same as the model calibration  
2 run, they are included, so there's pumping -- there's  
3 groundwater pumping, and then there is return flow to  
4 the creek that's included in the -- in the reach gain  
5 calculations that offsets that. And we're assuming  
6 that the same amount that's pumped is returned to the  
7 creek.

8           And if they're truly nonconsumptive, then  
9 there really is no impact in the curtailment scenario.  
10 So no, they're not -- they're not modeled as being  
11 curtailed.

12           Q.    Okay.  So thank you.

13           In general, when water is short and the  
14 Department makes priority cuts, are nonconsumptive  
15 priority rights included in those cuts?

16           A.    I'm not the best person to ask that  
17 question.

18           Q.    All right.  I understand that.

19           A.    I don't usually -- yeah.

20           Q.    So now turning to Fish and Game's specific  
21 rights.  I wanted to have you look at a couple of Fish  
22 and Game's exhibits.  They're in the black binders  
23 behind the Director.

24           THE HEARING OFFICER:  Well, I have several black  
25 binders.

1 MR. MORONEY: I think all three of them,  
2 actually.

3 MS. CARTER: They're separate.

4 Q. (BY MR. MORONEY): So you just said that  
5 you're generally familiar with Fish and Game's fish  
6 production rights at Hayspur Hatchery; correct?

7 A. Yes.

8 Q. If I have you turn to Exhibit 4, you should  
9 see Water Right 37-08271.

10 Could you take a look at this right and let  
11 me know if it's consumptive or nonconsumptive on the  
12 face of the right.

13 A. It says, "Use shall be nonconsumptive."

14 MR. MORONEY: I move to admit IDFG Exhibit 4  
15 into the record, Director.

16 THE HEARING OFFICER: Okay. Mr. Moroney, I'm  
17 looking at this particular document, and at least the  
18 label in the lower-right corner says IDFG 0239.

19 Is that a page number?

20 MR. MORONEY: That was our Bates numbers for the  
21 exhibit. But I guess I'm referring to it by the tabs,  
22 which should be tab No. 4.

23 THE HEARING OFFICER: Well, the document needs  
24 to be marked, it seems to me, as Exhibit 4, IDFG  
25 Exhibit 4. Do we have a label?

1                   And while we're preparing the label, it  
2 will be marked as Exhibit 4.

3                   (IDFG Exhibit 4 marked.)

4                   THE HEARING OFFICER: Mr. Fletcher, any  
5 objection?

6                   MR. FLETCHER: No, your Honor.

7                   THE HEARING OFFICER: Mr. Rigby?

8                   MR. RIGBY: No, your Honor.

9                   THE HEARING OFFICER: Mr. Barker or  
10 Mr. Thompson?

11                   MR. THOMPSON: No.

12                   THE HEARING OFFICER: Mr. Laski or O'Leary?

13                   MR. LASKI: No.

14                   THE HEARING OFFICER: Mr. Bromley?

15                   MR. BROMLEY: No.

16                   THE HEARING OFFICER: Mr. Lawrence?

17                   MR. LAWRENCE: No.

18                   THE HEARING OFFICER: Mr. Simpson?

19                   Mr. Robertson?

20                   MR. ROBERTSON: Well, my client's here now  
21 seeing me in action while I've been sitting here all  
22 day, and he thinks I ought to object to something. But  
23 I'm not taking his advice. I have no objection.

24                   THE HEARING OFFICER: Mr. Semanko?

25                   MR. SEMANKO: None.

1 THE HEARING OFFICER: Mr. O'Bannon, if he's  
2 still here? There he is.

3 Mr. Robertson, since your client is now  
4 here, I want to call you out for not appearing in  
5 proper attire today, along with the rest of us. And  
6 we'll deal with some level of sanctions.

7 MR. ROBERTSON: I didn't want to put him to  
8 shame, my client, that is, so I did not dress.

9 THE HEARING OFFICER: All right. The document  
10 marked as IDFG No. 4 is received into evidence.

11 (IDFG Exhibit 4 received.)

12 THE HEARING OFFICER: Mr. Moroney.

13 Q. (BY MR. MORONEY): All right. Ms. Sukow,  
14 next turning to the second of Fish and Game's three  
15 groundwater rights at Hayspur. I have it tabbed as  
16 Exhibit 6. It is Water Right No. 37-08331, Bates  
17 numbered IDFG 0318.

18 Could you look at that right and tell me  
19 whether it is consumptive or nonconsumptive on the face  
20 of the right?

21 A. Yes. There is a condition that says,  
22 "Shall be nonconsumptive."

23 MR. MORONEY: Director, could I move that IDFG  
24 Exhibit 6 be admitted to the record.

25 THE HEARING OFFICER: We'll mark it as



1 Exhibit 6.

2 (IDFG Exhibit 6 marked.)

3 THE HEARING OFFICER: Mr. Fletcher?

4 MR. FLETCHER: No objection.

5 THE HEARING OFFICER: Mr. Rigby?

6 MR. RIGBY: No objection.

7 THE HEARING OFFICER: How about -- how about  
8 just saying does anybody object? Let's move.

9 MR. RIGBY: Much better.

10 THE HEARING OFFICER: Does anybody object? I've  
11 learned your names.

12 All right. The document marked as  
13 Exhibit 6 received into evidence.

14 (IDFG Exhibit 6 received.)

15 THE HEARING OFFICER: Mr. Moroney.

16 Q. (BY MR. MORONEY): All right, Ms. Sukow.  
17 Showing you the final, the third of Fish and Game's  
18 groundwater rights at Hayspur Hatchery. I have it  
19 marked as IDFG Exhibit 2. It's on Bates stamp page  
20 IDFG 0118. The Water Right No. is 37-07038. So this  
21 right I'm not going to ask you whether it has a  
22 nonconsumptive use condition on its face, because it  
23 doesn't.

24 But if I was to represent to you that this  
25 right is commingled with the other two rights and used

1 in the same fish hatchery in the exact same way, would  
2 you say it would be fair to say -- to assume that it  
3 should also be labeled as nonconsumptive?

4 A. Yes, that was the assumption I made for  
5 the -- for processing the model calibration inputs.

6 Q. So you specifically considered this right  
7 as nonconsumptive in modeling curtailment?

8 A. Yeah, for modeling purposes. The only  
9 purpose of use listed on it is fish propagation.

10 MR. MORONEY: All right, Director. Those are  
11 all my questions for Ms. Sukow.

12 THE HEARING OFFICER: So do you wish to offer --

13 MR. MORONEY: Oh --

14 THE HEARING OFFICER: -- the exhibit?

15 MR. MORONEY: -- yes.

16 I move to admit IDFG Exhibit 2 into the  
17 record.

18 THE HEARING OFFICER: Okay. It is so marked.

19 (IDFG Exhibit 2 marked.)

20 THE HEARING OFFICER: Does anyone object to this  
21 water right or this document representing a Fish and  
22 Game water right into the record?

23 Hearing none, it's received into evidence.

24 Thank you.

25 (IDFG Exhibit 2 received.)

1 THE HEARING OFFICER: Thank you, Mr. Moroney.

2 Now, we have -- we have now concluded the  
3 cross-examination by group two, and we're ready to  
4 start in with group three.

5 Is it an appropriate time for an afternoon  
6 break, or should I wait until the start of the swing  
7 shift because we're behind?

8 THE WITNESS: I could really use a bathroom  
9 break, for what it's worth.

10 THE HEARING OFFICER: All right. Let's break  
11 now for ten minutes. Come back at approximately  
12 quarter to, a little after.

13 (Recess.)

14 THE HEARING OFFICER: Let's go back on the  
15 record. We're back recording after the afternoon  
16 break.

17 And based on our conversation,  
18 Mr. Lawrence, you may examine Ms. Sukow, please.

19 MR. LAWRENCE: Thank you, Mr. Director.

20

21 CROSS-EXAMINATION

22 BY MR. LAWRENCE:

23 Q. Good afternoon, Ms. Sukow. My name is Mike  
24 Lawrence. I'm an attorney for the City of Hailey.  
25 Thank you for hanging in there with everybody this

1 afternoon. I know it's been long, and I'll try to be  
2 brief.

3 Ms. Sukow, in your dialogue with Mr. Barker  
4 earlier, to characterize or paraphrase what you said,  
5 would it be fair to say that if you had more time that  
6 you could refine or update the analysis in your  
7 May 17th staff memo?

8 A. I think he was asking me specifically about  
9 Allan Wylie's predictive uncertainty analysis. So no,  
10 I wasn't talking about the analysis I did in my staff  
11 memo.

12 Q. If I recall correctly, Mr. Barker asked you  
13 if you could conduct an uncertainty analysis for your  
14 specific curtailment runs described in your memo.

15 Do I recall that correctly?

16 A. Yes.

17 Q. And I recall you testifying that if you had  
18 a few months, perhaps, you could do that?

19 A. Yes.

20 Q. And is it also correct that you have not  
21 updated your analysis with any new information based on  
22 Mr. Vincent's SWSI testimony that he gave this morning,  
23 that there was a new SWSI update for June; is that  
24 correct?

25 A. That's correct.

1 Q. And how long would it take for you to  
2 update your model runs to find different analog years  
3 based on the updated SWSI?

4 A. That would not take very long. We could do  
5 a different analog year. And that analysis could be  
6 done in a day.

7 Q. Have you been asked to do that?

8 A. No.

9 Q. Ms. Sukow, I'd like to turn to your  
10 Figure 14, which is on page 16 of your staff memo. And  
11 I recognize that Figure 14 in the memo itself is not  
12 the correct version and that there is a different  
13 version attached to the Director's pre-hearing order  
14 and scheduling order.

15 Is that correct?

16 A. That's correct.

17 Q. Ms. Sukow, do you have a copy of the  
18 updated table, Figure 14, in front of you?

19 A. Yes.

20 Q. Ms. Sukow, first, I noticed a difference  
21 between the Figure 14 in your memo -- well, several  
22 differences, but one that stuck out between it and the  
23 one attached to the Director's order, and there's a  
24 dot -- a legend that says, quote, "Simulated increase  
25 in recharge" in the updated Figure 14.

1           Can you describe with a "Simulated increase  
2 in recharge" means.

3           A.   Well, a simulated curtailed consumptive use  
4 is equivalent to simulating an increase in net  
5 recharge.

6           Q.   Okay. So is it safe to say that simulated  
7 increase in recharge is the same as the volume of  
8 curtailed consumptive use?

9           A.   Yes.

10          Q.   Okay. Thank you.

11                   Sticking with Figure 14 briefly, I would  
12 like to point your attention to the updated SWSI  
13 information that was entered into the record as the  
14 Department's Exhibit 5, IDWR 5. And I was wondering,  
15 Ms. Sukow -- and I'll represent to you that the years  
16 2012 and 2014 on your Figure 14, and when you look at  
17 IDWR 5, those years have higher SWSIs than the 2002  
18 year that you used.

19                   Do you recognize that?

20          A.   That is correct.

21          Q.   However, on your Figure 14 there's a higher  
22 volume of curtailed consumptive use in 22 -- 2012 and  
23 2014, than in 2002, even though, based on the SWSI,  
24 they should have had greater surface water supplies; is  
25 that an accurate characterization?

1           A.    That is true.

2           Q.    Can you explain why there's higher  
3 consumptive use volume for those years in your  
4 Figure 14 than for Figure 2002 even though they  
5 evidently were supposed to have better surface water  
6 supplies.

7           A.    I can explain some possible reasons that  
8 that might have occurred.  There -- you know, there  
9 could have been changes in irrigation practices.  There  
10 could have been -- also, you know, there's the water  
11 supply side, which the SWSI predicts, but SWSI doesn't  
12 predict the water demand side, which is partly driven  
13 by -- I mean it's partly driven by crops people grow,  
14 but it's also partly driven by the weather during the  
15 summer and how much evapotranspiration demand there is.

16                    So -- so you might have -- you might have  
17 years that have the same water supply, but one of them  
18 might have a higher irrigation demand because -- either  
19 because of the weather or because of the type of crops  
20 people are growing.

21                    Another difference between those years is  
22 the type of data we had for evapotranspiration.  And  
23 that was one of the reasons I wanted to use -- I liked  
24 using 2002 as a baseline year was that we do have  
25 METRIC evapotranspiration data for 2002, which is what

1 we generally consider to be the best, most refined of  
2 the evapotranspiration data sources we have.

3           2012 and -- well, 2014 we had ET derive --  
4 evapotranspiration derived from NDVI, the Normalized  
5 Difference Vegetation Index, which is considered to be  
6 good but not as good as METRIC.

7           And 2012, if I recall correctly, involved  
8 some more -- might have involved some more  
9 interpolation methods to estimate the  
10 evapotranspiration. So the datasets might also come  
11 into play there on what the model computed the  
12 consumptive use was.

13           Q. You mentioned that a factor may be the  
14 irrigation practices, different irrigation practices  
15 between the years?

16           A. That could be, yes.

17           Q. Have you examined those irrigation  
18 practices and the differences between 2002, 2012, and  
19 2014?

20           A. Not directly. To the extent that they --  
21 you know, to the extent that they impact the diversions  
22 and -- the surface water diversions and the  
23 evapotranspiration data, that is hopefully reflected in  
24 our dataset. But I have not inspected that at a  
25 different level.



1 Q. Have you compared the irrigation practices  
2 during those years with irrigation practices in 2021?

3 A. No.

4 Q. And you mentioned differences in water  
5 demand perhaps being a factor as to why those years  
6 have different volumes of consumptive use on your  
7 Figure 14; is that correct?

8 A. That's a possibility, yes.

9 Q. And have you analyzed the differences in  
10 water demand between those years?

11 A. No, I have not, not other than is reflected  
12 in our evap- -- I mean that is probably what our  
13 evapotranspiration dataset is -- is showing. But other  
14 than -- other than processing those data, no.

15 Q. And have you analyzed those years versus  
16 water demands in 2021?

17 A. No.

18 Q. You mentioned that 2002 used METRIC data;  
19 is that correct?

20 A. Yes.

21 Q. And there is some level of uncertainty with  
22 METRIC data, isn't that correct?

23 A. Yes.

24 Q. Do you have any idea what level of  
25 uncertainty the METRIC data has?

1           A.    I don't have a specific number for that,  
2 no.

3           Q.    And you also mentioned the NDVI, it also  
4 has some uncertainty?

5           A.    Yes.

6           Q.    And any idea of the level of uncertainty?

7           A.    No.

8           Q.    Ms. Sukow, did you analyze whether water  
9 resulting from curtailment of groundwater rights would  
10 be available for diversion at the points of diversion  
11 of any specific senior water rights?

12          A.    No.

13          Q.    And if -- would the model tell you that if  
14 you asked it?

15          A.    The model only tells you what accrues to  
16 the -- the increase in reach gains above Sportsman's  
17 Access. No, it does not tell you about conveyance  
18 downstream or which surface water rights are next in  
19 priority.

20          Q.    Turning to the model uncertainty, I know  
21 that's been discussed a lot today, and I believe you  
22 testified that the Wylie report concluded that in the  
23 Bellevue Triangle we're looking at plus or minus  
24 22 percent uncertainty; is that correct?

25          A.    That is correct for the specific locations

1 he analyzed.

2 Q. And those locations -- that uncertainty  
3 analysis is based on two points within the Bellevue  
4 Triangle; is that correct?

5 A. There was a third point that I think I  
6 would have characterized as also being in the Bellevue  
7 Triangle.

8 Q. Whether it's two or three points in the  
9 Bellevue Triangle, are those -- those are called stress  
10 points, I believe? Is that how you'd characterize  
11 them?

12 A. They are the point at which he applied  
13 stress in his simulation, yes.

14 Q. Would the relatively -- sorry, uncertainty  
15 analysis conducted at those points correspond to all  
16 other points within the Bellevue Triangle?

17 A. No. Each prediction is specific to that  
18 individual prediction.

19 Q. So we know, based on two or three points in  
20 or near the Bellevue Triangle, uncertainty of  
21 22 percent plus or minus at those specific points?

22 A. Well, there were two points that were plus  
23 or minus 22 percent and one that was plus or minus, I  
24 believe, 15 percent.

25 Q. And those values are -- relate only to

1 those specific points and not everywhere within the  
2 Bellevue Triangle; correct?

3 A. Correct.

4 Q. And do we know what the uncertainty is at  
5 every other point within the Bellevue Triangle?

6 A. No.

7 Q. You mentioned that the difference between  
8 Mr. Wylie's analysis that there's 22 percent plus or  
9 minus predictive uncertainty is based on the  
10 ten-month -- ten-month dataset or a ten-month model  
11 run -- I don't know how you say it -- but you did only  
12 a three-month simulation; is that correct?

13 A. For the curtailment scenarios beginning  
14 July 1st, yes, those are a three-month simulation.

15 Q. And your three-month simulation you said  
16 may have higher uncertainty than plus or minus  
17 22 percent?

18 A. It may.

19 Q. Okay. And just to clarify, does that mean  
20 the information in your Tables 1 and 2 in your memo  
21 where you lay out your simulations for full model  
22 curtailment and also the curtailment in the smaller  
23 area, that means that those values in those tables can  
24 be off by 22 percent or more; is that correct?

25 A. With a 95 percent confidence interval,

1 which actually is a fairly high bar, yes.

2 Q. So you're 95 percent confident that those  
3 figures are within 22 percent plus or minus?

4 A. Again, we can't necessarily apply that  
5 22 percent to that prediction, because those are for  
6 the specific predictions Allan ran. But if they were,  
7 yeah, that would be what we were saying.

8 Q. I understand. Earlier you and Mr. Barker  
9 were talking about seepage losses between Sportsman's  
10 Access gage and Little Wood River gage Station No. 10,  
11 and I believe your report states that those may range  
12 from 20 percent to 37 percent of the inflow to the  
13 reach; is that right?

14 A. Yes.

15 Q. So I understand, then, does that mean that  
16 up to 30 percent of the water entering that reach from  
17 curtailing groundwater pumping might be lost to seepage  
18 and never be available for diversion by surface water  
19 users?

20 A. Well, that depends on where the surface  
21 water users are, because some of them are -- some of  
22 the surface water users on Silver Creek are upstream of  
23 where those losses occur. So up until Sportsman's  
24 Access it's gaining, between Sportsman's Access and  
25 Highway 20 the measurements we've collected during

1 model development suggest that there's not any  
2 significant loss in that reach. The measured gains and  
3 losses have been less than the measurement error of the  
4 streamflow measurements.

5           So -- so based on the information  
6 available, and we all think the losses are occurring  
7 somewhere between Highway 20 and Station 10. So water  
8 users that are upstream of those losses might have all  
9 of that available to them. Water users that are  
10 further down, to deliver water to them might incur up  
11 to that, you know, 30-ish percent loss rate.

12           Q.    So depending where a point of diversion is  
13 along that reach, there may be losses of up to  
14 37 percent before it reaches that point of diversion?

15           A.    There may be, yes, if they're down  
16 Station 10 or below.

17           Q.    And therefore, say an acre-foot of  
18 groundwater pumping or consumptive use curtailed to  
19 supply that right, would be diminished by 37 percent,  
20 perhaps up to 37 percent, before it made it to one of  
21 those points of diversion?

22           A.    The amount of water that accrues to the  
23 Silver Creek reach gain could be reduced by up to  
24 37 percent before it reaches the downstream water user.

25           Q.    Ms. Sukow, did your analysis look at how

1 groundwater pumping inside or outside the potential  
2 area of curtailment affects any particular water  
3 rights?

4 A. I didn't -- I looked at reach gains not  
5 specific water rights.

6 Q. So you have not analyzed -- I think I've  
7 already asked this, perhaps -- whether groundwater  
8 pumping -- water resulting from curtailed groundwater  
9 pumping would benefit any particular senior water  
10 right?

11 A. No.

12 Q. So is it fair to say that you did not  
13 analyze actual or material injury to any particular  
14 water rights?

15 A. It's fair to say that.

16 Q. Did you analyze whether in 2021 any water  
17 rights will use water efficiently and without waste?

18 A. No.

19 Q. Did you analyze the amount of water that  
20 actually will be available in 2021 and the source from  
21 which a water right is diverted?

22 A. No.

23 Q. Did you analyze the effort or expense of  
24 the holder of a water right to divert water from their  
25 source in 2021?

1           A.    No.

2           Q.    Did you analyze whether the exercise of  
3 junior-priority groundwater rights, individually or  
4 collectively, affects the quantity and timing of water  
5 available to any particular senior-priority surface or  
6 ground water right in 2021?

7           A.    I analyzed whether they collectively  
8 affected the amount of water available in the river  
9 reach, but not to specific water right, senior water  
10 rights.

11          Q.    And did you analyze whether the exercise of  
12 a junior-priority groundwater right, individually or  
13 collectively, will affect the cost of exercising any  
14 particular senior surface or groundwater right?

15          A.    No.

16          Q.    Did you analyze for the 2021 irrigation  
17 season the rate of diversion compared to the acreage of  
18 lands served by any senior-priority irrigation rights?

19          A.    No.

20          Q.    Or for the '21 -- 2021 irrigation season,  
21 did you analyze the volume of water diverted by any  
22 senior-priority irrigation right?

23          A.    No.

24          Q.    And same for the 2021 irrigation season,  
25 did you analyze the system diversion or conveyance



1 efficiency of any senior-priority irrigation rights?

2 A. No.

3 Q. And again, have you analyzed the method of  
4 irrigation water application by any senior-priority  
5 water rights?

6 A. No.

7 Q. Did you for the 2021 irrigation season  
8 analyze the amount of water being diverted and used  
9 compared to the water rights?

10 A. I'm sorry. Repeat that.

11 Q. For the 2021 irrigation season, did you  
12 compare the amount of water being -- actually being  
13 diverted and used compared to the water rights?

14 A. No.

15 Q. And did you analyze the existence of water  
16 measuring and recording devices?

17 A. No.

18 Q. And for this 2021 irrigation season, did  
19 you analyze the extent to which a senior-priority water  
20 right could be met with the user's existing facilities  
21 and water supplies by employing reasonable diversion  
22 conveyance efficiency and conservation practices?

23 A. No.

24 Q. And finally, for the 2021 irrigation  
25 seasonal, did you analyze the extent to which the

1 requirements of senior-priority surface water rights  
2 could be met using alternate reasonable means of  
3 diversion or alternate points of diversion?

4 A. No.

5 MR. LAWRENCE: That's all my questions.  
6 Appreciate it. Thank you, Ms. Sukow.

7 THE HEARING OFFICER: Thank you, Mr. Lawrence.

8 Mr. Simpson, do you have questions?

9 MR. SIMPSON: No questions.

10 THE HEARING OFFICER: Mr. Robertson?

11 MR. ROBERTSON: No.

12 THE HEARING OFFICER: Mr. Semanko?

13 MR. SEMANKO: No.

14 THE HEARING OFFICER: Mr. O'Bannon?

15 MR. O'BANNON: No.

16 THE HEARING OFFICER: Redirect.

17 Ms. Carter?

18 MS. CARTER: I have nothing.

19 THE HEARING OFFICER: Nothing on redirect.

20 Now, this brings us, I guess, to a  
21 particular juncture. These were Department witnesses.  
22 And I suppose Ms. Sukow could be subject to being  
23 recalled, Mr. Fletcher, Mr. Rigby or others. So we  
24 could either allow some redirect of her if you have a  
25 desire or -- now or we could wait.

1                   What's your preference?

2           MR. RIGBY: I just have a few.

3           THE HEARING OFFICER: Mr. Fletcher, do you have  
4 questions?

5           MR. FLETCHER: I don't think so.

6           THE HEARING OFFICER: All right. Let's go one  
7 more round. Let's try -- let's try combining if we can  
8 to get through this witness.

9                   Mr. --

10          MR. RIGBY: Combining?

11          THE HEARING OFFICER: Well, what I'm saying is  
12 that we could separate and she could be recalled.

13          MR. RIGBY: Got it.

14          THE HEARING OFFICER: But let's combine it all  
15 together, if we can.

16                   So, Mr. Rigby, redirect.

17          MR. RIGBY: Thank you, Mr. Director.

18

19                               REDIRECT EXAMINATION

20 BY MR. RIGBY:

21           Q. Ms. Sukow, a great number of questions have  
22 been asked of you concerning the uncertainty of the  
23 model and an uncertainty analysis; correct?

24           A. Correct.

25           Q. My question to you is, there's clearly

1 uncertainty with all models; correct?

2 A. Correct.

3 Q. And therefore, in fact when we talk about  
4 the uncertainty, whatever percentage that might be,  
5 it's a plus or minus; correct?

6 A. Correct.

7 Q. Meaning that it could actually be more  
8 impactful to the flows in the river than what you've  
9 predicted, as well as less impactful; correct?

10 A. Correct.

11 Q. I can skip all that.

12 Furthermore, it's -- the question was asked  
13 of you of more work to be done.

14 Isn't that, again, very true of every model  
15 you've worked with?

16 A. Yes.

17 Q. Models are an ever-evolving system and  
18 process, are they not?

19 A. Yes.

20 Q. There's also the question asked of you,  
21 stabilization of the aquifer from '91 by Mr. Barker.

22 Do you recall that line of questioning?

23 A. Yes.

24 Q. Well, isn't it correct to say by that  
25 stabilization, that that stabilization took into

1 account the junior pumping that has occurred, and if it  
2 were conjunctive management, would be out of priority,  
3 meaning that they are pumping and impacting the  
4 seniors?

5 A. Yes. I mean the -- the stabilization of  
6 the water levels does not in any way mean that there is  
7 not an impact of the junior groundwater pumping.

8 Q. Thank you. That was going to be my next  
9 question.

10 So in other words, that really isn't  
11 relevant to the issue we have before us, is it?

12 A. It's not -- it's not relevant to predicting  
13 the hydrologic response in Silver Creek to a  
14 curtailment of groundwater use. That's -- you know,  
15 that's what we designed the model to do, and clearly  
16 the model shows there is an impact, even though the  
17 model is using water level -- those water-level data,  
18 you know, from that same time period, so yeah.

19 Q. And again, getting back only because  
20 there's been so much -- so many questions concerning  
21 uncertainties and percentages and everything else, I  
22 believe your testimony was, especially this particular  
23 year and because of the drought, and this is the year  
24 we're focusing on, that the curtailment would cause  
25 significant increase in flows say at the Sportsman

1 Access; correct?

2 A. That is what the model predicts, yes.

3 Q. And therefore, even though -- just assume  
4 for a moment we add some more percentages to the  
5 uncertainty, doesn't the fact that this particular  
6 year, with this particular drought, cause you to feel  
7 even more secure in saying that it will in fact and  
8 indeed impact the flows significantly?

9 A. Yes.

10 Q. So again, for another year or for a  
11 long-term issue to be resolved, the model needs to be  
12 worked on, the model needs to be -- there needs to be  
13 more input? For this particular purpose that's why I  
14 ask this question. Is that correct? I mean do you  
15 understand it the same way?

16 A. I guess I'm not sure what the question is.

17 Q. Yeah, you're right. That was a -- I  
18 didn't -- I was making a statement or I was testifying.

19 The fact that for this particular year and  
20 this particular drought that we're involved with, then  
21 this -- the percentages of what you could narrow in the  
22 future by adding to the model, by improving the model  
23 doesn't change the outcome of a significant impact to  
24 the river?

25 A. I mean I guess my -- you know, my point on

1 that about the comment that more work needs to be done,  
2 it -- we can certainly improve a future version of the  
3 model by recalibrating with additional data that we've  
4 been collecting since 2014. But I think Allan's  
5 conclusion -- and I would agree with it -- is that the  
6 current model is -- is the best available tool we have  
7 to make a prediction for this year, and that it is good  
8 enough to use for that purpose.

9 Q. And therefore, a curtailment based upon the  
10 model, in your estimation, if that were done, do you  
11 think that would be justified?

12 MR. BARKER: Objection. Calls for a legal  
13 conclusion. She hasn't had any ability to testify  
14 about injury or anything other than what the impact of  
15 curtailment would have on the flows in Silver Creek.

16 THE HEARING OFFICER: Sustained.

17 Q. (BY MR. RIGBY): Concerning the lack of the  
18 manual measurements for the Station 10 that you  
19 testified to, are there ranges of flow that are more  
20 representative than others, and are the majority of  
21 flows anticipated to occur in these ranges? Do you  
22 understand the question? So if there -- because you  
23 don't have the manual measurements for Station 10,  
24 would there be different ranges within those flows that  
25 would be more representative and be able to be better

1 for your analysis, and would most of those flows that  
2 would be representative occur in those other ranges?

3 A. I don't think so. My personal opinion is I  
4 think the data -- the dataset is pretty poor at this  
5 point.

6 Q. Pretty part?

7 A. Pretty poor.

8 Q. Pretty poor.

9 A. The dataset.

10 Q. Okay. So your analysis to date, though, is  
11 based upon, again, what? Because you don't have the  
12 actual physical measurements.

13 A. Well, so my analysis here was based on the  
14 watermaster's record of Station 10, which is, to my  
15 knowledge, based on the rating curve established by his  
16 contractor with what measurements he has taken. And I  
17 have not personally reviewed those.

18 The measurements at Silver Creek at  
19 Sportsman's Access, that's a USGS gage. They have a  
20 very good QA/QC program and a good program of making  
21 the manual measurements to make the rating curves  
22 there, so I have more confidence in that. There is  
23 still gage error. There always is.

24 Then we also have the large number of  
25 diversions that occur between those two points. I



1 don't really have any idea what measurement error might  
2 be associated with those particular measurements,  
3 generally.

4 MR. RIGBY: Very good. Thank you. Appreciate  
5 it.

6 THE HEARING OFFICER: Thank you, Mr. Rigby.

7 Mr. Fletcher, questions?

8 MR. FLETCHER: No, thank you.

9 THE HEARING OFFICER: Okay. Mr. Barker,  
10 questions?

11 MR. BARKER: I'll pass.

12 THE HEARING OFFICER: Ms. O'Leary?

13 MS. O'LEARY: No, Director.

14 THE HEARING OFFICER: And Mr. Moroney?

15 MR. MORONEY: No, Director.

16 THE HEARING OFFICER: Mr. Lawrence?

17 MR. LAWRENCE: Nothing. Thank you.

18 THE HEARING OFFICER: Any others?

19 All right. Thank you, Jennifer. And I  
20 want to personally thank you for the long time sitting  
21 in the witness chair and a grueling experience that it  
22 is, you're becoming more and more seasoned. So --

23 MR. BARKER: Does she get tomorrow off?

24 THE HEARING OFFICER: Thank you.

25 Pardon me, Mr. Robertson.

1 MR. ROBERTSON: I said yes, I agree.

2 THE HEARING OFFICER: Yeah, I personally am glad  
3 to have competent, scientific people who I rely on a  
4 great deal.

5 Thank you, Jennifer.

6 Okay. Ms. Carter.

7 MS. CARTER: Phil Blankenau.

8 THE HEARING OFFICER: Is Phil here? Oh, he is  
9 in the back.

10 Phil, if you'll come forward, please.  
11 Raise your right hand if you would.

12  
13 PHILIP BLANKENAU,  
14 having been called as a witness by the Department and  
15 first duly sworn, testified as follows:

16  
17 THE HEARING OFFICER: Please be seated.

18 And far as I know this is the first  
19 opportunity for Phil Blankenau to testify as an expert  
20 witness for the Department, at least I'll characterize  
21 him that way.

22 So take the gloves off, folks.

23 MR. RIGBY: Take them off?

24 THE HEARING OFFICER: Yeah, sure.

25 All right. Ms. Carter.

1 DIRECT EXAMINATION

2 BY MS. CARTER:

3 Q. Please state your full name and spell it  
4 for the record.

5 A. Full name is Philip Blankenau, P-h-i-l-i-p,  
6 Blankenau is spelled B-l-a-n-k-e-n-a-u.

7 Q. And you are an employee of the Department  
8 of Water Resources; correct?

9 A. Correct.

10 Q. And what is your current job title?

11 A. Evapotranspiration analyst.

12 Q. And what are your responsibilities in this  
13 position?

14 A. Primarily modeling ET and interpreting ET  
15 data, and then I also do remote sensing work for the  
16 Department.

17 Q. And how long have you worked in this  
18 position?

19 A. About a year and nine months.

20 Q. And prior to your current position at the  
21 Department, what position did you hold?

22 A. I worked as a research engineer at the  
23 University of Nebraska in Lincoln.

24 Q. And what did you do in this position?

25 A. I primarily worked on the METRIC remote

1 sensing ET model. And it was a different version of  
2 the model than is used here, but very similar. And I  
3 worked with actually the developer of METRIC,  
4 Dr. Richard Allen.

5 Q. How long did you work in that position?

6 A. I worked in that position for about two  
7 years.

8 Q. And what is your college education?

9 A. I have a bachelor's and master's in civil  
10 engineering from the University of Nebraska.

11 Q. And do you have any particular emphasis in  
12 your civil engineering education?

13 A. Water resources, focus in water resources.

14 Q. What professional credentials do you have?

15 A. I'm an engineer in training. So I've  
16 passed my fundamentals exam.

17 Q. And do you have any publications that are  
18 relevant to our discussions today?

19 A. I do have a publication in the field of ET,  
20 a peer-reviewed publication.

21 Q. Okay. And did you prepare a memo  
22 discussing evapotranspiration in the Wood River Basin?

23 A. Yes.

24 Q. I am going to hand you what's labeled IDWR  
25 Exhibit 3.

1           Is Exhibit 3 the memo that you prepared?

2           A.    It is.

3           Q.    And why did you prepare this memo?

4           A.    I prepared this memo in response to the  
5 Director's request for staff memoranda, and in  
6 particular item 10B, which, paraphrasing, requested  
7 that ET for water right places of use be examined for  
8 years of adequate water supply and years of reduced  
9 water supply.

10          Q.    And in your memo you start out by  
11 mentioning METRIC.

12                    Could you tell me what METRIC is.

13          A.    METRIC is a remote sensing model for  
14 mapping evapotranspiration spatially.

15          Q.    And let's talk about, what is ET,  
16 evapotranspiration?

17          A.    It's the sum of plant transpiration and  
18 evaporation.

19          Q.    Okay. And how did you use ET In your  
20 analysis for the memo?

21          A.    So the idea behind looking at ET is that ET  
22 represents or is equivalent to consumptive use. So if  
23 a field shows a very low ET value, then there's reason  
24 to believe that it doesn't have a sufficient supply of  
25 water.

1 Q. All right. And you talk about different  
2 types of ET in your memo.

3 Could you tell me what estimated actual ET  
4 is.

5 A. It's a confusing term. "Actual ET" just  
6 means that the model is attempting to estimate the ET  
7 that's actually occurring, wherever we're looking with  
8 the model. And then the estimated portion is just to  
9 say that it's a model, so it's an estimate.

10 And that's contrasted with potential ET.  
11 So reference ET is sometimes considered to be a  
12 potential ET, and that's kind of like a maximum ET  
13 rate.

14 Q. Okay. And then in your memo you discuss  
15 different areas you used for comparison.

16 What were those different areas?

17 A. I looked at five different areas. I looked  
18 at the -- an area called the Richfield area, and of  
19 course that's near the town of Richfield, and the north  
20 Shoshone area. Both of those areas are primarily fed  
21 by Magic Reservoir.

22 And then I looked at the area of potential  
23 curtailment, which was essentially, in my analysis,  
24 just the groundwater rights within the area of  
25 potential curtailment.

1           And then I looked at the set of surface  
2 water rights along Silver Creek and the Little Wood  
3 identified by Tim Luke in his memo.

4           And then lastly I looked at an area called  
5 AFRD2. It's not the entire service area of AFRD2, but  
6 it was used as kind of a baseline area because it -- we  
7 thought it would have a good water supply, a solid  
8 water supply.

9           Q.    And how did you select those areas to  
10 compare?

11           A.   Tim Luke had a lot of input. I think the  
12 thinking behind selecting those areas was that, as I  
13 was talking about some of them, we expected to have a  
14 secure water supply, a more reliable water supply.

15           So the AFRD area gets its water primarily  
16 from the Snake River. And we thought that area would  
17 have a good water supply. So it kind of started as a  
18 baseline. And then also the area of potential  
19 curtailment, since it's using groundwater, it should be  
20 a more secure water supply.

21           The Richfield and north Shoshone areas we  
22 had reason to believe that in previous years those  
23 areas had been short of water. So those were selected  
24 to kind of see what METRIC could see.

25           And then of course, the area along Silver

1 Creek and the Little Wood is the subject of these  
2 proceedings.

3 Q. And you discussed in your memo different  
4 years of analysis.

5 What were those years and what were their  
6 significance?

7 A. So I was a little hemmed in by data  
8 availability. But I selected 2011, 2013, and 2016.  
9 And 2011 was an above median SWSI year, according to  
10 the April SWSI. And then 2013 was a below median SWSI  
11 year. And then 2016 was near median.

12 Q. And you mentioned that observed differences  
13 in METRIC ET could be the result of many variables.

14 What are those variables?

15 A. Let me see if I can name the bulk of them.  
16 Of course, water supply, variables that affect water  
17 supply. So that would be precipitation and irrigation.

18 And then on the demand side we have  
19 weather. So weather kind of dictates the atmospheric  
20 demand for water. Weather also is going to dictate  
21 whether there's, you know, frost or it's going to kind  
22 of let you know how long the growing season is in that  
23 particular year.

24 There's going to be differences due to  
25 soil, due to fertilization, other on-farm practices,



1 cuttings, planting dates, harvest dates, and of course  
2 pests and disease, as well as just uncertainty in the  
3 model.

4 Q. What were the results of your comparisons  
5 in 2011, your above median water year?

6 A. Fields -- and I only looked at alfalfa  
7 fields. Fields in all areas had ETrF values, that's a  
8 fraction of referenced ET values. And that can be  
9 interpreted as a crop coefficient. They all had  
10 reasonably high values. So I didn't have any reason to  
11 think that there was a water supply issue in 2011 in  
12 any of the areas.

13 Q. So you mentioned a couple of things I want  
14 to clarify before I move on. You said that "ETrF  
15 functions as a crop coefficient."

16 What exactly do you mean by "crop  
17 coefficient"?

18 A. So a crop coefficient is used to multiply  
19 by a potential evapotranspiration value to scale it,  
20 scale it to a particular crop or a crop at a particular  
21 growth stage.

22 Q. Okay. And then you also said that you only  
23 looked at alfalfa fields.

24 Could you tell me why.

25 A. Different crops have different water

1 requirements. And so I wanted to remove that as a  
2 variable, because it would -- I think if you looked at  
3 all different crops at the same time, it would  
4 introduce additional noise into the data.

5 Q. Okay. So let's go back to your  
6 comparisons.

7 What were the results in 2016, your near  
8 median water year?

9 A. 2016 was pretty similar to 2011. I thought  
10 all the areas looked reasonably similar. And none of  
11 the areas seemed to have very low ETrF values,  
12 generally speaking.

13 Q. I'm sorry. Could you say that last thing  
14 again. What had low ETrF values?

15 A. None of the areas had very low ETrF values,  
16 generally speaking.

17 Q. Okay. So then finally the results of your  
18 comparisons in 2013, your below median water year.

19 A. 2013 differed from 2011 and 2016, mainly in  
20 the Richfield and north Shoshone areas. And those  
21 areas showed a widespread and deep decrease in ETrF.  
22 And because it was widespread and a large decrease, I  
23 thought it could be surmised that that was a water  
24 supply issue. Those areas were short of water.

25 And additional evidence that they were

1 short of water comes from a USGS gage below Magic  
2 Reservoir that showed that the last release date was at  
3 the end of June. And then if you look at the plots in  
4 my memorandum for 2013, the ETrF values really begin to  
5 diminish in July.

6 Q. And did you see a similar trend in the  
7 Little Wood and Silver Creek area?

8 A. That was -- I did not see that trend in the  
9 Little Wood and Silver Creek area. But I would note  
10 that I, in this analysis, wasn't going to call an area  
11 water-short unless it was pretty clearly water-short.

12 So I think in my memo I talk about how it's  
13 possible that individual fields could have water supply  
14 issues, but this analysis I don't think is sensitive  
15 enough to detect that.

16 MS. CARTER: Okay, thank you.

17 Mr. Spackman, I move to admit IDWR  
18 Exhibit 3 into the record.

19 THE HEARING OFFICER: Any objection from the  
20 gallery?

21 MR. LAWRENCE: No objection.

22 MR. BARKER: No objection.

23 THE HEARING OFFICER: All right. The document  
24 marked as IDWR No. 3 is received into evidence. Thank  
25 you.

1 (IDWR Exhibit 3 received.)

2 MS. CARTER: That's all I have.

3 THE HEARING OFFICER: Okay. Mr. Rigby or  
4 Mr. Fletcher, questions?

5

6 CROSS-EXAMINATION

7 BY MR. RIGBY:

8 Q. Mr. Blankenau, is that correct? Good  
9 afternoon. Jerry Rigby, representing the Big Wood and  
10 Little Wood senior surface water users. I only have a  
11 couple of questions for you.

12 First of all, have you been able to see the  
13 SWSI that just came out for June?

14 A. I looked at it briefly.

15 Q. Okay. So in any analysis that you would  
16 have conducted had you had that, what impact would that  
17 have had?

18 A. It may have changed where I was looking, at  
19 what year I was looking at for my dry year. And I was  
20 really hemmed in by the data I had to look at. And I  
21 believe 2013 -- actually back in -- even the April SWSI  
22 had a better water supply than this year at that point  
23 in time. And, you know, things have only gotten worse,  
24 so...

25 Q. Therefore, is it fair to say that if you

1 had the SWSI, then your concern or your finding of  
2 no -- the trend below -- and I forgot the -- what is  
3 the point you used below saying that you did not see a  
4 lower coefficient?

5 A. I don't think I mentioned a specific number  
6 in the memorandum.

7 Q. Would this have impacted the lower river?  
8 I guess that's what I'm asking.

9 A. The lower river?

10 Q. Yes.

11 A. You're talking about Silver Creek and the  
12 Little Wood?

13 Q. That's correct.

14 A. I -- I can't say.

15 Q. Without running it, you wouldn't know?

16 A. Yeah.

17 Q. Okay. Does your analysis reported in your  
18 staff memo allow you to render an opinion regarding the  
19 average percent of return flows or a range of  
20 reasonable return flows in the potential area of  
21 curtailment?

22 A. It does not cover that at all.

23 MR. RIGBY: Okay. I don't think I have any  
24 further questions, Mr. Director.

25 THE HEARING OFFICER: Thank you, Mr. Rigby.

1                   Mr. Fletcher, questions?

2                   MR. FLETCHER: Mr. Rigby covered the issue I  
3 wanted to talk about.

4                   THE HEARING OFFICER: Okay. Thank you.

5                   Mr. Barker?

6                   MR. BARKER: Thank you, Mr. Director.

7

8                                   CROSS-EXAMINATION

9 BY MR. BARKER:

10                   Q. Albert Barker on behalf of the South Valley  
11 Ground Water District.

12                                   Phil, how are you today?

13                   A. Pretty good.

14                   Q. A couple quick questions for you.

15                                   When you ran your analysis using the 2013  
16 water year, you found essentially no water shortage in  
17 the Little Wood and Silver Creek area based on ET  
18 analysis; is that right?

19                   A. Not that I could see with this analysis.

20                   Q. Okay. And you said that there were some  
21 low ETrF numbers in the Little Wood that were -- can be  
22 plausibly explained by causes other than a water  
23 shortage; right?

24                   A. Yes.

25                   MR. BARKER: Thank you.

1 THE HEARING OFFICER: Ms. O'Leary?

2 MS. O'LEARY: Nothing, Director.

3 THE HEARING OFFICER: Okay. Mr. Moroney?

4 MR. MORONEY: Nothing, Director.

5 THE HEARING OFFICER: Okay. Group three.

6 Chris?

7 Mr. Lawrence?

8 MR. BROMLEY: Mr. Lawrence.

9

10 CROSS-EXAMINATION

11 BY MR. LAWRENCE:

12 Q. Good afternoon, Phil.

13 Thank you, Mr. Director.

14 Good afternoon, Phil. We met the other day  
15 at your deposition. I'm Mike Lawrence. I'm an  
16 attorney for the City of Hailey. I just have, I think,  
17 a few questions for you.

18 In your memo you say that insufficient  
19 water supply can cause diminished ET rates that should  
20 be observable in METRIC; correct?

21 A. Correct.

22 Q. What else can cause diminished ET rates?

23 A. A big one is cuttings, in the case of  
24 alfalfa. But anything that would affect the health of  
25 the crop could affect ET rates.

1 Q. Did you do any field-by-field analysis of  
2 alfalfa cuttings, for instance, or any other variable  
3 that might affect ET?

4 A. What kind of analysis.

5 Q. Any analysis in your memo or for this  
6 proceeding.

7 A. I think I just mentioned that alfalfa, the  
8 cuttings introduced maybe more variability in the data  
9 than the crops that don't see cuttings.

10 Q. You would agree that soil types can also  
11 affect ET?

12 A. Yes.

13 Q. Did you conduct any field-by-field analysis  
14 of the fields and the areas you looked at for soil  
15 types affecting ET?

16 A. No.

17 Q. How about field-by-field analysis of pests  
18 affecting ET?

19 A. I did not.

20 Q. A field-by-field analysis of disease  
21 affecting ET?

22 A. Nope.

23 Q. A field-by-field analysis of fertilization  
24 affecting ET?

25 A. No.



1 Q. A field-by-field analysis of local weather  
2 affecting ET?

3 A. That is accounted for using reference ET.

4 Q. That is -- that is accounted for within the  
5 METRIC model; is that what you mean?

6 A. Yes. The variability in ET over the domain  
7 is partly dictated by local weather. And reference ET  
8 represents the atmospheric demand for the water vapor.  
9 And so by dividing the actual ET by the reference ET,  
10 I'm factoring out weather, essentially.

11 Q. Did you conduct any field-by-field analysis  
12 of actual irrigation for the years that you analyzed?

13 A. Can you repeat that?

14 Q. Did you conduct any analysis of  
15 field-by-field irrigation practices for the years that  
16 you've analyzed?

17 A. No.

18 Q. Would you agree that those matters that we  
19 just discussed, alfalfa cutting, soil types, pests,  
20 disease, fertilization, irrigation, those can all --  
21 actual irrigation, those can all affect observable ET?

22 A. Yes. Those are all factors.

23 Q. If we could look in your memo. It should  
24 be in front of you. I'd like to turn to page 7,  
25 Figure 2.

1                   This figure shows your ETrF analysis  
2 throughout the irrigation season for these various  
3 areas in an above median year, according to the SWSI  
4 analysis Mr. Vincent conducted; correct?

5                   A.     Correct.

6                   Q.     And so I'm clear, there appears to be some  
7 values in this figure that are -- show that the ETrF is  
8 up near 1.0, that would be the full amount of water  
9 necessary for alfalfa; is that correct?

10                  A.     That would be a very healthy ET Rate.

11                  Q.     For an alfalfa crop?

12                  A.     For an alfalfa crop.

13                  Q.     How do you explain, for instance, under  
14 month five that there are many fields -- this would be  
15 in May -- that are at .4, .6 instead of 1.0? Wouldn't  
16 that be a time of year where there would be substantial  
17 water supply?

18                  A.     It would be, but there tends to be more  
19 variation early on in the season in ETrF because --  
20 mainly because different fields are greening up at  
21 different rates. They have different amounts of  
22 vegetative cover.

23                  Q.     Would you agree that the range of ETrF  
24 values displayed on Figure 2 demonstrate that there are  
25 other variables aside from water supply that affect the

1 observable ET?

2 A. You're saying that Figure 2 demonstrates  
3 that there's other variables that affect --

4 Q. It illustrates that there's other variables  
5 involved in water supply; would you agree?

6 A. It doesn't -- yeah, sure. I'll agree.

7 Q. If we could turn the next page, Figure 3,  
8 page 8.

9 A. Can I take a step back?

10 I mean it doesn't show that -- you know,  
11 how the other variables are affecting. We don't know  
12 exactly what's causing the variation in this plot.

13 Q. Is it --

14 A. We know already, though, that there are  
15 other variables that affect ET.

16 Q. But it's your conclusion that your analysis  
17 shows or demonstrates that there's insufficient water  
18 supply in a below median SWSI year; is that correct?

19 A. In 2013 for the Richfield and north  
20 Shoshone areas, yes.

21 Q. But you'd also agree that there are other  
22 variables involved shown on these tables?

23 A. Yes.

24 Q. Okay. If you could turn the page to  
25 Figure 3, page 8.

1                   Figure 3 is your analysis of the ETrF in  
2 2013, which is the below median SWSI year that was  
3 found by Mr. Vincent to be an analog year to 2021; is  
4 that correct?

5                   A.    I don't think he identified 2013 as an  
6 analog year, but it was a below median SWSI year that I  
7 had the data I needed to run the analysis for.

8                   Q.    Okay. Okay. So he might have had a  
9 different analog year, but you could get data for 2013,  
10 and it was also a below median SWSI year; is that  
11 correct?

12                  A.    Correct.

13                  Q.    Okay. I don't know if you were present for  
14 Mr. Vincent's testimony, but I'll represent to you that  
15 Mr. Vincent testified that he found a correlation  
16 between the SWSI values for the Big Wood River gage  
17 above Hailey and the water supplies in Silver Creek and  
18 Little Wood River.

19                         Are you aware of that testimony?

20                  A.    I think I heard that part of it.

21                  Q.    If that's the case, that there is a  
22 correlation between the Big Wood River above Hailey  
23 SWSI and Little Wood and Silver Creek flows, how do you  
24 explain that this is a below median SWSI, yet the  
25 Little Wood and Silver Creek has above -- or some of

1 the higher ETrF values in Figure 3?

2 A. I'm not sure how I would explain that.

3 Q. If you could just quickly turn to page 10.  
4 At the very top you list five scenarios explaining how  
5 your analysis, quote, "might err regarding water  
6 supplied to individual fields," unquote.

7 These variables or these five scenarios  
8 listed here, these might create uncertainty in your  
9 analysis in addition to the uncertainty presented by  
10 the other variables that we discussed earlier, soil  
11 types and disease and pests and so on; is that correct?

12 A. I think I did mention model error. That's  
13 point No. 5. The others are, yeah, I think maybe  
14 separate from that list.

15 Q. Okay. Did you analyze actual or material  
16 injury to any particular water rights?

17 A. This was not an analysis of injury.

18 Q. Did you analyze whether in 2021 water  
19 rights will use water efficiently and without waste?

20 A. No.

21 Q. And did you analyze the amount of water  
22 actually available in 2021 and the source from which a  
23 water right might be diverted?

24 A. No.

25 Q. And did you analyze the effort or expense

1 of a holder of a water right to divert water from its  
2 source in 2021?

3 A. No.

4 Q. Did you analyze whether the exercise of  
5 junior priority groundwater rights, individually or  
6 collectively, affects the quantity and timing of water  
7 available to any particular senior-priority surface or  
8 groundwater right in 2021?

9 A. It was not in my memo.

10 Q. Did you analyze whether the exercise of  
11 junior-priority groundwater rights, individually or  
12 collectively, will affect the cost of exercising any  
13 particular senior-priority surface or groundwater right  
14 in 2021?

15 A. Could you repeat that one?

16 Q. Did you analyze whether the exercise of  
17 junior-priority groundwater rights, individually or  
18 collectively, will affect the cost of exercising any  
19 particular senior-priority surface or groundwater right  
20 in 2021?

21 A. No.

22 Q. For the 2021 irrigation season, did you  
23 analyze the rate of diversion compared to the acreage  
24 of land served by any senior-priority irrigation  
25 rights?

1           A.    No.

2           Q.    For the 2021 irrigation season, did you  
3 analyze the annual volume of water diverted by any  
4 senior-priority irrigation rights?

5           A.    No.

6           Q.    For 2021 did you analyze the system  
7 diversion and conveyance efficiency of any  
8 senior-priority irrigation rights?

9           A.    No.

10          Q.    And for 2021 irrigation season, did you  
11 analyze the method of irrigation water application at  
12 any particular field?

13          A.    No.

14          Q.    Did you analyze for the 2021 irrigation  
15 season the amount of water being diverted and used  
16 compared to water -- the water right?

17          A.    Could you repeat the last question again?

18          Q.    Did you analyze for the 2021 irrigation  
19 season the method of irrigation water application at  
20 any particular field?

21          A.    No.

22          Q.    For the 2021 irrigation season, did you  
23 analyze the amount of water being diverted and used  
24 compared to the water right?

25          A.    No.

1 Q. Did you analyze for the 2021 irrigation  
2 season the existence of water measuring and recording  
3 devices?

4 A. No.

5 Q. Did you analyze for the 2021 irrigation  
6 season the extent to which the requirements of the  
7 holder of a senior-priority water right could be met  
8 with the user's existing facilities and water supplies  
9 by employing reasonable diversion and conveyance  
10 efficiency and conservation practices?

11 A. No.

12 Q. Finally, did you analyze for the 2021  
13 irrigation season the extent to which the requirements  
14 of the senior-priority surface water right could be met  
15 using alternate, reasonable means of diversion or  
16 alternate points of diversion?

17 A. No.

18 MR. LAWRENCE: That's all my questions. Thank  
19 you very much. Appreciate it.

20 THE HEARING OFFICER: Thank you, Mr. Lawrence.

21 Mr. Simpson?

22 MR. SIMPSON: No questions.

23 THE HEARING OFFICER: Mr. Robertson?

24 MR. ROBERTSON: No questions.

25 THE HEARING OFFICER: Mr. Semanko?



1 MR. SEMANKO: No.

2 THE HEARING OFFICER: Mr. O'Bannon?

3 MR. O'BANNON: No questions.

4 THE HEARING OFFICER: Redirect, Ms. Carter?

5 MS. CARTER: No further questions.

6 THE HEARING OFFICER: Redirect, Mr. Rigby?

7 Mr. Fletcher.

8 MR. RIGBY: No.

9 THE HEARING OFFICER: Because there isn't any  
10 more redirect, I think we're finished. Thank you,  
11 Mr. Blankenau.

12 And we're at five minutes to 5:00. There's  
13 a small matter of cleanup that I need to work through.  
14 And I need to revisit the joint parties' request for  
15 official notice.

16 And as I worked through this morning, I was  
17 referring to a summary. And as I referred to it, I  
18 misinterpreted some of my bullet points. So let me go  
19 back. And I'll work directly from the document for the  
20 joint request, just so it's clear.

21 So there were six items that were  
22 requested. And again, I misinterpreted. Somebody's  
23 looking at my notes. So I'll again look at the joint  
24 request for official notice.

25 So the first one was "All agenda, notes,

1 minutes, meeting material of the Big Wood Groundwater  
2 Management Area Advisory Committee available at links  
3 on the Department's website."

4 And the ruling was that I would take  
5 official notice of these documents but would ask that  
6 if some of these documents are being discussed that  
7 they be introduced, so that we at least know what's  
8 being referred to.

9 Then I have several, 2 through 5, as  
10 categorized by Mr. Lawrence. And these are all related  
11 to the Modeling Technical Advisory Committee or design  
12 documents, flow model files, and, again, groundwater  
13 flow model design reference material.

14 And I ruled that I would not take official  
15 notice of these documents and that the documents need  
16 to be introduced as exhibits.

17 And then No. 6 is "All related documents,  
18 files, and back-files in the Department's records for  
19 water rights listed in Attachment A to Tim Luke's  
20 memorandum." And I took official notice of those  
21 documents.

22 So I'm sorry for the confusion. I honestly  
23 had thought in looking at my notes that some of the  
24 references to the model, and documents related to the  
25 model, were referring to the documents that were

1 produced during meeting of the Big Wood Groundwater  
2 Management Advisory Committee.

3 So anyway, I'm sorry for the confusion. I  
4 hope at least I've clarified what the ruling is.

5 Are there questions about it?

6 MR. FLETCHER: What is the ruling? Are you --  
7 did you grant all of those?

8 THE HEARING OFFICER: No. Let me go back to the  
9 motion, the joint request again.

10 MR. FLETCHER: Okay.

11 THE HEARING OFFICER: So this is the document  
12 that was filed jointly. And so No. 1, "All agenda,  
13 notes, minutes, and meeting materials of the Big Wood  
14 Groundwater Management Area Advisory Committee."

15 And I said I would take notice of these but  
16 asked the parties as they introduced documents that  
17 they mark them and they come in as an exhibit. That's  
18 helpful to me.

19 And then 2 through 5 were documents  
20 related -- again, referring to this document, they were  
21 related to the modeling -- so agenda, notes, minutes of  
22 the Wood River Valley Modeling Technical Advisory  
23 Committee, Wood River Groundwater Flow Model design  
24 documents, Wood River Valley Groundwater Model flow  
25 files, and Wood River Valley Groundwater Flow Model

1 design reference material. So that's 2 through 5.

2 And I did not take official notice of those  
3 documents. So those need to be marked and come into  
4 the record.

5 And I will tell you that part of the reason  
6 is that I don't want to be responsible for all of  
7 those, many of which I may not even understand. And so  
8 I -- you know, somebody needs to lay a foundation and  
9 explain during examination why that particular document  
10 is important.

11 And then No. 5 -- or No. 6, I'm sorry, is  
12 all related documents that are water right documents in  
13 the files of the Department. And I took official  
14 notice of those. At least those that -- and I need to  
15 clarify, that are listed in Attachment A to Tim Luke's  
16 May 17th, 2021 memorandum.

17 So No. 1 and 6 I took notice of. Nos. 2  
18 through 5 I did not take notice.

19 MR. FLETCHER: Thank you.

20 THE HEARING OFFICER: Yep.

21 And I hope that helps, because I was not  
22 clear this morning.

23 Okay. I saw Mr. Luke in the back. I think  
24 he exited.

25 Or is he here still?

1                   So he must have gotten the message that  
2 we'll start with him tomorrow morning.

3                   What time do you want to start? Do you  
4 want to start earlier than 9:00? All right. Well, I  
5 do. Let's start at 8:30.

6                   8:30?

7                   MR. THOMPSON: Yeah, Mr. Director.

8                   THE HEARING OFFICER: Huh?

9                   MR. THOMPSON: Question.

10                  THE HEARING OFFICER: Yeah.

11                  MR. THOMPSON: Do you guys have a list for  
12 tomorrow, too, after Tim, an order?

13                  MR. RIGBY: Not yet. We will in the morning.

14                  MR. THOMPSON: Okay.

15                  MR. BARKER: So we'll just --

16                  THE HEARING OFFICER: You're asking for a list  
17 of who will be examined?

18                  MR. THOMPSON: The sequence.

19                  MR. RIGBY: No, they all will be examined.

20                  THE HEARING OFFICER: Oh, okay.

21                  MR. RIGBY: They want an order.

22                  THE HEARING OFFICER: The order? Okay.

23                  MR. BARKER: Want to know who's up, yeah.

24                                So we're just going to do this on the day  
25 of, is that the plan?

1 MR. RIGBY: Well, we haven't decided that yet.  
2 We'll do that tonight. I can get it to you tonight.

3 MR. BARKER: That would be helpful.

4 MR. THOMPSON: Yeah.

5 MR. RIGBY: Okay.

6 THE HEARING OFFICER: Any other questions?

7 Mr. Bromley?

8 MR. BROMLEY: I have one housekeeping matter,  
9 Director --

10 THE HEARING OFFICER: Okay.

11 MR. BROMLEY: -- that I was curious about.

12 On May 21st Sun Valley Company, City of  
13 Bellevue, City of Hailey, City of Ketchum, we filed a  
14 request for information related to staff memoranda  
15 related to the four staff memos, three of which are now  
16 in the record. We have not seen a response to that  
17 information request.

18 I'm just curious if we're going to see one  
19 or if we won't.

20 THE HEARING OFFICER: Oh, I'll take it up with  
21 staff. Maybe it's just one of those in the flurry of  
22 what's come in that we missed. I don't know.

23 Meghan, do you know?

24 We'll look at it.

25 MR. BROMLEY: Thank you.

1 THE HEARING OFFICER: Again, it came in on  
2 May 21st, or that's when it was e-mailed?

3 MR. BROMLEY: It was filed on May 21st, and it's  
4 on the website received May 21st at 1607.

5 THE HEARING OFFICER: Okay. All right. Well,  
6 certainly we want to be responsive. And if we haven't  
7 been, I apologize. So even for those in group three.

8 All right. We'll see you tomorrow morning  
9 at 8:30.

10 (Hearing adjourned at 5:03 p.m.)

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REPORTER'S CERTIFICATE

I, JEFF LaMAR, CSR No. 640, Certified Shorthand Reporter, certify:

That the foregoing proceedings were taken before me at the time and place therein set forth, at which time the witness was put under oath by me.

That the testimony and all objections made were recorded stenographically by me and transcribed by me or under my direction.

That the foregoing is a true and correct record of all testimony given, to the best of my ability.

I further certify that I am not a relative or employee of any attorney or party, nor am I financially interested in the action.

IN WITNESS WHEREOF, I set my hand and seal this 15th day of June, 2021.



---

JEFF LaMAR, CSR NO. 640  
Notary Public  
Post Office Box 2636  
Boise, Idaho 83701-2636

My commission expires December 30, 2023



/	100:8;249:3,4 <b>accrue (4)</b> 120:1;129:4,15;198:9	90:5,8;186:23 <b>addressed (5)</b> 24:1,22;89:8;101:4;122:15	<b>affects (4)</b> 80:23;223:2;224:4;254:6
/// (1) 187:25	<b>accrues (4)</b> 119:24;200:22;218:15; 222:22	<b>addresses (2)</b> 24:16;89:12	<b>affidavit (2)</b> 29:12;30:5
[	<b>accuracy (1)</b> 142:14	<b>addressing (4)</b> 14:9;29:23;55:18;59:21	<b>AFRD (3)</b> 196:24;197:5;239:15
[indicating] (2) 183:21;200:2	<b>accurate (4)</b> 177:6;196:9;202:2;214:25	<b>adds (1)</b> 149:10	<b>AFRD2 (2)</b> 239:5,5
[No (2) 114:4;163:17	<b>accurately (1)</b> 150:12	<b>adequate (17)</b> 57:6,13,16;58:6,9,11;59:1, 8,8,18,20;62:17,18;143:3,4; 201:24;237:8	<b>afternoon (12)</b> 146:22;169:7;188:3,6; 203:25;211:5,15,23;212:1; 244:9;247:12,14
[sic] (1) 122:20	<b>achieving (3)</b> 136:1;195:7,12	<b>adequately (1)</b> 116:12	<b>again (55)</b> 9:15;15:25;16:16;23:22; 28:4;34:19;36:1;38:3;46:13; 52:3;53:10;54:7;58:4,19,22; 73:18;82:3;85:19;92:22; 93:13;95:10;96:4;101:2,20, 22;105:1;124:12;126:12; 133:3;134:8;137:3;138:3,6; 144:13;154:2;156:3,12; 167:19;175:13;179:12; 194:1;221:4;225:3;228:14; 229:19;230:10;232:11; 242:14;255:17;257:22,23; 258:12;259:9,20;263:1
A	<b>acknowledge (4)</b> 14:21;15:1;180:19,23	<b>adjective (2)</b> 64:10,11	<b>against (6)</b> 16:8;20:16,21;23:12; 31:12;129:6
<b>abandon (1)</b> 201:14	<b>acreage (2)</b> 224:17;254:23	<b>adjourned (1)</b> 263:10	<b>agency (1)</b> 37:8
<b>ability (7)</b> 27:5,17;40:15;140:6; 148:1;149:9;231:13	<b>acre-feet (9)</b> 50:20;57:14;75:10,13,19, 21,25;92:13,20	<b>adjust (1)</b> 110:8	<b>agenda (7)</b> 33:2,11;34:14;36:8; 257:25;259:12,21
<b>able (16)</b> 20:11;25:17;35:12;46:14; 82:8;99:15;117:8;124:24; 125:24;143:17;148:19; 156:7;174:13;202:15; 231:25;244:12	<b>acre-foot (2)</b> 95:8;222:17	<b>adjusted (3)</b> 96:12;132:7;188:21	<b>aggravated (1)</b> 108:12
<b>above (26)</b> 64:16;65:5,14;70:14; 123:15;133:21;137:15; 140:24;145:20;147:4;149:5; 165:24;166:18;176:21; 184:11;185:22;189:10,16; 200:21;218:16;240:9;241:5; 250:3;252:17,22,25	<b>acres (3)</b> 139:14;140:2,16	<b>adjusting (2)</b> 84:22,24	<b>aggregate (1)</b> 108:21
<b>above-Hailey (1)</b> 58:12	<b>acronyms (1)</b> 172:11	<b>adjustment (1)</b> 195:3	<b>ago (5)</b> 89:9,10;90:11;114:18; 170:21
<b>above-Magic (1)</b> 59:7	<b>across (2)</b> 42:16;43:4	<b>adjusts (2)</b> 110:6;164:5	<b>agree (32)</b> 34:24;36:1;72:15,18; 92:15;93:18,23;94:12,13; 96:6;114:11;115:4,6;153:15, 18,20;155:22;156:17; 184:16,21;185:1,3,23; 188:17;231:5;234:1;248:10; 249:18;250:23;251:5,6,21
<b>Abramovich (2)</b> 58:8;59:6	<b>action (2)</b> 19:16;207:21	<b>administration (3)</b> 81:24;173:16;174:6	<b>agreement (4)</b> 15:13;23:2;42:18,19
<b>absolute (1)</b> 189:14	<b>actively (1)</b> 13:1	<b>administrative (9)</b> 8:12,14;91:17;96:8;97:2; 99:3;125:7;188:16;195:17	<b>agreements (3)</b> 42:11,15;62:24
<b>acceptable (2)</b> 39:19;157:5	<b>actual (14)</b> 93:5;107:20;110:25; 112:14;183:7;184:13; 223:13;232:12;238:3,5; 249:9,12,21;253:15	<b>admission (3)</b> 159:7;162:11;167:22	<b>ahead (3)</b> 53:22;121:7;165:21
<b>acceptance (1)</b> 52:20	<b>actually (28)</b> 10:7;23:9;28:9;30:19; 31:3;32:3,14;35:16;72:11; 80:2;83:23;117:10;141:18; 172:3;178:19;193:6;194:9; 198:20;201:6;206:2;221:1; 223:20;225:12;228:7;236:3; 238:7;244:21;253:22	<b>admit (7)</b> 46:19;48:17;74:7;87:20; 206:14;210:16;243:17	<b>aka (1)</b> 173:18
<b>access (18)</b> 33:9;54:10;64:19;87:2; 137:13,14,16;140:24;141:7; 144:18;145:2;203:4;218:17; 221:10,24,24;230:1;232:19	<b>add (5)</b> 23:25;34:18;171:10; 175:17;230:4	<b>advice (1)</b> 207:23	<b>Al (3)</b> 158:18,23;159:3
<b>accommodate (3)</b> 8:5;12:16;13:12	<b>added (2)</b> 90:12;110:19	<b>Advisory (16)</b> 33:3,13,14;34:8;35:11,20; 36:10,24;56:23;98:15;145:9; 258:2,11;259:2,14,22	<b>Albert (4)</b> 10:19;61:20;102:19; 246:10
<b>According (5)</b> 50:2;91:1;94:1;240:9; 250:3	<b>adding (1)</b> 230:22	<b>affect (19)</b> 51:4;80:20,23,25;81:1; 85:18;139:14;224:13; 240:16;247:24,25;248:3,11; 249:21;250:25;251:3,15; 254:12,18	<b>alfalfa (9)</b>
<b>accordingly (1)</b> 110:8	<b>addition (2)</b> 63:3;253:9	<b>affected (3)</b> 18:25;24:19;224:8	
<b>account (3)</b> 62:9;97:20;229:1	<b>additional (20)</b> 39:15;90:13;91:4;105:24; 106:16,21;107:5;120:1; 129:14;147:25;148:23; 153:21,22;156:11,21;167:9; 198:11;231:3;242:4,25	<b>affecting (8)</b> 175:9,10;248:15,18,21,24; 249:2;251:11	
<b>accounted (3)</b>	<b>address (7)</b> 14:5;15:23;16:13;28:23;		

241:6,23;247:24;248:2,7;  
249:19;250:9,11,12  
**Allan (24)**  
67:14;82:22;83:8,9,20;  
84:8;114:1,8,14;123:3;  
124:16;125:16;131:12;  
152:14;156:3,24;161:10,10;  
163:12;167:11;184:22;  
185:6;212:9;221:6  
**Allan's (1)**  
231:4  
**Allen (1)**  
236:4  
**allow (7)**  
19:7;27:6;147:22;148:14,  
24;226:24;245:18  
**allowable (1)**  
109:9  
**allowed (1)**  
18:24  
**allows (3)**  
45:21;84:15;124:21  
**almost (4)**  
95:8;162:1;168:24,25  
**along (5)**  
9:21;208:5;222:13;239:2,  
25  
**alternate (4)**  
226:2,3;256:15,16  
**alternatives (1)**  
54:15  
**Although (3)**  
14:14,22;32:8  
**always (3)**  
39:23;149:19;232:23  
**amongst (1)**  
196:17  
**amount (28)**  
80:23;82:7;84:18;106:16,  
21;107:11,14,15;110:23;  
112:5,10;113:13;119:24;  
169:24;170:17;178:12;  
198:10;202:20;205:6;  
222:22;223:19;224:8;225:8,  
12;250:8;253:21;255:15,23  
**amounts (1)**  
250:21  
**analog (14)**  
46:5,10,11,15;51:14,22;  
58:23;60:17;85:7;213:2,5;  
252:3,6,9  
**analyses (5)**  
77:19;131:3,7,8,9  
**analysis (102)**  
42:1;45:14;54:25;55:10;  
59:3;64:25;66:3,5,7,9,13,14;  
67:7,14,15,18;71:10;82:22;  
83:6,7,13;84:10;91:16,23;  
96:7;97:2;99:2;119:13;  
123:3,24;125:17,22;126:2,4;  
127:18;130:23,25;131:2;  
134:18;160:9,16;161:9;  
163:12,19,21,23;164:9;

165:6,19;167:12;169:8,14;  
176:9;179:20;181:10;187:1;  
190:14;197:2;198:22;  
204:10;212:6,9,10,13,21;  
213:5;219:3,15;220:8;  
222:25;227:23;232:1,10,13;  
237:20;238:23;240:4;  
243:10,14;244:15;245:17;  
246:15,18,19;248:1,4,5,13,  
17,20,23;249:1,11,14;250:1,  
4;251:16;252:1,7;253:5,9,17  
**analyst (2)**  
12:2;235:11  
**analytical (8)**  
84:11,16;124:17,17,19,22;  
166:10,11  
**analyze (32)**  
117:16;218:8;223:13,16,  
19,23;224:2,11,16,21,25;  
225:8,15,19,25;253:15,18,  
21,25;254:4,10,16,23;255:3,  
6,11,14,18,23;256:1,5,12  
**analyzed (9)**  
72:21;217:9,15;219:1;  
223:6;224:7;225:3;249:12,  
16  
**analyzing (2)**  
204:13,23  
**Andrus (1)**  
10:5  
**anecdotal (1)**  
145:10  
**annual (4)**  
91:21;102:25;103:5;255:3  
**answered (3)**  
75:16,22;158:4  
**anticipated (1)**  
231:21  
**anticipating (1)**  
172:24  
**apart (2)**  
151:8;161:9  
**apologize (5)**  
22:24;54:1;100:6;197:25;  
263:7  
**apparent (3)**  
153:3;154:19;156:2  
**apparently (1)**  
187:6  
**appear (2)**  
98:18;115:1  
**appeared (1)**  
98:13  
**appearing (1)**  
208:4  
**appears (3)**  
92:12;160:14;250:6  
**Appendix (2)**  
150:1,8  
**applicable (2)**  
92:16;184:25  
**application (4)**  
42:9;225:4;255:11,19

**applied (6)**  
81:3;108:8;123:18,21;  
169:18;219:12  
**applies (2)**  
58:20;110:1  
**apply (4)**  
84:11;144:12;174:22;  
221:4  
**appointed (1)**  
8:1  
**Appreciate (3)**  
226:6;233:4;256:19  
**approach (4)**  
13:22;14:1;15:25;189:24  
**approached (1)**  
14:19  
**approaching (1)**  
14:9  
**appropriate (3)**  
22:18;146:11;211:5  
**approval (1)**  
115:12  
**approved (2)**  
115:21,23  
**approximately (6)**  
92:13;101:25;102:6;  
139:16;193:23;211:11  
**appurtenances (1)**  
78:8  
**April (26)**  
46:2;47:6;55:4;62:10,11,  
12;64:20,22;85:13;91:21,25;  
95:14,20;161:1,4;162:4,5;  
176:22;187:6,7;194:18;  
195:9,11;196:11;240:10;  
244:21  
**aquifer (101)**  
80:8,11,14,15,16,17,18,21,  
23,25;81:1,7;82:10;83:5,7;  
84:23;90:8;91:5;99:18;  
100:5,9,15,19,19;101:1,6,7,  
17;103:1,10,14,18,19;104:4,  
10,24;105:4,7;109:11,17,24;  
110:2;117:14,15;119:5,20;  
121:9;123:16;124:13;127:6;  
129:20;130:1,2,19;132:11,  
12,13,17,20,24;133:20,22;  
134:1,12;135:10;137:13,15,  
19,23,24;138:2,9;143:11;  
149:12,16,20;152:7,25;  
153:16;156:5;160:19;  
165:14;177:16,17,23,24,25;  
178:14,16;179:3,4;180:5;  
185:8;186:13,13,21;189:11,  
15,15;198:10;228:21  
**aquifers (2)**  
177:5;178:11  
**aquifer's (1)**  
186:20  
**area (103)**  
17:19,20;18:12;33:4;  
36:25;57:18;59:10,17;81:25;  
85:1;86:11,11,20,21;87:5,6,

11,13;90:17;93:19;94:9,9,  
22;101:20;108:11,19,21;  
115:11;123:11;124:9;  
130:14;132:3,11,18,20;  
133:9,11,21,23;134:3,7,14,  
15,17;135:11,13,15,20;  
137:1,10;138:10,11;140:7;  
145:9;155:13;160:19;161:8,  
8;169:1,21;176:10,16;  
177:14,17;179:15;181:24;  
186:25;188:8,13,14,21;  
191:1;193:11;195:5;196:10;  
197:8,11;199:10,12,23;  
200:7,12;220:23;223:2;  
238:18,18,20,22,24;239:4,5,  
6,15,16,18,25;243:7,9,10;  
245:20;246:17;258:2;259:14  
**areas (41)**  
26:10;43:3,4;81:9;86:13,  
16,18;87:12;97:22;108:18;  
134:19,25;165:7,23,24;  
166:3;175:23;179:16;193:6,  
20,22;194:3;238:15,16,17,  
20;239:9,12,21,23;241:7,12;  
242:10,11,15,20,21,24;  
248:14;250:3;251:20  
**arguably (1)**  
93:15  
**argue (6)**  
14:17;16:7;23:12;28:25;  
30:23;98:8  
**arguing (1)**  
24:3  
**argument (2)**  
16:2;25:25  
**Arkoosh (5)**  
11:7,8,8,11,11  
**around (8)**  
39:4;49:12;74:4;132:4,8;  
136:24;137:6,9  
**arrived (2)**  
8:2;58:18  
**arts (1)**  
44:4  
**Ash (1)**  
69:13  
**aside (1)**  
250:25  
**assert (1)**  
171:6  
**assessment (1)**  
43:21  
**assign (1)**  
165:17  
**assigned (2)**  
9:4;150:9  
**assignment (4)**  
34:23;35:1;102:24;179:17  
**assignments (1)**  
102:25  
**assist (1)**  
22:4  
**assistant (1)**

<p>9:20 <b>assisting (1)</b> 164:8 <b>assists (1)</b> 26:15 <b>associated (6)</b> 69:9;82:24;104:12,20; 143:18;233:2 <b>Association (3)</b> 10:4,7;89:3 <b>assume (3)</b> 106:8;210:2;230:3 <b>assumed (2)</b> 69:10;186:4 <b>assuming (6)</b> 32:7;75:1;105:23;186:12; 197:1;205:5 <b>assumption (2)</b> 186:7;210:4 <b>at-Hailey (7)</b> 54:24;55:5,11,14;64:22; 66:11;70:17 <b>atmospheric (2)</b> 240:19;249:8 <b>attached (3)</b> 79:16;213:13,23 <b>Attachment (11)</b> 33:22;36:4;80:1,2,3;86:22; 94:21;95:11,23;258:19; 260:15 <b>attack (1)</b> 18:24 <b>attempt (3)</b> 19:11;121:11;203:3 <b>attempted (1)</b> 197:2 <b>attempting (2)</b> 54:17;238:6 <b>attend (4)</b> 37:8,11,15;42:24 <b>attended (4)</b> 37:4,5,6,15 <b>attention (5)</b> 166:6,13;190:7;194:8; 214:12 <b>attire (1)</b> 208:5 <b>attorney (8)</b> 9:3,22;10:1;11:2;37:12; 38:14;211:24;247:16 <b>attorneys (11)</b> 13:10,14,23;15:15;27:6; 28:17,19;40:2;183:12;184:1; 188:4 <b>attorney's (1)</b> 183:10 <b>attribute (1)</b> 115:9 <b>audible (2)</b> 114:4;163:17 <b>auditorium (1)</b> 13:3 <b>August (6)</b></p>	<p>91:24;128:12;142:5,7,9; 147:16 <b>author (3)</b> 152:10,12;154:9 <b>authored (1)</b> 47:8 <b>authors (1)</b> 153:10 <b>automate (1)</b> 170:15 <b>availability (3)</b> 58:25;97:20;240:8 <b>available (29)</b> 33:8,18;62:9;72:22;82:7; 84:6,11;89:22;90:19,21; 97:23;113:24;147:20; 148:11,24;156:25;170:25; 203:13;218:10;221:18; 222:6,9;223:20;224:5,8; 231:6;253:22;254:7;258:2 <b>average (7)</b> 102:25;103:5;141:19,19; 147:17,18;245:19 <b>averaged (1)</b> 115:14 <b>averages (1)</b> 115:17 <b>Aware (4)</b> 71:2,23;79:24;252:19 <b>away (2)</b> 16:25;137:18 <b>awhile (1)</b> 185:6</p>	<p><b>back-files (2)</b> 36:2;258:18 <b>backing (1)</b> 170:20 <b>bad (4)</b> 47:23;53:12,24;151:3 <b>bar (2)</b> 82:20;221:1 <b>BARKER (91)</b> 10:19,19;22:18,22,25; 23:12;30:18,20;31:11;35:4, 5;36:15;37:20;39:5;40:13; 46:23;49:2,3;53:18;56:10; 61:15,16,19,20;67:23;88:1,2; 102:14,15,18,19;144:21,22, 24;145:25;146:5,7,10,17,19; 158:21;159:1,5,20,25;163:9; 167:21;168:24;171:13,16,20, 23;172:2,8,13;173:1,9,13; 183:1,4,8,12,15,20,25;184:3; 187:19,23;188:7;192:1,2; 193:3;194:10;207:9;212:3, 12;221:8;228:21;231:12; 233:9,11,23;243:22;246:5,6, 9,10,25;261:15,23;262:3 <b>basalt (2)</b> 185:20,20 <b>based (41)</b> 15:12;17:17;30:3,4,14; 46:7;58:18;60:13,16;66:12; 89:23;109:6;124:14;134:18; 135:5,21;139:17,21;141:5,6; 150:10;153:7;181:10;186:1; 189:20,22,22;198:17; 211:17;212:21;213:3; 214:23;219:3,19;220:9; 222:5;231:9;232:11,13,15; 246:17 <b>baseline (17)</b> 85:2;89:22;91:18;99:16; 119:5,6;121:12;127:9;128:9; 148:3;150:10,25;170:5; 204:25;215:24;239:6,18 <b>bases (1)</b> 58:25 <b>Basically (5)</b> 17:19;115:11;117:15; 134:14;202:8 <b>Basin (13)</b> 17:24;26:21;44:13;46:1; 91:17;96:8;97:2;99:2; 103:16,18;174:6;175:2; 236:22 <b>Basins (1)</b> 80:6 <b>basis (4)</b> 91:16;93:8;128:16;147:15 <b>Bates (3)</b> 206:20;208:16;209:19 <b>bathroom (1)</b> 211:8 <b>Baxter (1)</b> 194:17</p>	<p><b>bearing (1)</b> 28:2 <b>beat (1)</b> 156:16 <b>became (1)</b> 156:1 <b>become (3)</b> 137:19;153:3;154:18 <b>becomes (3)</b> 100:16;137:14;172:23 <b>becoming (1)</b> 233:22 <b>bed (11)</b> 132:22;133:6;134:16; 135:4;138:13;147:5;177:20; 189:9,17,19;200:21 <b>beds (3)</b> 133:23;134:1;135:15 <b>began (1)</b> 170:21 <b>begin (4)</b> 49:17;123:16;124:14; 243:4 <b>beginning (5)</b> 122:16;127:7;135:4; 162:6;220:13 <b>begins (1)</b> 180:9 <b>begun (1)</b> 156:15 <b>behalf (8)</b> 10:18;19:23;30:13,24; 31:13;61:20;102:19;246:10 <b>behind (5)</b> 163:4;205:23;211:7; 237:21;239:12 <b>belated (1)</b> 68:8 <b>Bellevue (30)</b> 8:17;10:11,15;14:15; 17:21,23;18:22,25;19:8,14, 24;24:19;25:9;27:10;28:3; 123:23;124:10;125:13; 176:18;198:24;199:5; 218:23;219:3,6,9,16,20; 220:2,5;262:13 <b>bell-shaped (1)</b> 181:11 <b>below (27)</b> 42:19;132:21;133:6; 134:16;135:12;136:15; 137:13;138:10,13;145:21; 149:6;177:20;179:7;185:20; 189:19;200:7;222:16; 240:10;242:18;243:1;245:2, 3;251:18;252:2,6,10,24 <b>below-Magic (1)</b> 59:8 <b>beneficial (1)</b> 26:24 <b>benefit (7)</b> 87:10;140:17;181:2; 193:10,15;195:8;223:9</p>
	<b>B</b>		
	<p><b>B1 (1)</b> 95:4 <b>B-3 (1)</b> 96:5 <b>B-4 (1)</b> 96:5 <b>bachelor (3)</b> 44:3,4;78:17 <b>bachelor's (1)</b> 236:9 <b>back (51)</b> 10:12;11:5,21;17:13; 32:16;36:1;39:17;40:9; 48:12;51:7;52:3;61:10,12; 64:20,22;65:6;66:20,22,23; 74:3;76:12;94:7;99:10; 106:17,19;110:5;115:23; 116:23;118:5,7;146:6,13,15; 158:17;175:4;181:15;187:6; 194:8;196:11;199:3;211:11, 14,15;229:19;234:9;242:5; 244:21;251:9;257:19;259:8; 260:23 <b>back-calculated (2)</b> 108:2,2 <b>backfiles (2)</b> 33:20;34:15</p>		

<p><b>benefits (1)</b> 140:11</p> <p><b>best (18)</b> 8:5;50:4;55:25;56:6; 63:24;66:15;84:6;109:10; 110:2;144:22;156:25; 180:20,24;181:5;203:12; 205:16;216:1;231:6</p> <p><b>better (15)</b> 54:7,13;55:19;61:23;72:3; 84:10;128:18,20;156:8; 166:11;202:15;209:9;215:5; 231:25;244:22</p> <p><b>beyond (2)</b> 67:4;181:4</p> <p><b>Big (53)</b> 10:1,3,6;11:9;12:6,7; 14:25;23:2;33:4;36:25;42:4; 47:17;60:14;62:19;64:7; 66:16;69:11;70:13;71:16; 89:2,2;104:11,13;116:21; 117:1,5;123:15;127:19; 134:15;135:12;138:10,13; 145:8;147:4;151:19,20; 174:20;175:9,20;177:19; 183:21;184:12;189:8,16,18; 200:20;244:9;247:23; 252:16,22;258:1;259:1,13</p> <p><b>biggest (1)</b> 82:6</p> <p><b>BILL (2)</b> 11:11,11</p> <p><b>binder (3)</b> 151:4;190:2;194:9</p> <p><b>binders (2)</b> 205:22,25</p> <p><b>binding (1)</b> 20:16</p> <p><b>bit (16)</b> 9:9;53:20;54:18;65:6; 71:16;98:11,19;105:22; 122:15;127:9;130:13; 138:23;142:16;152:16; 161:23;169:22</p> <p><b>Black (3)</b> 32:16;205:22,24</p> <p><b>BLANKENAU (9)</b> 12:1,1;234:7,13,19;235:5, 6;244:8;257:11</p> <p><b>B-l-a-n-k-e-n-a-u (1)</b> 235:6</p> <p><b>bleaker (1)</b> 51:12</p> <p><b>blue (1)</b> 173:11</p> <p><b>Board (2)</b> 11:10;42:3</p> <p><b>Boise (1)</b> 45:8</p> <p><b>book (1)</b> 181:25</p> <p><b>Books (1)</b> 32:16</p>	<p><b>borrow (1)</b> 171:21</p> <p><b>both (18)</b> 8:21;44:4;52:20;55:1; 57:22;66:2;75:23,24;81:11; 90:18;130:3;144:7,24; 178:10;183:1;197:14,17; 238:20</p> <p><b>bottom (2)</b> 53:23;94:16</p> <p><b>bought (1)</b> 43:15</p> <p><b>boundaries (2)</b> 132:3;194:23</p> <p><b>boundary (27)</b> 132:8;133:6;135:3,5,16, 16;147:1;164:21,23;188:20, 23;189:1,2,5;190:8;195:5,7, 14,16,17,21,23,24;196:10; 199:4,15;200:8</p> <p><b>bounds (1)</b> 109:4</p> <p><b>break (9)</b> 76:8,10,13;146:7,8;211:6, 9,10,16</p> <p><b>breath (1)</b> 146:21</p> <p><b>Brendan (1)</b> 69:13</p> <p><b>brevity (1)</b> 16:17</p> <p><b>Brian (3)</b> 11:23;73:20;74:2</p> <p><b>Bridge (18)</b> 86:12;94:10,23;133:11; 135:4;144:19,19;145:3,14, 20;147:7,10;148:1;149:6,6; 169:21;189:8;191:8</p> <p><b>brief (4)</b> 20:1;38:17;43:11;212:2</p> <p><b>briefly (7)</b> 9:5;22:25;24:10;38:11; 82:25;214:11;244:14</p> <p><b>bring (5)</b> 36:13,16;38:6;124:7; 171:20</p> <p><b>bringing (2)</b> 19:6;38:24</p> <p><b>brings (1)</b> 226:20</p> <p><b>broad (2)</b> 26:7;35:8</p> <p><b>Brockway (4)</b> 150:10;184:6,11;185:16</p> <p><b>BROMLEY (50)</b> 10:9,9,10;17:2;19:19,21, 23;21:20;23:22,24;24:22; 25:3,6;27:22;32:19;33:15; 48:21,22;56:8;68:22;70:5,6, 9;71:14;73:3,5;88:7,8; 158:11,12,13,22;159:3,11; 162:19,20;168:7,8;182:12, 13;192:3,5;207:14,15;247:8;</p>	<p>262:7,8,11,25;263:3</p> <p><b>Bromley's (2)</b> 24:8;31:3</p> <p><b>brought (2)</b> 172:4;180:13</p> <p><b>build (1)</b> 170:11</p> <p><b>building (1)</b> 127:9</p> <p><b>bulk (1)</b> 240:15</p> <p><b>bullet (1)</b> 257:18</p> <p><b>burdens (1)</b> 130:13</p> <p><b>BWRGWMA (1)</b> 115:2</p> <p><b>bypass (3)</b> 150:10,25,25</p> <p style="text-align: center;"><b>C</b></p> <p><b>calculate (7)</b> 100:23;101:1;108:5; 109:20,23,25;203:3</p> <p><b>calculated (10)</b> 97:11,12;99:20,21;101:20; 104:5;107:19;108:23;118:3; 197:10</p> <p><b>calculating (2)</b> 100:22;109:14</p> <p><b>calculation (6)</b> 100:2,9;104:23;105:2,5; 116:10</p> <p><b>calculations (5)</b> 130:20;141:5,13,15;205:5</p> <p><b>calculation's (1)</b> 97:15</p> <p><b>calibrate (3)</b> 143:5;201:25;202:20</p> <p><b>calibrated (9)</b> 109:7;129:6;164:3;166:10, 11,14;167:9;202:3,5</p> <p><b>calibrating (1)</b> 72:11</p> <p><b>calibration (28)</b> 71:23;72:2,5,6,12,15;82:4; 98:5;109:4,8;110:4,9,23; 111:11,23;112:3,16;113:6, 18;150:21;151:1;157:2; 163:25;167:2;184:22; 202:22;205:1;210:5</p> <p><b>call (17)</b> 40:7,9,22,25;42:8;46:3; 47:6;50:4,5;99:12;100:18, 19;102:21;166:5;202:7; 208:4;243:10</p> <p><b>called (10)</b> 31:20;40:5;41:5;43:12; 76:20;78:2;219:9;234:14; 238:18;239:4</p> <p><b>calling (3)</b> 19:15;104:19;202:21</p>	<p><b>Calls (1)</b> 231:12</p> <p><b>came (9)</b> 32:2,13;37:24;53:16; 61:24;64:25;173:4;244:13; 263:1</p> <p><b>can (72)</b> 8:6;23:24;26:6;27:25; 28:1;34:10,11;39:2;48:7; 51:4,7;57:7;65:2;67:4;68:24; 74:10,11;82:6,7;89:13; 94:12,14;99:20;103:22; 105:1;109:8;110:2;122:23; 123:10;126:12;127:21; 135:22;136:10;138:23; 144:24;150:7,14,16,17; 153:20;160:13;164:16; 165:16;170:10,11;179:8; 181:24;188:23;189:4; 190:13;193:17;196:15,23; 214:1;215:2,7;220:23;227:7, 15;228:11;231:2;240:15; 241:8;246:21;247:19,22; 248:10;249:13,20,21;251:9; 262:2</p> <p><b>Canal (25)</b> 10:2;12:7;26:12,13;60:15; 69:12;81:3,12;97:22,24; 101:11;104:16,24;105:4,8; 147:21;148:3;149:9,14,15, 19,25;150:10,22,23</p> <p><b>canals (5)</b> 121:12;148:5,5,6,14</p> <p><b>Candice (1)</b> 10:11</p> <p><b>capability (1)</b> 170:17</p> <p><b>capture (1)</b> 43:19</p> <p><b>captures (1)</b> 59:10</p> <p><b>care (1)</b> 22:21</p> <p><b>Carrie (2)</b> 63:8,12</p> <p><b>Carter (43)</b> 9:22,22;12:12;40:23,24, 25;41:12;44:15,17;46:18; 47:3;48:16;49:6,15;66:2; 74:5,6,17;76:14,15,25;77:1, 4;83:25;84:5;87:19;88:17, 20;122:15;130:19;171:22; 183:5;206:3;226:17,18; 234:6,7,25;235:2;243:16; 244:2;257:4,5</p> <p><b>case (15)</b> 8:13;18:14,24;20:24; 40:16;72:18;105:16;113:1,5; 117:17;141:25;149:19; 152:14;247:23;252:21</p> <p><b>cased (1)</b> 185:20</p> <p><b>cases (1)</b></p>
--	--	--	---

<p>98:3 <b>catch (4)</b> 51:17;83:24,25;146:20 <b>categories (1)</b> 32:25 <b>categorized (1)</b> 258:10 <b>category (2)</b> 33:11,19 <b>cause (4)</b> 229:24;230:6;247:19,22 <b>caused (1)</b> 8:19 <b>causes (1)</b> 246:22 <b>causing (1)</b> 251:12 <b>cell (7)</b> 123:18;174:17,23;189:8; 191:7;197:13;198:14 <b>cells (13)</b> 119:16;170:8;175:19,24, 25;176:2,2,7;190:18,24; 191:9,13;198:15 <b>Center (2)</b> 45:11;53:10 <b>central (1)</b> 181:13 <b>certain (4)</b> 15:22;30:6;37:22;175:2 <b>certainly (11)</b> 9:5;14:15;15:22;28:16; 29:13;35:8,23;36:19;40:9; 231:2;263:6 <b>cfs (3)</b> 145:4,17;147:15 <b>chair (5)</b> 9:2;38:24;40:8;76:10; 233:21 <b>chance (8)</b> 47:12;50:18;51:21;60:20; 61:2;85:9;146:20;154:6 <b>change (7)</b> 23:17;107:14;150:24; 154:15;170:4,4;230:23 <b>changed (3)</b> 107:11;188:24;244:18 <b>changes (7)</b> 51:2;71:10;82:13,14; 107:6;188:19;215:9 <b>characterization (3)</b> 114:2,3;214:25 <b>characterize (4)</b> 38:8;212:4;219:10;234:20 <b>characterized (2)</b> 108:16;219:6 <b>charge (3)</b> 62:23,24;67:10 <b>chart (2)</b> 55:2;62:8 <b>Chase (3)</b> 10:3;69:5,6 <b>check (1)</b></p>	<p>73:18 <b>choice (1)</b> 54:8 <b>choose (4)</b> 53:8;60:21;86:13;107:4 <b>choosing (1)</b> 195:4 <b>chose (4)</b> 45:15;52:7;128:7;194:2 <b>Chris (4)</b> 10:9;19:23;159:2;247:6 <b>Chuck (1)</b> 184:5 <b>cities (2)</b> 18:4,11 <b>City (13)</b> 10:11,18;11:23;19:24,25, 25;69:13;73:20;211:24; 247:16;262:12,13,13 <b>civil (3)</b> 78:19;236:9,12 <b>claimed (1)</b> 145:15 <b>clarification (6)</b> 23:16;28:8;29:19;74:6; 158:11;193:8 <b>clarified (1)</b> 259:4 <b>clarify (5)</b> 69:21;75:6;220:19; 241:14;260:15 <b>classified (1)</b> 17:23 <b>cleanup (2)</b> 68:22;257:13 <b>clear (5)</b> 31:24;158:24;250:6; 257:20;260:22 <b>clearly (3)</b> 227:25;229:15;243:11 <b>client (2)</b> 208:3,8 <b>clients (3)</b> 18:21;20:16,22 <b>client's (1)</b> 207:20 <b>close (6)</b> 13:13;117:9;123:19,20; 186:18;191:3 <b>closer (5)</b> 90:1;92:20;143:25; 181:13;194:5 <b>closest (3)</b> 46:16;85:7;89:18 <b>co-author (3)</b> 152:11,13;156:17 <b>co-authors (1)</b> 152:16 <b>co-author's (1)</b> 154:12 <b>Code (1)</b> 8:15 <b>coding (1)</b></p>	<p>170:15 <b>coefficient (7)</b> 55:1;65:9;241:9,15,17,18; 245:4 <b>Collaborative (2)</b> 45:9;53:1 <b>collect (2)</b> 28:21;143:9 <b>collected (3)</b> 113:8;128:24;221:25 <b>collecting (1)</b> 231:4 <b>collection (2)</b> 42:1;153:21 <b>collectively (7)</b> 26:8;224:4,7,13;254:6,12, 18 <b>college (3)</b> 44:2;78:15;236:8 <b>column (1)</b> 75:2 <b>combination (2)</b> 90:6;139:21 <b>combine (1)</b> 227:14 <b>combined (2)</b> 182:25;192:18 <b>combining (2)</b> 227:7,10 <b>comfort (2)</b> 38:22;52:19 <b>coming (2)</b> 35:13;117:10 <b>comment (8)</b> 31:14;145:12;154:8,13,14; 172:18;183:19;231:1 <b>commentary (1)</b> 35:3 <b>comments (2)</b> 24:1;155:1 <b>commingled (1)</b> 209:25 <b>committed (1)</b> 178:25 <b>Committee (22)</b> 33:3,13,14;34:8,23;35:2, 11,20;36:10,20,24;37:8,11; 42:25;56:23;98:15;145:9; 258:2,11;259:2,14,23 <b>commonly (1)</b> 174:15 <b>commonplace (1)</b> 33:23 <b>communications (1)</b> 30:22 <b>Company (11)</b> 10:2,10,16;11:17,20;12:7; 18:4;19:24;60:15;69:12; 262:12 <b>comparable (4)</b> 98:24;128:8;131:13,15 <b>compare (7)</b> 83:3,4;98:12;117:20;</p>	<p>128:5;225:12;239:10 <b>compared (16)</b> 55:2;62:5;64:21;98:16,19; 105:25;107:12;112:10; 131:11;217:1;224:17;225:9, 13;254:23;255:16,24 <b>compares (1)</b> 85:10 <b>comparing (3)</b> 66:25;98:14;166:9 <b>comparison (2)</b> 193:25;238:15 <b>comparisons (3)</b> 241:4;242:6,18 <b>competent (1)</b> 234:3 <b>complete (1)</b> 98:13 <b>completed (1)</b> 167:12 <b>complicated (1)</b> 199:15 <b>components (1)</b> 99:14 <b>comprehensive (1)</b> 26:18 <b>computed (6)</b> 101:3,5,7;103:25;104:2; 216:11 <b>computing (3)</b> 101:9,11,13 <b>concern (11)</b> 20:15;25:8,11,12;38:1; 59:10;142:25;143:1,3; 145:15;245:1 <b>concerned (10)</b> 31:7;34:21;35:7;37:25; 57:18;58:1;145:10;154:24; 156:4;164:22 <b>concerning (5)</b> 29:22;89:6;227:22; 229:20;231:17 <b>concerns (7)</b> 64:5;142:12,14;143:7; 186:23;201:22,23 <b>concluded (3)</b> 114:25;211:2;218:22 <b>concludes (1)</b> 157:2 <b>concluding (1)</b> 96:14 <b>conclusion (12)</b> 27:19;152:19;184:11; 185:15,24,25;186:1;189:20, 22;231:5,13;251:16 <b>conclusions (3)</b> 26:22;58:25;67:21 <b>condition (3)</b> 116:9;208:21;209:22 <b>conditioned (1)</b> 90:20 <b>conditions (1)</b> 60:17</p>
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<p><b>conduct (4)</b> 212:13;248:13;249:11,14</p> <p><b>conductance (1)</b> 186:24</p> <p><b>conducted (5)</b> 189:21;204:5;219:15; 244:16;250:4</p> <p><b>conductivity (3)</b> 186:2,6,9</p> <p><b>confidence (7)</b> 120:7;123:2,4;157:4; 160:25;220:25;232:22</p> <p><b>confident (1)</b> 221:2</p> <p><b>confined (22)</b> 80:16;119:20;132:10,13, 24;133:20,22;134:1;135:10; 138:2,8;177:4,16,22,24; 178:11,15;179:3;185:8; 186:13,20,21</p> <p><b>confining (6)</b> 177:2;184:23;185:9,12; 186:15,17</p> <p><b>confirm (1)</b> 113:3</p> <p><b>confluence (1)</b> 63:7</p> <p><b>confused (2)</b> 14:18;32:2</p> <p><b>confusing (1)</b> 238:5</p> <p><b>confusion (2)</b> 258:22;259:3</p> <p><b>conjunctive (6)</b> 70:25;71:5;81:23,24; 174:5;229:2</p> <p><b>connected (8)</b> 12:11;80:16,17,19;137:12; 165:14;186:21;198:15</p> <p><b>connection (1)</b> 80:7</p> <p><b>consecutive (1)</b> 102:2</p> <p><b>consequently (1)</b> 30:7</p> <p><b>Conservancy (1)</b> 112:21</p> <p><b>Conservation (3)</b> 45:6;225:22;256:10</p> <p><b>consider (7)</b> 39:21;66:25;97:3;99:4; 122:12;204:6;216:1</p> <p><b>considerably (1)</b> 185:9</p> <p><b>consideration (3)</b> 173:7,8;183:23</p> <p><b>considered (6)</b> 24:4;45:4;163:22;210:6; 216:5;238:11</p> <p><b>considering (3)</b> 22:6;176:16;204:16</p> <p><b>consistent (3)</b> 144:7;161:6;185:7</p>	<p><b>constructed (1)</b> 165:12</p> <p><b>consultant (1)</b> 143:23</p> <p><b>consulting (2)</b> 43:12;78:2</p> <p><b>consumptive (44)</b> 29:22;91:9,19;92:25;93:1, 6,16;94:9,11,18;95:5;96:7, 15,22,24;97:1,9,10,11,18; 98:9,17;99:4;101:18;107:15, 17,19;108:12,15;115:13,18; 116:3;204:6,13;206:11; 208:19;214:3,8,22;215:3; 216:12;217:6;222:18;237:22</p> <p><b>contained (1)</b> 134:14</p> <p><b>content (1)</b> 38:17</p> <p><b>contested (1)</b> 8:13</p> <p><b>context (2)</b> 45:23;46:15</p> <p><b>contiguous (1)</b> 196:4</p> <p><b>continue (6)</b> 94:13;113:16;114:12; 146:17;155:15;156:14</p> <p><b>continued (2)</b> 115:13,20</p> <p><b>continues (2)</b> 52:18;93:17</p> <p><b>continuing (1)</b> 114:12</p> <p><b>continuous (2)</b> 42:16;127:2</p> <p><b>contract (1)</b> 63:18</p> <p><b>contractor (3)</b> 63:17;201:19;232:16</p> <p><b>contracts (1)</b> 42:11</p> <p><b>contrast (1)</b> 148:17</p> <p><b>contrasted (1)</b> 238:10</p> <p><b>contribution (3)</b> 104:3;105:19;177:14</p> <p><b>contributions (1)</b> 80:12</p> <p><b>control (1)</b> 21:16</p> <p><b>convenient (3)</b> 52:17;53:11;195:19</p> <p><b>conversation (2)</b> 105:22;211:17</p> <p><b>conversations (3)</b> 58:17,19;59:6</p> <p><b>convert (1)</b> 169:25</p> <p><b>conveyance (6)</b> 150:19;218:17;224:25; 225:22;255:7;256:9</p>	<p><b>coordinate (1)</b> 12:22</p> <p><b>coordinates (1)</b> 145:19</p> <p><b>copies (2)</b> 44:17;150:6</p> <p><b>copy (2)</b> 79:13;213:17</p> <p><b>corner (2)</b> 132:25;206:18</p> <p><b>Corporation (1)</b> 43:15</p> <p><b>corrected (7)</b> 79:22;91:11,19;92:1,19; 93:5;95:13</p> <p><b>correction (5)</b> 79:15,17,19,22;80:3</p> <p><b>corrections (1)</b> 79:23</p> <p><b>correctly (6)</b> 57:5;139:2;185:11;212:12, 15;216:7</p> <p><b>correlated (1)</b> 55:12</p> <p><b>correlation (24)</b> 54:23;55:3,16;64:7,15,24; 65:7,9,17,20;66:10,12;70:18; 117:24;118:13,15,21;120:8, 17;121:1,11;122:5;252:15, 22</p> <p><b>correlations (3)</b> 122:6,11,13</p> <p><b>correspond (1)</b> 219:15</p> <p><b>cost (3)</b> 224:13;254:12,18</p> <p><b>counsel (7)</b> 9:12;12:22;13:22;15:24; 16:16;38:6;39:1</p> <p><b>counterclockwise (1)</b> 9:17</p> <p><b>couple (13)</b> 13:6;39:10;50:11;84:1; 100:13;114:17;133:16; 145:25;196:1;205:21; 241:13;244:11;246:14</p> <p><b>course (10)</b> 39:16;55:24;94:25;95:2; 96:9;129:10;238:19;239:25; 240:16;241:1</p> <p><b>COURT (10)</b> 8:8;9:13,21;13:13;19:13; 74:12,14;171:25;172:5,12</p> <p><b>cover (2)</b> 245:22;250:22</p> <p><b>covered (2)</b> 38:18;246:2</p> <p><b>create (2)</b> 13:15;253:8</p> <p><b>creates (1)</b> 127:10</p> <p><b>creating (1)</b> 38:22</p>	<p><b>creation (1)</b> 98:7</p> <p><b>credentials (3)</b> 44:7;78:21;236:14</p> <p><b>Creek (125)</b> 8:21;11:17;20:7,25;27:12; 54:11,20,22,24;55:4,8,13,15; 57:15,25;58:7;59:13;62:20; 63:7;64:8,17,19;65:23; 66:11;70:14;79:3;80:6,7,9, 19,24;86:17,25;87:2,8,11,18; 91:2,6;93:21;94:5,6;96:11, 17;100:12;103:9;116:22; 117:21;118:10,19,23;119:4, 8,25;120:2,5,20;121:8,13; 132:4,8,18,19,21;134:13,15, 20,23;135:11;136:2,16,19; 137:11,14,17;138:10,12; 139:1;141:10,11;155:6,7; 156:6,6;165:13;166:18; 174:21;175:10;177:4,15,16, 18,19,22;178:5,12;179:15; 185:19;186:10,14,25; 189:18;191:5;193:20; 194:25;198:12;199:2; 200:15,24;205:4,7;221:22; 222:23;229:13;231:15; 232:18;239:2;240:1;243:7,9; 245:11;246:17;252:17,23,25</p> <p><b>critical (1)</b> 43:3</p> <p><b>crop (12)</b> 81:3;140:5,19;241:9,15, 16,18,20,20;247:25;250:11, 12</p> <p><b>crops (6)</b> 140:7;215:13,19;241:25; 242:3;248:9</p> <p><b>crosses (1)</b> 189:8</p> <p><b>cross-examination (15)</b> 9:7;18:2;38:23;49:21; 60:11;61:18;70:8;102:17; 188:1;203:23;211:3,21; 244:6;246:8;247:10</p> <p><b>cross-examine (1)</b> 39:8</p> <p><b>Crossing (1)</b> 166:21</p> <p><b>crowd (1)</b> 182:9</p> <p><b>cubic (1)</b> 75:19</p> <p><b>cumulative (4)</b> 127:4,10,13;129:9</p> <p><b>curious (3)</b> 72:4;262:11,18</p> <p><b>current (14)</b> 41:20;43:6,25;52:9;57:7; 62:15;77:12;89:13,13;93:11; 184:25;231:6;235:10,20</p> <p><b>currently (3)</b> 42:17;63:17;201:4</p>
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<p><b>curtail (4)</b> 127:5,8;129:9;149:5</p> <p><b>curtailed (25)</b> 26:24;27:11;87:3,9;91:9, 19;92:24;93:6;94:21,22,23; 95:5,12,14;96:6;129:19; 138:21;148:21;174:19; 205:11;214:3,8,22;222:18; 223:8</p> <p><b>curtailing (8)</b> 86:8;87:18;96:23;126:21; 129:22;140:1;194:22;221:17</p> <p><b>curtailment (81)</b> 17:20;18:13,23;21:2;22:7; 28:2;84:21;86:10,19,21; 87:4,6,15;89:7;91:23;92:11; 93:20;94:1,2,9;101:24; 125:15;126:10,14;127:2; 128:6,6,14;129:4;132:3; 133:9;134:4,7;135:20;137:2; 139:13,23;140:9,12;147:1, 13;148:20;149:3;169:19; 170:7;176:16;178:5;179:22; 180:2,4;188:8,13,14,21; 191:1;195:5;197:8,11; 199:10,12;200:7;204:5,9,22, 25;205:9;210:7;212:14; 218:9;220:13,22,22;223:2; 229:14,24;231:9,15;238:23, 25;239:19;245:21</p> <p><b>curtailments (2)</b> 126:9;128:11</p> <p><b>curve (7)</b> 129:14;143:5;144:2,12; 181:11;202:8;232:15</p> <p><b>curves (1)</b> 232:21</p> <p><b>cutoff (3)</b> 135:6,21;136:4</p> <p><b>cuts (2)</b> 205:14,15</p> <p><b>cutting (1)</b> 249:19</p> <p><b>cuttings (5)</b> 241:1;247:23;248:2,8,9</p>	<p>11;121:22;124:24;141:19; 143:9,14;145:11,18,23; 153:2,21,22;154:18,20,25; 155:21,23;156:21;157:3,7, 10,13,19,25,25;161:1,18,21; 164:4;167:9;198:2;203:11, 13,14;215:22,25;216:2,23; 217:14,18,22,25;229:17; 231:3;232:4;235:15;240:7; 242:4;244:20;248:8;252:7,9</p> <p><b>dataset (13)</b> 89:21;99:11,17;102:3,4; 118:3;127:22,23;216:24; 217:13;220:10;232:4,9</p> <p><b>datasets (1)</b> 216:10</p> <p><b>date (6)</b> 72:5,15;129:2;145:24; 232:10;243:2</p> <p><b>dated (4)</b> 44:25;176:21;194:17; 196:18</p> <p><b>dates (5)</b> 71:23;128:13;179:22; 241:1,1</p> <p><b>Dave (1)</b> 11:22</p> <p><b>David (2)</b> 15:11;42:25</p> <p><b>day (5)</b> 66:4;207:22;213:6; 247:14;261:24</p> <p><b>dead (1)</b> 156:16</p> <p><b>deal (6)</b> 56:6;125:2,5;130:6;208:6; 234:4</p> <p><b>dealing (3)</b> 54:7;57:20;131:25</p> <p><b>deals (1)</b> 29:5</p> <p><b>dealt (2)</b> 51:25;125:8</p> <p><b>Dean (1)</b> 30:13</p> <p><b>December (2)</b> 102:5;110:15</p> <p><b>decide (3)</b> 134:6,25;136:5</p> <p><b>decided (5)</b> 20:20;122:10;193:23; 194:6;262:1</p> <p><b>decision (5)</b> 22:5;28:1;40:14;122:8; 132:16</p> <p><b>decision-making (1)</b> 42:2</p> <p><b>decisions (1)</b> 28:2</p> <p><b>decline (2)</b> 115:1;166:24</p> <p><b>decrease (5)</b> 199:13,20,23;242:21,22</p>	<p><b>decreases (2)</b> 198:23;199:2</p> <p><b>decreasing (2)</b> 199:19;200:12</p> <p><b>deep (1)</b> 242:21</p> <p><b>deficiencies (1)</b> 184:24</p> <p><b>define (1)</b> 99:23</p> <p><b>defined (3)</b> 8:25;17:19,21</p> <p><b>definitely (1)</b> 24:23</p> <p><b>definition (1)</b> 59:4</p> <p><b>degree (2)</b> 78:17,19</p> <p><b>delineate (1)</b> 193:19</p> <p><b>delineating (1)</b> 179:15</p> <p><b>delineation (3)</b> 43:20;139:23;185:8</p> <p><b>delineations (1)</b> 97:13</p> <p><b>deliver (1)</b> 222:10</p> <p><b>delivered (2)</b> 28:1;109:22</p> <p><b>deliveries (6)</b> 109:15,18,20;121:12; 122:6,7</p> <p><b>delivery (2)</b> 26:13;42:8</p> <p><b>demand (13)</b> 97:11;98:1;108:6;109:23; 111:17;215:12,15,18;217:5, 10;240:18,20;249:8</p> <p><b>demands (1)</b> 217:16</p> <p><b>demonstrate (1)</b> 250:24</p> <p><b>demonstrates (2)</b> 251:2,17</p> <p><b>deny (8)</b> 27:1,3,24;28:12;30:7; 32:10,17;36:14</p> <p><b>Department (51)</b> 9:1,3,4,14,16,23;11:3; 29:3;31:21;33:17,24;37:13; 38:14,15,24;41:5,17;42:7,12; 43:10;52:17;63:13;76:20; 77:10;125:4;130:6;142:14; 143:21;173:2,4,15;180:4,13, 16;181:19,19;188:9;196:18; 201:11,13;203:1;204:1,19; 205:14;226:21;234:14,20; 235:7,16,21;260:13</p> <p><b>Department's (13)</b> 29:21;33:20,25;36:3;64:3; 142:11,24;143:8;144:6; 188:15;214:14;258:3,18</p>	<p><b>depend (2)</b> 40:17;141:17</p> <p><b>depending (2)</b> 199:16;222:12</p> <p><b>depends (2)</b> 178:17;221:20</p> <p><b>depletion (4)</b> 173:19;174:9;176:9;177:3</p> <p><b>depletions (4)</b> 8:19;117:10;177:12; 194:24</p> <p><b>deposition (10)</b> 53:3;54:19;66:4;104:23; 114:7;116:20;147:19; 149:24;169:4;247:15</p> <p><b>depth (1)</b> 120:23</p> <p><b>deputies (3)</b> 9:3;37:12;38:13</p> <p><b>deputy (2)</b> 9:22;11:2</p> <p><b>derive (1)</b> 216:3</p> <p><b>derived (1)</b> 216:4</p> <p><b>describe (3)</b> 45:1;99:20;214:1</p> <p><b>described (2)</b> 52:25;212:14</p> <p><b>description (1)</b> 160:8</p> <p><b>design (5)</b> 78:5;258:11,13;259:23; 260:1</p> <p><b>designed (3)</b> 45:19;78:6;229:15</p> <p><b>desire (1)</b> 226:25</p> <p><b>Despite (1)</b> 152:24</p> <p><b>details (1)</b> 201:20</p> <p><b>detect (1)</b> 243:15</p> <p><b>determination (5)</b> 55:1;59:4;65:10;103:4; 131:24</p> <p><b>determine (13)</b> 34:12;57:7;92:2;97:8,22; 102:25;117:17,24;138:19; 139:24;140:5;164:12;190:14</p> <p><b>determined (5)</b> 100:2;117:25;139:17,19, 19</p> <p><b>determines (1)</b> 110:6</p> <p><b>determining (1)</b> 99:3</p> <p><b>develop (2)</b> 202:7,12</p> <p><b>developed (7)</b> 45:7;52:12;55:21;58:14; 59:17,20;99:11</p>
<b>D</b>			
<p><b>daily (1)</b> 147:15</p> <p><b>Dakota (1)</b> 78:18</p> <p><b>dash (1)</b> 172:20</p> <p><b>data (98)</b> 32:15;42:1,1,22;58:17,19; 59:4;61:9;64:1,3;82:7;84:16, 18;97:13;98:4,6,13,19,20,23; 99:8,13;100:23;101:1,21; 104:8;105:20;106:18; 107:20,21;108:20;110:10,14, 25;111:3,3;113:3,7,13,14,24; 114:15;116:18,24;118:5,7,</p>			

<p><b>developer (1)</b> 236:3</p> <p><b>developing (2)</b> 59:25;152:17</p> <p><b>development (3)</b> 58:9;59:3;222:1</p> <p><b>devices (2)</b> 225:16;256:3</p> <p><b>dialogue (1)</b> 212:3</p> <p><b>dictate (1)</b> 240:20</p> <p><b>dictated (1)</b> 249:7</p> <p><b>dictates (1)</b> 240:19</p> <p><b>differed (1)</b> 242:19</p> <p><b>difference (17)</b> 95:9,10,22;138:7;142:23; 144:4;164:6;166:14,16; 167:7;175:20;190:24; 191:11;213:20;215:21; 216:5;220:7</p> <p><b>differences (11)</b> 167:18;177:3,12;178:3; 179:2;213:22;216:18;217:4, 9;240:12,24</p> <p><b>different (62)</b> 18:17;23:17;31:22;43:3; 45:1;48:3,7;51:14;52:24; 53:16;55:20;57:18,23;65:1; 72:12;86:5;94:21;96:1; 99:24,25;109:7;127:1;128:3, 3,11,13;141:20;142:19,21; 143:7;150:23;164:4,11,18, 20;166:3;171:25;188:14; 190:14;193:5;194:3;201:19; 213:2,5,12;216:14,25;217:6; 231:24;236:1;238:1,15,16, 17;240:3;241:25,25;242:3; 250:20,21,21;252:9</p> <p><b>differently (1)</b> 165:12</p> <p><b>difficult (3)</b> 98:11;170:3,9</p> <p><b>difficulty (1)</b> 13:15</p> <p><b>diluted (1)</b> 40:16</p> <p><b>diminish (1)</b> 243:5</p> <p><b>diminished (3)</b> 222:19;247:19,22</p> <p><b>direct (10)</b> 30:22;41:11;77:3;80:13; 88:23;104:14;135:21;190:7; 194:8;235:1</p> <p><b>directed (1)</b> 142:10</p> <p><b>direction (6)</b> 9:17;130:10;179:19; 193:23;194:1,7</p>	<p><b>directly (11)</b> 12:18;80:15;81:7;116:16; 117:10;137:12;155:7; 186:15,21;216:20;257:19</p> <p><b>Director (68)</b> 9:15;14:5,8,17,19;15:2; 16:9;17:25;18:1;19:2,22; 22:5;23:6,24;24:14;25:4; 27:18;28:6;29:7,18;30:21; 31:17;32:22,23;33:1;34:12, 18,19,25;35:5;36:6;42:3; 49:19;61:16;67:23;68:24; 69:19;79:12;102:15;145:25; 146:19;158:11;159:19,25; 162:10;167:21;172:18; 173:15;175:4;189:24; 191:15;192:20;203:17; 205:23;206:15;208:23; 210:10;211:19;227:17; 233:13,15;245:24;246:6; 247:2,4,13;261:7;262:9</p> <p><b>Director's (8)</b> 17:18;19:5;44:24;79:14; 86:14;213:13,23;237:5</p> <p><b>disagree (8)</b> 67:20;114:1,3,8;154:3; 185:14,23,25</p> <p><b>disagreed (1)</b> 114:6</p> <p><b>discarded (1)</b> 118:9</p> <p><b>discharge (15)</b> 80:24;81:7,15;90:8;91:6; 93:20;100:10,11,12;101:19, 20;120:20;121:8,10;132:21</p> <p><b>discharged (1)</b> 80:15</p> <p><b>disclosure (1)</b> 37:3</p> <p><b>discuss (7)</b> 35:17;117:19;132:4;179:9, 18;180:3;238:14</p> <p><b>discussed (15)</b> 20:18;25:22;45:3;62:18; 82:25;113:22,25;122:6; 175:15;177:13;218:21; 240:3;249:19;253:10;258:6</p> <p><b>discussing (4)</b> 44:11;58:15;79:2;236:22</p> <p><b>discussion (4)</b> 26:12;37:16;180:10,15</p> <p><b>discussions (4)</b> 35:20,21;181:18;236:18</p> <p><b>disease (4)</b> 241:2;248:20;249:20; 253:11</p> <p><b>dismiss (1)</b> 40:8</p> <p><b>displayed (1)</b> 250:24</p> <p><b>distance (2)</b> 13:15;138:24</p> <p><b>distinction (1)</b> 138:8</p>	<p><b>distributed (1)</b> 8:18</p> <p><b>distribution (2)</b> 181:10,11</p> <p><b>District (50)</b> 10:20,22,24;11:1,14; 13:25;14:10,11;21:23;32:5, 8,17;58:15;61:21;63:18; 68:14;97:21;98:14;102:20; 108:14,14,15,17,24;121:20, 23,24;141:8,9;145:16;150:9; 158:14;159:6;188:5;190:4; 191:16,17;194:12,12;195:14, 18,23,24,25;196:1,3,10; 198:19;201:18;246:11</p> <p><b>District/Galena (1)</b> 159:6</p> <p><b>districts (1)</b> 20:5</p> <p><b>District's (4)</b> 31:8;144:5,11;190:5</p> <p><b>diversion (27)</b> 97:21;108:19;116:17,18; 121:16;133:25;134:11; 139:6;174:14;190:19; 198:18;218:10,10;221:18; 222:12,14,21;224:17,25; 225:21;226:3,3;254:23; 255:7;256:9,15,16</p> <p><b>diversions (22)</b> 72:25;100:25;104:13,21; 108:11;111:5,6,9,10;116:15; 119:17;121:14,20,21; 141:10;143:19;145:22; 175:8,10;216:21,22;232:25</p> <p><b>divert (5)</b> 54:11;108:20;148:2; 223:24;254:1</p> <p><b>diverted (13)</b> 105:7;147:20;148:13; 149:10,13;223:21;224:21; 225:8,13;253:23;255:3,15,23</p> <p><b>dividing (1)</b> 249:9</p> <p><b>document (20)</b> 32:2;38:6;46:25;88:14; 159:21;163:6;168:19; 182:24;192:17;196:16; 206:17,23;208:9;209:12; 210:21;243:23;257:19; 259:11,20;260:9</p> <p><b>documentation (2)</b> 68:19;84:9</p> <p><b>documents (24)</b> 32:22;33:1,7,20;35:13,15; 36:2;38:4;84:10;258:5,6,12, 15,15,17,21,24,25;259:16,19, 24;260:3,12,12</p> <p><b>domain (10)</b> 86:9,16;87:12;92:14; 94:11,24;111:4;166:4; 169:20;249:6</p>	<p><b>domestic (5)</b> 92:18;93:1,9;139:7,9</p> <p><b>done (24)</b> 42:7;63:20;67:4;91:23,23; 92:10;106:22;110:10,13; 128:15;153:1,19,24;156:18; 161:9;162:8;163:21;167:2; 168:25;169:10;213:6; 228:13;231:1,10</p> <p><b>dot (1)</b> 213:24</p> <p><b>double (1)</b> 81:13</p> <p><b>down (10)</b> 92:21;114:24;136:19,19, 20,22;137:11,20;222:10,15</p> <p><b>downgradient (1)</b> 21:7</p> <p><b>downstream (10)</b> 8:22;54:9,13;55:8;137:16; 140:11;144:18;145:20; 218:18;222:24</p> <p><b>dozen (1)</b> 133:24</p> <p><b>Dr (6)</b> 45:7;53:6;184:5,11; 185:16;236:4</p> <p><b>drainage (9)</b> 57:15;58:7;93:21;132:18; 134:15;135:11,13;138:9; 177:17</p> <p><b>draw (5)</b> 26:22;135:5;138:5; 166:13;191:5</p> <p><b>drawing (1)</b> 189:2</p> <p><b>drawn (5)</b> 135:16;189:3,7;191:10; 195:21</p> <p><b>dress (1)</b> 208:8</p> <p><b>drew (6)</b> 137:25;138:18,24;189:5; 191:7,8</p> <p><b>drier (3)</b> 85:10,15;98:21</p> <p><b>driven (3)</b> 215:12,13,14</p> <p><b>drop (1)</b> 167:1</p> <p><b>dropped (2)</b> 166:18,21</p> <p><b>drought (5)</b> 90:12;93:11;229:23;230:6, 20</p> <p><b>dry (18)</b> 81:16;85:3;128:4;132:22; 133:6,23,25;134:16;135:4, 15;138:13;147:5;177:20; 189:9,17,19;200:21;244:19</p> <p><b>due (5)</b> 173:6,8;183:22;240:24,25</p> <p><b>duly (3)</b></p>
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<p>41:6;76:21;234:15 <b>duplicative (2)</b> 18:2,16 <b>during (24)</b> 55:4,13;62:13,14;71:11; 72:10;81:10;90:5,24;95:21; 98:15;110:4;118:18;126:22, 23;129:15;153:4;156:2; 174:6;215:14;217:2;221:25; 259:1;260:9 <b>dwell (1)</b> 38:5 <b>dyslexic (1)</b> 106:3</p>	<p><b>either (17)</b> 31:12;37:7;39:8;59:9,16; 98:9;139:11;148:2;166:22; 169:20;170:14;181:8; 183:16;190:15;198:21; 215:18;226:24 <b>elaborate (1)</b> 193:17 <b>else (15)</b> 23:25;32:20;47:25;52:22; 69:1;136:23;138:13,14; 146:9;169:12;171:21; 179:24;180:15;229:21; 247:22</p>	<p><b>entered (2)</b> 100:2;214:13 <b>entering (1)</b> 221:16 <b>entire (21)</b> 38:17;61:6;86:9,16;92:13; 94:11,24;99:11,17;108:16, 19;111:4,23;118:4;126:11, 15;147:1;169:20;175:2; 198:7;239:5 <b>entirely (1)</b> 55:21 <b>entitled (1)</b> 21:9 <b>entity (2)</b> 108:7,9 <b>environmental (3)</b> 43:11,13;78:18 <b>equate (1)</b> 95:2 <b>equation (1)</b> 202:8 <b>equipment (1)</b> 63:19 <b>equivalent (3)</b> 51:6;214:4;237:22 <b>Eric (2)</b> 12:4,5 <b>ERO (1)</b> 11:22 <b>err (1)</b> 253:5 <b>error (7)</b> 82:20;110:6;130:7;222:3; 232:23;233:1;253:12 <b>errors (1)</b> 130:8 <b>ESPA (8)</b> 83:6,12,12,17;125:8; 138:15;143:15;170:10 <b>ESPAM (3)</b> 130:20;131:5,11 <b>especially (2)</b> 90:4;229:22 <b>essentially (7)</b> 33:6;42:11;43:20;59:7; 238:23;246:16;249:10 <b>establish (4)</b> 32:17;39:11;58:5;175:12 <b>established (7)</b> 57:14;67:6;92:3,6,9; 155:14;232:15 <b>establishing (2)</b> 97:1;175:7 <b>estimate (5)</b> 57:6;203:12;216:9;238:6,9 <b>estimated (4)</b> 94:19;96:16;238:3,8 <b>estimates (3)</b> 97:23;98:17;141:14 <b>estimation (1)</b> 231:10 <b>ET (46)</b></p>	<p>81:15;100:25;101:21; 106:18;107:4;216:3;235:14, 14;236:1,19;237:7,15,19,21, 21,23;238:2,3,5,6,10,11,12, 12;240:13;241:8;246:17; 247:19,22,25;248:3,11,15, 18,21,24;249:2,3,6,7,9,9,21; 250:10;251:1,15 <b>ETrF (14)</b> 241:7,14;242:11,14,15,21; 243:4;246:21;250:1,7,19,23; 252:1;253:1 <b>evaluate (2)</b> 81:21;165:23 <b>evaluated (1)</b> 179:10 <b>evaluating (1)</b> 156:25 <b>Evan (1)</b> 11:13 <b>evap- (1)</b> 217:12 <b>evaporation (1)</b> 237:18 <b>evapotranspiration (18)</b> 12:2;81:8;97:12;107:20; 111:16;215:15,22,25;216:2, 4,10,23;217:13;235:11; 236:22;237:14,16;241:19 <b>even (19)</b> 18:17;32:9;36:10;63:8; 68:15;93:21;121:17;124:20; 131:19;185:13;186:22; 214:23;215:4;229:16;230:3, 7;244:21;260:7;263:7 <b>ever-evolving (1)</b> 228:17 <b>everybody (9)</b> 8:3;11:6;12:25;88:13; 146:9,20;150:6;159:2; 211:25 <b>everyone (1)</b> 8:2 <b>Everywhere (3)</b> 138:13,14;220:1 <b>evidence (25)</b> 19:15;21:9;22:3,8;29:23; 30:8;31:7;32:12;35:14,17; 38:7;46:20;47:1;74:7;88:15; 159:23;163:7;168:21;182:1; 192:24;208:10;209:13; 210:23;242:25;243:24 <b>evidently (1)</b> 215:5 <b>exacerbated (1)</b> 90:13 <b>exact (1)</b> 210:1 <b>exactly (7)</b> 14:18;25:7;31:20;36:16; 199:24;241:16;251:12 <b>exam (1)</b> 236:16</p>
<b>E</b>	<p><b>e-mail (13)</b> 173:14;174:4,10;175:5,6; 176:21;194:14,15,17;195:10, 11;196:17,23 <b>e-mailed (1)</b> 263:2 <b>e-mails (2)</b> 171:7,14 <b>emphasis (2)</b> 44:6;236:11 <b>emphasize (1)</b> 61:5 <b>emphasized (1)</b> 62:3 <b>employee (3)</b> 41:17;77:9;235:7 <b>employing (2)</b> 225:21;256:9 <b>encourage (3)</b> 16:16;28:19;38:3 <b>encouraged (1)</b> 8:5 <b>end (15)</b> 26:1;36:1;43:8,23;81:22; 98:21;102:5;128:22,25; 156:8;198:9;199:7,17,17; 243:3 <b>ended (1)</b> 175:14 <b>endurance (1)</b> 40:20 <b>Engineer (5)</b> 77:13;78:1,23;235:22; 236:15 <b>Engineering (4)</b> 78:2,19;236:10,12 <b>Engineers (2)</b> 10:15;41:25 <b>enhancements (1)</b> 152:24 <b>enough (12)</b> 13:3,13;118:18;126:7; 134:22;135:1;137:18; 154:24;156:7;172:10;231:8; 243:15 <b>ensemble (2)</b> 45:11;53:10 <b>ensure (1)</b> 68:11</p>	<p><b>entered (2)</b> 100:2;214:13 <b>entering (1)</b> 221:16 <b>entire (21)</b> 38:17;61:6;86:9,16;92:13; 94:11,24;99:11,17;108:16, 19;111:4,23;118:4;126:11, 15;147:1;169:20;175:2; 198:7;239:5 <b>entirely (1)</b> 55:21 <b>entitled (1)</b> 21:9 <b>entity (2)</b> 108:7,9 <b>environmental (3)</b> 43:11,13;78:18 <b>equate (1)</b> 95:2 <b>equation (1)</b> 202:8 <b>equipment (1)</b> 63:19 <b>equivalent (3)</b> 51:6;214:4;237:22 <b>Eric (2)</b> 12:4,5 <b>ERO (1)</b> 11:22 <b>err (1)</b> 253:5 <b>error (7)</b> 82:20;110:6;130:7;222:3; 232:23;233:1;253:12 <b>errors (1)</b> 130:8 <b>ESPA (8)</b> 83:6,12,12,17;125:8; 138:15;143:15;170:10 <b>ESPAM (3)</b> 130:20;131:5,11 <b>especially (2)</b> 90:4;229:22 <b>essentially (7)</b> 33:6;42:11;43:20;59:7; 238:23;246:16;249:10 <b>establish (4)</b> 32:17;39:11;58:5;175:12 <b>established (7)</b> 57:14;67:6;92:3,6,9; 155:14;232:15 <b>establishing (2)</b> 97:1;175:7 <b>estimate (5)</b> 57:6;203:12;216:9;238:6,9 <b>estimated (4)</b> 94:19;96:16;238:3,8 <b>estimates (3)</b> 97:23;98:17;141:14 <b>estimation (1)</b> 231:10 <b>ET (46)</b></p>	<p>81:15;100:25;101:21; 106:18;107:4;216:3;235:14, 14;236:1,19;237:7,15,19,21, 21,23;238:2,3,5,6,10,11,12, 12;240:13;241:8;246:17; 247:19,22,25;248:3,11,15, 18,21,24;249:2,3,6,7,9,9,21; 250:10;251:1,15 <b>ETrF (14)</b> 241:7,14;242:11,14,15,21; 243:4;246:21;250:1,7,19,23; 252:1;253:1 <b>evaluate (2)</b> 81:21;165:23 <b>evaluated (1)</b> 179:10 <b>evaluating (1)</b> 156:25 <b>Evan (1)</b> 11:13 <b>evap- (1)</b> 217:12 <b>evaporation (1)</b> 237:18 <b>evapotranspiration (18)</b> 12:2;81:8;97:12;107:20; 111:16;215:15,22,25;216:2, 4,10,23;217:13;235:11; 236:22;237:14,16;241:19 <b>even (19)</b> 18:17;32:9;36:10;63:8; 68:15;93:21;121:17;124:20; 131:19;185:13;186:22; 214:23;215:4;229:16;230:3, 7;244:21;260:7;263:7 <b>ever-evolving (1)</b> 228:17 <b>everybody (9)</b> 8:3;11:6;12:25;88:13; 146:9,20;150:6;159:2; 211:25 <b>everyone (1)</b> 8:2 <b>Everywhere (3)</b> 138:13,14;220:1 <b>evidence (25)</b> 19:15;21:9;22:3,8;29:23; 30:8;31:7;32:12;35:14,17; 38:7;46:20;47:1;74:7;88:15; 159:23;163:7;168:21;182:1; 192:24;208:10;209:13; 210:23;242:25;243:24 <b>evidently (1)</b> 215:5 <b>exacerbated (1)</b> 90:13 <b>exact (1)</b> 210:1 <b>exactly (7)</b> 14:18;25:7;31:20;36:16; 199:24;241:16;251:12 <b>exam (1)</b> 236:16</p>

<p><b>examination (14)</b> 9:6,9;38:13,17,19,20; 40:17;41:11;74:23;77:3; 88:23;227:19;235:1;260:9</p> <p><b>examine (5)</b> 38:15;39:3;76:25;146:17; 211:18</p> <p><b>examined (5)</b> 28:17;216:17;237:7; 261:17,19</p> <p><b>examining (4)</b> 12:15;13:10,14;39:17</p> <p><b>example (11)</b> 20:17;51:5;55:22;65:19; 108:13;127:24;128:2; 164:21;165:12;170:10;178:5</p> <p><b>examples (1)</b> 165:20</p> <p><b>exceed (1)</b> 61:3</p> <p><b>exceedance (13)</b> 48:3,5,8,10;50:7,12,15; 51:21;52:15;61:2;85:8; 89:19;90:2</p> <p><b>exceeds (2)</b> 25:15;103:5</p> <p><b>except (4)</b> 86:1;91:20;115:23;138:14</p> <p><b>exception (4)</b> 98:18;111:22,25;136:16</p> <p><b>excess (2)</b> 81:3;109:21</p> <p><b>exchange (3)</b> 111:25;112:4,8</p> <p><b>exclude (6)</b> 15:5,5;19:14;24:12;27:15; 137:9</p> <p><b>excluded (13)</b> 30:1;39:16;86:18;132:13; 135:7,23;137:4,4;138:16; 139:8;191:1;193:21;204:10</p> <p><b>excluding (3)</b> 14:11;29:5;135:24</p> <p><b>exclusively (1)</b> 26:4</p> <p><b>excuse (10)</b> 9:3;17:20;23:25;31:16; 77:23;78:20;89:2;96:21; 99:21;184:18</p> <p><b>excused (1)</b> 76:5</p> <p><b>exempt (3)</b> 92:18;93:1,9</p> <p><b>exercise (6)</b> 28:4;224:2,11;254:4,10,16</p> <p><b>exercising (3)</b> 224:13;254:12,18</p> <p><b>Exhibit (85)</b> 44:20;46:19;47:2,15; 48:17;49:5;50:2;51:9;54:1,6; 60:13,16;67:1;74:7,25;79:7; 87:20;88:14,16;89:12,12; 150:6;151:13;152:3,4;158:6,</p>	<p>7,10;159:7,7,22,24;160:2,6; 162:11;163:7,8,10,16; 167:22,23;168:20,21,23; 171:11,11;172:15,17; 176:22;183:7,24;190:4; 191:17;192:19,25;194:11, 12;200:1,1;204:4;206:8,14, 21,24,25;207:2,3;208:11,16, 24;209:1,2,13,14,19;210:14, 16,19,25;214:14;236:25; 237:1;243:18;244:1;259:17</p> <p><b>exhibits (12)</b> 146:1;151:6;158:15,18,20; 159:2;171:8;172:21;184:4; 190:5;205:22;258:16</p> <p><b>exist (1)</b> 71:2</p> <p><b>existence (2)</b> 225:15;256:2</p> <p><b>existing (2)</b> 225:20;256:8</p> <p><b>exited (1)</b> 260:24</p> <p><b>expanded (3)</b> 113:17;155:14,16</p> <p><b>expansion (1)</b> 113:9</p> <p><b>expect (6)</b> 33:14;38:16;85:20;87:9; 93:16;115:15</p> <p><b>expectation (3)</b> 131:17,20;167:19</p> <p><b>expectations (3)</b> 167:11,14,16</p> <p><b>expected (5)</b> 166:23,25;176:24;177:2; 239:13</p> <p><b>expense (2)</b> 223:23;253:25</p> <p><b>experience (2)</b> 130:6;233:21</p> <p><b>expert (7)</b> 18:6;22:4,8;35:8;40:7; 42:7;234:19</p> <p><b>experts (2)</b> 18:18,20</p> <p><b>explain (14)</b> 94:12;119:2;123:10; 164:15;188:23;189:2,4; 190:13;215:2,7;250:13; 252:24;253:2;260:9</p> <p><b>explained (5)</b> 65:8,11;166:12;188:25; 246:22</p> <p><b>explaining (1)</b> 253:4</p> <p><b>explains (1)</b> 26:21</p> <p><b>explanation (3)</b> 92:4;95:25;176:6</p> <p><b>explicitly (5)</b> 134:24;135:6;155:7; 156:5;165:13</p>	<p><b>explore (1)</b> 166:3</p> <p><b>expressed (1)</b> 203:2</p> <p><b>expression (1)</b> 16:1</p> <p><b>extend (3)</b> 55:15;133:19;185:9</p> <p><b>extended (1)</b> 185:13</p> <p><b>extends (1)</b> 72:2</p> <p><b>extensive (3)</b> 22:24;36:11;57:22</p> <p><b>extensively (1)</b> 9:6</p> <p><b>extent (26)</b> 19:11;21:8;30:1;39:6; 56:24;93:25;116:25;132:10; 133:22;138:1;140:13;155:3; 164:2;168:22;175:14; 184:21;185:1,3,8;186:17; 216:20,21;225:19,25;256:6, 13</p> <p><b>extracted (3)</b> 104:8;105:21;107:11</p>	<p>70:24;163:18;204:18,21; 206:5</p> <p><b>familiarity (3)</b> 52:19;56:18;71:20</p> <p><b>far (15)</b> 25:23;31:6;34:14;55:23; 59:19;61:12;67:4;82:19; 98:23;118:8;121:17;137:18; 145:9;176:17;234:18</p> <p><b>favorably (1)</b> 32:10</p> <p><b>feature (1)</b> 189:10</p> <p><b>fed (1)</b> 238:20</p> <p><b>feel (5)</b> 27:7;28:17;67:2,6;230:6</p> <p><b>feet (2)</b> 75:19;161:5</p> <p><b>felt (1)</b> 203:3</p> <p><b>fence (1)</b> 37:1</p> <p><b>fertilization (3)</b> 240:25;248:23;249:20</p> <p><b>few (17)</b> 60:8;70:6;72:9;89:10; 90:11;111:10;112:1,4; 145:21;155:21;161:15; 175:19;176:7;188:5;212:18; 227:2;247:17</p> <p><b>field (4)</b> 236:19;237:23;255:12,20</p> <p><b>field-by-field (8)</b> 248:1,13,17,20,23;249:1, 11,15</p> <p><b>fields (10)</b> 109:22;241:6,7,7,23; 243:13;248:14;250:14,20; 253:6</p> <p><b>figure (45)</b> 17:6;79:20;91:8,15,20; 92:1,1,7,8,9,12,18,19,22; 93:5;95:13,23;108:1;118:23; 139:3;145:3;183:6;188:13; 189:6;202:25;213:10,11,18, 21,25;214:11,16,21;215:4,4; 217:7;249:25;250:1,7,24; 251:2,7,25;252:1;253:1</p> <p><b>figures (1)</b> 221:3</p> <p><b>file (7)</b> 14:9;170:2,6,6,12,16; 199:1</p> <p><b>filed (13)</b> 10:8;15:6;16:8,11;17:16; 20:23;30:12;31:13,24;68:19; 259:12;262:13;263:3</p> <p><b>files (22)</b> 33:20,25;36:2,5,7;105:20; 139:20;170:23,24;171:2; 175:16;176:2,20;187:10; 197:20,21,23;199:1;258:12,</p>
<b>F</b>			
		<p><b>face (5)</b> 8:3;29:21;206:12;208:19; 209:22</p> <p><b>facet (1)</b> 23:1</p> <p><b>facilitate (3)</b> 14:16,21;56:22</p> <p><b>facilities (2)</b> 225:20;256:8</p> <p><b>fact (14)</b> 18:5,9;20:24;21:10;47:23; 51:23;55:13;89:7;117:17; 126:3;228:3;230:5,7,19</p> <p><b>factor (4)</b> 90:12;116:10;216:13; 217:5</p> <p><b>factoring (1)</b> 249:10</p> <p><b>factors (12)</b> 80:22,25;90:6,7;109:6; 124:7;131:4;138:19;160:15, 17,23;249:22</p> <p><b>facts (1)</b> 28:1</p> <p><b>fair (7)</b> 59:5;60:16;210:2;212:5; 223:12,15;244:25</p> <p><b>fairly (9)</b> 33:22;35:8,15;64:10,13, 24;112:8;123:19;221:1</p> <p><b>fall (1)</b> 151:8</p> <p><b>familiar (10)</b> 53:11;56:15,16;65:23,24;</p>	

<p>18;259:25;260:13 <b>filing (1)</b> 14:9 <b>filings (1)</b> 30:14 <b>final (2)</b> 152:6;209:17 <b>finally (6)</b> 33:19;43:23;45:10; 225:54;242:17;256:12 <b>find (4)</b> 38:23;170:23;171:7;213:2 <b>finding (2)</b> 156:18;245:1 <b>fine (8)</b> 15:18;16:15,20;66:1; 69:17;78:13;159:5,5 <b>finger (2)</b> 20:11;21:5 <b>finish (2)</b> 39:13,18 <b>finished (1)</b> 257:10 <b>firm (3)</b> 43:12;69:6;78:2 <b>first (31)</b> 16:12;18:8;33:2;39:9; 40:22;41:6;54:19,19;62:22; 72:9;76:21;86:20,21,25; 89:5;90:21;111:3;132:4; 169:5;170:1;176:3,23;186:3; 194:15,16,21;213:20;234:15, 18;244:12;257:25 <b>Fish (24)</b> 11:3;28:24;29:3,6,6;30:6, 9;69:21;100:12;139:10; 163:4;204:1,19,19,24; 205:20,21;206:5,5;208:14; 209:17;210:1,9,21 <b>fit (3)</b> 109:10;157:3;183:15 <b>five (11)</b> 82:24;83:19;165:20,22; 169:16;198:9;238:17; 250:14;253:4,7;257:12 <b>five-month (2)</b> 198:3;200:16 <b>five-year (3)</b> 83:15;130:22;131:7 <b>Flats (1)</b> 148:6 <b>flaw (1)</b> 186:11 <b>flawed (1)</b> 186:16 <b>Fletcher (67)</b> 10:1,1;16:9,11,18,21,24; 17:14,15;19:18;21:18;24:2, 9,10;25:10;28:6,8,14;29:18; 31:16,19;34:6,7;39:2,49;16; 60:7,8,12,14;61:13,14;69:11; 87:24,25;88:21;102:11,13; 159:10;162:13,14;167:24,</p>	<p>25;182:3,4;183:9,14,17,19, 25;191:22,23;207:4,6;209:3, 4;226:23;227:3,5;233:7,8; 244:4;246:1,2;257:7;259:6, 10;260:19 <b>Fletcher's (2)</b> 25:6;30:4 <b>flow (37)</b> 55:4,5;56:17;62:13,15,16; 64:18;70:16;77:17;81:18; 82:16,21;83:3;84:15;94:4; 99:24;100:4,5,6,7,18;127:25; 138:15;140:11;141:22,22; 164:19;202:10,12,13;205:3; 231:19;258:12,13;259:23,24, 25 <b>flowed (1)</b> 58:2 <b>flows (40)</b> 8:20;21:6;54:24;55:12; 59:15;64:7,8,16,17,21;66:7, 11,11;67:5;70:14;91:2; 99:21;100:1,8,10,14;120:17; 121:2,13;129:15;142:1; 144:3;175:9;185:18;202:17; 228:8;229:25;230:8;231:15, 21,24;232:1;245:19,20; 252:23 <b>flurry (1)</b> 262:21 <b>fly (1)</b> 51:17 <b>focus (8)</b> 8:16;27:8,9;54:19;59:13; 80:6;87:16;236:13 <b>focused (5)</b> 19:12;27:23;62:11; 114:10;121:16 <b>focusing (1)</b> 229:24 <b>folks (2)</b> 12:17;234:22 <b>follow (5)</b> 39:1,1;42:23;62:2;119:12 <b>follows (3)</b> 41:6;76:21;234:15 <b>Forecast (24)</b> 45:11;46:2,7,15,17;47:4,7, 19;48:3,5,10;50:8,15;51:8, 21;52:8;53:9,13;60:23;61:2; 62:4;66:13;70:16;90:2 <b>forecasts (4)</b> 48:2,8;50:11;52:15 <b>Forget (1)</b> 149:3 <b>forgot (2)</b> 171:22;245:2 <b>formation (2)</b> 115:2,11 <b>forward (10)</b> 16:12,18;19:8;20:4;36:13; 38:6;41:1;76:17;127:16; 234:10</p>	<p><b>found (10)</b> 64:6;65:3;121:1,2;128:10; 129:17;187:4;246:16;252:3, 15 <b>foundation (4)</b> 38:21;53:18;56:14;260:8 <b>foundational (2)</b> 32:12;53:20 <b>four (8)</b> 39:16;117:20;118:4,9; 128:11,13;193:6;262:15 <b>fraction (1)</b> 241:8 <b>frame (18)</b> 48:12,15;50:14,16;51:18; 55:5;62:13;72:8;83:22;84:3; 85:2;95:22;96:1;125:24; 131:7;180:1;198:1;200:16 <b>frames (1)</b> 65:1 <b>freely (1)</b> 27:6 <b>freezing (1)</b> 143:14 <b>frequent (1)</b> 202:11 <b>front (10)</b> 17:2;26:1;37:4;151:5; 152:4;158:22;184:3;200:3; 213:18;249:24 <b>frost (1)</b> 240:21 <b>frustrate (1)</b> 27:17 <b>frustrated (1)</b> 203:5 <b>full (11)</b> 8:3;40:3;41:13;77:5; 114:24;140:21;176:23; 220:21;235:3,5;250:8 <b>fully (1)</b> 172:19 <b>fun (1)</b> 61:22 <b>function (27)</b> 119:13,19;120:4;132:23; 134:19,21;135:1,6,10,22,25; 136:4,23,25;138:4;174:15; 175:16;178:9;187:1;191:12; 197:14;198:2,14,23,25; 199:13;200:14 <b>functions (33)</b> 119:15;120:11,13,14; 134:9;135:9,23;136:8,10,14, 17,20;139:1;173:18,19,22, 25;174:8,9;175:1,12,14; 178:7;179:5,14;190:17; 191:6;197:7,11;198:1,5; 200:9;241:15 <b>fundamentals (1)</b> 236:16 <b>funding (1)</b> 42:10</p>	<p><b>further (26)</b> 15:2;17:21;23:4;51:2,7; 60:3;93:11,12;138:1;145:20; 147:8;178:2,10;179:19,19; 185:10,13;187:21;191:4; 198:23;199:11;200:18,23; 222:10;245:24;257:5 <b>furthermore (2)</b> 26:19;228:12 <b>future (7)</b> 20:16,22;28:2;155:23; 156:11;230:22;231:2</p> <hr/> <p style="text-align: center;"><b>G</b></p> <hr/> <p><b>gage (42)</b> 42:18;50:20;51:20;54:24; 55:5,11,15;58:12,19;62:13; 63:5,9,12,15,16;64:19,22; 65:22;66:11,15;67:5;70:17; 87:3;120:5;122:7;137:13,14, 17;140:24;141:7,9;142:12, 14,17,18;203:7;221:10,10; 232:19,23;243:1;252:16 <b>gages (7)</b> 42:17;63:2,6,10;142:20; 200:25;201:2 <b>gaging (8)</b> 42:15,15;47:18;62:23,25; 63:20,22;143:23 <b>gain (2)</b> 110:3;118:20;205:4; 222:23 <b>gaining (1)</b> 221:24 <b>gains (6)</b> 109:12;118:3;198:12; 218:16;222:2;223:4 <b>Galena (17)</b> 10:23;11:1;14:10,15; 18:15;39:6,9;68:1;163:7; 168:21;188:5;190:5;191:16; 192:19;194:12;196:1;198:15 <b>gallery (3)</b> 13:14;159:15;243:20 <b>Game (8)</b> 11:4;28:24;29:3,6;30:6; 163:5;204:2;210:22 <b>Game's (7)</b> 69:21;204:19;205:20,22; 206:5;208:14;209:17 <b>gaps (6)</b> 113:24;114:15;153:2; 154:18,20;155:25 <b>Gary (2)</b> 9:15;196:17 <b>Gary's (1)</b> 9:20 <b>gave (2)</b> 92:5;212:22 <b>general (12)</b> 9:3,23;11:3;37:13;38:14; 47:21;60:1;71:20;83:2;</p>
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<p>149:4;199:19;205:13 <b>generally (12)</b> 45:19;92:2;109:2,3;199:1; 200:12;204:18;206:5;216:1; 233:3;242:12,16 <b>generate (3)</b> 173:18,21,24 <b>generated (1)</b> 57:2 <b>geographic (2)</b> 176:8;199:21 <b>Geological (4)</b> 42:13,13;72:24;112:19 <b>geologist (2)</b> 44:10;78:25 <b>geology (4)</b> 44:3,4;78:18;137:8 <b>geometry (3)</b> 123:16;124:12,25 <b>geoscience (1)</b> 43:24 <b>gets (4)</b> 100:16;104:24;199:15; 239:15 <b>GGWD (12)</b> 159:22,24;160:1;162:11; 163:8,15;167:22;168:23; 172:17;182:2;183:24;192:25 <b>given (11)</b> 56:7;83:22;85:1,1;93:24; 99:14;126:3,7;172:22; 193:22;194:1 <b>Givens (1)</b> 10:17 <b>gives (1)</b> 127:12 <b>glad (1)</b> 234:2 <b>Glendale (13)</b> 86:12;94:10,22;133:11; 135:4;139:14;147:10;148:1; 149:5,6;169:21;189:8;191:7 <b>Glenwood (1)</b> 147:7 <b>gloves (1)</b> 234:22 <b>goal (2)</b> 195:7,12 <b>goes (9)</b> 15:4;20:3;40:15;102:4; 110:5;118:5;124:5;130:3; 158:17 <b>Good (36)</b> 29:2;37:23;41:13;46:8; 49:23,24;50:6;52:3;73:20; 74:3;83:23;84:2;88:25; 96:25;101:22;102:7,10; 115:16;157:3;188:3;193:24, 25;203:25;211:23;216:6,6; 231:7;232:20,20;233:4; 239:7,17;244:8;246:13; 247:12,14 <b>Gooding (1)</b></p>	<p>69:13 <b>grab (1)</b> 171:22 <b>grant (3)</b> 27:16;183:22;259:7 <b>graph (6)</b> 79:16,21,22;92:23,23,25 <b>Great (6)</b> 8:3;21:12;70:6;168:19; 227:21;234:4 <b>greater (12)</b> 50:17;62:15;127:25; 141:21,22,22;166:24;167:18, 18;178:14,15;214:24 <b>greening (1)</b> 250:20 <b>Greg (3)</b> 10:14;21:10;151:14 <b>Ground (32)</b> 10:20,22,23;11:1;13:24; 14:10,10;21:23;31:8;32:4; 61:21;102:20;117:6;158:14; 159:6,6;188:5;190:4,5; 191:16,17;194:11,12;195:14, 25;196:1,3,10;198:15,16; 224:6;246:11 <b>groundwater (119)</b> 8:18;14:24;20:5;27:10; 33:4;36:25;42:1;43:3,4;44:6; 56:17;73:1;77:17,18;81:6; 14,18,22;82:5,12,16,20;83:3; 84:22;85:1,21;86:3,9;87:3,8; 90:18,23;91:4;93:2,16,19,24; 94:19;95:16,18,21;96:16; 97:15,17;98:2,4,6;104:17; 108:6,8;109:23;111:5; 112:15;114:25;115:11,12,13, 19;116:1,3;117:2,6,20; 118:22;121:25;122:11,18; 126:21;127:4;134:11; 138:15;145:8;149:11;157:1, 8;160:17,18,24;161:5,7,8; 175:8,9;189:14;195:18,23, 24;198:19;200:10;204:6; 205:3;208:15;209:18;218:9; 221:17;222:18;223:1,7,8; 224:3,12,14;229:7,14; 238:24;239:19;254:5,8,11, 13,17,19;258:1,12;259:1,14, 23,24,25 <b>group (33)</b> 13:23;17:24,25;23:10,17; 35:16;39:13,14,14,16,25; 41:24;43:16,24;68:5,9,11,15, 15,21;69:1,4,12,14,22;73:7, 12;88:6;190:20;211:3,4; 247:5;263:7 <b>grouping (1)</b> 200:6 <b>Grover (1)</b> 150:11 <b>grow (2)</b> 140:6;215:13</p>	<p><b>growing (2)</b> 215:20;240:22 <b>growth (1)</b> 241:21 <b>grueling (1)</b> 233:21 <b>guess (24)</b> 20:19;22:3;29:15;31:11, 11;32:21;36:23;45:19;52:11; 54:16;68:8;89:15;90:10; 97:7;166:15;173:11;178:7; 202:21;203:11;206:21; 226:20;230:16,25;245:8 <b>guidance (1)</b> 130:16 <b>guide (1)</b> 134:19 <b>guideline (1)</b> 60:1 <b>guidelines (2)</b> 125:4,6 <b>guys (2)</b> 17:9;261:11 <b>GWD (1)</b> 194:23</p>	<p><b>hatchery (5)</b> 30:9;204:20;206:6; 209:18;210:1 <b>Hayspur (4)</b> 204:20;206:6;208:15; 209:18 <b>head (8)</b> 37:8;91:5;108:25;109:11, 17;110:2;112:7;200:11 <b>heading (2)</b> 108:19;147:4 <b>heads (1)</b> 59:14 <b>headwaters (1)</b> 80:14 <b>health (1)</b> 247:24 <b>healthy (1)</b> 250:10 <b>hear (3)</b> 13:4,5;22:15 <b>heard (3)</b> 55:24;56:1;252:20 <b>HEARING (273)</b> 8:1,9,11,12,16,23;11:5,12, 18,21,25;12:3,8,13,23;13:9, 20;14:7;15:3,8,12,18,20; 16:10,15,20,23;17:1,7,10,13; 18:19;19:12,18;20:3;21:20; 22:1,11,23;23:5,7,15,19; 24:6,12,14,20;25:2,5,20; 27:8,9,23,25;28:7,11,15; 29:11;30:3;31:10,14,18; 32:1;33:24;34:4,17;35:3,18, 25;37:21;38:5;40:24;41:1,8; 44:16;46:21,25;48:20,23,25; 49:2,4,8,11,18;53:19;54:2,4; 60:6;61:14;67:25;68:3,5,18, 25;69:3,9,18,20,23;70:2; 73:4,6,12,16,23;74:1,8,13,15, 18,24;76:2,12,16,23;87:16, 22,24;88:1,4,6,9,11,19; 102:12;144:20,23;146:4,9, 11,15;158:12;159:8,14,18, 21;162:12,15,17,19,21,23, 25;163:3;167:24;168:1,3,5,7, 9,11,13,15,17,19;171:15,18; 172:3,7,10,24;173:6,10; 182:3,5,7,9,13,19,21,23; 183:2,6,11,13,18,22;187:22; 189:25;191:18,21,24;192:1, 3,7,9,11,13,15,17,21,23; 203:20;205:24;206:16,23; 207:4,7,9,12,14,16,18,24; 208:1,9,12,25;209:3,5,7,10, 15;210:12,14,18,20,23; 211:1,10,14;226:7,10,12,14, 16,19;227:3,6,11,14;231:16; 233:6,9,12,14,16,18,24; 234:2,8,17,24;243:19,23; 244:3;245:25;246:4;247:1,3, 5;256:20,23,25;257:2,4,6,9; 259:8,11;260:20;261:8,10,</p>
<b>H</b>			
<p><b>Hailey (29)</b> 10:15,18;18:10;19:25; 47:18;50:20;51:20;62:13; 64:7,16;65:12;66:14;70:14; 85:14;120:5,18;121:2,10; 122:7;123:8,11,14,15; 154:25;211:24;247:16; 252:17,22;262:13 <b>Hailey-Stanton (1)</b> 166:21 <b>half (1)</b> 146:10 <b>hand (6)</b> 41:2;76:17;79:13;190:2; 234:11;236:24 <b>handed (3)</b> 44:19;47:14;79:6 <b>handle (2)</b> 180:16;181:20 <b>hanging (1)</b> 211:25 <b>happen (3)</b> 76:7;107:5;200:17 <b>happened (1)</b> 84:25 <b>happening (1)</b> 137:20 <b>happens (4)</b> 20:8,14;21:8;129:13 <b>hard (3)</b> 184:1;195:21;196:5 <b>harvest (1)</b> 241:1 <b>hatcheries (1)</b> 100:12</p>			

<p>16,20,22;262:6,10,20;263:1,5,10</p> <p><b>Heart (5)</b> 119:9,14,19;135:12; 138:10</p> <p><b>Heather (2)</b> 10:25;188:4</p> <p><b>heavily (1)</b> 33:16</p> <p><b>height (2)</b> 202:6,9</p> <p><b>held (1)</b> 40:10</p> <p><b>help (1)</b> 127:21</p> <p><b>helped (1)</b> 134:19</p> <p><b>helpful (10)</b> 9:13;15:8;33:9,17;38:23, 25;46:13;143:16;259:18; 262:3</p> <p><b>helps (1)</b> 260:21</p> <p><b>hemmed (2)</b> 240:7;244:20</p> <p><b>hence (1)</b> 186:14</p> <p><b>HENDRICKS (3)</b> 10:3,3;23:8</p> <p><b>Hi (2)</b> 10:9;70:10</p> <p><b>hid (1)</b> 173:4</p> <p><b>high (8)</b> 98:10,19;135:1;186:2,7, 24;221:1;241:10</p> <p><b>higher (40)</b> 50:12;60:23,25;65:13,16; 81:14,15;83:9;85:22;96:8, 11,14,16,18,20,23,24; 115:15;120:7,8;121:1;123:5; 124:9,14,18,23;125:14,18, 20;127:9;131:4,8;136:24; 191:4;214:17,21;215:2,18; 220:16;253:1</p> <p><b>highlighted (1)</b> 133:23</p> <p><b>Highway (3)</b> 145:13;221:25;222:7</p> <p><b>himself (1)</b> 31:23</p> <p><b>historic (3)</b> 97:3,4,5</p> <p><b>historical (10)</b> 45:23;46:15;48:5,8;51:1,5; 52:14,16;61:9;99:4</p> <p><b>historically (1)</b> 47:23</p> <p><b>Hoekema (1)</b> 42:25</p> <p><b>hold (4)</b> 77:25;140:22;196:24; 235:21</p>	<p><b>holder (4)</b> 26:23;223:24;254:1;256:7</p> <p><b>holders (2)</b> 26:17;27:12</p> <p><b>honestly (5)</b> 13:1;26:15;37:15;114:17; 258:22</p> <p><b>Honor (8)</b> 17:15;30:20;31:16;46:19; 87:23;88:18;207:6,8</p> <p><b>hope (7)</b> 8:3;24:12;57:4;146:20; 171:21;259:4;260:21</p> <p><b>hopefully (2)</b> 10:12;216:23</p> <p><b>horn (1)</b> 49:12</p> <p><b>horse (1)</b> 156:16</p> <p><b>hot (1)</b> 81:16</p> <p><b>hour (3)</b> 8:2;146:5,10</p> <p><b>housekeeping (1)</b> 262:8</p> <p><b>Huh (1)</b> 261:8</p> <p><b>Hults (1)</b> 15:11</p> <p><b>hydraulic (2)</b> 186:2,9</p> <p><b>hydraulically (2)</b> 137:12;165:14</p> <p><b>hydrogeologic (2)</b> 77:19;195:22</p> <p><b>hydrogeologist (1)</b> 43:17</p> <p><b>hydrogeologists (1)</b> 41:25</p> <p><b>hydrogeology (1)</b> 80:5</p> <p><b>hydrograph (1)</b> 151:20</p> <p><b>hydrographs (1)</b> 151:23</p> <p><b>hydrologic (7)</b> 77:19;79:3;153:3;156:1; 157:5;189:10;229:13</p> <p><b>hydrologists (3)</b> 41:24;45:21;46:14</p> <p><b>hydrology (10)</b> 9:24;26:22;41:21;42:5,24; 43:1;44:5;56:20,21;77:16</p>	<p>39:1;117:7;147:19; 175:19;176:4;179:14; 198:20;217:24;218:6;233:1; 237:21</p> <p><b>identified (18)</b> 18:6,15;23:20;27:11; 28:19;117:22;145:14; 164:22;165:6;184:4,24; 185:17,18;188:8,13,15; 239:3;252:5</p> <p><b>identify (3)</b> 64:14;86:16;196:23</p> <p><b>IDFG (15)</b> 206:14,18,24;207:3; 208:10,11,17,23;209:2,14, 19,20;210:16,19,25</p> <p><b>IDWR (26)</b> 9:25;12:2;44:19;47:1,2,15; 48:17;49:5;50:2;51:9;52:20; 63:16;67:1;79:7;87:20; 88:14,16;112:20;113:9; 204:4;214:14,17;236:24; 243:17,24;244:1</p> <p><b>IDWR's (1)</b> 89:12</p> <p><b>II (1)</b> 77:13</p> <p><b>illustrates (1)</b> 251:4</p> <p><b>immediate (1)</b> 138:9</p> <p><b>impact (30)</b> 17:20;83:10;93:12; 107:16;117:15;127:13; 132:19;134:17,20,23;140:1; 165:15;174:23;180:16; 185:18;186:4,10,13;189:15; 193:20;200:14,24;205:9; 216:21;229:7,16;230:8,23; 231:14;244:16</p> <p><b>impacted (5)</b> 14:22,23;179:15;195:7; 245:7</p> <p><b>impactful (2)</b> 228:8,9</p> <p><b>impacting (1)</b> 229:3</p> <p><b>impacts (25)</b> 8:17;14:15;82:9,11,12; 83:15;128:4;132:20;134:13; 137:17,19,21,22,22;138:12, 15;177:15,18,19;178:4; 179:2;186:19,25;190:14; 200:20</p> <p><b>imperfect (2)</b> 153:1,16</p> <p><b>implore (1)</b> 13:1</p> <p><b>imply (3)</b> 94:8;98:8;185:12</p> <p><b>import (1)</b> 204:15</p> <p><b>important (8)</b></p>	<p>27:18;36:12,22;59:2;67:7; 84:13;122:4;260:10</p> <p><b>improve (6)</b> 63:20,21;143:23;144:2; 156:22;231:2</p> <p><b>improved (2)</b> 153:21;155:22</p> <p><b>improving (1)</b> 230:22</p> <p><b>inadequate (1)</b> 202:20</p> <p><b>inches (1)</b> 161:24</p> <p><b>incidental (6)</b> 81:2,12;82:13;101:12; 104:12,20</p> <p><b>inclination (1)</b> 36:11</p> <p><b>include (16)</b> 57:6;62:12;70:3;81:2; 93:9;113:7,8;122:10;134:6; 135:1,19;137:1;138:25; 139:4,9;165:18</p> <p><b>included (26)</b> 95:23;99:16;110:14; 112:16;123:23;132:14; 133:9,14,17,18;135:20; 136:6,14,16;150:20;157:22; 161:18;180:2;190:20,25; 191:8;197:19,21;205:2,4,15</p> <p><b>includes (12)</b> 42:15;81:4,6;86:11;91:21; 92:18,24;93:1;139:5;191:7; 195:25,25</p> <p><b>including (2)</b> 42:5;156:18</p> <p><b>inconsistency (1)</b> 95:25</p> <p><b>incorporate (2)</b> 84:15;154:10</p> <p><b>incorporates (2)</b> 84:14,14</p> <p><b>incorporating (3)</b> 121:22;153:22;156:20</p> <p><b>incorrect (1)</b> 79:21</p> <p><b>increase (12)</b> 87:1;94:3,4;113:12;161:5; 162:1;213:24;214:1,4,7; 218:16;229:25</p> <p><b>increased (4)</b> 87:7,10;107:13;113:17</p> <p><b>increases (1)</b> 198:11</p> <p><b>increasing (2)</b> 115:20;199:18</p> <p><b>incur (1)</b> 222:10</p> <p><b>indeed (2)</b> 87:14;230:8</p> <p><b>Index (4)</b> 45:5,15;51:6;216:5</p> <p><b>indicate (2)</b></p>
	<b>I</b>		
<p><b>Idaho (15)</b> 8:15;9:16;11:3,19;29:3; 41:17;42:3;43:22;44:6,9; 77:9;78:24;79:1;204:1,18</p> <p><b>ID'd (1)</b> 18:4</p> <p><b>idea (11)</b></p>			

<p>54:6;157:3 <b>indicated (8)</b> 50:6;65:7;89:7,9,10;90:3, 11;169:4 <b>indicates (2)</b> 101:23;123:3 <b>indicating (2)</b> 160:17,23 <b>individual (5)</b> 31:8;178:21;219:18; 243:13;253:6 <b>individually (5)</b> 224:3,12;254:5,11,17 <b>individuals (4)</b> 15:5;23:3;68:7,9 <b>inequitable (1)</b> 19:7 <b>inexact (1)</b> 60:2 <b>infiltration (6)</b> 80:13;81:5;101:10; 104:14;109:20,21 <b>inflow (2)</b> 141:1;221:12 <b>inflows (2)</b> 141:11;143:19 <b>influence (1)</b> 86:17 <b>information (39)</b> 28:16;32:5,9,13;37:23; 63:14;69:15;82:1;110:19,23; 111:2,13,15,19,20;113:13, 24;122:22;139:18,20; 149:25;154:20;155:17,19; 156:19;157:18,22;158:2; 161:7;170:23;171:1;173:2; 197:19;212:21;214:13; 220:20;222:5;262:14,17 <b>informative (1)</b> 67:5 <b>inherently (2)</b> 82:18;123:15 <b>initial (2)</b> 72:11;110:16 <b>initiated (1)</b> 8:14 <b>initiating (1)</b> 174:5 <b>injures (1)</b> 14:16 <b>injury (5)</b> 24:18;223:13;231:14; 253:16,17 <b>input (5)</b> 84:24;143:10;158:1; 230:13;239:11 <b>inputs (2)</b> 36:20;210:5 <b>inquiry (1)</b> 58:21 <b>in-season (1)</b> 194:24 <b>inside (3)</b></p>	<p>52:20;135:15;223:1 <b>inspected (1)</b> 216:24 <b>install (2)</b> 155:2,2 <b>installed (2)</b> 63:19;201:7 <b>instance (3)</b> 188:19;248:2;250:13 <b>instead (2)</b> 54:11;250:15 <b>instructed (1)</b> 193:14 <b>insufficient (3)</b> 118:11;247:18;251:17 <b>intend (1)</b> 24:17 <b>intended (1)</b> 60:1 <b>intent (1)</b> 15:6 <b>interaction (6)</b> 77:18;81:21;82:5;155:6; 156:5;157:1 <b>interchangeably (1)</b> 174:9 <b>interest (2)</b> 39:7;117:23 <b>interested (1)</b> 16:6 <b>interests (2)</b> 21:15;30:17 <b>International (1)</b> 43:16 <b>interpolation (1)</b> 216:9 <b>interpret (2)</b> 14:20;160:12 <b>interpreted (1)</b> 241:9 <b>interpreting (1)</b> 235:14 <b>interrupt (2)</b> 13:2;68:24 <b>interval (3)</b> 123:4;161:1;220:25 <b>into (65)</b> 33:10;35:13,17;36:16; 39:25;46:19;47:1;48:17; 62:8;63:25;66:22;68:21; 74:7;82:7;87:20;88:15; 97:20;100:2,17;103:18; 104:24;105:7,7;116:10; 124:25;130:12;131:19; 135:11;136:19;137:18; 143:10;146:4;147:21;148:2, 13;149:10,13;153:22; 154:10;156:21;159:23; 163:7;164:19;167:10; 168:21;169:6,22,24;181:12; 182:1;185:20;192:23; 206:15;208:10;209:13; 210:16,22,23;214:13;</p>	<p>216:11;228:25;242:4; 243:18,24;260:3 <b>introduce (2)</b> 9:14;242:4 <b>introduced (5)</b> 35:16;248:8;258:7,16; 259:16 <b>introduction (3)</b> 9:12;49:14;158:9 <b>involved (11)</b> 33:23;43:19;58:9;59:4; 164:8;189:1;216:7,8;230:20; 251:5,22 <b>involving (3)</b> 125:8,8;165:11 <b>irrelevant (2)</b> 18:3,10 <b>irrigate (2)</b> 90:19;108:6 <b>irrigated (3)</b> 90:17;97:13;139:22 <b>Irrigation (91)</b> 11:17;18:25;21:14;27:24; 42:8;45:20,21,25;46:8;51:3; 52:13;55:13;57:8;59:1;61:6; 71:10;81:6,12,14;82:13; 90:25;93:17;95:17,19;97:4, 11,24;98:1;99:5;107:7; 108:7,9,14,15,17,24;109:2, 22;111:17;119:16;121:14; 126:22,23;127:7,8;134:11; 139:5;140:4;162:7;174:7; 190:19;197:13;198:18; 215:9,18;216:14,14,17; 217:1,2;224:16,18,20,22,24; 225:1,4,7,11,18,24;240:17; 249:12,15,20,21;250:2; 254:22,24;255:2,4,8,10,11, 14,18,19,22;256:1,5,13 <b>issue (10)</b> 14:17;90:9;100:16; 144:13;172:23;229:11; 230:11;241:11;242:24;246:2 <b>issues (5)</b> 19:12;21:3;24:24;39:23; 243:14 <b>item (4)</b> 57:3,10;175:18;237:6 <b>items (3)</b> 101:3;197:6;257:21 <b>iteration (1)</b> 170:3 <b>iterative (1)</b> 110:5</p>	<p>172:3 <b>JENKINS (6)</b> 8:10;9:19,19;13:8;17:4,8 <b>Jennifer (13)</b> 56:20;63:25;72:2;76:15, 19;77:7;102:21,23;146:21; 163:11;187:19;233:19;234:5 <b>J-e-n-n-i-f-e-r (1)</b> 77:7 <b>Jerry (4)</b> 10:5;69:4;88:25;244:9 <b>Jim (2)</b> 10:23;68:18 <b>job (4)</b> 41:20;77:12,13;235:10 <b>Joe (2)</b> 69:5,7 <b>JOHN (3)</b> 11:8,8,19 <b>joint (9)</b> 17:16;19:25;23:23;42:10; 190:5;257:14,20,23;259:9 <b>jointly (1)</b> 259:12 <b>July (11)</b> 43:8;91:24;128:12;129:2, 4,9;140:2;147:16;178:5; 220:14;243:5 <b>jump (1)</b> 135:9 <b>juncture (1)</b> 226:21 <b>June (23)</b> 47:11,13,18;48:12,15; 50:3,3,3,5,13;60:23;61:1,5; 62:4,5;75:2;85:13;91:24; 127:24;128:12;212:23; 243:3;244:13 <b>junior (4)</b> 26:23;229:1,7;254:5 <b>junior-priority (4)</b> 224:3,12;254:11,17 <b>justified (1)</b> 231:11 <b>justify (3)</b> 195:21;196:5,13</p>
<b>K</b>			
<p><b>KAF (2)</b> 75:12,21 <b>Kaiser (2)</b> 45:8;53:6 <b>Kansas (1)</b> 44:5 <b>keep (2)</b> 19:12;148:25 <b>keeping (1)</b> 67:3 <b>Kendra (1)</b> 45:7 <b>Kent (5)</b> 10:1;34:24;60:5,13;69:11</p>			

<p><b>Ketchum (5)</b> 10:16;11:24;19:25;73:21; 262:13</p> <p><b>Kevin (6)</b> 58:16;59:6,17,24;143:23; 145:18</p> <p><b>kind (17)</b> 24:1;35:14;60:2;97:8; 122:22;129:14;130:5,12; 131:1;199:19;238:12;239:6, 17,24;240:19,21;248:4</p> <p><b>kinds (1)</b> 172:5</p> <p><b>Kleinfelder (1)</b> 43:12</p> <p><b>knew (2)</b> 174:3,3</p> <p><b>knowledge (3)</b> 57:15;58:4;232:15</p> <p><b>known (3)</b> 89:1;100:8,14</p> <p><b>knows (2)</b> 25:12;171:3</p> <p><b>Knudsen (1)</b> 43:15</p>	<p>162:17,18;168:3,4;182:7,8; 187:24;207:12,13</p> <p><b>last (22)</b> 25:25;30:14;36:23;50:22; 58:22;61:8,9;83:25;94:7,17; 116:20;144:9;151:15; 152:23;194:15,21;196:22; 201:7,7;242:13;243:2; 255:17</p> <p><b>lastly (1)</b> 239:4</p> <p><b>late (1)</b> 30:14</p> <p><b>later (3)</b> 43:15;119:13;120:2</p> <p><b>latest (2)</b> 47:7;50:1</p> <p><b>law (2)</b> 37:7;69:6</p> <p><b>LAWRENCE (34)</b> 10:17,17;31:3;32:21,23; 34:4;36:2;48:23,24;69:12; 88:7;168:9,10;182:14;192:4, 6;207:16,17;211:18,19,22, 24;226:5,7;233:16,17; 243:21;247:7,8,11,15; 256:18,20;258:10</p> <p><b>laws (1)</b> 37:14</p> <p><b>lay (3)</b> 56:14;220:21;260:8</p> <p><b>layer (18)</b> 119:21;134:9,10;184:13, 14,14;185:12,20,21;186:2,9, 17,20,24;190:17,18;197:14, 15</p> <p><b>layers (2)</b> 185:21;197:17</p> <p><b>laying (1)</b> 38:21</p> <p><b>leads (1)</b> 137:9</p> <p><b>learn (2)</b> 86:19;87:4</p> <p><b>learned (3)</b> 59:7;86:25;209:11</p> <p><b>least (18)</b> 12:13;14:23;15:14,25; 24:21;27:1;30:17;34:20; 36:13;48:14;62:24;67:10; 69:3;206:17;234:20;258:7; 259:4;260:14</p> <p><b>leave (3)</b> 34:11,11;201:16</p> <p><b>leeway (1)</b> 172:22</p> <p><b>left (4)</b> 50:1;98:1;133:13;198:10</p> <p><b>legal (4)</b> 130:12,13;180:25;231:12</p> <p><b>legend (1)</b> 213:24</p> <p><b>legitimate (1)</b></p>	<p>20:15</p> <p><b>lend (1)</b> 195:15</p> <p><b>length (1)</b> 180:11</p> <p><b>less (20)</b> 48:11;50:16,19;57:22; 65:6,20;81:11;115:16; 123:11;124:21;130:4;137:7; 141:21;161:15;186:5; 200:13,14,24;222:3;228:9</p> <p><b>level (18)</b> 37:23;38:22;52:19;80:23; 81:2;113:16,17;115:1,14; 120:7;135:25;161:1;208:6; 216:25;217:21,24;218:6; 229:17</p> <p><b>levels (17)</b> 55:21;80:25;111:21; 112:15;118:22;121:9,25; 122:11;154:21;156:19; 157:24;160:18,24;161:7; 164:12;165:6;229:6</p> <p><b>libraries (1)</b> 53:3</p> <p><b>liked (1)</b> 215:23</p> <p><b>likely (10)</b> 48:11;50:7,10;85:22,24; 86:4;90:24;124:23;181:5,13</p> <p><b>limine (8)</b> 13:21;14:11;17:16;21:11; 22:20;25:13,22;27:4</p> <p><b>limit (4)</b> 18:1;19:11;27:16;111:17</p> <p><b>limitations (1)</b> 19:5</p> <p><b>limited (6)</b> 19:2;20:24;25:9;125:24; 180:5;186:17</p> <p><b>Lincoln (1)</b> 235:23</p> <p><b>line (28)</b> 53:23;133:7,13;136:3,8, 16;137:25;138:5,18,20,21, 25;175:7,12;188:20,24; 189:5,14,17;190:8;191:5,6,7, 10;195:5,7;200:8;228:22</p> <p><b>linkage (1)</b> 70:21</p> <p><b>links (1)</b> 258:2</p> <p><b>list (6)</b> 69:4;73:18;253:4,14; 261:11,16</p> <p><b>listed (11)</b> 18:7;33:21;36:3;152:11; 156:10,13,13;210:9;253:8; 258:19;260:15</p> <p><b>listen (2)</b> 12:17;27:5</p> <p><b>listening (2)</b> 12:10,21</p>	<p><b>litany (1)</b> 18:7</p> <p><b>little (49)</b> 9:9;10:4,6;11:9;12:7;16:4; 53:20;54:11,18,20;55:8; 57:15;58:6;62:19;63:2;65:5; 71:16;72:12;79:4;91:3; 93:21;98:6,11,19;105:22; 106:3;119:12;122:15;127:9; 141:8;142:16;157:18; 161:23;169:22;194:6; 211:12;221:10;239:2;240:1, 7;243:7,9;244:10;245:12; 246:17,21;252:18,23,25</p> <p><b>Livestock (2)</b> 184:4;185:17</p> <p><b>LLC (1)</b> 11:15</p> <p><b>loaded (1)</b> 53:3</p> <p><b>local (2)</b> 249:1,7</p> <p><b>located (1)</b> 133:25</p> <p><b>location (16)</b> 123:8,13,18,21;125:12; 133:20;134:10;142:20,22; 145:19;147:7;178:17,22; 189:7;202:18;203:7</p> <p><b>locations (9)</b> 123:22;124:3;141:11,12; 165:22;176:8;178:18; 218:25;219:2</p> <p><b>logic (1)</b> 186:16</p> <p><b>logs (1)</b> 80:2</p> <p><b>long (17)</b> 34:25;43:6;67:6;77:21; 78:9;89:3;106:10;124:5; 126:1;169:11;212:1;213:1,4; 233:20;235:17;236:5;240:22</p> <p><b>longer (8)</b> 95:15;131:11;146:5; 147:22;148:15,19;184:25; 200:18</p> <p><b>long-term (3)</b> 114:25;127:19;230:11</p> <p><b>look (63)</b> 30:4;45:20;47:13;48:2,9; 51:4;66:10,16;68:22;71:5; 72:23;82:4;86:22;89:13; 98:19;101:18;106:17,19; 116:24;118:23;121:23; 127:21;136:13;140:8,10,23; 143:17;146:24;147:4;148:9; 150:16,17,18;155:6;160:5,6; 169:15,17,18;170:19;171:4; 173:23;176:4,19;178:21; 187:9;190:6,8;191:1;193:14; 194:2;198:19;199:25; 205:21;206:10;208:18; 214:16;222:25;243:3;</p>
<b>L</b>			
<p><b>label (5)</b> 183:2,4;206:18,25;207:1</p> <p><b>labeled (3)</b> 196:16;210:3;236:24</p> <p><b>Lack (3)</b> 53:18;156:5;231:17</p> <p><b>Laird (1)</b> 30:12</p> <p><b>Lahey (4)</b> 58:16,17;59:6;145:18</p> <p><b>Lahey's (1)</b> 143:23</p> <p><b>LaMar (1)</b> 74:10</p> <p><b>land (3)</b> 139:15;140:2;254:24</p> <p><b>landmark (1)</b> 199:21</p> <p><b>lands (3)</b> 97:13;139:22;224:18</p> <p><b>language (2)</b> 14:20;160:22</p> <p><b>large (11)</b> 26:19;27:3;69:4;82:7; 84:15;90:17;112:8;150:8; 199:23;232:24;242:22</p> <p><b>largely (1)</b> 177:19</p> <p><b>Larger (3)</b> 57:20,22;179:6</p> <p><b>largest (2)</b> 42:14;121:18</p> <p><b>LASKI (20)</b> 10:23,23;40:13;48:25; 49:1;68:1,2,4;88:4,5;159:12;</p>			

<p>244:20;249:23;257:23; 262:24 <b>looked (34)</b> 26:5;45:6,10;46:3;55:1; 64:18;82:24;83:8,14,20; 91:22;98:15;132:25;134:8; 136:17;137:3;140:4;164:12; 175:13;185:6;195:13; 200:17;223:4;238:17,17,22; 239:1,4;241:6,23;242:2,10; 244:14;248:14 <b>looking (50)</b> 43:4;45:24;50:25;51:5; 63:25;72:16;75:2;83:9,10, 13;85:10,11,15,16;89:23; 94:20;98:22,24;125:14,15, 22;127:11,14;132:5;158:25; 164:2,5,11;169:17,24; 170:18;173:20,21;174:25; 175:20;179:8,13,14,19; 191:6;200:4,22;206:17; 218:23;237:21;238:7; 244:18,19;257:23;258:23 <b>looks (6)</b> 47:23;48:13;93:15; 118:12;151:4;196:11 <b>loss (6)</b> 142:1;150:19,20,22;222:2, 11 <b>losses (16)</b> 140:24;141:21,22;144:18; 145:2,13,16;150:9;203:4,12; 221:9,23;222:3,6,8,13 <b>lost (2)</b> 109:13;221:17 <b>lot (13)</b> 16:1;34:20;51:3;85:25; 90:19;141:24;143:13; 154:23;170:9,15;184:1; 218:21;239:11 <b>low (18)</b> 80:20;81:10;83:18,21; 90:5;98:10;115:15;135:8,9; 137:6;138:25;144:3;202:17; 237:23;242:11,14,15;246:21 <b>lower (18)</b> 83:8;91:25;92:19;93:14; 95:3,4;96:20;123:5,15; 124:21;135:12;142:1,1; 186:8;194:4;245:4,7,9 <b>lower-right (1)</b> 206:18 <b>lowest (1)</b> 50:13 <b>Luke (5)</b> 61:10;197:1;239:3,11; 260:23 <b>Luke's (9)</b> 26:4,20;27:2;28:10;33:21; 36:4;51:24;258:19;260:15 <b>lunch (4)</b> 146:4,8,14,16</p>	<p style="text-align: center;"><b>M</b></p> <p><b>M3 (1)</b> 42:9 <b>mad (1)</b> 172:20 <b>Magic (5)</b> 42:19;54:10,10;238:21; 243:1 <b>magnitude (2)</b> 186:5,6 <b>main (4)</b> 59:13;143:1,2;144:13 <b>mainly (2)</b> 242:19;250:20 <b>maintain (2)</b> 14:23;55:9 <b>major (1)</b> 51:10 <b>majority (1)</b> 231:20 <b>makes (3)</b> 154:13;170:5;205:14 <b>making (10)</b> 22:5;143:24,25;144:1,10, 14;169:15;202:11;230:18; 232:20 <b>manage (4)</b> 41:24;42:10;43:18;56:21 <b>managed (5)</b> 43:24;63:16;83:16;93:3,10 <b>Management (14)</b> 33:4;36:25;43:3;70:25; 71:5;81:23;115:11;145:9; 160:19;161:8;229:2;258:2; 259:2,14 <b>manager (3)</b> 9:25;41:21;43:13 <b>managers (2)</b> 45:22;46:14 <b>manner (1)</b> 179:6 <b>Mann-Kendall (2)</b> 160:9,16 <b>manual (13)</b> 143:4,25;144:10,11,14; 201:24;202:7,11,15,18; 231:18,23;232:21 <b>many (11)</b> 100:14;140:16;144:14; 157:10;170:8;183:12; 202:17;229:20;240:13; 250:14;260:7 <b>map (7)</b> 8:18;26:20;133:5;139:3; 176:19;190:6;191:18 <b>mapping (1)</b> 237:14 <b>maps (1)</b> 51:6 <b>March (5)</b> 62:9;85:6;173:16;187:7;</p>	<p>196:18 <b>mark (4)</b> 171:8;172:15;208:25; 259:17 <b>marked (24)</b> 44:19;47:1,15;79:6;88:14; 159:22;163:6;168:20; 171:15,17;172:17;182:24; 192:18;206:24;207:2,3; 208:10;209:2,12,19;210:18, 19;243:24;260:3 <b>marking (1)</b> 171:19 <b>markings (1)</b> 173:11 <b>Martin (1)</b> 15:10 <b>massive (1)</b> 35:15 <b>master's (3)</b> 44:5;78:19;236:9 <b>match (3)</b> 109:11;110:2;164:3 <b>material (5)</b> 223:13;253:15;258:1,13, 260:1 <b>materials (5)</b> 35:16;36:9,19;173:3; 259:13 <b>math (3)</b> 95:1;161:17;162:8 <b>matter (9)</b> 15:16;18:10;26:15;35:7; 39:7;42:8;124:24;257:13; 262:8 <b>matters (4)</b> 13:18,19;18:7;249:18 <b>maximum (1)</b> 238:12 <b>may (69)</b> 8:19;14:5;18:17;20:5,21; 21:6;23:8;32:7;33:7,22; 44:15,25;47:9,23;62:10,12; 63:12;76:5,25;85:13;91:24; 93:22;95:6,11,12;98:22,23; 100:13;107:1;109:13;118:6; 119:25;121:4;125:18; 128:11,22,22;130:10;142:5, 7,9;146:2,17;161:20;178:8, 18;185:11;188:16;189:24; 190:15;198:4;200:22; 203:21;211:18;212:7; 216:13;220:16,18;221:11; 222:13,15;244:18;250:15; 260:7,16;262:12;263:2,3,4 <b>maybe (18)</b> 9:11;14:4,4;22:18;28:23; 60:20;64:11;81:15;86:1; 99:23;125:10;130:13;199:3, 25;202:23;248:8;253:13; 262:21 <b>McHugh (2)</b> 10:9,11</p>	<p><b>mean (37)</b> 22:7;32:14;86:2;96:13; 99:24;105:14;107:3,5;111:2; 115:14;116:13;117:7; 122:25;124:4;136:7,21; 148:17;152:13;154:9;166:2; 176:15;177:21;179:22; 193:17;199:22;203:14; 215:13;217:12;220:19; 221:15;229:5,6;230:14,25; 241:16;249:5;251:10 <b>Meaning (2)</b> 228:7;229:3 <b>means (17)</b> 21:12,12;25:12;64:15; 65:8,10;99:12,24;123:2; 152:14;174:12;200:13; 214:2;220:23;226:2;238:6; 256:15 <b>measure (1)</b> 66:15 <b>measured (20)</b> 48:5;51:19;60:24,25;61:4; 64:19;72:23;103:23;111:2,3, 8,10,21;112:1,2,20,21; 145:16;147:9;222:2 <b>measurement (10)</b> 31:22;32:4,15;118:1,18; 145:11,23;203:6;222:3; 233:1 <b>measurements (28)</b> 141:7,25;143:4,10;144:1, 6,7,10,11,14;156:7;157:16; 201:24;202:7,11,15,18; 203:1,9;221:25;222:4; 231:18,23;232:12,16,18,21; 233:2 <b>measuring (3)</b> 145:20;225:16;256:2 <b>median (12)</b> 240:9,10,11;241:5;242:8, 18;250:3;251:18;252:2,6,10, 24 <b>meet (2)</b> 37:10;106:20 <b>meeting (12)</b> 34:8;35:10,20;36:8,19; 37:7;60:17;145:8,12;258:1; 259:1,13 <b>meetings (10)</b> 33:3,6;36:24;37:5,14,17; 38:3;42:25;56:22;67:11 <b>Megan (2)</b> 8:9;9:18 <b>Meghan (3)</b> 9:19,22;262:23 <b>member (6)</b> 31:8;37:8;43:1;143:22; 198:20,21 <b>members (4)</b> 10:7;38:15;198:16,16 <b>memo (77)</b> 24:15;33:22;44:11,19,21,</p>
---	---	---	--



<p>23;45:1,24;47:3;51:10,11,13, 24;53:1,25;57:3;58:25; 59:22;66:25;71:4,9;79:2,6,8, 10,16,20,24;83:1;84:7; 86:22;92:23;94:7;95:5;96:5; 101:22;114:22;122:9,19; 123:8;125:1,11;126:8; 139:12;144:19;145:24; 175:15;177:13;188:8,25; 203:3;204:4,6,12;212:7,11, 14;213:10,11,21;220:20; 236:21;237:1,3,4,10,20; 238:2,14;239:3;240:3; 243:12;245:18;247:18; 248:5;249:23;254:9</p> <p><b>memoranda (5)</b> 44:25;79:12;86:15;237:5; 262:14</p> <p><b>memorandum (10)</b> 26:5;36:4;45:19;47:8; 80:1;188:14;243:4;245:6; 258:20;260:16</p> <p><b>memorandums (3)</b> 28:15;38:16,18</p> <p><b>memory (1)</b> 178:25</p> <p><b>memos (4)</b> 24:11,23;28:9;262:15</p> <p><b>mention (4)</b> 68:6;79:15;204:14;253:12</p> <p><b>mentioned (24)</b> 38:13;46:10;53:2;58:14; 59:24;62:22;64:6,18;66:19; 79:25;86:5;103:8;190:16; 193:10;195:9;216:13;217:4, 18;218:3;220:7;240:12; 241:13;245:5;248:7</p> <p><b>mentioning (1)</b> 237:11</p> <p><b>Meridian (1)</b> 43:12</p> <p><b>Merritt (1)</b> 150:11</p> <p><b>mess (1)</b> 151:9</p> <p><b>message (1)</b> 261:1</p> <p><b>met (5)</b> 225:20;226:2;247:14; 256:7,14</p> <p><b>method (9)</b> 45:17;57:4;84:16;101:9, 10,13;225:3;255:11,19</p> <p><b>methodologies (1)</b> 52:4</p> <p><b>methodology (1)</b> 55:17</p> <p><b>methods (6)</b> 44:12;45:2,3,13;84:11; 216:9</p> <p><b>METRIC (15)</b> 107:20;215:25;216:6; 217:18,22,25;235:25;236:3;</p>	<p>237:11,12,13;239:24; 240:13;247:20;249:5</p> <p><b>microphones (3)</b> 13:6,6;16:24</p> <p><b>middle (4)</b> 37:9;136:22;177:25;190:9</p> <p><b>might (38)</b> 25:3,18;31:2;36:10;37:13; 40:5;51:22;82:21;106:7,16; 107:14;116:3;141:23;148:5, 7,7,10,10,19;158:13;180:1; 197:24;215:8,16,16,18; 216:8,10;221:17;222:8,10; 228:4;233:1;248:3;252:8; 253:5,8,23</p> <p><b>Mike (3)</b> 10:17;211:23;247:15</p> <p><b>MILLER (2)</b> 12:5,5</p> <p><b>Milner/Gooding (2)</b> 26:12,13</p> <p><b>mind (6)</b> 49:25;51:16,18;52:13; 59:17;95:24</p> <p><b>minimal (6)</b> 86:17;87:14;130:21; 134:20;137:19;193:20</p> <p><b>minus (18)</b> 83:19,21,21;122:20;124:2, 2;129:23,24;164:23;181:7; 218:23;219:21,23,23;220:9, 16;221:3;228:5</p> <p><b>minute (6)</b> 17:11;28:22;102:9;158:8; 170:21;181:25</p> <p><b>minutes (14)</b> 33:3,12;35:10,11;36:8,18; 76:9;89:10;145:8;211:11; 257:12;258:1;259:13,21</p> <p><b>misinterpreted (2)</b> 257:18,22</p> <p><b>missed (6)</b> 12:4,9;28:5;73:8;197:25; 262:22</p> <p><b>mistaken (1)</b> 72:1</p> <p><b>mitigated (6)</b> 93:2;116:5,7,12;117:3,8</p> <p><b>mitigation (3)</b> 116:21;117:1,17</p> <p><b>mix (1)</b> 140:5</p> <p><b>mixed-source (2)</b> 90:17;97:19</p> <p><b>MK (1)</b> 43:24</p> <p><b>mode (1)</b> 99:12</p> <p><b>model (260)</b> 20:17;21:3;33:14,14;45:7, 12;53:2,7,10,13;55:20,24; 56:9,12,13,15,17,25;57:2; 67:9,16;71:16,16,21,24,25;</p>	<p>72:9,10,14;77:17;81:18,19, 20,25;82:2,3,4,6,8,8,15,17, 18,21,23;83:5,7,20,23;84:6, 8,15,20,23,24;85:18;86:9,11, 15,16,18;87:12;89:20,20,21; 92:10;94:20,24,24;96:17,18; 97:10;98:5,7;99:9,12,15,16, 22;100:1,3;101:15,15,15,25; 102:4;103:24;104:1,6,8; 105:3,6,16,16,25;106:1; 107:25;108:10;109:2,24; 110:1,9,16,23;111:4,11,23; 112:16;113:4,12,19,23; 114:16;116:11,14,16;118:3; 119:16;121:21,22,24;122:2, 18;124:20,25;125:5,8; 126:11,15;127:1;128:1,21, 23;129:1,18;131:1,11;132:2, 7;133:19,22;134:9,10; 135:15;139:20;143:11,16; 147:1;150:20,21;151:1; 152:8,17;153:20,22;155:13, 22;156:9,22;157:4,16;158:1, 1;164:2,21,23;165:12,16; 166:4,10,10,11,12,14,15; 167:8;169:20;170:1,8,9,10; 173:19,22,25;174:13,14,17, 23;175:1;177:9;179:9,10,21; 180:14,17,18,20,21,25; 181:6,7,17,20;184:12,15,19, 20,23,25;185:7;186:3,8,23; 189:8,23;191:7,8,193:4; 197:13;198:7,14;205:1; 210:5;213:2;216:11;218:13, 15,20;220:10,21;222:1; 227:23;228:14;229:15,16, 17;230:2,11,12,22,22;231:3, 6,10;236:1,2;237:13;238:6,8, 9;241:3;249:5;253:12; 258:12,13,24,25;259:23,24, 25</p> <p><b>modeled (7)</b> 20:19;89:6;132:10;138:1; 147:11;155:8;205:10</p> <p><b>modeler (1)</b> 116:7</p> <p><b>modelers (1)</b> 113:2</p> <p><b>Modeling (22)</b> 33:12;34:15;35:9,10;36:9, 18;42:2;43:20;55:23;56:23; 89:16;91:1;174:16;195:16, 22;196:6;210:7,8;235:14; 258:11;259:21,22</p> <p><b>models (6)</b> 77:17;82:16;83:3;171:4; 228:1,17</p> <p><b>MODFLOW (1)</b> 170:1</p> <p><b>modifications (1)</b> 53:7</p> <p><b>modified (5)</b> 93:22;96:10;184:12;185:2,</p>	<p>4</p> <p><b>moment (3)</b> 17:7;89:9;230:4</p> <p><b>moments (1)</b> 90:11</p> <p><b>monitored (2)</b> 63:3,17</p> <p><b>monitoring (8)</b> 113:10,16,17;114:12,13; 155:14,15;156:14</p> <p><b>month (8)</b> 105:17;128:22,25;129:10; 141:20;169:16,16;250:14</p> <p><b>monthly (9)</b> 47:6;93:7;128:16;129:7,7; 141:19,19;147:17,18</p> <p><b>months (7)</b> 95:22;142:2,3;170:19; 198:9;212:18;235:19</p> <p><b>moot (1)</b> 23:2</p> <p><b>more (64)</b> 16:6;22:17,23;28:21; 30:10;38:20;39:25;69:15; 84:17;86:3;90:24;93:16; 95:22;106:8;107:2;113:3; 130:4;146:10;148:7;149:13, 14,15,16;153:1,18,24;155:2, 23;156:18;161:23;163:24; 169:1;170:9;181:24;187:13, 15,17,20;189:18;199:15; 200:19,20;202:14;212:5; 216:8,8;220:24;227:7;228:7, 13;230:4,7,13;231:1,19,25; 232:22;233:22,22;239:14, 20;248:8;250:18;257:10</p> <p><b>Moreland's (1)</b> 185:7</p> <p><b>Morning (18)</b> 11:16,19;16:3;29:2;41:13; 49:23,24;61:25;70:11;76:13; 88:25;146:22;212:22; 257:16;260:22;261:2,13; 263:8</p> <p><b>Moroney (41)</b> 11:2,2;28:25;29:2,2;30:3; 49:9,10;69:19,21,25;70:1; 159:13;163:2;168:5,6; 182:10,11;192:9,10;203:21, 24;204:1;206:1,4,14,16,20; 208:12,13,23;209:15,16; 210:10,13,15;211:1;233:14, 15;247:3,4</p> <p><b>Morrison (1)</b> 43:15</p> <p><b>most (23)</b> 34:20;42:23;48:10;50:2,6, 10;51:20;65:4;82:23;86:1,4, 11;98:4,5;112:2;157:8; 160:20;169:25;178:11; 181:5,13;216:1;232:1</p> <p><b>mostly (2)</b> 53:5;83:13</p>
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<p><b>motion (43)</b> 14:6,11;15:4;17:16,17; 19:25;20:12,13,23;21:11,25; 22:10,15,20;23:10,13,21,23; 24:8,11;25:13;27:1,16,25; 28:13,24;29:1,5,12,17;30:5, 7,11,24,24;31:4,13,15;32:10, 11,18;36:14;259:9</p> <p><b>motions (17)</b> 9:10;13:17,20,21,23;14:3; 15:22,25;16:2,5,8;24:2; 25:21,22;27:4;28:20;38:10</p> <p><b>move (17)</b> 46:19;48:17;87:20; 135:11;158:9;159:7;162:10; 167:21,22;191:15;199:7; 206:14;208:23;209:8; 210:16;241:14;243:17</p> <p><b>moved (2)</b> 16:24;17:3</p> <p><b>moving (1)</b> 14:21</p> <p><b>MTAC (1)</b> 67:11</p> <p><b>much (32)</b> 26:7;29:4;37:16;47:22; 51:1,85;10:97;22;104:24; 105:3,6;114:10;124:6,18,24; 125:20;127:13;129:3,25; 143:25;146:5;147:25;148:2; 155:18;164:6;166:10;186:8; 194:1;202:9;209:9;215:15; 229:20;256:19</p> <p><b>multiple (1)</b> 81:1</p> <p><b>multiply (1)</b> 241:18</p> <p><b>multitude (1)</b> 18:19</p> <p><b>municipal (1)</b> 139:6</p> <p><b>must (1)</b> 261:1</p> <p><b>myself (3)</b> 28:21;54:22;152:15</p>	<p><b>nature (3)</b> 24:20;112:21;184:13</p> <p><b>NDVI (2)</b> 216:4;218:3</p> <p><b>near (5)</b> 219:20;238:19;240:11; 242:7;250:8</p> <p><b>Nebraska (2)</b> 235:23;236:10</p> <p><b>necessarily (3)</b> 129:13;148:4;221:4</p> <p><b>necessary (6)</b> 16:14;32:9;63:21;67:2; 156:11;250:9</p> <p><b>need (22)</b> 8:24;12:22;13:5,18;15:17; 17:7;20:8;39:21;79:24; 95:20;99:10;106:21;116:16; 154:12;171:4,23;202:6; 257:13,14;258:15;260:3,14</p> <p><b>needed (5)</b> 12:15;16:3;98:1;158:8; 252:7</p> <p><b>needs (18)</b> 13:4,5;32:11,12;44:17; 81:3;140:19;153:1,18,24; 156:18;170:6;206:23; 230:11,12,12;231:1;260:8</p> <p><b>negotiation (3)</b> 34:9,10;35:1</p> <p><b>negotiations (2)</b> 34:22;37:17</p> <p><b>net (2)</b> 100:19;214:4</p> <p><b>network (3)</b> 113:10;155:14,16</p> <p><b>new (20)</b> 47:5;55:9;96:12;115:12, 20,22,25;116:3,4,4,7,11,22; 156:13;169:8;175:17;201:7, 11;212:21,23</p> <p><b>newest (1)</b> 51:8</p> <p><b>news (1)</b> 61:25</p> <p><b>next (18)</b> 22:19;28:4,23;75:10;76:9, 14;127:7,8;156:24;163:9; 171:11;179:7;187:24;191:2; 208:14;218:18;229:8;251:7</p> <p><b>nice (2)</b> 35:14;153:23</p> <p><b>Nick (1)</b> 15:10</p> <p><b>nine (1)</b> 235:19</p> <p><b>noise (1)</b> 242:4</p> <p><b>nonconsumptive (21)</b> 29:6,14,20,25,25;30:1,7; 116:4;204:9,14,16,23;205:8, 14;206:11,13;208:19,22; 209:22;210:3,7</p>	<p><b>None (10)</b> 88:10;159:11,17,19; 168:16;192:6;207:25; 210:23;242:10,15</p> <p><b>nonuse (1)</b> 93:3</p> <p><b>Nope (1)</b> 248:22</p> <p><b>Norm (1)</b> 11:16</p> <p><b>normal (2)</b> 181:10,11</p> <p><b>Normalized (1)</b> 216:4</p> <p><b>North (23)</b> 78:18;103:19;123:8,11,14; 124:15,19;154:25;176:15, 17;189:14;198:24;199:3,4,8, 11,18;200:19,23;238:19; 239:21;242:20;251:19</p> <p><b>northern (7)</b> 135:3,5;188:20;189:5; 190:7;195:4;200:8</p> <p><b>northward (1)</b> 200:12</p> <p><b>Northwest (2)</b> 45:10;53:9</p> <p><b>Nos (1)</b> 260:17</p> <p><b>note (4)</b> 48:9;91:20;141:23;243:9</p> <p><b>noted (1)</b> 48:1</p> <p><b>notes (12)</b> 33:2,12;34:8,14;36:8; 37:19;73:19;257:23,25; 258:23;259:13,21</p> <p><b>notice (30)</b> 17:19;21:12;25:9,16; 30:11;31:2,4,5,22;32:3,22; 33:2,25;34:3;35:14;36:6; 37:22;38:7;188:15,16; 257:15,24;258:5,15,20; 259:15;260:2,14,17,18</p> <p><b>noticed (1)</b> 213:20</p> <p><b>notices (3)</b> 17:18,22;19:13</p> <p><b>not-so-great (1)</b> 61:24</p> <p><b>notwithstanding (1)</b> 55:9</p> <p><b>NRCS (9)</b> 46:7;47:5;50:3,14;58:10; 61:11;66:6,13,21</p> <p><b>number (34)</b> 26:25;42:10;54:1;58:18; 60:1,2;62:18;75:20;80:22, 24;82:19;84:15;90:16;96:9, 12,12,14;109:9;111:23; 118:7;121:14;133:5;137:3; 141:4;143:4;157:12;165:17; 166:25;187:4;206:19;218:1;</p>	<p>227:21;232:24;245:5</p> <p><b>Numbered (2)</b> 192:21;208:17</p> <p><b>numbers (18)</b> 32:6,14,15;75:7,23;93:22; 106:3;120:9;131:13;142:24, 24;150:25;151:18;158:16, 23;167:17;206:20;246:21</p> <p><b>numeric (2)</b> 83:7;193:22</p> <p><b>numerical (2)</b> 84:14;124:20</p> <p><b>numerically (2)</b> 83:17;165:17</p> <p><b>nutshell (1)</b> 34:2</p>
<b>O</b>			
<p><b>O'BANNON (19)</b> 11:23,23;73:20,22,25; 88:11;159:18,19;168:17,18; 182:21,22;192:15,16;208:1; 226:14,15;257:2,3</p> <p><b>object (7)</b> 27:6;28:19;29:16;207:22; 209:8,10;210:20</p> <p><b>objecting (1)</b> 25:16</p> <p><b>objection (53)</b> 29:17,24;34:8,16;35:2; 37:20;46:23;48:19,22,24; 49:1,3,10;53:18,20;56:1,8; 87:23;88:2,3,5,8,12;159:9, 13;162:14;163:4,5;167:25; 168:2,4,6,10,12,18;172:25; 182:4,6,8,11,12;183:13,18; 191:21;192:2;207:5,23; 209:4,6;231:12;243:19,21,22</p> <p><b>objections (5)</b> 37:19;46:22;159:8,14; 162:12</p> <p><b>observable (3)</b> 247:20;249:21;251:1</p> <p><b>observation (5)</b> 155:9,19;157:15,25;164:4</p> <p><b>observations (3)</b> 109:10;110:2,3</p> <p><b>observed (12)</b> 50:16,19;54:24;64:21; 65:12;66:12;157:3,7,10,13, 24;240:12</p> <p><b>obtain (1)</b> 185:19</p> <p><b>Obviously (9)</b> 24:14;61:4;62:16;90:3,6,8; 97:17;100:16;194:3</p> <p><b>occur (7)</b> 141:10,11;198:12;221:23; 231:21;232:2,25</p> <p><b>occurred (2)</b> 215:8;229:1</p> <p><b>occurring (2)</b></p>			

<p>222:6;238:7 <b>occurs (1)</b> 199:23 <b>o'clock (1)</b> 146:13 <b>October (8)</b> 91:22;95:14,20;129:20; 130:1,3;178:13;198:12 <b>off (15)</b> 17:5,10;35:23;50:1; 108:25;111:3;112:7;148:19, 25;166:11;200:11;220:24; 233:23;234:22,23 <b>offer (4)</b> 38:6;175:18;182:1;210:12 <b>OFFICER (254)</b> 8:1,9,11;11:5,12,18,21,25; 12:3,8,13,23;13:9;14:7;15:3, 8,12,18,20;16:10,15,20,23; 17:1,7,10,13;19:18;21:20; 22:1,11,23;23:5,7,15,19; 24:6;25:2,5,20;28:7,11,15; 29:11;30:3;31:10,14,18; 32:1;33:24;34:4,17;35:3,25; 37:21;40:24;41:1,8;44:16; 46:21,25;48:20,23,25;49:2,4, 8,11,18,53;19:54;2:4;60:6; 61:14;67:25;68:3,5,18,25; 69:3,9,18,20,23;70:2;73:4,6, 12,16,23;74:1,8,13,15,18,24; 76:2,12,16,23;87:22,24;88:1, 4,6,9,11,19;102:12;144:20, 23;146:4,9,11,15;158:12; 159:8,14,18,21;162:12,15, 17,19,21,23,25;163:3; 167:24;168:1,3,5,7,9,11,13, 15,17,19;171:15,18;172:3,7, 10,24;173:6,10;182:3,5,7,9, 13,19,21,23;183:2,6,11,13, 18,22;187:22;189:25; 191:18,21,24;192:1,3,7,9,11, 13,15,17,21,23;203:20; 205:24;206:16,23;207:4,7,9, 12,14,16,18,24;208:1,9,12, 25;209:3,5,7,10,15;210:12, 14,18,20;211:1,10,14;226:7, 10,12,14,16,19;227:3,6,11, 14;231:16;233:6,9,12,14,16, 18,24;234:2,8,17,24;243:19, 23;244:3;245:25;246:4; 247:1,3,5;256:20,23,25; 257:2,4,6,9;259:8,11;260:20; 261:8,10,16,20,22;262:6,10, 20;263:1,5 <b>official (16)</b> 30:11;31:2,4;32:22;33:2, 25;34:3;36:6;173:11;257:15, 24;258:5,14,20;260:2,13 <b>offsets (1)</b> 205:5 <b>oftentimes (1)</b> 42:2 <b>old (1)</b></p>	<p>201:13 <b>O'Leary (20)</b> 10:25,25;40:13;187:24; 188:2,4;189:24;190:1; 191:15,20;192:20,22;193:1; 203:17,20;207:12;233:12, 13;247:1,2 <b>omit (1)</b> 204:23 <b>once (5)</b> 39:13;40:8;73:8;90:22; 136:7 <b>one (115)</b> 12:24;13:7,8,9,23,24,25; 14:5;16:2;22:19,22;25:24; 26:10;27:20,21;28:23;29:19; 30:10;31:1;35:6,15;36:23; 37:4;39:13,23;43:19;47:7; 49:16;51:25;52:7,8;53:9; 55:19,21;58:21;59:24;60:21; 63:6,7;68:9;69:1,12,14;72:3; 74:6,21;85:7,13,13,13;86:8, 10;90:10;91:11;102:24; 108:18;113:6,11;115:10; 119:3;121:16;126:18;127:5, 16;129:17;133:16;134:9; 138:20;144:7;145:7;147:3; 154:22;155:1;167:20;169:1, 6,16;170:2;171:7,20,23; 172:13;177:24,24;178:14, 24;181:24;183:7,8;188:4,19; 190:17,25,25;191:3;195:13; 197:14;201:7,13,17,18,23; 213:22,23;215:17,23; 219:23;222:20;227:6; 247:23;254:15;257:25; 262:8,18,21 <b>ones (10)</b> 59:20;63:3;86:1;91:25; 133:13,15;135:7;137:4; 171:4;200:23 <b>one's (1)</b> 131:23 <b>on-farm (1)</b> 240:25 <b>only (32)</b> 21:13;25:9;27:23;34:18; 61:5;72:23;75:17;91:22; 97:15,16;108:4,19;118:4; 138:6;139:7;140:13;155:17, 21;157:12;160:24;186:12; 204:6,13;210:8;218:15; 219:25;220:11;229:19; 241:6,22;244:10,23 <b>oOo- (1)</b> 263:11 <b>operated (1)</b> 201:18 <b>opinion (8)</b> 26:7;54:14;180:18,24; 181:4,4;232:3;245:18 <b>opinions (1)</b> 18:20</p>	<p><b>opportunity (2)</b> 12:18;234:19 <b>oppose (3)</b> 22:2,10;24:23 <b>opposed (4)</b> 95:3;96:1;169:9;195:8 <b>opposite (1)</b> 178:19 <b>optimized (1)</b> 82:4 <b>options (1)</b> 52:11 <b>oral (1)</b> 16:2 <b>orange (2)</b> 133:13;138:18 <b>order (23)</b> 8:25;14:16,20;17:23;19:5, 13;21:13;38:12,12;39:2; 53:4;79:14,15;99:9;113:3; 170:18;183:9;213:13,14,23; 261:12,21,22 <b>orders (4)</b> 17:18,22;186:5,6 <b>Oregon (1)</b> 78:24 <b>original (7)</b> 79:20;80:1;92:17,22; 166:15;184:18;195:8 <b>originally (2)</b> 143:8;188:15 <b>Others (15)</b> 22:13;55:25;59:23;68:20; 73:7,12;83:9;100:13;112:1, 4;118:6;226:23;231:20; 233:18;253:13 <b>Otherwise (2)</b> 24:24;55:10 <b>ought (6)</b> 9:11;20:10;28:23;35:10, 11;207:22 <b>ours (2)</b> 16:11,13 <b>out (54)</b> 8:13;17:6;25:24;26:3,4,8, 11,11;27:2;43:2,16;47:5; 48:2;52:4;55:17;59:15;64:4; 72:1;82:1,9,11;85:12,24; 86:1;89:18;90:22;106:19; 115:17;117:4,5;130:13; 143:13;146:23;156:18; 163:3;170:23;175:3;176:1, 10;179:2;181:12;183:6; 186:20;196:12;200:17; 202:25;203:11;208:4; 213:22;220:21;229:2; 237:10;244:13;249:10 <b>outages (1)</b> 196:1 <b>outcome (2)</b> 50:10;230:23 <b>outcomes (1)</b> 127:1</p>	<p><b>outflow (1)</b> 137:23 <b>outlets (2)</b> 123:20;124:13 <b>outlined (1)</b> 45:18 <b>outlook (3)</b> 46:8;47:22;51:13 <b>out-of-country (1)</b> 10:12 <b>output (5)</b> 52:13;105:2;128:21,24,25 <b>outside (14)</b> 17:23;18:12,22;19:7,14; 20:10;25:15;42:20;52:21; 58:3;66:25;87:12;134:1; 223:1 <b>over (27)</b> 21:16;47:10;54:20;85:1; 86:9,10;98:1;108:11,16,21; 111:4;115:14;119:7;122:14; 126:10;129:10;142:4;152:2; 161:11,24;162:2;176:10,10, 13;198:6;199:23;249:6 <b>overall (3)</b> 112:10;115:6,17 <b>overrule (1)</b> 53:19 <b>Owen (3)</b> 11:2;29:2;203:25 <b>own (5)</b> 30:4;33:25;40:2;66:7; 144:16 <b>owned (1)</b> 201:17</p> <hr/> <p style="text-align: center;"><b>P</b></p> <hr/> <p><b>page (51)</b> 54:6;57:3;58:22;79:14; 90:4;91:7;94:7,15,16,17; 96:5;101:23;114:22;117:19; 118:24;122:14;126:8; 139:12;140:21;142:8; 144:19;145:1,6;146:24,25; 151:5,18;152:19,20,23; 160:6,7;166:5;173:14; 176:22;180:8,9;184:10; 194:15;196:15,16;204:12; 206:19;209:19;213:10; 249:24;251:7,8,24,25;253:3 <b>pages (1)</b> 132:5 <b>paints (1)</b> 51:12 <b>pandemic (1)</b> 37:9 <b>paper (2)</b> 151:4;194:13 <b>paragraph (15)</b> 58:22,24;90:5;101:23,23; 114:24;140:22,23;152:23; 156:24;176:23;179:7;180:8;</p>
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<p>194:16,22 <b>parameter (2)</b> 163:25;170:5 <b>parameters (2)</b> 164:5,11 <b>paraphrase (1)</b> 212:4 <b>paraphrasing (1)</b> 237:6 <b>Pardon (1)</b> 233:25 <b>part (23)</b> 9:20;20:11;24:10,11; 34:20,23;36:5;42:4,18,19; 71:7;75:15;80:17;92:4; 104:16,19;150:20;170:12, 25;173:1;232:6;252:20; 260:5 <b>participate (4)</b> 12:19;15:6;36:21;38:2 <b>participated (1)</b> 67:18 <b>participating (1)</b> 38:2 <b>particular (47)</b> 8:13,16;10:7;14:6;27:14, 25;31:15;37:1;39:7;40:3; 52:7;101:3;121:16;174:13; 176:8;190:24;191:12;195:4, 6;196:22;200:9;206:17; 223:2,9,13;224:5,14;226:21; 229:22;230:5,6,13,19,20; 233:2;236:11;237:6;240:23; 241:20,20;253:16;254:7,13, 19;255:12,20;260:9 <b>particularly (8)</b> 18:20;40:6,10;144:2; 146:21;156:4;202:17;203:7 <b>parties (16)</b> 9:12;12:20;15:16;21:17; 23:9;29:16,16;33:8,9,17; 37:2,18;38:1;39:11;48:20; 259:16 <b>parties' (1)</b> 257:14 <b>partly (4)</b> 215:12,13,14;249:7 <b>partner (1)</b> 10:11 <b>parts (1)</b> 196:3 <b>party (2)</b> 181:2,3 <b>pass (2)</b> 152:2;233:11 <b>passed (1)</b> 236:16 <b>past (3)</b> 58:2;62:13;65:25 <b>pasted (1)</b> 79:21 <b>patient (1)</b> 187:20</p>	<p><b>peer-reviewed (1)</b> 236:20 <b>pending (1)</b> 9:10 <b>people (18)</b> 8:22;12:10,15;19:7;24:14; 35:17,22;36:16,21;38:4; 59:25;99:25;100:18;171:7; 173:15;215:13,20;234:3 <b>per (3)</b> 23:10;75:19;161:5 <b>percent (101)</b> 48:4,4,4,10;50:7,11,11,15, 17;51:21;60:20;61:2;65:11; 83:19,21,22;85:8;87:10; 89:19;90:2,94:10,23,25; 95:1;107:22,24;109:4,4; 111:4;119:22,23;122:20,21, 25;123:2,4,5,12;125:13; 129:24,24,25;130:21;131:13, 14,16;133:4;136:1,11,11,12, 23;137:6;139:2;140:25; 141:17;142:7,7,9,9;150:9,19, 22;160:25;164:24;166:19, 22;167:3;181:7,12;187:13, 15,17;193:10,15,24;194:5, 24;195:8,9,12;218:24; 219:21,23,24;220:8,17,24, 25;221:2,3,5,12,12,16; 222:11,14,19,20,24;245:19 <b>percentage (8)</b> 90:17;98:9;104:3;135:22; 142:1;178:4;194:4;228:4 <b>percentages (6)</b> 109:7;124:4;178:9; 229:21;230:4,21 <b>percentagewise (1)</b> 141:25 <b>perched (3)</b> 137:15,18;189:10 <b>perfect (3)</b> 55:15,19;65:15 <b>perform (1)</b> 198:22 <b>performed (4)</b> 163:12;190:13;193:3,5 <b>perhaps (11)</b> 15:7;16:12;30:15,16; 63:24;84:8;98:9;212:18; 217:5;222:20;223:7 <b>period (47)</b> 50:18;61:1,5;64:20;67:1; 71:11;72:2,9,10,12,13,17; 95:15;98:5;99:14,17;101:25; 105:6,9,15,15;111:24; 117:11;118:2,19;125:14,16; 126:2,4,11,15;129:15; 131:11,12,18,20,25;161:12, 22,24;169:9,9,18;178:6; 198:7;200:22;229:18 <b>periodic (1)</b> 143:25 <b>periods (5)</b></p>	<p>51:1,5;62:5,14;129:7 <b>permission (1)</b> 154:13 <b>permitting (1)</b> 78:5 <b>person (5)</b> 12:16;37:10,11;63:24; 205:16 <b>personal (1)</b> 232:3 <b>personally (5)</b> 67:18;117:18;232:17; 233:20;234:2 <b>perspective (1)</b> 181:1 <b>perspectives (1)</b> 181:1 <b>Pertaining (1)</b> 17:25 <b>pertinent (1)</b> 28:18 <b>pests (4)</b> 241:2;248:17;249:19; 253:11 <b>peters (1)</b> 186:20 <b>Phil (8)</b> 12:1;234:7,8,10,19; 246:12;247:12,14 <b>PHILIP (2)</b> 234:13;235:5 <b>P-h-i-l-i-p (1)</b> 235:5 <b>phrase (2)</b> 25:7;105:12 <b>physical (1)</b> 232:12 <b>Picabo (12)</b> 58:2;118:10;136:20;137:9, 10,20;138:1,18;140:25; 184:4;185:16,17 <b>pick (8)</b> 13:5;25:24;32:20;50:23; 73:19;163:3;175:2;185:21 <b>piece (2)</b> 20:13;194:13 <b>place (7)</b> 8:12;23:17;34:9;106:12; 110:24;138:6;199:18 <b>placement (1)</b> 195:6 <b>places (4)</b> 139:21;140:4;178:10; 237:7 <b>Plain (3)</b> 83:5;137:24;143:11 <b>plan (2)</b> 201:14;261:25 <b>planning (2)</b> 175:3;201:16 <b>plant (2)</b> 100:11;237:17 <b>planting (1)</b></p>	<p>241:1 <b>plausibly (1)</b> 246:22 <b>play (2)</b> 51:11;216:11 <b>please (17)</b> 13:4;16:23;41:9,13;57:3; 76:17,23;77:5;91:8;146:24; 158:6;160:2;163:10;211:18; 234:10,17;235:3 <b>plenty (1)</b> 19:3 <b>plot (1)</b> 251:12 <b>plots (1)</b> 243:3 <b>plotted (1)</b> 64:23 <b>plus (20)</b> 75:24;81:13;83:19,21,21; 122:20;124:1,2;129:23,24; 164:23;181:7;218:23; 219:21,22,23;220:8,16; 221:3;228:5 <b>plus-or-minus (1)</b> 82:20 <b>pm (1)</b> 263:10 <b>POD (2)</b> 187:12;197:14 <b>podium (4)</b> 13:8,9,11;16:22 <b>PODs (1)</b> 119:16 <b>point (32)</b> 20:3,5,11;21:5;25:18; 26:11;27:16,21;68:6;85:16; 123:17;134:11;136:22; 137:18;143:1,1;158:11; 174:13;183:25;195:13; 200:6;214:12;219:5,12; 220:5;222:12,14;230:25; 232:5;244:22;245:3;253:13 <b>points (23)</b> 12:24;118:7;119:17; 133:24,25;139:6;190:19; 198:18;218:10;219:3,8,10, 15,16,19,21,22;220:1; 222:21;226:3;232:25; 256:16;257:18 <b>poor (7)</b> 46:3,6;47:22;55:14;232:4, 7,8 <b>portion (5)</b> 15:22;101:16,17;129:19; 238:8 <b>portions (2)</b> 26:4,9 <b>portrayed (1)</b> 150:13 <b>position (23)</b> 18:8,13,18;19:2;20:9; 25:17;31:1;35:23;41:23;</p>
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<p>43:7;77:15,22,24;78:3,4,10; 235:13,18,20,21,24;236:5,6 <b>positioned (1)</b> 52:15 <b>positions (1)</b> 77:25 <b>positive (3)</b> 160:17,20,23 <b>possession (1)</b> 38:19 <b>possibility (5)</b> 115:10;174:5;175:7; 179:13;217:8 <b>possible (6)</b> 76:6;82:19;155:3;165:18; 215:7;243:13 <b>Possibly (2)</b> 17:8;156:6 <b>potential (16)</b> 17:19,20;58:23;93:19; 134:3,7;135:20;176:16; 223:1;238:10,12,22,25; 239:18;241:19;245:20 <b>potentially (2)</b> 52:5;81:15 <b>Poverty (1)</b> 148:6 <b>Power (1)</b> 11:20 <b>practical (1)</b> 80:18 <b>practice (1)</b> 67:3 <b>practices (13)</b> 51:3;71:11;107:7;215:9; 216:14,14,18;217:1,2; 225:22;240:25;249:15; 256:10 <b>preceding (2)</b> 48:14;52:16 <b>precipitation (11)</b> 80:13;81:5;90:7;97:13; 100:25;101:10,21;104:15; 107:20;111:16;240:17 <b>preclusive (1)</b> 20:15 <b>predates (1)</b> 72:16 <b>predict (4)</b> 70:14;82:8;140:13;215:12 <b>predicted (13)</b> 55:14;79:3;86:17;87:1,17; 96:10,18,23;123:5;128:3; 146:25;167:8;228:9 <b>predicting (4)</b> 44:12;45:2;54:8;229:12 <b>prediction (31)</b> 45:11;50:3,4,15;52:23; 53:10;54:13;55:9;83:11; 84:12;85:6,12,14;89:14; 123:4,7;125:12,22;127:12; 164:7;169:15;180:20,21,25; 181:5,6,14;219:17,18;221:5;</p>	<p>231:7 <b>predictions (16)</b> 46:1;50:1;82:18,21,25; 83:8,14,17,19;122:18; 165:16;179:9,22;180:14,17; 221:6 <b>predictive (17)</b> 45:7;83:12;122:19; 123:13;130:7,8,8;164:19; 165:4,8,19;166:3;169:8,14; 181:9;212:9;220:9 <b>predicts (2)</b> 215:11;230:2 <b>prefaced (1)</b> 196:25 <b>prefer (1)</b> 40:6 <b>preference (1)</b> 227:1 <b>pre-hearing (2)</b> 17:22;213:13 <b>preliminary (2)</b> 13:19;175:19 <b>prepare (6)</b> 44:11,23;79:2,10;236:21; 237:3 <b>prepared (7)</b> 38:16;44:21;67:14;79:11; 184:5;237:1,4 <b>preparing (2)</b> 71:9;207:1 <b>present (6)</b> 22:19;38:5;39:21;40:1; 197:18;252:13 <b>presentation (8)</b> 8:25;27:7;30:17,25;38:12; 40:2,3;151:14 <b>presentations (2)</b> 16:17;42:6 <b>presented (5)</b> 24:25;30:8;39:23;203:15; 253:9 <b>presenting (1)</b> 12:14 <b>president (1)</b> 11:9 <b>pressure (1)</b> 78:7 <b>presume (1)</b> 107:18 <b>pretty (13)</b> 17:17;55:12;97:16; 137:19;179:17;196:5;232:4, 6,7,8;242:9;243:11;246:13 <b>previous (9)</b> 60:22;62:6;78:12;125:7,7; 130:10;174:4;175:6;239:22 <b>previously (5)</b> 8:24;12:13;23:19;82:10; 171:17 <b>primarily (18)</b> 17:17;26:3;40:14;77:17; 78:5;132:20;137:21,23;</p>	<p>138:12,15;154:23;175:8,10; 189:23;235:14,25;238:20; 239:15 <b>primary (8)</b> 39:7;80:10;81:20;103:8,9; 117:23;152:12;154:9 <b>prior (8)</b> 13:20;43:9,14;77:24;78:3; 113:18;115:18;235:20 <b>priority (7)</b> 93:4,10;205:14,15;218:19; 229:2;254:5 <b>probability (2)</b> 61:3;163:23 <b>Probably (8)</b> 20:18;89:23;131:17,22; 164:17;168:25;172:12; 217:12 <b>probed (2)</b> 20:18;33:15 <b>problem (1)</b> 56:10 <b>problems (1)</b> 143:13 <b>procedural (1)</b> 35:7 <b>Procedure (1)</b> 30:12 <b>proceed (2)</b> 9:10;40:18 <b>proceeding (30)</b> 8:14;18:12;20:14,21; 21:17;22:9;29:7;30:2;33:5,8, 16;34:1,13;38:2;39:20,24; 42:9;57:19;59:11;84:19; 91:17;96:8;97:3;99:3; 125:25;128:7;181:21; 188:16;203:9;248:6 <b>proceedings (5)</b> 20:16;33:23;125:7; 130:10;240:2 <b>process (4)</b> 67:11;110:5;169:5;228:18 <b>processing (2)</b> 210:5;217:14 <b>produced (5)</b> 55:6;172:19;173:2; 197:20;259:1 <b>producing (1)</b> 19:15 <b>product (1)</b> 45:5 <b>production (3)</b> 204:19,24;206:6 <b>products (1)</b> 42:5 <b>professional (6)</b> 44:7,9;78:21,23,25;236:14 <b>program (3)</b> 43:21;232:20,20 <b>project (6)</b> 43:13,19;102:24;153:4; 156:2;170:22</p>	<p><b>projected (2)</b> 45:22;60:23 <b>projections (1)</b> 56:12 <b>projects (2)</b> 43:13,18 <b>promise (1)</b> 172:14 <b>proof (1)</b> 130:13 <b>propagate (5)</b> 174:24;178:4;186:19; 189:16,18 <b>propagates (1)</b> 178:12 <b>propagation (3)</b> 29:6;139:10;210:9 <b>proper (1)</b> 208:5 <b>proportionally (2)</b> 96:11,13 <b>proposal (2)</b> 26:2,11 <b>proposals (1)</b> 26:6 <b>propose (1)</b> 171:10 <b>proposed (7)</b> 26:7;28:9;188:20;191:1; 195:5;197:7;199:12 <b>proposition (1)</b> 149:4 <b>protect (2)</b> 40:2,15 <b>protected (1)</b> 35:22 <b>provide (4)</b> 42:13;145:19;149:9; 175:15 <b>provided (8)</b> 48:6;61:10;66:6;98:2; 134:8;152:16,18;170:24 <b>provides (1)</b> 157:4 <b>providing (2)</b> 66:3;157:4 <b>proximity (1)</b> 123:20 <b>public (4)</b> 37:7,14;43:22;78:6 <b>publication (2)</b> 236:19,20 <b>publications (1)</b> 236:17 <b>public-water-supply (1)</b> 78:6 <b>published (6)</b> 47:8,9,10;83:5;161:13; 184:19 <b>pull (1)</b> 146:23 <b>pump (2)</b> 86:3;90:24</p>
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<p><b>pumped (1)</b> 205:6</p> <p><b>pumping (80)</b> 8:17,19,20;14:14,24;20:6, 24;21:5;25:9;73:1;78:7; 82:12;84:22;85:1;86:9;87:3, 8,18;90:13;91:4;93:16,19, 24;95:17,20;98:4,6,13,14,19, 20,23;100:23;101:15;103:4; 105:24;106:9,12,16,21; 107:2,5,11,14;109:23; 110:24;111:21,21;112:2,5, 11;113:14;115:13;117:5; 132:17,19;137:22;138:11; 157:13,14,17,19,20,25,25; 169:20;177:4,15,17;186:12; 205:2,3;221:17;222:18; 223:1,8,9;229:1,3,7</p> <p><b>pumps (1)</b> 111:22</p> <p><b>purple (2)</b> 119:4;181:25</p> <p><b>purpose (10)</b> 18:19;21:11;38:21;46:11; 55:7;81:19,20;210:9;230:13; 231:8</p> <p><b>purposes (9)</b> 12:14;18:11;53:11;59:21; 66:24;80:19;113:6;190:3; 210:8</p> <p><b>Pursley (1)</b> 10:18</p> <p><b>pursuant (2)</b> 8:14;30:11</p> <p><b>purview (1)</b> 63:11</p> <p><b>put (31)</b> 21:9;31:7;33:15;40:15; 43:2;45:22;46:14;48:2;71:4; 72:1;82:6,7,19;92:23,25; 105:7,7;115:11;124:16,24; 143:8,12,12;152:15;169:22; 172:8;183:1,9;184:3;195:4; 208:7</p> <p><b>puts (1)</b> 47:5</p>	<p><b>quite (4)</b> 33:15;138:23;152:16; 161:13</p> <p><b>quote (3)</b> 59:20;213:24;253:5</p> <p><b>quoted (1)</b> 84:8</p> <p><b>quoting (2)</b> 57:5;145:7</p> <hr/> <p style="text-align: center;"><b>R</b></p> <hr/> <p><b>Ragsdale (2)</b> 65:23;145:21</p> <p><b>Raise (3)</b> 41:2;76:17;234:11</p> <p><b>raised (1)</b> 8:22</p> <p><b>ran (10)</b> 86:5;87:13;106:19; 125:16;126:14;176:3;178:8; 200:17;221:6;246:15</p> <p><b>Ranch (6)</b> 11:15;119:9,14,19;135:13; 138:11</p> <p><b>range (10)</b> 83:18;109:9;110:6;133:3; 141:16;142:3;145:16; 221:11;245:19;250:23</p> <p><b>ranged (3)</b> 83:18,20;109:3</p> <p><b>ranges (4)</b> 231:19,21,24;232:2</p> <p><b>rate (7)</b> 102:25;103:5;222:11; 224:17;238:13;250:10; 254:23</p> <p><b>rated (2)</b> 202:10,22</p> <p><b>rates (7)</b> 143:17;149:25;150:23; 247:19,22,25;250:21</p> <p><b>rather (4)</b> 14:16;23:9;165:3,8</p> <p><b>rating (6)</b> 143:5;144:2,12;202:7; 232:15,21</p> <p><b>ratings (1)</b> 144:5</p> <p><b>rationale (2)</b> 188:25;189:4</p> <p><b>reach (18)</b> 109:12;110:3;118:3,19; 122:20;123:14;143:20; 174:17;198:12;205:4; 218:16;221:13,16;222:2,13, 23;223:4;224:9</p> <p><b>reaches (4)</b> 174:23;198:6;222:14,24</p> <p><b>reaching (1)</b> 27:19</p> <p><b>read (12)</b> 16:2;24:2,4;26:5;29:11,12; 150:7;152:24;153:5;158:17; 161:10;177:1</p> <p><b>readings (5)</b> 64:4;112:14,15;120:5,5</p> <p><b>reads (1)</b> 194:22</p> <p><b>ready (3)</b> 13:16;40:22;211:3</p> <p><b>real (1)</b> 14:2</p> <p><b>realize (2)</b> 51:16;87:9</p> <p><b>realized (1)</b> 54:21</p> <p><b>really (25)</b> 26:22;29:5;32:9,25;34:7; 52:12;59:10;82:19;116:13; 117:13;130:17;142:25; 143:15;154:24;165:17; 167:13;169:13,24;175:16; 205:9;211:8;229:10;233:1; 243:4;244:20</p> <p><b>reason (15)</b> 15:1;20:23;25:13;37:5,6; 53:14;121:5,15,23;173:21; 189:5;237:23;239:22; 241:10;260:5</p> <p><b>reasonable (8)</b> 65:7;131:17;195:15; 225:21;226:2;245:20;256:9, 15</p> <p><b>Reasonably (8)</b> 64:9;83:23;84:2;98:12,13, 16;241:10;242:10</p> <p><b>reasoning (1)</b> 186:11</p> <p><b>reasons (6)</b> 16:3;45:18;52:8;58:21; 215:7,23</p> <p><b>rebuilding (1)</b> 170:15</p> <p><b>rebut (2)</b> 20:9;25:18</p> <p><b>rebuttal (2)</b> 39:18;40:10</p> <p><b>recalibrated (5)</b> 155:23;184:20;185:6; 186:8,23</p> <p><b>recalibrating (1)</b> 231:3</p> <p><b>recalibration (2)</b> 113:7;156:21</p> <p><b>recall (23)</b> 52:1,2;63:13;65:2;71:19; 76:6;114:10,17;139:2; 151:16,25;154:16;178:24; 185:11;188:10;191:11; 200:8;201:20;212:12,15,17; 216:7;228:22</p> <p><b>recalled (3)</b> 72:4;226:23;227:12</p> <p><b>receive (1)</b> 14:25</p>	<p><b>received (27)</b> 13:21,23,24;47:1,2;49:5; 88:15,16;102:23;159:23,24; 163:7,8;168:21,23;183:24; 192:23,25;208:10,11;209:13, 14;210:23,25;243:24;244:1; 263:4</p> <p><b>recent (3)</b> 50:3;65:4;82:23</p> <p><b>recently (4)</b> 63:19;83:5;143:24;187:5</p> <p><b>Recess (5)</b> 17:12;76:11;146:14,16; 211:13</p> <p><b>recharge (26)</b> 81:2,4,11,11;82:13,14; 83:16;99:13;100:9,19;101:1, 6,7,8,12,16;103:1,5;104:12, 20;105:8;109:21;213:25; 214:2,5,7</p> <p><b>recognize (6)</b> 51:25;52:8;79:17;158:7; 213:11;214:19</p> <p><b>recognized (2)</b> 23:16;113:23</p> <p><b>recognizes (1)</b> 34:25</p> <p><b>recognizing (1)</b> 172:20</p> <p><b>recommend (2)</b> 125:2;129:6</p> <p><b>recommendation (1)</b> 113:15</p> <p><b>recommendations (2)</b> 113:12;114:11</p> <p><b>recommending (1)</b> 155:15</p> <p><b>reconcile (1)</b> 95:7</p> <p><b>record (31)</b> 8:6;15:9;17:10;33:10,18; 36:5,17,22;41:14;48:18; 61:8;75:6;76:13;77:6;87:21; 146:15,16;158:17,24; 163:15;206:15;208:24; 210:17,22;211:15;214:13; 232:14;235:4;243:18;260:4; 262:16</p> <p><b>recorded (1)</b> 116:15</p> <p><b>recording (6)</b> 9:21;13:12;76:13;211:15; 225:16;256:2</p> <p><b>records (15)</b> 29:22;31:4,22;32:4,7; 33:18,20;36:3;97:21;100:10; 118:1,18;141:8,9;258:18</p> <p><b>re-create (1)</b> 51:10</p> <p><b>red (1)</b> 75:10</p> <p><b>Redirect (10)</b> 74:4,20;226:16,19,24;</p>
<p style="text-align: center;"><b>Q</b></p> <hr/> <p><b>QA/QC (1)</b> 232:20</p> <p><b>quantify (1)</b> 202:16</p> <p><b>quantitative (2)</b> 43:17;165:18</p> <p><b>quantity (2)</b> 224:4;254:6</p> <p><b>quarter (1)</b> 211:12</p> <p><b>quick (3)</b> 70:12;146:7;246:14</p> <p><b>quickly (2)</b> 25:4;253:3</p>		

<p>227:16,19;257:4,6,10  <b>reduce (8)</b>            91:2,5,6;93:20,25;107:4,15;137:23  <b>reduced (5)</b>            86:10;87:11,13;222:23;237:8  <b>reducing (1)</b>            78:7  <b>refer (4)</b>            35:9,12;36:13;179:23  <b>reference (10)</b>            36:14;145:2;199:21;200:6;238:11;249:3,7,9;258:13;260:1  <b>referenced (1)</b>            241:8  <b>references (1)</b>            258:24  <b>referred (7)</b>            45:16;58:13;66:2;150:1;155:10;257:17;258:8  <b>Referring (13)</b>            96:4;126:8;142:17,17;153:13;179:11;184:17;191:19;199:24;206:21;257:17;258:25;259:20  <b>refers (1)</b>            147:6  <b>refine (1)</b>            212:6  <b>refined (1)</b>            216:1  <b>reflect (1)</b>            184:13  <b>reflected (3)</b>            116:14;216:23;217:11  <b>regarding (6)</b>            22:20;30:8;80:5;197:7;245:18;253:5  <b>regardless (1)</b>            96:14  <b>regional (1)</b>            117:14  <b>registered (3)</b>            44:9;78:23,25  <b>regression (2)</b>            54:25;64:24  <b>rehash (1)</b>            180:12  <b>reiterate (1)</b>            61:7  <b>relate (3)</b>            48:8;87:16;219:25  <b>related (13)</b>            42:22;121:8,9,10;174:3;258:10,17,24;259:20,21;260:12;262:14,15  <b>relationship (3)</b>            52:15;202:13,16  <b>relatively (4)</b>            112:12;123:17;186:18;219:14</p>	<p><b>release (1)</b>            243:2  <b>relevant (12)</b>            22:9;26:10,14;27:8,14;28:18;33:7;34:1,13;229:11,12;236:18  <b>reliable (1)</b>            239:14  <b>relied (2)</b>            55:21;203:11  <b>relief (1)</b>            29:8  <b>rely (4)</b>            30:25;68:19;203:1;234:3  <b>relying (1)</b>            203:8  <b>remainder (1)</b>            15:23  <b>remaining (4)</b>            23:21;101:17;127:6;130:2  <b>remains (3)</b>            152:25;153:16;178:13  <b>remember (10)</b>            28:12;59:24;65:4;119:18;150:3;152:1;156:3;169:5;187:8,9  <b>remind (1)</b>            12:25  <b>reminded (1)</b>            23:8  <b>remote (3)</b>            235:15,25;237:13  <b>remove (4)</b>            15:1,15;23:9;242:1  <b>render (1)</b>            245:18  <b>repeat (5)</b>            28:4;225:10;249:13;254:15;255:17  <b>repetitive (1)</b>            18:3  <b>rephrase (2)</b>            122:23;139:25  <b>reply (1)</b>            25:3  <b>report (45)</b>            67:17,21;84:9;90:3,4;91:7;92:11;113:20,23;114:1,9,19,22;117:19;122:14;126:18;129:8;141:2,23;142:8;144:17;146:23;150:2;152:6,10,15,18;153:10;154:7,10,13,17;161:13;163:19;164:15;170:24;184:5,7,17,19,24;185:10,12;218:22;221:11  <b>reported (2)</b>            72:24;245:17  <b>REPORTER (10)</b>            8:8;9:13,21;13:5,13;74:12,14;171:25;172:5,12  <b>reporting (2)</b>            66:5;67:15</p>	<p><b>reports (3)</b>            42:6;43:2;57:1  <b>represent (13)</b>            10:10;14:13;56:4;60:14;69:5;75:8;122:4;156:8;186:8;190:3;209:24;214:15;252:14  <b>representation (2)</b>            30:18;157:5  <b>representative (4)</b>            18:16;231:20,25;232:2  <b>represented (10)</b>            30:16;75:17,20;91:15;92:7;119:21;121:19,21;122:1;165:13  <b>representing (11)</b>            10:6;11:3;12:6;30:19;68:13,23;69:11;156:5;204:1;210:21;244:9  <b>represents (4)</b>            94:10;122:21;237:22;249:8  <b>request (13)</b>            34:2;44:25;79:11;86:14;170:25;173:3;237:5;257:14,20,24;259:9;262:14,17  <b>requested (5)</b>            145:18,22;197:2;237:6;257:22  <b>requesting (1)</b>            33:1  <b>requests (1)</b>            32:21  <b>require (2)</b>            170:14;184:14  <b>required (1)</b>            154:9  <b>requirements (4)</b>            226:1;242:1;256:6,13  <b>requires (1)</b>            37:7  <b>requiring (2)</b>            37:10;170:15  <b>research (2)</b>            189:20;235:22  <b>reserve (3)</b>            22:14;31:25;40:10  <b>reserves (1)</b>            18:1  <b>Reservoir (5)</b>            42:19;54:10;75:24;238:21;243:2  <b>residual (1)</b>            97:25  <b>resolve (2)</b>            14:6;40:11  <b>resolved (1)</b>            230:11  <b>resolves (1)</b>            15:21  <b>resource (2)</b>            41:25;42:3  <b>Resources (12)</b></p>	<p>9:4,16,23;11:22;38:14;41:18;42:12;45:6;77:10;235:8;236:13,13  <b>respect (4)</b>            26:2;37:19;86:24;123:1  <b>respond (3)</b>            16:5,13,14  <b>respondents (1)</b>            26:16  <b>representing (1)</b>            173:17  <b>Response (84)</b>            19:19;21:18;44:24;79:3,11;87:17;96:17,18,20,23;119:13,15,18;120:4,10,12,14;127:15;130:18;132:23;134:9,19,21;135:1,6,9,10,22,23,25;136:1,4,8,10,13,17,20,22,25;138:4,25;147:6,11;173:3,18,21,24;174:8,13,15,16;175:1,4,5,12,13,16;178:7,9,12;179:5,13;187:1;190:17;191:4,6,12;197:7,10,14;198:1,2,5,6,14,23,25;199:2,12;200:9,14;229:13;237:4;262:16  <b>response] (2)</b>            114:4;163:17  <b>responses (6)</b>            21:21;24:7;34:5;87:7;96:10;146:25  <b>responsibilities (4)</b>            41:22;42:22;77:14;235:12  <b>responsible (1)</b>            260:6  <b>responsive (1)</b>            263:6  <b>rest (3)</b>            22:15;196:4;208:5  <b>result (12)</b>            37:12;51:8,14;53:15,16;55:7;89:11;93:11;140:12;164:6;193:24;240:13  <b>resulting (2)</b>            218:9;223:8  <b>results (10)</b>            55:6;86:23;87:15;167:11;171:4;179:10;180:6;241:4;242:7,17  <b>retained (1)</b>            200:19  <b>retired (1)</b>            58:11  <b>return (14)</b>            99:20,24;100:1,4,5,6,7,8,10,14,18;205:3;245:19,20  <b>returned (1)</b>            205:6  <b>review (7)</b>            42:4;47:12;56:24;58:19;152:18;154:8;197:4  <b>reviewed (6)</b>            57:1;58:16;67:17;154:6;</p>
--	---	---	---

<p>195:20;232:17 <b>reviewing (1)</b> 48:1 <b>revise (1)</b> 184:22 <b>revisit (1)</b> 257:14 <b>rework (1)</b> 184:15 <b>rewrite (1)</b> 170:6 <b>rewrites (1)</b> 170:5 <b>Richard (1)</b> 236:4 <b>Richfield (5)</b> 238:18,19;239:21;242:20; 251:19 <b>RIGBY (93)</b> 10:5,5,5,5;14:4,5,8;15:3,4, 7,10,13,17,19,21;23:6,8,14, 18;34:17,18;37:25;39:2; 46:24;48:19;49:16,17,19,22; 53:25;54:3,5;56:3,9,13;60:3, 6;66:2;67:8;69:5,6,8;83:24; 84:4;87:22,23;88:21,24,25; 102:7;105:23;159:9;162:10, 15,16;168:1,2;172:18;173:5, 8;182:5,6;191:24,25;207:7, 8;209:5,6,9;226:23;227:2,10, 13,16,17,20;231:17;233:4,6; 234:23;244:3,7,9;245:23,25; 246:2;257:6,8;261:13,19,21; 262:1,5 <b>right (171)</b> 8:1;12:5,8;13:16;16:6; 17:1;18:1;20:2;25:21;26:17, 23;27:12;30:10;33:5;35:25; 36:5,6;37:21;38:11;40:20; 41:2;42:9;49:8;53:3;55:25; 56:3;57:20;60:22;61:23,25; 63:10;64:12;65:14,25;66:8; 70:20;73:18;74:1,3;75:10, 11;76:2,8,17;81:17;102:14; 103:11,22;104:2;105:25; 106:10,13;109:6;110:11; 114:20;116:8;117:3,3,24; 118:12;119:1,5;120:9,19; 121:3;123:8;125:17;128:8, 16;129:12,20;130:1;133:16; 134:16;139:15,21;146:25; 147:3,11,16,23;148:11,15; 149:1,10,19;151:1;152:8; 153:25;154:22;155:17; 160:19;161:17,17,25;162:6, 7,9;163:16;164:16,17; 166:24;172:16;173:10,12; 178:16;184:11;187:5,22; 188:21;191:2;192:11,17; 193:12;198:18;203:9,15,16; 205:18;206:9,10,12;208:9, 13,16,18,20;209:12,16,20,21, 25;210:6,10,21,22;211:10;</p>	<p>221:13;222:19;223:10,21, 24;224:6,9,12,14,22;225:20; 227:6;230:17;233:19; 234:11,25;237:7;238:1; 243:23;246:18,23;253:23; 254:1,8,13,19;255:16,24; 256:7,14;260:12;261:4; 263:5,8 <b>rights (68)</b> 29:6,13,20,25;31:6,9; 33:21;34:1,15;36:3;97:14; 115:20,22,22;116:1,4,5,7,12; 117:7;147:22;148:7,10; 190:9,15;200:7,10,14;204:7, 9,13,14,16,19,24,24;205:15, 21;206:6;208:15;209:18,25; 218:9,11,18;223:3,5,14,17; 224:3,10,18;225:1,5,9,13; 226:1;238:24;239:2;253:16, 19;254:5,11,17,25;255:4,8; 258:19 <b>riparian (2)</b> 81:8;101:20 <b>rise (1)</b> 161:24 <b>rising (2)</b> 160:17,24 <b>risk (4)</b> 18:21,23;21:1;22:6 <b>River (87)</b> 33:13;36:9;42:17,20; 44:13;45:8,11;47:18;53:1,9; 54:9,10;56:7,16,22;57:17,25; 58:3,20,24;59:15,16;67:9; 72:25;80:6,10;84:6;100:11; 103:10,14,15,18;104:12,13, 24;105:16;108:14,20,23; 117:1,9,10;123:15,19; 132:21;135:12;138:10,13; 141:8;145:8;147:7,15,20; 148:11;152:7;154:21;157:2, 6;160:9,18;166:15;167:1; 173:16;174:6,23;175:9; 189:9,16,18;198:6;200:20; 202:6;221:10;224:8;228:8; 230:24;236:22;239:16; 245:7,9;252:16,18,22; 259:22,23,24,25 <b>riverbed (1)</b> 189:10 <b>Rivers (1)</b> 79:4 <b>ROBERTSON (26)</b> 11:13,13;68:13,17;73:14, 15;159:16,17;162:23,24; 168:13,14;182:16,18;192:11, 12;207:19,20;208:3,7; 226:10,11;233:25;234:1; 256:23,24 <b>Rock (6)</b> 11:14;119:9,14,19;135:12; 138:11 <b>Rogers (4)</b></p>	<p>30:13,16,19;31:13 <b>Rogers' (1)</b> 31:6 <b>role (2)</b> 42:4;43:25 <b>Ron (4)</b> 58:8;59:6,16,24 <b>room (1)</b> 172:10 <b>round (2)</b> 39:18;227:7 <b>roundabout (1)</b> 202:24 <b>routine (1)</b> 106:20 <b>row (2)</b> 11:21;191:9 <b>R-squared (10)</b> 64:25;65:2,5,10,13,19; 118:24;119:2;120:16,23 <b>rule (3)</b> 25:21;30:11;32:10 <b>ruled (1)</b> 258:14 <b>Rules (3)</b> 30:12;70:25;71:6 <b>ruling (5)</b> 22:14;27:23;258:4;259:4,6 <b>run (34)</b> 42:25;52:22;53:1,4;85:24; 86:1,17;87:6,95;11;96:17, 19;99:15;105:25;106:1; 113:12;125:15;129:1,5; 170:9,10;175:19;176:9; 177:8;179:1;190:16,17; 193:20;194:3,6;196:8; 204:25;205:2;220:11;252:7 <b>running (5)</b> 8:9;99:15;116:11;180:4; 245:15 <b>runoff (3)</b> 62:5;72:23;80:13 <b>runs (15)</b> 53:15;85:18;86:20,21; 87:5,16;90:22;91:23;94:21, 24;128:6,6;129:18;212:14; 213:2</p>	<p><b>sanctions (1)</b> 208:6 <b>satisfied (1)</b> 64:3 <b>satisfy (2)</b> 21:15;54:22 <b>saw (5)</b> 52:6;55:2;64:23;167:11; 260:23 <b>saying (16)</b> 21:13;54:16;131:16;159:3, 4;160:14;173:17;179:18; 198:13;202:19;209:8;221:7; 227:11;230:7;245:3;251:2 <b>scale (2)</b> 241:19,20 <b>scenario (17)</b> 92:11;126:14;139:23; 148:20;169:19;170:12,16; 179:1,6;180:2,4;193:21; 195:16;204:5,22;205:1,9 <b>scenarios (3)</b> 220:13;253:4,7 <b>schedule (1)</b> 91:12 <b>scheduling (2)</b> 79:14;213:14 <b>scheme (1)</b> 117:13 <b>Schoen (1)</b> 69:12 <b>Science (6)</b> 12:6;44:3;55:25;56:6; 78:17;84:6 <b>scientific (3)</b> 196:6,14;234:3 <b>scientist (1)</b> 180:24 <b>scope (4)</b> 8:23;20:10;25:15;74:19 <b>scratch (1)</b> 60:24 <b>script (2)</b> 53:2,4 <b>Sean (11)</b> 9:24;40:25;41:4,15;61:22; 67:24;70:10;71:10;76:5; 120:10;142:10 <b>S-e-a-n (1)</b> 41:15 <b>season (39)</b> 21:14;22:7;27:24;45:21, 25;46:9;55:13;59:1;61:6; 85:25;86:2;90:25;93:17; 97:4;99:5;126:22,23;127:7, 8;162:7;174:7;224:17,20,24; 225:7,11,18;240:22;250:2, 19;254:22;255:2,10,15,19, 22;256:2,6,13 <b>seasonal (1)</b> 225:25 <b>seasonally (1)</b> 80:11</p>
		<b>S</b>	
		<p><b>Sabala (1)</b> 15:10 <b>safe (1)</b> 214:6 <b>same (25)</b> 74:8;98:20;100:15,22,23; 106:20;107:16;115:18; 118:2,19;120:22;142:20; 172:13,22;182:9;205:1,6; 210:1,1;214:7;215:17; 224:24;229:18;230:15;242:3 <b>sampling (2)</b> 175:25;176:3</p>	



<p><b>seasoned (1)</b> 233:22</p> <p><b>seated (3)</b> 41:9;76:24;234:17</p> <p><b>second (18)</b> 23:1;33:11;35:19;39:9; 63:15;75:15,19;86:10;87:5, 6,13;114:24;140:21,22; 173:14;176:22;193:11; 208:14</p> <p><b>secondly (1)</b> 18:13</p> <p><b>second-to-last (1)</b> 196:15</p> <p><b>Section (12)</b> 8:15;9:25;41:21;42:5,24; 43:1;56:21,21;77:16;184:15; 202:10,22</p> <p><b>secure (3)</b> 230:7;239:14,20</p> <p><b>seeing (2)</b> 28:12;207:21</p> <p><b>seeking (2)</b> 24:18;27:22</p> <p><b>seemed (2)</b> 195:18;242:11</p> <p><b>seems (3)</b> 39:5;94:8;206:24</p> <p><b>seepage (27)</b> 81:4,12;97:24;101:11; 104:11,16,25;105:4,8; 140:24;143:10,17;145:2,13; 149:9,14,15,19,25;150:8,20, 23;155:5;203:3,12;221:9,17</p> <p><b>sees (1)</b> 109:24</p> <p><b>select (5)</b> 45:13,17;134:21;175:23; 239:9</p> <p><b>selected (4)</b> 166:1;176:7;239:23;240:8</p> <p><b>selecting (2)</b> 46:11;239:12</p> <p><b>selection (2)</b> 51:14;57:4</p> <p><b>SEMANKO (17)</b> 11:16,16;73:17;162:25; 163:1;168:15,16;182:19,20; 192:13,14;207:24,25;226:12, 13;256:25;257:1</p> <p><b>send (1)</b> 145:22</p> <p><b>senior (14)</b> 14:12;19:3;26:16;27:12; 78:1;86:1;89:1;148:7,9; 218:11;223:9;224:9,14; 244:10</p> <p><b>senior-priority (15)</b> 224:5,18,22;225:1,4,19; 226:1;254:7,13,19,24;255:4, 8;256:7,14</p> <p><b>seniors (3)</b> 20:4;55:7;229:4</p>	<p><b>seniors' (2)</b> 18:24;21:24</p> <p><b>sense (6)</b> 22:3;27:3;166:2;196:6; 199:19;202:5</p> <p><b>sensing (3)</b> 235:15;236:1;237:13</p> <p><b>sensitive (1)</b> 243:14</p> <p><b>sensor (6)</b> 143:8,8,12;144:12;201:15, 19</p> <p><b>sensors (8)</b> 142:21;143:7;201:4,12,23; 202:3,4,5</p> <p><b>sent (2)</b> 145:23;176:1</p> <p><b>sentence (9)</b> 94:8,8,17;179:7;194:16, 21;196:22,25;197:3</p> <p><b>sentiment (1)</b> 16:1</p> <p><b>separate (10)</b> 82:9,11;161:9;170:2,11; 175:8;196:2;206:3;227:12; 253:14</p> <p><b>separation (1)</b> 184:13</p> <p><b>September (21)</b> 47:19;48:12,15;50:14; 55:4;60:23;61:1,6;62:4,5,12; 64:21,22;75:3;95:12;119:25; 127:25;147:16;178:8;198:4; 200:23</p> <p><b>sequence (1)</b> 261:18</p> <p><b>serious (1)</b> 20:14</p> <p><b>serve (3)</b> 42:6;81:21,22</p> <p><b>served (2)</b> 224:18;254:24</p> <p><b>serves (1)</b> 108:19</p> <p><b>Service (3)</b> 45:6;97:22;239:5</p> <p><b>services (2)</b> 42:14,16</p> <p><b>set (5)</b> 87:13;137:3;171:14,18; 239:1</p> <p><b>settlement (3)</b> 34:10;35:21;37:17</p> <p><b>several (7)</b> 32:21;153:1;154:18; 173:15;205:24;213:21;258:9</p> <p><b>Sewer (2)</b> 11:14;68:14</p> <p><b>shall (2)</b> 206:13;208:22</p> <p><b>shame (1)</b> 208:8</p> <p><b>shape (1)</b> 195:23</p>	<p><b>shapes (1)</b> 196:2</p> <p><b>share (1)</b> 146:1</p> <p><b>shared (1)</b> 159:1</p> <p><b>SHAW (2)</b> 11:22,22</p> <p><b>shift (1)</b> 211:7</p> <p><b>shifted (1)</b> 54:20</p> <p><b>short (10)</b> 76:13;84:3;117:11;146:3; 169:23;170:17;205:13; 239:23;242:24;243:1</p> <p><b>shortage (3)</b> 57:8;246:16,23</p> <p><b>shortened (1)</b> 126:2</p> <p><b>shorter (3)</b> 83:22;131:17,19</p> <p><b>Shoshone (4)</b> 238:20;239:21;242:20; 251:20</p> <p><b>show (11)</b> 29:22;95:11;97:14;108:3; 144:6,7;150:7;160:16; 171:13;250:7;251:10</p> <p><b>showed (3)</b> 46:5;242:21;243:2</p> <p><b>Showing (2)</b> 209:17;217:13</p> <p><b>shown (5)</b> 8:18;62:15;91:19;95:13; 251:22</p> <p><b>shows (16)</b> 87:7,9,11;95:5;127:3,5,11, 14;139:10;167:12,13; 186:10;229:16;237:23; 250:1;251:17</p> <p><b>shp (3)</b> 197:20,23;198:25</p> <p><b>side (9)</b> 138:20,21;177:23,24; 181:8;184:1;215:11,12; 240:18</p> <p><b>sides (2)</b> 16:12;172:22</p> <p><b>sift (1)</b> 34:12</p> <p><b>sifts (1)</b> 34:25</p> <p><b>signed (1)</b> 19:24</p> <p><b>significance (6)</b> 50:24;51:10;189:12,13; 190:25;240:6</p> <p><b>significant (29)</b> 54:12;87:1,7;110:22; 113:9,23;114:15;129:18; 132:19;134:13,17,23;138:7;</p>	<p>153:2;154:18;155:25; 160:21,25;177:2,3,11,14,15, 18;184:15;198:10;222:2; 229:25;230:23</p> <p><b>significantly (6)</b> 52:23;53:16;94:2,3;113:3; 230:8</p> <p><b>Silver (97)</b> 8:20;20:6,25;27:12;54:11, 20,22,24;55:4,8,12,15;57:25; 59:13;62:20;63:7,64:8,17, 19;65:22;66:11;70:14;79:3; 80:6,7,9,19,24;86:17,25; 87:2,8,11,18;91:2,6;94:5,6; 96:11,17;103:9;116:22; 117:21;118:19,23;119:25; 120:2,5,20;121:8,13;132:19; 134:13,20,23;136:2;137:11, 14,17;139:1;141:10,11; 166:18;174:21;175:10; 177:4,15,18;178:4,12; 179:15;185:18;186:10,14, 25;189:18;191:5;193:20; 194:24;198:12;199:2; 200:15,24;221:22;222:23; 229:13;231:15;232:18; 239:2,25;243:7,9;245:11; 246:17;252:17,23,25</p> <p><b>similar (11)</b> 26:20;43:25;51:20;60:19, 20,21;115:14;236:2;242:9, 10;243:6</p> <p><b>similarities (2)</b> 14:3;22:16</p> <p><b>similarly (2)</b> 33:11;164:3</p> <p><b>simple (2)</b> 17:17;97:16</p> <p><b>simplicity (1)</b> 190:3</p> <p><b>simplification (2)</b> 82:17;84:17</p> <p><b>simply (3)</b> 35:21;66:4;163:23</p> <p><b>Simpson (20)</b> 11:18,19,19;73:8,11;88:9, 10;162:21,22;168:11,12; 182:15,17;192:7,8;207:18; 226:8,9;256:21,22</p> <p><b>simulated (13)</b> 83:10;86:10;91:9;93:6,7; 101:24;132:3;139:13; 193:11;213:24;214:1,3,6</p> <p><b>simulating (1)</b> 214:4</p> <p><b>simulation (19)</b> 72:13;83:10,15;84:3;86:8, 18,25;89:20;93:8;99:10,17; 126:9;127:2,21;128:1; 219:13;220:12,14,15</p> <p><b>simulations (16)</b> 84:21;85:3;86:6,15,23; 87:14;92:10;107:25;126:16;</p>
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<p>127:1;189:23;193:3,5,6; 196:8;220:21 <b>single (4)</b> 82:19;126:22,23;127:14 <b>site (1)</b> 145:21 <b>sitting (3)</b> 20:2;207:21;233:20 <b>six (3)</b> 78:3,12;257:21 <b>skew (1)</b> 127:18 <b>skip (1)</b> 228:11 <b>slightly (2)</b> 57:18;191:4 <b>small (5)</b> 111:23;112:12;118:7; 157:12;257:13 <b>smaller (4)</b> 80:12;84:17;176:3;220:22 <b>Snake (4)</b> 83:4;137:23;143:10; 239:16 <b>snowmelt (2)</b> 80:12;104:15 <b>snowpack (2)</b> 103:15,17 <b>snow-water (1)</b> 51:6 <b>soft (1)</b> 38:7 <b>soil (5)</b> 240:25;248:10,14;249:19; 253:10 <b>solid (1)</b> 239:7 <b>solution (4)</b> 124:17,17,19,22 <b>somebody (9)</b> 32:20;36:12;74:11; 145:15;158:17;169:12; 171:3,21;260:8 <b>Somebody's (1)</b> 257:22 <b>somehow (2)</b> 40:16;116:5 <b>someone (1)</b> 180:15 <b>something's (1)</b> 36:12 <b>sometime (1)</b> 187:6 <b>sometimes (2)</b> 45:16;238:11 <b>somewhat (5)</b> 14:18;71:1;131:8;179:17; 204:21 <b>somewhere (6)</b> 119:22;130:21;147:8,14; 177:25;222:7 <b>soon (2)</b> 135:10;149:1</p>	<p><b>sorry (42)</b> 12:3;17:9;22:22;49:9; 62:19;66:15;68:22;69:1,8, 24;70:2;78:14;83:24;84:4; 94:6,17;103:8;104:2;105:1; 106:2,2;108:16;109:13; 112:22;120:15;126:12; 128:6;144:25;158:8;163:4; 165:21;167:15;168:20; 169:1;183:5;193:7;219:14; 225:10;242:13;258:22; 259:3;260:11 <b>sorted (1)</b> 135:19 <b>sounded (1)</b> 53:6 <b>sounds (1)</b> 162:8 <b>source (15)</b> 43:21;80:10;97:8,14,15, 16;104:17;116:21;139:22; 149:11,20;223:20,25; 253:22;254:2 <b>sources (3)</b> 81:1;104:9;216:2 <b>South (45)</b> 10:19,21;13:24;14:10; 15:14;18:14;21:22;31:1; 32:4;39:5;61:20;86:11; 94:10,22;102:19;123:23; 124:9;125:13;133:11; 135:16;136:3,8;139:13; 158:14;159:5;163:6;168:20; 169:21;182:25;189:17; 190:4;191:4,9,16;192:18; 194:11,23;195:14,25;196:3, 9;198:16;199:14,17;246:10 <b>southeast (4)</b> 135:8;137:5,9;138:14 <b>southern (1)</b> 199:7 <b>southwest (7)</b> 132:4,8,24;135:7,8;137:5; 177:14 <b>space (1)</b> 159:22 <b>Spackman (4)</b> 9:15;194:17;196:17; 243:17 <b>span (1)</b> 161:22 <b>spatially (1)</b> 237:14 <b>speak (2)</b> 130:17;144:20 <b>speaking (4)</b> 13:2;199:2;242:12,16 <b>specific (23)</b> 36:14;45:20;82:24;125:6, 22;164:7;169:14;174:16,17; 187:12;193:22;205:20; 212:14;218:1,11,25;219:17, 21;220:1;221:6;223:5;224:9;</p>	<p>245:5 <b>specifically (13)</b> 42:21;71:13,19;151:25; 153:14;185:5;190:9;193:16, 18;204:10,23;210:6;212:8 <b>Speck (1)</b> 68:18 <b>speculate (1)</b> 106:25 <b>speculating (1)</b> 107:1 <b>spell (3)</b> 41:14;77:6;235:3 <b>spelled (1)</b> 235:6 <b>spent (1)</b> 53:5 <b>SPF (1)</b> 78:2 <b>spine (1)</b> 151:5 <b>spoke (2)</b> 54:18;58:8 <b>spokesperson (2)</b> 19:20;23:22 <b>sponsored (1)</b> 63:13 <b>sponsoring (1)</b> 8:4 <b>Sportsman (1)</b> 229:25 <b>Sportsman's (17)</b> 64:19;87:2;120:6;137:13, 14,16;140:24;141:7;144:18; 145:2;166:19;203:4;218:16; 221:9,23,24;232:19 <b>sprang (1)</b> 33:5 <b>spread (1)</b> 176:10 <b>spreader (1)</b> 8:4 <b>springs (3)</b> 8:13;155:7;156:6 <b>Spronk (1)</b> 10:14 <b>stabilization (5)</b> 115:9;228:21,25,25;229:5 <b>stabilized (3)</b> 115:2,5,7 <b>staff (54)</b> 9:14;12:23;24:11,15,23; 26:4;28:9,15;33:22;36:4; 38:15,16,18,24;42:5,24; 44:25;53:25;58:24;71:4,9; 79:12,15,20;83:1;84:7; 86:14,22;95:4;96:4;101:22; 112:20;114:22;117:19; 125:1;143:22;144:9,16; 146:23;175:15;177:13; 188:25;196:18;201:7;203:2; 204:4;212:7,10;213:10; 237:5;245:18;262:14,15,21</p>	<p><b>stage (4)</b> 202:5,9,13;241:21 <b>Stalker (2)</b> 118:10;119:4 <b>stamp (1)</b> 209:19 <b>stand (1)</b> 9:1 <b>standard (2)</b> 67:3;202:25 <b>standpoint (3)</b> 195:22;196:7,14 <b>stands (1)</b> 75:12 <b>start (26)</b> 9:6;11:5;12:25;13:16; 25:25;35:13;36:1;49:25; 51:2;72:14;89:5,20,21; 127:15;170:22;189:9;199:7, 14;204:3;211:4,6;237:10; 261:2,3,4,5 <b>started (16)</b> 43:16;62:22;72:5,6;85:5; 91:24,25;98:14;102:4; 128:22;135:24;143:24; 155:5;169:5;170:20;239:17 <b>starting (3)</b> 128:13;140:2;144:15 <b>starts (3)</b> 176:24;199:19,20 <b>state (14)</b> 19:13;29:13,20;41:13; 42:16;43:4;45:8;77:5;78:20, 24,24;79:1;130:22;235:3 <b>stated (3)</b> 12:14;18:1;34:22 <b>statement (9)</b> 15:4,21;30:4;150:7,8; 176:23;177:6;184:16;230:18 <b>statements (1)</b> 184:21 <b>states (1)</b> 221:11 <b>static (1)</b> 170:12 <b>stating (2)</b> 68:19;84:8 <b>station (22)</b> 47:18;63:5,6,15,16,20,22; 64:4;140:25;141:9;142:12, 15;201:1;202:18;203:4,7; 221:10;222:7,16;231:18,23; 232:14 <b>stations (2)</b> 78:7,8 <b>statistical (1)</b> 160:16 <b>statistically (2)</b> 160:21,25 <b>statistics (1)</b> 157:3 <b>status (1)</b> 43:2</p>
---	--	---	---

<p><b>stay (4)</b> 129:25;147:22;148:14,19</p> <p><b>stayed (1)</b> 129:19</p> <p><b>staying (1)</b> 199:10</p> <p><b>steady (1)</b> 130:22</p> <p><b>steady-state (4)</b> 83:14;130:24;131:6,9</p> <p><b>step (3)</b> 13:10;115:24;251:9</p> <p><b>steps (2)</b> 128:11,15</p> <p><b>sticker (2)</b> 171:21,24</p> <p><b>stickers (4)</b> 171:19;172:1,6;183:20</p> <p><b>Sticking (1)</b> 214:11</p> <p><b>still (18)</b> 16:21;53:6;55:9;61:3; 85:6;92:15;124:23;127:6; 137:16,17;178:3;181:13; 186:9,25;198:10;208:2; 232:23;260:25</p> <p><b>stint (1)</b> 43:11</p> <p><b>stipulation (1)</b> 15:13</p> <p><b>Stone (3)</b> 30:13,15,23</p> <p><b>stop (3)</b> 63:15;103:22;115:12</p> <p><b>stopped (2)</b> 110:16;115:23</p> <p><b>storage (7)</b> 124:13;127:7;178:13; 196:24;197:5;198:11;200:19</p> <p><b>stream (19)</b> 42:14,15,17,18;62:23,24; 63:2,5;65:22;91:3;96:21; 100:5,6,7,8,17;110:3;129:4; 143:13</p> <p><b>streamflow (19)</b> 45:11;51:19;60:25;75:1,2, 23,24;82:12,14;85:14;87:2,8, 10;93:20,25;104:11;141:6; 193:11;222:4</p> <p><b>streamflows (1)</b> 120:4</p> <p><b>streams (3)</b> 90:9;100:14;109:12</p> <p><b>stress (15)</b> 81:1;84:23;105:5,9,15; 123:18,21;129:7;149:22; 169:18,20;174:17,22;219:9, 13</p> <p><b>stresses (6)</b> 82:10;84:23;109:24; 110:1;189:15,16</p> <p><b>stretch (1)</b> 142:4</p>	<p><b>strike (7)</b> 24:11;26:2,4,11;27:2; 28:13;56:5</p> <p><b>strikeout (1)</b> 26:5</p> <p><b>strikeouts (3)</b> 26:6,9;28:9</p> <p><b>striking (1)</b> 24:23</p> <p><b>strong (9)</b> 55:3;64:7,9,10,12,13,15, 24;65:20</p> <p><b>stronger (1)</b> 65:16</p> <p><b>stuck (1)</b> 213:22</p> <p><b>study (1)</b> 89:7</p> <p><b>stuff (1)</b> 35:8</p> <p><b>subject (5)</b> 27:15;76:6;125:9;226:22; 240:1</p> <p><b>subjected (1)</b> 38:23</p> <p><b>subjects (1)</b> 28:18</p> <p><b>submitted (1)</b> 188:9</p> <p><b>Subpart (1)</b> 155:12</p> <p><b>subsequent (1)</b> 17:22</p> <p><b>substantial (2)</b> 22:16;250:16</p> <p><b>subsumed (1)</b> 31:3</p> <p><b>suddenly (1)</b> 136:23</p> <p><b>Sue (1)</b> 77:7</p> <p><b>S-u-e (1)</b> 77:7</p> <p><b>suffice (1)</b> 64:2</p> <p><b>sufficient (3)</b> 118:1;137:1;237:24</p> <p><b>suggest (4)</b> 16:11;31:19,25;222:1</p> <p><b>suggests (1)</b> 114:20</p> <p><b>Sukow (34)</b> 56:20;63:25;72:3;76:15, 16,19;77:7;88:25;91:10; 96:4;101:22;144:23;146:18; 160:1;188:3;190:1;193:1; 203:21,25;208:13;209:16; 210:11;211:18,23;212:3; 213:9,17,20;214:15;218:8; 222:25;226:6,22;227:21</p> <p><b>S-u-k-o-w (1)</b> 77:8</p> <p><b>Sukow's (1)</b></p>	<p>51:25</p> <p><b>SULLIVAN (4)</b> 10:14,14;21:10;25:17</p> <p><b>sum (2)</b> 75:24;237:17</p> <p><b>summarize (1)</b> 86:24</p> <p><b>summarized (1)</b> 105:21</p> <p><b>summarizes (1)</b> 86:23</p> <p><b>summary (2)</b> 70:3;257:17</p> <p><b>summer (2)</b> 93:14;215:15</p> <p><b>Sun (8)</b> 10:10,16;11:14;18:4,10; 19:23;68:14;262:12</p> <p><b>super (1)</b> 8:4</p> <p><b>superposition (2)</b> 99:12;170:11</p> <p><b>supervised (1)</b> 67:11</p> <p><b>supplemental (3)</b> 85:20,21;90:20</p> <p><b>supplied (2)</b> 52:24;253:6</p> <p><b>supplies (14)</b> 24:18;44:12;45:2,20;51:1; 52:13;85:24;90:19;93:13; 214:24;215:6;225:21; 252:17;256:8</p> <p><b>supply (78)</b> 24:13,15,18;25:7,11; 27:11;42:22,23,24;43:22; 45:5,15,23;46:4,6,8,16;47:4, 22;48:11;50:13;51:13;53:24; 54:8;55:14;57:6,13,16;58:6, 10,12;59:1,8,9,14,18,21; 62:9,17,19;72:21;80:10; 81:10;90:6;103:7,8,9,10,13; 104:17;105:3;111:18; 115:15,16;139:14;215:11, 17;222:19;237:8,9,24;239:7, 8,14,14,17,20;240:16,17; 241:11;242:24;243:13; 244:22;247:19;250:17,25; 251:5,18</p> <p><b>support (5)</b> 31:12;42:2;43:20;145:11; 152:16</p> <p><b>supporting (7)</b> 29:12;30:5;171:2;176:2, 20;197:21;199:1</p> <p><b>suppose (2)</b> 55:20;226:22</p> <p><b>supposed (2)</b> 29:14;215:5</p> <p><b>Sure (30)</b> 16:20;17:2;25:5;30:18; 32:8;59:9,16;64:9;73:19; 112:7;116:23;118:8;122:23;</p>	<p>126:5;136:9,24;142:16; 158:13,17,24;176:5;185:5; 189:25;199:24,25;203:10; 230:16;234:24;251:6;253:2</p> <p><b>surface (71)</b> 8:20;13:25;14:12,12; 39:22;42:1;44:12;45:2,4,15; 72:21;77:18;81:2,22;82:5; 85:23,24;89:1,2;90:18,21,22; 93:3,4,13;95:16;97:16,20,22, 25;100:24;101:12;104:13, 20;105:6;106:9,20;108:5,22; 109:15,18,19,21,25;111:18; 115:16;116:15,17;117:4,5; 121:21;147:22;148:14,23; 157:1;214:24;215:5;216:22; 218:18;221:18,20,22;224:5, 14;226:1;239:1;244:10; 254:7,13,19;256:14</p> <p><b>surface-water (1)</b> 109:1</p> <p><b>surmised (1)</b> 242:23</p> <p><b>surplus (1)</b> 57:8</p> <p><b>surprised (2)</b> 167:17,20</p> <p><b>Survey (4)</b> 42:13,13;72:24;112:20</p> <p><b>surveys (1)</b> 155:5</p> <p><b>suspicion (1)</b> 37:23</p> <p><b>Sustained (1)</b> 231:16</p> <p><b>SVGWD (13)</b> 159:22,24;160:1;162:11; 163:8,15;167:22;168:23; 172:9,17;182:2;183:24; 192:25</p> <p><b>swing (1)</b> 211:6</p> <p><b>sworn (3)</b> 41:6;76:21;234:15</p> <p><b>SWSI (51)</b> 45:16;47:5,9,17;50:5;51:6; 52:7,12,17,18;53:17;54:7,12, 21,23;55:7;56:12;57:5;62:4, 15;66:6,15,21,25;70:13; 71:11;72:16;85:6,11;127:24; 212:22,23;213:3;214:12,23; 215:11,11;240:9,10,10; 244:13,21;245:1;250:3; 251:18;252:2,6,10,16,23,24</p> <p><b>SWSIs (1)</b> 214:17</p> <p><b>system (15)</b> 80:8,11,17;82:17;124:25; 147:21;152:7,25;153:3,16; 156:1;157:5;224:25;228:17; 255:6</p> <p><b>systems (7)</b> 43:22;78:6,8;148:3;</p>
--	--	--	--

150:10,22,23	<b>ten (5)</b> 42:16;65:4;76:9,10;211:11	<b>third-party (1)</b> 17:24	114:5;120:3;145:24;157:11; 180:11;187:20;193:2;197:8; 201:1;208:5;218:21;236:18; 246:12
<b>T</b>	<b>tend (4)</b> 81:11;131:3;189:15,17	<b>Thompson (24)</b> 10:21,21;21:22,22;22:2, 12,21;39:8;56:1;68:24;69:1, 17;88:1,3;102:14;171:12; 207:10,11;261:7,9,11,14,18; 262:4	<b>today's (1)</b> 39:20
<b>tab (1)</b> 206:22	<b>tending (1)</b> 81:13	<b>though (14)</b> 18:17;20:13;67:7;68:15; 93:21;121:17;124:20; 186:22;214:23;215:4; 229:16;230:3;232:10;251:14	<b>together (3)</b> 71:4;143:25;227:15
<b>tabbed (1)</b> 208:15	<b>tends (2)</b> 189:16;250:18	<b>thought (21)</b> 22:23;66:3;73:23;74:16; 109:14;120:14;125:10,11; 131:10,16;134:22;137:1; 157:11;169:22;183:9; 201:22;239:7,16;242:9,23; 258:23	<b>told (2)</b> 37:13;157:11
<b>table (20)</b> 19:4;35:23;47:6,9,11,13, 17,20;48:1,9;50:5;52:14; 67:1;95:4;142:8;160:7; 166:6,7;200:3;213:18	<b>ten-month (8)</b> 83:10;125:16;126:4; 131:12;169:9;220:10,10,10	<b>thousand (3)</b> 75:9,12,21	<b>tomorrow (5)</b> 10:12;233:23;261:2,12; 263:8
<b>tables (8)</b> 52:18,18;57:5;66:6;95:11; 220:20,23;251:22	<b>tenure (1)</b> 43:24	<b>thousands (1)</b> 75:25	<b>tonight (2)</b> 262:2,2
<b>tabs (1)</b> 206:21	<b>term (2)</b> 94:3;238:5	<b>three (41)</b> 13:21;14:3,12,22;15:5; 18:15;23:3,10;28:21;29:5; 32:25;39:14;45:4;52:4;68:5, 15,21;73:7,13;88:7;119:21; 123:22;126:16;127:1; 134:10;165:20,23;169:16; 184:14;185:16;190:18; 197:15;201:6;206:1;208:14; 211:4;219:8,19;247:5; 262:15;263:7	<b>took (8)</b> 22:21;34:9;110:24; 202:24;228:25;258:20; 260:13,17
<b>tabular (1)</b> 32:5	<b>terminology (1)</b> 203:5	<b>three-layer (1)</b> 101:14	<b>tool (5)</b> 81:21,23;84:10;156:25; 231:6
<b>tails (1)</b> 181:12	<b>terms (7)</b> 33:12;47:21;59:14;75:18; 84:19;129:14;174:25	<b>three-month (8)</b> 125:14;131:20;169:9; 178:6;198:2;220:12,14,15	<b>top (8)</b> 108:25;112:7;160:7; 180:8;194:13;200:3,11; 253:4
<b>talk (15)</b> 9:8;13:18,19;18:5;36:23; 38:11;81:17;132:2;169:2; 174:16;228:3;237:15;238:1; 243:12;246:3	<b>terrible (1)</b> 126:13	<b>threw (1)</b> 196:12	<b>topic (1)</b> 119:12
<b>talked (12)</b> 24:24;66:4;82:10;104:22; 116:20;147:19;149:8,23; 163:13;169:7;180:10;195:3	<b>Tesch (1)</b> 151:14	<b>throughout (3)</b> 93:17;155:13;250:2	<b>total (11)</b> 24:13,15,17;25:7,11; 72:13;112:5;161:21,22; 194:24;198:6
<b>talking (30)</b> 13:16;21:24;25:10;53:5; 56:11,12;58:23;74:25;100:4; 102:6;110:10;111:6;157:14, 15,15,17,24;158:15,19; 166:9;167:4,7;177:22,23; 199:3,4;212:10;221:9; 239:13;245:11	<b>test (4)</b> 175:19,24;176:2,7	<b>throw (1)</b> 26:8	<b>touched (1)</b> 197:24
<b>talks (2)</b> 160:8;204:13	<b>testified (13)</b> 41:6;76:21;94:2;98:25; 120:3;193:2;197:6,9;201:22; 218:22;231:19;234:15; 252:15	<b>thus (1)</b> 25:22	<b>towards (2)</b> 43:23;196:25
<b>target (2)</b> 122:20;123:14	<b>testify (11)</b> 12:21;18:7;19:6,8,9,10; 31:21;40:7;120:10;231:13; 234:19	<b>Tim (13)</b> 26:4,19;33:21;36:4;61:10; 196:23;197:1,1;239:3,11; 258:19;260:15;261:12	<b>town (1)</b> 238:19
<b>task (2)</b> 128:5;170:8	<b>testifying (4)</b> 24:17;71:15;212:17; 230:18	<b>timing (5)</b> 179:9,21,22;224:4;254:6	<b>Trail (3)</b> 155:6;156:6;165:13
<b>tease (1)</b> 179:2	<b>testimony (35)</b> 8:25;12:14;14:12;15:2,5; 18:2,9,14;19:3;20:9;21:4,9; 22:4,8;24:13;25:14,18;27:2, 5,7,8,15,17,18;38:12;39:21, 22;40:1;55:24;122:16,17; 212:22;229:22;252:14,19	<b>title (4)</b> 41:20;77:12,13;235:10	<b>training (1)</b> 236:15
<b>Technical (9)</b> 33:13;35:11;36:9,20; 42:14;56:23;77:13;258:11; 259:22	<b>tests (1)</b> 170:4	<b>titled (1)</b> 91:9	<b>transcript (1)</b> 158:18
<b>technology (1)</b> 78:19	<b>Thanks (5)</b> 8:2;17:13;23:15;69:18; 102:10	<b>today (34)</b> 8:6,23;9:2,10,12,21;10:11; 12:14,21;13:11;19:4;20:3; 30:16;32:11,17;40:11;68:20; 69:14;85:19;103:3;105:18;	<b>transducers (1)</b> 155:2
<b>telling (2)</b> 154:14,16	<b>theirs (1)</b> 16:13		<b>transient (6)</b> 131:2,3,6,7;134:9;190:17
<b>tells (3)</b> 47:21;129:8;218:15	<b>therefore (8)</b> 93:18;107:16;186:4; 222:17;228:3;230:3;231:9; 244:25		<b>transmission (1)</b> 186:14
<b>temperature (1)</b> 201:15	<b>thing's (1)</b> 151:9		<b>transpiration (1)</b> 237:17
<b>Temporarily (1)</b> 149:17	<b>thinking (1)</b> 239:12		<b>transposed (1)</b> 106:3
<b>temporary (1)</b> 149:18	<b>third (4)</b> 33:19;140:23;209:17; 219:5		<b>Travis (3)</b> 10:21;21:22;69:18

<p>110:5 <b>Triangle (77)</b> 8:17;14:15,24;17:21,23; 18:22;19:1,8,14;20:25; 24:19;25:10,15,27;10:28;3; 64:16;85:22;90:16;98:4; 103:4,7,18,20;104:4,10,14, 18,25;105:4,24;107:7; 110:24;111:7,8,11,22; 112:11,16,23,24;113:1,14, 24;117:3;118:5;121:15,18; 123:23;124:18,24;129:23; 139:4;147:21;148:21;149:7, 10,14;157:12;158:3;165:24; 176:11,13,14,17;178:1,3; 190:18;198:24;199:5; 218:23;219:4,7,9,16,20; 220:2,5 <b>tributaries (10)</b> 8:21;20:7;21:1;27:13; 70:15;80:7,9;91:6;137:12; 154:25 <b>tributary (6)</b> 81:4;101:8;103:20;104:4; 155:2;156:8 <b>tries (1)</b> 110:1 <b>trim (2)</b> 175:7,12 <b>trivial (1)</b> 170:8 <b>trouble (1)</b> 37:14 <b>true (10)</b> 62:1;110:22;113:11; 115:25;121:4,25;157:9; 183:11;215:1;228:14 <b>truly (1)</b> 205:8 <b>try (12)</b> 8:5;128:20;138:2;143:23; 159:22;160:12;169:8;194:5; 196:5;212:1;227:7,7 <b>trying (15)</b> 14:19;17:5;49:11;51:17; 63:19;92:2;95:7;109:9,11; 117:24;135:14,18;138:17; 166:2;202:25 <b>turn (23)</b> 90:23;91:5,8;122:14; 140:21;148:25;151:6,17,18; 152:3,19;158:6;160:1;163:9; 173:14;184:10;196:15; 206:8;213:9;249:24;251:7, 24;253:3 <b>turned (1)</b> 17:5 <b>turning (4)</b> 148:18;205:20;208:14; 218:20 <b>twice (1)</b> 40:5 <b>two (64)</b></p>	<p>22:17;30:10;39:14,25; 52:6,11,23;53:15;55:2; 59:19;68:7,8,11,16;69:22; 84:21;86:5,13;92:10;94:21; 96:2;117:23,25;118:9,22; 120:8,23;121:2;122:1; 126:20;141:11,12;142:19, 21;146:13;150:22;152:16; 158:8;165:24;173:11; 177:23;184:14;186:2,5,6,9, 24;190:9,11,24;191:12; 193:3,5;201:2,4,12;209:25; 211:3;219:3,8,19,22;232:25; 236:6 <b>two-thirds (2)</b> 114:24;129:19 <b>type (7)</b> 165:18;190:14;197:2; 198:22;201:19;215:19,22 <b>types (11)</b> 82:9;163:22;164:18;165:3, 7,10;238:2;248:10,15; 249:19;253:11 <b>typical (1)</b> 50:25 <b>typically (2)</b> 51:4;62:11</p>	<p>186:13,20 <b>under (8)</b> 37:14;63:18;103:18;160:7, 15;175:18;193:11;250:13 <b>underflow (5)</b> 81:5;101:9;103:19,20; 104:4 <b>underlying (1)</b> 153:3 <b>understandably (1)</b> 90:23 <b>understood (6)</b> 25:8;30:15;60:3;91:13; 100:21;176:5 <b>unfortunately (3)</b> 125:23;143:21;195:20 <b>unimportant (1)</b> 36:19 <b>unit (4)</b> 177:2;184:23;185:9; 186:15 <b>units (4)</b> 75:7,9,12,18 <b>University (7)</b> 44:4,6;45:8;78:18,20; 235:23;236:10 <b>unjust (1)</b> 19:7 <b>unknown (1)</b> 164:4 <b>unless (4)</b> 39:1;134:14,16;243:11 <b>unquote (1)</b> 253:6 <b>up (50)</b> 13:2,5;16:22;20:5,11;21:5; 24:3;29:4;34:11;37:4;39:24, 24;51:17;53:16;62:2;64:16, 23,25;73:19;77:20;83:18; 109:8;115:23;119:12; 131:21;133:21;144:9,21; 155:18;165:24;170:20; 175:14;176:18,21;180:13; 185:21;194:4;199:3,17; 203:12;221:16,23;222:10,13, 20,23;250:8,20;261:23; 262:20 <b>upcoming (1)</b> 45:24 <b>update (6)</b> 51:11;110:13;157:23; 212:6,23;213:2 <b>updated (7)</b> 71:25;157:4;212:21;213:3, 18,25;214:12 <b>updates (1)</b> 47:4 <b>upgradient (1)</b> 186:19 <b>upon (9)</b> 17:17;30:25;60:13,16; 109:6;139:17;203:1;231:9; 232:11</p>	<p><b>upper (4)</b> 20:6;21:6;75:10;156:8 <b>upstream (7)</b> 8:21;63:6,8;137:13;147:8; 221:22;222:8 <b>use (93)</b> 13:3;18:5,11;19:9;25:6; 29:13,25;30:6,8;50:7;52:18; 64:12;82:8;84:16,20;85:4, 21,21;89:17,22,24;91:9,19; 92:25;93:1,2,6,16;94:9,11, 18,19;95:5;96:7,15,22,24; 97:2,8,9,10,11,18;98:9,17; 99:4,11;101:18;106:24; 107:15,17,19;108:12,15; 115:13,18;116:3,15;117:20; 126:21;127:4;129:2;138:19; 139:21;140:5;170:1;172:13; 174:2,2;175:11;180:25; 181:5;183:8;195:16;206:13; 209:22;210:9;211:8;214:3,8, 22;215:3,23;216:12;217:6; 222:18;223:17;229:14; 231:8;237:7,19,22;253:19 <b>used (54)</b> 20:21;47:6;49:12;51:23; 52:5,17;57:7;64:10,11; 66:13;85:2;89:6;91:16,18, 20;97:21;100:23;102:2; 105:10,12;107:22,24;108:4, 5,16;109:20,22;114:1;128:9; 131:12;132:10;135:3;136:4; 138:4;139:23;141:19; 148:10;165:21,22;174:15; 189:1;203:5;209:25;214:18; 217:18;225:8,13;236:2; 238:15;239:6;241:18;245:3; 255:15,23 <b>user (2)</b> 23:3;222:24 <b>Users (37)</b> 10:4,6;11:9;12:7;13:25; 14:13;19:3;27:10;39:22; 45:22;46:14;54:9,13,21; 57:14;58:7;62:20;69:4;73:1, 1,85;23;89:1,3;93:2;95:16; 140:11;145:14;148:24; 151:15;196:24;197:5; 221:19,21,22;222:8,9;244:10 <b>user's (2)</b> 225:20;256:8 <b>uses (2)</b> 115:12;116:4 <b>USGS (9)</b> 62:24;63:4,12;141:6; 150:1;184:18;185:8;232:19; 243:1 <b>using (23)</b> 54:12;84:17;85:6;89:8; 90:21;100:24;116:17;117:4, 4;144:11;158:16,23;174:9; 175:14;195:22;196:13; 215:24;226:2;229:17;</p>
<b>U</b>			
	<p><b>Uh-oh (1)</b> 151:7 <b>ultimate (2)</b> 28:1;185:15 <b>ultimately (3)</b> 103:15;179:23;201:14 <b>uncalibrated (3)</b> 167:3,5;203:1 <b>uncertain (1)</b> 124:5 <b>uncertainties (2)</b> 164:19;229:21 <b>Uncertainty (102)</b> 20:19;67:14,15,17,21; 82:15,18,22,24;83:2,6,7,13, 18;84:9;122:17,19,21,25; 123:3,11,13,24;124:2,4,6,14, 18,21;125:2,5,12,17,21; 126:2,3;130:3,8,20;131:4,8, 21,24;141:24;143:18; 163:11,18,21,22,23,25; 164:9,12,20,20,23;165:3,4,5, 7,8,9,10,19,23;166:3;169:8, 14;180:10,14,16,19,20,23; 181:1,3,9,17,20;203:6;212:9, 13;217:21,25;218:4,6,20,24; 219:2,14,20;220:4,9,16; 227:22,23;228:1,4;230:5; 241:2;253:8,9 <b>unconfined (18)</b> 80:16,18;119:5;132:12,17, 20;134:12;138:8,9,12;177:5, 17,25;178:11;179:4;180:5;</p>		

<p>239:19;246:15;249:3;256:15 <b>usually (1)</b> 205:19 <b>Utah (1)</b> 78:20</p>	<p>136:10,11 <b>Vegetation (1)</b> 216:5 <b>vegetative (1)</b> 250:22 <b>version (19)</b> 72:1;82:23,23;83:6;113:7; 152:7,17;156:4;163:12; 176:1,1;184:17,18,23;186:3; 213:12,13;231:2;236:1</p>	<p>223:17;253:19 <b>wastewater (1)</b> 100:11 <b>water (406)</b> 8:20;9:4,16,23;10:4,6,15, 20,22,24;11:1,9,14;12:7; 13:24,25;14:10,11,13,25; 18:5,11;19:3,9;21:23;23:3; 24:13,15,17;25:7,11;26:13, 16,23;27:11,12;29:13,20; 30:9;31:8;32:3,4,8,14,16; 33:21,25;34:15;36:3,4,6; 38:14;39:22;41:18,25;42:3, 9,12,22,23,24;43:21,22; 44:12;45:2,4,9,15,20,22,22, 22;46:4,6,7,13,14,16;47:4, 22;48:11;50:13,25;51:13; 52:13;53:1,24;54:8,20; 55:14,21;57:6,8,13,14,16; 58:1,6,7,9,11,15,15;59:1,8,9, 14,18,21;61:21;62:9,17,19, 20;63:18;66:16;68:14;72:21; 77:10,18;78:1,2,6,8;80:12, 20,23,25;81:1,3,3,10,12,22, 24;82:5;85:21,23,24;86:2; 89:1,1,2,3;90:5,18,21,22; 93:1,3,4,13;94:19;95:16; 97:14,14,14,16,17,20,21,22, 25;98:14;100:25;101:12; 102:20;103:7,8,9,10,13; 104:9,13,17,21,24;105:3,6; 106:9,20;108:5;109:15,18, 19,22,25;111:18;115:15,16, 17,20,22,22,25;116:4,5,8,15, 17,21;117:4,5,7;120:1,2,3; 121:9,21;123:20;124:5,13; 126:22;127:6,17,19,23; 129:3,19,25;139:14,21,22; 140:11,14;141:7,9;144:5,11; 145:14,15;147:20,21,22,25; 148:2,8,10,13,14,23,24; 149:9,11,13,16,20;151:15; 154:21;156:19;157:1,18,24; 158:14;159:6,6;173:16; 174:5,19;185:19,21;188:5; 190:4,5,9,15;191:16,17; 194:11,12;195:14,25;196:1, 3,10,24;197:5;198:10,16,16, 18;200:7,19;201:18;202:6,9; 205:13;206:9;208:16; 209:20;210:21,22;214:24; 215:5,10,12,17;216:22; 217:4,10,16;218:8,11,18; 221:16,18,21,22;222:7,9,10, 22,24;223:2,5,8,9,14,16,17, 19,21,24,24;224:4,6,8,9,9,21; 225:4,5,8,9,12,13,15,19,21; 226:1;229:6,17;235:8; 236:13,13;237:7,8,9,25; 239:2,7,8,14,14,15,17,20,23; 240:16,16,20;241:5,11,25; 242:8,18,23,24;243:1,13; 244:10,22;246:11,16,16,22;</p>	<p>247:19;249:8;250:8,17,25; 251:5,17;252:17;253:5,16, 18,19,21,23;254:1,1,6;255:3, 11,15,16,16,19,23,24;256:2, 7,8,14;258:19;260:12 <b>water-level (11)</b> 43:5;112:14,15;113:3,9, 13;115:1,5;156:21;157:19; 229:17 <b>watermaster (1)</b> 58:16 <b>watermaster's (3)</b> 142:18,24;232:14 <b>water-short (2)</b> 243:11,11 <b>way (28)</b> 9:9;31:1;37:16;49:12; 52:13;55:18;58:5;60:14; 96:20;114:24;117:8;125:19; 129:5;136:11;142:6;154:5; 167:20;169:25;174:19; 181:12;186:12;194:2;199:8; 202:24;210:1;229:6;230:15; 234:21 <b>ways (2)</b> 26:25;130:3 <b>weak (1)</b> 52:11 <b>weaknesses (1)</b> 52:6 <b>weather (8)</b> 215:14,19;240:19,19,20; 249:1,7,10 <b>website (2)</b> 258:3;263:4 <b>Wednesday (1)</b> 196:18 <b>week (2)</b> 30:14;201:7 <b>weekend (1)</b> 47:10 <b>wel (6)</b> 170:2,5,6,6,12,16 <b>welcome (1)</b> 12:17 <b>wells (55)</b> 55:22;78:7;111:9,11,23, 25;112:4,8;116:22;117:16, 20;118:4,10,22;120:24; 121:2;122:1;132:24;133:6; 135:19;136:14,15;137:10; 138:20,21,24,25;139:10; 148:18,19,21,25,25;154:21; 155:3,9,19,24;157:8,12,15, 17,18,19;158:3;160:9;175:2; 177:23;179:3,3;185:16,17; 186:4,17;187:2 <b>weren't (4)</b> 37:9;167:18,18;198:6 <b>west (6)</b> 133:6,25;135:1,15;137:25; 138:18 <b>Westendorf (1)</b></p>
<p style="text-align: center;"><b>V</b></p> <p><b>vacation (1)</b> 10:13 <b>vague (2)</b> 166:2;179:17 <b>valid (1)</b> 186:7 <b>Valley (75)</b> 10:10,16,19,21;11:14; 13:24;14:10,15,14;18:4,10, 14;19:23;20:5,6,11;21:5,6, 23;31:1;32:4;33:13;36:9; 39:6;42:17,20;54:9;56:7,16, 22;57:17;58:1,3,20,24;59:15, 16;61:20;67:9;68:14;80:10; 102:19;105:16;108:14,24; 123:17;124:15,19;152:7; 154:22,25;155:3;157:2,6,20; 158:14;159:5;160:9;163:6; 168:20;182:25;190:4; 191:16;192:18;194:11,23; 195:14,25;196:3,9;198:16; 246:10;259:22,24,25;262:12 <b>valleys (1)</b> 156:8 <b>value (16)</b> 58:12;60:25;64:25;65:3, 10,13,19;92:12;119:3; 120:23;123:6;141:20;181:5, 13;237:23;241:19 <b>values (29)</b> 48:3,6;50:12;52:14,16; 66:21,25;72:11;91:15;92:3, 6,7,9;118:24;120:16;164:4; 219:25;220:23;241:7,8,10; 242:11,14,15;243:4;250:7, 24;252:16;253:1 <b>vapor (1)</b> 249:8 <b>variability (2)</b> 248:8;249:6 <b>variable (2)</b> 242:2;248:2 <b>variables (11)</b> 240:13,14,16;250:25; 251:3,4,11,15,22;253:7,10 <b>variation (5)</b> 65:8,11,12;250:19;251:12 <b>varies (1)</b> 199:17 <b>variety (1)</b> 25:14 <b>various (8)</b> 24:13;25:22;36:21;77:19; 82:9;97:21;197:6;250:2 <b>vary (2)</b></p>	<p><b>versus (4)</b> 34:22;35:1;198:16;217:15 <b>vertical (2)</b> 186:1,9 <b>vertically (1)</b> 186:15 <b>vicinity (4)</b> 26:20;137:20;145:13; 186:3 <b>view (4)</b> 26:19;37:22;177:8;181:17 <b>VINCENT (18)</b> 9:24,24;40:25;41:2,4,15; 60:14;70:1,24;71:15;73:10; 74:21;76:4;89:9;120:3; 250:4;252:3,15 <b>V-i-n-c-e-n-t (1)</b> 41:16 <b>Vincent's (3)</b> 56:11;212:22;252:14 <b>visually (1)</b> 64:23 <b>voices (1)</b> 13:4 <b>volume (41)</b> 50:18;57:6,13,17;58:6,20; 59:1,8,9,18;60:24;61:4;75:1; 91:9,21;92:24;93:6,23;94:4, 20,22,23;95:5,12,13;96:7,15, 21;97:1,3,5;99:4;112:5; 130:2;136:1;140:14;214:7, 22;215:3;224:21;255:3 <b>volumes (7)</b> 46:17;58:10;72:23;91:25; 95:13;112:2;217:6 <b>voluntarily (1)</b> 107:4</p>	<p style="text-align: center;"><b>W</b></p> <p><b>wait (7)</b> 31:19;102:9;146:6;158:7; 181:25;211:6;226:25 <b>wants (9)</b> 16:7,16;18:7;19:10;24:14; 31:20,21;35:9;40:2 <b>Warm (2)</b> 155:6;156:6 <b>warm-up (1)</b> 72:9 <b>Washington (1)</b> 43:16 <b>waste (2)</b></p>	

<p>15:11 <b>wet (2)</b> 127:23;128:2 <b>wetland (1)</b> 101:19 <b>wetlands (3)</b> 81:8,15;101:19 <b>whammy (1)</b> 81:13 <b>what's (18)</b> 34:12;46:11;50:24;56:18; 63:22,23;103:13;108:9; 112:5;137:20;141:4;156:13; 183:17;227:1;236:24; 251:12;258:7;262:22 <b>whereas (3)</b> 84:16;115:18;189:17 <b>wherever (1)</b> 238:7 <b>whichever (1)</b> 169:16 <b>whisper (1)</b> 144:24 <b>whole (2)</b> 23:1;26:11 <b>who's (5)</b> 43:1;68:22;143:22; 198:20;261:23 <b>widespread (3)</b> 52:20;242:21,22 <b>willing (1)</b> 15:15 <b>Willow (14)</b> 119:8;132:4,8,18,21; 134:15;135:11;136:16,19; 138:10,12;177:16,19,22 <b>Window (1)</b> 11:14 <b>winter (2)</b> 143:15;144:2 <b>wintertime (1)</b> 143:9 <b>wish (1)</b> 210:12 <b>withdraw (2)</b> 23:3;30:25 <b>withdrawals (7)</b> 81:6,14;97:4,5,5;99:5; 100:24 <b>within (38)</b> 8:17;10:8;14:24;17:24; 18:25;27:10;57:25;59:21; 63:10;71:24;74:19;99:22; 100:1;110:1;117:11;134:15; 147:1;177:16;178:5,6; 194:23;197:7,11,23;199:5, 10;200:7,16,21,21;219:3,16; 220:1,5;221:3;231:24; 238:24;249:4 <b>without (7)</b> 32:16;143:17;193:21; 197:5;223:17;245:15;253:19 <b>witness (27)</b></p>	<p>9:1,2;13:7;18:6,14;19:9; 28:17;38:21,24;40:4,22; 41:5;42:7;53:23;76:9,14,20, 25;88:18;146:1;163:4; 187:21;211:8;227:8;233:21; 234:14,20 <b>witnesses (11)</b> 9:1;12:15,20;18:5,9;19:15; 21:10;39:3;40:5,7;226:21 <b>wondered (1)</b> 74:8 <b>wondering (5)</b> 23:14;190:8,23;197:1; 214:14 <b>Wood (118)</b> 10:2,3,4,6,6;11:9,9;12:6,7, 7;14:25;23:3;33:4,13;36:9, 25;42:17,20;44:13;45:8; 47:17;53:1;54:8,11,20;55:8; 56:7,16,22;57:17,25;58:3,20, 23;59:15,15;60:15;62:19,20; 63:3;64:8;66:17;67:9;69:12; 70:13;71:16;79:4;80:5,10; 84:6;89:2,3;91:3;103:10,13, 15,17;104:12,13,24;105:16; 108:14,23;116:22;117:1,5; 123:15;132:21;134:15; 135:12;138:10,13;141:8; 145:8;147:4;151:19,21; 152:7;154:21;157:2,6;160:9, 18;166:14;167:1;173:16; 174:6,20;175:9;177:20; 184:12;189:8,16,18;200:20; 221:10;236:22;239:2;240:1; 243:7,9;244:9,10;245:12; 246:17,21;252:16,18,22,23, 25;258:1;259:1,13,22,23,24, 25 <b>Wood/Little (3)</b> 23:2;89:2,3 <b>Wood/Silver (3)</b> 57:15;58:7;93:21 <b>word (4)</b> 64:12;105:10;106:24; 150:14 <b>worded (1)</b> 154:4 <b>wording (3)</b> 17:18;113:25;114:11 <b>words (4)</b> 50:17;96:12;124:16; 229:10 <b>work (19)</b> 42:4;43:20;46:12;54:16; 77:16,17;153:1,18,24; 156:11,18;169:5;170:22; 228:13;231:1;235:15;236:5; 257:13,19 <b>worked (14)</b> 38:9;43:6,13,14;59:25; 77:21;228:15;230:12; 235:17,22,25;236:3,6;257:16 <b>working (4)</b></p>	<p>17:4;43:9;85:5;143:22 <b>works (1)</b> 65:17 <b>worry (1)</b> 151:3 <b>worse (5)</b> 47:22;48:14;61:11;85:15; 244:23 <b>worst (3)</b> 48:11;50:21;61:7 <b>worth (4)</b> 22:5;155:21;194:22;211:9 <b>wrap (1)</b> 39:3 <b>written (1)</b> 184:20 <b>wrong (6)</b> 63:22;92:23,25;160:13; 197:10;201:21 <b>wrote (4)</b> 47:3;51:13;114:9;122:8 <b>WRV (1)</b> 152:25 <b>Wylie (12)</b> 67:14;82:22;84:8;114:15, 23,25;125:16;131:12; 163:12;164:9;184:22;218:22 <b>Wylie's (2)</b> 212:9;220:8</p>	<p>5;249:12,15 <b>years' (1)</b> 155:21 <b>yellow (2)</b> 133:23;151:4 <b>Yellowstone (1)</b> 12:6 <b>Yep (1)</b> 260:20 <b>yesterday (1)</b> 47:13 <b>yield (2)</b> 194:23;195:9</p>
<b>Z</b>			
<p><b>zero (1)</b> 139:1 <b>zone (1)</b> 43:19 <b>Zoom (3)</b> 12:11,11,17</p>			
<b>0</b>			
<p><b>0.18 (1)</b> 161:5 <b>0118 (1)</b> 209:20 <b>0239 (1)</b> 206:18 <b>0318 (1)</b> 208:17 <b>054 (1)</b> 122:19</p>			
<b>1</b>			
<p><b>1 (48)</b> 44:20;46:2,19;47:1,2;50:3; 54:2,3,4,6;85:6;89:21;90:5; 91:24,24,24,24,25;95:6,11, 12,14;119:25;128:11,12,12, 12,22;129:2,4,9;130:1,3; 136:23;139:2;140:2;166:6; 167:1;175:18;178:5,8; 184:17;187:13;198:4,12; 220:20;259:12;260:17 <b>1.0 (5)</b> 65:14,15;166:15;250:8,15 <b>1.1 (19)</b> 55:24;56:9,15;67:9,16; 72:1;82:23;110:13,14,19; 113:7,12,18;114:16;152:7, 17;156:4;163:12;184:23 <b>10 (26)</b> 48:4;50:11;63:5,15,16,20, 22;64:4;77:23;140:25;141:9; 142:12,15;164:24;187:15; 201:1;202:18;203:4,7; 221:10;222:7,16;231:18,23; 232:14;253:3 <b>100 (1)</b></p>			
<b>Y</b>			
<p><b>year (86)</b> 28:4;46:4,6,6;47:24;48:13; 50:13;51:19,22;52:9;53:24; 55:14;57:7;60:17,18,21; 61:7;66:16;80:20;81:10,16; 85:2,3,7,10,16;89:8,15,16; 90:11,12;91:18;93:24;98:24; 99:10,16,19;105:25;106:9; 107:2;115:14,14;126:22; 127:4,4,5,14,16,17,19;128:8, 9;141:17;151:15;161:5,24; 188:9;213:5;214:18;215:24; 229:23,23;230:6,10,19; 231:7;235:19;240:9,11,23; 241:5;242:8,18;244:19,19, 22;246:16;250:3,16;251:18; 252:2,3,6,6,9,10 <b>years (78)</b> 43:8,14;46:5,10,12,16,16; 48:8,12,14;50:22,23,23;51:2, 4,15;52:16;58:15,23;61:8, 11;62:6;65:5,6,7;66:20,25; 67:4;72:10;75:11;77:23,23; 78:3,12;85:7;89:6,18,23; 90:5;98:12,21;101:25;102:1, 2,3,6;114:18;115:15,16; 127:23;128:2,4,4;155:23; 161:15,16,19,21;162:2; 213:2;214:15,17;215:3,17, 21;216:15;217:2,5,10,15; 236:7;237:8,8;239:22;240:4,</p>			

<p>194:5 <b>10-and-a-half (1)</b> 147:15 <b>10B (1)</b> 237:6 <b>11 (5)</b> 44:25;77:23;166:22,22,22 <b>12 (4)</b> 101:25;102:1,2,6 <b>13 (2)</b> 151:6,13 <b>14 (31)</b> 79:20;91:8,20;92:1,1,8,9, 12,18,19,22;93:5;95:13,23; 152:3,4;158:10,15;159:7,22, 24;213:10,11,18,21,25; 214:11,16,21;215:4;217:7 <b>14.0 (1)</b> 147:16 <b>15 (12)</b> 43:14;122:14;145:4,17; 158:6;160:2,6;162:11;163:7, 8;166:22;219:24 <b>15.8 (1)</b> 147:16 <b>15-and-a-half (1)</b> 124:1 <b>16 (11)</b> 43:8;91:7;126:8;163:10, 16;167:23;168:20,21,23; 204:12;213:10 <b>1607 (1)</b> 263:4 <b>17 (4)</b> 101:23;139:3;188:13; 189:6 <b>17th (3)</b> 33:22;212:7;260:16 <b>18 (7)</b> 190:4;191:17;192:22,23, 25;200:1,1 <b>1917 (2)</b> 61:10;66:23 <b>1977 (1)</b> 185:7 <b>1978 (1)</b> 150:11 <b>1991 (10)</b> 48:13;71:12;75:10;115:3, 5,7,18;116:1;160:15;161:12 <b>1992 (1)</b> 89:22 <b>1994 (15)</b> 50:12,16,19;51:21,23; 60:19,22,22,25;61:3,7,11; 72:16,22;89:22 <b>1995 (11)</b> 72:7,15;89:21;110:14,25; 118:1,5;127:3,11,20,24 <b>1997 (2)</b> 128:1;150:11 <b>1998 (1)</b> 128:2</p>	<p><b>1st (5)</b> 129:20;176:22;178:13; 200:22;220:14  <b>2</b>  <b>2 (23)</b> 57:3;79:7;87:20;88:14,16; 101:23;114:22;161:24; 196:24;197:5;204:4;209:19; 210:16,19,25;220:20; 249:25;250:24;251:2;258:9; 259:19;260:1,17 <b>2.2 (2)</b> 83:6;130:20 <b>20 (14)</b> 65:6;111:4;119:21,23; 128:6;133:3;140:25;141:16; 142:2,7,9;221:12,25;222:7 <b>2000 (2)</b> 106:2;110:25 <b>2001 (1)</b> 89:24 <b>2002 (28)</b> 85:2,2,4,7,16,22;86:3; 89:9;91:18,18;92:12;93:14; 102:4;106:5,17;107:2,7,12, 18;108:3;128:7;214:17,23; 215:4,24,25;216:18;217:18 <b>2004 (1)</b> 89:10 <b>2007 (4)</b> 89:8,24;126:9,23 <b>2010 (6)</b> 110:11,17,19;113:5;150:1; 167:8 <b>2011 (8)</b> 113:8;128:2;240:8,9; 241:5,11;242:9,19 <b>2012 (10)</b> 98:18;118:11;126:9,24; 157:10;214:16,22;216:3,7,18 <b>2013 (11)</b> 240:8,10;242:18,19;243:4; 244:21;246:15;251:19; 252:2,5,9 <b>2014 (25)</b> 72:2,6;98:18;102:5; 110:11,15,20,25;113:8; 118:2;126:11,15;127:3,11, 21;151:1;155:18;157:8,10; 167:9;214:16,23;216:3,19; 231:4 <b>2016 (8)</b> 98:14,16;184:19;240:8,11; 242:7,9,19 <b>2017 (4)</b> 127:17,22,25;184:6 <b>2019 (12)</b> 71:25;89:7;91:10;92:10; 93:7;98:16;114:9;126:14,18; 161:14,15,18 <b>2020 (8)</b></p>	<p>75:11;99:5,19;105:25; 106:1,5;142:5,5 <b>2021 (62)</b> 21:14;27:24;44:25;45:25; 46:8;50:18;53:24;58:25; 61:2;62:15;66:16;71:12; 89:8;90:4;91:7,16;95:4;96:7; 97:2,4;99:2;101:23;105:24; 107:8,12;128:7;173:16; 174:7;188:16;194:18; 196:19;217:2,16;223:16,20, 25;224:6,16,20,24;225:7,11, 18,24;252:3;253:18,22; 254:2,8,14,20,22;255:2,6,10, 14,18,22;256:1,5,12;260:16 <b>20s (1)</b> 66:22 <b>21 (5)</b> 91:16;146:24;166:22,22; 224:20 <b>21st (4)</b> 262:12;263:2,3,4 <b>22 (22)</b> 83:22;94:7,17;122:20; 125:13;129:24,24;131:13; 16;132:5;166:19;167:1; 181:7;214:22;218:24; 219:21,23;220:8,17,24; 221:3,5 <b>22,611 (2)</b> 95:5;96:9 <b>22-and-a-half (1)</b> 124:2 <b>23 (2)</b> 132:5;139:12 <b>23,000 (2)</b> 139:14;140:2 <b>24 (2)</b> 173:16;196:18 <b>25 (3)</b> 166:19;167:1;187:17 <b>26 (3)</b> 140:21;152:19;166:19 <b>28 (3)</b> 142:8;161:18;162:2 <b>29 (2)</b> 144:19;145:1  <b>3</b>  <b>3 (14)</b> 54:6;58:22;142:8;160:7; 196:16;236:25;237:1; 243:18,24;244:1;251:7,25; 252:1;253:1 <b>30 (24)</b> 48:4,12,14;50:11,22,23,23; 51:2,4;52:16;60:22;61:8,9; 62:6;65:6;67:4;75:11; 119:22,23;133:4;141:9; 161:16;162:2;221:16 <b>30-ish (1)</b> 222:11</p>	<p><b>30s (1)</b> 66:22 <b>30th (5)</b> 95:12;119:25;178:8; 198:4;200:23 <b>30-year (3)</b> 67:1;71:11;161:11 <b>31,500 (1)</b> 95:2 <b>31st (1)</b> 95:14 <b>32 (1)</b> 143:19 <b>35 (1)</b> 171:11 <b>36 (9)</b> 142:9;171:12,13;172:15, 17;182:2;183:24;194:11,12 <b>37 (21)</b> 17:24;32:8;46:1;58:16; 63:18;91:17;96:8;97:2;99:2; 140:25;141:8,9,17;142:2,7; 145:16;221:12;222:14,19,20, 24 <b>37-07038 (1)</b> 209:20 <b>37-08271 (1)</b> 206:9 <b>37-08331 (1)</b> 208:16 <b>37-2557D (1)</b> 190:10 <b>37-2557T (1)</b> 190:10 <b>37's (1)</b> 201:18  <b>4</b>  <b>4 (14)</b> 57:4,10;90:4;117:19; 206:8,14,22,24,25;207:2,3; 208:10,11;250:15 <b>40,000 (2)</b> 92:20;95:3 <b>402 (1)</b> 35:21 <b>42-237ag (1)</b> 8:15 <b>44,000 (1)</b> 50:19 <b>45 (13)</b> 95:4;108:14,14,24;121:12, 17,20,23,24;122:6;148:2; 150:25;155:19 <b>45,000 (3)</b> 92:13;95:1,1 <b>4th (1)</b> 188:16  <b>5</b>  <b>5 (23)</b></p>
---	--	---	--



<p>47:15;48:17;49:5;50:2; 51:9;60:16;67:1;74:7,25; 79:14;83:21;89:12,12; 184:10;214:14,14,17; 253:13;258:9;259:19;260:1, 11,18 <b>5:00 (1)</b> 257:12 <b>5:03 (1)</b> 263:10 <b>50 (12)</b> 48:4,10;50:7,15,17;51:21; 60:20;61:2;85:8;89:19;90:2; 109:4 <b>51 (1)</b> 167:3 <b>54 (4)</b> 63:6;122:21,25;123:5 <b>5-foot (1)</b> 162:1 <b>5th (3)</b> 194:18;195:9,11</p>	<p>131:14 <b>9,000 (1)</b> 95:8 <b>9:00 (1)</b> 261:4 <b>90 (2)</b> 48:4;109:4 <b>91 (1)</b> 228:21 <b>93 (1)</b> 144:19 <b>95 (8)</b> 118:11;123:2,4;145:13; 160:25;181:12;220:25;221:2 <b>97 (1)</b> 128:1 <b>98 (3)</b> 194:24;195:9,12 <b>99 (8)</b> 87:10;126:11,15;136:1; 193:10,15,24;195:8</p>		
<b>6</b>			
<p><b>6 (14)</b> 32:19;65:19;166:5;170:1; 208:16,24;209:1,2,13,14; 250:15;258:17;260:11,17 <b>60 (4)</b> 136:11;150:9,19,22 <b>602 (1)</b> 30:11 <b>64 (1)</b> 119:3 <b>68 (1)</b> 115:1</p>			
<b>7</b>			
<p><b>7 (3)</b> 145:3,16;249:24 <b>70 (6)</b> 48:4;94:10,23,25;95:1; 136:12</p>			
<b>8</b>			
<p><b>8 (5)</b> 65:5,10;120:4;251:8,25 <b>8,000 (1)</b> 95:8 <b>8:30 (3)</b> 261:5,6;263:9 <b>80 (2)</b> 65:11;129:25 <b>85 (2)</b> 107:22,24</p>			
<b>9</b>			
<p><b>9 (5)</b> 83:19;118:23,24;130:21;</p>			