

<p style="text-align: right;">175</p> <p>1 SOAH DOCKET NO. 582-22-0585</p> <p>2 TCEQ DOCKET NO. 2021-1001-MWD</p> <p>3 APPLICATION OF) BEFORE THE STATE OFFICE</p> <p>4 CITY OF GRANBURY, FOR)</p> <p>5 TPDES PERMIT NO.) OF</p> <p>6 WQ0015821001) ADMINISTRATIVE HEARINGS</p> <p>7</p> <p>8</p> <p>9 HEARING ON THE MERITS</p> <p>10 Tuesday, March 8, 2022</p> <p>11 (Via Zoom Videoconference)</p> <p>12</p> <p>13</p> <p>14</p> <p>15 BE IT REMEMBERED THAT at 9:00 a.m., on Tuesday,</p> <p>16 the 8th day of March 2022, the above-entitled matter</p> <p>17 came on for hearing at the State Office of</p> <p>18 Administrative Hearings, William P. Clements, Jr.</p> <p>19 Building, 300 West 15th Street, Austin, Texas, before</p> <p>20 PRATIBHA J. SHENOY and SARAH STARNES, Administrative Law</p> <p>21 Judges, and the following proceedings were reported</p> <p>22 remotely by Mary Carol Griffin, Janis Simon, and Kim</p> <p>23 Pence, Certified Shorthand Reporters.</p> <p>24</p> <p>25 Volume 2 Pages 175 - 429</p>	<p style="text-align: right;">177</p> <p>1 yesterday as Rist and Bennett Exhibit 1, we're going to</p> <p>2 rename the Direct Testimony Rist and Bennett Exhibit 0</p> <p>3 because the two exhibits to that testimony were 1 and 2,</p> <p>4 and so we're going to have hers be 0, 1 and 2, just so</p> <p>5 there's no confusion about having two Exhibit 1s in the</p> <p>6 record. The court reporter will note that in our final</p> <p>7 transcript and exhibit certification.</p> <p>8 Okay. Anything else before we get</p> <p>9 underway with our first witness?</p> <p>10 (No response)</p> <p>11 JUDGE STARNES: No? Okay. Then,</p> <p>12 Mr. Hill, do you want to present Mr. Crownover? Is he</p> <p>13 up first?</p> <p>14 MR. HILL: I do. Thank you, Judge.</p> <p>15 I call Rick Crownover.</p> <p>16 JUDGE STARNES: Okay. Mr. Crownover,</p> <p>17 where is he in my boxes?</p> <p>18 MR. HILL: COG Witness.</p> <p>19 JUDGE STARNES: There we go.</p> <p>20 Mr. Crownover, will you raise your right</p> <p>21 hand for me?</p> <p>22 (Witness sworn)</p> <p>23 THE WITNESS: I do.</p> <p>24 JUDGE STARNES: Okay. Go ahead, Mr. Hill.</p> <p>25 Your witness.</p>
<p style="text-align: right;">176</p> <p>1 P R O C E E D I N G S</p> <p>2 TUESDAY, MARCH 8, 2022</p> <p>3 (9:00 a.m.)</p> <p>4 JUDGE STARNES: Okay. Let's go ahead and</p> <p>5 go on the record.</p> <p>6 I'll call us to order. This is SOAH</p> <p>7 Docket No. 582-22-0585, TCEQ Docket No. 2021-1001-MWD in</p> <p>8 the application -- In the Matter of the Application by</p> <p>9 the City of Granbury for TPDES Permit No. WQ0015821001.</p> <p>10 It just rolls right off the tongue.</p> <p>11 It is Tuesday, March 8th, 2022, and this</p> <p>12 is day two of our Hearing on the Merits.</p> <p>13 Rather than taking individual appearances,</p> <p>14 I'll just note that we have all the same counsel present</p> <p>15 who attended yesterday.</p> <p>16 Yesterday we wrapped up with the</p> <p>17 Protestants and the Executive Director's case. And</p> <p>18 today, we are moving on to the Applicant's</p> <p>19 case-in-chief.</p> <p>20 Oh, one little administrative detail I</p> <p>21 wanted to touch base on before we start with witnesses.</p> <p>22 The court reporter pointed out that there</p> <p>23 was a little inconsistency in how we had numbered</p> <p>24 exhibits. So just so the record is clear, the Direct</p> <p>25 Testimony of Stacy Rist, which I think we admitted</p>	<p style="text-align: right;">178</p> <p>1 MR. HILL: Thank you, Judge.</p> <p>2 PRESENTATION ON BEHALF OF APPLICANT</p> <p>3 RICK CROWNOVER,</p> <p>4 having been first duly sworn, testified as follows:</p> <p>5 DIRECT EXAMINATION</p> <p>6 BY MR. HILL:</p> <p>7 Q Good morning, Mr. Crownover.</p> <p>8 A Good morning.</p> <p>9 Q You should have in front of you COG Exhibit</p> <p>10 100, which is your prefiled testimony.</p> <p>11 Do you have that in front of you?</p> <p>12 A Yes, I do.</p> <p>13 Q And along with it is COG Exhibit 101, 102, 103,</p> <p>14 104, 105, 106, 107, and 108.</p> <p>15 Do you find all of those exhibits?</p> <p>16 A Yes.</p> <p>17 Q Okay. Mr. Crownover, do you adopt this</p> <p>18 testimony in COG-100, along with all the exhibits that</p> <p>19 are attached behind it, as your own testimony as if you</p> <p>20 were on the stand live in front of the administrative</p> <p>21 law judges today?</p> <p>22 A Yes, I do.</p> <p>23 MR. HILL: Okay. Judge, I ask that COG</p> <p>24 Exhibit 100, 101, 102, 103, 104, 105, 106, 107, and 108</p> <p>25 be admitted into the record.</p>

179	<p>1 (Exhibit COG Nos. 101 through 108 offered)</p> <p>2 JUDGE STARNES: And there were no</p> <p>3 objections to the prefiled testimony made to</p> <p>4 Mr. Crownover's testimony.</p> <p>5 Does anybody have an objection they want</p> <p>6 to state for the record today?</p> <p>7 (No response)</p> <p>8 JUDGE STARNES: Hearing no objections,</p> <p>9 Exhibits 100 through of 108 are all admitted.</p> <p>10 (Exhibit COG Nos. 101 through 108</p> <p>11 admitted)</p> <p>12 MR. HILL: Thank you, Judge.</p> <p>13 I pass the witness.</p> <p>14 JUDGE STARNES: Okay. Who is taking him</p> <p>15 for the Executive Director? Will that be you Mr. Tatu</p> <p>16 or Ms. Isturiz?</p> <p>17 MR. TATU: Yes, that will be me.</p> <p>18 JUDGE STARNES: Okay. Go ahead.</p> <p>19 MR. TATU: I have no questions, Your</p> <p>20 Honor.</p> <p>21 JUDGE STARNES: Okay. Sorry. Getting</p> <p>22 caught up in my notes.</p> <p>23 For OPIC, Mr. Arthur?</p> <p>24 MR. ARTHUR: Good morning, Judge. I have</p> <p>25 no questions.</p>	181	<p>1 Q So the City did no other evaluation, other than</p> <p>2 those that the design engineer performed?</p> <p>3 A Not that I'm aware of.</p> <p>4 Q And who is that design engineer? Is it a</p> <p>5 particular person you're thinking of.</p> <p>6 A It is Josh Berryhill with eHT.</p> <p>7 Q Okay. Now, I'm going to ask you to look at</p> <p>8 Exhibit 101 accompanying your testimony. Let me see if</p> <p>9 I can find that.</p> <p>10 Do you have that in front of you now?</p> <p>11 A Yes.</p> <p>12 Q And let me turn up to the first page.</p> <p>13 So is this a presentation that was given?</p> <p>14 A Yes.</p> <p>15 Q By Enprotec/Hibbs and Todd?</p> <p>16 A Yes.</p> <p>17 Q Now, I want to -- and this was beginning on</p> <p>18 behalf of the City, if I understand correctly?</p> <p>19 A Yes.</p> <p>20 Q Now, we'll look at Page 17. Now, do you see</p> <p>21 the bullet labeled "odor control"?</p> <p>22 A Yes, I do.</p> <p>23 Q And do you see: Systems designed to capture</p> <p>24 foul odor and odor causing processes/structures?</p> <p>25 A Yes.</p>
180	<p>1 I pass the witness.</p> <p>2 JUDGE STARNES: Okay. Who in our</p> <p>3 Protestants is going first? Will that be Granbury Fresh</p> <p>4 or the Rist Bennett's?</p> <p>5 MR. BOOTH: Eric, do you want to go first</p> <p>6 or --</p> <p>7 MR. ALLMON: Sure. I can go first. I</p> <p>8 don't know that for this witness it much matters.</p> <p>9 CROSS-EXAMINATION</p> <p>10 BY MR. ALLMON:</p> <p>11 Q Good morning, Mr. Crownover. How are you?</p> <p>12 A Good morning. I'm fine. Thank you.</p> <p>13 Q As you known I'm Eric Allmon. I represent</p> <p>14 certain Protestants in this matter, Granbury Fresh and</p> <p>15 Dr. Victor Calder.</p> <p>16 A Yes.</p> <p>17 Q Are you a licensed engineer?</p> <p>18 A No, I am not.</p> <p>19 Q Do you have an engineering degree?</p> <p>20 A No.</p> <p>21 Q Now, what site evaluation did the City perform</p> <p>22 to ensure that a wastewater treatment plant on this</p> <p>23 property could meet the applicable buffer zones?</p> <p>24 A I would like to defer to our expert witnesses,</p> <p>25 the design engineer.</p>	182	<p>1 Q And are items under that heading listed as</p> <p>2 headworks and EQ storage?</p> <p>3 A Yes.</p> <p>4 Q What is meant by the term "EQ storage"?</p> <p>5 A EQ storage in this context is a temporary EQ</p> <p>6 basin.</p> <p>7 Q So what was the City's basis at this time for</p> <p>8 stating that the EQ storage could potentially cause foul</p> <p>9 odor?</p> <p>10 A This is effluent coming from the collection</p> <p>11 system passing through the treatment process to this</p> <p>12 equalization basin.</p> <p>13 Q Does it pass through the treatment process</p> <p>14 prior to reaching the equalization basin?</p> <p>15 A It goes through the bar screens and the fine</p> <p>16 screens and then it comes to the temporary EQ basin.</p> <p>17 Q Is there any other treatment that it goes</p> <p>18 through, other than the bar screens and the fine</p> <p>19 screens?</p> <p>20 A The grit removal. After it comes through the</p> <p>21 EQ basin, then it makes its way to the bionutrient</p> <p>22 removal and begins the treatment process.</p> <p>23 Q And that's after the equalization basin.</p> <p>24 A Yes.</p> <p>25 Q Okay. Do you know whether that wastewater</p>

<p style="text-align: right;">183</p> <p>1 coming in from the collection system is anaerobic?</p> <p>2 A Yes.</p> <p>3 Q Yes, you know, or, yes, it is?</p> <p>4 A Yes, it is.</p> <p>5 Q Okay. Now, I'd like to look -- let me stop</p> <p>6 that share for a second. I'd like to look at Exhibit</p> <p>7 103 accompanying your testimony.</p> <p>8 Do you have that before you now?</p> <p>9 A I do.</p> <p>10 Q And can you please identify what this is?</p> <p>11 A This is the plat of the approximate 10-acre</p> <p>12 site.</p> <p>13 Q Okay. And let me zoom here to help us read</p> <p>14 some items.</p> <p>15 Do you see an area labeled approximately</p> <p>16 zone -- "Approximate Zone A"?</p> <p>17 A Yes.</p> <p>18 Q And does that have -- does this general area of</p> <p>19 this document also have a label titled APPROX. Am I to</p> <p>20 understand that to mean "approximate"?</p> <p>21 A Yes.</p> <p>22 Q And then it says: Flood zone line by scaling?</p> <p>23 A Yes.</p> <p>24 Q Do you see that?</p> <p>25 What was this -- and that's a crosshatched</p>	<p style="text-align: right;">185</p> <p style="text-align: center;">CROSS-EXAMINATION</p> <p>1</p> <p>2 BY MR. BOOTH:</p> <p>3 Q Mr. Crownover, Mike Booth, I represent the</p> <p>4 Rists and the RV Ranch.</p> <p>5 What was the -- what is your educational</p> <p>6 background?</p> <p>7 A My highest degree is a master of public</p> <p>8 administration degree.</p> <p>9 Q Okay. Let's talk a little bit about the</p> <p>10 alternatives.</p> <p>11 What alternatives did you look at prior to</p> <p>12 selecting this site that we've been talking about?</p> <p>13 A We looked at several alternatives, different</p> <p>14 sites around the city, including one in the north part</p> <p>15 of town. We included -- looked at upgrading the current</p> <p>16 plant various collection improvements. I think there</p> <p>17 was a total of six alternatives we looked at.</p> <p>18 Q Okay. Was one of them the Keith Road location?</p> <p>19 A Yes.</p> <p>20 Q Are you familiar with that?</p> <p>21 A Yes.</p> <p>22 Q Okay. Was one of the alternatives that you</p> <p>23 looked at that location?</p> <p>24 A Yes.</p> <p>25 Q Okay. And how about the one that I've heard</p>
<p style="text-align: right;">184</p> <p>1 area on this figure, as I understand it?</p> <p>2 A Yes.</p> <p>3 Q What does that represent?</p> <p>4 A It's my understanding that's the 100-year flood</p> <p>5 zone.</p> <p>6 Q Okay. Are there wastewater treatment plant</p> <p>7 units that are proposed to be located within that area</p> <p>8 of the property?</p> <p>9 A No.</p> <p>10 Q Well, let's take a look at the -- what is your</p> <p>11 basis for that answer?</p> <p>12 A The exhibits for the plant outline.</p> <p>13 Q I'd like you to look with me: Are there</p> <p>14 roadways within the facility that are to be located in</p> <p>15 that area?</p> <p>16 A Yes, there is a roadway that goes in the</p> <p>17 west -- around the west property line.</p> <p>18 Q Is the equalization basin at the facility</p> <p>19 proposed to be located in that area?</p> <p>20 A No. It is on the other side. Right there in</p> <p>21 the bottom-right corner.</p> <p>22 MR. ALLMON: Okay. All right. That is</p> <p>23 all of my questions for this witness.</p> <p>24 I pass the witness.</p> <p>25 JUDGE STARNES: Okay. Mr. Booth.</p>	<p style="text-align: right;">186</p> <p>1 about next to the police station?</p> <p>2 A Yes, that is accurate.</p> <p>3 Q Okay. Let me share my screen. Wish me luck.</p> <p>4 This is from -- I guess it's minutes of</p> <p>5 May 23, 2017 -- and you were briefing the council.</p> <p>6 Now, what particular property were you</p> <p>7 looking at here in that area that's scribbled in yellow,</p> <p>8 if you can recall? Expand the footprint of the current</p> <p>9 plant, engineering a new plant, and then it said a new</p> <p>10 plant north of town, I guess, it's the -- what y'all</p> <p>11 were thinking about?</p> <p>12 A I was referring to the property off of the loop</p> <p>13 as you mentioned behind the police department.</p> <p>14 Q Okay. And I guess that didn't pan out.</p> <p>15 Let's look at this here. This is, I</p> <p>16 guess, it's part of your disclosures. What does this</p> <p>17 represent Site B appears to be the Rist -- or the</p> <p>18 property that you have right now. Is that correct?</p> <p>19 A Yes.</p> <p>20 Q And then we've got a little site down here</p> <p>21 called Site A, which is down the road?</p> <p>22 A Yes.</p> <p>23 Q And I'm going to show you the cost information.</p> <p>24 Are you familiar with this? This, again, comes from</p> <p>25 your discovery.</p>

<p style="text-align: right;">187</p> <p>1 A Yes, I'm --</p> <p>2 Q Okay. And is the Site A and Site B the</p> <p>3 properties that we were looking at in the picture?</p> <p>4 A Yes.</p> <p>5 Q Okay. So that's pretty close in cost to --</p> <p>6 well, 300,000. Now, I believe -- well, let me back up</p> <p>7 now.</p> <p>8 When you negotiated the property</p> <p>9 acquisition for the plant Site B, did you give the</p> <p>10 landowner a concession in building some infrastructure</p> <p>11 to serve the other property that he owned or the</p> <p>12 landowner owned?</p> <p>13 A Mr. Booth, I was not involved in the</p> <p>14 negotiations, nor the land acquisition purchase.</p> <p>15 Q Okay. So you don't know what this little</p> <p>16 footnote means here?</p> <p>17 A No, sir, I do not.</p> <p>18 Q Okay. Who would know?</p> <p>19 A The city manager negotiated that.</p> <p>20 Q Oh, the city manager?</p> <p>21 A Uh-huh.</p> <p>22 Q But in developing these cost estimates, who did</p> <p>23 those?</p> <p>24 A Our consulting engineers.</p> <p>25 Q Enprotec or whatever they are?</p>	<p style="text-align: right;">189</p> <p>1 A I'm not aware of that.</p> <p>2 Q Okay. When do you think the -- let me back up.</p> <p>3 What do you call the existing plant at the</p> <p>4 City, the south plant?</p> <p>5 A Yes, the south wastewater treatment plant.</p> <p>6 Q When do you expect that to come online with the</p> <p>7 improvements?</p> <p>8 A I hope this fall, around November 1st.</p> <p>9 Q And would that expand the capacity?</p> <p>10 A No.</p> <p>11 Q So you're putting in a new MBR plant there?</p> <p>12 A Yes.</p> <p>13 Q And you're not increasing the capacity?</p> <p>14 A No. It will stay at 2 mgd.</p> <p>15 Q Okay. Mr. Crownover, I noted a couple of times</p> <p>16 in some of the discovery that you were -- made a big</p> <p>17 deal about this meeting that you had in I believe it was</p> <p>18 in November of 2019 where no one showed up for. Do you</p> <p>19 remember that meeting? Or I think maybe one or two</p> <p>20 people showed up for it.</p> <p>21 A Yes.</p> <p>22 Q And you realize that you had already filed a</p> <p>23 permit application with the City -- I mean at the TCEQ.</p> <p>24 Correct?</p> <p>25 A Yes.</p>
<p style="text-align: right;">188</p> <p>1 A Yes.</p> <p>2 Q The ones -- okay. And that's fine. I'll ask</p> <p>3 them that question.</p> <p>4 Do you know -- can you just describe as</p> <p>5 you're standing on the property line like we were at the</p> <p>6 entrance to your property what it looks like as far as</p> <p>7 elevations and such?</p> <p>8 A If I'm standing at the gate looking towards the</p> <p>9 site?</p> <p>10 Q Yes, sir.</p> <p>11 A It is open, grassy, shrubs. It is a sloping</p> <p>12 property, sloping towards a creek on the north side.</p> <p>13 Q It slopes pretty significantly, doesn't it?</p> <p>14 A Well, it slopes some, yes.</p> <p>15 Q And I presume that the engineers -- and I'll</p> <p>16 ask them this -- included a good amount of money for</p> <p>17 site work?</p> <p>18 A Yes, some. Uh-huh.</p> <p>19 Q Okay. Now, do you know whether the City</p> <p>20 intends to change the floodplain when they do the</p> <p>21 construction?</p> <p>22 A I do not believe that is their intent, no.</p> <p>23 Q So you're aware that the person that owned the</p> <p>24 property that you purchased from had an application in</p> <p>25 with you to change to the floodplain map?</p>	<p style="text-align: right;">190</p> <p>1 Q Now, you were relying -- I believe you told</p> <p>2 Mr. Allmon -- that you were relying upon eHT to do the</p> <p>3 TPDES permit at the Commission. Is that correct?</p> <p>4 A Yes.</p> <p>5 Q Do you recall whether they told you that maybe</p> <p>6 we should do water quality modeling before we filed our</p> <p>7 application?</p> <p>8 A I do not recall that.</p> <p>9 Q Okay. Do you know anything about the golden</p> <p>10 algae problems on Lake Granbury?</p> <p>11 A I do not.</p> <p>12 Q And to be clear, the City's calling this</p> <p>13 proposed plant the east plant?</p> <p>14 A Yes.</p> <p>15 Q Okay. So that's different than the fourth</p> <p>16 plant that you (Zoom audio distortion). Is that</p> <p>17 correct?</p> <p>18 A Yes.</p> <p>19 MR. BOOTH: Okay. And -- well, I don't</p> <p>20 have any more questions.</p> <p>21 JUDGE STARNES: Okay. Thank you, sir.</p> <p>22 THE WITNESS: Thank you.</p> <p>23 JUDGE STARNES: Mr. Hill, any redirect?</p> <p>24 MR. HILL: I do have some redirect, Judge.</p> <p>25</p>

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1 REDIRECT EXAMINATION

2 BY MR. HILL:

3 Q Mr. Crownover, you were on in your (Zoom audio

4 distortion) hearing about whether or not the wastewater

5 collection system is anaerobic when it comes into the

6 system.

7 Is it your understanding that, in fact,

8 that effluent does contain some oxygen?

9 A Yes, it does.

10 Q Okay. And do you understand -- or I'm sorry.

11 Do you have an understanding of the

12 definition of anaerobic or is that something that you

13 rely on eHT to provide you?

14 A I am relying on (Zoom audio distortion) oxygen.

15 THE WITNESS: If I could speak, Your

16 Honor, I'd like to speak about our -- the anaerobic in

17 the EQ basin.

18 JUDGE STARNES: Well, we'll see if your

19 counsel directs you towards that through this

20 questioning.

21 THE WITNESS: Okay.

22 Q (BY MR. HILL) What would you like to discuss

23 about that, Mr. Crownover?

24 A Well, the anaerobic influent in the treatment

25 process when it reaches our temporary EQ basin, these

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1 are permanent treatment structures that you use to store

2 wastewater during storm events. And if EQ basin is --

3 there's a mixture in there, and this is temporary only

4 in the fact that the effluent travels through this

5 structure as it makes its way on to the BNR system --

6 the BNR base and anaerobic systems. These are in

7 vertical treatment zones where the nutrients are then

8 removed. The structure is a permanent structure.

9 Q And you're referring to the equalization basin.

10 Right?

11 A Yes.

12 Q Okay. And you refer to the influent as

13 anaerobic influent, but I want to go back and ask the

14 question again.

15 I thought I understood you to say earlier

16 that you understand that influent will contain oxygen

17 when it comes into the wastewater treatment plant?

18 A Yes.

19 Q That is correct -- your correct testimony?

20 A Yes.

21 Q Okay. And based on your understanding of that

22 system design -- and let me take a step back.

23 Who at eHT is responsible again for

24 designing the proposed east wastewater treatment plant?

25 A It would be Josh Berryhill.

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1 Q Okay. And so understanding that Mr. Berryhill

2 was responsible for design, when the equalization basin

3 is engaged is that -- is that part of the City's attempt

4 to handle storm surges, storm flows, as they come into

5 the system from high precipitation events?

6 A Yes.

7 Q Okay. And with respect to the questions about

8 the floodplain delineation and -- that you received

9 earlier -- who was it at eHT that you relied upon for

10 the evaluation and delineation of the floodplain on the

11 east wastewater treatment plant property?

12 A On the plat, I believe the surveyor's name was

13 Tim Martin.

14 Q Okay. Did Chris Hay play a role in that as

15 well?

16 A He did, yes.

17 Q All right. You were asked a question also

18 about looking at various plant site alternatives. And

19 you settled on the alternative that, you know, this

20 application is a part of. Can you describe generally

21 what this particular alternative that includes the east

22 wastewater treatment plant includes with respect to

23 infrastructure and facility upgrades?

24 A I can. It will be an upgrade of the old south

25 wastewater treatment plant to MBR technology. In

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1 addition to this east wastewater treatment plant, in the

2 interim phase will be 1 million gallons per day. The

3 final phase will have 2 million gallons a day of the

4 same technology that we have -- that we are upgrading

5 the current wastewater treatment plant to, membrane

6 bioreactor.

7 This plant site is set in the area of the

8 City where there are various collection system problems.

9 We have wet wells that are overloaded that are

10 undersized. There are also collection systems that are

11 undersized, especially in weather events when surcharges

12 take place. This project will alleviate many, if not

13 all, of those problems.

14 Q Has that infrastructure historically served the

15 existing or the demand at the time from -- for the City

16 of Granbury?

17 A When I arrived here six years ago, it was

18 already experiencing some problems. And it has only

19 gotten exacerbated as new development has come to the

20 City, especially in the eastern part of town where this

21 will be located.

22 Q So is it fair to describe the proposed location

23 of the east wastewater treatment plant as strategically

24 important with regard to handling that increased demand

25 from the east side of town?

<p style="text-align: right;">195</p> <p>1 A Very much.</p> <p>2 Q Okay. How important is it Mr. Crownover -- let</p> <p>3 me try this a different way.</p> <p>4 If I understand you correctly, you have</p> <p>5 increased demands from the east part of town based on</p> <p>6 growing development. Did I understand that correctly?</p> <p>7 A Yes.</p> <p>8 Q Okay. And if I understand -- I need you to</p> <p>9 correct me if I have this wrong -- that increased</p> <p>10 development has created influent that's more than your</p> <p>11 existing transmission mains can accommodate --</p> <p>12 (Simultaneous discussion)</p> <p>13 MR. BOOTH: You know -- excuse me, Jason.</p> <p>14 Judge, how much beyond the scope of the</p> <p>15 cross are you going to let us do? Because I'm</p> <p>16 objecting. That's not anything that we've talked about</p> <p>17 in the cross.</p> <p>18 MR. HILL: Well, I'll --</p> <p>19 JUDGE STARNES: Mr. Hill, go ahead.</p> <p>20 MR. HILL: Yeah, the -- I mean, he was</p> <p>21 asked about alternatives and why the City's, you know,</p> <p>22 ended up picking the east water treatment plant.</p> <p>23 MR. BOOTH: Well, we didn't ask him about</p> <p>24 very much detail. And you've started that, and you've</p> <p>25 got him to talking about that and he's started talking</p>	<p style="text-align: right;">197</p> <p>1 trying to understand whether or not the choice of this</p> <p>2 site wasn't just to handle additional capacity, it was</p> <p>3 also to handle relief of what was being transported to</p> <p>4 the south plant. Did I get that wrong?</p> <p>5 A No. You did not. That's correct.</p> <p>6 Q Okay.</p> <p>7 A I might say that it is also a wastewater</p> <p>8 treatment plant that has reached its capacity. This</p> <p>9 will also take off capacity from the current plant as</p> <p>10 well.</p> <p>11 Q A wastewater treatment plan that reached its</p> <p>12 capacity, you're speaking of the south wastewater</p> <p>13 treatment plant?</p> <p>14 A Yes.</p> <p>15 MR. HILL: Okay. Thank you,</p> <p>16 Mr. Crownover. That's all the questions. I pass the</p> <p>17 witness.</p> <p>18 JUDGE STARNES: Okay. Mr. Tatu, any</p> <p>19 re-cross from the ED?</p> <p>20 MR. TATU: No. Nothing further. Thank</p> <p>21 you.</p> <p>22 JUDGE STARNES: Okay. Mr. Arthur, OPIC</p> <p>23 have any questions?</p> <p>24 MR. ARTHUR: No, Your Honor. Thank you.</p> <p>25 JUDGE STARNES: Okay. Mr. Allmon?</p>
<p style="text-align: right;">196</p> <p>1 about the collection system upgrades, which we didn't</p> <p>2 talk about. And now you're going to -- looks like</p> <p>3 you're going to go into a new line of questions and</p> <p>4 that's why I'm objecting.</p> <p>5 MR. HILL: Well, it falls squarely within</p> <p>6 the scope, Mike, of what you opened up. You asked him</p> <p>7 about the meetings to describe the application, you</p> <p>8 asked him about what the City took into consideration</p> <p>9 for picking this site. It wasn't --</p> <p>10 (Simultaneous discussion)</p> <p>11 MR. BOOTH: I don't believe I asked him</p> <p>12 that.</p> <p>13 MR. HILL: It wasn't a one-dimensional --</p> <p>14 JUDGE STARNES: Okay.</p> <p>15 MR. HILL: -- answer to that question.</p> <p>16 JUDGE STARNES: Okay. So direct the</p> <p>17 arguments to me and not each other.</p> <p>18 I'm going to overrule the objection for</p> <p>19 now.</p> <p>20 But, yes, the redirect is limited to the</p> <p>21 subjects of cross. I don't think we've gone beyond that</p> <p>22 yet.</p> <p>23 So for now, the objection is overruled.</p> <p>24 MR. HILL: Thank you, Judge.</p> <p>25 Q (BY MR. HILL) So, Mr. Crownover, I'm simply</p>	<p style="text-align: right;">198</p> <p>1 MR. ALLMON: Yeah, maybe just a few</p> <p>2 questions.</p> <p>3 RE-CROSS-EXAMINATION</p> <p>4 BY MR. ALLMON:</p> <p>5 Q You were asked some questions about the</p> <p>6 qualities of the wastewater entering the plant.</p> <p>7 Will that wastewater contain sulfur?</p> <p>8 A I'm not sure.</p> <p>9 Q Okay. Will the raw wastewater contain oxygen?</p> <p>10 A Yes.</p> <p>11 Q In what amount?</p> <p>12 A I'm not sure.</p> <p>13 Q Okay. So you're saying there could be minimal</p> <p>14 amount of oxygen?</p> <p>15 A Yes.</p> <p>16 Q And do you know what form that oxygen would be</p> <p>17 in?</p> <p>18 A No.</p> <p>19 MR. ALLMON: Okay. Your Honor, that's all</p> <p>20 of my questions.</p> <p>21 JUDGE STARNES: Okay.</p> <p>22 MR. BOOTH: I have a simple question,</p> <p>23 ma'am.</p> <p>24 JUDGE STARNES: Go ahead.</p> <p>25</p>

<p style="text-align: right;">199</p> <p>1 REXCROSS-EXAMINATION</p> <p>2 BY MR. BOOTH:</p> <p>3 Q Mr. Crownover, have you ever been to a</p> <p>4 headworks of a wastewater treatment plant.</p> <p>5 A Yes.</p> <p>6 Q Does it smell?</p> <p>7 A Yes.</p> <p>8 MR. BOOTH: Okay. Thank you.</p> <p>9 JUDGE STARNES: Okay. Well, that</p> <p>10 concludes your testimony, Mr. Crownover. I appreciate</p> <p>11 it. You are free to leave, or if you want to stay and</p> <p>12 observe, just turn off your camera. Thank you.</p> <p>13 THE WITNESS: Thank you.</p> <p>14 JUDGE STARNES: Give me one second to get</p> <p>15 caught up on my notes.</p> <p>16 Okay. Are we ready for Ms. Dunn?</p> <p>17 MR. HILL: I'm sorry, Your Honor, but I am</p> <p>18 looking to see where Ms. Dunn is, so if I can beg your</p> <p>19 indulgence.</p> <p>20 JUDGE STARNES: Okay. Do we need to go</p> <p>21 off the record and give you 5, 10 minutes or is she</p> <p>22 texting.</p> <p>23 MR. HILL: If you don't mind. Probably</p> <p>24 not 5 minutes. I'll get back on here pretty quick.</p> <p>25 JUDGE STARNES: Okay. I'm just going to</p>	<p style="text-align: right;">201</p> <p>1 related Exhibit 201 as your testimony as though you were</p> <p>2 giving it live under oath on the stand right now?</p> <p>3 A Yes, I do.</p> <p>4 MR. HILL: Okay. Judge, I ask that COG</p> <p>5 Exhibit 200 and COG Exhibit 201 be admitted into the</p> <p>6 record.</p> <p>7 (Exhibit COG Nos. 200 and 201 offered)</p> <p>8 JUDGE STARNES: Thank you. Okay. So</p> <p>9 there were no prefiled objections to this testimony.</p> <p>10 Does anybody have an objection that they</p> <p>11 need to interpose for the record now?</p> <p>12 (No response)</p> <p>13 JUDGE STARNES: No? Okay. Hearing no</p> <p>14 objection, COG Exhibits 200 and 201 are admitted.</p> <p>15 (Exhibit COG Nos. 200 and 201 admitted)</p> <p>16 MR. HILL: Thank you, Judge.</p> <p>17 I pass the witness.</p> <p>18 JUDGE STARNES: Okay. Mr. Tatu?</p> <p>19 MR. TATU: No questions, Your Honor.</p> <p>20 Thank you.</p> <p>21 JUDGE STARNES: Okay. Mr. Arthur?</p> <p>22 MR. ARTHUR: Yes, Your Honor. Thank you.</p> <p>23 CROSS-EXAMINATION</p> <p>24 BY MR. ARTHUR:</p> <p>25 Q Good morning, Ms. Dunn.</p>
<p style="text-align: right;">200</p> <p>1 sit tight. But, Ms. Griffin, you can go off the record.</p> <p>2 (Recess: 9:30 a.m. to 9:31 a.m.)</p> <p>3 JUDGE STARNES: Ms. Griffin, can we go</p> <p>4 back on?</p> <p>5 THE REPORTER: Yes.</p> <p>6 JUDGE STARNES: All right. If I can get</p> <p>7 you under oath, Ms. Dunn. If you'll raise your right</p> <p>8 hand.</p> <p>9 (Witness sworn)</p> <p>10 THE WITNESS: Yes, I do.</p> <p>11 JUDGE STARNES: Okay. Thank you. Go</p> <p>12 ahead, Mr. Hill. You're muted, sir.</p> <p>13 MR. HILL: Thank you, Judge.</p> <p>14 LUCI DUNN, P.E.,</p> <p>15 having been first duly sworn, testified as follows:</p> <p>16 DIRECT EXAMINATION</p> <p>17 BY MR. HILL:</p> <p>18 Q Ms. Dunn, do you have in front of you COG</p> <p>19 Exhibit 200 and COG Exhibit 201?</p> <p>20 A Yes, I do.</p> <p>21 Q Okay. Do you recognize COG Exhibit 200 as your</p> <p>22 prefiled testimony and COG-201 as one of the</p> <p>23 attachments?</p> <p>24 A Yes, I do.</p> <p>25 Q Okay. Do you adopt COG Exhibit 200 and the</p>	<p style="text-align: right;">202</p> <p>1 A Good morning.</p> <p>2 Q I have a couple of questions from your prefiled</p> <p>3 testimony.</p> <p>4 Do you have that available to you?</p> <p>5 A Yes, I do.</p> <p>6 Q I'd like to turn first to Page 7 starting at</p> <p>7 line 14 where you state: I ascertained the location and</p> <p>8 type of water wells within a half-mile of the proposed</p> <p>9 project site. Do you see that?</p> <p>10 A Yes.</p> <p>11 Q My question is: How are you defining "proposed</p> <p>12 project site" there?</p> <p>13 A As the entire property for the wastewater plant</p> <p>14 on that east side.</p> <p>15 Q Okay. And so when you say "within a</p> <p>16 half-mile," from what point are you measuring that</p> <p>17 half-mile?</p> <p>18 A From the property boundary.</p> <p>19 Q Okay. From the property boundary on all sides?</p> <p>20 A Yes.</p> <p>21 Q Okay. My next question is I think just a</p> <p>22 clarification of what may be a typo. So I'm looking at</p> <p>23 Page 10, starting at Line 5. You state: I ascertained</p> <p>24 that there are public water well sites, springs, or</p> <p>25 other similar sources of public drinking water within</p>

203	<p>1 500 feet of any of the wastewater treatment plant units.</p> <p>2 Should there be a "no" in that clause?</p> <p>3 A There should be a "no." That's correct.</p> <p>4 Q Okay.</p> <p>5 A There are not any.</p> <p>6 Q Okay.</p> <p>7 A That's a typo.</p> <p>8 MR. ARTHUR: Thank you, Ms. Dunn.</p> <p>9 Your Honor, I pass the witness.</p> <p>10 JUDGE STARNES: Okay. Of the Protestants,</p> <p>11 Mr. Booth or Mr. Allmon who's going first?</p> <p>12 MR. BOOTH: It doesn't matter. I can go</p> <p>13 first.</p> <p>14 JUDGE STARNES: Okay. Go ahead,</p> <p>15 Mr. Booth.</p> <p>16 CROSS-EXAMINATION</p> <p>17 BY MR. BOOTH:</p> <p>18 Q Ms. Dunn, I don't know whether this is in your</p> <p>19 scope of work for your engagement with the City. But</p> <p>20 why did you not do any water quality modeling before you</p> <p>21 filed your permit application at the TCEQ for this</p> <p>22 plant?</p> <p>23 A That's not within my scope.</p> <p>24 Q Do you know who it would have been? Would it</p> <p>25 have been Mr. Berryhill?</p>	205	<p>1 CROSS-EXAMINATION</p> <p>2 BY MR. BEDECARRE:</p> <p>3 Q Hi, Ms. Dunn. My name is John Bedecarre. I'm</p> <p>4 an attorney representing some of the Protestants in this</p> <p>5 matter. So just to begin, I was going to ask you:</p> <p>6 You're an engineer. Correct?</p> <p>7 A That is correct, yes.</p> <p>8 Q And you have about 30 years of professional</p> <p>9 experience as an engineer?</p> <p>10 A That's correct, yes.</p> <p>11 Q Okay. I just wanted to see if I were to say</p> <p>12 that that would be an accurate -- roughly an accurate</p> <p>13 statement.</p> <p>14 And you work at an engineering consulting</p> <p>15 firm that was hired by the City to do what exactly?</p> <p>16 A To manage this project and develop this</p> <p>17 project, yes.</p> <p>18 Q Okay.</p> <p>19 A My part of it is primarily permitting and</p> <p>20 working on the environmental information documents.</p> <p>21 Q Okay. So part of your responsibility was</p> <p>22 putting together the permit application itself?</p> <p>23 A That's correct, yes.</p> <p>24 Q For the east plant for the discharge permit?</p> <p>25 A Yes, that's correct.</p>
204	<p>1 A Yes.</p> <p>2 Q Okay. Now, I understand you're -- part of your</p> <p>3 job is to look at the floodplain issues. Is that</p> <p>4 correct?</p> <p>5 A I work in conjunction within both Chris Hay and</p> <p>6 Josh as far as the floodplain requirements, that's</p> <p>7 correct.</p> <p>8 Q Okay. So they would be the ones I need to ask</p> <p>9 questions about what they're going to do about the</p> <p>10 floodplain or not do?</p> <p>11 A Yes, that's correct. Specifically, Josh is the</p> <p>12 one who is designing the units to be able to meet that</p> <p>13 floodplain requirement.</p> <p>14 MR. BOOTH: Okay. All right. I don't</p> <p>15 have any more questions.</p> <p>16 I pass the witness.</p> <p>17 JUDGE STARNES: Okay. Mr. Allmon, are you</p> <p>18 taking questions -- do you have any questions?</p> <p>19 MR. ALLMON: Actually, it will be</p> <p>20 Mr. Bedecarre who will be questioning the witness on</p> <p>21 behalf of Granbury Fresh and Dr. Victoria Calder.</p> <p>22 JUDGE STARNES: Okay. Mr. Bedecarre, go</p> <p>23 ahead.</p> <p>24 MR. BEDECARRE: Thank you.</p> <p>25</p>	206	<p>1 Q Okay. I wanted to look at some things with the</p> <p>2 application, and I think it would be easiest for me to</p> <p>3 share my screen. And I'm going to pull up a document</p> <p>4 here.</p> <p>5 Can you -- well, this is not what I wanted</p> <p>6 to pull up.</p> <p>7 Do you see -- can you describe what you're</p> <p>8 seeing, just so I understand about the zoom and if I'm</p> <p>9 doing this right?</p> <p>10 A I do see the screen. It looks like it is a May</p> <p>11 2021 instructions for completing the application</p> <p>12 specifically the form 10053 instructions.</p> <p>13 Q Okay.</p> <p>14 A For the permit application.</p> <p>15 Q That's correct. So this is a TCEQ document</p> <p>16 that provides instructions for completing domestic</p> <p>17 wastewater permit applications. We have it marked as</p> <p>18 Exhibit GF-5.</p> <p>19 I wanted to draw your attention to Page 64</p> <p>20 of this document, which I have bookmarked, but we could</p> <p>21 have scrolled there. And at the top it says:</p> <p>22 Instructions for domestic technical report 1.1. Do you</p> <p>23 see that?</p> <p>24 A Yes, I do.</p> <p>25 Q And if we go down, Part B is regarding</p>

207

1 regionalization of the facilities.

2 Are you familiar with that policy of TCEQ,

3 the regionalization policy, and just that issue in

4 general?

5 **A Generally, yes. Is this the same instructions**

6 **that were available and valid at the time that the**

7 **permit application was submitted?**

8 **Q I think I'll generally be the one asking the**

9 **questions. I don't -- I believe it is correct, yes.**

10 And No. 3 here it says: Nearby wastewater

11 treatment facilities or collection systems.

12 Do you see that?

13 **A Yes.**

14 **Q So do the permit application instructions ask**

15 **that you provide information on the existing wastewater**

16 **treatment facilities within a 3-mile radius?**

17 **A In the version that you're showing me from May**

18 **2021, that's what it -- I can read that, yes, it does**

19 **ask that.**

20 **Q Okay. Do you believe that the instructions**

21 **were different in 2019 or when you filled out the permit**

22 **application?**

23 **A I am not sure if there was a change from the**

24 **one that was valid at that time to now.**

25 **Q Okay. And do you see in No. 3 that it also**

208

1 asks -- the instructions instruct that you provide

2 copies of certified letters to the existing wastewater

3 facilities within that radius and their responses

4 concerning providing wastewater service for the proposed

5 service area?

6 **A That is what it says in that instruction.**

7 **That's correct.**

8 **Q Okay. So I would like to look at another**

9 **document which would be the permit application itself**

10 **that you put together on behalf of the City of Granbury.**

11 **And what you're seeing now is the cover page of the**

12 **administrative record that was filed in this case by the**

13 **City?**

14 **A Yes.**

15 **Q And if we go -- I have it bookmarked. If we go**

16 **to Page 323 of the administrative record, this seems to**

17 **be a section of the permit application. Is that**

18 **correct?**

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

20 **Q And it's called: List and Map of Facilities**

21 **Within a 3-mile Radius. And it's titled: Domestic**

22 **permitted wastewater treatment facilities and collection**

23 **systems within a 3-mile radius of the proposed facility.**

24 Do you see that?

25 **A Yes, I do.**

209

1 **Q So in the permit application did the City of**

2 **Granbury provide a letter and a response letter to Acton**

3 **MUD?**

4 **A No. We did not write a specific letter and**

5 **request a response from them.**

6 **Q Okay.**

7 **A I'm the permitting engineer for this facility**

8 **as well. We're the engineer of record for their -- that**

9 **facility.**

10 **Q Okay. Did the City in its permit application**

11 **provide a letter and a response letter to the Shady**

12 **Grove Sewer System?**

13 **A We were not able to find a Shady Grove**

14 **treatment plant or sewer system. We listed them there**

15 **because that particular system showed up as having a**

16 **Certificate of Convenience and Necessity, a CCN, on the**

17 **Public Utility Commission's website.**

18 **Q Okay.**

19 **A But they are on septic in that area, but we**

20 **listed them since they did show up within -- when we did**

21 **the search of not only the permits but also who had a**

22 **CCN within that area.**

23 **Q Okay. Got it.**

24 So they do not have a wastewater facility

25 within a 3-mile radius?

210

1 **A That is correct, not that we could find. But**

2 **we went ahead and listed them to say that, yes, they**

3 **have a CCN, but we were not -- I was not able to find**

4 **anything related to a treatment plant. Looking at**

5 **Google earth there, I couldn't find anything there, and**

6 **there was nothing that I could find on the TCEQ's**

7 **website as well.**

8 **Q Okay. I also wanted to look at an exhibit that**

9 **was admitted as part of -- from the prior witness that**

10 **was admitted in this case as Exhibit COG-101.**

11 Can you see this exhibit? I believe it

12 should be -- it's like a PowerPoint presentation,

13 Ms. Dunn.

14 **A Yes, I can.**

15 **Q At the top it says: August 3, 2021. Is**

16 **that -- well, let me go back.**

17 Were you involved with putting together

18 this document?

19 **A Possibly. I believe I am somewhat familiar**

20 **with it.**

21 **Q Was it a -- did it -- so was it associated with**

22 **like a presentation to the City Council of Granbury?**

23 **A I'm honestly not sure. I think so but I'm not**

24 **sure. If it --**

25 **Q Okay.**

211

1 A -- if I had involvement in it, it would have
 2 been in conjunction with Chris Hay and Josh Berryhill.
 3 Since Chris Hay is the liaison with the City, he would
 4 be able to definitively answer that question.

5 Q Okay. And in the cover page it says presented
 6 by your firm. Is that right?

7 A That's correct, yes.

8 Q Okay. And it's dated August 3. You began work
 9 for the City of Granbury in 2019. Is that right?

10 A On this project, that's correct, in 2019.

11 Q So in 2019 the City asked -- did they ask you
 12 to perform a wastewater system study?

13 A They did not ask me to. They may have asked
 14 eHT. That would be a question for Chris Hay.

15 Q Okay. So do you know why the City wants to
 16 build this plant?

17 A Do I know why they want to build the plant?

18 Q Yeah.

19 A Because it serves the purpose and need and the
 20 justification?

21 Q Yes.

22 A Yes, I believe that part of it was included as
 23 part of the permit application as excerpts from both the
 24 engineering feasibility report that Josh Berryhill and
 25 Chris Hay, as well as the environmental information

212

1 document that is an excerpt in the permit application.

2 Q And would you say that the reason for the plant
 3 is that there were existing collection system issues and
 4 a need to expand the treatment capacity to handle
 5 population growth?

6 A That is correct, yes.

7 Q Okay. Now, on this document there's a page
 8 titled: Existing collection system issues.
 9 Are you familiar with these issues?

10 A On the periphery, yes. But I believe Chris Hay
 11 is our expert as far as the collection system issues
 12 that are going on in this east area.

13 Q Okay. Is your firm assisting the City of
 14 Granbury with fixing these issues that are identified on
 15 this document that we're looking at?

16 A I believe that for the ones that would be
 17 included in this project, yes.

18 Q Okay. Now, would it be fair to say this page
 19 that we're looking at titled, "Treatment Capacity," this
 20 is further detail on why the City believes they need to
 21 expand their wastewater treatment capacity. Is that
 22 right?

23 A I believe that's what the intention is. And,
 24 again, I believe Chris Hay developed this particular
 25 slide.

213

1 Q Okay. In your experience when -- is it normal
 2 to build a new plant to expand treatment capacity or is
 3 it more normal to expand? Like if a city has an
 4 existing wastewater treatment plant, is it more common
 5 to expand that existing facility or to build a new
 6 facility to meet?

7 A It depends on the situation as far as where
 8 there's the need. And in this particular case, I
 9 believe it was because of the collection system issues
 10 on the east side, and the way that the town is located
 11 on various sides of the lake that it made the most
 12 sense, in this particular case, to build an additional
 13 facility.

14 Q Okay. Did the City ask you and your firm to
 15 essentially recommend whether or not to build a new
 16 facility?

17 A I believe they had us analyze various
 18 alternatives. And, again, Chris Hay, I think he'll be
 19 one of the -- will be able to answer that question more
 20 definitively.

21 Q And is your firm responsible for designing the
 22 facility that's the subject of this permit application?

23 A Yes, that's correct.

24 Q Okay. So the next page is "Project
 25 Alternatives." So it's fair to say that there were

214

1 several alternatives considered to address the problems
 2 that we talked about previously. Is that right?

3 A Yes, several alternatives were looked at.
 4 That's correct.

5 Q Okay. And is it fair to say that Alternative
 6 1 -- I'm sorry. Strike that.
 7 Is it fair to say that Alternative 5 is
 8 what the City is seeking to -- or essentially what the
 9 City has chosen to move forward with?

10 A I believe it is -- I believe the Alternative 5
 11 had more than one option. I believe there was a 5a and
 12 a 5b. So generally --

13 Q Okay.

14 A -- rehabbing the south plant and constructing a
 15 satellite east plant I believe is the project that is
 16 getting currently permitted.

17 Q Okay. And then on the next page there is a
 18 slide called "Alternative Cost Comparison." And there
 19 we see there's a 5a and a 5b. Is it fair to say that 5a
 20 is the option that the City is -- just chose to pursue?

21 A I believe that 5a is the option the City chose
 22 to pursue, yes.

23 Q Okay. And based on this cost comparison,
 24 Alternative 1 is -- could you describe what Alternative
 25 1 is briefly, to the extent you're able to, what that

215

1 entails?

2 **A** Again, I'm not 100 percent sure. This question

3 would be better directed to Chris Hay. But I believe

4 it's including the upgrade of the south wastewater

5 treatment plant, and I'm not sure about the details of

6 the expanding capacity. I don't recall, but he would

7 certainly be able to explain each of those options to

8 you.

9 **Q** Now, can you see the estimated total cost of

10 Alternative 1 on this document? Are you able to that

11 see that?

12 **A** Yes, I can. Or the pool of 37 million three

13 96 -- 396,000? That one?

14 **Q** Yes.

15 **A** Okay. And then the 5a that is the selected one

16 is the 28?

17 **Q** That's right.

18 **A** Uh-huh.

19 **Q** So your firm was representing to the City that

20 the Option 1 was almost -- was about \$9 million more

21 expensive than Option 5a. Is that right?

22 **A** That is what it appears in the table. And,

23 yes, I believe the difference in the cost is due to the

24 collection system improvements that would be needed --

25 **Q** Okay.

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1 **A** -- in the middle column.

2 **Q** Now, in your prefiled testimony and I believe

3 in this cross-examination testimony, you've said that

4 you were hired in 2019 and you put together something

5 called an EID for the City. Is that right?

6 **A** That's correct, yes.

7 **Q** And could you explain what that is?

8 **A** Yes, it is an environmental information

9 document that is presented to the Texas Water

10 Development Board as a requirement for the NEPA for the

11 environmental review requirements.

12 **Q** Did that entail an analysis of alternatives to

13 or -- or I'll just put it that way.

14 Did that entail analyzing alternatives?

15 **A** From an environmental perspective, yes. So the

16 way that the EID works is that I get the alternatives

17 that were considered by the engineers, and we pull that

18 into the environmental information document, and we

19 consider those alternatives that were vetted by the

20 engineers through the -- kind of the environmental side

21 of it. How would these various alternatives impact in

22 different ways the environment.

23 **Q** And what was the estimated -- and so in short,

24 the EID is a -- an application -- is associated with

25 getting funding for a project?

217

1 **A** Yes, it's part of the funding process step, but

2 it is also required because of the fact that funding is

3 coming from essentially a federal agency through the

4 Texas Water Development Board and each project has to go

5 through that NEPA process -- I'm sure you're familiar

6 with NEPA. So this is one of the requirements that the

7 Texas Water Development Board does require in their

8 format as an environmental information document that

9 then meets the requirement of NEPA.

10 **Q** Okay.

11 **A** National Environmental Policy Act, I think is

12 what it stands for.

13 **Q** So because in that document -- I'd like to look

14 at a few things in that document. I've shared on the

15 screen the cover page of that document, which I don't

16 believe has been admitted into evidence, but it says

17 it's been prepared by your consulting firm in

18 August 2019.

19 And this is the document that you helped

20 put together. Is that right?

21 **A** That's correct, yes. August 2019, uh-huh.

22 **Q** And I have it bookmarked, but if you go to

23 Page -- I guess it's Page 5 of the document, this is

24 general information, and it says: The project name is

25 Phase 1 wastewater system improvements and the total

218

1 estimated project cost is 34.9 million. Do you see

2 that?

3 **A** Yes, I do.

4 **Q** Now, I have it bookmarked, so if you go to Page

5 20, which I have shared on the screen, there is a --

6 this is a section on alternatives analysis. Are you

7 able to see that at the top?

8 **A** Yes, I am.

9 **Q** Now, it says this is a section that's talking

10 about analyzing what this report calls the second

11 alternative, which is expansion of the existing south

12 wastewater treatment plant. And we were talking about

13 that alternative earlier. Right?

14 **A** That's correct. From the -- August of -- is

15 it -- 2020?

16 **Q** 2021.

17 **A** 2021, uh-huh.

18 **Q** And there's various information provided here

19 on analyzing expanding the existing south plant as an

20 alternative to building a new one on the east side of

21 the City. Is that right?

22 **A** That's right.

23 **Q** Now, one part of this 24 that I would like to

24 ask you about is: In this report, were you -- you were

25 saying that expanding the existing south one was more

219

1 cost-effective than building a new one. Right?

2 **A** **With regard to the treatment plant itself and,**

3 **again, those -- it was -- I believe it says, would**

4 **likely be, so those cost estimates have since been**

5 **updated, I believe, to include also the collection**

6 **system improvements.**

7 **Q** **So in your mind the -- building a new plant on**

8 **the east side of the City is more cost-effective than**

9 **expanding the existing south plant?**

10 **A** **Overall, I believe that's what that PowerPoint**

11 **showed. And, again, Chris did the -- Chris Hay did the**

12 **analysis as far as the economics go. And it appears**

13 **that this is outdated, since it was a couple of years**

14 **ago that this was looked at.**

15 **Q** **Okay. Because here it says that expanding the**

16 **south would be more cost-effective. Right?**

17 **A** **I believe it says, "although this alternative**

18 **would likely be more cost-effective." I don't believe**

19 **that's definitive.**

20 **Q** **Okay. I would like to briefly go back to one**

21 **of the documents that we were looking at earlier.**

22 **A** **Okay.**

23 **Q** **And this was this presentation from August 3,**

24 **2021?**

25 **A** **That's right.**

220

1 **Q** **On Page 17 of this presentation, do you see**

2 **it's titled: East Wastewater Treatment Plant Designed**

3 **Proactive Approach. Do you see that?**

4 **A** **I do.**

5 **Q** **And it says: The following items are not**

6 **required by TCEQ, but selected to minimize impact: Odor**

7 **Control. Systems designed to capture foul odor at odor**

8 **causing processes/structures and its says, dash,**

9 **headworks, EQ storage.**

10 **Are those systems a part of the permit**

11 **application that you submitted?**

12 **A** **Yes, they are. They're headworks in a**

13 **temporary EQ basin proposed in the permit application,**

14 **yes.**

15 **Q** **Okay. Okay. I'm going to start -- I just have**

16 **one -- I have one more document that I wanted to look**

17 **at, and that would be -- I would like us to look at the**

18 **administrative record one more time. Let me see**

19 **where -- here.**

20 **What we're looking at is: You can see a**

21 **page number Administrative Record 0678. Do you see**

22 **that?**

23 **A** **Yes, I do.**

24 **Q** **And this is part of the permit application that**

25 **you put together for the City?**

221

1 **A** **Yes, it is.**

2 **Q** **Or actually, you know what -- I want to look at**

3 **one thing before that. We'll come right back to that.**

4 **Now, this is a web page that has the Texas**

5 **Administrative Code. Are you familiar with these**

6 **provisions of the TCEQ rules?**

7 **A** **Yes, I am.**

8 **Q** **And did you review these provisions when you**

9 **put together the permit application?**

10 **A** **Yes, I did.**

11 **Q** **Did you review Rule 309.13(e)?**

12 **A** **Yes, I did.**

13 **Q** **And in that rule it says: That zone -- lagoons**

14 **with zones of anaerobic activity, e.g., facultative,**

15 **lagoons, unaerated equalization basins, et cetera, may**

16 **not be located closer than 500 feet to the nearest**

17 **property line.**

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

19 **Q** **That's correct.**

20 **And do you know why that is, the general**

21 **kind of reasoning behind that?**

22 **A** **Yes. Because a lagoon with zones of anaerobic**

23 **activity, those type of lagoons, ponds, they have a**

24 **stratified layer of the -- I guess of the anaerobic**

25 **activities at the bottom, they're sort of stratified.**

222

1 **They have layers. And that unaerated equalization**

2 **basin, like a facultative lagoon or unaerated or EQ**

3 **basin, they have a layer that has this anaerobic**

4 **activity in it, and that particular pond-type system**

5 **does have odors associated with it. So when you're**

6 **beyond the 500 foot, it's not supposed to have an odor**

7 **that goes beyond that distance.**

8 **Q** **Okay. And if we go back to the administrative**

9 **record.**

10 **A** **Uh-huh.**

11 **Q** **This is a site drawing from the permit**

12 **application. Is that right?**

13 **A** **That's correct, yes.**

14 **Q** **And in red it says, at the bottom in the legend**

15 **that that's the Applicant's property boundary?**

16 **A** **That's right.**

17 **Q** **And do you know how -- and then there's various**

18 **treatment units labeled in the site drawing. And do you**

19 **know how far away those treatment units are from the**

20 **property boundary?**

21 **A** **150 feet or more.**

22 **Q** **Okay. And there's a BNR anaerobic zone that's**

23 **about 150 feet away. Is that right?**

24 **A** **It's 150 feet or more, and that is not a**

25 **facultative -- it's not a lagoon with an anaerobic zone.**

<p style="text-align: right;">223</p> <p>1 Q Okay. And when you put together the permit 2 application, are you aware of the -- what the 3 neighboring property is?</p> <p>4 A Yes. Yes, I am.</p> <p>5 Q You can kind of see from this site drawing 6 image. So you are aware of that?</p> <p>7 A Yes, I am.</p> <p>8 MR. BEDECARRE: Okay. I think I have no 9 further questions for the witness.</p> <p>10 JUDGE STARNES: Okay. I guess back to 11 you, Mr. Hill. Do you have any redirect?</p> <p>12 (No response)</p> <p>13 JUDGE STARNES: You're on mute.</p> <p>14 MR. HILL: I do have a little bit of 15 redirect, Judge.</p> <p>16 JUDGE STARNES: Okay. Go ahead.</p> <p>17 REDIRECT EXAMINATION</p> <p>18 BY MR. HILL:</p> <p>19 Q Ms. Dunn, I'm going to take a look at your 20 testimony. I'm going to sort of pick up on a question 21 that Mr. Arthur had asked. I just want to make sure 22 that the record is clear, so allow me to go back to Page 23 10, Lines 5 through 6, and I'm going to put that up on 24 the screen here.</p> <p>25 A Great.</p>	<p style="text-align: right;">225</p> <p>1 distance measurement assessment you conducted that 2 assessment from the parameter of the property line. Is 3 that correct?</p> <p>4 A That is correct, yes.</p> <p>5 Q And you agree with me that the treatment units 6 are actually within the parameter of the property line. 7 Correct?</p> <p>8 A That is correct, yes.</p> <p>9 Q Okay. So it appears obvious. I just want to 10 make the record clear.</p> <p>11 From your assessment, it looks like you 12 actually looked slightly farther than what the rules 13 have required for distance measurements. Is that right?</p> <p>14 A That is correct, yes.</p> <p>15 Q Okay. There are some questions that you were 16 asked a second ago by Mr. Bedecarre about the role of 17 the equalization basin or the equalization basin 18 facility, the facility footprint here that was designed 19 by Josh Berryhill, and you were discussing the rule -- 20 let me get to it, so we don't have to guess here.</p> <p>21 You should see in front of you a copy of 22 30 TAC 309.13. Do you see that on your screen.</p> <p>23 A Yes, I do.</p> <p>24 Q And specifically you were asked a question 25 about Subsection (e)?</p>
<p style="text-align: right;">224</p> <p>1 Q All right. Page 10, Lines 5 through 6, let me 2 help out a little bit here.</p> <p>3 I just wanted to make clear, Ms. Dunn, 4 what you wanted that sentence -- how you wanted that 5 sentence to read or you intended for it to read. After 6 I ascertained: Can you read the sentence that you 7 intended for that to read into the record.</p> <p>8 A I ascertained that there are no public water 9 well sites, springs, or other similar sources of public 10 drinking water within 500 feet of any of the wastewater 11 treatment plant units.</p> <p>12 Q Okay.</p> <p>13 A "No" needs to be added.</p> <p>14 Q Okay. Thank you. I think you made that clear 15 with Mr. Arthur. I just wanted to make sure it was 16 clear here.</p> <p>17 All right. I also want to pick up on a 18 question that Mr. Arthur had asked you about your well 19 measurement assessment for the application. You should 20 see in front of you an excerpt from the administrative 21 record which is marked Admin Record 0665. Do you see 22 that?</p> <p>23 A Yes, I do.</p> <p>24 Q Okay. You testified with Mr. Arthur in 25 response to his questions that when you conducted your</p>	<p style="text-align: right;">226</p> <p>1 A That's correct, just below the red box.</p> <p>2 Q Okay. That's right. And so Subsection (e) -- 3 let me make sure I've got this right. Okay.</p> <p>4 Below the red box that I have here around 5 Subsection (d) I want to call out Subsection (e) here.</p> <p>6 A Uh-huh.</p> <p>7 Q And specifically, under Subsection (e) (1), you 8 were asked about lagoons with zones of anaerobic 9 activity and the 500-foot distance proximity requirement 10 that are attributable to zones or lagoons, rather, with 11 zones of anaerobic activity.</p> <p>12 Can you describe the equalization basin 13 design? Is it intended to hold -- I think it's labeled 14 temporary equalization basin. What is the word 15 "temporary" in that description a descriptor of?</p> <p>16 A It's a descriptor of how long that material 17 will be in there, as well as when it's going to be used. 18 Because that temporary EQ basin is not going to be used 19 at all times. It's only going to be used when there's a 20 lot of I&I infiltration coming from the system due to 21 storm flows after a heavy rainfall event.</p> <p>22 Q Well, so it's designed to protect the system 23 from overloading is that what I understand you to say?</p> <p>24 A That is absolutely correct.</p> <p>25 Q Okay. Is it a passage -- or rather -- sorry --</p>

<p style="text-align: right;">227</p> <p>1 a passive basin, or does it have mechanical components 2 to it?</p> <p>3 A It has mechanical components to it. And in 4 this case there is a mixer in it and I believe it also 5 has a -- is designed to have a cover on it. So it is 6 not a passive, sits there and cooks like a lagoon does 7 that is a facultative lagoon with an unaerated 8 equalization basin.</p> <p>9 Q Okay. So is it right that during this mixing 10 process there actually is some aeration to the influent 11 that's captured in the basin?</p> <p>12 A Yes, there should be. It does not have a zone 13 of anaerobic activity like a lagoon does.</p> <p>14 Q Okay. You were explaining earlier about this 15 stratification of -- I guess -- material within a 16 facultative lagoon -- I thought I understood you to say 17 and so can you describe -- do you expect that type of 18 stratification to occur in the temporary equalization 19 basin that you have designed in this facility?</p> <p>20 A Oh -- no, definitely not. In a facultative 21 lagoon or a lagoon with a zone of anaerobic activity, it 22 basically sits there, the flow comes in, it's 23 stratified. I kind of think of it like the three layers 24 where you have the anaerobic at the very bottom and then 25 the next layer is anoxic and then the upper layer is the</p>	<p style="text-align: right;">229</p> <p>1 just kind of decants across the base just very slowly on 2 gravity, just moving across.</p> <p>3 Q Based on your experience and your understanding 4 of the design for this facility, how does that -- you 5 mentioned a long retention time, 21 days or something 6 with respect to a -- what you would expect a lagoon with 7 a zone of anaerobic activity to do?</p> <p>8 How long of a retention time do you expect 9 or is the intended purpose of the equalization basin in 10 this facility that the City of Granbury is trying to 11 permit?</p> <p>12 A I believe at the permitted flow it will be 90 13 minutes.</p> <p>14 Q 90 minutes?</p> <p>15 A 90 minutes in the temporary EQ basin. That is 16 correct.</p> <p>17 Q Does that mean the influent comes into the 18 equalization basin and you only hold it there for 90 19 minutes? Is that what you you're saying?</p> <p>20 A That's what I'm saying. At design flow, that 21 is correct.</p> <p>22 Q Okay. And you mentioned that you -- the 23 intended design is to have a cover. Did I understand 24 that right?</p> <p>25 A Yes, that is correct.</p>
<p style="text-align: right;">228</p> <p>1 aerobic layer and that's basically from having the 2 surface from the wind blowing through.</p> <p>3 And there's no mechanical treatment. 4 There's no mechanical parts. There's nothing that's 5 mixing. It just comes in there. And for a facultative 6 lagoon, typically there's a deep end and so all the 7 collection system material gets put into the -- kind of 8 the deep end of the pond and then the rest of the 9 material sort of decants off and it's in there a long 10 time, typically 21 days, you know, for a minimum, and it 11 treats it, but it's not to the level as a mechanical 12 plant would be. And specifically it is -- it doesn't 13 have any mixers. It doesn't have any mechanical 14 agitation, nothing in there. It just stays in its 15 stratified layers.</p> <p>16 Q And you're speaking -- just to make sure it's 17 clear. When you talk about, "It doesn't have any 18 mixtures or mechanical parts," you're referring to a 19 lagoon with a zone of anaerobic activity? Is that what 20 you're referring to?</p> <p>21 A That is correct. A lagoon of -- with a zone of 22 anaerobic activity, has layers with no mixers and no 23 mechanical parts or anything in there. It just sits.</p> <p>24 Q Go ahead. I apologize.</p> <p>25 A That's okay. It just sits there, and the flow</p>	<p style="text-align: right;">230</p> <p>1 Q Can you explain a little bit more about that 2 and its relationship to/or contrast with a lagoon with a 3 zone of anaerobic activity?</p> <p>4 A Yes, a facultative lagoon with a zone of 5 anaerobic activity, it is open top. In fact, it relies 6 on the wind coming and helping to provide some aeration 7 in that upper layer, the upper third, whereas this 8 temporary EQ basin that we're talking about for the east 9 wastewater treatment plant that is currently designed, 10 it is, again, only going to be used when there's storm 11 flows coming in to temporarily hold it. It's going to 12 be held for 90 minutes or less. It's going to be 13 having -- or around 90 minutes I guess is probably a 14 good average. It's going to have a cover. It has a 15 mixer, and the purpose of the cover is that if there 16 aren't any odors that are generated while it's being 17 stored there temporarily, it is going to be captured and 18 it is, you know, recycled into the system for additional 19 treatment. It has vents on it, but the vents are for 20 not offing any of the gasses. It's -- the vent is 21 actually there to pull air in to keep it, you know, 22 mixed in so -- and to basically equalize the pressure to 23 make sure that it doesn't squish like a juice -- one of 24 those, like, Capri Sun, like, squishes if you suck the 25 air out.</p>

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1 So I think it would be -- you know, if
 2 you're asking for more details, I believe Josh Berryhill
 3 would be able to explain it better than saying it sucks
 4 like a Capri Sun. It's going to equalize the pressure.
 5 I'm not a design engineer, as far as wastewater
 6 treatment plant units go.

7 Q But you have had experience with how temporary
 8 equalization basins work and BNR -- or NBR type systems?

9 A Oh, definitely, yes. But I'm not going to know
 10 those same details that Josh will know.

11 Q Okay. But as far as retention time goes, is
 12 it -- you know, what's the outward bounds of retention
 13 time that you might expect for capturing flows in big
 14 storm surges in the EQ basin? I mean, can it be up to
 15 24 hours or --

16 A It will definitely not be more than 48 hours.

17 Q Okay.

18 A Typically it will be 90 minutes, but it will
 19 not exceed 48 hours.

20 MR. HILL: Okay. Very good. Ms. Dunn, I
 21 appreciate it. That's all the questions that I have. I
 22 pass the witness.

23 JUDGE STARNES: Okay. Mr. Tatu, do you
 24 have anything for this round of cross?

25 MR. TATU: Nothing further. Thank you.

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1 JUDGE STARNES: Okay. Mr. Arthur?

2 MR. ARTHUR: No, Your Honor. Thank you.

3 JUDGE STARNES: Okay. Mr. Booth?

4 MR. BOOTH: No.

5 JUDGE STARNES: Okay. How about you
 6 Mr. Bedecarre?

7 MR. BOOTH: No, ma'am, hold on just a
 8 second. Hold on just a second.

9 JUDGE STARNES: Oh, okay.

10 RE-CROSS-EXAMINATION

11 BY MR. BOOTH:

12 Q Ms. Dunn, I probably should be better off --
 13 I'd be better off asking Mr. Berryhill this, so tell me
 14 if that's correct.

15 A Sure.

16 Q 90 minutes doesn't seem to have much of a
 17 capacity to hold the storm surge in one of these
 18 equalization basins. Am I correct?

19 A That would be a question for Josh as far as the
 20 design --

21 (Simultaneous discussion)

22 Q (BY MR. BOOTH) Okay.

23 A -- of that basin.

24 Q Okay. And so what happens -- do you know
 25 whether the fact that -- has the City -- is their permit

233

1 going to have a requirement for covers and air
 2 filtration and covers on the equalization basin and on
 3 the headworks and on the BNR units, and things like
 4 that? Is that in the permit? I don't believe I saw it.

5 A The permit does not require that. The permit
 6 does not. But I believe the design goes beyond what is
 7 required by the permit.

8 Q Okay. The current -- well, let me talk to
 9 Berryhill about that then -- Mr. Berryhill.

10 A Yes.

11 Q You mentioned just briefly when we were talking
 12 about capturing the air coming off the equalization
 13 basins about recirculation or what did you say in that
 14 respect?

15 A So those -- well, again, that will be a good
 16 question for --

17 (Simultaneous discussion)

18 Q (BY MR. BOOTH) Okay. Fair enough.

19 A My understanding is that there are vents in the
 20 cover system that help to equalize the pressure and
 21 those gases are not vented out. They are actually --
 22 the vents there are to pull the air in to make sure that
 23 the pressure is equalized. He'll be able to tell you
 24 specifically what happens with those gases that are
 25 captured by the cover.

234

1 Q Now, you've been to wastewater treatment plant
 2 sites -- right -- ones that are operating?

3 A Yeah. Oh, yes. Yes, I have.

4 Q So when you go to the headworks of one of these
 5 plants, this plant -- the NBR plant still has headworks
 6 for the -- you have grit removal and bar screens and
 7 such?

8 A Yes.

9 Q There's a smell there, isn't it? Anoxic smell?

10 A Right at the unit itself, I believe that there
 11 can be at times.

12 Q Yeah. I guess I've always been there when they
 13 have been.

14 Do y'all intend to have a cover of those
 15 facilities?

16 A I believe that Josh does plan to have that.

17 Q Okay. That's a Josh question? Okay.

18 A That is a Josh question, and I believe that is
 19 the intent. I don't believe it's required in the
 20 permit, but I do believe that is the intent.

21 Q Okay.

22 A That the --

23 (Simultaneous discussion)

24 Q (BY MR. BOOTH) Well, they --

25 A -- uh-huh -- that are provided --

235	<p>1 Q Okay. I'll wait to ask him those questions to</p> <p>2 Mr. Hays.</p> <p>3 A Yeah.</p> <p>4 MR. BOOTH: I don't have any more</p> <p>5 questions. Thank you, ma'am.</p> <p>6 THE WITNESS: Yes, sir.</p> <p>7 JUDGE STARNES: Thanks, Mr. Booth.</p> <p>8 Mr. Bedecarre?</p> <p>9 RECCROSS-EXAMINATION</p> <p>10 BY MR. BEDECARRE:</p> <p>11 Q All right. Yes, so you were providing some</p> <p>12 descriptions about what a lagoon is in your mind. Is</p> <p>13 that right?</p> <p>14 A Yes, that is correct.</p> <p>15 Q Okay. But those descriptions you provided,</p> <p>16 they're not actually found in the language of the rule.</p> <p>17 Right? Does the rule -- sorry. I'll let you answer.</p> <p>18 I'm sorry.</p> <p>19 A So in the rule, it provides I believe two</p> <p>20 examples of what a lagoon with an unaerated zone is.</p> <p>21 Correct? I believe it says a facultative lagoon as an</p> <p>22 example, as well as an unaerated equalization basin.</p> <p>23 Q That's right. And you were also talking about</p> <p>24 some of the processes at this -- at these treatment</p> <p>25 units and at the equalization basin. And the permit</p>	237	<p>1 an objection to GF-5 coming into evidence?</p> <p>2 (No response)</p> <p>3 JUDGE STARNES: Okay. Hearing no</p> <p>4 objection, GF-5 is admitted.</p> <p>5 (Exhibit GF No. 5 admitted)</p> <p>6 MR. BEDECARRE: Okay. Thank you very</p> <p>7 much, Ms. Dunn.</p> <p>8 I have no further questions.</p> <p>9 JUDGE STARNES: Okay. Well, that</p> <p>10 concludes your testimony Ms. Dunn. I appreciate your</p> <p>11 availability this morning, and you are free to leave.</p> <p>12 Let's go off the record real quick.</p> <p>13 (Recess: 10:25 a.m. to 10:47 a.m.)</p> <p>14 JUDGE STARNES: Let's go back on the</p> <p>15 record.</p> <p>16 And, Mr. Hill, who do you want to call</p> <p>17 next?</p> <p>18 MR. HILL: Thank you, Judge. The City</p> <p>19 calls Joshua Berryhill.</p> <p>20 JUDGE STARNES: Okay. Mr. Berryhill,</p> <p>21 let's get you under oath. Will you raise your right</p> <p>22 hand for me?</p> <p>23 (Witness sworn)</p> <p>24 THE WITNESS: I do.</p> <p>25 JUDGE STARNES: Okay. Go ahead, Mr. Hill.</p>
236	<p>1 itself, it does not require that the equalization basin</p> <p>2 be aerated. Is that right?</p> <p>3 A For the temporary EQ basin --</p> <p>4 Q Yes.</p> <p>5 A -- that is correct. It does not require it to</p> <p>6 be aerated.</p> <p>7 Q And does it require that the equalization basin</p> <p>8 be emptied out every 48 hours?</p> <p>9 A That is, I believe, what we -- it is what we</p> <p>10 said was going to happen within our permit application,</p> <p>11 that part of it was included in there.</p> <p>12 Q But the permit itself doesn't require that. Is</p> <p>13 that right?</p> <p>14 A I don't recall an area where it specifically</p> <p>15 states that.</p> <p>16 Q Okay. I also wanted to -- previously, we had</p> <p>17 discussed a document that was the TCEQ application</p> <p>18 instructions, which were not -- I don't have any more</p> <p>19 questions for you about that.</p> <p>20 But I was just wanting to move to admit</p> <p>21 this as an exhibit as Exhibit GF-5. That is something I</p> <p>22 overlooked initially, so we would just like to admit</p> <p>23 this as an exhibit.</p> <p>24 (Exhibit GF No. 5 offered)</p> <p>25 JUDGE STARNES: Okay. Does anybody have</p>	238	<p>1 Your witness.</p> <p>2 MR. HILL: Thank you, Judge.</p> <p>3 JOSHUA BERRYHILL, P.E.,</p> <p>4 having been first duly sworn, testified as follows:</p> <p>5 DIRECT EXAMINATION</p> <p>6 BY MR. HILL:</p> <p>7 Q Good morning, Mr. Berryhill.</p> <p>8 A Good morning.</p> <p>9 Q You should have in front of you a document</p> <p>10 labeled COG Exhibit 300.</p> <p>11 A Yes, sir.</p> <p>12 Q And then behind that, COG Exhibits 301, 302,</p> <p>13 303, 304, 305, 306, do you have those documents in front</p> <p>14 of you?</p> <p>15 A Yes, sir.</p> <p>16 Q Okay. Is Exhibit COG -- rather COG Exhibit</p> <p>17 300 -- pardon me -- is that your prefiled testimony?</p> <p>18 A Yes, it is.</p> <p>19 Q And then those accompanying exhibits are the</p> <p>20 ones that are referenced in your prefiled testimony?</p> <p>21 A Yes, they are.</p> <p>22 Q All right. Mr. Berryhill, do you adopt COG-300</p> <p>23 and the attached exhibits as though it was -- is your</p> <p>24 testimony as though you were live in person on the stand</p> <p>25 in front of the judges right now?</p>

<p style="text-align: right;">239</p> <p>1 A Yes, sir, I do.</p> <p>2 MR. HILL: Okay. Judge, with that, the</p> <p>3 City offers COG Exhibit 300, along 301, 302, 303, 304,</p> <p>4 305, and 306 for admission into the record.</p> <p>5 (Exhibit COG Nos. 300 through 306 offered)</p> <p>6 JUDGE STARNES: And there were no prefiled</p> <p>7 objections to those exhibits.</p> <p>8 Does anybody have an objection they want</p> <p>9 to state for the record today?</p> <p>10 (No response)</p> <p>11 JUDGE STARNES: Okay. So there are no</p> <p>12 objections. COG-300 through 306 are all admitted.</p> <p>13 (Exhibit COG Nos. 300 through 306</p> <p>14 admitted)</p> <p>15 MR. HILL: Thank you, Judge. I pass the</p> <p>16 witness.</p> <p>17 JUDGE STARNES: Okay. Anybody with</p> <p>18 Executive Director's office have questions?</p> <p>19 MR. TATU: Just a few questions, Your</p> <p>20 Honor. Thank you.</p> <p>21 JUDGE STARNES: Okay.</p> <p>22 CROSS-EXAMINATION</p> <p>23 BY MR. TATU:</p> <p>24 Q Good morning, Mr. Berryhill.</p> <p>25 A Good morning.</p>	<p style="text-align: right;">241</p> <p>1 The reason I make this distinction is:</p> <p>2 When we look at things like the temporary EQ basin and</p> <p>3 the BNR anaerobic selector zone, those are actually</p> <p>4 designed to operate at the low end of the anoxic zone.</p> <p>5 So we're talking about minus -- essentially minus 50 to</p> <p>6 minus 100.</p> <p>7 So there was an email that was in one of</p> <p>8 our exhibits -- there's an email exchange that was</p> <p>9 included between myself, Luci Dunn, Gordon Cooper, and</p> <p>10 there was an older portion of the email that also</p> <p>11 included communications from Louis Herrin, who is the</p> <p>12 head of the plan review team for wastewater for TCEQ,</p> <p>13 and that got into looking at the ORP values. There was</p> <p>14 a specific statement I had in there talking about the</p> <p>15 conditions -- the ORP conditions that we would maintain</p> <p>16 our target for in both the BNR anaerobic zone and in the</p> <p>17 temporary EQ zone.</p> <p>18 I did have a typo in this statement I</p> <p>19 would like to clarify. If we need to pull it up on the</p> <p>20 screen, we can do so.</p> <p>21 But, again, the intent for the operation</p> <p>22 of the BNR anaerobic zone and then the temporary EQ</p> <p>23 basin is to go essentially from minus 50 to minus 100</p> <p>24 and that's it. We don't want to go any lower than minus</p> <p>25 100 because that's where we start getting into anaerobic</p>
<p style="text-align: right;">240</p> <p>1 Q Yesterday there was some discussion about the</p> <p>2 term "ORP" or "oxygen reduction potential."</p> <p>3 Are you familiar with that term?</p> <p>4 A Yes, I am.</p> <p>5 Q Could you briefly explain what that term means?</p> <p>6 A Sure. ORP or oxidation reduction potential is</p> <p>7 a measurement of the amount of oxidant in the water. We</p> <p>8 frequently use this in both water treatment and</p> <p>9 wastewater treatment. In its use for wastewater</p> <p>10 treatment, that is based on the amount of oxygen in the</p> <p>11 water or the lack thereof of oxygen in the water.</p> <p>12 Q Okay. And could you explain the relevance to</p> <p>13 oxygen reduction potential to how the temporary EQ basin</p> <p>14 and the BNR anaerobic basin will operate in this</p> <p>15 particular plant?</p> <p>16 A Sure. There are three specific ranges that we</p> <p>17 use for ORP determining whether a water environment is</p> <p>18 considered either anaerobic, anoxic, or aerobic. The</p> <p>19 measurement of ORP is in terms of millivolts or MV.</p> <p>20 Aerobic is considered positive 200 millivolts and</p> <p>21 larger, so positive 200, positive 300, positive 400 and</p> <p>22 so on. Anoxic is from minus 200 to positive 200, so</p> <p>23 minus 200, minus 100, zero, 100 and 200. And then fully</p> <p>24 anaerobic conditions are generally minus 200 and lower,</p> <p>25 so minus 200, minus 300, minus 400.</p>	<p style="text-align: right;">242</p> <p>1 conditions where you might have H2S formation, methane</p> <p>2 formation, things like that. Those are conditions that</p> <p>3 we would typically see in an anaerobic digester which is</p> <p>4 intended to produce methane gas. Well, we don't have an</p> <p>5 anaerobic digester in the project.</p> <p>6 That ORP is also typically associated with</p> <p>7 a facultative lagoon and an unaerated EQ basin that does</p> <p>8 not have any mixing, any mechanical equipment, any</p> <p>9 aeration. So as Luci mentioned previously, which was an</p> <p>10 excellent description of a facultative lagoon or zones</p> <p>11 of -- lagoons of anaerobic activity, areas that have</p> <p>12 stratification in those basins. So whether it's a</p> <p>13 facultative lagoon or an unaerated, unmixed EQ basin,</p> <p>14 the bottom layer of that basin would be considered a</p> <p>15 zone of anaerobic activity.</p> <p>16 When you add in mixing to that basin so</p> <p>17 that you no longer have stratification, when you focus</p> <p>18 on a short HRT -- there was a statement in that exhibit</p> <p>19 from Louis Herrin that stated if you're storing</p> <p>20 wastewater in an EQ basin for less than 48 hours, then</p> <p>21 we do not anticipate it going septic because the ORP is</p> <p>22 not going to drop to that level where you would have</p> <p>23 sulfide formation.</p> <p>24 Q Let me just stop you there for a second, just</p> <p>25 to clarify a couple of terms.</p>

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1 When you say the word "septic," could you
2 explain a little bit more, you know, what that term
3 means in context of this discussion?
4 A Yes, sir.
5 So some people in the industry might try
6 to vet a direct relationship between septic conditions
7 and anaerobic conditions. Septic conditions are those
8 in which there is absolutely no oxygen in the zone.
9 There's no mixing in the zone. Essentially the zone is
10 out of control.
11 So when that's a basin like a facultative
12 lagoon, you're not putting any mixing in, you're not
13 controlling what's happening in the basin, that
14 wastewater is sitting there potentially for 21 days, 25
15 days, 30 days or longer, at that point, the ORP goes
16 from minus 100, to minus 200, to minus 300 and so on,
17 and at that point, you are forming methane and hydrogen
18 sulfide. That is why if you have a zone of anaerobic of
19 activity like a facultative lagoon or an anaerated,
20 unmixed EQ basin, you would need the 500 foot buffer to
21 support that.
22 There is a use of anaerobic where it's not
23 considered septic, and that is when you're looking at
24 something like a BNR anaerobic selector zone, the point
25 of an anaerobic selector zone is to convert phosphorus

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1 from a poly-phosphate form to an ortho-phosphate form
2 which is -- the whole point of that is: We're trying to
3 get into a form that we can then grab it in the
4 anaerobic selector by the biomass that's in that basin.
5 That's it in very simple terms.
6 So we do not have to go to a point of ORP
7 where you're forming H2S, where you're -- hydrogen
8 sulfide, or methane to get that phosphorus conversion.
9 So that's why we can control that ORP and the anaerobic
10 selector zone based on the internal recycle for it that
11 allows us to maintain that ORP in a very narrow margin
12 to keep it from going septic. Likewise, for the EQ
13 basin, we have two methods -- three methods actually to
14 prevent it from going septic. One is the mixing
15 approach, which as Luci mentioned, we are putting cover
16 over the -- a cover over the tank, but the other
17 component is: We are also pulling foul air out of that
18 basin at all times using blowers that will send that
19 foul air if its even foul into the anaerobic selector
20 and the NBR tank for treatment.
21 Well, the nice benefit of that is: We're
22 always maintaining a slightly negative pressure inside
23 that tank under the cover. That's why we have the vents
24 on the cover, and that's to allow clean fresh air to go
25 into the tank and be drawn through. So we actually get

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1 a net benefit of some aeration of the volume in that EQ
2 tank.
3 The last step is the detention time. So
4 as we had previously committed to TCEQ we would hold
5 water in that EQ basin for no more than 48 hours, hence
6 the reason why we call it a temporary EQ basin. This is
7 a permanent structure. It's a designed engineered
8 structure not a pond, not a lagoon, but a designed
9 engineered structure that we would only temporarily
10 divert flow in the middle of a storm event.
11 Now, Luci mentioned about a potential
12 detention time of the 90 minutes. That is not uncommon
13 if you're talking about a very short duration storm that
14 is typically 30 minutes or an hour long. So it's very
15 possible that in a given storm event, we may divert flow
16 to that basin for 30 minutes or 60 minutes or 90
17 minutes, and as soon as our peak flow subsides going
18 through the plant, we're draining that basin back to our
19 influent lift station and sending it directly to the BNR
20 and NBR process for final treatment. So the operable
21 limit --
22 Q Thank you.
23 A -- is probably 90 minutes to 48 hours. Yes,
24 sir.
25 Q Thanks. You'll probably get some more

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1 questions from some of the other attorneys about that.
2 But I wanted to actually take a look at -- and let me
3 apologize to all the other participants. I was trying
4 to share my screen during the break, and I wasn't able
5 to do it correctly. So I'm going to ask co-counsel if
6 she could pull up something that's in the administrative
7 record here.
8 Mattie, could you help out with that?
9 MS. ISTURIZ: Yes. Give me one second. I
10 think this should work. Can y'all see my screen?
11 A Yes.
12 Q (BY MR. TATU) Yes.
13 MS. ISTURIZ: So in the administrative
14 record, this is Tab D, a document submitted by the
15 application (sic) so Page 101, we wanted to look at this
16 attachment.
17 And I will scroll around as you please but
18 I'm going to let you speak now, I think.
19 MR. TATU: Thanks. If you could just
20 scroll down to the diagram and -- a little bit further
21 please, sorry. Little bit more. Yeah, Site Drawings.
22 This is the one right here, please. Thanks Mattie.
23 Q (BY MR. TATU) Mr. Berryhill, are you familiar
24 with this diagram?
25 A Yes, I am.

<p style="text-align: right;">247</p> <p>1 Q Could you tell me what this is?</p> <p>2 A This is a diagram that shows the interim Phase</p> <p>3 1, which is the 1 mgd phase, site layout plan, including</p> <p>4 also the anticipated treatment facility boundary, which</p> <p>5 is in blue, versus the overall property boundary, which</p> <p>6 is in red. And this is for the City of Granbury's</p> <p>7 wastewater plant.</p> <p>8 Q And could you identify the BNR anaerobic basin?</p> <p>9 A Yes. Well, I can't move the mouse around.</p> <p>10 But if you go to the -- essentially the</p> <p>11 center of the graphic there are three structures, three</p> <p>12 boxes side, by side, by side.</p> <p>13 Q Yes.</p> <p>14 A The one to the far right is the BNR anaerobic</p> <p>15 selector zone, yes, sir.</p> <p>16 Q Okay. I just have one more -- one or two more</p> <p>17 questions. Sorry.</p> <p>18 Can you tell me how the equalization basin</p> <p>19 and the anaerobic treatment units will meet the 150</p> <p>20 buffer zone?</p> <p>21 A Yes, sir. So the -- for the EQ basin, again,</p> <p>22 that is a -- not an unaerated, unmixed, aeration EQ</p> <p>23 basin. One, it will have a cover. Two, it will have</p> <p>24 mixers in the basin. Three, it will have the ability to</p> <p>25 provide some aeration to that wastewater, and, four, the</p>	<p style="text-align: right;">249</p> <p>1 detention time in the anaerobic selector zone is no more</p> <p>2 than 90 minutes at the design flow of 1 mgd.</p> <p>3 If and when we were to go to the future</p> <p>4 final phase of 2 mgd, we would have double the flow but</p> <p>5 we would also have a second treatment train, so we would</p> <p>6 have the same -- we would double the flow but have</p> <p>7 double the volume, so it would still be the same maximum</p> <p>8 detention time going through the anaerobic selector</p> <p>9 zone.</p> <p>10 Q Okay. And I just have one more question: Is</p> <p>11 it my understanding that the MBR system will be able to</p> <p>12 operate without the constant use of an equalization</p> <p>13 basin?</p> <p>14 A Yes, sir. That's correct. In the industry for</p> <p>15 designing MBR systems, it is very common to use flow</p> <p>16 equalization for the process; however, it is not</p> <p>17 absolutely required. The need for flow equalization for</p> <p>18 an MBR is not tied to the need because it is an MBR</p> <p>19 process. It is based on the maximum peak hydraulic</p> <p>20 frequent flow that an MBR can handle, which is typically</p> <p>21 two times the designed flow rate for an instantaneous</p> <p>22 period of time, versus a collection system may bring in</p> <p>23 flow upwards of three to four times the design flow rate</p> <p>24 for a very short period of time during, say, a peak</p> <p>25 2-hour flow event. Now, that varies from utility to</p>
<p style="text-align: right;">248</p> <p>1 detention time is set so that we can actually bring that</p> <p>2 wastewater back into the treatment plant for final</p> <p>3 treatment before it could go -- have the potential to go</p> <p>4 septic.</p> <p>5 As for the anaerobic selector zone, the</p> <p>6 design of the selector zone is such that our goal is to</p> <p>7 do the phosphorus conversion so that we can maximize</p> <p>8 phosphorus reduction in the aerobic zone. We can</p> <p>9 maintain a specific ORP range of minus 50 to minus 100</p> <p>10 millivolts so that it is essentially anoxic really still</p> <p>11 at that point. But our goal is instead of just</p> <p>12 denitrification, which would occur in the anoxic zone --</p> <p>13 which denitrification is the reduction of nitrogen</p> <p>14 nitrate and the return of alkalinity in the water to</p> <p>15 help boost ammonia production in the anaerobic zone.</p> <p>16 But in the anaerobic selector zone, we're bringing in</p> <p>17 influent wastewater from the headworks process where</p> <p>18 also we have an internal recycle from the anoxic zone</p> <p>19 and that is how we maintain that control of that ORP.</p> <p>20 So as opposed to a lagoon of anaerobic</p> <p>21 activity where you have no control over ORP, you just</p> <p>22 put it in the tank and it just sits there and cooks, in</p> <p>23 this case, we can specifically adjust that ORP that's in</p> <p>24 the BNR selector basin by increasing or decreasing that</p> <p>25 recycle rate from the anoxic selector zone. Also, the</p>	<p style="text-align: right;">250</p> <p>1 utility.</p> <p>2 TCEQ states under 217 requirements that if</p> <p>3 you do not have historical data that tells you what that</p> <p>4 peaking factor is, you assign a worse-case peaking</p> <p>5 factor of four to one, so four times the design flow</p> <p>6 rate. So in the case here, we erred on the side of</p> <p>7 conservative design meeting 217 criteria to assume that</p> <p>8 we had up to four times the flow rate coming in during a</p> <p>9 storm flow period.</p> <p>10 There are many MBR facilities that either</p> <p>11 use a limited amount of EQ storage or some that don't at</p> <p>12 all. There are two facilities I'm aware of that I've</p> <p>13 worked with in Texas alone that do not have EQ storage.</p> <p>14 It's not required. So it is not a set TCEQ requirement</p> <p>15 that you must have EQ storage. The requirements are you</p> <p>16 need to analyze your collection system and determine</p> <p>17 what's coming to the plant and then design your system</p> <p>18 accordingly to manage that.</p> <p>19 So in the case here we are using EQ</p> <p>20 storage for the basin. Both the EQ basin and anaerobic</p> <p>21 selector zones are 150 feet from the property line. In</p> <p>22 each case, we either have a control mechanism or a</p> <p>23 mechanical mixing mechanism or a method of either</p> <p>24 aeration or the ability to internally recycle from our</p> <p>25 anoxic zone, which allows us to meet that 150-foot</p>

<p style="text-align: right;">251</p> <p>1 buffer zone requirement. Because, again, these are not 2 lagoons of anaerobic activity. These have mixing. They 3 have controls. We are not just putting wastewater in 4 there and just letting it sit for days and weeks on -- 5 actually, for weeks on end, unlike a facultative lagoon 6 that would have a typical time of 21 days or more.</p> <p>7 MR. TATU: Thank you. I don't have any 8 further questions. Thanks.</p> <p>9 Pass the witness.</p> <p>10 JUDGE STARNES: Thank you.</p> <p>11 For OPIC? Any questions?</p> <p>12 MR. ARTHUR: Yes. Thank you, Judge.</p> <p>13 CROSS-EXAMINATION</p> <p>14 BY MR. ARTHUR:</p> <p>15 Q Good morning, Mr. Berryhill.</p> <p>16 A Good morning, sir.</p> <p>17 Q So I have a question about your prefiled 18 testimony, and I'd just like to clarify what I'm 19 reading.</p> <p>20 I'm looking at Page 37, and I'm looking at 21 the last line, which is Line 22, and there's a clause 22 starting with, "Alternatives assessments that the City 23 undertook before settling on the east plant, but if 24 there's something to work with here, I'd like to do it." 25 Do you see that clause?</p>	<p style="text-align: right;">253</p> <p>1 plant, but overall total construction cost impact from a 2 conventional plant. Industry -- it's a common belief in 3 the industry that one larger plant is going to be lower 4 cost from a unit cost basis than two smaller plants. 5 That makes sense from the standpoint of treatment 6 equipment costs. So if you were looking at one 3 mgd 7 MBR system versus a single 2 mgd MBR system over here 8 and a 1 mgd MBR system over, then, yes, there should be 9 a slightly lower cost of that single larger unit. What 10 that doesn't take into account, though, is when you're 11 working with an existing facility that already has the 12 majority of the site used up with process units, then 13 there's an additional upcharge you have to deal with 14 with regard to construction sequencing. Because 15 obviously the City has only one treatment plant today. 16 If you're making major modifications to it and you're 17 going to expand it, you have to keep treating 18 wastewater. We don't get to just tell everybody, Sorry, 19 you have to stop flushing your toilets for 18 months 20 while we build this.</p> <p>21 So because of that additional construction 22 sequencing, it's frequently a bit more expensive to go 23 with a single site. And if we were to go back and look 24 at that slide that showed those cost tables, you see 25 that not only is the overall holistic project of</p>
<p style="text-align: right;">252</p> <p>1 A Yes. That looks like an internal -- a typo 2 from an internal discussion, I think.</p> <p>3 Q Well, I agree. And I'm hoping that you can 4 clarify your testimony there.</p> <p>5 A Sure. So we've had several discussions already 6 this morning with regard to the planning alternatives 7 that were completed prior to selecting the east plant 8 location as the option -- recommended option going 9 forward. There were several references to a planning -- 10 wastewater planning study. Mr. Bedecarre had put up I 11 think in Luci's discussion a presentation from 12 August 2021 that included a list of alternatives in 13 there. One was upgrade and expand the existing plants, 14 other alternatives were to relocate to a different site 15 and then ultimately Alternative 5, which is what this 16 project is based on, was to upgrade the existing south 17 plant, keep it at 2 mgd and then develop a new satellite 18 facility on the east at 1 mgd, which is this current 19 project.</p> <p>20 What we are talking about there, the 21 alternatives that we evaluated was -- as we've discussed 22 previously, there was a treatment component and then 23 there was a collection system improvement component. In 24 the treatment analysis, we looked at not just is there 25 economies of scale savings associated with a larger</p>	<p style="text-align: right;">254</p> <p>1 treatment plus collection more cost-effective with this 2 option, Option 5 of 2 mgd south and then 1 mgd east. 3 But even just from the treatment standpoint, the 4 treatment costs for the south plant upgrade to 2 at -- 5 maintaining 2 mgd, the 1 mgd new plant for a satellite 6 even that total -- that treatment cost was less than the 7 treatment cost for just an expansion of the south plant 8 because of that construction sequencing complication.</p> <p>9 And so that -- those were some of the 10 alternatives that we went through in addition to looking 11 at different treatment options to say, What are 12 potential permit limits that might come into this 13 project, and what are the different treatment 14 technologies that could meet those kind of permit 15 limits.</p> <p>16 Q Okay. Thanks, Mr. Berryhill.</p> <p>17 A Uh-huh.</p> <p>18 MR. ARTHUR: Your Honor, I pass the 19 witness.</p> <p>20 JUDGE STARNES: Okay. For our Protestant, 21 which group is going first?</p> <p>22 MR. BOOTH: I believe Eric is.</p> <p>23 MR. ALLMON: Yes, I'll go ahead and go 24 first on behalf of Granbury Fresh. 25</p>

<p style="text-align: right;">255</p> <p style="text-align: center;">CROSS-EXAMINATION</p> <p>1</p> <p>2 BY MR. ALLMON:</p> <p>3 Q Good morning, Mr. Berryhill. How are you?</p> <p>4 A I'm good. Good morning.</p> <p>5 Q First, just so that we're straight: Does a</p> <p>6 negative ORP reflect anaerobic conditions?</p> <p>7 A No, it does not. You need to have a value of</p> <p>8 that ORP to determine whether it's actually anaerobic</p> <p>9 conditions or anoxic.</p> <p>10 Q Now, what do you mean by actually anaerobic?</p> <p>11 A So there's -- when you're talking about true</p> <p>12 anaerobic conditions, that means there is no oxygen in</p> <p>13 the process whatsoever and you're now producing methane</p> <p>14 and sulfides. But that doesn't mean -- if you have a</p> <p>15 negative ORP, that does not mean that it's an anaerobic</p> <p>16 condition because there's an area in between anaerobic</p> <p>17 and aerobic which is your anoxic area.</p> <p>18 Q So do you have any reference for your</p> <p>19 contention that a negative ORP is not anaerobic?</p> <p>20 A There's -- more than anything, it's from</p> <p>21 industry experience in working with different BNR</p> <p>22 facilities.</p> <p>23 Q But do you have any scientific reference for</p> <p>24 your contention that a negative ORP does not define</p> <p>25 anaerobic conditions?</p>	<p style="text-align: right;">257</p> <p>1 depends -- tells you whether you have a limited amount</p> <p>2 of oxygen, which is anoxic versus no oxygen whatsoever</p> <p>3 which is anaerobic.</p> <p>4 Q And so could that limited amount of oxygen</p> <p>5 indicate anaerobic conditions?</p> <p>6 A No, it would not. A limited amount of oxygen</p> <p>7 would indicate anoxic conditions.</p> <p>8 Q What is the distinction between anoxic and</p> <p>9 anaerobic conditions?</p> <p>10 A Anaerobic conditions has zero oxygen</p> <p>11 whatsoever, not any -- no free dissolved oxygen, nor any</p> <p>12 bound oxygen. Anoxic could have dissolved -- free</p> <p>13 dissolved oxygen. But typically you're going to find it</p> <p>14 more in the form of bound oxygen.</p> <p>15 Q But you have no scientific reference for that?</p> <p>16 A Just from normal industry literature and</p> <p>17 experience on working on other BNR facilities in Texas.</p> <p>18 Q But you would agree any negative ORP here</p> <p>19 reflects reducing conditions?</p> <p>20 A I would agree that a negative ORP would reflect</p> <p>21 reducing conditions but does not necessarily reflect</p> <p>22 anaerobic conditions.</p> <p>23 Q Okay. Now, and my concern as with the TCEQ is</p> <p>24 what the permit requires and what the permit allows.</p> <p>25 Does the permit impose any limits on the ORP within the</p>
<p style="text-align: right;">256</p> <p>1 A Not as a part of my exhibits at this time.</p> <p>2 Q Okay. Do you have any that you can identify</p> <p>3 here?</p> <p>4 A Not in any of the exhibits that I've seen thus</p> <p>5 far, no, sir.</p> <p>6 Q Now, does ORP stand for oxidation reduction</p> <p>7 potential?</p> <p>8 A Yes, that is correct.</p> <p>9 Q And with regard to the -- what's oxidation?</p> <p>10 A Oxidation is the biological processing or</p> <p>11 chemical processing of an organic compound used through</p> <p>12 the use of an oxidative -- in the case here, this would</p> <p>13 be oxygen.</p> <p>14 Q And what is reduction?</p> <p>15 A Reduction is the ability also to process an</p> <p>16 organic biologically without the presence of oxygen.</p> <p>17 Q So if you have a negative ORP are you then</p> <p>18 reducing conditions?</p> <p>19 A That is correct.</p> <p>20 Q So if you're at a negative ORP and you're</p> <p>21 reducing conditions, does that indicate the absence of</p> <p>22 oxygen?</p> <p>23 A It doesn't indicate the absence of oxygen. It</p> <p>24 indicates that you may not have -- you may have a</p> <p>25 minimal amount of oxygen. The numeric value then</p>	<p style="text-align: right;">258</p> <p>1 equalization basin?</p> <p>2 A No, it does not.</p> <p>3 Q Does the permit impose any limits on the ORP</p> <p>4 within the BNR anaerobic zone?</p> <p>5 A No, it does not.</p> <p>6 Q Does the permit impose any requirements that</p> <p>7 the equalization basin be covered?</p> <p>8 A Not that I'm aware of, no.</p> <p>9 Q Does the permit impose any requirements that</p> <p>10 the equalization basin be aerated?</p> <p>11 A Not that I'm aware of.</p> <p>12 Q Okay. So this permit authorizes an unaerated,</p> <p>13 uncovered, equalization basin with an ORP less than</p> <p>14 negative 200?</p> <p>15 A I don't know that it clearly states that it</p> <p>16 allows it or doesn't allow it. It doesn't have a</p> <p>17 reference to it.</p> <p>18 Q It's certainly not prohibited in any way by the</p> <p>19 permit?</p> <p>20 A Not from what I have seen from the permit, no.</p> <p>21 Q Okay. Now, I want to talk a bit more about</p> <p>22 this equalization basin, and I want to start with a -- I</p> <p>23 want to look at a TCEQ regulation.</p> <p>24 Do you have in front of you TCEQ</p> <p>25 Regulation 217.157?</p>

<p style="text-align: right;">259</p> <p>1 A Yes.</p> <p>2 Q And is this for membrane bioreactor systems?</p> <p>3 A Yes, it is.</p> <p>4 Q So does this regulation apply to the facility?</p> <p>5 A Yes, it does.</p> <p>6 Q Now, I want to look at 157(d). These get a</p> <p>7 little bit -- into the weeds a little bit, so I'm going</p> <p>8 to look at (d)(7)(C).</p> <p>9 Do you see where that provides that an MBR</p> <p>10 system with a peak flow rate that is greater than 2.5</p> <p>11 times the average daily flow must use an equalization</p> <p>12 basin, offline storage, or reserve membrane capacity to</p> <p>13 accommodate the higher peak flow?</p> <p>14 A Yes, I do read that.</p> <p>15 Q Does this requirement apply to -- if the</p> <p>16 facility meets the threshold here, does this requirement</p> <p>17 apply to the facility?</p> <p>18 A Yes, it does. And our assumption in the design</p> <p>19 was that we actually applied a four times peaking</p> <p>20 factor, so that was why we included an EQ basin for this</p> <p>21 project.</p> <p>22 Q So this requirement applies to the facility?</p> <p>23 A It does in this case, yes.</p> <p>24 Q Okay. And because the peak flow is greater</p> <p>25 than 2.5 times the average daily flow?</p>	<p style="text-align: right;">261</p> <p>1 require residents time within the equalization basin of</p> <p>2 greater than 90 minutes?</p> <p>3 A Yes, it could. And then the question becomes</p> <p>4 how long you could store it before it could go septic,</p> <p>5 if you're either not providing mixing or aeration of</p> <p>6 which we are.</p> <p>7 Q Now, as wastewater is produced in a system, are</p> <p>8 there kind of alterations in flow with some times of the</p> <p>9 day having higher flow and others having lower flow?</p> <p>10 A Yes, that is correct.</p> <p>11 Q And is an equalization basin sometimes used in</p> <p>12 order to attenuate those changes in flow?</p> <p>13 A It is typically not required for an MBR system</p> <p>14 to handle diurnal flow variations. The use of EQ to</p> <p>15 handle diurnal flow variations is -- typically is more</p> <p>16 associated with a conventional treatment plant that uses</p> <p>17 clarifiers. That's where you would need to see</p> <p>18 steady-state conditions through the process.</p> <p>19 Q Does an MBR screen require some consistent flow</p> <p>20 across the screens?</p> <p>21 A I'm not sure I understand your question. You</p> <p>22 say MBR screen?</p> <p>23 Q Let me ask that question again, yes.</p> <p>24 So does an MBR system operate most</p> <p>25 efficiently with a consistent flow through the system?</p>
<p style="text-align: right;">260</p> <p>1 A That is correct.</p> <p>2 Q Okay.</p> <p>3 A I apologize. The anticipated peak flow, we</p> <p>4 anticipate it's going to be more than 2.5. That is</p> <p>5 correct.</p> <p>6 Q And the authorized peak flow is greater than</p> <p>7 the 2.5 times the authorized daily flow?</p> <p>8 A Yes, that is correct.</p> <p>9 Q Okay. Does the permit authorize this</p> <p>10 requirement to be met through the use of an equalization</p> <p>11 basin?</p> <p>12 A I don't recall if the permit gets into that</p> <p>13 level of detail. This item here is with regard to</p> <p>14 design criteria and what would be reviewed by the plan</p> <p>15 review team, not from the permitting team.</p> <p>16 Q And so my question is whether the permit would</p> <p>17 allow the equalization basin to be used in order to</p> <p>18 accommodate the peak flow rates?</p> <p>19 A It could be allowed to use -- an EQ basin could</p> <p>20 be allowed to meet -- could be approved to utilize this</p> <p>21 or meet this requirement. But, again, this is a -- that</p> <p>22 is not a permitting item that would typically be seen in</p> <p>23 a permit application. It would be as a part of the plan</p> <p>24 review submittal in detail design.</p> <p>25 Q Could the accommodation of such peak flow rates</p>	<p style="text-align: right;">262</p> <p>1 A It can operate more efficiently, but it's not</p> <p>2 an optimal requirement. The operation of an MBR system</p> <p>3 has production cycles, followed by rest cycles, followed</p> <p>4 by air scour cycles. So a typical MBR process, just</p> <p>5 like a membrane system at a water plant, like the City</p> <p>6 of Granbury's water treatment plant, has constant</p> <p>7 stopping and starting of the membrane system itself.</p> <p>8 That's why steady-state conditions of flow going through</p> <p>9 the MBR is not as critical.</p> <p>10 Q Now, I'd like to look at your testimony for a</p> <p>11 bit here. Do you have that in front of you now?</p> <p>12 A Yes.</p> <p>13 Q Now, I want to look at Page 27 of your</p> <p>14 testimony at lines -- at Line 12, you indicate that</p> <p>15 the -- you use the word "temporary," and we can kind</p> <p>16 of -- I'll let that go here. That the equalization</p> <p>17 basin is a permanent storage tank.</p> <p>18 Do you see that?</p> <p>19 A Yes.</p> <p>20 Q So is that a permanent structure of the</p> <p>21 facility?</p> <p>22 A Yes, it is.</p> <p>23 Q So is the basin itself permanent?</p> <p>24 A Yes.</p> <p>25 Q And is it allowed under the permit to always</p>

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1 contain wastewater?

2 **A** I don't recall if the permit states whether it

3 is or is not allowed to store wastewater for an

4 indefinite amount of time.

5 **Q** In your correspondence with the TCEQ, did you

6 indicate that the unlimited time of wastewater in the

7 facility was a target?

8 **A** Yes, and that was because of a communication

9 with Gordon Cooper, Luci Dunn, and Louis Herrin, where

10 Louis had noted, if wastewater is stored in an EQ basin

11 for less than 48 hours, he did not anticipate that going

12 septic. And so that was included, I believe, in our

13 permit application as an excerpt.

14 **Q** So if that is only a target, does that

15 constitute a requirement of the permit?

16 **A** I don't believe it is instituted as a

17 requirement because I don't believe it is written in --

18 specifically into the permit itself.

19 **Q** And, likewise, if it's just intended, does that

20 constitute a requirement of the permit?

21 **A** Not that I'm aware of, no.

22 **Q** Okay. Now, in looking at this on Page 29 at

23 Line 12, you say the equalization basin is to

24 temporarily store excess influent wastewater during a

25 major storm event.

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1 Was there a particular storm event that

2 you looked up?

3 **A** No. The intent for that was on the basis of a

4 storm event that would result in a peak flow rate into

5 the plant that would exceed 2 or 2.5 times the design

6 flow rate.

7 **Q** So did you model, for instance, say, a 24-hour

8 25-year storm event?

9 **A** No, I did not.

10 **Q** Do you know whether this would be able to

11 handle a 24-hour, 25-year storm event being emptied

12 within 48 hours?

13 **A** I do not because I did not complete a

14 calculation to determine what that storm flow would look

15 like.

16 **Q** So did you do any quantitative analysis to

17 ensure this will be able to be emptied within 48 hours?

18 **A** Not specifically for the east facility, other

19 than an evaluation of what the historical peak flows

20 were at the existing -- the City's existing facility,

21 given that this is not a new service area. This plant

22 would serve part of the existing service area that

23 currently goes to the City's existing wastewater plant.

24 And the historical data shows a typical peaking factor

25 of 2.5 to 3 times the design flow rate, not 4Q. And

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1 what we designed for here was four times the design flow

2 rate to be able to store that excess if we needed to.

3 **Q** And you said that was a typical peaking factor.

4 Were there events with a peaking factor

5 greater than that?

6 **A** I'm sorry. I'm not sure I understood your

7 question there.

8 **Q** You described that as you looked at historical

9 flows you saw a typical peaking factor and that's what

10 you based your analysis on, as I understand it?

11 **A** Thank you. I appreciate the clarification.

12 No, what I meant by that was, the actual

13 maximum peaking factor that we observed, looking at

14 historical data from the City's echo database, which is

15 the database maintained by APA for looking at discharge

16 monitoring reports, that reflected a 2.5 to 3 maximum

17 peaking factor in the historical data.

18 **Q** But, again, this permit allows that wastewater

19 to be present within the equalization basin for greater

20 than 48 hours?

21 **A** I believe it does because I don't believe it

22 stipulates a maximum hold time.

23 **Q** Okay. Will the influent to this facility

24 contain sulfur?

25 **A** It may, but I don't know if it does currently.

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1 **Q** Will the influent potentially be anaerobic?

2 **A** I don't believe it would be anaerobic. I think

3 it would be more likely either anoxic or aerobic. I

4 believe there would be some oxygen in that wastewater.

5 **Q** Would the influent potentially have a negative

6 ORP?

7 **A** It could potentially have a negative ORP but

8 that does not necessarily mean it's anaerobic.

9 **Q** But, again, you don't have any scientific

10 reference for that contention?

11 **A** No, I don't.

12 **Q** Okay. Will the temporary equalization basin

13 potentially contain biological processes producing

14 hydrogen sulfide?

15 **A** No, it won't.

16 **Q** What is your basis to contend that it will not?

17 **A** The basis is on being able to have mixing

18 within the basin, a short residence time, and the

19 ability to provide air to that basin as needed.

20 **Q** Again, is mixing required by the permit?

21 **A** It is not.

22 **Q** Is a short residence time required by the

23 permit?

24 **A** I don't believe it is.

25 **Q** Is aeration required by the permit?

<p style="text-align: right;">267</p> <p>1 A I don't believe it is.</p> <p>2 Q So if that equalization basin is operated</p> <p>3 without mixing, without a limited residence time, and</p> <p>4 without aeration, could it potentially contain processes</p> <p>5 creating hydrogen sulfide?</p> <p>6 A It is possible that it could if you were not</p> <p>7 operating mixing, which this will have mixing. It is</p> <p>8 possible if it was -- if the ORP was allowed to go to a</p> <p>9 negative value of minus 200 or less.</p> <p>10 The design of this facility is to provide</p> <p>11 mixing at all times, to maintain no more than 48 hours</p> <p>12 of storage and then bring back into the treatment plant</p> <p>13 and has the ability to provide aeration to process.</p> <p>14 Q And, again, I appreciate that. But we're here</p> <p>15 to look at what the permit allows and what the permit</p> <p>16 requires.</p> <p>17 Will hydrogen sulfide producing process</p> <p>18 potentially occur within the BNR anaerobic basin?</p> <p>19 A No.</p> <p>20 Q If operated as allowed -- well, what is your</p> <p>21 basis for saying that?</p> <p>22 A The basis for that is the design of the BNR</p> <p>23 selector zone for phosphorus conversion, which is</p> <p>24 labeled the anaerobic basin, has a design ability to</p> <p>25 increase the recycle from the anoxic zone to maintain an</p>	<p style="text-align: right;">269</p> <p>1 inorganic, which that is the indicator for much -- how</p> <p>2 large that inorganic selection needs to be is to convert</p> <p>3 that inorganic to organic phosphorus.</p> <p>4 In the case here, we have a very small</p> <p>5 amount so we can operate this, again, at the low end of</p> <p>6 the anoxic range, not produce sulfides or foul odors and</p> <p>7 still get the phosphorus conversion needed for optimal</p> <p>8 BNR and phosphorus reduction.</p> <p>9 Q So if in the future the phosphorus</p> <p>10 concentration of the influent was higher, would it be</p> <p>11 necessary to operate the facility at a lower ORP in</p> <p>12 order to adequately remove phosphorus?</p> <p>13 A I'm sorry. Could you restate that question?</p> <p>14 Q If in the future the phosphorus concentration</p> <p>15 of the influent was greater than you have assumed, would</p> <p>16 it be necessary to operate the BNR anaerobic zone at a</p> <p>17 lower ORP than you are assuming?</p> <p>18 A No. It would not require you to operate it at</p> <p>19 a lower level.</p> <p>20 Q Is this facility able to more effectively</p> <p>21 remove phosphorus with a lower ORP?</p> <p>22 A No, I don't believe so, based on how we've</p> <p>23 designed it.</p> <p>24 Q And, again, that's a design not required by the</p> <p>25 permit?</p>
<p style="text-align: right;">268</p> <p>1 ORP in an anoxic state that will not produce sulfides.</p> <p>2 Q And does the permit require that that ORP be</p> <p>3 maintained?</p> <p>4 A Not that I'm aware of.</p> <p>5 Q Okay.</p> <p>6 A However, the permit does have a phosphorus</p> <p>7 limit that will require optimized operation of the BNR</p> <p>8 system to minimize the amount of phosphorus and ammonia</p> <p>9 and BOD that could leave the process. So while I</p> <p>10 understand the statement that if it's not required</p> <p>11 you're implying that it may not be operated that way,</p> <p>12 the City will have permit limits that they have to meet</p> <p>13 and part of meeting those permit limits is operating the</p> <p>14 plant properly to industry standards.</p> <p>15 Q I'm glad you mentioned that.</p> <p>16 Does phosphorus removal operate more</p> <p>17 efficiently as you get into an ORP lower than say</p> <p>18 negative 200?</p> <p>19 A I don't know that I would say that it operates</p> <p>20 more efficiently. It will take longer for phosphorus</p> <p>21 conversion if you have a higher ORP value. In the case</p> <p>22 of this process, the sampling that was done for the</p> <p>23 existing wastewater reflected about only 20 percent</p> <p>24 inorganic phosphorous, as opposed to other facilities we</p> <p>25 can typically see 30, 40, or even 50 percent as</p>	<p style="text-align: right;">270</p> <p>1 A The design under -- not by the permit, but</p> <p>2 under 217.157, if you're utilizing MBR technology -- you</p> <p>3 must design -- you must utilize a BNR process for that.</p> <p>4 And knowing that we have a phosphorus limit, the intent</p> <p>5 is to provide a BNR process that allows us to meet that</p> <p>6 phosphorus limit.</p> <p>7 Q Okay. Thank you. I want to look at your</p> <p>8 testimony at Page 21. Give me just a second here.</p> <p>9 Now, would the anoxic basin potentially</p> <p>10 contain hydrogen sulfide producing biological processes?</p> <p>11 A No, it would not because there would still be a</p> <p>12 presence of oxygen in that basin.</p> <p>13 Q Does the permit require the absence of oxygen</p> <p>14 in that?</p> <p>15 A No.</p> <p>16 Q Does it require the presence of oxygen within</p> <p>17 that basin?</p> <p>18 A No, it doesn't but if you're operating it in an</p> <p>19 anoxic state you're going to have oxygen in that basin.</p> <p>20 Q Okay. I'd ask you to look with me at Page 24</p> <p>21 of your testimony and look at Lines 11 through 13.</p> <p>22 There you say that it would meet the</p> <p>23 500 foot buffer zone on the basis that lagoon storing</p> <p>24 wastewater indefinitely would be anticipated to go</p> <p>25 septic.</p>

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1 What do you mean here by "indefinitely"?

2 **A** That is in reference to -- in similar reference

3 to the statement I made earlier, as well as the

4 statement made earlier by Luci Dunn, that if you are

5 storing raw wastewater in a lagoon, when you say

6 "indefinitely," that's referring to it in term of weeks,

7 months, or even years.

8 So similar to the detention time for a

9 facultative lagoon which is typically a minimum of 21 to

10 30 days, that's what we're talking about indefinitely.

11 That would provide enough time without mixing. It's

12 going to allow stratification and the bottom layer of

13 that basin could then go septic for a hypothetical

14 facility, which is not what we have designed in this

15 project.

16 **Q** Does the permit here authorize the indefinite

17 storage of effluent within the equalization basin?

18 **A** I don't know that it stipulates a time limit of

19 how much of a maximum or a minimum in the permit.

20 **Q** And you use the word here to "go septic." What

21 do you mean by "septic"?

22 **A** That would be a situation where the ORP is at

23 minus 200 or lower, so minus 300, minus 400, et cetera.

24 **Q** If you have an ORP ranging from zero to

25 minus -- did you say minus 100 or minus 200?

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1 **A** That was -- septic would be minus 200 and

2 lower, minus 200 to minus 400 as an example.

3 **Q** And if you have an ORP ranging from 0 to minus

4 200, can that still result in the production of foul

5 odors?

6 **A** From 0 to minus 200, really that's still going

7 to be considered anoxic conditions and we would not

8 anticipate the off-gassing of foul odors from an anoxic

9 process, no.

10 **Q** So you're saying the material would not have a

11 foul smell at those ORPs?

12 **A** Correct from 0 to minus 200 that would still be

13 expected to be anoxic conditions because there's still

14 going to be some presence of oxygen even if it's a small

15 minimal amount.

16 **Q** Does the permit require imposing any

17 requirements for the monitoring of the ORP in the BNR

18 anaerobic zone?

19 **A** I don't believe that the permit requires it but

20 that is a requirement in the design, including the

21 design review with TCEQ.

22 **Q** Okay. But, again, I'm asking about what the

23 permit requires.

24 Does the permit require any monitoring of

25 the ORP in the equalization basin?

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1 **A** Not that I'm aware of.

2 **Q** Okay. As you define lagoon, would that include

3 an unaerated equalization basin?

4 **A** An aerated, non-mixed equalization basin that

5 would be allowed to stratify within the basin.

6 **Q** And is this equalization basin at this facility

7 authorized to operate in that manner?

8 **A** I don't recall if the permit allows for it to

9 operate in that manner, but that's not what the design

10 is. The design includes the mixing, the ability for

11 aeration and minimal retention time in the basin.

12 **Q** So you don't know that the permit would

13 prohibit that type of authorization --

14 (Simultaneous discussion)

15 **A** That's correct.

16 **Q** (BY MR. ALLMON) -- that type of operation?

17 **A** I know if it's -- how it's stated in the

18 permit.

19 **Q** Okay. Now, looking at your testimony, I want

20 to look at line -- at Page 26, Lines 10 through 13.

21 Here you say that, right now at eHT you're

22 transitioning from lagoon plants to mechanical treatment

23 wastewater treatment plants. So in your mind is there a

24 distinction between lagoon plants versus those that are

25 mechanical treatment plants?

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1 **A** Yes, sir. A lagoon plant typically -- when you

2 refer to that as a lagoon plant, you're referring to a

3 facultative lagoon. It does not have any mechanical

4 mixing. It doesn't have any aeration, other than what

5 little bit of air that comes in from the wind across the

6 water surface. So those are allowed to stratify. Not

7 only do they produce more odors, but more specifically

8 from the context of that statement, they produce a much

9 lower -- a much poorer water quality coming from the

10 effluent which frequently requires changing from a

11 discharge to a land application permit.

12 **Q** Okay. I want to look at a TCEQ rule with you

13 real quick here, if I can get there. I'm looking at --

14 do you have in front of you now 30 TAC Section 217.2?

15 **A** Yes.

16 **Q** And I'll look at Item 15 within this section.

17 Do you see the definition there of a

18 completely mixed aerated lagoon?

19 **A** Yes.

20 **Q** And is that a lagoon in which oxygen is

21 supplied mainly through mechanical or diffused aeration?

22 **A** That is correct, which is not a facultative

23 lagoon.

24 **Q** But it does indicate that a lagoon would

25 include certain structures that would include mechanical

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1 means of mixing?

2 **A** **No, sir. It's stating a completely mixed**

3 **aerated lagoon is a type of lagoon where you're adding**

4 **oxygen via mechanical or diffused aeration.**

5 **Q** **So --**

6 (Simultaneous discussion)

7 **A** **Whereas a facultative lagoon does not have any**

8 **mechanical mixing or diffused aeration.**

9 **Q** **(BY MR. ALLMON) Is the 500-foot buffer zone**

10 **limited in application to only facultative lagoons?**

11 **A** **Yes. From a completely mixed aerated lagoon**

12 **standpoint the 500-foot buffer would not apply because**

13 **you're no longer having stratification. You're**

14 **controlling what's happening in that basin.**

15 **Q** **Does the rule itself at 319.13 make any**

16 **distinction in terms of lagoons were zones of anaerobic**

17 **activity required that it be a facultative lagoon?**

18 **A** **In the first sentence, I believe, if I remember**

19 **correctly, it says, lagoons of anaerobic activity in**

20 **parenthesis, facultative lagoons and unaerated**

21 **equalization basins. It does not -- it doesn't**

22 **reference completely mixed aerated lagoons.**

23 **Q** **And are facultative lagoons only one example of**

24 **what constitutes a lagoon with zones of anaerobic**

25 **activity?**

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1 **A** **My understanding is that is the only type of**

2 **lagoon that is a treatment lagoon that has anaerobic**

3 **activity.**

4 **Q** **But what you're referring to when you say that**

5 **the rule on reference is that is simply a parenthetical**

6 **that lists different types of facilities that would be**

7 **included within the definition of a lagoon?**

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

9 **Q** **And so that's not an item of limitation on what**

10 **might constitute a lagoon?**

11 **A** **The treatment units that are identified in the**

12 **parenthesis, the parenthetical description are treatment**

13 **units or are units that have no mixing, no aeration. It**

14 **is simply holding the raw wastewater in that basin. So**

15 **that is why you would not include completely mixed**

16 **aerated lagoons within that -- within that section of**

17 **parenthesis.**

18 **Q** **And this permit we're looking at here**

19 **authorizes an equalization basin with no mixing and no**

20 **aeration. Is that correct?**

21 **A** **I believe so, yes.**

22 **Q** **Let me look back to your testimony again, and I**

23 **want to look at Page 27 of your testimony. At lines --**

24 **and I'm starting at Line 19. You say here: The**

25 **proposed EQ, and I assume EQ is equalization?**

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1 **A** **I'm sorry. Which page was that?**

2 **Q** **Page 27 of your testimony and let me see if I**

3 **can navigate my way around so -- to make sure we're on**

4 **the same page.**

5 Do you see that before you now, Page 27?

6 **A** **Yes. Thank you.**

7 **Q** **And I'm looking starting here at Line 19, you**

8 **discussed the proposed equalization basin has been**

9 **designed to include a cover, as well as foul air piping**

10 **from the equalization basin to the process aeration and**

11 **MBR air scour blowers, to send the foul air to the**

12 **aerobic selector zone and to the MBR tanks.**

13 When you say "foul air" here, are you

14 **referring to air from the equalization basin?**

15 **A** **The foul air piping is from the equalization**

16 **basin as well as all of the other headworks units.**

17 **Q** **And why do you use the term "foul air" here?**

18 **A** **On the basis of, if there were any off-gassing**

19 **from the basin, we would be able to capture that and**

20 **then treat it biologically on-site.**

21 That's not saying that we are guaranteeing

22 **that there is going to be foul airs, but we're trying**

23 **to, again, go above and beyond the minimum requirements**

24 **that were established by TCEQ for the project.**

25 **Q** **But, again, this capturing and treatment is not**

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1 **required by the permit?**

2 **A** **That's correct. It's going above and beyond**

3 **the minimum requirements.**

4 **Q** **So without that capture and treatment process,**

5 **that foul air would not be treated in that manner?**

6 **A** **If it was producing any foul air, which is not**

7 **anticipated to be the case.**

8 **Q** **Okay. Is it potentially the case that it would**

9 **create foul air?**

10 **A** **Anything is possible, but not with -- but with**

11 **how the facility is designed, the intent is never to be**

12 **producing foul air because we're not allowing the ORP to**

13 **drop to a point where it becomes anaerobic.**

14 **Q** **It's your intent not to allow that ORP to drop?**

15 **A** **Correct. Which is factored into the design and**

16 **how the plant will be operated.**

17 **Q** **But that's not a requirement of the permit.**

18 **A** **That is correct. It's above and beyond the**

19 **requirement of the permit.**

20 **Q** **And I'm looking at the next page. You use the**

21 **term here "design intent."**

22 When you indicate the design intent,

23 **again, is that a permit requirement?**

24 **A** **No, it is not.**

25 **Q** **Now, in your testimony you reference Exhibit**

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1 304, which accompanies your testimony. And let me see
 2 if I can -- we can turn to that a little bit. Let me --
 3 do you have Exhibit 304 in front of you?
 4 **A Yes.**
 5 Q And you describe this as the design of the
 6 facility?
 7 **A It is a layout of the facility of the proposed**
 8 **site plan that includes the -- I believe it includes the**
 9 **proposed buffer zone, the facility boundary, and the**
 10 **property boundary. I'm kind of having to look at it**
 11 **sideways.**
 12 Q Let me see if I can help a bit here.
 13 **A Thank you.**
 14 Q Yeah.
 15 Now, does this include details for the
 16 sizing of the units?
 17 **A No, it doesn't.**
 18 Q Does this include details for the sizing of the
 19 membranes?
 20 **A No, it doesn't.**
 21 Q So is this a complete design for the facility?
 22 **A This is not a design, per se. This is a site**
 23 **plan that identifies the facility boundary, the property**
 24 **boundary, and the anticipated buffer zone setbacks from**
 25 **the process units. Information on the process units**

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1 **would be in a separate section of the permit application**
 2 **that includes all of the dimensions and the design**
 3 **information for the treatment process units.**
 4 Q And so, again, as we look at this equalization
 5 basin, the distance currently given is 150 feet. You
 6 would agree with me on that?
 7 **A 150 feet or more, yes.**
 8 Q And when you say "or more," where are you
 9 saying -- where is the "more" here? I'm seeing a dotted
 10 line. Does the dotted line indicate 150 feet?
 11 **A It does.**
 12 Q And does that dotted line go up to straight --
 13 is the property facility boundary this red line?
 14 **A The property boundary is the red line.**
 15 Q And does that dotted line essentially match the
 16 property line?
 17 **A It appears to in this section on the east**
 18 **side -- or actually south side, there's additional space**
 19 **between the 150-foot setback and the property line.**
 20 Q But here as we look on the west side, which is
 21 the side towards the Bennett RV park, it's limited to
 22 150 feet?
 23 **A That appears to be the case, yes.**
 24 Q So if this equalization basin was operated
 25 without aeration, without a cover, and without mixing,

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1 would this be an adequate buffer zone?
 2 **A I don't know that I could state whether it**
 3 **would or would not be because that is not how we**
 4 **designed it. We designed it with mixing, with aeration**
 5 **capability and with the ability to minimize the storage**
 6 **time, specifically to prevent it from going septic.**
 7 Q So have you made any determination as to
 8 whether if this equalization basin was operated without
 9 mixing, without aeration, and without a cover, this
 10 buffer zone would be adequate?
 11 **A We have --**
 12 MR. HILL: Your Honor, I'm going to
 13 object. Mr. Berryhill has been asked this question in
 14 various forms multiple times over again. And the
 15 assumption that the facility isn't going to be operated
 16 the way that it's designed and it will be required to be
 17 built is really assuming facts that are not into
 18 evidence.
 19 MR. ALLMON: Your Honor --
 20 JUDGE STARNES: Go ahead.
 21 MR. ALLMON: Well, first I'll say we're
 22 here to evaluate the permit, and I don't think it's
 23 speculative to look at what the permit allows, but I'll
 24 go ahead. I'll move on.
 25 And, in fact, I think that I'm -- at this

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1 point, I have no further questions for the witness.
 2 JUDGE STARNES: Okay. Mr. Booth, do you
 3 have any questions?
 4 MR. BOOTH: Oh, yes, ma'am. I have quite
 5 a few questions. I'm sure it'll take us into lunch. We
 6 could break now or we could ask until then. It's your
 7 pleasure, Judge.
 8 JUDGE STARNES: Why don't we go ahead and
 9 get started, and I may interrupt you once we hit noon so
 10 we can -- we'll break then. But let's make some
 11 progress.
 12 MR. BOOTH: Okay. Sounds good.
 13 CROSS-EXAMINATION
 14 BY MR. BOOTH:
 15 Q Mr. Berryhill, my name is Mike Booth and I
 16 represent the Rists and Bennett RV Ranch.
 17 Does your firm make recommendations on
 18 whether or not a site is suitable for a wastewater
 19 treatment plant to the client?
 20 **A I will say from my perspective I do not**
 21 **typically work on evaluating a site in determining site**
 22 **suitability with a client for a treatment plant. What I**
 23 **do evaluate is what the treatment processes would be**
 24 **required. The identification of this site versus other**
 25 **potential locations, I believe was evaluated by Chris**

<p style="text-align: right;">283</p> <p>1 Hay in the discussion.</p> <p>2 I did look at each site -- at the</p> <p>3 potential site from the standpoint of site topography</p> <p>4 and proximity to a potential discharge location.</p> <p>5 Typically, though, my understanding is, we don't</p> <p>6 normally make a recommendation of a site. We evaluate</p> <p>7 all the requirements that have to be met with TCEQ and</p> <p>8 permitting, and we provide that information to the owner</p> <p>9 and they make a final decision of which site that they</p> <p>10 would like -- they want to utilize for the proposed</p> <p>11 project.</p> <p>12 Q Okay. Well, I'll ask Mr. Hay what he thinks</p> <p>13 about this site.</p> <p>14 Now, you are aware that the property --</p> <p>15 the Rist property is an RV park. Is that correct?</p> <p>16 A That is my understanding, yes.</p> <p>17 Q Okay. And you can imagine the concerns that</p> <p>18 the Rists have about smell, so I'm going to take you</p> <p>19 through a series of questions.</p> <p>20 We've been talking about different types</p> <p>21 of things that we look at from a chemistry standpoint</p> <p>22 and ORPs and such. But let me just -- for the ones of</p> <p>23 us that have not had the pleasure of going to wastewater</p> <p>24 treatment plants like we have, let's talk about this.</p> <p>25 So the water -- wastewater that comes into</p>	<p style="text-align: right;">285</p> <p>1 A Yeah, so the process -- the blowers that are</p> <p>2 being used are the actual process in NBR air scour</p> <p>3 blowers. Those are a component of the NBR supply</p> <p>4 package. The covers over all the structures, those</p> <p>5 are -- that's within -- if you were looking at line</p> <p>6 items, that should be within miscellaneous metals --</p> <p>7 (Simultaneous discussion)</p> <p>8 Q (BY MR. BOOTH) Oh, okay.</p> <p>9 A -- because that would be a fabrication</p> <p>10 requirement. There's not a -- you don't go to a cover</p> <p>11 store and go buy covers. You actually would go to a</p> <p>12 fabrication company, give them the dimensions and then</p> <p>13 they would fabricate the covers required to seal those</p> <p>14 basins.</p> <p>15 Q Okay. Thank you. Okay. Going -- walking over</p> <p>16 on the plant -- walking over to an equalization basin</p> <p>17 that's uncovered, unaerated, and so forth, would I</p> <p>18 expect to have a smell there -- a foul smell there?</p> <p>19 A Would this be for a basin that is storing</p> <p>20 wastewater for --</p> <p>21 Q Yes, sir.</p> <p>22 A -- 48 hours or well beyond that?</p> <p>23 Q No, from just 48 hours from one hour.</p> <p>24 A If it's storing wastewater for less than 48</p> <p>25 hours, I would not expect to smell any odors off-gassing</p>
<p style="text-align: right;">284</p> <p>1 the plant, it first hits, what, the grit chamber, one of</p> <p>2 the three things that y'all have -- grit removal</p> <p>3 screens?</p> <p>4 A Coarse screens, grit removal, and fine screens,</p> <p>5 yes, sir.</p> <p>6 Q Now, if I was standing there, could I expect to</p> <p>7 smell some odor --</p> <p>8 (Simultaneous discussion)</p> <p>9 A Not with how we designed it.</p> <p>10 Q (BY MR. BOOTH) -- foul odor? I'm not</p> <p>11 asking -- okay.</p> <p>12 A Because we have covers on all the --</p> <p>13 Q You've got covers and air filtration and so</p> <p>14 forth, except that's not in the permit. It just -- I'm</p> <p>15 going to stop and I'm probably going to lose my train of</p> <p>16 thought.</p> <p>17 Where would I find in your exhibits or</p> <p>18 your other colleagues' exhibits where it says that y'all</p> <p>19 are going to put in filters and you're going to cover</p> <p>20 the equalization basin and have blowers and such?</p> <p>21 A I don't believe it's in the permit application</p> <p>22 because it's -- I don't believe it's a requirement.</p> <p>23 Q Okay. But I didn't see this -- I didn't see it</p> <p>24 in your cost estimates either. Were they in there? Did</p> <p>25 I miss it, the covers, blowers, et cetera?</p>	<p style="text-align: right;">286</p> <p>1 from the wastewater, no.</p> <p>2 Q Even though it comes into the system with a</p> <p>3 foul odor?</p> <p>4 A The reason you might have some foul odor is due</p> <p>5 to turbulence coming through as it's going through the</p> <p>6 screening. But, typically, we do find that there's</p> <p>7 oxygen in the raw wastewater coming in from the</p> <p>8 collection system so it's not septic when it comes into</p> <p>9 the plant.</p> <p>10 Q Now, how is that possible when it comes into</p> <p>11 the screens and it has odor -- foul odor? I've got to</p> <p>12 keep saying it, foul odor.</p> <p>13 A Sure. Typically, what you -- if you were</p> <p>14 smelling anything on that it could be debris that is</p> <p>15 captured on the screen that is sitting -- it is sitting</p> <p>16 there for longer than 48 hours before you're removing it</p> <p>17 out of that treatment unit. That typically would be --</p> <p>18 to smell that is not from the wastewater itself but what</p> <p>19 you've screened out and removed before you can put it</p> <p>20 into a dumpster that's sealed up.</p> <p>21 Q Okay. And you're going to have a dumpster</p> <p>22 that's sealed up there. Right?</p> <p>23 A Yes.</p> <p>24 Q Okay. So I've got that.</p> <p>25 Now, let's go back to the site. You</p>

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1 mentioned that you had -- you evaluated the topography.
 2 And I looked at that site, and it looks like it's pretty
 3 rough.
 4 What do y'all intend to do to make it
 5 suitable for a wastewater treatment plant?
 6 **A** Well, I guess when you say "rough," what are
 7 you referring to?
 8 **Q** Well, I mean, that there's hills and there's a
 9 pretty dadgum good slope going down toward the creek.
 10 **A** Uh-huh.
 11 **Q** In fact, it's nothing like I would expect a
 12 wastewater plant site to start with.
 13 Would you agree with that?
 14 **A** No, not really. The reason -- and the reason
 15 being.
 16 **Q** Go head.
 17 **A** If you were looking at a completely flat site,
 18 which might seem at first glance that that's a better
 19 solution for a property for a treatment plant, the
 20 problem is: There are only certain components of a
 21 wastewater treatment plant that are pumped where we're
 22 trying to lift up to a certain elevation. The majority
 23 of treatment process in a wastewater treatment plant
 24 flow by gravity. So in, say, for example, if we're
 25 talking about the existing south plant, all the

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1 structures are essentially about the same elevation. So
 2 we actually -- at the lift station, we have to pump up
 3 to a certain elevation and then that flows by gravity
 4 through those units.
 5 In the case here, we're still going to
 6 lift up to the BNR units but then it will flow by
 7 gravity through the BNR structure to the MBR to the UV
 8 down to discharge. So we actually take advantage of
 9 topography.
 10 **Q** Okay. But, you know, the slope that we're
 11 looking at probably drops, what, 25 feet or 30 feet?
 12 **A** Uh-huh, that's correct.
 13 **Q** And so you're not going to have any filling or
 14 anything like that between the little islands that --
 15 of -- where you're going to be putting your wastewater
 16 treatment units on?
 17 **A** No, sir. There will be limited grading that is
 18 required around the structures so that that way you --
 19 if you had a storm -- you know, rainfall over the
 20 property that it's not washing out across the surface,
 21 but that's about the extent of it.
 22 The other nice thing about that with the
 23 elevation is: There's no risk that that point, then, of
 24 any inundation of treatment units if there was some kind
 25 of flooding event based on the topography and how we

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1 would design and install those basins.
 2 **Q** Have you looked at how frequently that
 3 floodplain has floods?
 4 **A** I have not. But I believe internally at eHT we
 5 had completed an analysis or maybe had looked had --
 6 referred to a previous site analysis for that. Chris
 7 Hay would probably be a better point-person to ask on
 8 that discussion.
 9 **Q** Okay.
 10 **A** He works a lot more with site development than
 11 I do.
 12 **Q** Okay. Well, I'll ask him that question, then.
 13 So I understand this project is going to
 14 be a construction management at risk. Is that correct?
 15 **A** Yes, sir, that's the intent.
 16 **Q** Okay. Who chose that option?
 17 **A** That was selected by the City of Granbury, City
 18 Council.
 19 **Q** Okay. I'm going to back up. And what is a
 20 construction management at risk plant or construction
 21 project?
 22 **A** So it's -- it doesn't change what you're
 23 building. What it just changes is how the process --
 24 how the equipment and structures are procured. So the
 25 City goes through a request for qualifications to select

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1 a construction manager at risk or CMAR contractor. That
 2 CMAR contractor then develops big packages based on the
 3 design to procure and get competition on each piece of
 4 equipment, each type of pipe, valve, the construction
 5 cost for concrete structures, et cetera. What it is, is
 6 an open-book process than allows the City to gauge
 7 progress all along the initial steps of the project for
 8 procurement whereas a traditional hard bid, you design
 9 the project to completion. You put it out on the street
 10 to advertise. You get one contractor with one single
 11 number, and you don't know what may go into that entire
 12 number versus CMAR is an open-book process to see how
 13 the money is spent every step of the way to go from
 14 start to completion of the project.
 15 **Q** Now, when you're talking about a design to bid
 16 and build project -- right -- that's what you were
 17 referring to?
 18 **A** Yes.
 19 **Q** You'll typically have more than just one
 20 contractor bidding on it. Is that correct?
 21 **A** That's correct.
 22 MR. HILL: Your Honor, I've got to object
 23 here because I'm having a hard time finding the
 24 relevance of how this is bearing --
 25 MR. BOOTH: Well, I'll make it --

<p style="text-align: right;">291</p> <p>1 (Simultaneous discussion)</p> <p>2 JUDGE STARNES: One at a -- one at a time.</p> <p>3 Let him finish and then you can respond, Mr. Booth.</p> <p>4 MR. HILL: I'm having a hard time</p> <p>5 understanding how this line of questioning has anything</p> <p>6 to do with how the City meets all the permitting</p> <p>7 requirements, so I'm going to object to the relevancy of</p> <p>8 the line of questioning.</p> <p>9 JUDGE STARNES: Okay. Mr. Booth?</p> <p>10 MR. BOOTH: I'm going to link it up. And</p> <p>11 where I'm going with this is, that typically a CMAR</p> <p>12 project doesn't have all the design completed before</p> <p>13 they turn it over to the construction manager, and I'm</p> <p>14 trying to figure out at what process when the Commission</p> <p>15 does its design whether it's going to be these folks or</p> <p>16 it's going to be some other person.</p> <p>17 JUDGE STARNES: Okay. I'll overrule the</p> <p>18 objection. I'll let him do it for now.</p> <p>19 Q (BY MR. BOOTH) Now, Mr. Berryhill, who is the</p> <p>20 construction manager in this case or has the City gotten</p> <p>21 that far?</p> <p>22 A Yes, the selected CMAR contractor is</p> <p>23 Pepper-Lawson Waterworks or PLW for short.</p> <p>24 Q Okay. And is it true that they are going to</p> <p>25 work with you to do the final design and then they'll be</p>	<p style="text-align: right;">293</p> <p>1 better ways of doing things isn't getting rid of some of</p> <p>2 the blowers and things like that. So --</p> <p>3 A Understood.</p> <p>4 Q So can you answer that question?</p> <p>5 A Sure. No, the CMAR contractor cannot deviate</p> <p>6 from the proposed design, unless it's so authorized by</p> <p>7 the engineer and the owner. But in the case of</p> <p>8 components such as the use of the blowers, covering the</p> <p>9 structures, covering the EQ basin, having mixers in the</p> <p>10 basin, all the components we've talked about of trying</p> <p>11 to make sure we're not producing foul airs -- foul odors</p> <p>12 at the plant, those are nonnegotiable with the CMAR.</p> <p>13 They do not have the ability to try to value engineer</p> <p>14 those out of the project.</p> <p>15 Q And that's in the contract the City has with</p> <p>16 the CMR (sic)?</p> <p>17 A Yes, it is not specifically stated to that</p> <p>18 level of those items. But any proposed changes from a</p> <p>19 constructability standpoint have to be reviewed and</p> <p>20 approved as a group with the engineer and the owner.</p> <p>21 Specifically because through the completion of the</p> <p>22 project I would still remain as the engineer of record</p> <p>23 of -- the responsible engineer of record with TCEQ for</p> <p>24 the project.</p> <p>25 Q So theoretically you could change those</p>
<p style="text-align: right;">292</p> <p>1 sending out bids or requests for proposals on different</p> <p>2 parts, but the design is usually about 30 percent</p> <p>3 complete right now. Is that correct?</p> <p>4 A Well, for the use of CMAR, we would complete</p> <p>5 the entire design ourselves.</p> <p>6 Q Okay.</p> <p>7 A Where the CMAR contractor comes in is providing</p> <p>8 contractability feedback on what you designed around</p> <p>9 this piece of equipment, but this other piece of</p> <p>10 equipment gives you the same performance but maybe it</p> <p>11 can be fabricated a little faster or maybe at a little</p> <p>12 bit lower cost.</p> <p>13 Any bid packages that are prepared, yes,</p> <p>14 would be prepared by the CMAR contractor, but it would</p> <p>15 be based on the design plans and specifications as</p> <p>16 produced by eHT.</p> <p>17 Q Okay. Would Pepper-Lawson be able to change</p> <p>18 the type of structures, units, or processes that y'all</p> <p>19 have come up with?</p> <p>20 MR. HILL: I'd object that the question</p> <p>21 calls the witness to speculate.</p> <p>22 Q (BY MR. BOOTH) Well, is the design -- you just</p> <p>23 testified, Mr. Berryhill, that you'll be working with</p> <p>24 the construction manager to come up with some better</p> <p>25 ways of doing things. And I want to make sure that the</p>	<p style="text-align: right;">294</p> <p>1 features and no one could -- unless they conflict with</p> <p>2 the design criteria that the Commission has, no one</p> <p>3 could have any say over that, so theoretically --</p> <p>4 A I could not -- I myself could not change</p> <p>5 features of the design without approval from the owner.</p> <p>6 Q Okay.</p> <p>7 A And we need -- stipulated, including the city</p> <p>8 council we will provide -- we will go above and beyond</p> <p>9 the minimum requirements of TCEQ to be good -- to be</p> <p>10 essentially good stewards of the environment and good</p> <p>11 neighbors to everyone else around, including the Bennett</p> <p>12 RV Ranch.</p> <p>13 Q Does the City have any ideas on the type of</p> <p>14 fencing that they are going to use around the plant?</p> <p>15 A That, I'm not sure at this time.</p> <p>16 Q Okay. Now, looking at the plant site, it looks</p> <p>17 like that if a 500-foot buffer zone was required, you</p> <p>18 couldn't build a plant on this site. Is that correct?</p> <p>19 A Hypothetically, yes, you would need to acquire</p> <p>20 additional property, I would assume.</p> <p>21 Q Okay. And because of the plant located next to</p> <p>22 the floodplain, there's really not enough adjacent</p> <p>23 property to acquire unless you went over and condemned</p> <p>24 the Rists' place, I suppose?</p> <p>25 MR. HILL: Objection. The question calls</p>

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1 for speculation, Your Honor.

2 MR. BOOTH: Is there --

3 JUDGE STARNES: He can answer if he knows.

4 MR. BOOTH: Yeah.

5 A I don't know with regard to other nearby

6 properties.

7 Q (BY MR. BOOTH) You don't know whether the City

8 would be looking to expand in the floodplain?

9 A I don't know, no, sir.

10 Q Okay. Now, let's get this out of the way here

11 and change directions. I'm going to try to show you

12 something that I showed Mr. Crownover. So let me find

13 the picture.

14 Are you familiar with this particular

15 aerial photograph.

16 A I have seen it before, yes.

17 Q Okay. And it mentions Site A and Site B. I

18 guess this was -- looking from the title it was an

19 evaluation of these two sites as -- do you know anything

20 about what we are looking at here -- the City was

21 looking at or y'all were looking at?

22 A I do know that there were several potential

23 sites considered for the east site. I don't necessarily

24 recognize this graphic or could answer a lot of

25 questions to it because I did not prepare this graphic.

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1 Q Okay. But it was -- this would be like an east

2 side option, as opposed to one of the other options that

3 y'all were talking about earlier?

4 A That would make sense because these are both

5 shown in the eastern part of the city. Other than that,

6 I'm not sure.

7 Q Now, you recognize Site B as the Rist site, the

8 current place for the City's wastewater treatment plant.

9 Correct?

10 A Yes, sir.

11 Q Okay. Let me see here. This looks to be a

12 comparison of the cost of those two plants.

13 Do you know anything about this document?

14 A No, I don't. I believe Chris Hay may have

15 prepared that.

16 Q Okay. We need to leave something for him to

17 talk about, so I'll go ahead and stop the Screenshare.

18 JUDGE STARNES: Mr. Booth, if you're at a

19 good breaking point we can go ahead and take lunch now

20 and pick up --

21 MR. BOOTH: Okay. That would be fine.

22 That would be fine. Thank you.

23 JUDGE STARNES: Okay. So it's pretty much

24 straight up noon now. Let's come back at 1:00, and

25 we're off the record. I think that goes without saying.

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(Recess: 12:00 p.m. to 1:01 p.m.)

AFTERNOON SESSION

TUESDAY, MARCH 8, 2022

(1:01 p.m.)

JUDGE STARNES: Okay. Then let's go back

on the record after our lunch break.

And, Mr. Booth, you can continue with your

cross of Mr. Berryhill.

PRESENTATION ON BEHALF OF APPLICANT (CONTINUED)

JOSHUA BERRYHILL, P.E.,

having been previously duly sworn, testified as follows:

CROSS-EXAMINATION (CONTINUED)

BY MR. BOOTH:

Q Mr. Berryhill, let's move on to talk about

effluent limits.

JUDGE STARNES: Thanks for waiting until

after lunch.

(Laughter)

Q (BY MR. BOOTH) You're aware that the initial

application that the City had for this wastewater plant

was for a DO, dissolved oxygen, of 4. Were you aware of

that?

A Yes, sir. That sounds correct.

Q And now the Commission has put in there, in the

draft application, a dissolved oxygen of 6.

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A Yes, sir. That's correct.

Q What would you do to go from 4 to 6 as far as

the plant operation or design? Actually, both. Pardon

me. Go ahead.

A Yes, sir. As we would design the plant, at

this time, I wouldn't have to make any additional

modifications. And the reason is when we were working

through -- or getting ready to start working on detailed

design, we met with TCEQ to go over their modeling

results and what they recommended for draft permit

limits. So the proposed design for this facility is

based on those permit limits, not based on the limits

that we had initially put in our application. So we're

already designed for handling 6 DO.

Q Do you know why the City didn't do any water

quality modeling themselves until recently?

A It is not -- to my understanding, it is not

required by TCEQ for completion of a permit application.

When I worked at prior -- at past engineering firms,

from -- certain projects we would complete site-specific

modeling, but that was usually if -- given permit limits

proposed by TCEQ if the engineering firm didn't agree

with those limits and thought they should be looser

limits, perhaps, say, you know, a lower DO maybe or

higher nutrient limits, that they would do that

299	<p>1 sampling. In the case of this project the very first</p> <p>2 thing we did when getting started was before we</p> <p>3 submitted a permit application, we met with TCEQ to go</p> <p>4 through -- to identify where the proposed plant was</p> <p>5 going to be, what the proposed flow was, the location of</p> <p>6 the anticipated discharge. And then we requested</p> <p>7 feedback from TCEQ on what they would anticipate on</p> <p>8 permit limits, and we agreed with those proposed permit</p> <p>9 limits.</p> <p>10 Q Okay. Thank you. Is there anything preventing</p> <p>11 the City at this plant from having an effluent set on</p> <p>12 total phosphorus of .15 or .10?</p> <p>13 A I'm sorry. Could you rephrase --</p> <p>14 Q Do you know what the current permit would</p> <p>15 require for treatment of total phosphorus?</p> <p>16 A My understanding at this point is, based on the</p> <p>17 draft permit, that has a 1.0 milligram per liter total</p> <p>18 phosphorus limit in Interim 1 at 1 mgd and 0.5</p> <p>19 milligrams per liter total phosphorus at final phase of</p> <p>20 2 mgd.</p> <p>21 Q Would this plant be able to reduce the amount</p> <p>22 of phosphorus in its treatment process than what is</p> <p>23 currently required?</p> <p>24 A Yes. The intended design is to not just treat</p> <p>25 to that limit in the permit. It is actually to treat to</p>	301	<p>1 Q Okay. Thank you. Are you able to treat total</p> <p>2 nitrogen at this plant --</p> <p>3 A The proposed --</p> <p>4 Q -- and remove it, and remove nitrogen from the</p> <p>5 wastewater through the plant?</p> <p>6 A The proposed BNR process does have the ability</p> <p>7 to reduce total nitrogen, but there is not a specific</p> <p>8 set target as there is not a permit limit proposed in</p> <p>9 the draft permit.</p> <p>10 Q If you had a permit limit of 6 milligrams a</p> <p>11 liter, would you be able to treat it in your plant?</p> <p>12 A That may be possible, but that would require a</p> <p>13 lot more biological process modeling to be able to</p> <p>14 determine what could be sustained on a given basis.</p> <p>15 Q Fair enough. Fair enough. What is the TCEQ's</p> <p>16 rule on 75 percent and 90 percent in building the new</p> <p>17 plant? Are you aware of that rule?</p> <p>18 A Yes. My understanding of the 75/90 rule is</p> <p>19 that when plant flows reach or exceed 75 percent of the</p> <p>20 rated permitted capacity for three consecutive months,</p> <p>21 planning must begin for an expansion, and subsequently,</p> <p>22 when flows reach 90 percent of the permitted capacity</p> <p>23 for three consecutive months, you must be in</p> <p>24 construction for that.</p> <p>25 Q Okay.</p>
300	<p>1 a level below that proposed permit limit.</p> <p>2 Q And what would that be?</p> <p>3 A That would depend on what the flow is at any</p> <p>4 given time, the time of the year because that does have</p> <p>5 some impact on the biology. I don't have that number in</p> <p>6 front of me at this time.</p> <p>7 Q Do you have an opinion where the MBR plant, I</p> <p>8 guess would be the City's east plant, would be able to</p> <p>9 treat a daily effluent of total phosphorus of .15?</p> <p>10 A I'm not sure I understood your question. Would</p> <p>11 it be able to treat --</p> <p>12 Q Did you produce an effluent from that plant of</p> <p>13 a total phosphorus level of .5 -- .15 milligrams a</p> <p>14 liter?</p> <p>15 A It may be possible with a proposed design, but</p> <p>16 that's not the permit -- the draft permit requirement at</p> <p>17 this time.</p> <p>18 Q Okay. If you wanted to be sure that you could,</p> <p>19 would you be able to add filters or do something to that</p> <p>20 plant to make it treat phosphorus at a higher level --</p> <p>21 produce effluent at a lower level of phosphorus?</p> <p>22 A That would be possible because there are</p> <p>23 facilities around the United States that do have lower</p> <p>24 phosphorus limits than what's proposed here for this</p> <p>25 facility.</p>	302	<p>1 A That is -- that's applicable for areas that are</p> <p>2 in high growth. In the case for this facility and for</p> <p>3 the City of Granbury the number of developments and</p> <p>4 already approved connections actually are committed --</p> <p>5 have committed 100 percent of the existing south</p> <p>6 permitted -- plant permitted capacity of 2 mgd at this</p> <p>7 time.</p> <p>8 Q Okay. So once the moratorium is lifted, you'll</p> <p>9 be at the plant capacity at the -- what plant is that --</p> <p>10 at the south plant? Yeah, you'll be at the plant</p> <p>11 capacity at the south plant.</p> <p>12 A No, sir. It's not based on if the -- if or</p> <p>13 when the moratorium is lifted. The number of</p> <p>14 developments that were approved prior to the</p> <p>15 moratorium --</p> <p>16 (Simultaneous discussion)</p> <p>17 Q (BY MR. BOOTH) Oh, my goodness.</p> <p>18 A Yes. They're already approved. So if builders</p> <p>19 were building new houses in those areas, those flows</p> <p>20 would increase to the limit already --</p> <p>21 (Simultaneous discussion)</p> <p>22 Q (BY MR. BOOTH) Okay.</p> <p>23 A -- the moratoriums.</p> <p>24 Q Okay. And do you know what the existing</p> <p>25 plant -- the plant capacity will be?</p>

<p style="text-align: right;">303</p> <p>1 A The existing plant capacity is 2 2 million gallons per day.</p> <p>3 Q 2 million, and is that the current capacity?</p> <p>4 A Yes, sir.</p> <p>5 Q Okay. What happens to -- when you rolled in 6 the new plant, how much treatment capacity will the City 7 have then?</p> <p>8 A If and when the Phase 1 or the interim phase of 9 the east plant is built and goes online, that would 10 provide the City with 3 mgd of capacity.</p> <p>11 Q The first phase is 1 mgd at the --</p> <p>12 A For the east plant.</p> <p>13 Q -- east plant.</p> <p>14 A Yes, sir.</p> <p>15 Q So when the City comes online with that plant, 16 what percent of capacity would we be looking at?</p> <p>17 A I'm not sure. At the time that that plant was 18 built, I don't know where the percentage growth will be 19 and the amount of flow at that specific time.</p> <p>20 Q Well, if you added nothing except what you 21 already have right now going into the plant or will be 22 going into the plant with subdivisions that have been 23 platted, you said that is about 100 percent?</p> <p>24 A Yes, sir.</p> <p>25 Q Okay. If you add in 1 mgd, do you know what</p>	<p style="text-align: right;">305</p> <p>1 it's doing to improve its collection system so it 2 minimizes the I&I?</p> <p>3 A Part of the goal of this project, as identified 4 in the engineering report and in the alternatives 5 analysis plan, is to address the biggest I&I concerns in 6 the collection system in the eastern area, which 7 building -- if we can build the east -- proposed east 8 plant, will alleviate those issues.</p> <p>9 Q I'm curious: How is the City operating 10 currently if you're adding a new facility at the plant, 11 at the existing plant?</p> <p>12 A So, I mentioned earlier about construction 13 sequencing. So there are limited amounts of space 14 available within the fenced boundaries of the existing 15 south facility. The way you would construct this 16 process is you would build one new treatment structure, 17 move flows -- move some of your flows in that plant to 18 the new treatment structure, which allows you perhaps to 19 decommission an older structure, like an older headworks 20 area. And, essentially, when you recapture that space, 21 now you can build your next treatment component.</p> <p>22 So it's kind of a leapfrog approach where 23 it's build a piece here, move flow to it. Now you can 24 build a piece here and move flow to it, et cetera. It 25 takes a bit longer in time. It's more complicated</p>
<p style="text-align: right;">304</p> <p>1 the percent of capacity we'll be looking at?</p> <p>2 A At that point, if you haven't added anything 3 else and you've utilized 100 percent of 2 mgd, you would 4 be at a total of about 67 percent of capacity between 5 the two.</p> <p>6 Q Okay. Have you recommended to the City to 7 build an additional plant besides these two?</p> <p>8 A We have not made any recommendations. Part of 9 the master planning included looking down the road and 10 further in the future of at what point do you need an 11 additional 1 mgd of capacity, which would take you to 12 4 mgd. The initial growth right now is all in the east 13 area of the City, which is why this proposed permit 14 application has an interim phase of 1 mgd and a final 15 phase of 2 mgd.</p> <p>16 Q Okay. The city has -- appears to have an I&I 17 problem. Do you agree with that?</p> <p>18 A Yes, I would, and that's consistent across the 19 industry for most cities.</p> <p>20 Q Oh, I understand that. What is I&I?</p> <p>21 A I&I is inflow and infiltration.</p> <p>22 Q Okay. And that's common in older collection 23 systems. Isn't it?</p> <p>24 A Yes, sir. That's correct.</p> <p>25 Q Okay. Is part of the City's work to -- that</p>	<p style="text-align: right;">306</p> <p>1 because, obviously, you have -- the City is obligated to 2 maintain permit compliance through that entire 3 construction period, and the result of that is an 4 increased unit cost for construction to do that at an 5 existing facility while keeping it online.</p> <p>6 Q Going back to the east plant, it's not -- or is 7 there room for a plant expansion there with another MBR 8 plant?</p> <p>9 A Yes and no. I wouldn't say it's another MBR 10 plant. It would be additional trains of treatment 11 capacity within that site, but yes.</p> <p>12 Q Okay. Now we've been talking about designing 13 these facilities so they don't produce odor or 14 minimizing the odor. That's in a perfect world. 15 Correct? That's not -- you know, operators make 16 mistakes. Plants get old. So I assume -- let me frame 17 that in the state of a question: Your plant design will 18 not handle operator mistakes. There still could be odor 19 produced from these units. Correct?</p> <p>20 A The design of the facility, while it will have 21 certain automation to help offset potential operator 22 errors, it actually -- it is designed to account for 23 that possibility. Whenever you are flying a plane, you 24 don't put just enough fuel in it to go from -- fly from 25 Point A to Point B and land on fumes. You're going to</p>

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1 design with some contingencies in place in the facility.
 2 That's what we do for this. So even though the design
 3 of the EQ Basin should not produce any foul odors, we're
 4 still putting a cover on top of it. We're still
 5 capturing any kind of foul air that could be produced,
 6 if it were to produce any foul air. Again, that's above
 7 and beyond TCEQ requirements for that treatment unit.
 8 We've built that into each of these components all
 9 throughout the facility, just as we're looking at sound
 10 attenuation for noise control, automated lighting to
 11 minimize light pollution, if you will, at night when the
 12 facility is operating. All of those are features that
 13 we included in the project at the direction of the City
 14 to go above and beyond the minimum criteria established
 15 in 217.

16 Q And none of those things are in the permit,
 17 right, the draft permit, none of those requirements?

18 A They're not in there from the standpoint of you
 19 must have a cover. However, there is a specific
 20 requirement, I believe, in the Other Requirements
 21 Section. I think it's Other Requirements, Item No. 4, I
 22 believe, that goes into stating that you must be able to
 23 meet these requirements that you've established in the
 24 permit application. Now one of the things that's in the
 25 permit application is it identifies -- or, sorry, in the

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1 permit that you do have to go through plan review at
 2 TCEQ. So having a permit does not constitute you're
 3 ready to start construction. There is still a summary
 4 transmittal and a plan review -- a design review process
 5 with TCEQ. It's a two-step process.

6 Q I'm glad you brought that up. I meant to ask
 7 you this: That design review process is after the
 8 permit has been granted. Correct?

9 A Yes, sir. And it is completed to ensure that
 10 what you propose in the permit application, you go
 11 through and follow in the design, and if something --

12 (Simultaneous discussion)

13 A -- like, for example, when we talk about the
 14 cover over the EQ Basin or the enclosing of the
 15 headworks units, if we're proposing we're doing that and
 16 it goes into the design, it's locked in. So earlier
 17 when you had asked me if -- with a CMAR, if they have
 18 a -- if they make a request to change something, then we
 19 can change it if everybody agrees to it. That's
 20 actually not the case. That actually was a misstatement
 21 on my part because if there is a component that is in
 22 the design that has been presented at TCEQ, if you say
 23 you're going to build this, you have to build it.
 24 Otherwise, you have to --

25 (Simultaneous discussion)

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1 Q (BY MR. BOOTH) Okay. And I'm happy for that
 2 clarification --

3 THE REPORTER: One at a time, please.

4 MR. BOOTH: Sorry.

5 Q (BY MR. BOOTH) I'm happy for that
 6 clarification, but none of these items -- the blowers,
 7 the lights, the covers -- are in your design. So the
 8 TCEQ is not going to have any say over that one way or
 9 the other. Am I correct?

10 A They are in -- no, you're not correct. They
 11 are in the design. They are not listed as a design
 12 requirement in the list of process units in the permit
 13 application, but they go through the design review
 14 process with TCEQ. So they are in the design. And once
 15 TCEQ reviews and approves it, then you have to do what
 16 you said you were going to do, and you have to build
 17 those components. You can't --

18 Q But you haven't said that in anything that you
 19 have provided to the TCEQ up to this moment.

20 A The discussion that we talked about earlier, I
 21 think maybe with Mr. Allmon with regard to the ORP
 22 levels, there was an email chain that was in that where
 23 there was discussions with TCEQ on record stating not
 24 holding wastewater in the EQ Basin more than 48 hours.
 25 That document was a component of the permit application.

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1 So the intent of covering units, the intent of making
 2 sure we're not letting wastewater go septic, that is in
 3 there. It is included as a part of the permit
 4 application.

5 Q Well, I have to disagree with you on that. I
 6 don't believe it is, but that's not for you to say or
 7 for me to say at this state. But up to now, let's just
 8 sum this up, the only thing that you think you've told
 9 the Commission about odor control is represented in that
 10 email chain. And I believe we've looked at -- but we
 11 have an exhibit for it. I'm sorry. The cedar is
 12 killing me today.

13 So, up to now, the only thing that you
 14 have provided to the Commission as far as a design or
 15 operation requirement is that email chain that we were
 16 referring to, and we'll fill in the blank on that
 17 exhibit at the proper time.

18 A Yes. And that -- and from my recollection,
 19 that was an appendix that was referred to in the permit
 20 application.

21 Q Okay. All right. I don't have anymore
 22 questions. Thank you, Mr. Berryhill.

23 A Thank you.

24 JUDGE STARNES: Okay.

25 Mr. Hill, any redirect?

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1 MR. HILL: I do have some redirect. Thank
 2 you, Judge.

3 REDIRECT EXAMINATION

4 BY MR. HILL:

5 Q Mr. Berryhill, I want to follow up on these
 6 questions about the requirements in the permit that, you
 7 know, do or do not obligate the City to do what it says
 8 it's going to do. I'm going to -- let me see if I can
 9 pull this up for you here. All right. You should see
 10 on your screen the draft permit. Are you able to see
 11 that?

12 A Yes, sir.

13 Q This is, in fact, in the record a couple of
 14 times. One is at Administrative Record Page 0113, and
 15 then it's also COG Exhibit 002. I want to draw your
 16 attention to -- let's see here. This is specifically
 17 Page 9 of the draft permit, and if you'll bear with me
 18 here, do you see the Subsection (b) there on the page?

19 A Yes, sir.

20 Q Okay. Do you mind reading Subsection (b)?

21 A Sure. Just (b) or also the subpoints below it?

22 Q Go ahead all the way through.

23 A Okay. This permit is granted on the basis of
 24 the information supplied and representations made by the
 25 permittee during action on an application and relying

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1 upon the accuracy and completeness of that information
 2 and those representations. After notice and opportunity
 3 for a hearing, this permit may be modified, suspended,
 4 or revoked, in whole or in part, in accordance with
 5 30 TAC Chapter 305 Subchapter D during its term for good
 6 cause, including but not limited to the following:
 7 Violation of any terms or conditions of this permit;
 8 obtaining this permit by misrepresentation or failure to
 9 disclose fully all relevant facts or a change in any
 10 condition that requires either a temporary or permanent
 11 reduction or elimination of the authorized discharge.

12 Q The way I translate that is the applicant or
 13 rather the permit holder has got to do what it says it's
 14 going to do. Is that how you would translate that?

15 A Yes, sir. That's correct.

16 Q Okay. And so all the discussion about the
 17 plans and what has been contemplated and proposed and
 18 committed to in the application, the provision that you
 19 just read right there seems to get at this issue that
 20 you actually do what you say you're going to do in the
 21 application. Would you agree with that?

22 A Yes, sir.

23 Q Okay. I'm going to go over here to what is
 24 Page 34 of the draft permit. It's also at
 25 Administrative Record 0147, and this is also in -- still

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1 in COG Exhibit 102 and ask you if you can see the
 2 provision that I've just called out here next to No. 4.

3 Do you see that?

4 A Yes, sir.

5 Q Okay. Do you mind reading that for me?

6 A Sure. The permittee shall comply with the
 7 requirements of 30 TAC 309.13 (a) through (d). In
 8 addition, by ownership of the required buffer zone area,
 9 the permittee shall comply with the requirements of the
 10 30 TAC 309.13(e).

11 Q Explain to me the relationship between this
 12 requirement, Mr. Berryhill, and the obligations that the
 13 City has committed to in its application as far as the
 14 design of the equalization basin, the design of your
 15 other treatment units, and how you plan to and will have
 16 to operate those.

17 A Yes, sir. Specifically, in reference to that
 18 previous email that discussed maintaining the detention
 19 time less than 48 hours, the discussion that this is not
 20 a lagoon or anaerobic activity. It's a -- each of these
 21 are treatment units that have active mixing. They're
 22 not allowing for stratification or layers in those
 23 units. What we have stated -- that is how this is going
 24 to be designed and then how it's going to be operated --
 25 is to prevent the ORP and the wastewater to go to a

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1 point where it's anaerobic and going septic. We've made
 2 the statement to TCEQ that that's what we're going to
 3 do, and this statement requires us to follow through and
 4 do it.

5 Q Okay. And so going back to that statement, let
 6 me switch over here. This is a page out of the
 7 application. This is an email exchange, I believe, that
 8 you were talking about as far as the information you've
 9 provided in the application --

10 A Yes, sir.

11 Q -- regarding the treatment technology and how
 12 you plan to operate the plant. Is that right?

13 A Yes, sir. That's correct.

14 Q Okay. So I'm looking here on the screen at
 15 Admin Record Page 0672. Do you see that?

16 A Yes, sir.

17 Q Okay. And let me draw your attention here to
 18 this provision here. Can you explain -- specifically
 19 within the language within the box there, the red box
 20 around the text that also includes black and red text,
 21 can you explain what this communication is reflective
 22 of?

23 A What this communication refers to is that if
 24 you are operating an EQ basin and you're diverting
 25 wastewater during a storm event to the basin and you

<p style="text-align: right;">315</p> <p>1 empty that basin within 48 hours, then the 150-foot 2 buffer zone would apply because it's not going septic. 3 That last statement notes if you change this plan or the 4 ways the basins are operating and the water goes septic, 5 then the buffer zone would be 500 feet and a requirement 6 to add air to the system. So that was the information 7 we received from Louis Herrin, who is the head of the 8 plan review team, in asking specifically if we utilize a 9 flow equalization basin, what are the requirements -- or 10 is there a way to utilize a 150-foot buffer and what do 11 we need to -- what information do we need to provide and 12 how does it need to be designed and operated to meet 13 that requirement. 14 Q So you mentioned -- I think I heard you mention 15 about a discussion of making sure that the influent 16 doesn't go septic, and this goes back to this whole 17 issue that you discussed with Mr. Allmon earlier about 18 the relationship between the term septic and anaerobic. 19 Let me make sure I understand correctly and that it's 20 clear for the record, is the anaerobic selector zone or 21 anoxic selector zone as you've got -- as you have 22 designed in the application. You've got it -- you've 23 got at least the schematic there in the application. Is 24 the anaerobic selector zone or anoxic selector zone a 25 lagoon with zones of anaerobic activity, either one of</p>	<p style="text-align: right;">317</p> <p>1 permit, if it were issued, would prohibit you from doing 2 that because of the buffer zone requirement. Would you 3 agree with that? 4 A That's correct. 5 Q Okay. And, in fact, you have to follow through 6 with the representations and the commitments you made in 7 the application, like in the email we just discussed a 8 second ago, in how you design and build and operate this 9 facility, among other things, because the permit says 10 you have to. Is that correct? 11 A Yes, sir. That's correct. 12 Q And, if you don't, you could lose the permit? 13 A Yes, sir. That's correct. 14 Q Okay. And in looking at potential design 15 changes during the design and construction phase of the 16 project, not only does the owner and designer have to 17 sign off on those changes, but the TCEQ does, also. Is 18 that right? 19 A Yes, sir. That's correct. 20 Q Okay. Now earlier there was a question -- I 21 want to make sure that the record is clear here -- about 22 your involvement and site selection, and I know it came 23 up in Ms. Dunn's testimony, as well. Can you -- let me 24 ask this maybe in sequence here: Were you involved in 25 the decisions to select one site versus the other or</p>
<p style="text-align: right;">316</p> <p>1 those features, units? 2 A No, sir. 3 Q So let me see if I can maybe ask that question 4 a little bit more coherently so it's clear. Is the 5 anaerobic selector zone a lagoon with a zone of 6 anaerobic activity? 7 A No, it is not. 8 Q Are your anoxic selector units that you have 9 there, are those lagoons with zones of anaerobic 10 activity? 11 A No, sir. They're not. 12 Q What about the temporary equalization basin 13 that you have as part of your design schematic; is that 14 a lagoon with a zone of anaerobic activity? 15 A No, sir. It is not. 16 Q And because it's not, isn't that directly 17 related to the 150-foot buffer that we've been 18 discussing? 19 A Yes, sir. Absolutely. 20 Q So you would not be authorized, pursuant to 21 those permit terms in the draft permit that we just 22 reviewed, to operate or allow these facilities that 23 we've just discussed get into a condition where they do 24 end up with zones of anaerobic activity in them. You 25 would not be authorized to do that because the draft</p>	<p style="text-align: right;">318</p> <p>1 decide to not select this site versus the other one? 2 Were you involved in that part of the site selection 3 process? 4 A No, sir. 5 Q Okay. Once the property was acquired by the 6 City and the decision was made to build the east 7 wastewater treatment plant there and try to get the 8 permit to do that, what was your role in that site 9 review at that point? 10 A Once a proposed site had been selected, my role 11 in that was to go through Chapter 309, and specifically 12 Chapter 309.13, to identify the suitability of that site 13 specifically for locating a wastewater plant, not one 14 location versus another but once that site was set, 15 verifying what was required for appropriate setbacks and 16 treatment requirements for that site. 17 Q And is it your opinion that the Applicant has 18 satisfied all the requirements in 309.13? 19 A Yes, sir. I do. 20 Q All right. Mr. Berryhill, I appreciate your 21 testimony. 22 MR. HILL: I pass the witness. 23 JUDGE STARNES: Okay. 24 Mr. Tatu, anything from the Executive 25 Director?</p>

<p style="text-align: right;">319</p> <p>1 MR. TATU: I just had one more question, 2 and this is going back to requirements of the permit. 3 RE-CROSS-EXAMINATION 4 BY MR. TATU: 5 Q Mr. Berryhill, are you aware that there are 6 also general or standard requirements in the draft 7 permit? 8 A Yes, sir. 9 Q Okay. And is it correct that the permittee is 10 required to take all reasonable steps to minimize or 11 prevent any discharge or sewage use or disposal or other 12 permit violation that has a reasonable likelihood of 13 adversely affecting human health or the environment? 14 A Yes, sir. That's correct. 15 MR. BOOTH: Can I interrupt for a second? 16 My screen froze for several minutes, and then it 17 restarted. Did I miss anything important? 18 (Laughter) 19 JUDGE STARNES: It depends on when your 20 several minutes started. 21 MR. BOOTH: Okay. Well, Jason was about 22 ready to ask him something, and then it just froze up. 23 Kind of weird, and then it restarted on its own. Okay. 24 Carry on. 25 JUDGE STARNES: Sorry. You'll -- I guess</p>	<p style="text-align: right;">321</p> <p>1 which is if you're in violation of those terms, then 2 TCEQ has the ability to -- could fine the facility; it 3 could modify or rescind the permit as it stands if 4 you're not complying with the permit conditions. 5 Q Okay. I don't have anything further. Thanks. 6 A Thank you. 7 JUDGE STARNES: Okay. 8 Mr. Arthur, anything for OPIC? 9 MR. ARTHUR: No, Your Honor. Thank you. 10 JUDGE STARNES: Okay. 11 Mr. Allmon, I think you went first in last 12 round of cross. 13 MR. ALLMON: Yes, I'll go ahead. 14 RE-CROSS-EXAMINATION 15 BY MR. ALLMON: 16 Q Mr. Berryhill, you were asked some questions 17 about representations in the permit application, and I 18 would like to go ahead and revisit what those are. Do 19 you have in front of you a portion of the administrative 20 record? And this is your Attachment DAR 1.1-3? 21 A Yes, sir. 22 Q And if we looked -- initially, I see you've got 23 two paragraphs -- or the Applicant had two paragraphs 24 discussing the equalization basin. That second 25 paragraph states: 150 buffer zone is applicable for</p>
<p style="text-align: right;">320</p> <p>1 you'll see in the transcript what you missed and -- 2 MR. BOOTH: Well, Eric, I'm sure -- did 3 your screen freeze up? 4 MR. ALLMON: No, mine did not. I can't 5 promise that I'm not on the same -- well, anyway, mine 6 did not. 7 MR. TATU: Is it kept on YouTube for a 8 certain period of time, or does it just stream live and 9 that's it? 10 MR. BOOTH: Well, I don't care about the 11 long-term. I'm worried about if he said something I 12 need to ask him about, but I'm good. Go ahead. 13 JUDGE STARNES: Okay. 14 And to answer your question about YouTube, 15 I believe while we're streaming, you can see everything 16 since the beginning of the stream, but once we leave at 17 the end of the day, it's gone. 18 MR. TATU: I see. Okay. Thanks. 19 Q (BY MR. TATU) So just to follow up on my 20 previous question, if the -- if the proposed plant 21 operated in a manner to produce excessive or harmful 22 odors, would the permittee be subject to any 23 consequences? 24 A Yes, sir. So that -- I believe that would fall 25 into that first section that Mr. Hill had brought up,</p>	<p style="text-align: right;">322</p> <p>1 the -- you characterize as temporary EQ basin since the 2 wastewater will not be allowed to remain in the 3 temporary EQ basin for more than 48 hours. Was there 4 any representation made as to whether the equalization 5 basin would be aerated? 6 A I don't believe we have a statement in there in 7 this application. The main component of discussion with 8 both Gordon Cooper and with Louis Herrin was initially 9 on the detention time at the EQ basin. 10 Q So even if operated consistent with the 11 representations in the application, would this permit 12 authorize the equalization to be -- the equalization 13 basin to be operated as an unaerated equalization basin? 14 A I'm sorry. Could you rephrase that question 15 again? 16 Q Does -- even if operated consistent with the 17 representations in the application, could the permit -- 18 could the facility operators still operate the 19 equalization basin in a manner that was unaerated? 20 A I believe so, as long as it's less than 48 21 hours and the wastewater is not allowed to go septic so 22 that it's not producing foul odors that would go 23 offsite. 24 Q Now is there anywhere in here that you 25 represent that the ORP within the equalization basin</p>

<p style="text-align: right;">323</p> <p>1 will be maintained within a certain range?</p> <p>2 A I believe there was in the excerpt in here. I</p> <p>3 think we had a discussion on it on the -- the</p> <p>4 coordination with Gordon Cooper, I believe, if you go to</p> <p>5 the next --</p> <p>6 Q Let's do. Let's take a look at that, and now</p> <p>7 we're looking now at some of the discussion. Now in</p> <p>8 these emails we're looking at now starting at Page 300,</p> <p>9 is this the discussion that we're talking about?</p> <p>10 A I'm sorry. Somebody else came through. I</p> <p>11 think somebody sneezed or something. Could you say that</p> <p>12 again?</p> <p>13 Q So we're now at Page 300 of the administrative</p> <p>14 record, and I'm looking now at some emails. Is this the</p> <p>15 discussion back and forth you're referencing with regard</p> <p>16 to the buffer zones?</p> <p>17 A Yes, sir, with regard to the ORP component of</p> <p>18 it.</p> <p>19 Q Yes, with regard to ORP. And so I see an email</p> <p>20 from Joshua Berryhill, which I understand would be to be</p> <p>21 you --</p> <p>22 A Yes, sir.</p> <p>23 Q -- on May 8th, and there you discuss the anoxic</p> <p>24 selector zone and you discuss the anaerobic selector.</p> <p>25 Is that referring to what on the figure is labeled as</p>	<p style="text-align: right;">325</p> <p>1 edge of the ORP range?</p> <p>2 A For anoxic conditions.</p> <p>3 Q Anoxic conditions?</p> <p>4 A And I would like to note, the very last</p> <p>5 statement in that sentence where it noted as -- notes --</p> <p>6 excuse me, where it notes minus 100 to minus 25, that is</p> <p>7 a typo. It should be minus 100 to minus 250.</p> <p>8 Q Okay. But say if five years from now a permit</p> <p>9 inspector were to look at the application, is that noted</p> <p>10 anywhere?</p> <p>11 A It would be noted in the summary transmittal</p> <p>12 for the design on the plan review.</p> <p>13 Q Now -- and I note in your testimony you discuss</p> <p>14 with regard, say, to the covers at the facility, that</p> <p>15 that is the intended design. Is there any point in the</p> <p>16 application where it states that the covers will be</p> <p>17 installed?</p> <p>18 A I don't recall.</p> <p>19 Q Okay. And is there anywhere in the application</p> <p>20 where it states that mixing will be installed within the</p> <p>21 equalization basin?</p> <p>22 A I don't recall that either.</p> <p>23 Q Okay. So even with the operation consistent</p> <p>24 with the representations in the application as you</p> <p>25 remember them, the equalization basin would still be</p>
<p style="text-align: right;">324</p> <p>1 the anaerobic zone within the BNR system?</p> <p>2 A Yes, sir.</p> <p>3 Q So is there any commitment made here with</p> <p>4 regard to the equalization basin?</p> <p>5 A Not in this section here.</p> <p>6 Q Not in this section here?</p> <p>7 A This --</p> <p>8 (Simultaneous discussion)</p> <p>9 A -- not with -- this email exchange was not with</p> <p>10 regard to the EQ basin. It was with regard only to the</p> <p>11 BNR anaerobic zone -- well, actually, the BNR selector</p> <p>12 zones.</p> <p>13 Q (BY MR. ALLMON) So these commitments here</p> <p>14 regarding ORP did not apply and do not apply to the</p> <p>15 equalization basin?</p> <p>16 A From our standpoint, yes, we would apply them</p> <p>17 to the EQ basin, but they were not included specifically</p> <p>18 in this discussion that we're looking at right here.</p> <p>19 Q So there's not a representation in the</p> <p>20 application that the ORP within the equalization basin</p> <p>21 will be maintained within a certain range?</p> <p>22 A That is correct.</p> <p>23 Q And if we look at the second paragraph within</p> <p>24 the red box discussing the anaerobic selector, does that</p> <p>25 state our goal is to stay right at the bottom of the</p>	<p style="text-align: right;">326</p> <p>1 allowed to be operated without aeration and without</p> <p>2 mixing with an ORP outside the range of, say, zero to</p> <p>3 negative 200?</p> <p>4 A Well, we don't state -- well, we do not state</p> <p>5 an ORP limit in the application with regard to the EQ</p> <p>6 basin. We only state the ORP values with regard to the</p> <p>7 BNR selector zones.</p> <p>8 Q Okay. Now there was some discussion of the</p> <p>9 review process. Is that a stage that occurs after</p> <p>10 issuance of the permit?</p> <p>11 A Yes. That is correct.</p> <p>12 Q And is the primary criteria, then, whether the</p> <p>13 design meets the minimum requirements of Chapter 217?</p> <p>14 A Yes and with regard to any specific</p> <p>15 requirements established in the permit, in the final</p> <p>16 permit.</p> <p>17 Q And does the -- and so is that where you would</p> <p>18 say they would look to the representations within the</p> <p>19 application?</p> <p>20 A Yes. In addition, they would look at the</p> <p>21 representations in the permit application as well as --</p> <p>22 the requirement, you have to submit plan specifications</p> <p>23 and an engineering design report.</p> <p>24 Q Is there any representation in the application</p> <p>25 as to the monitoring of ORP?</p>

<p style="text-align: right;">327</p> <p>1 A With regard to what unit?</p> <p>2 Q With regard to any of the units.</p> <p>3 A You're going -- if you have an ORP goal for the</p> <p>4 BNR selector zones, you would be monitoring ORP.</p> <p>5 Q Is there any requirement for that specific to</p> <p>6 monitoring?</p> <p>7 A If you state that you're going to be operating</p> <p>8 on a specific ORP range, you don't have to have a</p> <p>9 requirement that says you'll monitor. If you're going</p> <p>10 to maintain a range, you have to be able to monitor it</p> <p>11 if you're going to maintain a range.</p> <p>12 (Simultaneous discussion)</p> <p>13 Q (BY MR. ALLMON) I'm thinking, for instance, if</p> <p>14 we look at the discharge from the facility, you familiar</p> <p>15 there's certain monitoring requirements specifically</p> <p>16 applicable to that discharge --</p> <p>17 A Yes.</p> <p>18 Q -- that help demonstrate to the agency that the</p> <p>19 limits, effluent limits are being complied with?</p> <p>20 A Agreed.</p> <p>21 Q And those monitoring requirements are separate</p> <p>22 and apart from, say, the requirement to meet the</p> <p>23 effluent limitations?</p> <p>24 A Correct.</p> <p>25 Q So with regard to these things you're talking</p>	<p style="text-align: right;">329</p> <p>1 maintain these conditions, and you have to show how</p> <p>2 you're maintaining those conditions to be compliant.</p> <p>3 Q And are there any recordkeeping requirements</p> <p>4 related to ORP levels within the units at the facility?</p> <p>5 A There are operating requirements, and so there</p> <p>6 will be a plan of operations for the facility that shows</p> <p>7 what documentation needs to be maintained on-site.</p> <p>8 Above and beyond that, TCEQ has additional criteria for</p> <p>9 what records, what process control or quality control</p> <p>10 data has to be collected and maintained for a given</p> <p>11 period of time, but I don't know all the specifics of</p> <p>12 what all data points are required in that.</p> <p>13 Q So you don't know whether that ORP data is</p> <p>14 required to be contained within that?</p> <p>15 A It would be process control data. So it would</p> <p>16 be required.</p> <p>17 Q I guess we'll let the rules speak for</p> <p>18 themselves on that. That is all of my questions for you</p> <p>19 at this time -- well, all of my questions for you.</p> <p>20 MR. ALLMON: So I pass the witness.</p> <p>21 JUDGE STARNES: Okay.</p> <p>22 Mr. Booth, any recross?</p> <p>23 MR. BOOTH: No, I'm good. Thank you.</p> <p>24 JUDGE STARNES: Okay.</p> <p>25 Then, that concludes your testimony.</p>
<p style="text-align: right;">328</p> <p>1 about, say the ORP, are there any analogous, similar</p> <p>2 monitoring requirements for ORP that are represented</p> <p>3 anywhere in here?</p> <p>4 A Not from the standpoint of what would go into</p> <p>5 the permit, but if it has information on here, like</p> <p>6 this, with having to meet specific ORP ranges, that's</p> <p>7 going to be data that TCEQ would look at when they do an</p> <p>8 inspection of the facility to show that you are doing</p> <p>9 that process control internally to maintain your -- show</p> <p>10 that you're maintaining compliance.</p> <p>11 Q But there's no independent representation or</p> <p>12 requirement of the permit to perform that monitoring?</p> <p>13 A It is not specifically stated that you have to</p> <p>14 complete that monitoring of, say, you have to complete</p> <p>15 ORP or DO monitoring for the facility operation, but in</p> <p>16 the Other Requirements Section it states you have to</p> <p>17 make every effort to maintain your compliance. And in</p> <p>18 the case of the facility here for the buffer zone</p> <p>19 limits, if we're noting that we have to operate within a</p> <p>20 certain ORP range, that means you're going to have to</p> <p>21 monitor that to show that you are being in compliance.</p> <p>22 Q At least that's your understanding?</p> <p>23 A That would be the expectation for the facility</p> <p>24 based on that permit that states you have to -- if you</p> <p>25 say you're operating under these conditions, you have to</p>	<p style="text-align: right;">330</p> <p>1 Thank you, Mr. Berryhill. You are free to go now.</p> <p>2 THE WITNESS: Thank you.</p> <p>3 JUDGE STARNES: And who is next, Mr. Hill?</p> <p>4 MR. HILL: That will be Chris Hay.</p> <p>5 JUDGE STARNES: And is he going to pop in</p> <p>6 the same box that Mr. Berryhill just left?</p> <p>7 MR. HILL: I believe that he will.</p> <p>8 JUDGE STARNES: Okay.</p> <p>9 (Brief pause)</p> <p>10 JUDGE STARNES: Hey there, Mr. Hay. If</p> <p>11 you can unmute yourself. There you go. Are you able to</p> <p>12 hear me okay?</p> <p>13 THE WITNESS: Yes, ma'am.</p> <p>14 JUDGE STARNES: All right. Let's get you</p> <p>15 under oath if you'll raise your right hand.</p> <p>16 (Witness sworn)</p> <p>17 JUDGE STARNES: Okay.</p> <p>18 Go ahead, Mr. Hill.</p> <p>19 MR. HILL: Thank you, Judge.</p> <p>20 CHRIS HAY, P.E.,</p> <p>21 having been first duly sworn, testified as follows:</p> <p>22 DIRECT EXAMINATION</p> <p>23 BY MR. HILL:</p> <p>24 Q Good afternoon, Mr. Hay.</p> <p>25 A Good afternoon.</p>

<p style="text-align: right;">331</p> <p>1 Q You should have in front of you a series of</p> <p>2 documents marked COG Exhibit 400 and COG Exhibit 401.</p> <p>3 Do you have those in front of you?</p> <p>4 A Yes.</p> <p>5 Q Do you recognize those to be your prefiled</p> <p>6 testimony and then the Exhibit 401 exhibit to your</p> <p>7 prefiled testimony?</p> <p>8 A Yes, I do.</p> <p>9 Q Okay. Mr. Hay, do you adopt this prefiled</p> <p>10 testimony as though you were giving it live on the stand</p> <p>11 in front of the Judge under oath today?</p> <p>12 A Yes.</p> <p>13 MR. HILL: Judge, with that, I offer COG</p> <p>14 Exhibit 400 and COG Exhibit 401.</p> <p>15 (Exhibit COG Nos. 400 and 401 offered)</p> <p>16 JUDGE STARNES: Okay. And there were no</p> <p>17 prefiled objections to those exhibits. Does anybody</p> <p>18 have an objection they want to put to record now?</p> <p>19 (No response)</p> <p>20 JUDGE STARNES: All right. Hearing no</p> <p>21 objections, Exhibits 400 and 401 are admitted.</p> <p>22 (Exhibit COG Nos. 400 and 401 admitted)</p> <p>23 MR. HILL: Thank you, Judge. I pass the</p> <p>24 witness.</p> <p>25 JUDGE STARNES: Okay.</p>	<p style="text-align: right;">333</p> <p>1 Letter of Map Revision study that was performed for that</p> <p>2 specific property that delineated a base flood elevation</p> <p>3 adjacent to the treatment plant site, and based on those</p> <p>4 elevations, I was able to determine that the</p> <p>5 improvements on the wastewater treatment plant would not</p> <p>6 be within the floodplain.</p> <p>7 Q I don't have any further questions. Thank you.</p> <p>8 A Thank you.</p> <p>9 JUDGE STARNES: Thank you.</p> <p>10 Does OPIC have any questions, Mr. Arthur?</p> <p>11 MR. ARTHUR: Yes, Your Honor. Thank you.</p> <p>12 CROSS-EXAMINATION</p> <p>13 BY MR. ARTHUR:</p> <p>14 Q Good afternoon, Mr. Hay.</p> <p>15 A Good afternoon.</p> <p>16 Q I'd actually like to follow up on something</p> <p>17 Mr. Tatu just asked you. So, the CLOMR, I understand</p> <p>18 that acronym. But can you explain to us what a CLOMR</p> <p>19 is?</p> <p>20 A Yes. It's a study that's submitted to FEMA</p> <p>21 when you are considering changing the floodplain due to</p> <p>22 developments. We are not proposing to change the</p> <p>23 floodplain associated with our project. We'll be</p> <p>24 outside of it, but I was provided a CLOMR study as part</p> <p>25 of the due diligence process for the site. That had</p>
<p style="text-align: right;">332</p> <p>1 For the Executive Director. Mr. Tatu is</p> <p>2 that you?</p> <p>3 MR. TATU: It is. Thank you.</p> <p>4 CROSS-EXAMINATION</p> <p>5 BY MR. TATU:</p> <p>6 Q Good afternoon, Mr. Hay.</p> <p>7 A Good afternoon.</p> <p>8 Q I just have a few questions for you based on</p> <p>9 your prefiled testimony. Was it my understanding that</p> <p>10 you were going to be testifying with regards to need but</p> <p>11 also floodplain and wetlands issues?</p> <p>12 A Not on the wetlands issues.</p> <p>13 Q Okay. Just the floodplain delineation?</p> <p>14 A Yes, sir.</p> <p>15 Q Okay. Can you briefly describe what your</p> <p>16 conclusions were with respect to floodplain delineations</p> <p>17 and the proposed facility?</p> <p>18 A That the proposed facility would be outside of</p> <p>19 the floodplain.</p> <p>20 Q Okay. And what were the -- your basis for</p> <p>21 those conclusions?</p> <p>22 A The National Flood Hazard Layer, the mapping</p> <p>23 from FEMA, indicates that the floodplain line is not</p> <p>24 incorporated in the wastewater treatment plant site. In</p> <p>25 addition, there is a CLOMR, which is a Conditional</p>	<p style="text-align: right;">334</p> <p>1 already been performed based on a future proposed</p> <p>2 development at that site, and I reviewed that to come to</p> <p>3 my conclusion.</p> <p>4 Q Okay. So someone had obtained one of those for</p> <p>5 a possible use of that property in the past?</p> <p>6 A Yes.</p> <p>7 Q Okay. All right. Thank you, Mr. Hay.</p> <p>8 MR. ARTHUR: Your Honor, I pass the</p> <p>9 witness.</p> <p>10 JUDGE STARNES: Okay.</p> <p>11 Which Protestant group is going to cross</p> <p>12 first? You're both muted.</p> <p>13 MR. BOOTH: I am in line.</p> <p>14 JUDGE STARNES: Okay.</p> <p>15 CROSS-EXAMINATION</p> <p>16 BY MR. BOOTH:</p> <p>17 Q Good afternoon, Mr. Hay?</p> <p>18 A Hello. How are you?</p> <p>19 Q I'm fine.</p> <p>20 MR. BOOTH: All of y'all, I appear to be</p> <p>21 having problems with my Internet. So, I'm sorry. It's</p> <p>22 AT&T's fault. It's not mine.</p> <p>23 (Laughter)</p> <p>24 MR. BOOTH: I don't want to restart the</p> <p>25 router because God knows what will happen. So bear with</p>

<p style="text-align: right;">335</p> <p>1 me, and if we go on another day, I'll try to fix it.</p> <p>2 Q (BY MR. BOOTH) Mr. Hay, I want to show you</p> <p>3 something that everyone has said you've got the answer</p> <p>4 to. So let's see whether you do or not. It's kind of a</p> <p>5 test.</p> <p>6 Okay. Are you familiar with this picture?</p> <p>7 A Yes, sir.</p> <p>8 Q Good. And do I understand it to describe two</p> <p>9 potential sites for the east wastewater treatment plant?</p> <p>10 A Yes. For this specific comparison we were</p> <p>11 looking at these two sites.</p> <p>12 Q Okay. And is this the cost comparison between</p> <p>13 these two sites?</p> <p>14 A I believe so. Yes.</p> <p>15 Q Did you perform them or somebody under your</p> <p>16 supervision?</p> <p>17 A Yes, I did.</p> <p>18 Q Okay. Does this Footnote 1 -- that includes</p> <p>19 the concession that the City made to the exist -- the</p> <p>20 property owner that they bought the east wastewater</p> <p>21 treatment plant site to build a water line to the other</p> <p>22 parts of their property?</p> <p>23 A I believe so. This comparison that I put</p> <p>24 together included requirements that were passed along to</p> <p>25 me. I wasn't part of the property negotiation process,</p>	<p style="text-align: right;">337</p> <p>1 or not it's next to a residential area?</p> <p>2 A We do, as to -- to make sure that the City can</p> <p>3 follow the buffer zone requirements for the wastewater</p> <p>4 plant.</p> <p>5 Q Okay.</p> <p>6 A That plays into effect here. Yes.</p> <p>7 Q Okay. Do you think that -- well, let me --</p> <p>8 nevermind. Okay. I think I've had enough -- that's</p> <p>9 enough questions I have for you. Thank you so much.</p> <p>10 A Thank you.</p> <p>11 JUDGE STARNES: Okay.</p> <p>12 How about Granbury Fresh?</p> <p>13 MR. BEDECARRE: Granbury Fresh does not</p> <p>14 have any questions for the witness.</p> <p>15 JUDGE STARNES: Okay.</p> <p>16 Then back to you, Mr. Hill. Do we have</p> <p>17 any redirect?</p> <p>18 MR. HILL: No redirect, Judge. I pass the</p> <p>19 witness.</p> <p>20 JUDGE STARNES: Okay.</p> <p>21 Thank you, Mr. Hay. Appreciate your</p> <p>22 testimony. That's all we have for you.</p> <p>23 THE WITNESS: Thank you.</p> <p>24 JUDGE STARNES: All right. Let me get</p> <p>25 caught up on my notes real quick here.</p>
<p style="text-align: right;">336</p> <p>1 I guess.</p> <p>2 Q Okay.</p> <p>3 A But any further than just this analysis and for</p> <p>4 other cost analysis, yes.</p> <p>5 Q So the City selected the current site as the</p> <p>6 wastewater treatment plant based upon the cost</p> <p>7 differential?</p> <p>8 A I would say that was one of the factors that</p> <p>9 was incorporated into their decision. Yes.</p> <p>10 Q Are you aware of any other factors?</p> <p>11 A I can't speak for anything specific other than</p> <p>12 it was the ideal site based on these two conditions.</p> <p>13 Q Well, what do you mean two conditions?</p> <p>14 A I mean between the two properties.</p> <p>15 Q Oh, okay. Okay. All righty. So I take it</p> <p>16 that you weren't part of the decisionmaking on which</p> <p>17 site to pick?</p> <p>18 A Ultimately, no, I did not choose the site for</p> <p>19 the City.</p> <p>20 Q Does your engineering firm help choose sites</p> <p>21 for their clients?</p> <p>22 A No. We provide technical data and cost</p> <p>23 estimates, comparisons like those that you just showed,</p> <p>24 to assist cities in selecting the site that they choose.</p> <p>25 Q Do y'all ever include in your analysis whether</p>	<p style="text-align: right;">338</p> <p>1 (Brief pause)</p> <p>2 JUDGE STARNES: Okay. I believe our next</p> <p>3 witness is one for whom cross was waived, Mr. Beach.</p> <p>4 MR. HILL: That's right, Your Honor. I</p> <p>5 believe Mr. Beach is on and available for me to swear in</p> <p>6 his testimony, and then I do understand that cross on</p> <p>7 him has been waived.</p> <p>8 JUDGE HENDERSON: Okay. Well, let's take</p> <p>9 care of him real quick.</p> <p>10 Mr. Beach, you want to get under oath if</p> <p>11 you'll raise your right hand.</p> <p>12 (Witness sworn)</p> <p>13 JUDGE STARNES: Okay.</p> <p>14 Go ahead, Mr. Hill.</p> <p>15 MR. HILL: Thank you, Judge.</p> <p>16 JAMES BEACH, P.G.,</p> <p>17 having been first duly sworn, testified as follows:</p> <p>18 DIRECT EXAMINATION</p> <p>19 BY MR. HILL:</p> <p>20 Q Good afternoon, Mr. Beach.</p> <p>21 A Good afternoon.</p> <p>22 Q You have developed prefiled testimony that is</p> <p>23 labeled COG Exhibit 500 and COG Exhibit 501. Are you</p> <p>24 familiar with that testimony and that exhibit?</p> <p>25 A I am.</p>

<p style="text-align: right;">339</p> <p>1 Q Okay. You understand that to be your prefiled 2 testimony that was developed for this case?</p> <p>3 A Yes.</p> <p>4 Q All right. Mr. Beach, do you adopt COG 5 Exhibit 500 and the attached COG Exhibit 501 as your 6 testimony as though you were giving it live on the stand 7 in front of the Judge under oath today?</p> <p>8 A I do.</p> <p>9 MR. HILL: All right.</p> <p>10 Judge, with that, I offer up COG 11 Exhibit 500 and COG Exhibit 501 for admission into the 12 record.</p> <p>13 (Exhibit COG Nos. 500 and 501 offered)</p> <p>14 JUDGE STARNES: Okay. And there were no 15 prefiled objections to these exhibits. I guess I'll 16 just ask for the record if anybody has an objection they 17 want to enter today.</p> <p>18 (No response)</p> <p>19 JUDGE STARNES: And hearing none, we will 20 admit COG Exhibit 500 and 501.</p> <p>21 (Exhibit COG Nos. 500 and 501 admitted)</p> <p>22 JUDGE STARNES: And since the parties have 23 all waived cross-examination of you, Mr. Beach, that 24 concludes your testimony. I appreciate you being here.</p> <p>25 THE WITNESS: Thank you.</p>	<p style="text-align: right;">341</p> <p>1 testimony and a series of exhibits. I want to go down 2 the list here and read those off to make sure you've got 3 them in front of you. This is COG Exhibit 600, COG 4 Exhibit 601, COG Exhibit 602, COG Exhibit 603, and then 5 COG Exhibit 604 through COG Exhibit 623, and then 6 finally COG Exhibit 624. Do you have those documents in 7 front of you?</p> <p>8 A Yes, sir, I do.</p> <p>9 Q Okay. Is COG Exhibit 600 your prefiled 10 testimony that you developed for this case?</p> <p>11 A Yes, it is.</p> <p>12 Q Okay. Do you adopt COG Exhibit 600, as well as 13 all of those COG Exhibits in the 600 series I just ran 14 off or articulated, do you adopt those as your prefiled 15 testimony as if you were giving them live on the stand 16 in front of the judge under oath today?</p> <p>17 A I do, yes.</p> <p>18 MR. HILL: Judge, the City offers up COG 19 Exhibit 600, 601, 602, 603, 604 through 623 and 624 for 20 admission into the record.</p> <p>21 (Exhibit COG Nos. 600 through 624 offered)</p> <p>22 JUDGE STARNES: Okay. And there were a 23 number of objections to those exhibits that were raised 24 by the parties. Those were overruled at our prehearing 25 conference last week. Are there any additional</p>
<p style="text-align: right;">340</p> <p>1 JUDGE STARNES: Thank you.</p> <p>2 Okay. Are we ready to go with Mr. Osting? 3 You want to get started with him?</p> <p>4 MR. HILL: Let me make sure that he is 5 lined up. Give me just one second, Judge. I'll make 6 sure if he's ready to go.</p> <p>7 JUDGE STARNES: Sure.</p> <p>8 (Brief pause)</p> <p>9 JUDGE STARNES: Okay. It looks like he's 10 ready to go.</p> <p>11 Mr. Osting, are you able to hear me okay?</p> <p>12 THE WITNESS: Yes, ma'am.</p> <p>13 JUDGE STARNES: All right. Let's get you 14 under oath if you'll raise your right hand.</p> <p>15 (Witness sworn)</p> <p>16 JUDGE STARNES: Okay. 17 Go ahead, Mr. Hill.</p> <p>18 MR. HILL: Thank you, Judge.</p> <p>19 TIM OSTING, P.E., D.WRE, CFM, 20 having been first duly sworn, testified as follows:</p> <p>21 DIRECT EXAMINATION</p> <p>22 BY MR. HILL:</p> <p>23 Q Good afternoon, Mr. Osting.</p> <p>24 A Good afternoon.</p> <p>25 Q You should have in front of you prefiled</p>	<p style="text-align: right;">342</p> <p>1 objections that we have not addressed before that anyone 2 needs to raise at this time for testimony record?</p> <p>3 (No response)</p> <p>4 JUDGE STARNES: Okay. Then, consistent 5 with our ruling at the prehearing conference, the 6 objections are all overruled, and Exhibits 600 through 7 624 are admitted.</p> <p>8 (Exhibit COG Nos. 600 through 624 9 admitted)</p> <p>10 MR. HILL: Thank you, Judge. Pass the 11 witness.</p> <p>12 JUDGE STARNES: Okay. 13 For the Executive Director?</p> <p>14 MR. TATU: Yes. Thank you.</p> <p>15 CROSS-EXAMINATION</p> <p>16 BY MR. TATU:</p> <p>17 Q Good afternoon, Mr. Osting. How are you?</p> <p>18 A Good afternoon. I'm doing well.</p> <p>19 Q Great. I just have a few questions for you 20 regarding modeling. The first question I have is: Did 21 you run the TCEQ QUAL-TEX model with adjusted barometric 22 pressure that was suggested by Mr. Machin?</p> <p>23 A Yes, sir, I did.</p> <p>24 Q Okay. Could you I ask you what were the 25 predicted DO results of that model run for the proposed</p>

<p style="text-align: right;">343</p> <p>1 2 mgd final phase?</p> <p>2 A When I -- when I ran that model with only</p> <p>3 Mr. Machin's change with the barometric pressure, I did</p> <p>4 not duplicate his stated value of 4.03 or</p> <p>5 4.06 milligrams per liter. When I made additional</p> <p>6 changes to the model to -- well, to recalibrate or to</p> <p>7 reinitialize -- excuse me. Calibrate is absolutely the</p> <p>8 wrong term to use here. When I ran the TCEQ QUAL-TEX</p> <p>9 model, reinitialized after adding Mr. Machin's</p> <p>10 barometric pressure and also after I ran the same model</p> <p>11 with updated geometric properties based on Water</p> <p>12 Development Board data in the lake, my final phase</p> <p>13 value, I believe, was 4.99 milligrams per liter</p> <p>14 dissolved oxygen content.</p> <p>15 Q Okay. And do you know if those were the same</p> <p>16 predicted DO results that Mr. Michalk described getting</p> <p>17 in his prefiled testimony?</p> <p>18 A They were very comparable to the numbers that</p> <p>19 Mr. Michalk got. Mr. Michalk got slightly lower</p> <p>20 dissolved oxygen values in Mr. Michalk's rerunning of</p> <p>21 the QUAL-TEX model, and his numbers were slightly lower</p> <p>22 as a result of a different geometry that he used based</p> <p>23 on the original geometry that TCEQ Staff used in the</p> <p>24 original QUAL-TEX model. And that was based on less</p> <p>25 site-specific information than what I used.</p>	<p style="text-align: right;">345</p> <p>1 the barometric pressure. I believe, in fact, he changed</p> <p>2 another portion of that same model, and that combination</p> <p>3 of the two things that he did changed the -- his</p> <p>4 dissolved oxygen result.</p> <p>5 Q Okay. And so were those dissolved oxygen</p> <p>6 results higher or lower for the cove areas in</p> <p>7 Lake Granbury?</p> <p>8 A His dissolved oxygen results were lower in</p> <p>9 Lake Granbury. It was 4 milligrams per liter, roughly.</p> <p>10 Just a little over 4 milligrams per liter was his</p> <p>11 result. And what, specifically, I determined that he</p> <p>12 changed were the -- it was two of the stream segments,</p> <p>13 the way the models are set up are there are different</p> <p>14 segments, and you can individually identify what some of</p> <p>15 the input coefficients are for reaeration for each of</p> <p>16 those segments. And two of the segments were changed</p> <p>17 from a river -- or, I'm sorry, changed from a lake</p> <p>18 segment to a river segment, and those segments that were</p> <p>19 changed are, in fact, in the natural pool of</p> <p>20 Lake Granbury.</p> <p>21 Q Okay. Well, you did use the term calibration</p> <p>22 earlier, but I'm not sure if I'm asking this the correct</p> <p>23 way. So just let me know if what I'm asking you doesn't</p> <p>24 make sense, but yesterday Mr. Michalk was asked some</p> <p>25 questions regarding modeling calibration. And you</p>
<p style="text-align: right;">344</p> <p>1 Q So did you make any additional refinements to</p> <p>2 the QUAL-TEX model when you reran?</p> <p>3 A I did. I did. I followed the TCEQ procedure</p> <p>4 to reinitialize the model by changing the sediment</p> <p>5 oxygen demand in the model, and when I reinitialized it</p> <p>6 and reran the model with those two changes that I</p> <p>7 described -- I changed the barometric pressure and I</p> <p>8 changed the geometry in the model -- and the geometry</p> <p>9 are basically the widths and the depths in the lake</p> <p>10 portion of the model. When I reran that, I came up with</p> <p>11 the results that I had 4.99.</p> <p>12 Q Okay. So did you run the adjusted QUAL-TEX</p> <p>13 model for both proposed flow phases?</p> <p>14 A I did. I reran it for the interim phase, as</p> <p>15 well, my same version of the model, and the result was</p> <p>16 4.82, I believe, milligrams per liter for the interim</p> <p>17 phase with the interim permit limits and 1 mgd.</p> <p>18 Q Okay. So were the results of the adjusted</p> <p>19 QUAL-TEX model different from those that only included</p> <p>20 an adjustment of the barometric pressure input value?</p> <p>21 A Yes. These values that I came up with after</p> <p>22 reinitializing the model according to the SOP that TCEQ</p> <p>23 uses to initialize these models, this value was</p> <p>24 different than the value that Mr. Machin came up with</p> <p>25 initially where he said he only -- or he only changed</p>	<p style="text-align: right;">346</p> <p>1 mentioned in your prefiled that you were able to</p> <p>2 calibrate your model. Is that correct?</p> <p>3 A That is correct. Yes.</p> <p>4 Q Okay. And is the calibration method that</p> <p>5 Mr. Michalk was asked about the same method for</p> <p>6 calibrating a critical conditions model like the one you</p> <p>7 used?</p> <p>8 A There are many different aspects to</p> <p>9 calibration, and Mr. Michalk spoke broadly about</p> <p>10 calibration and calibrating -- calibrating a model that</p> <p>11 can -- that both -- calibrating a model that can both</p> <p>12 evaluate critical conditions modeling and a variety of</p> <p>13 other conditions, including cold conditions, summer,</p> <p>14 winter, and different inflow conditions. My model</p> <p>15 specifically was calibrated to low flow conditions as a</p> <p>16 result of having available on-site data during low flow</p> <p>17 conditions, and the objective, of course, of calibration</p> <p>18 is to make the model prediction as close as possible to</p> <p>19 field observations. And so my update of my QUAL2K model</p> <p>20 that I used, not the QUAL-TEX model, my calibrated</p> <p>21 QUAL2K model was calibrated to observe conditions such</p> <p>22 that the predictions out of the model match what the</p> <p>23 observed conditions are for dissolved oxygen and other</p> <p>24 parameters.</p> <p>25 Q Okay. Let me just check one more thing. I</p>

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1 don't have any more questions. Thank you, Mr. Osting.

2 **A Thank you.**

3 JUDGE STARNES: Okay. Thank you.

4 OPIC, Mr. Arthur, do you have any

5 questions?

6 MR. ARTHUR: No questions, Your Honor.

7 Thank you.

8 JUDGE STARNES: Okay.

9 Which of our Protestant groups is going to

10 start us?

11 MR. ALLMON: I believe that I will be

12 starting the cross-examination for Mr. Osting for the

13 Protestants.

14 JUDGE STARNES: Okay. Go ahead,

15 Mr. Allmon.

16 CROSS-EXAMINATION

17 BY MR. ALLMON:

18 Q Good afternoon, Mr. Osting. How are you?

19 **A I'm doing well. How are you?**

20 Q I'm doing all right. I want to start with

21 looking at the implementation procedures that were --

22 have been previously discussed. Do you have those

23 before you now, Exhibit ED 3?

24 **A Yes, sir. It's on my screen.**

25 Q Okay. And let me look if we can to Page 83 of

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1 those. Well, if we looked up -- does this particular --

2 and I'm having some trouble. Does this portion of the

3 implementation procedures deal with -- let me look at

4 83. Starting on 83 are we looking at the methods for

5 modeling dissolved oxygen?

6 **A It's Page 83, and it says Modeling Dissolved**

7 **Oxygen at the top.**

8 Q Yes. And now I want to look down at Page 86 of

9 the IPs, and does this describe critical conditions?

10 **A The heading is Critical Conditions.**

11 Q And do the IPs state that critical conditions

12 are defined by three primary parameters: Ambient flow,

13 wastewater flow, and ambient water temperature?

14 **A That is what the text says. Yes.**

15 Q Would critical conditions for wastewater flow

16 be the kind of maximum limit -- wastewater flow at the

17 maximum limitations of the draft permit?

18 **A The wastewater flow as analyzed as part of this**

19 **implementation procedure's document are those flows at**

20 **the limits.**

21 Q So, those constitute critical conditions, those

22 flows at the limits if I'm understanding this in your

23 testimony?

24 **A The critical conditions are defined by the**

25 **amount of wastewater flow that's present, and it's**

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1 **analyzed in terms of the interim limit and in terms of**

2 **the final limit for purposes of this permit.**

3 Q And would critical conditions also be

4 characterized by the characteristics of the flow, such

5 as what the permitted dissolved oxygen level is and the

6 permitted phosphorous or the permitted nitrogen? Are

7 those, likewise, the critical conditions for purposes of

8 evaluating a permit?

9 **A Those critical conditions are analyzed, and the**

10 **contents, especially the oxygen demand content --**

11 (Simultaneous discussion)

12 Q (BY MR. ALLMON) And so --

13 **A -- part of those critical conditions condition.**

14 Q So we want to -- in determining flow under

15 critical conditions, you would want to look at the

16 quality of the effluent that would result in the lowest

17 dissolved oxygen levels in the water body. Would you

18 agree with me?

19 **A You would want to look at how the effluent at**

20 **its permitted limits effects the dissolved oxygen in the**

21 **water body while the water body is at a conluent so to**

22 **speak of low flow conditions and high water**

23 **temperatures --**

24 (Simultaneous discussion)

25 Q (BY MR. ALLMON) All right.

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1 **A -- with the climate of that location.**

2 Q All right. Now I want to look now -- okay.

3 Are we now -- do you now have Exhibit 604 before you?

4 **A Yes, sir, I have Exhibit 604.**

5 Q And actually let me look. This document has

6 several exhibits within it as I understand it. Now I

7 have Exhibit 610 in front of you.

8 **A I do have -- yes, Exhibit 610.**

9 Q And are these -- you labeled this the expected

10 quality of effluent discharged from the proposed

11 Granbury MBR Wastewater Treatment Plant.

12 **A Yes, sir.**

13 Q So, do these characteristics of the wastewater

14 reflect critical conditions?

15 **A Those reflect the conditions of the plant**

16 **effluent, and when we are talking about critical**

17 **conditions for purposes of modeling, we are going to use**

18 **the ambient temperature of the water body, the receiving**

19 **water body, the ambient flows of the receiving water**

20 **body. We're also going to use the conditions that we**

21 **expect from the wastewater plant, and these were**

22 **provided to me by the design engineer, as well as any**

23 **differences related to the permit limits if the permit**

24 **limits are higher than expected, expected conditions.**

25 Q And as we saw in the implementation procedures,

<p style="text-align: right;">351</p> <p>1 it said one element of the critical conditions was the 2 wastewater effluent. Do you recall? 3 A I do recall that. 4 Q And so would the characteristics of that 5 effluent at permit limits be the relevant critical 6 conditions? 7 A Yes, that would be the relevant critical 8 conditions. 9 Q So do the characteristics listed in Exhibit 610 10 reflect the characteristics of the effluent at permit 11 limits? 12 A No, not at permit limits. 13 Q So do the characteristics of the effluent 14 reflected in Exhibit 610 represent critical conditions? 15 A Some of them do. 16 Q Do these fully represent critical conditions 17 for all parameters? 18 A Not for all parameters. 19 Q Okay. Did you use these characteristics of the 20 effluent as the basis of any of your modeling? 21 A I did use those as the basis of my model. 22 Q Which of your model runs were based upon these 23 characteristics of the effluent? 24 A The two -- so I evaluated a total of three 25 different sets of model runs in my QUAL2K model, and</p>	<p style="text-align: right;">353</p> <p>1 Rivers. And it says: Apart from discharge flow and 2 quality, the most important model inputs for this 3 approach and it can be characterized as follows, and is 4 reaeration rates included there? 5 A I see reaeration rates. Yes. 6 Q Okay. What is meant by reaeration rate? 7 A The reaeration rate is the rate at which a 8 water body received oxygen from the water surface as a 9 function of its contact with the ambient air. So, the 10 water body will -- just from wind action and then also 11 from hydrologic mixing and also from water movement, it 12 will become reaerated, or it will accumulate air in the 13 water column -- I'm sorry. It will accumulate oxygen in 14 the water column from the air above. 15 Q And now turn to the next page of the 16 implementation procedures. Does that have a section 17 discussion -- discussing reaeration rates? 18 A I see reaeration rates. Yes. 19 Q And are reaeration rates impacted by the depth 20 of the water body at issue? 21 A They are impacted by the depth. 22 Q Okay. Now I would like to look at some of the 23 changes you made to the Executive Director's modeling, 24 and first, I'd like to look at modeling done by the -- 25 some of the modeling inputs done by the Executive</p>
<p style="text-align: right;">352</p> <p>1 within the QUAL2K model Set A that was the evaluation of 2 these conditions along with the conditions that existed 3 in September of 2021, which was roughly the condition 4 that was -- where I had the most data for that I 5 calibrated towards. The other run, Run B, Run Set B 6 used these values except for the permitted maximum 7 conditions were substituted where they're available. 8 For example, the effluent ammonia was substituted at 1.6 9 milligrams per liter for the interim phase and 10 substituted at 1.0 milligrams per liter for the final 11 phase, and the same was true for the BOD and same was 12 true for the orthophosphate phosphorus. 13 Q Did you perform runs where the permit limits 14 were not substituted for these where they were 15 different? 16 A Yes, I did. Those were the runs labeled A. 17 Q So would the runs labeled A reflect critical 18 conditions with regard to the effluent characteristics? 19 A They would not reflect the full permit 20 conditions. 21 Q Okay. Now I want to return to the IPs and look 22 as we continue down as we're at least -- we're still in 23 the -- look at Page 84. I apologize. I'm having to 24 kind of navigate myself around here a bit. So Page -- 25 we've got inputs, and we've got Nontidal Streams and</p>	<p style="text-align: right;">354</p> <p>1 Director. Let me go ahead and share my screen. You 2 have now in front of you what's marked as Exhibit GF-6? 3 A I do. I see that. 4 Q And let me represent to you that these are the 5 modeling input files produced by the Executive Director 6 to Granbury Fresh in Response to Request for Production 7 No. 6. The ED did not Bates stamp all their production, 8 and so these do not have Bates stamps. But do you 9 recognize these as modeling inputs? 10 A I recognize them as modeling inputs for the 11 QUAL-TEX model in general -- 12 Q Yes. 13 A -- as a comparable format. 14 Q Okay. Now I want to look at the third page, or 15 I want to look at -- are there various data types listed 16 within your model input -- within such model inputs? Do 17 you see the label here Data Type? For instance, right 18 now we have Data Type 10 currently in front of us. 19 A I see that. 20 Q And is -- if we move up here is Data Type 9 21 that's labeled Advective Hydraulic Coefficients. 22 A I see that. Yes, sir. 23 Q And then as we look at F -- there's a Column F 24 under that, and I've got depth. And then it says CONST. 25 What does that column represent?</p>

<p style="text-align: right;">355</p> <p>1 A A depth constant.</p> <p>2 Q And so for each one here did the Executive</p> <p>3 Director use a depth constant of 0.0?</p> <p>4 A Yes, if this is one of the files I've seen</p> <p>5 before. And, yes, that value is zero if the Executive</p> <p>6 Director generative is filed.</p> <p>7 Q And what physically does that represent with</p> <p>8 regard to the modeled water body?</p> <p>9 A There's an equation that -- that relates the</p> <p>10 flow to the depth according to three parameters, the D,</p> <p>11 the E, and the F parameter. And the F parameter is an</p> <p>12 addition at the end of an exponential function involving</p> <p>13 D and E.</p> <p>14 Q So is this, essentially, reflect the --</p> <p>15 reflective of the depth of the water body being modeled?</p> <p>16 A No.</p> <p>17 Q Oh, I guess the -- so how is this parameter</p> <p>18 here related to the depth?</p> <p>19 A It's added on after a multiplication using the</p> <p>20 other two parameters.</p> <p>21 Q And what are those other two parameters?</p> <p>22 A D, depth coefficient; E, depth exponent.</p> <p>23 Q Okay. Now I want to look for a second at the</p> <p>24 modeling, some of the modeling that you performed, the</p> <p>25 inputs you used.</p>	<p style="text-align: right;">357</p> <p>1 A I do.</p> <p>2 Q And so as we look for Reaches 1, 2, and 3 you</p> <p>3 use zero for F, as well. Correct?</p> <p>4 A That's correct.</p> <p>5 Q And as we look back to the Executive Director</p> <p>6 for Reaches 1, 2, and 3, they used 0.0. Do I need to go</p> <p>7 back up?</p> <p>8 A Well, you're flipping back and forth between</p> <p>9 these files that --</p> <p>10 Q Well, right now I'm on Exhibit GF-6, which is</p> <p>11 the Executive Director's inputs, and on Reaches 1 and 2</p> <p>12 we've got a depth, Column F is zero.</p> <p>13 A Yeah. I recall going through that first -- I</p> <p>14 suppose the GF-6, and I do see the zero. And in the</p> <p>15 second I also saw a zero.</p> <p>16 Q Now in Reach 4, staying on Exhibit GF-6, what</p> <p>17 depth constant did the Executive Director use?</p> <p>18 A 0.5.</p> <p>19 Q Okay. And now as we turn to Exhibit GF-7</p> <p>20 which, again, is your modeling, what depth constant did</p> <p>21 you use for Reach 4?</p> <p>22 A If that was mine, it's 0.75.</p> <p>23 Q And this is Exhibit GF-7, which we discussed</p> <p>24 before, is your -- one of your input files.</p> <p>25 A Okay.</p>
<p style="text-align: right;">356</p> <p>1 (Brief pause)</p> <p>2 Q (BY MR. ALLMON) Okay. Do you have in front of</p> <p>3 you now Exhibit GF-7?</p> <p>4 A I see Exhibit GF-7.</p> <p>5 Q And do you see in the lower right-hand corner</p> <p>6 where this is marked COG-024978?</p> <p>7 A I see that.</p> <p>8 Q And does it have TO there?</p> <p>9 A It does have a TO.</p> <p>10 Q So does this appear to be one of the input</p> <p>11 files that you used?</p> <p>12 A It must have been one of them that I produced,</p> <p>13 or I assume it is.</p> <p>14 Q And is this your input file for the QUAL -- if</p> <p>15 we look at the top under Title02, is this QUAL-TEX</p> <p>16 modeling?</p> <p>17 A Yes, sir. This is a QUAL-TEX input file.</p> <p>18 Q So does this reflect your inputs for your</p> <p>19 QUAL-TEX modeling?</p> <p>20 A I generated at least -- I generated several</p> <p>21 QUAL -- uncalibrated QUAL-TEX models, and which of those</p> <p>22 this is exactly, I'm not certain.</p> <p>23 Q Okay. Now let's look at Data Type 9 here. Do</p> <p>24 you see where you would likewise have certain hydraulic</p> <p>25 coefficients?</p>	<p style="text-align: right;">358</p> <p>1 Q So did you adjust the depth constant to be --</p> <p>2 did your depth constant, was it greater than the</p> <p>3 Executive Director's?</p> <p>4 A Yes, it was.</p> <p>5 Q And why would that be?</p> <p>6 A It was based on available data. There were --</p> <p>7 that specific 0.75 -- well, let me back up. There's</p> <p>8 available eco standard data from the Texas Water</p> <p>9 Development Board that covered much of this area,</p> <p>10 including starting from the lake moving upstream into</p> <p>11 the -- into the cove up towards the confluence of where</p> <p>12 the river met the lake. Where their data was lacking I</p> <p>13 used data from Mr. Flores, who performed a site visit</p> <p>14 and measured stream depths. And so I used that value</p> <p>15 for the upper end of the cove or for the upper end of</p> <p>16 the lake based on his site visit information.</p> <p>17 Q So that's what led you in Reach No. 4 to have a</p> <p>18 greater depth than the ED?</p> <p>19 A Yes.</p> <p>20 Q Okay. And now let's look at Reach 5, and I'm</p> <p>21 looking back again to the ED's data. And they, again,</p> <p>22 have 0.5 as their value in Reach 5. Do you see that?</p> <p>23 A I see 0.5 in --</p> <p>24 Q Exhibit GF-6 for Reach 5. Correct?</p> <p>25 A Correct.</p>

<p style="text-align: right;">359</p> <p>1 Q And for you for Reach 5 you had 1.2. So, 2 again, does that reflect a greater depth?</p> <p>3 A That does reflect a greater depth.</p> <p>4 Q And is that consistent for Reach 6? We've got 5 the ED at 1.0. Would you agree?</p> <p>6 A Yes, 1.2 is greater than 1.0.</p> <p>7 Q Okay. Well -- and yours in Reach 6 is actually 8 2.2 --</p> <p>9 A 2.2.</p> <p>10 Q -- for this. Correct?</p> <p>11 A Yes. Correct.</p> <p>12 Q And for Reach 7 the ED was at 1.5. Do you see 13 there?</p> <p>14 A I see that. Yes, sir.</p> <p>15 Q And for Reach 7 you were at 2.55.</p> <p>16 A I see that.</p> <p>17 Q And so -- and, again, are all of these because 18 of your use of either data from the Water Development 19 Board or that gathered by Mr. Flores?</p> <p>20 A Yes. That's correct.</p> <p>21 Q And is this consistent, if we look at Reach 22 No. 9, the ED had a 2.5 -- and are there units here for 23 Column F, or is this a unit less value?</p> <p>24 A There's units. It's meters.</p> <p>25 Q Meters. So does that 2.5 reflect a 2.5 meter</p>	<p style="text-align: right;">361</p> <p>1 A Yes.</p> <p>2 Q Well, reaeration segment SOD, sediment oxygen 3 demand, and BOD coefficients, and which column here are 4 the reaeration rates reflected in?</p> <p>5 A So one, two, three -- the third one that's --</p> <p>6 Q Okay. So say for Reach 5, what's the 7 reaeration rate that was used by the Executive Director?</p> <p>8 A They used a method that specified the 9 reaeration rate directly, and that value is 2.0.</p> <p>10 Q Okay. And that's Data Type 12. Now if we look 11 to Exhibit GF-7, go down to Data Type 12 and look for 12 Reach 5, did you also use 2.0?</p> <p>13 A I did use 2.0.</p> <p>14 Q Okay. So you did not change that at all?</p> <p>15 A That's correct.</p> <p>16 Q But the depth you used was a greater depth?</p> <p>17 A That's correct. I believe it was -- yes, 18 that's correct.</p> <p>19 Q So would it have been appropriate to change the 20 reaeration rate when you changed the depth?</p> <p>21 A I don't recall the depth. If the depth was -- 22 it depends on the depth.</p> <p>23 Q But -- so would it be -- so did you evaluate 24 whether the reaeration rate needed to be changed in 25 light of the change in depth?</p>
<p style="text-align: right;">360</p> <p>1 depth?</p> <p>2 A Yes, sir.</p> <p>3 Q And so for No. 9 you have a 2.9 meter -- Reach 4 No. 9, you've got a 2.5 meter depth -- well, the 5 Executive Director. Excuse me. We're on Exhibit GF-6, 6 Page 4 of 9. Looking at Reach 9 the Executive Director 7 has a 2.5 meter depth, and as we look at Exhibit GF-7 in 8 Reach 9, you have a 2.93 meter depth.</p> <p>9 A That appears correct.</p> <p>10 Q Okay. And Reach 10 the Executive Director 11 reached 3.5 meters, and this is the last reach. 12 Correct?</p> <p>13 A That's the most downstream reach. Yes. And 14 what I referred to as segments earlier, this model 15 refers to as reaches. So --</p> <p>16 Q Okay. Yeah. And so would the depths impact 17 the reaeration rates?</p> <p>18 A Yes, it does. It impacts the reaeration of the 19 entire column of -- of water.</p> <p>20 Q All right.</p> <p>21 A It doesn't reflect the rate of transfer at the 22 water surface.</p> <p>23 Q So if we look back -- I'm on GF-6, which is the 24 Executive Director's inputs. If we look down to our 25 Data Type 12, does that reflect the reaeration rates?</p>	<p style="text-align: right;">362</p> <p>1 A I'm sure I did, and if the depth is greater 2 than a depth to where I thought it was necessary to 3 change, I would have changed it.</p> <p>4 Q So here on 5 you still use the same reaeration 5 rate as the Executive Director did, even though you 6 changed the depth?</p> <p>7 A Yes. That's correct.</p> <p>8 Q And let's look at Reach 6. What reaeration 9 rate did the Executive Director use?</p> <p>10 A 1.0.</p> <p>11 Q And as we look at Reach 6 for your modeling 12 what reaeration rate did you use?</p> <p>13 A 1.0.</p> <p>14 Q So, again, you did not change the reaeration 15 rate, even though you changed the depth?</p> <p>16 A That's correct.</p> <p>17 Q And for Reach 9, what reaeration rate did the 18 Executive Director use?</p> <p>19 A 0.4.</p> <p>20 Q And what reaeration rate did you use for 0. -- 21 and what reaeration rate did you use for Reach 9?</p> <p>22 A 0.4.</p> <p>23 Q Did you change the reaeration rates for any of 24 the reaches?</p> <p>25 A I don't recall -- I don't recall what model run</p>

<p style="text-align: right;">363</p> <p>1 this is, and if this is not the very first modeling run 2 that I did in which the first modeling run that I did 3 may not have changed any of the Executive Director's 4 rates, then I -- then I see that the reaeration rates 5 are not changed.</p> <p>6 Q And if we look at the top of this, this is, 7 again, modeling run that was provided by the City of 8 Granbury for you, can you tell which model run this 9 particular run was for?</p> <p>10 A Well, I do see my initials at the top. It says 11 TDO, and it also says TWDBdep, which looks like the 12 Water Development Board depths. And it says Baro, which 13 implies it had to do with the barometric pressure 14 change.</p> <p>15 Q And would these inputs -- would there be 16 somewhere in these inputs where it indicates the 17 characteristic of the wastewater that you used?</p> <p>18 A Can you repeat that?</p> <p>19 Q These modeling inputs, I assume you also put 20 the wastewater characteristics as an input of the model. 21 Is that correct?</p> <p>22 A Yes, I did.</p> <p>23 Q And do you see here on Data Type 25 where 24 you've got waste load data for DO, BOD, and nitrogen?</p> <p>25 A Yes.</p>	<p style="text-align: right;">365</p> <p>1 A I do.</p> <p>2 Q And what does this reflect in terms of the 3 modeling run this involves?</p> <p>4 A This is -- this is how oxygen is removed from 5 the water body based on -- based on biological activity 6 at the bottom of the -- at the bed of the lake or at the 7 bed of the river.</p> <p>8 Q Okay. So are you able to identify which 9 modeling run of yours this is?</p> <p>10 A The Value No. 9 or Reach No. 9, 0.55 is 11 different than that for the Executive Director's, then 12 this is likely my uncalibrated run.</p> <p>13 Q So for the SOD for the Executive Director No. 9 14 is 0.63. I'm looking, again, at Exhibit GF-6, Page 5 of 15 9. In Reach 9 the SOD value is 0.63. Do you see that?</p> <p>16 A I see that.</p> <p>17 Q And looking over to Exhibit GF-7, I'm under 18 Data Type 12, Reach 9, the SOD value here is 0.55. Does 19 that help indicate to you which model run this is?</p> <p>20 A It does. I'm reasonably certain this was one 21 of my runs, and it's one of the latter runs. Without 22 having the file name associated with it, it's difficult 23 for me to tell that this for sure the final run.</p> <p>24 Q But this is -- are the inputs here consistent 25 with what the parameters were you used in your QUAL-TEX</p>
<p style="text-align: right;">364</p> <p>1 Q And do these appear to be consistent with the 2 permit limits?</p> <p>3 A Dissolved oxygen effluent limit at 6, BOD 4 effluent limit at 5, nitrate for the final at 1.0 and -- 5 I'm sorry. Ammonia at 1.0, and ammonia at the interim 6 phase for -- at 1.6 milligrams per liter.</p> <p>7 Q So does this appear to be your QUAL-TEX 8 modeling with the adjustment made for the barometric 9 pressure and the adjustments made for the depths at the 10 permit limits?</p> <p>11 A It could be.</p> <p>12 Q Well, I mean --</p> <p>13 A The other change that I made was to 14 reinitialize the SOD values, and that's how I would 15 check.</p> <p>16 Q Is there somewhere on here we can look to make 17 that determination, which modeling run this is?</p> <p>18 A We can --</p> <p>19 Q You can direct me.</p> <p>20 A The sediment oxygen demand values.</p> <p>21 Q And is that back up when we were looking at 22 Data Type 12?</p> <p>23 A Yes.</p> <p>24 Q Sediment oxygen demand. So do you see a column 25 for SOD?</p>	<p style="text-align: right;">366</p> <p>1 modeling for values for depth and values for reaeration 2 rates?</p> <p>3 A I believe they're consistent.</p> <p>4 Q And would it have been appropriate to adjust 5 the reaeration rates when you adjusted the depths?</p> <p>6 A Yes, it could have been -- it was a choice that 7 I made.</p> <p>8 Q Was there a basis for your choice to not adjust 9 the reaeration rates when changing the depths?</p> <p>10 A I was trying to minimize the number of values 11 that I changed from the TCEQ -- from the TCEQ default.</p> <p>12 Q Did you make any evaluation of what the 13 resulting dissolved oxygen would be if the reaeration 14 rates were appropriately adjusted to match the 15 alteration of the depths?</p> <p>16 A I did not.</p> <p>17 Q Why not?</p> <p>18 A The objective of changing the SOD rates in the 19 no load run in the initialization is to minimize the 20 dissolved oxygen that is -- or to -- is to set a 21 baseline condition such that when you run the model with 22 the loaded conditions with the permits applied, as this 23 run is -- I think this run was -- that the -- the sag in 24 dissolved oxygen can be determined.</p> <p>25 Q Did you perform any model run at the permit</p>

<p style="text-align: right;">367</p> <p>1 limits with the adjustments for the depths that you made 2 that also adjusted for the reaeration rates?</p> <p>3 A These are the values that I used, assuming this 4 is my final run.</p> <p>5 Q So am I to take that that you did not perform 6 any model run that adjusted both the depths and the 7 reaeration rates when you made the change in the depths 8 for the Texas Water Development Board and the data from 9 Mr. Flores?</p> <p>10 A If this is the final model run, then this is 11 what I used. I know I changed a number of parameters. 12 I focused on the sediment oxygen demand, and this is 13 the -- if this is the final run and it shows unchanged, 14 then that is true.</p> <p>15 Q Okay. So would it be possible that if one were 16 to examine the characteristics of the water body 17 resulting from a discharge at the permitted limits with 18 the depths adjusted as you did with proper reaeration 19 rates, that it would produce in a lower dissolved 20 oxygen?</p> <p>21 A I -- these are the -- this is the model run 22 that I produced that I was comfortable with.</p> <p>23 Q So you don't know whether the performance of a 24 model run that adjusted both the depths and then, 25 accordingly, adjusted the reaeration rates would produce</p>	<p style="text-align: right;">369</p> <p>1 proper reaeration rates the proper -- the predicted 2 dissolved oxygen with this QUAL-TEX model would be less 3 than 3.0?</p> <p>4 A I'm sorry. Can you unpack that?</p> <p>5 Q Yeah. If one were to run the model adjusting 6 both the depths and the reaeration rates, would it 7 possibly result in a predicted dissolved oxygen of less 8 than 3.0 milligrams per liter?</p> <p>9 A I don't know.</p> <p>10 Q So you can't rule that out?</p> <p>11 A Did you say 3 milligrams per liter?</p> <p>12 Q Yes.</p> <p>13 A I can't rule that out, but I think it's highly 14 unlikely that this model would show lower values than 15 what it's currently showing.</p> <p>16 Q But you did no quantitative analysis to reach 17 that opinion? Is it true that you ran no modeling runs 18 yourself in order to make that determination?</p> <p>19 A The modeling runs I ran did show that the 20 dissolved oxygen was greater than the 3 milligrams per 21 liter. The modeling runs I ran showed that the 22 dissolved oxygen was greater than, I believe, 4.8 for 23 the interim condition for these uncalibrated QUAL-TEX 24 runs.</p> <p>25 Q So -- and you're referring to your modeling</p>
<p style="text-align: right;">368</p> <p>1 a lower dissolved oxygen?</p> <p>2 A I do not because if the reaeration rates were 3 adjusted and -- well, if the reaeration -- well, yes. 4 If the reaeration rates were adjusted and sediment 5 oxygen demand was properly reinitialized, I don't know 6 what that result would be.</p> <p>7 Q Now would that provide, I guess I'll call it, 8 as accurate a characterization as this model is capable 9 of giving if one were to adjust those reaeration rates 10 when adjusting the depths?</p> <p>11 A I'm sorry. What was the question?</p> <p>12 Q If one were to adjust the reaeration rates 13 accordingly to the adjustment of the depths and run the 14 model with those adjustments, would that provide an 15 accurate prediction of the expected dissolved oxygen?</p> <p>16 A You'd have to calibrate it and understand what 17 the relationship between this uncalibrated model or -- 18 well, what the relationship between the predicted values 19 and observed values are, and this model was not compared 20 to observed values.</p> <p>21 Q Did you do that?</p> <p>22 A Not with this QUAL-TEX model.</p> <p>23 Q Okay.</p> <p>24 (Brief pause)</p> <p>25 Q (BY MR. ALLMON) So you don't know whether with</p>	<p style="text-align: right;">370</p> <p>1 runs that did not adjust the reaeration rates?</p> <p>2 A I'm referring to modeling runs that I reported 3 in my testimony.</p> <p>4 Q Okay. Which -- and when we refer to your 5 QUAL-TEX modeling run at permit limits with adjusted 6 depths, that's a modeling run that did not address the 7 reaeration rates?</p> <p>8 A If this is the final version, then yes.</p> <p>9 Q Okay. And you don't know what the model 10 prediction would be with adjusted reaeration rates until 11 you were to actually run the model. Is that true?</p> <p>12 A That's true.</p> <p>13 Q Okay. Now you ran some model runs using the 14 QUAL2K model. Is that my -- is that an accurate 15 understanding?</p> <p>16 A Yes, QUAL2K.</p> <p>17 Q Okay. And does the QUAL2K model only predict 18 impacts on a diurnal scale?</p> <p>19 A It does predict on a diurnal scale. It also 20 provides the average.</p> <p>21 Q Okay. Does it do it -- give you any values 22 other than -- well, I used the word diurnal. What does 23 diurnal mean?</p> <p>24 A Well, diurnal typically refers to a situation 25 that occurs once per day or twice per day. Diel is more</p>

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1 appropriate in discussing something that has a cycle
 2 that cycles day-to-day. So it cycles from high to low
 3 once per day.
 4 Q So the QUAL2K outputs tell you what the value
 5 is over the course of a single -- when I say -- over a
 6 single diurnal cycle?
 7 A A diel cycle. Diurnal is --
 8 Q So a 24-hour period, in essence?
 9 A Yes, sir.
 10 Q Okay. Now, did you -- was the data you used
 11 to -- and I guess you're using the word initialize your
 12 model. Was the data used to initialize the QUAL2K model
 13 from September 15th, 19 -- 2021?
 14 A I calibrated the model from September 15th to
 15 September 16th based on data from those two days that
 16 were collected in the field and based on climate data
 17 from September the 15th, 2021.
 18 Q Now so is the model necessarily reflective of
 19 conditions that would occur -- is the model necessarily
 20 reflective of conditions that would exist that differ
 21 from the conditions on that date?
 22 A I'm sorry. I don't understand.
 23 Q Well, essentially, is your model predicting
 24 what would happen on September 15th, 2021?
 25 A It's predicting -- yes, it is.

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1 Q And so does it give us information as to what
 2 would happen under conditions that aren't like those
 3 that existed on September 15th, 2021?
 4 A It's capable of doing that provided its given
 5 different inputs; for example, different inputs on flow
 6 or different inputs on loading.
 7 Q And did you give it those different inputs?
 8 A I did. In --
 9 Q And --
 10 (Simultaneous discussion)
 11 A -- modeling runs not all on the same model
 12 scenario.
 13 Q (BY MR. ALLMON) And you gave it those
 14 different inputs on flow. Did you give it -- when you
 15 say flow, are you referring to the loading? Well, let
 16 me take two things: With regard to flow, are you
 17 referring to flow in the receiving stream?
 18 A Yes. And let me clarify: You asked about a
 19 modeling result on a specific day, and that specific day
 20 was September 15th and 16th, 2021. And the model was
 21 run to match conditions on that day based on inputs that
 22 occurred during that day. For example, inflow and water
 23 level and mainly the climate, the temperature, and then
 24 my effort focused on matching the model predictions to
 25 the observations that were available for that day. And

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1 so once the model is set up in a calibrated fashion such
 2 that the model can recreate -- the model predictions can
 3 recreate the observations, then we can take that model
 4 and give it different inputs. And those different
 5 inputs are what I referred to earlier as loading so the
 6 wastewater treatment plant inflows and the nutrient
 7 inputs that are associated with that.
 8 Q Did you look at any day other than September
 9 15th and 16th of 2021 in terms of conditions to see if
 10 the model would accurately match what happened under
 11 those conditions?
 12 A I did not.
 13 Q Okay.
 14 (Brief pause)
 15 Q (BY MR. ALLMON) Now I would ask you to look
 16 with me --
 17 JUDGE STARNES: Mr. Allmon, if we're
 18 switching subjects, is this a good time to take a short
 19 break?
 20 MR. ALLMON: Yes, I am switching subjects,
 21 and I'd be fine taking a break at this point.
 22 JUDGE STARNES: Okay. Why don't we go off
 23 the record and come back in 15 minutes at 3:05.
 24 (Recess: 2:50 p.m. to 3:06 p.m.)
 25 JUDGE STARNES: Okay. Let's go back on

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1 the record.
 2 And, Mr. Allmon, you can continue with
 3 your cross.
 4 MR. ALLMON: Thank you. And first I do
 5 want to offer -- I guess, first of all, offer Exhibit
 6 GF-6 that we were just discussing.
 7 (Exhibit GF No. 6 offered)
 8 JUDGE STARNES: Any discussions?
 9 (No response)
 10 MR. ALLMON: And then I would also offer
 11 Exhibit GF-7 that they were just discussing.
 12 (Exhibit GF No. 7 offered)
 13 JUDGE STARNES: And any objection to GF-7?
 14 (No response)
 15 JUDGE STARNES: Okay. Those are both
 16 admitted; GF-6 and GF-7 are admitted.
 17 (Exhibit GF Nos. 6 and 7 admitted)
 18 Q (BY MR. ALLMON) Okay. Mr. Osting, when did
 19 you perform the modeling that was set forth in your
 20 testimony?
 21 A Within the last month approximately. Prior to
 22 prefiled testimony, the QUAL-TX modeling that I did may
 23 have been conducted towards the end of January 2022, and
 24 the QUAL2K modeling was conducted during February
 25 of 2022.

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1 Q And when did you make a determination of the
 2 input values that you would use for your modeling?
 3 A The input values for the QUAL-TX modeling are
 4 the same as those used -- in terms of flows and nutrient
 5 loading are the same as those used by TCEQ. The
 6 geometry inputs for the QUAL-TX modeling were determined
 7 during that time period when I was looking at the
 8 QUAL-TX model, which was generally during January.
 9 And then the inputs for the QUAL2K model,
 10 those were -- some of those were determined towards the
 11 end of last year in terms of identifying some --
 12 identifying field conditions that would be useful to
 13 measure as well as -- well, and then the actual values
 14 were determined during February, you know, which inputs,
 15 which observations to use, and the accumulation of the
 16 inputs occurred generally in February.
 17 Q Okay. That would have been after February 4th?
 18 A Oh, I don't know the exact date, but roughly.
 19 Q Okay. Now, let me ask you to look at
 20 Exhibit 607. I'm going to go ahead and share that here.
 21 Do you have that in front of you at this
 22 point?
 23 A I have Exhibit 607.
 24 Q And that is Table 4 and Table 5?
 25 A Yes.

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1 Q And that's your updated QUAL-TX uncalibrated
 2 runs?
 3 A Yes.
 4 Q I understand the upper table is for the 1.0 mgd
 5 phase, and the lower table is for the 2.0 mgd phase?
 6 A Yes.
 7 Q And do these still predict DO average values
 8 beneath 5.0?
 9 A The average in the middle of the cove of
 10 Table 4 is 4.82, and that of Table 5 shows 4.95.
 11 Q And you'll agree those values are less than
 12 5.0?
 13 A Those values are less than 5.0.
 14 Q And now, you have some columns here indicating
 15 Lake there. Are you intending to represent the
 16 concentration of DO in the lake?
 17 A No, sir. That's the concentration in the cove
 18 closest to the lake, so at the most downstream area of
 19 the cove model or of this QUAL-TX model, and that
 20 location was shown on another exhibit.
 21 Q Okay. And perhaps if we -- there we are.
 22 Are we looking at Figure 3? I believe
 23 in this Figure 3 here on PDF Page 4 of your exhibit
 24 packet represents what you were just describing kind of
 25 the downstream boundary of your model?

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1 A Yes, Figure 3 in I think -- well, in
 2 Exhibit 605 I believe this is. It does represent the
 3 downstream boundary. The other figure has a segment in
 4 it that shows the segments.
 5 Q When you say "other figure," are you discussing
 6 COG Exhibit 605?
 7 A Yes, the white outline towards the left.
 8 Q Okay. So does this -- what is the farthest
 9 then to the lake that you reached?
 10 A At the left of the model or at the left of that
 11 image at the end of the white reach boundary.
 12 Q Okay. Now, were you here for the testimony of
 13 Mr. -- and I may mispronounce -- Michalk of the
 14 Executive Director's office?
 15 A I was, yes.
 16 Q And do you recall his testimony that in order
 17 to calibrate a model the TCEQ would perform a dye tracer
 18 study?
 19 A I heard his testimony.
 20 Q Did the City of Granbury -- did the City of
 21 Granbury perform any dye tracer study in calibrating the
 22 models used?
 23 A They did not perform a dye tracer study for
 24 this project. However, dye tracer studies were
 25 performed by me in Lake Granbury at various times.

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1 Q But did you use any data from those dye tracer
 2 studies in calibrating the model for your work in this
 3 case?
 4 A I used the results and the dispersion values
 5 for comparable coves in this model.
 6 Q But did you have any values that were
 7 specifically for Rucker Creek Cove?
 8 A I did not.
 9 Q Has the Executive Director reviewed -- have you
 10 provided your runs to the Executive Director for the
 11 Executive Director's review?
 12 A I'm unaware of whether they reviewed them or
 13 not. I believe they've been provided.
 14 Q Were they provided to the Executive Director as
 15 part of the technical review process for this permit?
 16 A No.
 17 Q And why were those modeling runs not performed
 18 during the technical review stage of the permitting
 19 process?
 20 A I wasn't retained until after the draft permit
 21 was issued.
 22 Q So when were you retained?
 23 A It was after the draft permit was issued in --
 24 it was -- I don't recall exactly. Last fall.
 25 MR. ALLMON: All right. Your Honor,

<p style="text-align: right;">379</p> <p>1 that's all of my questions at this time for the witness. 2 I pass the witness. 3 JUDGE STARNES: Okay. Mr. Booth, are 4 there any questions for the Rists and Bennetts? 5 MR. BOOTH: Just a couple. 6 CROSS-EXAMINATION 7 BY MR. BOOTH: 8 Q Mr. Osting, I am looking at your prefiled 9 testimony on Page 33, line -- we don't have lines -- but 10 where you talk about chlorophyll a concentrations of 11 400 micrograms per liter. Do you see that? 12 A Yes, sir, I see that. 13 Q That seems like an incredibly high reading. 14 Would you agree with me on that? 15 A That's a -- that's relatively high, yes. 16 Q I mean, some people -- my expert said that's 17 equivalent to a mass of algae. 18 Would you have any independent knowledge 19 of that one way or the other? 20 A I think that is a high level of algae. 21 Q And that's what your model is predicting? 22 A That modeled scenario under a very low flow 23 stagnant condition allows for development of that much 24 algae. 25 Q Okay. We'll come back to that.</p>	<p style="text-align: right;">381</p> <p>1 predicting and you put in a load, aren't you going to 2 make it worse? 3 A No. In fact, the model showed exactly the 4 opposite because -- 5 Q Yeah, that's what bothers me about the model. 6 Why -- how does that work? I interrupted 7 you. Go ahead and explain. 8 A Yeah, so the model -- the model considers many 9 different factors, which is the reason we use the model 10 so we can evaluate many different factors at the same 11 time. And so the model result after you put in the 12 wastewater treatment plant, after you put in the 13 wastewater load, shows that the velocity increases, and 14 the increase in velocity and the increase in circulation 15 results in a lower chlorophyll a concentration, and that 16 chlorophyll a concentration is within the range -- I 17 believe it was between 25 and 30 -- of what are typical 18 values in the lake in that area. So it's not outside 19 the range of typical values. 20 Q 400 isn't a typical value. Right? 21 A I don't know in that cove, and I don't know 22 during that time period conditions in 2013 because there 23 was no data that was available for this area. 24 Q And so how did you model it if there was no 25 data for this area?</p>
<p style="text-align: right;">380</p> <p>1 But you're saying "Lake" here. Do you 2 mean just the closest part of your Rucker Cove to the 3 lake that you were talking to Mr. Allmon about, it's a 4 "high algal production in the lake with chlorophyll-a 5 concentrations"? 6 A Yes, sir. So you're looking at one specific 7 scenario out of many different scenarios that I 8 performed. That one specific scenario was using the 9 calibrated QUAL2K model, it was using it for a low lake 10 level condition to address one of the Protestants, and 11 it was for a condition that does not include the 12 wastewater treatment plant. So it was for a relatively 13 natural condition that would have persisted for a very 14 long time because that's the nature of the way the model 15 runs. 16 And so if allowed to persist, that 17 condition for a very long time, you'd expect that there 18 would be a very high chlorophyll a concentration and at 19 400 micrograms per liter is a possibility. 20 Q Okay. What part of the lake would this be 21 predicting this type of chlorophyll a concentration? 22 A This would have been close, it would have been 23 in the middle of the cove towards the end of where the 24 model boundary is, the most downstream location. 25 Q Okay. And then if that's what your modeling is</p>	<p style="text-align: right;">382</p> <p>1 A There was no chlorophyll a data to compare the 2 modeled result to. 3 Q I see. And your calibration runs September -- 4 the middle of September 2021? 5 A Yes, sir, that's right, at a full lake level. 6 Q Okay. So you're saying that the 1 mgd of 7 effluent is enough dilution that you're not going to 8 increase the chlorophyll a or the -- let's say the 9 nitrogen and the phosphorus in the lake, let's say at 10 the end of the cove? 11 A The amount of nitrogen and phosphorus that 12 comes out of plants during both the interim and the 13 final phase will increase the nitrogen and will increase 14 the phosphorus in the Rucker Creek Cove, and the 15 concentrations and the changes in those concentrations 16 were shown in the model. 17 The impact, though, of that change in 18 phosphorus and nitrogen, the impact of that on the 19 chlorophyll a is -- is also a function of the mixing, 20 and it's a function of other factors that are considered 21 in the model, including the -- including -- 22 Q What kind of mix -- what kind of mixing are you 23 getting at low flow conditions or low lake level 24 conditions? Go ahead. 25 A It's -- so in the model, we specified</p>

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1 dispersion, and that is a -- that is an indicator of how
 2 much dispersion there is, and to some degree how much
 3 mixing there is. It's a limited value of mixing. It is
 4 low level mixing even with those -- even with the
 5 additional flow from the plant, but it is significant
 6 enough to change the -- to change the character of
 7 the -- or the concentration of the chlorophyll a.

8 Q In your opinion?

9 A Based on the model results, yes.

10 Q Okay. I'm going to have you look further down
 11 here on -- of your prefiled testimony on Page 35. And
 12 at the top of the page, you're talking about golden
 13 algae, and I don't know whether you talked about
 14 cyanobacteria.

15 Have you looked at the most recent BRA
 16 data showing that there's cyanobacteria in the lake?

17 A I have not, no.

18 Q Go ahead. No?

19 Okay. Have you looked at any data about
 20 cyanobacteria?

21 A Yes, I have.

22 Q Okay. But you've not looked any -- at any
 23 event data about Lake Granbury?

24 A I'm not aware of any very recent data from the
 25 Brazos River Authority about -- about that in Lake

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1 Granbury.

2 Q Okay. I'm almost finished.

3 Are you aware that cyanobacteria does more
 4 than -- pardon me -- clog fish gills?

5 A I'm aware the cyanobacteria sometimes produces
 6 toxins.

7 Q Do you recall any of the -- what part of the
 8 state do you live in, if I might ask?

9 A I live in Buda, Texas.

10 Q Buda, Texas. All right. I don't live far from
 11 there.

12 Did you happen to read about the dogs that
 13 died from drinking too much Lake LBJ water -- or Lady
 14 Bird Lake water?

15 A I read about some dogs that died.

16 Q Yeah. Okay.

17 MR. BOOTH: All righty. That's all the
 18 questions I have.

19 JUDGE STARNES: Okay. Mr. Hill, do you
 20 have any redirect?

21 MR. HILL: I do have a little redirect,
 22 Your Honor.

23 REDIRECT EXAMINATION

24 BY MR. HILL:

25 Q Mr. Osting, you were -- you were talking with

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1 Mr. Allmon earlier about a couple of documents that he
 2 had in front of you that looked like model runs. I
 3 think you labeled them Exhibit 6 and Exhibit 7. I
 4 apologize.

5 Do you recall that discussion?

6 A I do recall that discussion and those exhibits.

7 Q Okay. There was a -- you guys talked about --
 8 or at least, you know, there was discussion about the
 9 nature of critical conditions and your assumptions in
 10 that discussion, and particularly there was particular
 11 emphasis or interest on Mr. Allmon's part about the
 12 relevance of September 15.

13 Can you kind of explain what the
 14 significance is of that local actual site-observed data
 15 that was collected on September 15 and 16, 2021 and what
 16 that means to the overall reliability of your modeling
 17 results?

18 A Sure. So relative to the exhibits that
 19 Mr. Allmon produced, there's -- the data from
 20 September 15 was not used in those uncalibrated models,
 21 rather that data was used in the calibrated QUAL2K
 22 models. And so relative to the exhibits in the
 23 uncalibrated QUAL-TX models that focused on low flow
 24 critical conditions, you know, those are consistent with
 25 hot summertime conditions, the summer being three months

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1 of the year when it is hottest and there's -- the high
 2 air temperature results in high water temperature and
 3 there's generally low flow conditions. Those model runs
 4 were the uncalibrated QUAL-TX models.

5 When we talked about the days in
 6 September, those days were consistent with the days that
 7 TCEQ or anyone would consider comparable to low flow
 8 critical conditions. Those days in September did have a
 9 low inflow, it did have hot temperatures. I used
 10 observations during those days to calibrate the QUAL2K
 11 model that I used to evaluate the diurnal variability
 12 and evaluate the chlorophyll a.

13 And so the -- and so, you know, those --
 14 the data that was developed on those two days was used
 15 in conjunction with other data from the SWQM database in
 16 the lake and -- well, just other data in the SWQM
 17 database to confirm those model results from that time
 18 period, you know, that were surrounding the
 19 September 15th date and September 16th dates that
 20 Mr. Flores was on site.

21 Q So September 15, there's nothing magical about
 22 that data necessarily, as I understand it, it is just a
 23 date that falls into the critical conditions period. Is
 24 that correct?

25 A It is a date that falls into the critical

<p style="text-align: right;">387</p> <p>1 conditions period, and it is a -- it did exhibit 2 characteristics of a day that would be inside critical 3 conditions because it had hot temperatures and it had 4 low flows. And that was a good day to use the climate 5 data and the sunlight data for the chlorophyll a model, 6 the QUAL2K calibrated model, that I calibrated and 7 matched the predictions to the observations that were 8 collected on those days and on adjacent days.</p> <p>9 Q And that process and that methodology you just 10 described, that's consistent with the SWQM procedures?</p> <p>11 A That procedure is consistent with a typical 12 calibration approach where you would calibrate the model 13 to observe conditions. It's not consistent with the 14 typical approach used. It's a step beyond the typical 15 uncalibrated model approach, which is more conservative 16 that TCEQ uses for evaluating permits.</p> <p>17 Q The modeling approach you just described you 18 said is more conservative than the approach the TCEQ 19 takes in reviewing applications?</p> <p>20 A I'm sorry. I said TCEQ's approach is more 21 conservative in that it does not look at -- it does not 22 look at the algae which tends to increase the average 23 dissolved oxygen. So TCEQ's approach is more 24 conservative than the approach that I used with the 25 QUAL2K model, which is still conservative.</p>	<p style="text-align: right;">389</p> <p>1 A Yes. I taylor fit the QUAL2K model based on 2 the observed data.</p> <p>3 Q Okay. I'm going to ask you -- there was a 4 question about dye tracing studies in Lake Granbury, and 5 you had mentioned that you had been a part of that.</p> <p>6 Is that -- was that in your role in 7 working on the Watershed Protection Plan?</p> <p>8 A Yes, that was. As part of that Watershed 9 Protection Planning Project, I was -- I was the project 10 manager for all the modeling that was conducted in that 11 project. And as part of that, we conducted dye tracing 12 studies in I believe it was six or eight different coves 13 that were across a wide range of different types of 14 coves, very constricted coves, very narrow and that do 15 not have a stream flow into the top, ranging from that 16 more restrictive cove to coves that were less 17 restrictive like the Sparkle Creek Cove that have a -- 18 that have a creek flow, a watershed associated with them 19 at the top end.</p> <p>20 And so across that range of different 21 types of waterbodies on Lake Granbury, the different 22 types of coves, we conducted a dye trace at each of 23 those different types so we could understand what the 24 dispersion was, and Rucker Creek fits into one of those 25 types that we conducted the dye tracing studies on.</p>
<p style="text-align: right;">388</p> <p>1 Q Why the differentiation?</p> <p>2 A Because the -- because I calibrated the QUAL2K 3 model, and that was the model that I focused my 4 calibration on, and that was the model that I produced 5 results for for the diurnal dissolved oxygen for the 6 chlorophyll a and because that model was calibrated and 7 it does result in higher average dissolved oxygen 8 content than the uncalibrated models that the TCEQ 9 identified for the critical conditions.</p> <p>10 Q Make sure and get me set straight here if I 11 have this wrong, but as I understood Mr. Michalk's 12 prefiled testimony and I think also his live testimony 13 in the -- in the absence of that ability or the staff's 14 calibration of their QUAL-TX, when you say that it's a 15 more conservative run, what I understood Mr. Michalk to 16 say was that means it overstates what the anticipated 17 impacts would be for those -- for those discharges.</p> <p>18 Did I get that right?</p> <p>19 A That's correct. Conservatism would mean that 20 it overstates the potential impact.</p> <p>21 Q And so the relative conservatism, so to speak, 22 between the QUAL-TX modeling that the TCEQ staff did and 23 the QUAL-TX modeling that you did was because you were 24 able to collect site-specific observed data to taylor 25 fit the model that you were running. Is that right?</p>	<p style="text-align: right;">390</p> <p>1 Q And I think you said that there weren't any 2 values collected -- dye tracing values collected 3 specifically for Rucker Cove. Did I understand that 4 right?</p> <p>5 A That's correct.</p> <p>6 Q But does that mean that the information that 7 you were able to learn is not useful, or was that 8 information you think helpful in reflecting 9 representative conditions in the cove?</p> <p>10 A That information is very useful for 11 representing the conditions in the cove and specifically 12 for studying the dispersion coefficients inside the 13 calibrated QUAL2K model. And it shows that the 14 dispersion coefficients could be higher, and that the 15 dispersion coefficients used by TCEQ are conservative 16 for the type of cove that Rucker Creek is.</p> <p>17 MR. HILL: Mr. Osting, I appreciate your 18 testimony. I pass the witness.</p> <p>19 JUDGE STARNES: Okay. Does the Executive 20 Director have any recross?</p> <p>21 MR. TATU: No recross, Your Honor. Thank 22 you.</p> <p>23 JUDGE STARNES: Okay. Mr. Arthur, how 24 about OPIC?</p> <p>25 MR. ARTHUR: No, Your Honor.</p>

<p style="text-align: right;">391</p> <p>1 JUDGE STARNES: All right. Mr. Allmon?</p> <p>2 MR. ALLMON: Just maybe a few questions.</p> <p>3 RECCROSS-EXAMINATION</p> <p>4 BY MR. ALLMON:</p> <p>5 Q Mr. Osting, on redirect you were asked some</p> <p>6 questions about Rucker Creek and the character of these</p> <p>7 coves and your work on the Watershed Protection Plan.</p> <p>8 Do you recall that?</p> <p>9 A I recall that.</p> <p>10 Q And I think you used the word "restricted" at</p> <p>11 one point. Do you recall that?</p> <p>12 A I recall that.</p> <p>13 Q Now, is the circulation between the coves of</p> <p>14 Lake Granbury and the main body of Lake Granbury</p> <p>15 restricted in some ways?</p> <p>16 A Not any differently than any other cove in Lake</p> <p>17 Granbury that has a natural -- a morphology to it. When</p> <p>18 I referred to restricted coves, I was referring to like</p> <p>19 t-canals or dead-end canals that are very narrow and</p> <p>20 that are very shallow and that have houses built right</p> <p>21 up to the edge such that there's very tall banks.</p> <p>22 Q In the Watershed Protection Plan, was it</p> <p>23 concluded that many of the coves around Lake Granbury</p> <p>24 have only limited mixing with the main body?</p> <p>25 A The level of mixing was evaluated using that --</p>	<p style="text-align: right;">393</p> <p>1 are excused, and I hope you get on with your day.</p> <p>2 THE WITNESS: Thank you.</p> <p>3 JUDGE STARNES: Thank you, Mr. Osting.</p> <p>4 Okay. We are -- it's 3:40. I guess let</p> <p>5 me ask how long the parties think Mr. Flores is going to</p> <p>6 take. Should we start him today? Can we get through</p> <p>7 him today? How much longer do you think we're going to</p> <p>8 take with the last couple of witnesses?</p> <p>9 MR. HILL: Your Honor, I'd like to try to</p> <p>10 get Mr. Flores started today, if we could.</p> <p>11 JUDGE STARNES: Okay. All right. Is he</p> <p>12 going to --</p> <p>13 MR. BOOTH: That makes sense.</p> <p>14 JUDGE STARNES: Okay. Is he going to pop</p> <p>15 in the room where Mr. Osting just left us?</p> <p>16 MR. HILL: That's the theory.</p> <p>17 JUDGE STARNES: I'm imagining an assembly</p> <p>18 line in the hallway where they are sort of high-fiving</p> <p>19 as one leaves and the next comes in to take the hot</p> <p>20 seat.</p> <p>21 MR. HILL: I'm checking on his status,</p> <p>22 Your Honor.</p> <p>23 JUDGE STARNES: Sure.</p> <p>24 MR. FLORES: Hello.</p> <p>25 JUDGE STARNES: There we go.</p>
<p style="text-align: right;">392</p> <p>1 the dispersion study.</p> <p>2 Q And was that found to be very limited under</p> <p>3 some circumstances?</p> <p>4 A The dispersion values speak for themselves in</p> <p>5 that the lower values are -- indicate less mixing with</p> <p>6 the lake and higher values indicate more mixing with the</p> <p>7 lake.</p> <p>8 MR. ALLMON: All right. That's all my</p> <p>9 questions for the witness. I pass the witness.</p> <p>10 JUDGE STARNES: All right. Mr. Booth?</p> <p>11 RECCROSS-EXAMINATION</p> <p>12 BY MR. BOOTH:</p> <p>13 Q Mr. Osting, do you agree with me that a</p> <p>14 waterbody with a lot of algae, not only increases the</p> <p>15 dissolved oxygen, but at night it decreases the</p> <p>16 dissolved oxygen?</p> <p>17 A It depends on the details of the specific</p> <p>18 location, but the -- that is generally the way that</p> <p>19 organisms that use chlorophyll to photosynthesize do</p> <p>20 tend to produce oxygen during the day, and they expire</p> <p>21 at night and use oxygen at night.</p> <p>22 MR. BOOTH: Okay. Thank you. No further</p> <p>23 questions.</p> <p>24 JUDGE STARNES: Thank you. That concludes</p> <p>25 your testimony. I appreciate you being available. You</p>	<p style="text-align: right;">394</p> <p>1 MR. FLORES: Hello. I apologize. This</p> <p>2 mouse is not what I'm used to. So there could be some</p> <p>3 weirdness with me. Sorry.</p> <p>4 JUDGE STARNES: Okay. Are you able to</p> <p>5 hear us okay?</p> <p>6 MR. FLORES: Huh?</p> <p>7 JUDGE STARNES: Are you able to hear me</p> <p>8 okay?</p> <p>9 MR. FLORES: I am, yes.</p> <p>10 JUDGE STARNES: All right. Let me get you</p> <p>11 under oath if you'll raise your right hand.</p> <p>12 (Witness sworn)</p> <p>13 JUDGE STARNES: Okay. Thank you.</p> <p>14 Go ahead, Mr. Hill, your witness.</p> <p>15 MR. HILL: Thank you, Judge.</p> <p>16 DAVID FLORES,</p> <p>17 having been first duly sworn, testified as follows:</p> <p>18 DIRECT EXAMINATION</p> <p>19 BY MR. HILL:</p> <p>20 Q Good afternoon, Mr. Flores.</p> <p>21 A Good afternoon.</p> <p>22 Q You should have in front of you a series of</p> <p>23 exhibits that I'll read off here. You should have COG</p> <p>24 Exhibit 700 and then COG Exhibit 701, 702, 703, 704,</p> <p>25 705, 706 and 707.</p>

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1 Do you find all those exhibits in front of
 2 you?
 3 **A Yes, I do.**
 4 Q Do you recognize COG Exhibit 700 as your
 5 prefiled testimony?
 6 **A I do.**
 7 Q And then the series of exhibits that I just
 8 read off are incorporated into your testimony. Is that
 9 right?
 10 **A That is correct.**
 11 Q Mr. Flores, do you adopt COG Exhibit 700 as
 12 your prefiled testimony as though you were giving it
 13 live on the stand in front of the Judge under oath
 14 today?
 15 **A I do.**
 16 MR. HILL: Your Honor, the City offers up
 17 COG Exhibit 700 and COG Exhibit 701, 702, 703, 704, 705,
 18 706 and 707 for admission into the record.
 19 (Exhibit COG Nos. 700 through 707 offered)
 20 JUDGE STARNES: Okay. I'll just state for
 21 the record that there were some objections to
 22 Exhibit 700 that were overruled at the prehearing
 23 conference last week. I don't believe there are any
 24 objections to 701 through 707.
 25 I'll ask the parties now if there's

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1 anything else they need to object to on the record with
 2 regard to these exhibits?
 3 (No response)
 4 JUDGE STARNES: Okay. And with no
 5 objections or no additional objections, Exhibits COG-700
 6 through 707 are all admitted.
 7 (Exhibit COG Nos. 700 through 707
 8 admitted)
 9 MR. HILL: Thank you, Judge. I pass the
 10 witness.
 11 JUDGE STARNES: Okay. Does the Executive
 12 Director have any questions, Mr. Tatu?
 13 MR. TATU: Yes, a few questions, Your
 14 Honor. Thank you.
 15 JUDGE STARNES: Okay.
 16 CROSS-EXAMINATION
 17 BY MR. TATU:
 18 Q Good afternoon, Mr. Flores.
 19 **A Good afternoon.**
 20 Q I saw from your prefiled testimony that you
 21 worked at the TCEQ. Is that correct?
 22 **A Yes, I worked under Mark Fisher and Jim**
 23 **Davenport on the water quality standards team.**
 24 Q Okay. So did you -- did you do any 401
 25 certifications, that type of work, for Mark or --

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1 **A I did.**
 2 Q Did we ever work together? Because I don't
 3 remember that.
 4 **A I'm not sure. That was a while ago in my**
 5 **career.**
 6 Q Yeah, yeah, same here.
 7 Okay. I wanted to ask you this based on
 8 your experience working at TCEQ: There was some
 9 discussion yesterday about use of the Texas Integrated
 10 Reports.
 11 Do you -- were you present for that at
 12 all?
 13 **A I was.**
 14 Q Okay. In your experience, would TCEQ typically
 15 use a draft version of the Texas Integrated Report
 16 for -- or during the review of a permit application?
 17 **A They would not.**
 18 Q Do you know what version of the Texas
 19 Integrated Report was applicable to this application for
 20 Granbury?
 21 **A I believe that I looked at the 2018 and 2020**
 22 **when I was doing my review, but I know that the**
 23 **application was submitted before my hire date.**
 24 Q Okay. Do you know if Lake Granbury or Rucker
 25 Creek were listed as impaired for any parameters of

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1 concern in the 2016 Texas Integrated Report?
 2 **A No, they were not.**
 3 Q I just wanted to ask you a couple of questions
 4 about your prefiled.
 5 You used the term "enhanced effluent set."
 6 **A Uh-huh.**
 7 Q Can you explain a little bit what that means?
 8 **A That's really just a description of what**
 9 **effluent set is included in the draft permit that I used**
 10 **to do my analysis.**
 11 Q Okay. And yesterday there was some discussion
 12 regarding the E. coli limits in the permit. Do you
 13 recall that?
 14 **A I do.**
 15 Q Do you know what the E. coli limits are for
 16 this draft permit?
 17 **A It's 126 coliform MPN I think is the unit**
 18 **that's used.**
 19 Q Okay. And how would you characterize that
 20 limit? Is that a high limit, a low limit or a standard?
 21 **A That's a standard limit that I've seen applied**
 22 **across the state.**
 23 Q Did you ever work on any permits when you were
 24 at the TCEQ that had stricter limits than that?
 25 **A I did not.**

<p style="text-align: right;">399</p> <p>1 MR. TATU: I don't have any further 2 questions. Thank you.</p> <p>3 JUDGE STARNES: Okay. How about OPIC, 4 Mr. Arthur?</p> <p>5 MS. PESONEN: I have no questions.</p> <p>6 MR. ARTHUR: Your Honor, this will be my 7 co-counsel.</p> <p>8 JUDGE STARNES: Okay. Ms. Pesonen, sorry.</p> <p>9 MS. PESONEN: Your Honor, I have no 10 questions for this witness. So I pass the witness.</p> <p>11 JUDGE STARNES: Okay. How about our 12 Protestants?</p> <p>13 MR. BOOTH: Yes, we have a few questions.</p> <p>14 JUDGE STARNES: Okay.</p> <p>15 CROSS-EXAMINATION</p> <p>16 BY MR. BOOTH:</p> <p>17 Q Mr. Flores, I'm Mike Booth. I represent the 18 Rists and Bennett RV Park.</p> <p>19 You mentioned that you have never worked 20 on a wastewater treatment plant permit with stricter 21 effluent sets than this one. Is that correct?</p> <p>22 A No. What I said was regarding the E. coli 23 permit I've never seen an E. coli permit before.</p> <p>24 Q Okay. Okay. Have you ever seen a phosphorus 25 and a total nitrogen permit limit -- well, this one</p>	<p style="text-align: right;">401</p> <p>1 was asking you about what you would do if you were a 2 permit writer.</p> <p>3 A I'm not a permit writer, so I don't see how 4 that theoretical is relevant.</p> <p>5 Q Okay. So you think that if you were working at 6 the State that it's your experience that the State 7 agency will ignore problems that they know exist and go 8 back and look at old records to develop permit limits, 9 effluent limits?</p> <p>10 A Mr. Booth, what you just explained is not 11 consistent to what I said. Can you ask the statement 12 again?</p> <p>13 Q Well, what did -- what did you say when you 14 were asking -- or answering the Executive Director's 15 question? Maybe I did misunderstand.</p> <p>16 A Yeah, so -- so I was asked at my time at the 17 agency would we have used a draft report document in our 18 analysis, and my answer was no.</p> <p>19 Q Okay. Even if -- and my question is: Even if 20 you knew that there was a problem in your new report 21 that's still draft, you would not use it?</p> <p>22 A Right, because the agency -- at the agency, 23 you're required to use finalized documents that have 24 gone through the agency review processes. They have to 25 be finalized.</p>
<p style="text-align: right;">400</p> <p>1 doesn't have a nitrogen, but just a total phosphorus 2 permit limit lower than the one that's proposed here?</p> <p>3 A You asked me if I had ever seen one?</p> <p>4 Q Yes.</p> <p>5 A I haven't seen one.</p> <p>6 Q Okay. Now, would you use a draft report that 7 your own agency is producing that shows there's an 8 existing problem when you're development -- developing 9 permit limits?</p> <p>10 A I'm sorry. You kind of lost me, Mr. Booth. 11 Can you ask that --</p> <p>12 Q Okay. The Executive Director asked you if it 13 was your experience to use draft reports --</p> <p>14 A Uh-huh.</p> <p>15 Q -- and you said no.</p> <p>16 A Uh-huh.</p> <p>17 Q But if you knew that there was a new report 18 coming from your own agency that showed that the 19 conditions on the lake had changed for the worse, 20 wouldn't you consider those?</p> <p>21 A No. The question that was asked to me before 22 was an example of when I worked at the State. And so a 23 regulatory agency typically will not use draft 24 documents.</p> <p>25 Q I'm not asking about a regulatory agency. I</p>	<p style="text-align: right;">402</p> <p>1 Q Well, you could look at water quality data 2 that's not part of a document. Correct?</p> <p>3 A Absolutely; water quality data is completely 4 separate of that document, sure.</p> <p>5 Q Okay. Well, wasn't that document based on 6 water quality data?</p> <p>7 A Which document are we talking about?</p> <p>8 Q We're talking about the draft report that the 9 ED attorney was talking to you about.</p> <p>10 A Okay. So that draft report is absolutely based 11 on water quality data, but that water quality data is 12 compiled from various water quality stations.</p> <p>13 Q Okay. And who compiles that data?</p> <p>14 A The State of Texas does in their surface water 15 quality monitoring database.</p> <p>16 Q Okay. When were you hired to work on this 17 case?</p> <p>18 A I believe it was maybe August, September. I 19 don't know the exact date.</p> <p>20 Q Of 2021?</p> <p>21 A Yes.</p> <p>22 Q Okay. So I take it when you were doing your 23 stream analysis or your analysis of Rucker Creek you 24 walked down the creek bed?</p> <p>25 A Yes, sir, that was definitely part of it.</p>

403

1 Q You didn't trespass on anybody's land, did you?

2 A I did not.

3 Q Okay. I didn't think you did by your -- by

4 your mapping.

5 Okay. Let me -- I have a document that we

6 had put in the exhibit stack. Do you have that, Madam

7 Court Reporter Amanda?

8 A Are you asking me? I'm sorry. What exhibit?

9 MR. BOOTH: I'm sorry. I'm asking -- I

10 have Rist Exhibit 3 that we have sent in for you to look

11 at.

12 A I'm not sure if I have it.

13 MR. BOOTH: Well, no, I'm not talking to

14 you, Mr. Flores. I'll show you what that document is.

15 Let me just go ahead and do that. I don't -- who is in

16 charge of getting these new documents?

17 Q (BY MR. BOOTH) Mr. Flores, are you familiar

18 with this manual here? Let me get to the top.

19 A I am not familiar with that.

20 Q Okay. Does it look like an EPA Manual to you?

21 A The title says that.

22 Q Yeah. So when you're -- later on we'll talk

23 about it in more detail, but in your prefiled testimony,

24 you said that you have a certain way of doing

25 antidegradation. Is that correct?

404

1 A I'm sorry. You kind of went a little quiet.

2 Can you restate that?

3 Q You have your own way -- you said in your

4 prefiled you have your own way in looking at an

5 antidegradation review. Is that correct?

6 A Yes; I have a specific approach, yes.

7 Q And we'll get to that part of your testimony in

8 just a second.

9 So is this Tier 2 implementation I'm

10 showing you consistent with the way that the Commission

11 looks at antidegradation in their implementation

12 procedures?

13 A If you can give me a few minutes to read

14 through this, I can attempt to give you an answer.

15 Q Okay.

16 A Whoever is scrolling, can they stop scrolling

17 and go back up?

18 Q I'm scrolling it. There you go.

19 Now, really my question to you, is this

20 generally consistent with what the State does knowing

21 that there might be some minor changes?

22 A Yeah, to me your question is conflicting right

23 off the bat.

24 Q And how is that?

25 A Because you're asking me if it's similar to the

405

1 State's, but it's not the State's approach, and then you

2 just recognized the difference.

3 Q No. I said with some minor changes.

4 A I don't know what minor changes are. If you

5 want to talk about the Tier 2 antideg, let's go to the

6 water quality standards for the State.

7 Q Okay. Does the TCEQ have to follow EPA

8 guidelines when they --

9 A The water quality standards have to be approved

10 by EPA.

11 Q Okay. And this is where EPA is giving the

12 State guidance. Is that correct?

13 A I'm sorry. I don't understand your question.

14 Q Is this document the one -- one of the

15 documents that gives the State's guidance on writing

16 permits?

17 A I'm not -- I'm not sure. I'm not a permit

18 writer.

19 Q Okay. Do you get involved in the

20 antidegradation review?

21 A I absolutely get involved in antidegradation

22 reviews, yes.

23 Q Is there anything that you read there, stuff

24 that that you would be -- or things that you would be

25 following when you do an antidegradation review?

406

1 A When we're doing an antidegradation review in

2 the state of Texas, we're following the Texas water

3 quality standards.

4 MR. BOOTH: Okay. Well, I'm going to ask

5 for this document to be admitted, it's self-proving, and

6 it will be Bennett Exhibit 3.

7 (Exhibit Rist and Bennett No. 3 offered)

8 JUDGE STARNES: Does anybody object?

9 (No response)

10 JUDGE STARNES: Okay. Then I guess this

11 is Rist and Bennett Exhibit 3.

12 Can you go back to the title page so I can

13 get that?

14 MR. BOOTH: Yes, ma'am. Yes, ma'am.

15 Sorry. Let me get to it.

16 JUDGE STARNES: Okay.

17 MR. BOOTH: It was dated --

18 THE REPORTER: I'm sorry. Mr. Booth, can

19 you state -- it was dated when?

20 MR. BOOTH: September 2010.

21 JUDGE STARNES: Okay. And then I still

22 can't see the title. Can you scroll up just a tad? It

23 was the NPDES Permit Writers' Manual. Thank you.

24 Okay. So that is admitted.

25 (Exhibit Rist and Bennett No. 3 admitted)

407

1 MR. BOOTH: Thank you.

2 Q (BY MR. BOOTH) While I have my screen shared,

3 Mr. Flores, do you recognize this document?

4 A Yes.

5 MR. BOOTH: Okay. This is out of the

6 administrative record for everyone's reference.

7 Q (BY MR. BOOTH) And I want to ask you a couple

8 questions about it.

9 A Okay.

10 Q Now, just generally what is the Ana-Lab report

11 here that we're looking at?

12 A It's a report of water quality analysis that

13 Ana-Lab performed on water samples I collected.

14 Q And you collected this for Rucker Creek and

15 Rucker Creek Cove, as I understand it?

16 A Yes, and there was a -- there were three

17 samples, and so there were essentially two taken in

18 Rucker Creek Cove. One was close to the confluence of

19 where Rucker Creek and the cove confluenced.

20 Q Okay. And they are titled here Cove_Rucker,

21 Cove, Cove, and that's it.

22 A Yes.

23 Q Okay. What is -- now, these were samples that

24 you took in your fieldwork that you mentioned in your

25 prefiled testimony?

408

1 A Yes, sir.

2 Q Okay. Now, what is the result here for total

3 phosphorus?

4 A .07.

5 Q And that's milligrams -- milligrams per liter?

6 A That's what it states, yes.

7 Q Okay. And this is .118 milligrams per liter?

8 A Yes, that's what it states.

9 MR. BOOTH: I presume y'all are seeing my

10 cursor when I do this. I'm still new at this.

11 Q (BY MR. BOOTH) And this states -- where is the

12 phosphorus? This is in the total for -- no, that's not

13 it either. Did you not take -- oh, here you go.

14 This is .115. Is that correct?

15 A Yes.

16 Q Good enough.

17 All right. Now, how would you calculate

18 one of these, let's say, of .115 if you wanted to say it

19 in micrograms per liter? What would that be, just

20 115 micrograms per liter?

21 A Are you asking me for -- I guess I don't

22 understand what you're asking.

23 Q This is in milligrams per liter?

24 A Yes, sir.

25 Q What would that be in micrograms per liter?

409

1 Isn't that micrograms right here, mg/L?

2 A Yes.

3 Q So that would be 115 micrograms per liter?

4 A Yeah, I guess I'm not understanding. You're

5 asking me to do a conversion?

6 Q I believe that's what I'm trying to do.

7 A I wouldn't do it I guess off the cuff I guess

8 is what you're asking me to do.

9 Q Okay. Well, I mean, it's a mathematical

10 conversion. Isn't that right?

11 A It is a mathematical conversion, absolutely.

12 Q It is what it is.

13 Okay. Let's go back to -- does that

14 represent all the -- we were just looking at the lab

15 results.

16 Is that all the water quality data you

17 took when you were doing your site-specific visits?

18 A No. There was -- there was one more sample

19 that was collected in September.

20 Q Okay. But I mean, as far as the constituents,

21 the nitrogen, the ammonia nitrogen and so forth?

22 A Yes, the list of analysis, yes, sir.

23 Q Yeah, okay.

24 Now, so you agree it says on Page 19,

25 Line 17 to 20, that -- you agree that we need to try to

410

1 reduce phosphorus for Rucker Creek?

2 A What document are we talking about? There's

3 not a document on my screen, Mr. Booth.

4 Q Okay. It's your prefiled testimony.

5 A Okay. I'm going flip to it real quick.

6 Q Okay. Page 19 --

7 A 19.

8 Q -- at the bottom of the page.

9 A Okay. So what were you specifically asking?

10 Q I was asking you if you believe that phosphorus

11 needs to be reduced in Rucker Creek and Rucker Creek

12 Cove, and so you agree with the Commission's

13 recommendation for a phosphorus limit?

14 A Yes, I did agree with the Commission's

15 recommendation --

16 Q Okay.

17 A -- these recommendations.

18 Q What was the basis for your concern about the

19 phosphorus loading on Rucker Creek and the cove?

20 A My statement was more of a general statement

21 agreeing that nutrients from wastewater dischargers

22 should be reduced and limited if possible.

23 Q Okay. Wouldn't the same thing apply for

24 nitrogen?

25 A That's a site-specific or a case-specific

<p style="text-align: right;">411</p> <p>1 determination. Typically freshwater systems are 2 phosphorus limited.</p> <p>3 Q And you lay out in several pages of your 4 prefiled, I think probably starting at 22 -- Page 22, a 5 particular approach that you use when you look at 6 antidegradation.</p> <p>7 Would you say that the Commission agrees 8 with your way you looked at things here in the 9 antidegradation review, or is this something that you 10 developed yourself?</p> <p>11 A I can't speak to whether TCEQ agrees or not, 12 but there are absolutely similarities between how they 13 perform their antidegradation review and how I conduct 14 mine, sure.</p> <p>15 Q And you don't agree with what the Court did in 16 the Dripping Springs case I say -- I see?</p> <p>17 A Absolutely not.</p> <p>18 Q Okay. So did the Commission look at Rucker's 19 Creek and Rucker's Creek Cove for antidegradation review 20 like you did, or do you even -- did you even look at it?</p> <p>21 A I'm sorry. There were -- can you unpackage 22 that or restate what --</p> <p>23 Q Okay. Did you look at the way the Commission 24 did their antidegradation review?</p> <p>25 A I reviewed the technical memos.</p>	<p style="text-align: right;">413</p> <p>1 prefiled.</p> <p>2 A I'm sorry. I'm just trying to keep up with you 3 Mr. Booth. You said that was on page what of my 4 testimony?</p> <p>5 Q No. I said it was on Page 33 of his testimony. 6 But let's just assume that's what it says, 7 Mr. Flores, and I want to ask you what the lake or the 8 cove would look like if it had a chlorophyll a 9 concentration of 400 micrograms per liter?</p> <p>10 A So I guess, Mr. Booth, I asked you to show me 11 what you're talking about. So are you asking me a 12 theoretical now, or are you asking me something that 13 Tim Osting produced -- Mr. Osting produced.</p> <p>14 Q Well, actually, it's both. But since I'm not 15 going to show it up on the screen, I was just going to 16 ask you hypothetically if you assumed that that's what 17 he said, then it was 400 milligrams -- micrograms per 18 liter in the cove. That was a no-load situation, too, 19 by the way. And I believe you could tell me what the 20 cove would look like if it had that much concentration 21 of chlorophyll a.</p> <p>22 A I don't see how I could tell you what it would 23 look like.</p> <p>24 Q All right. Are you just trying to be 25 difficult, or my question is that bad?</p>
<p style="text-align: right;">412</p> <p>1 Q Okay. Did you do your antidegradation review 2 the same way?</p> <p>3 A Again, I felt like I answered this before. 4 There are some similarities, but we do differ in our 5 approaches.</p> <p>6 Q So the answer is no?</p> <p>7 A I didn't say that. I already stated my answer.</p> <p>8 Q Okay. What is your experience with a lake with 9 chlorophyll a in the 400 milligrams liter range? What 10 would it look like?</p> <p>11 A I'm sorry. My experience as to what?</p> <p>12 Q The chlorophyll a concentrations of what the 13 model is predicting, the model that Mr. Osting ran that 14 was predicting in I guess the cove just before it hits 15 the lake, it had something like 400 milligrams or 16 micrograms a liter?</p> <p>17 A I'm not familiar with what prediction you're 18 talking about. Can you bring it up on the screen so we 19 could discuss it?</p> <p>20 Q Well, I could, but it will take me a little bit 21 of time here.</p> <p>22 A I'm here -- I'm here on your schedule. So I'll 23 wait.</p> <p>24 Q Now, let's just assume that Mr. Osting's 25 model -- and this is on Page 33, Line 12, of his</p>	<p style="text-align: right;">414</p> <p>1 A No. Well, I want to answer every question that 2 you have. You just -- you keep --</p> <p>3 Q Okay. Let's just -- let's just assume that 4 the cove had a chlorophyll a predictive reading of 5 400 micrograms per liter.</p> <p>6 What would you expect that cove to look 7 like?</p> <p>8 A I don't know. I don't know how to answer your 9 question. I don't know.</p> <p>10 Q Well, what does a cove that has a eutrophic 11 cove -- a cove that has blue/green algae in it, what's 12 the concentration of chlorophyll a usually there?</p> <p>13 A So there are ranges associated with what you 14 just described.</p> <p>15 Q What do you think the chlorophyll a 16 concentration of Rucker's Creek was when you were 17 observing for limitations of bacteria on the rocks?</p> <p>18 A I'm sorry. You confused me in how you asked 19 that. So can you just ask me again?</p> <p>20 Q Okay. I'm just going to shift gears because 21 you're not going to answer my question.</p> <p>22 A No, no. I asked --</p> <p>23 Q No, no. I'm going to shift gears. I don't 24 want to answer your questions.</p> <p>25 A Okay.</p>

<p style="text-align: right;">415</p> <p>1 Q I don't want to waste everybody's time.</p> <p>2 So we're sitting -- you mentioned in your</p> <p>3 prefiled testimony that you observed filamentation algae</p> <p>4 growth on the bottom of Rucker Creek. Is that correct?</p> <p>5 A Yeah. If you could point me to my testimony,</p> <p>6 absolutely I will take a look at it.</p> <p>7 Q Did you do any fish sampling on Rucker's Creek?</p> <p>8 A Yes, sir.</p> <p>9 Q How did you sample those fish, use electric</p> <p>10 shock, catch them with a fishing pole?</p> <p>11 A The SWQM ANL requires us to do seine hauls as</p> <p>12 well as electric shock.</p> <p>13 Q Seines, too?</p> <p>14 A Yes, sir.</p> <p>15 Q And you have a license to do that?</p> <p>16 A Yes, sir. It's not a license, it's a sampling</p> <p>17 permit from Parks & Wildlife.</p> <p>18 Q Well, why don't you describe for me your</p> <p>19 recollection of the conditions of Rucker Creek as you</p> <p>20 walked down it.</p> <p>21 A Of Rucker Creek?</p> <p>22 Q Yes.</p> <p>23 A During which time?</p> <p>24 Q When you were out there on the creek. You were</p> <p>25 out there -- you were out there four times.</p>	<p style="text-align: right;">417</p> <p>1 Q So you had a -- you probably don't recall your</p> <p>2 Exhibits 706, but why don't you look at that for me,</p> <p>3 please.</p> <p>4 A Okay.</p> <p>5 Q Do you have it in front of you? Just let me</p> <p>6 know when you do.</p> <p>7 A Yes, that's the nutrient and biological</p> <p>8 assessment.</p> <p>9 Q Yeah, from Baylor.</p> <p>10 A Yes, sir.</p> <p>11 Q So I think I'm looking at page -- what was the</p> <p>12 page -- maybe Page 10 where it talks about the Bottom</p> <p>13 line: Nuisance algae proliferated between 20 and</p> <p>14 35 ug/L.</p> <p>15 A This document doesn't have page numbers.</p> <p>16 Q No, it didn't. I'm just looking at what</p> <p>17 Acrobat was telling me.</p> <p>18 A Oh, what's the -- do you have the exhibit</p> <p>19 number?</p> <p>20 Q It's Exhibit -- it's Exhibit 706. Page 10, I</p> <p>21 believe.</p> <p>22 A I think I'm there.</p> <p>23 Q Okay. See where it says nuisance algae, the</p> <p>24 bottom line?</p> <p>25 A The bottom line, yes.</p>
<p style="text-align: right;">416</p> <p>1 A Yes.</p> <p>2 Q So tell me how it looked when you were out</p> <p>3 there.</p> <p>4 A Okay. So during our receiving water assessment</p> <p>5 where we collected habitat, fish and water quality data,</p> <p>6 the stream was not flowing. There were algal mats and</p> <p>7 filamentous algae in the stream at various points, water</p> <p>8 was fairly clear.</p> <p>9 Q Okay. So you remember the algae?</p> <p>10 A Yeah.</p> <p>11 Q So what do you think the chlorophyll a</p> <p>12 concentrations would be then?</p> <p>13 A I don't know. I don't know. I couldn't give</p> <p>14 you an answer.</p> <p>15 Q Because you didn't sample, I guess?</p> <p>16 A We didn't sample when we were collecting fish.</p> <p>17 Q Okay. By the way, you said that. I finally</p> <p>18 found it with the help of my co-counsel on Page 14,</p> <p>19 Lines 10 through 12.</p> <p>20 A That's my testimony you want me to refer to?</p> <p>21 Q No. I'm just telling you for your</p> <p>22 information --</p> <p>23 A Oh.</p> <p>24 Q -- that's where your testimony was.</p> <p>25 A Okay.</p>	<p style="text-align: right;">418</p> <p>1 Q Okay. Do you agree with that?</p> <p>2 A Do I agree with what?</p> <p>3 Q That the nuisance algae -- that that's similar</p> <p>4 to what we would see in Texas, that if we had</p> <p>5 concentrations of 20 to 35 milligrams per liter total</p> <p>6 phosphorus, that we would have a problem with nuisance</p> <p>7 algae?</p> <p>8 A No, I don't; I don't agree with that. I agree</p> <p>9 that that's stated there.</p> <p>10 Q Well, then what the heck does this -- why did</p> <p>11 you include this report if you don't agree with it?</p> <p>12 A So this report has -- or this PowerPoint of the</p> <p>13 report, if you look further down on Page 17 of the</p> <p>14 Blanco River, Algae on the Stream Bottom is the title of</p> <p>15 that page.</p> <p>16 Q We're looking at Page 17. Is that what you</p> <p>17 said, Mr. Flores?</p> <p>18 A Yes, sir, Page 17.</p> <p>19 Q Okay.</p> <p>20 A The second bullet, it categorizes nuisance</p> <p>21 levels of algae to be at 150 milligrams per meter</p> <p>22 squared. And, again, I don't necessarily agree with</p> <p>23 this PowerPoint. This is the first time that I have</p> <p>24 seen anyone try to categorize or attempt to categorize</p> <p>25 what nuisance algae is.</p>

419	<p>1 And in our impact analysis, it's my</p> <p>2 opinion that as a scientist I have to be unbiased and</p> <p>3 use whatever information is available. It's not that I</p> <p>4 agree with it or not, it's just that you cannot find any</p> <p>5 information on this topic.</p> <p>6 Q So this was the best available information that</p> <p>7 you could find, so that's why you included it?</p> <p>8 A Yes.</p> <p>9 Q Okay.</p> <p>10 A Yeah, nuisance algae, in my opinion, that's an</p> <p>11 absolute subjective evaluation, and that's -- the only</p> <p>12 reason I can imagine why you don't see a lot of</p> <p>13 literature or scientific studies done on it because</p> <p>14 there are water bodies in the State of Texas that are</p> <p>15 covered in mats of algae, high aquatic vegetation, and</p> <p>16 people recreate through them all the time.</p> <p>17 I'm from the Hill Country and the</p> <p>18 Guadalupe River, the San Marcos River, Lake Bastrop,</p> <p>19 Lake Austin, all of those have high aquatic vegetation</p> <p>20 issues, and people still recreate through them.</p> <p>21 Q That's not algae is what we're talking about?</p> <p>22 A It's just -- absolutely algae is a component of</p> <p>23 all that.</p> <p>24 Q But it's mainly vegetation like -- what are</p> <p>25 those things -- water hyacinths in like, say, Lake</p>	421	<p>1 me?</p> <p>2 JUDGE STARNES: Sure. Why don't we pause</p> <p>3 for five minutes.</p> <p>4 THE WITNESS: Okay. Thank you.</p> <p>5 JUDGE STARNES: Come back at 4:25.</p> <p>6 (Recess: 4:19 p.m. to 4:24 p.m.)</p> <p>7 JUDGE STARNES: Okay. Looks like</p> <p>8 everybody is here. We can go back on the record.</p> <p>9 So we were picking up with Granbury Fresh.</p> <p>10 Do y'all have any questions? And if so, which counsel</p> <p>11 is going to take the witness?</p> <p>12 MR. BEDECARRE: I think I just had one</p> <p>13 question.</p> <p>14 CROSS-EXAMINATION</p> <p>15 BY MR. BEDECARRE:</p> <p>16 Q Hi, Mr. Flores. I'm an attorney for some of</p> <p>17 the Protestants here. My name is John Bedecarre.</p> <p>18 I just had one question about some of your</p> <p>19 testimony to Mr. Booth, which did you mean to say that</p> <p>20 you don't think there's been any instances of</p> <p>21 cyanobacteria in Lake Granbury in the last 25 years?</p> <p>22 A Yes, so my statement was really referencing the</p> <p>23 Brazos River Authority Website, which they make that</p> <p>24 statement.</p> <p>25 MR. BEDECARRE: Okay. Other than that,</p>
420	<p>1 Dunlap, if Lake Dunlap even exists anymore, duckweed</p> <p>2 that kind of stuff?</p> <p>3 A Absolutely. You still have -- you still have</p> <p>4 algal mats that are associated with that, both on the</p> <p>5 bottom and filamentous algae, and they are still highly</p> <p>6 recreated on.</p> <p>7 All I was trying to point to is that it's</p> <p>8 a very subjective determination which is why it's hard</p> <p>9 to get any type of scientific data showing when people</p> <p>10 stop recreating. And we do this a lot in my experience,</p> <p>11 and this is the first time I've ever seen an attempt at</p> <p>12 trying to quantify that, which is why I included it.</p> <p>13 Q Okay. The -- well, let's see. I lost my train</p> <p>14 of thought.</p> <p>15 So you're not here to tell us that Lake</p> <p>16 Travis is eutrophic, are you?</p> <p>17 A I didn't make that comparison or that analysis,</p> <p>18 no, sir.</p> <p>19 Q No. Okay.</p> <p>20 MR. BOOTH: All right. I think I'll pass</p> <p>21 the witness.</p> <p>22 JUDGE STARNES: Does Granbury Fresh have</p> <p>23 any questions for Mr. Flores?</p> <p>24 THE WITNESS: Your Honor, is there any</p> <p>25 chance I could take a break or get some water brought to</p>	422	<p>1 I'm going to pass the witness. Thanks.</p> <p>2 JUDGE STARNES: Okay. Mr. Hill, do you</p> <p>3 have any redirect?</p> <p>4 MR. HILL: I just have some brief</p> <p>5 redirect, Judge.</p> <p>6 REDIRECT EXAMINATION</p> <p>7 BY MR. HILL:</p> <p>8 Q Mr. Flores, I'm going to put up on the screen</p> <p>9 here -- this is a document that was admitted either</p> <p>10 today or yesterday -- I'm getting my days mixed up</p> <p>11 here -- GF-4 that the attorney for Granbury Fresh tried</p> <p>12 to put in.</p> <p>13 Do you recognize this?</p> <p>14 A I do.</p> <p>15 Q This is -- so Mr. Booth was asking you earlier</p> <p>16 about the draft integrated report, and I believe this is</p> <p>17 what he was talking about.</p> <p>18 Is that your recollection, too?</p> <p>19 A That's my understanding of that conversation.</p> <p>20 Q Okay. Let me draw your attention here to --</p> <p>21 this is on Page 25 of 48 of the GF-4 exhibit, and I want</p> <p>22 to call out this section right here. I'll try to do it.</p> <p>23 There is a reference here to Lake</p> <p>24 Granbury. Do you see that in Segment 1205?</p> <p>25 A I do.</p>

<p style="text-align: right;">423</p> <p>1 Q And then there's a reference to depressed 2 dissolved oxygen in water. Do you see that?</p> <p>3 A I do.</p> <p>4 Q Does this -- does this apply to the entire 5 lake?</p> <p>6 A No, it does not. It's specific to 1205_05, 7 which is -- from my recollection, that's near the dam.</p> <p>8 Q And so does that -- what's the relevance then 9 of this representation of depressed dissolved oxygen as 10 a constituent of concern? What's the relevance of that 11 to Rucker Cove?</p> <p>12 A So when they do the assessment units where they 13 are assessing whether or not there's a constituent of 14 concern on large water bodies like this, they have to 15 essentially do assessments in different sections. And 16 so because you have a depressed dissolved oxygen near 17 the dam, that's not necessarily going to be -- or it's 18 not necessarily going to translate to Rucker Cove 19 because they have separate creeks and watersheds that 20 are supplying those areas of the lake.</p> <p>21 And so from my recollection, there are no 22 concerns for depressed dissolved oxygen in Rucker Cove.</p> <p>23 Q That would be consistent with the Texas 24 Integrated Report that was applicable at the time of the 25 application as well as what's reflected here in GF-4.</p>	<p style="text-align: right;">425</p> <p>1 free to leave us now. Have a good afternoon.</p> <p>2 THE WITNESS: Thank you.</p> <p>3 JUDGE STARNES: Okay. Mr. Hill, how long 4 do you think we'll need for Mr. Perryman? Can we get 5 through him today?</p> <p>6 MR. HILL: That really is going to be 7 dependent on everyone else. I know that he had an 8 engagement this morning, a presentation, and I wasn't 9 certain how fast we'd be getting through folks today, so 10 I haven't checked in on his status.</p> <p>11 I see at one point in time -- I guess I 12 see that he's on there now. I don't want to put him on 13 the spot about his schedule. So two parts: One, I'm 14 not sure what his availability is. He can chime in on 15 that if he needs to; and, two, I don't know how long 16 we'll need because I'm not sure how many questions folks 17 have for him.</p> <p>18 MR. PERRYMAN: I am able -- I am 19 definitely available right now, yes, ma'am.</p> <p>20 JUDGE STARNES: Okay. And so, Counsel, I 21 think Judge Shenoy and I are able to go past 5:00 if you 22 guys want to push through today. If y'all think you've 23 got a lot of questions and we're going to need more than 24 an hour or so with this witness, we can talk about 25 whether to go late tonight or pick up with him in the</p>
<p style="text-align: right;">424</p> <p>1 Is that correct?</p> <p>2 A Yes, sir.</p> <p>3 MR. HILL: That's all the questions I 4 have. Thank you, Mr. Flores. I pass the witness.</p> <p>5 JUDGE STARNES: Okay. Mr. Tatu, any 6 follow-up?</p> <p>7 MR. TATU: Nothing further. Thank you.</p> <p>8 JUDGE STARNES: Okay. How about you 9 Ms. Pesonen?</p> <p>10 MS. PESONEN: No questions, Your Honor. 11 Thank you.</p> <p>12 JUDGE STARNES: Okay. Mr. Booth?</p> <p>13 RE-CROSS-EXAMINATION</p> <p>14 BY MR. BOOTH:</p> <p>15 Q The statement was -- that was easy, wasn't it, 16 Mr. Flores, what you just said?</p> <p>17 MR. HILL: Your Honor, I object to the 18 sidebar and the badgering.</p> <p>19 MR. BOOTH: No, I -- okay. Thank you. 20 Never mind. I withdraw that. I'm good.</p> <p>21 JUDGE STARNES: So no questions? 22 All right. Mr. Bedecarre, nothing?</p> <p>23 MR. BEDECARRE: No.</p> <p>24 JUDGE STARNES: Okay. Then thank you, 25 Mr. Flores. That concludes your testimony, and you are</p>	<p style="text-align: right;">426</p> <p>1 morning.</p> <p>2 What's the prevailing consensus here?</p> <p>3 MR. BOOTH: Well, I'd prefer to take him 4 in the morning.</p> <p>5 JUDGE STARNES: Okay. We've got a motion 6 to go in the morning. Anybody want to second that?</p> <p>7 MR. ALLMON: I would prefer that. I do 8 have somewhere I would -- I should be at five o'clock. 9 And so if we could go -- I would join in that 10 preference.</p> <p>11 JUDGE STARNES: Okay. Mr. Perryman, are 12 you available tomorrow morning?</p> <p>13 MR. PERRYMAN: Yes, ma'am.</p> <p>14 JUDGE STARNES: Okay. We'll recess then 15 until tomorrow morning and pick up with the witnesses at 16 9:00.</p> <p>17 I guess before -- Mr. Perryman, that's all 18 we need from you this afternoon. We'll see you tomorrow 19 morning.</p> <p>20 MR. PERRYMAN: Yes, ma'am.</p> <p>21 JUDGE STARNES: Before the rest of us go 22 off the record, Judge Shenoy, do you want to run down 23 the exhibits real quick?</p> <p>24 JUDGE SHENOY: Yes. Okay. So a couple of 25 things. The Rist and Bennett Exhibit 1 was renumbered</p>

427	<p>1 to zero. Then Rist and Bennett Exhibit 3 was admitted.</p> <p>2 For the Applicant, the exhibits admitted</p> <p>3 were 100 through 108, 200 through 201, 300 through 306,</p> <p>4 400 through 401, 500 through 501, 600 through 624, and</p> <p>5 700 through 707.</p> <p>6 For Granbury Fresh, we admitted</p> <p>7 Exhibits 5, 6 and 7 and, of course, those would need to</p> <p>8 be uploaded. We did see that the ones that were</p> <p>9 admitted yesterday have been uploaded. So it will just</p> <p>10 be 5, 6 and 7. And the same thing with Rist and Bennett</p> <p>11 Exhibit 3.</p> <p>12 The other thing that we wanted to mention</p> <p>13 is that Judge Starnes and I talked and we decided that</p> <p>14 we're going to withdraw our request for all of you to</p> <p>15 file a briefing outline. It's just simpler if we ask</p> <p>16 you for your briefs to follow the interim order list of</p> <p>17 referred issues, and, again, we have Issues A through M.</p> <p>18 So when you're doing your brief, follow that order. If</p> <p>19 you don't have something to say on one particular issue,</p> <p>20 you can just list it and say, you know, you're skipping</p> <p>21 this.</p> <p>22 Related to that, we do want the parties to</p> <p>23 still discuss whether you are able to stipulate that any</p> <p>24 of those Issues A through M are undisputed, and we'd</p> <p>25 like you to file a list of anything like that that you</p>	429	<p>1 C E R T I F I C A T E</p> <p>2 STATE OF TEXAS)</p> <p>3 COUNTY OF TRAVIS)</p> <p>4 We, MARY CAROL GRIFFIN, JANIS SIMON AND</p> <p>5 KIM PENCE, Certified Shorthand Reporters in and for</p> <p>6 the State of Texas, do hereby certify that the</p> <p>7 above-mentioned matter occurred as hereinbefore set out.</p> <p>8 We further certify that we are neither counsel</p> <p>9 for, related to, nor employed by any of the parties or</p> <p>10 attorneys in the action in which this proceeding was</p> <p>11 taken, and further that we are not financially or</p> <p>12 otherwise interested in the outcome of the action.</p> <p>13 Certified to by us this 9th day of March 2022.</p> <p>14</p> <p>15 _____</p> <p>MARY CAROL GRIFFIN Certified Shorthand Reporter CSR No. 3799-Expires 07/31/23</p> <p>16</p> <p>17 _____</p> <p>JANIS SIMON, CSR Certified Shorthand Reporter CSR No. 7076 - Expires 07/31/22</p> <p>18 <i>Kim Pence</i></p> <p>19 _____</p> <p>KIM PENCE Certified Shorthand Reporter CSR No. 4595-Expires 1/31/24 Firm Registration No. 276 Kennedy Reporting Service, Inc. 100 E. Whitestone Blvd., Ste. 148 Cedar Park, Texas 78613 512.474.2233</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
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428	<p>1 can stipulate to by the close of business on Friday.</p> <p>2 Any questions about that?</p> <p>3 MR. BOOTH: That sounds like a good plan.</p> <p>4 MR. ALLMON: Yeah, we're fine with that.</p> <p>5 JUDGE STARNES: Okay. Is there anything</p> <p>6 else we need to touch on before we adjourn for the day?</p> <p>7 (No response)</p> <p>8 JUDGE STARNES: Okay. Then thanks</p> <p>9 everybody. We'll go off the record, and this hearing is</p> <p>10 in recess until nine o'clock tomorrow morning.</p> <p>11 (Proceedings recessed at 4:33 p.m.)</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
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