

PROTESTANTS' OFFER OF PROOF

SOAH DOCKET NO. 582-22-0585

TCEQ DOCKET NO. 2021-1001-MWD

WEDNESDAY, MARCH 9, 2022

<p style="text-align: right;">494</p> <p>1 MR. ALLMON: Okay. Then at this point, we 2 would ask James Machin to appear. Are we on the offer 3 of proof record, court reporter? 4 THE REPORTER: Yes, we are. 5 MR. ALLMON: Okay. James, are you there? 6 THE WITNESS: I'm here. Just a second. 7 MR. ALLMON: Okay. We can't see you. 8 Could you turn on your video? 9 THE WITNESS: Just a second. I have to 10 adjust the lighting; otherwise, it would be pretty 11 harsh. There we are. 12 MR. BOOTH: You look fine. You look fine. 13 THE WITNESS: Thank you. 14 JAMES L. MACHIN, P.E., 15 having been previously duly sworn, testified as follows: 16 DIRECT EXAMINATION 17 BY MR. ALLMON: 18 Q All right. Mr. Machin, thank you for being 19 here today. Can you state your name for the record? 20 A James Machin. 21 Q Have you reviewed the testimony and 22 accompanying exhibits of Mr. Tim Osting? 23 A Yes. 24 Q Okay. And have you developed opinions 25 regarding that testimony and opinions?</p>	<p style="text-align: right;">496</p> <p>1 A I don't know. 2 Q Okay. Now, have you reviewed his QUAL2 -- 3 QUAL-TX work? 4 A Yes. 5 Q Do you find that the QUAL-TX modeling he 6 performed is sufficient to demonstrate compliance with 7 the applicable water quality standards? 8 A No, it is not. 9 Q And let me ask you specifically with regard to 10 the 5.0 milligrams per liter dissolved oxygen standard, 11 are you familiar with that standard? 12 A Yes. 13 Q And are you familiar that that standard applies 14 to certain receiving waters downstream of this 15 discharge? 16 A Yes. 17 Q And in what -- well, what is your basis for 18 concluding that Mr. Osting's modeling does not 19 demonstrate compliance with that standard? 20 A He made adjustments to the depths in 21 particular, which he said was based on site-specific 22 measurements obtained from both the water development 23 board and himself and Mr. Flores. So assuming that's 24 correct, that is an improvement in the model, because 25 TCEQ just used estimates based on USGS maps and the</p>
<p style="text-align: right;">495</p> <p>1 A Yes, I have. 2 Q Have you reviewed his modeling that used the 3 QUAL2K model? 4 A I have not reviewed the QUAL2K model. 5 Q Have you reviewed his testimony regarding the 6 QUAL2K modeling? 7 A Yes. 8 Q Okay. Do you find his testimony regarding the 9 QUAL2K modeling he performed to be sufficient to 10 demonstrate compliance with the applicable TCEQ water 11 quality standards? 12 A No. 13 Q Can you please explain why? 14 A QUAL2K is not used by TCEQ for evaluating 15 individual permits. And Mr. Michalk testified to that. 16 QUAL-TX is what they use. So his use of QUAL2K is 17 inappropriate for this permit. 18 Q Are there particular technical aspects of the 19 QUAL2K model that render it inappropriate for use in 20 this permitting context? 21 A In particular, his modeling of diel changes in 22 dissolved oxygen attributable to algal activity is not 23 considered by TCEQ in evaluating permits. 24 Q Is the QUAL2K model limited to a 24-hour 25 period?</p>	<p style="text-align: right;">497</p> <p>1 like. So those site-specific data are definitely an 2 improvement. 3 However, he did not adjust the reaeration 4 rates. Reaeration is inversely related to depth; in 5 other words, the greater the depth, the lower the 6 reaeration. This is clearly stated in the QUAL-TX 7 user's manual and the TCEQ SOP. And it makes sense. 8 The way that oxygen gets back into the water is by 9 reaeration, and if the water is very deep, well, oxygen 10 from the atmosphere has -- let's just say it's harder to 11 get back into the water column. So it is all making 12 sense. So he did not adjust the reaeration rates; he 13 used the same rates that TCEQ had used for the much 14 shallower depths. 15 And as Mr. Michalk testified, they use 1 16 divided by depth to set the reaeration rates in each 17 reach of the model. So I used Mr. Osting's model, and I 18 changed the reaeration rates only to be 1 divided by the 19 depths that he had measured. This made a dramatic 20 difference in the predicted dissolved oxygen. And the 21 minimum dissolved oxygen then dropped below 3 milligrams 22 per liter as a result of this change. 23 Q Okay. Let me -- I'm going to share my screen 24 with you here for a bit. Do you have Exhibit GF-8 in 25 front of you now?</p>

498

1 A Let's see. Yes.

2 Q Okay. Do you recognize this document?

3 A I do.

4 Q What is this document?

5 A This is the output from the QUAL-TX model, the
6 version that I ran, which I just explained in which I
7 used Mr. Osting's inputs, yet -- except that I changed
8 the reaeration rates. This is the result of that model.

9 Q And so when you say you changed the reaeration
10 rates, do you consider the reaeration rates you used for
11 this modeling to be more appropriate than those used by
12 Mr. Osting?

13 A Yes, definitely. I used, as I said, 1 divided
14 by the depths. And he measured the depths. So this is
15 appropriate.

16 Q And is the method you used to develop this
17 modeling consistent with TCEQ practice and policy in the
18 use of the QUAL-TX model?

19 A Yes.

20 Q Is the means that Mr. Osting used to develop
21 this particular -- well, is the means for considering
22 reaeration rates that Mr. Osting used for this
23 particular run consistent with TCEQ practice and policy?

24 A Mr. Osting did not change the reaeration rates,
25 and he should have changed them because he changed the

499

1 depths. So that was an error in his model, a major one.

2 Q Okay. And so normal TCEQ practice and policy
3 regarding the use of this model would require the change
4 of those reaeration rates when you change the depth?

5 A Yes, definitely.

6 Q Okay.

7 MR. ALLMON: And we are providing this
8 testimony as an offer of proof, and we also submit
9 Exhibit GF-8 into the record as an offer of proof.

10 Q (BY MR. ALLMON) Do you have anything further
11 to add, Mr. Machin, in regard -- are there any other
12 issues that you identified in your review of
13 Mr. Osting's testimony and opinions?

14 A No, I don't believe so.

15 MR. ALLMON: Okay. With that, we pass the
16 witness, if any other party wanted to provide some
17 questioning for Mr. Machin.

18 (No response)

19 MR. ALLMON: Hearing none -- so if there
20 is no questioning from any other party, then this would
21 end our offer of proof.

22 Thank you for your time, Mr. Machin.

23 THE WITNESS: Thank you.

24 (Protestants' Offer of Proof concluded.)

25

A	496:17 believe 499:14 bit 497:24 board 496:23 BOOTH 494:12	court 494:3	document 498:2 498:4 downstream 496:14 dramatic 497:19 dropped 497:21 duly 494:15	G
accompanying 494:22 activity 495:22 add 499:11 adjust 494:10 497:3 497:12 adjustments 496:20 algal 495:22 ALLMON 494:1 494:5 494:7 494:17 499:7 499:10 499:15 499:19 appear 494:2 applicable 495:10 496:7 applies 496:13 appropriate 498:11 498:15 aspects 495:18 assuming 496:23 atmosphere 497:10 attributable 495:22	C certain 496:14 change 497:22 498:24 499:3 499:4 changed 497:18 498:7 498:9 498:25 498:25 changes 495:21 clearly 497:6 column 497:11 compliance 495:10 496:6 496:19 concluded 499:24 concluding 496:18 consider 498:10 considered 495:23 considering 498:21 consistent 498:17 498:23 context 495:20 correct 496:24	D data 497:1 deep 497:9 definitely 497:1 498:13 499:5 demonstrate 495:10 496:6 496:19 depth 497:4 497:5 497:16 499:4 depths 496:20 497:14 497:19 498:14 498:14 499:1 develop 498:16 498:20 developed 494:24 development 496:22 diel 495:21 difference 497:20 DIRECT 494:16 discharge 496:15 dissolved 495:22 496:10 497:20 497:21 divided 497:16 497:18 498:13 DOCKET 493:13 493:15	E error 499:1 estimates 496:25 evaluating 495:14 495:23 EXAMINATION 494:16 Exhibit 497:24 499:9 exhibits 494:22 explain 495:13 explained 498:6	GF-8 497:24 499:9 going 497:23 greater 497:5
B				H
back 497:8 497:11 based 496:21 496:25 basis				harder 497:10 harsh 494:11 Hearing 499:19
				I
				identified 499:12 improvement 496:24 497:2 inappropri... 495:17 495:19 individual 495:15 inputs 498:7 inversely 497:4 issues 499:12
				J
				James 494:2 494:5 494:14 494:20
				K
				know 496:1
				L
				lighting

494:10 limited 495:24 liter 496:10 497:22 look 494:12 494:12 lower 497:5	497:17 497:17 498:5 498:8 498:18 499:1 499:3 modeling 495:2 495:6 495:9 495:21 496:5 496:18 498:11 498:17	498:12 498:20 498:22 498:24 Osting's 496:18 497:17 498:7 499:13 output 498:5 oxygen 495:22 496:10 497:8 497:9 497:20 497:21	practice 498:17 498:23 499:2 predicted 497:20 pretty 494:10 previously 494:15 proof 493:11 494:3 499:8 499:9 499:21 499:24 Protestants 493:11 499:24 provide 499:16 providing 499:7	R ran 498:6 rates 497:4 497:12 497:13 497:16 497:18 498:8 498:10 498:10 498:22 498:24 499:4 reach 497:17 reaeration 497:3 497:4 497:6 497:9 497:12 497:16 497:18 498:8 498:9 498:10 498:22 498:24 499:4 receiving 496:14 recognize 498:2 record 494:3 494:19 499:9 regard 496:9 499:11 regarding 494:25 495:5 495:8 499:3 related 497:4 render 495:19 reporter
M				
Machin 494:2 494:14 494:18 494:20 499:11 499:17 499:22 major 499:1 making 497:11 manual 497:7 maps 496:25 MARCH 493:17 means 498:20 498:21 measured 497:19 498:14 measurements 496:22 method 498:16 Michalk 495:15 497:15 milligrams 496:10 497:21 minimum 497:21 model 495:3 495:4 495:19 495:24 496:24	N name 494:19 normal 499:2	P P.E 494:14 particular 495:18 495:21 496:21 498:21 498:23 party 499:16 499:20 pass 499:15 performed 495:9 496:6 period 495:25 permit 495:17 permits 495:15 495:23 permitting 495:20 please 495:13 point 494:1 policy 498:17 498:23 499:2	Q QUAL-TX 495:16 496:3 496:5 497:6 498:5 498:18 QUAL2 496:2 QUAL2K 495:3 495:4 495:6 495:9 495:14 495:16 495:19 495:24 quality 495:11 496:7 questioning 499:17 499:20	

494:3 494:4 require 499:3 response 499:18 result 497:22 498:8 review 499:12 reviewed 494:21 495:2 495:4 495:5 496:2 right 494:18 run 498:23	496:7 state 494:19 stated 497:6 submit 499:8 sufficient 495:9 496:6 sworn 494:15	U	2	
		use 495:16 495:16 495:19 497:15 498:18 499:3 user's 497:7 USGS 496:25	2021-1001... 493:15 2022 493:17 24-hour 495:24	
			3	
		USGS 496:25	3 497:21	
		V	5	
	T	version 498:6 video 494:8	5.0 496:10 582-22-0585 493:13	
	TCEQ 493:15 495:10 495:14 495:23 496:25 497:7 497:13 498:17 498:23 499:2 technical 495:18 testified 494:15 495:15 497:15 testimony 494:21 494:25 495:5 495:8 499:8 499:13 thank 494:13 494:18 499:22 499:23 Tim 494:22 time 499:22 today 494:19 turn 494:8	W	9	
		wanted 499:16 water 495:10 496:7 496:22 497:8 497:9 497:11 waters 496:14 way 497:8 WEDNESDAY 493:17 witness 494:6 494:9 494:13 499:16 499:23 words 497:5 work 496:3	9 493:17	
S		1		
screen 497:23 second 494:6 494:9 see 494:7 498:1 sense 497:7 497:12 set 497:16 shallower 497:14 share 497:23 site-spec... 496:21 497:1 SOAH 493:13 SOP 497:7 specifically 496:9 standard 496:10 496:11 496:13 496:19 standards 495:11		1 497:15 497:18 498:13		