PROTESTANTS' OFFER OF PROOF

SOAH DOCKET NO. 582-22-0585

TCEQ DOCKET NO. 2021-1001-MWD

WEDNESDAY, MARCH 9, 2022

494

MR. ALLMON: Okay. Then at this point, we would ask James Machin to appear. Are we on the offer of proof record, court reporter?
THE REPORTER: Yes, we are.
MR. ALLMON: Okay. James, are you there?
THE WITNESS: I'm here. Just a second.
MR. ALLMON: Okay. We can't see you. Could you turn on your video?
THE WITNESS: Just a second. I have to adjust the lighting; otherwise, it would be pretty harsh. There we are.
MR. BOOTH: You look fine. You look fine.
THE WITNESS: Thank you.

JAMES L. MACHIN, P.E.,

having been previously duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. ALLMON:

Q All right. Mr. Machin, thank you for being here today. Can you state your name for the record?

A James Machin.

Q Have you reviewed the testimony and accompanying exhibits of Mr. Tim Osting?

A Yes.

Q Okay. And have you developed opinions regarding that testimony and opinions?

495

A Yes, I have.

Q Have you reviewed his modeling that used the QUAL2K model?

A I have not reviewed the QUAL2K model.

Q Have you reviewed his testimony regarding the QUAL2K modeling?

A Yes.

Q Okay. Do you find his testimony regarding the QUAL2K modeling he performed to be sufficient to demonstrate compliance with the applicable TCEQ water quality standards?

A No.

Q Can you please explain why?

A QUAL2K is not used by TCEQ for evaluating individual permits. And Mr. Michalk testified to that. QUAL-TX is what they use. So his use of QUAL2K is inappropriate for this permit.

Q Are there particular technical aspects of the QUAL2K model that render it inappropriate for use in this permitting context?

A In particular, his modeling of diel changes in dissolved oxygen attributable to algal activity is not considered by TCEQ in evaluating permits.

Q Is the QUAL2K model limited to a 24-hour period?

496

A I don't know.

Q Okay. Now, have you reviewed his QUAL2 -- QUAL-TX work?

A Yes.

Q Do you find that the QUAL-TX modeling he performed is sufficient to demonstrate compliance with the applicable water quality standards?

A No, it is not.

Q And let me ask you specifically with regard to the 5.0 milligrams per liter dissolved oxygen standard, are you familiar with that standard?

A Yes.

Q And are you familiar that that standard applies to certain receiving waters downstream of this discharge?

A Yes.

Q And in what -- well, what is your basis for concluding that Mr. Osting's modeling does not demonstrate compliance with that standard?

A He made adjustments to the depths in particular, which he said was based on site-specific measurements obtained from both the water development board and himself and Mr. Flores. So assuming that's correct, that is an improvement in the model, because TCEQ just used estimates based on USGS maps and the

497

like. So those site-specific data are definitely an improvement.

However, he did not adjust the reaeration rates. Reaeration is inversely related to depth; in other words, the greater the depth, the lower the reaeration. This is clearly stated in the QUAL-TX user's manual and the TCEQ SOP. And it makes sense. The way that oxygen gets back into the water is by reaeration, and if the water is very deep, well, oxygen from the atmosphere has -- let's just say it's harder to get back into the water column. So it is all making sense. So he did not adjust the reaeration rates; he used the same rates that TCEQ had used for the much shallower depths.

And as Mr. Michalk testified, they use 1 divided by depth to set the reaeration rates in each reach of the model. So I used Mr. Osting's model, and I changed the reaeration rates only to be 1 divided by the depths that he had measured. This made a dramatic difference in the predicted dissolved oxygen. And the minimum dissolved oxygen then dropped below 3 milligrams per liter as a result of this change.

Q Okay. Let me -- I'm going to share my screen with you here for a bit. Do you have Exhibit GF-8 in front of you now?

498

A Let's see. Yes.
Q Okay. Do you recognize this document?
A I do.
Q What is this document?
A This is the output from the QUAL-TX model, the version that I ran, which I just explained in which I used Mr. Osting's inputs, yet -- except that I changed the reaeration rates. This is the result of that model.
Q And so when you say you changed the reaeration rates, do you consider the reaeration rates you used for this modeling to be more appropriate than those used by Mr. Osting?
A Yes, definitely. I used, as I said, 1 divided by the depths. And he measured the depths. So this is appropriate.
Q And is the method you used to develop this modeling consistent with TCEQ practice and policy in the use of the QUAL-TX model?
A Yes.
Q Is the means that Mr. Osting used to develop this particular -- well, is the means for considering reaeration rates that Mr. Osting used for this particular run consistent with TCEQ practice and policy?
A Mr. Osting did not change the reaeration rates, and he should have changed them because he changed the

499

depths. So that was an error in his model, a major one.
Q Okay. And so normal TCEQ practice and policy regarding the use of this model would require the change of those reaeration rates when you change the depth?
A Yes, definitely.
Q Okay.
MR. ALLMON: And we are providing this testimony as an offer of proof, and we also submit Exhibit GF-8 into the record as an offer of proof.
Q (BY MR. ALLMON) Do you have anything further to add, Mr. Machin, in regard -- are there any other issues that you identified in your review of Mr. Osting's testimony and opinions?
A No, I don't believe so.
MR. ALLMON: Okay. With that, we pass the witness, if any other party wanted to provide some questioning for Mr. Machin.
(No response)
MR. ALLMON: Hearing none -- so if there is no questioning from any other party, then this would end our offer of proof.
Thank you for your time, Mr. Machin.
THE WITNESS: Thank you.
(Protestants' Offer of Proof concluded.)