

1 comments and respond to them, and then the permits that we
2 are going to issue we issue and we move forward that way.

3 Q. When did Williams first apply for a permit for
4 the facility at issue in this case, do you recall?

5 A. I don't recall the exact date. I believe it was
6 in 2004. There were two permits involved and they were
7 basically for coverage of roughly the same facility. I'm
8 not sure exactly how they overlapped. I haven't gone back
9 to those original permits to see because we did -- as
10 indicated earlier in the opening statements, those
11 applications were returned to Williams and those permits
12 were not issued. But I believe that was 2004.

13 Q. Did those proposed permits go out for public
14 comment?

15 A. They did.

16 Q. And what happened during the comment period?

17 A. We received comments from the law office of Tom
18 Toner on behalf of Bill Maycock and his property
19 identifying that there were agricultural uses at Barber
20 Creek that we had not anticipated in those permits. And
21 the Water Quality Division agreed that we had not
22 anticipated those uses in that permit or previous permits.

23 And so at that point we requested additional
24 information from Williams to try and address those
25 comments and those additional known uses now of Barber

1 holding their applications. We had neither denied nor
2 issued them by that point. We were just saying we would
3 hold onto them a bit longer and attempt to allow them to
4 gather the site-specific information from those fields.

5 Q. Did you get any more site-specific information
6 about the Maycock Ranch from Williams?

7 A. Not at that time, no.

8 Q. What did DEQ do then?

9 A. Eventually we returned the applications and
10 denied the permits.

11 Q. For what reason?

12 A. For basically failure to submit the required
13 data that we needed to draft the permit -- to basically
14 revise the permit and make it what we felt was
15 appropriately protective. We felt we did not have enough
16 information to finalize the permits as proposed, so we
17 returned the applications at that time.

18 Q. Did you have an understanding as to why there
19 was insufficient information?

20 A. Well, generally we don't get too concerned with
21 that, but, you know, our understanding was that there was
22 an inability on Williams' part to gain access to the
23 irrigated lands.

24 Q. I am going to have you take a look at the permit
25 application, which is DEQ Exhibit 2, and I am going to

1 Creek.

2 Q. If you would refer to Exhibit 8 of the DEQ
3 exhibits.

4 A. Okay.

5 Q. You're faster than I am, Mr. Thomas. Would you
6 take just a quick second if you need to look that over?

7 A. Okay.

8 Q. Anywhere in this letter was it disclosed to DEQ
9 how Mr. Maycock operated his ranching operations and
10 irrigation and what crops or types of vegetation were on
11 his forage land?

12 A. Not in this letter, no.

13 Q. So although you received the comments, you
14 didn't get any specific information, and because of that,
15 what did you do next?

16 A. We asked Williams to gather the information.
17 That's customary in cases of agricultural protection and
18 those sorts of uses that may be site specific, to have the
19 applicant gather the information.

20 Q. What happened with that request?

21 A. As I recall, we received some correspondence
22 from Williams indicating they were having some difficulty
23 gaining access to the subject lands on the Maycock Ranch,
24 and so we had given Williams some additional time, I
25 believe, to try and work that out. So we were kind of

1 refer you to page 6 of the application.

2 A. Okay. I'm on page 6. It is important to note,
3 I think, also that this is a different application than
4 the one we were just talking about being returned. It
5 might be good to note for clarification this is a
6 subsequent application, am I right?

7 Q. Absolutely.

8 A. This is 53171.

9 Q. This is the application for 53171. And thank
10 you for clarifying that.

11 Page 6, question 18 says, "Is there active
12 irrigation, including but not limited to, irrigation of
13 cultivars" --

14 A. Cultivars, that's the correct word.

15 Q. -- "or flood irrigation in the drainage of the
16 discharge?" I have read that several times and
17 substituted the word culvert, I guess.

18 "An application has been filed for irrigation
19 rights on the Powder River Ranch in the lower Barber Creek
20 drainage," was the answer. And then there was a check
21 mark saying yes; is that correct?

22 A. Yes.

23 Q. What did you understand that to mean, that an
24 application had been filed for irrigation rights on the
25 Powder River Ranch in the lower Barber Creek drainage?

1 A. As I recall with this particular item in the
 2 application, that the background on this, briefly, was
 3 that by the time we received this application -- this came
 4 in after Mr. Toner's letter that we talked about earlier.
 5 So after the applications were sent back to Williams,
 6 those two applications for the permits that were denied,
 7 Williams did notify us that they would be submitting an
 8 additional application, and they submitted this
 9 application to start the process over, to try again.
 10 And so when we saw, you know, in Item 18 here
 11 that there was active irrigation occurring on the Powder
 12 River Ranch, at the time the assumption that I made in
 13 reviewing the application was that that was the irrigation
 14 that we already knew about. We had not heard any comments
 15 from the Powder River Ranch nor discussed with Williams
 16 any additional irrigation occurring downstream of the
 17 proposed discharge.
 18 So, frankly, I thought the Powder River Ranch
 19 was a synonym for the ranch owned by Mr. Maycock, like you
 20 would hear sometimes a brand name for someone's ranch. So
 21 this -- the agency's understanding -- my understanding at
 22 the time we received this application was that we were
 23 evaluating potential agricultural use and protection for
 24 the Maycock Ranch.
 25 Q. Is that something that occurs more than once,

1 earlier, Mr. Maycock did invite us out to his property and
 2 we did get a chance to cover some ground with him and
 3 particularly look at risks of erosion and also the
 4 proximity of some bottomlands to those erosive areas,
 5 those sorts of things. We got a general layout of the
 6 field -- of the area.
 7 And then in addition to that, we had contacted
 8 Mr. Maycock roughly around that same time trying to get
 9 some details from him on how the irrigation operated and
 10 what were the protective -- what were the irrigated plant
 11 species and so forth.
 12 Q. Had you done that before you went out to visit
 13 Mr. Maycock's ranch?
 14 A. Simultaneous, as I recall. I think we drafted
 15 that letter just before our visit, but I think that might
 16 have gotten to him the following day. I recall discussing
 17 that with the Maycocks and reminding them -- letting them
 18 know that that letter was coming. They may have already
 19 received it by then, but it was right around the very same
 20 time.
 21 Q. I'm going to refer you to DEQ Exhibit 4.
 22 A. Okay.
 23 Q. Could you tell us what that is?
 24 A. This is the letter to Mr. Maycock that we were
 25 just discussing asking for additional details as to the

1 relatively often, that there will be a name given for a
 2 ranch, but it also has more than one common appellation?
 3 A. Well, sure. It can happen. I mean, the -- an
 4 example is on LX Bar Creek or Upper Asay Creek, actually,
 5 there is a ranch called the Seven Ranch but the family is
 6 not called Seven, of course. These kinds of things -- I
 7 made an assumption in reviewing this application that it
 8 turned out wrong, there is an additional ranch called
 9 Powder River Ranch. And the bottom line is I thought we
 10 were evaluating the Maycock Ranch.
 11 Q. Thank you. Had you realized this was not the
 12 Maycock Ranch, would you have asked Williams for
 13 information on the irrigation occurring on the Powder
 14 River Ranch?
 15 A. I would have, yes.
 16 Q. We will discuss more later what practical effect
 17 that might have had on the issuance of the permit. But I
 18 did want to be able to clarify the reason that no more
 19 information was sought.
 20 Thinking that it was Maycock's land referred to
 21 in the application, what did you do to try to find out
 22 more from Mr. Maycock about irrigation and vegetation on
 23 the Maycock Ranch?
 24 A. Well, we had been in contact with Mr. Maycock
 25 prior to the submittal of this application. As was stated

1 nature of the agricultural use of Barber Creek on his
 2 property.
 3 Q. Could you go over the specific questions that
 4 were addressed to Mr. Maycock down at the bottom of the
 5 page where it is numbered 2?
 6 A. Would you like me to read the question and --
 7 Q. However you're most comfortable. You may read
 8 or paraphrase.
 9 A. I will just read it, that way we're all kind of
 10 looking at the same thing and I can discuss what we mean
 11 by it, if that would be all right.
 12 Q. Great.
 13 A. The question says -- I will start with the first
 14 one because the second question follows. So the questions
 15 are as follows: "Do you have agricultural operations that
 16 could be affected by the water quality within Barber
 17 Creek?" That's the first question.
 18 Second question is, "If so, please describe how
 19 the crop and/or grazing system operates in relation to
 20 Barber Creek. For example, is Barber Creek water
 21 periodically applied to fields? Is the surface stream
 22 flow systematically kept off of fields? Is there a
 23 potential for subirrigation to occur whereby channel water
 24 would soak into adjacent fields below the ground's
 25 surface? Do you have a headgate in Barber Creek? Do you

1 A. No.
 2 Q. Why not?
 3 A. Well, again, one of the conservative assumptions
 4 we made in determining what would be a reasonable upward
 5 bound for soil EC was that the threshold for western
 6 wheatgrass was 3,000, based on a range of 3,000 to 6,000.
 7 That was intentionally conservative because we weren't
 8 using a factor of 1.5. In fact, because leaching
 9 fractions are variable, it doesn't always have to be 1.5,
 10 but that's what is proposed as a rule of thumb and that's
 11 what we use now.
 12 But at the time when we weren't using that, you
 13 know, we introduced a margin of conservatism in the permit
 14 that way by using the lower end of that range. That would
 15 not necessarily be appropriate now because if you're using
 16 a factor of 1.5, you don't need to -- I guess essentially
 17 you would be tripling up on conservative assumptions. And
 18 I will explain what I mean by that briefly.
 19 There's a conservative assumption that you need
 20 to maintain 100 percent crop yield when you have probably
 21 existing constraints in the field like available water,
 22 nutrient availability, all the other constraints that face
 23 a crop. So the conservative assumption was that this crop
 24 is performing at 100 percent yield potential. That's one
 25 conservative assumption.

1 A. DEQ is not aware of an actual salinity threshold
 2 for Kentucky bluegrass. It is generally not considered to
 3 be a forage species, it is considered turf grass, so
 4 generally I'm not aware of any literature in Wyoming that
 5 would represent a salinity threshold for Kentucky
 6 bluegrass in soil.
 7 Q. How about if there were anywhere in the drainage
 8 the existence of smooth brome which has been asserted
 9 applies to the Powder River Ranch. Would this affect that
 10 3,000 to 6,000 in some way making it lower in this
 11 particular instance?
 12 A. Well, it depends on how much smooth brome grass
 13 there was. I think there was some discussion and I
 14 wouldn't speculate on it too much at this point. Smooth
 15 brome grass, based on our references, does appear to have
 16 more salt sensitivity than western wheatgrass.
 17 However, it was not clear from what I reviewed
 18 that smooth brome grass was present in sufficient quantity
 19 to constitute a protectable irrigated species. I believe
 20 there were traces of it found, blades of grass here and
 21 there. I believe there was some side tributaries with
 22 higher composition, but not within the influence of Barber
 23 Creek and its discharges. So I guess I would have to say
 24 that it depends on what the data showed.
 25 Q. We discussed before the lunch break the

1 Another conservative --
 2 Q. Is there another one?
 3 A. Yes, there is. Well, another one would be to
 4 choose the lower end of an allowable threshold range, when
 5 you have 3,000 to 6,000 allowable range without
 6 impairment. If you did those two -- made those two
 7 conservative assumptions and, in addition to that, backed
 8 out that upper soil bound of 3,000 by another factor of
 9 1.5, you would probably get to a point where it is
 10 starting to be a little bit unrelated to what you're
 11 growing out there and it starts to lose reality at a
 12 certain point.
 13 What we would do now is probably look for a
 14 median threshold range, like, say, 4500 is an allowable
 15 upward bound based on the soil, and you use a factor of
 16 1.5, derive an allowable water EC, you would probably be
 17 back in the range of 3,000.
 18 Q. There was some mention -- not testimony -- some
 19 mention in opening argument about the existence of
 20 Kentucky bluegrass on the Maycock Ranch, which, of course,
 21 DEQ was unaware of at the time. Would that necessarily
 22 change the, say, 3,000 to 6,000 limit to one that went
 23 lower than that?
 24 A. Not necessarily.
 25 Q. And why not?

1 assumption that you made when writing the permit that the
 2 downstream irrigation which was occurring and noted in the
 3 permit application was on the Maycock Ranch, not the
 4 Powder River Ranch, and if I recall correctly, you stated
 5 that at that point, had you realized that, you would have
 6 asked Williams for more information?
 7 A. Correct.
 8 Q. Does that necessarily mean you would end up with
 9 different permit limits now than were set then?
 10 A. No, not necessarily.
 11 Q. And why is that?
 12 A. Well, if the irrigation use was similar in terms
 13 of its sensitivity to salt, then it may yield the same
 14 limits. It would just depend -- we would need a thorough
 15 evaluation of how the irrigation was occurring and what
 16 the protectable plant species were.
 17 Q. Were there other not really methods but
 18 approaches that were used by DEQ at the time this permit
 19 was issued to set EC and SAR limits, and more
 20 specifically, if there were site-specific information
 21 would DEQ -- might DEQ have used something different than
 22 that 3,000 to 6,000 chart approach?
 23 A. Sure.
 24 Q. And what kind of method might that have been or
 25 what sort of approach might you have used?

1 make sure that all of the exhibits he testified to have
2 been admitted. And you had him testify about 51041, is
3 that what it was?

4 MR. TONER: Yes, 51411.

5 HEARING OFFICER BOAL: Okay.

6 Q. (BY MR. TONER) I was asking you about what
7 happened to the 33 wells under the permit 51527. I will
8 show you Exhibit 12 which is a document produced to us by
9 the Department of Environmental Quality in this matter.

10 It is a letter from CBM Associates to Jennifer Zygmunt of
11 the Wyoming Department of Environmental Quality, and it
12 relates to a notification of adding 33 wells in the Barber
13 Creek permit WY0051527 to the South Prong permit?

14 A. Correct.

15 MR. TONER: We would offer Exhibit 12.

16 HEARING OFFICER BOAL: It is received.

17 No objections? Is this one of the stipulated
18 ones?

19 MR. TONER: It is not.

20 HEARING OFFICER BOAL: Exhibit 12 has been
21 offered into evidence. Is there an objection,
22 Miss Colgan?

23 MS. COLGAN: DEQ has no objection.

24 HEARING OFFICER BOAL: Mr. -- is it

25 Mr. Ruppert? Are you going to object to this?

1 A. Well, I don't know how to answer that, I guess,
2 because there are requirements under the application and
3 they did verify there was irrigation. And as I said
4 earlier --

5 HEARING OFFICER BOAL: Mr. Thomas, your
6 answer was you don't know how to answer that. He can
7 either ask another question or he can move on, okay?

8 THE WITNESS: Okay.

9 Q. (BY MR. TONER) I am going to put up a page out
10 of the application for the Barber Creek permit, and where
11 it says, "If you answered question 18 yes," that is, that
12 there is active irrigation, then certain documentation is
13 supposed to be provided. And that says, "This information
14 should include but is not limited to the following..."

15 So is it correct that when Williams submitted
16 this application to you and they said that there was
17 irrigation on Barber Creek, that Williams should have
18 provided you the information about the irrigation on the
19 Powder River Ranch without you asking for it?

20 A. The application does require that.

21 Q. And just so I'm clear, you don't have to ask for
22 it before they're required to give it?

23 A. We don't have to.

24 Q. So you would agree now, wouldn't you, that
25 knowing that the Powder River Ranch is not the same as the

1 MR. RUPPERT: No objection.

2 HEARING OFFICER BOAL: It will be
3 received.

4 (Maycock Exhibit 12 received in evidence.)

5 Q. (BY MR. TONER) I would like to ask you a few
6 questions about the permit we're concerned with, the
7 Barber Creek permit. As I understand it, because of the
8 mistake you made confusing the Powder River Ranch with the
9 Maycock Ranch, you didn't request any of the ten items
10 that were required by paragraph 18 of the application
11 form?

12 A. That's correct. We thought we had sufficient
13 information.

14 Q. So when you issued this permit, you didn't have
15 information about the location and the description of the
16 irrigated cropland on Powder River Ranch?

17 A. Correct.

18 Q. Or their irrigation practices or the soil
19 characteristics in that area?

20 A. Right.

21 Q. And Williams didn't offer that to you?

22 A. Nor did we request it. No, they did not offer
23 it.

24 Q. Well, the application doesn't require you to
25 request that information from Williams, does it?

1 Maycock Ranch, and knowing that Williams didn't provide
2 any of the ten items listed in the application, that that
3 application was not complete?

4 A. You're asking me if I agree with that?

5 Q. Yes.

6 A. I guess it was not complete.

7 Q. Now, were you aware before Williams even
8 submitted the application for the Barber Creek permit --
9 and it has been shown that that application was submitted
10 in March of 2005 -- that Williams had their expert
11 witnesses on the Powder River Ranch?

12 A. I was not aware of that, no.

13 Q. And are you aware of it now?

14 A. Yes.

15 Q. And did you know that Williams had Mr. Harvey
16 conducting soil tests on the Powder River Ranch in
17 February 2005, the month before the Barber Creek
18 application was submitted?

19 A. At the time we were drafting the permit I did
20 not know that.

21 Q. But you know that now?

22 A. I know that now.

23 Q. And you also know that they had Mr. Lowham on
24 the Powder River Ranch assisting in filing water rights
25 applications for the Powder River Ranch at the end of 2004

1 now, but that sounds roughly familiar.
 2 Q. So based on that information, would you agree
 3 that the -- using the water of Barber Creek to grow
 4 Kentucky bluegrass is a use that the DEQ should have
 5 protected?
 6 A. I don't know that I would conclude that right
 7 now.
 8 Q. Well, would you agree that using -- the use of
 9 water to grow smooth brome in the Barber Creek drainage is
 10 a use that the DEQ should have protected in issuing this
 11 permit?
 12 A. Would I agree with that?
 13 Q. Yes.
 14 A. Not necessarily.
 15 Q. Now, another analysis that you have done, you
 16 have clearly said that smooth brome is moderately
 17 sensitive to salinity, do you agree with that?
 18 A. I do.
 19 Q. And what is the range of salinity for a plant
 20 that is moderately sensitive?
 21 A. Well, based on the chart we were looking at
 22 earlier, moderately sensitive plants at 100 percent
 23 desired yield would be roughly, you know, within a range
 24 of 1500 to 3,000 on allowable soil EC.
 25 Q. So if you were using this midpoint approach that

1 this concentration factor and how it was or was not
 2 applied in this case.
 3 Are you saying that you were aware that there
 4 was a concentration factor that should have been applied
 5 at the time you drafted the Barber Creek permit?
 6 A. I'm saying we were aware of the principle, but
 7 the specific number we never attempted to settle because,
 8 as I said earlier, that number would vary depending upon
 9 the leaching fraction realized in the actual soil.
 10 So we were aware of the principle but were not
 11 implementing a concentration factor at that time.
 12 Q. Just so we're clear, when you drafted the Barber
 13 Creek permit, your goal was to achieve an EC in the
 14 irrigated soil of 3,000, right?
 15 A. When we crafted that permit, it was, yes.
 16 Q. You're familiar with Dr. Munn and Dr. Paige,
 17 professors from the University of Wyoming, correct?
 18 A. Correct.
 19 Q. And Dr. Munn and Dr. Paige had told the DEQ that
 20 it was making a mistake in issuing permits without
 21 recognizing the relationships between the electrical
 22 conductivity in the water and the electrical conductivity
 23 in the soil, right?
 24 A. I believe there was some information submitted
 25 to us along those lines, yes.

1 you talked about earlier, you would set a midpoint EC of
 2 2250 to protect smooth brome, right?
 3 A. If smooth brome were going to be protected,
 4 we would set a desired soil EC at 2250, that's correct.
 5 Q. So if the DEQ had incorporated EC and SAR limits
 6 to protect a moderately sensitive plant like smooth brome,
 7 it would have set an EC of about 1500 and an SAR of about
 8 8, correct?
 9 A. That's correct, if that's all we knew -- if we
 10 did protect for a moderately sensitive species and if we
 11 were to set default limits like that, then those would be
 12 the probable limits, yes.
 13 HEARING OFFICER BOAL: Mr. Toner, what
 14 were the limits again?
 15 MR. TONER: 1500 EC and an SAR of 8.
 16 Q. (BY MR. TONER) Correct, Mr. Thomas?
 17 A. Correct.
 18 HEARING OFFICER BOAL: Thank you.
 19 Q. (BY MR. TONER) And you set those limits in
 20 other permits to protect other moderately sensitive
 21 species?
 22 A. I believe we have proposed those limits for
 23 protection of moderately sensitive species in some cases,
 24 yes.
 25 Q. I would like to ask you a few questions about

1 Q. When the DEQ issued the Barber Creek permit, you
 2 did not realize the applicability of the concentration
 3 factor to the permitting situation, and it is since that
 4 time that the DEQ has consulted with soil scientists and
 5 the consensus was that you should apply a concentration
 6 factor, correct?
 7 A. I would say that's accurate enough.
 8 Q. I will show you a document marked as Exhibit 98.
 9 This has been stipulated to and I will offer it into
 10 evidence. It is a letter from Dr. Munn and Dr. Paige to
 11 the Wyoming Department of Environmental Quality.
 12 HEARING OFFICER BOAL: Exhibit 98 is
 13 received in evidence.
 14 (Maycock Exhibit 98 received in evidence.)
 15 Q. (BY MR. TONER) This letter comes from Dr. Munn
 16 and Dr. Paige and it goes to Mr. Corra of the Wyoming
 17 Department of Environmental Quality. And they say that
 18 they are writing to express concerns about the way the
 19 product water salinity and sodicity issue are addressed by
 20 DEQ staff members.
 21 The sentence I would like to ask you about is
 22 the one that says, "There are several points at which
 23 actual mistakes are made by DEQ staff in the use of
 24 available science in support of decisions in the
 25 permitting process, and while we have pointed these out to

1 A. Correct.
 2 Q. And that was 1.5 concentration factor use?
 3 A. The method currently used.
 4 Q. And under that same method what would the SAR
 5 be?
 6 A. Under the default method we would cap the SAR at
 7 10.
 8 Q. I have some questions about the way the SAR was
 9 set in this matter. As I understand it, you set the SAR
 10 so that the resulting soil would fall in the no reduction
 11 in infiltration category?
 12 A. Correct. That was the goal.
 13 MR. TONER: We will offer Exhibit 107 at
 14 this time. I believe it has been stipulated to.
 15 HEARING OFFICER BOAL: 107 is admitted
 16 into evidence.
 17 (Maycock Exhibit 107 received in evidence.)
 18 Q. (BY MR. TONER) As I understand it, when you set
 19 the SAR limit for the Barber Creek permit, you started at
 20 the 3,000 desired soil salinity and then you sort of move
 21 upward to the line and figure out where that's going to
 22 intersect and that's what you set as the SAR limit; is
 23 that right?
 24 A. That's correct, that was the method used for
 25 this permit.

1 yes.
 2 Q. So the goal of no reduction in infiltration is
 3 not achieved by these permit limits under these specific
 4 site conditions, is it?
 5 A. I would say that, right, if this is the water
 6 that was going to get applied to the fields on its own,
 7 then that particular goal would not have been achieved,
 8 that's correct.
 9 Q. Now, is this another flaw in the DEQ's
 10 methodology that Dr. Munn and Dr. Paige had pointed out to
 11 the DEQ?
 12 A. They characterized that as a flaw, yes.
 13 Q. And do you agree with that statement?
 14 A. I would say it is a complication that has to be
 15 taken into account in setting this up.
 16 Q. DEQ has not taken -- did you say complication?
 17 A. Yes, correct.
 18 Q. -- into account in setting effluent limits to
 19 date?
 20 A. That's correct. It is proposed under the new
 21 policy, and this permit is not -- does not set a sliding
 22 SAR limit. It sets a static SAR limit and a static EC
 23 limit.
 24 Q. Wouldn't you agree that the appropriate
 25 methodology would be to set a sliding SAR if you want to

1 Q. Can you take Exhibit 107 and do like you did in
 2 the previous exhibit and mark with the letter -- with a
 3 circle and the letter P for permit where the permit
 4 effluent limits are on Exhibit 107?
 5 A. Okay.
 6 Q. And then would you also mark the area of 17.5
 7 SAR and 2255, which are some numbers that have been used
 8 by Williams as the quality of the effluent being produced,
 9 and would you mark that with the letter E?
 10 A. Again, 2250 for EC and 17.5 for SAR?
 11 Q. Right.
 12 A. Okay.
 13 Q. Now, where you set the permit limits, that's
 14 within the range of no reduction in infiltration, correct?
 15 A. Correct.
 16 Q. But the actual effluent that Williams is showing
 17 from the one outfall falls within the reduction in
 18 infiltration zone, right?
 19 A. The slight to moderate reduction in infiltration
 20 zone, yes.
 21 Q. So they are within the permit limits because the
 22 SAR is 17.5 and the EC is less than 3,000, but they are in
 23 the area where there will be a reduction in infiltration,
 24 correct?
 25 A. Based on this and -- yes, it being raw water,

1 achieve no reduction in infiltration?
 2 A. That would be one way to achieve that goal.
 3 Q. Next I'm going to show you a letter from
 4 Dr. Munn and Dr. Paige to Mr. Corra. This is Exhibit 98.
 5 We have already referred to it previously. In this
 6 letter, Dr. Munn and Dr. Paige say, "In our opinion, the
 7 fact that the Hanson table indicates that the water EC and
 8 the SAR balance to permit infiltration provides absolutely
 9 no justification for discharging water to the surface or
 10 channels with SAR of greater than 10."
 11 Do you agree with that statement?
 12 A. I agree Dr. Munn and Dr. Paige made that
 13 statement.
 14 Q. No, do you agree with the statement itself?
 15 A. This is currently an element of our proposed
 16 policy. And as I said earlier, this is currently the way
 17 in which we would set default limits if nothing else were
 18 known about the irrigated soils themselves. We would
 19 currently cap SAR at 10, under the false scenario when it
 20 was based on this recommendation, yes.
 21 Q. But do you agree that the Hanson table that the
 22 DEQ uses provides no justification for discharging water
 23 to surface or channels with an SAR of greater than 10?
 24 A. I don't believe that's true in all cases, no.
 25 Q. You think it is true in the case of the Barber

1 A. I'm not certain they did or did not at that
2 point, Mr. Toner. I wasn't with Williams at the time.

3 Q. Now, the lease that you felt you had to hurry
4 up and get the application in in order to save, what was
5 the primary term on that lease?

6 A. I don't recall.

7 Q. Aren't Williams' leases typically three to five
8 years in length?

9 A. That's not my expertise. I don't know for
10 sure, Mr. Toner. I don't.

11 Q. Well, let me ask you this. Do you know if this
12 was a self-induced rush for Williams?

13 MR. PALMA: I object. He asked and
14 answered that question.

15 HEARING OFFICER BOAL: Different question.
16 Self-induced, do you understand what that
17 means?

18 THE WITNESS: No, I do not.

19 HEARING OFFICER BOAL: Okay. Ask another
20 question.

21 Q. (BY MR. TONER) Was it Williams' delay in
22 developing those leases for several years that caused you
23 to have to rush to file this application with the DEQ?

24 A. No.

25 Q. Now, you indicated that Williams does not even

1 where it doesn't even have oil and gas operations, was to
2 try and convince Judge Kautz that Barber Creek was a
3 water course and that there were existing water rights on
4 Barber Creek?

5 A. No, that is not true.

6 Q. Now, I think you've explained why you did not
7 supply information to the DEQ at the time you filed the
8 application. But the permit was not issued until July
9 of 2005, was it?

10 A. It was issued July 5th, 2005.

11 Q. Now, by that time, that soil analysis had been
12 done and completed on the Powder River Ranch?

13 A. I believe that they had, yes.

14 Q. You had not provided those to the DEQ, did you?

15 A. We did not provide additional information to
16 DEQ at the time, other than to let them know that we
17 continued to work with Powder River Ranch and tried to
18 gain access to Mr. Maycock.

19 Q. And, in fact, on June 15th, 2005, Mr. Harvey
20 and his vegetation crew were on Mr. Maycock's property.
21 Right?

22 A. I believe, in that time frame, they were on
23 Mr. Maycock's property.

24 Q. And they did soil and vegetation analyses at
25 that time, didn't they?

1 have any oil and gas operations on the Powder River
2 Ranch, that it is paying to have Mr. Lowham do work
3 there. It's going to pay to fix up these spreader dike
4 systems?

5 A. That's correct. We are.

6 Q. And when I took your deposition on July 13th,
7 2006, you testified that Williams does not even have a
8 water management plan on the Powder River Ranch at this
9 time. Is that correct?

10 A. We had not completed all of the work we needed
11 to do. No, we did not.

12 Q. When you had Mr. Lowham file the application
13 for a water right on Barber Creek for the Powder River
14 Ranch in January of 2005, Williams was at that time
15 trying to convince the judge that Barber Creek was a
16 water course, wasn't it?

17 A. Part of the filings in the court was a
18 determination about whether or not Barber Creek was or
19 was not a water course.

20 Q. And Williams lost that issue, didn't they, in
21 front of Judge Kautz?

22 A. I believe, in a hearing in January of 2006,
23 Judge Kautz found that it was not a water course.

24 Q. And isn't it true that the reason that Williams
25 was doing all of this work on the Powder River Ranch,

1 A. I believe they took soil samples and did a
2 vegetation survey in the summer of 2005.

3 Q. Did you ask them to expedite the report on that
4 survey so you could provide it to the DEQ?

5 A. No, because I knew that if we submitted that
6 information, it would probably delay the issuance of that
7 permit. We informed DEQ we were on the property. We let
8 them know we were doing those surveys. But again, at the
9 time, we didn't have the right to flow water. So it
10 would have been of little consequence for us to do that
11 at that time. And no, we had not fully completed all of
12 the analyses we needed.

13 Q. So you deliberately withheld information you
14 had about the soil, the water in Barber Creek because you
15 thought it would delay the permit?

16 A. We wanted to complete the entire analysis
17 before we disclosed all of that information.

18 Q. The question, though, is, did you deliberately
19 withhold information about water and soil analysis from
20 the DEQ so that it would not delay the issuance of this
21 permit?

22 A. We were still analyzing the data.

23 HEARING OFFICER BOAL: Mr. Olson, your
24 answer is no. Is that correct?

25 THE WITNESS: That's correct.

1 the question?
 2 THE WITNESS: I did not understand the
 3 question.
 4 MR. BOAL: I didn't, either.
 5 Q. (BY MR. TONER) Do you know why the court order
 6 is protective in this situation?
 7 A. I understand that the work that we've done
 8 through our experts, in conjunction with the court order
 9 and the monitoring that we want to do, that we feel the
 10 permit would be protective.
 11 Q. Well, isn't it true that the permit would be
 12 protective with the court order in place because Williams
 13 has to keep its coal bed methane water, whether it's
 14 diluted or undiluted, within a 20-foot easement, because
 15 that's all the easement you have?
 16 MR. PALMA: I'll object. That calls for a
 17 conclusion of law that I think is beyond Mr. Olson's
 18 capability. And I think the order speaks for itself on
 19 that point in Finding of Fact 24, Mr. Chairman.
 20 HEARING OFFICER BOAL: Great question,
 21 Mr. Toner. I'm going to sustain the objection, though.
 22 Your point is understood, though. So why don't you move
 23 on.
 24 Q. (BY MR. TONER) Let me ask you this, then. Is
 25 your water management plan and all these mixing

1 reservoir during a particular period and a rainstorm
 2 comes through that drainage and dumps 25 CFS of water, of
 3 natural runoff, under your water management plan, that
 4 ditch is going to overtop, and it's going to run out on
 5 Mr. Maycock's property, isn't it?
 6 A. If there's ten CFS at a point where it would
 7 overtop, then, yes, it would -- 25 additional CFS would
 8 overtop the channel.
 9 Q. And then it's going to flow, I believe, in the
 10 words of Mr. Lowham, flow out of the channel, onto the
 11 flood plain and down the valley. Right?
 12 A. Yes, that's what it would do.
 13 Q. Would you agree that the only way that Williams
 14 can keep either diluted or undiluted coal bed methane
 15 water within that 20-foot channel is to implement a plan
 16 of total containment?
 17 A. No, I would not agree.
 18 Q. This plan that Williams would never allow the
 19 water out unless it's undiluted, can you tell me what
 20 teeth there is in the permit as written to allow the DEQ
 21 to take enforcement action if your plan doesn't work?
 22 A. I'm tied to the channel and to the requirements
 23 of that by the order.
 24 Q. The question was, what is there in the permit
 25 as written that would allow the DEQ to take enforcement

1 calculations we're going to hear from your experts based
 2 on the assumption that you can allow diluted water to run
 3 outside the 20-foot easement?
 4 A. Yes, it is. And that's what we told the judge
 5 would happen.
 6 Q. Well, I understand that's what you told the
 7 judge would happen. But you didn't ask for, nor did you
 8 receive, the right under this order to flow the water
 9 outside that 20-foot easement, did you?
 10 MR. PALMA: Well, again, Mr. Chairman,
 11 these are legal conclusions.
 12 HEARING OFFICER BOAL: Sustained. I'll
 13 sustain the objection.
 14 MR. PALMA: Thank you.
 15 Q. (BY MR. TONER) Now I'd like to understand how
 16 this modern management plan is going to work. Are you
 17 going to have a man stationed at the reservoir outlet 24
 18 hours a day?
 19 A. No, we're not going to have a man stationed at
 20 the reservoir outlet 24 hours a day.
 21 Q. And how far is the reservoir from Williams'
 22 local office in Gillette?
 23 A. I would assume it's around 20 miles. I don't
 24 know for sure.
 25 Q. Well, if you're flowing ten CFS out of that

1 action against Williams if your plan does not work?
 2 A. I believe that if it could be shown that we had
 3 caused a measurable decrease, that there could be -- that
 4 issue could be brought up to DEQ.
 5 Q. Can you point to anything in the permit that
 6 allows the DEQ to take enforcement action against you if
 7 your plan does not work?
 8 A. If we were to cause a measurable decrease, DEQ
 9 can take enforcement action. Yes, it can.
 10 Q. The question is, can you point to anything in
 11 the permit that says that?
 12 A. You have an appeal right, and also, there's a
 13 reopener in the permit.
 14 Q. So then the injured person would have to go
 15 back and ask the permit to be reopened. Correct?
 16 A. I think the injured person would have to show
 17 that there had been a measurable decrease.
 18 Q. And this monitoring proposal that you have for
 19 making sure that your plan works, have all your gauges
 20 been functioning on Barber Creek in the short period of
 21 time that you've been operating this?
 22 A. There have been very few malfunctions. There
 23 have been a couple. But most of the time, they work very
 24 well.
 25 Q. And if you're monitoring, all that will do is

Handwritten notes and markings on the right side of page 547, including a bracket and the phrase "burden on injured person".

1 anywhere else on the chart?
 2 A. That's correct. And it wasn't that -- wasn't so
 3 much that we didn't have specific information about the
 4 crop. We felt that we had enough information about the
 5 crop.
 6 What we didn't have specific information on was
 7 things like leaching fraction. It was not -- there was
 8 some discussion earlier -- I want to address that because
 9 there was some discussion earlier --
 10 Q. We will talk about that. The 100 percent yield
 11 on the table of conservative to very liberal in terms of
 12 stringency of protection, is 100 percent something that
 13 you would apply if you really wanted stringent protection
 14 or if you were going to be a little less -- lax and not
 15 have a stringent protection?
 16 A. Protection for 100 percent yield would be
 17 stringent protection.
 18 Q. I would like to go over the permit now with you,
 19 if I could, and that's DEQ Exhibit 1. We will start with
 20 the statement of basis. Can you explain just very briefly
 21 what that is and whether it is in every permit that you
 22 issue?
 23 A. A statement of basis is intended to provide
 24 relevant information about the permit. It is background
 25 information. It also explains how we develop limits, for

1 is? And I'm also going to refer you to page 2-7, I
 2 believe it is, of Chapter 2 of the water quality rules and
 3 regulations.
 4 HEARING OFFICER BOAL: Don't need to see
 5 it. I have that.
 6 A. Page 2-7?
 7 Q. (BY MS. COLGAN) Yes.
 8 A. Okay. And your original question is what is an
 9 effluent limit?
 10 Q. What is an effluent limit? Because you've
 11 talked about setting the most stringent one so I think we
 12 need to understand what that is.
 13 A. Well, an effluent limit is part of what these
 14 discharge permits do, and that is set limits on the
 15 chemistry of the water so that they are protective of the
 16 associated standards.
 17 Q. And what does it mean that you set the most
 18 stringent limits actually pursuant to federal and state
 19 regulations?
 20 A. That's typical language. What that means is
 21 there may be cases where you're calculating effluent
 22 limits for a given scenario and you may come up with two
 23 possible limits; for example, an effluent limit that may
 24 protect aquatic life in Barber Creek for a given parameter
 25 versus an effluent limit for that same parameter that may

1 example, why we develop certain limits. It is intended as
 2 background information.
 3 Q. Is there a normal time for the existence of a
 4 permit, generally? Are these permits -- do they go all
 5 over the board or is there usually a normal time frame,
 6 period applied?
 7 A. For their --
 8 Q. For how long they're in effect.
 9 A. Oh, I see. A permit -- a discharge permit
 10 cannot last longer than five years without being renewed.
 11 We can set the terms shorter, and we did based on the
 12 watershed schedule for this particular drainage.
 13 Q. Thank you. In the facility description, which
 14 is the last paragraph on page 1 of the statement of
 15 basis --
 16 A. Okay.
 17 Q. -- there's a statement that, "The permit
 18 authorizes the discharge to the surface of groundwater
 19 produced in this way, provided that the effluent quality
 20 is in compliance with effluent limits that are established
 21 by this permit. In developing effluent limits, all
 22 federal and state regulations and standards have been
 23 considered and the most stringent requirements
 24 incorporated into the permit."
 25 Could you define for us what an effluent limit

1 protect fish and drinking water in the Powder River. This
 2 is an example. You would pick the more stringent of the
 3 two. In that case you would pick the protection for the
 4 Powder River because there's a drinking use there and
 5 there's not in the Barber Creek. That's an example of
 6 picking the more stringent.
 7 Q. Thank you. At the bottom of page 2 of the
 8 statement of basis, there is a section labeled Effluent
 9 Limits based on numeric water quality standards. If I
 10 could refer you to that.
 11 A. Okay.
 12 Q. There's a statement there that this permit sets
 13 limits, effluent limits for total dissolved solids at
 14 5,000 milligrams per liter, if I'm reading that correctly.
 15 A. Right.
 16 Q. Where does that limit come from?
 17 A. That comes from Appendix H of Chapter 2.
 18 Q. Of the rules and regulations?
 19 A. That's correct.
 20 Q. It also sets a limit for sulfates of 3,000.
 21 Briefly, what is a sulfate?
 22 A. A sulfate -- sulfate is an ion SO4, so it is
 23 negatively charged and it is just -- it is an abundant ion
 24 in geological formations, that sort of thing. At any
 25 rate, it is a naturally occurring ion.

1 A. The outfall locations are proposed by the
2 applicant and those locations would be approved in the
3 final permit as well. So we establish them in the permit
4 once they're proposed.

5 Q. Is that standard operating procedure for all
6 permits, not just this one?

7 A. It is, unless there's something particularly
8 troublesome about an outfall, which generally we're not
9 aware of from just looking at maps. Generally they are
10 proposed and approved as proposed.

11 Q. What is an irrigation compliance point?

12 A. An irrigation compliance point is used in some
13 permits as a mechanism to measure compliance for
14 irrigation parameters, EC and SAR downstream of an
15 outfall.

16 Q. Does this permit have an irrigation compliance
17 point?

18 A. No.

19 Q. Why not?

20 A. Well, we felt in developing this permit -- we
21 felt it would be easier to regulate this particular permit
22 if the compliance were measured at the outfalls.

23 And in addition to that, we just felt that it
24 was more appropriate to do in order to prevent any kind of
25 confusion about nonpoint source influences and other

1 So what's your next question?

2 Q. (BY MS. COLGAN) The permit does have an
3 irrigation monitoring point. Explain what the purpose is
4 for irrigation monitoring points.

5 A. Irrigation monitoring points are for gathering
6 downstream data below outfalls but upstream of the
7 irrigation use. And specifically we collect EC and SAR
8 data at those locations.

9 Q. And how often does this permit require
10 monitoring at the irrigation monitoring point, do you
11 recall? It is in the statement of basis.

12 A. I believe the permit requires the permit holder
13 to monitor the point daily in terms of determining whether
14 or not there is flow at that location. If there is flow,
15 sampling at least -- if there is flow from this facility,
16 specifically, then the permit requires a minimum of
17 monthly sampling of that point.

18 Q. And remind us once again at least for part of
19 the reason for not using an irrigation compliance point in
20 this permit.

21 A. Well, the Water Quality Division simply felt
22 that the permit would be more straightforward in terms of
23 potential enforcement if the effluent limits were set at
24 the outfalls and there was not necessarily any need for a
25 downstream compliance point in this permit, because as

1 discharges and that sort of thing. It was just more
2 straightforward.

3 HEARING OFFICER BOAL: Miss Colgan, find a
4 good stopping point and we will stop for the lunch recess.

5 MS. COLGAN: I think this is as good as
6 any, Mr. Boal.

7 HEARING OFFICER BOAL: All right. It is
8 almost 12:00. What we will do is we will recess until
9 1:00, and then we will reconvene.

10 And Mr. Thomas, you're doing much better.
11 You're not as nervous now, are you?

12 THE WITNESS: I appreciate your advice.

13 HEARING OFFICER BOAL: You know, nobody is
14 going to go to jail in this room today, and I can't always
15 say that. So you're doing great. Appreciate that. We
16 will see everybody at 1:00.

17 (Hearing proceedings recessed

18 12:00 noon and reconvened

19 1:00 p.m., August 14, 2006.)

20 HEARING OFFICER BOAL: Mr. Thomas, you
21 remember you're under oath.

22 Miss Colgan, the last question you asked, you
23 verified there was no irrigation compliance point within
24 the permit and you asked Mr. Thomas why and he gave his
25 explanation.

1 originally proposed it appeared that the applicant can
2 meet those limits at the end of the pipe without any need
3 for in-stream dilution or anything of that nature.

4 Q. Is there more than one discharger upstream of --
5 from Mr. Maycock's ranch?

6 A. As far as I know, yes.

7 Q. And what happens when there's more than one
8 discharger upstream of an irrigation compliance point?

9 A. Well, if those upstream dischargers are also
10 upstream of that subject irrigation compliance point, then
11 that can lead to complications in enforcement if, for
12 example, flow is present at that irrigation compliance
13 point but it is not entirely clear from which outfalls
14 that flow is originating. So that's what can happen.

15 Q. Has that been a problem for DEQ in the past?

16 A. In some cases it has.

17 Q. Does it result in an efficient and quick
18 solution to the problem of determining who is responsible?

19 A. Probably not the most efficient nor the
20 quickest.

21 Q. Having participated in the Schwartz case, do you
22 think it would be an overstatement to say it is
23 practically impossible?

24 A. I don't know if I would say it is practically
25 impossible. The Schwartz settlement permits, even though

1 A. Correct.
 2 Q. And that was 1.5 concentration factor use?
 3 A. The method currently used.
 4 Q. And under that same method what would the SAR
 5 be?
 6 A. Under the default method we would cap the SAR at
 7 10.
 8 Q. I have some questions about the way the SAR was
 9 set in this matter. As I understand it, you set the SAR
 10 so that the resulting soil would fall in the no reduction
 11 in infiltration category?
 12 A. Correct. That was the goal.
 13 MR. TONER: We will offer Exhibit 107 at
 14 this time. I believe it has been stipulated to.
 15 HEARING OFFICER BOAL: 107 is admitted
 16 into evidence.
 17 (Maycock Exhibit 107 received in evidence.)
 18 Q. (BY MR. TONER) As I understand it, when you set
 19 the SAR limit for the Barber Creek permit, you started at
 20 the 3,000 desired soil salinity and then you sort of move
 21 upward to the line and figure out where that's going to
 22 intersect and that's what you set as the SAR limit; is
 23 that right?
 24 A. That's correct, that was the method used for
 25 this permit.

1 yes.
 2 Q. So the goal of no reduction in infiltration is
 3 not achieved by these permit limits under these specific
 4 site conditions, is it?
 5 A. I would say that, right, if this is the water
 6 that was going to get applied to the fields on its own,
 7 then that particular goal would not have been achieved,
 8 that's correct.
 9 Q. Now, is this another flaw in the DEQ's
 10 methodology that Dr. Munn and Dr. Paige had pointed out to
 11 the DEQ?
 12 A. They characterized that as a flaw, yes.
 13 Q. And do you agree with that statement?
 14 A. I would say it is a complication that has to be
 15 taken into account in setting this up.
 16 Q. DEQ has not taken -- did you say complication?
 17 A. Yes, correct.
 18 Q. -- into account in setting effluent limits to
 19 date?
 20 A. That's correct. It is proposed under the new
 21 policy, and this permit is not -- does not set a sliding
 22 SAR limit. It sets a static SAR limit and a static EC
 23 limit.
 24 Q. Wouldn't you agree that the appropriate
 25 methodology would be to set a sliding SAR if you want to

1 Q. Can you take Exhibit 107 and do like you did in
 2 the previous exhibit and mark with the letter -- with a
 3 circle and the letter P for permit where the permit
 4 effluent limits are on Exhibit 107?
 5 A. Okay.
 6 Q. And then would you also mark the area of 17.5
 7 SAR and 2255, which are some numbers that have been used
 8 by Williams as the quality of the effluent being produced,
 9 and would you mark that with the letter E?
 10 A. Again, 2250 for EC and 17.5 for SAR?
 11 Q. Right.
 12 A. Okay.
 13 Q. Now, where you set the permit limits, that's
 14 within the range of no reduction in infiltration, correct?
 15 A. Correct.
 16 Q. But the actual effluent that Williams is showing
 17 from the one outfall falls within the reduction in
 18 infiltration zone, right?
 19 A. The slight to moderate reduction in infiltration
 20 zone, yes.
 21 Q. So they are within the permit limits because the
 22 SAR is 17.5 and the EC is less than 3,000, but they are in
 23 the area where there will be a reduction in infiltration,
 24 correct?
 25 A. Based on this and -- yes, it being raw water,

1 achieve no reduction in infiltration?
 2 A. That would be one way to achieve that goal.
 3 Q. Next I'm going to show you a letter from
 4 Dr. Munn and Dr. Paige to Mr. Corra. This is Exhibit 98.
 5 We have already referred to it previously. In this
 6 letter, Dr. Munn and Dr. Paige say, "In our opinion, the
 7 fact that the Hanson table indicates that the water EC and
 8 the SAR balance to permit infiltration provides absolutely
 9 no justification for discharging water to the surface or
 10 channels with SAR of greater than 10."
 11 Do you agree with that statement?
 12 A. I agree Dr. Munn and Dr. Paige made that
 13 statement.
 14 Q. No, do you agree with the statement itself?
 15 A. This is currently an element of our proposed
 16 policy. And as I said earlier, this is currently the way
 17 in which we would set default limits if nothing else were
 18 known about the irrigated soils themselves. We would
 19 currently cap SAR at 10, under the false scenario when it
 20 was based on this recommendation, yes.
 21 Q. But do you agree that the Hanson table that the
 22 DEQ uses provides no justification for discharging water
 23 to surface or channels with an SAR of greater than 10?
 24 A. I don't believe that's true in all cases, no.
 25 Q. You think it is true in the case of the Barber

1 A. Well, 6800 -- using that calculation, yes, but
2 you wouldn't necessarily see a soil EC of 6800. You would
3 see a lab reading of 6800, which, if you were talking
4 about gypsiferous soils making a difference, is the
5 difference you're talking about, the difference between
6 the actual field EC versus the lab reading to characterize
7 that.

8 Q. So what the plant is seeing in that scenario is
9 4800 even though the lab reading is 6800, is that what
10 you're saying?

11 A. Essentially. There's probably some leeway in
12 there because it is -- chemistry and equilibrium is never
13 perfect. But, yeah, the idea is that in using that factor
14 for gypsum to add 2000 onto the soil EC, that's basically
15 a factor for expecting a high reading in the lab. That's
16 not necessarily what the plant will see.

17 Q. But that's not a false reading. I think you
18 might have been questioning using the terminology that's
19 an artificially high or false reading. That's an accurate
20 reading of salts to include the gypsum in the soil, is
21 that your understanding?

22 A. It is accurate with regard to what is going on
23 in the lab. Generally the issue is, you know -- the issue
24 for soil analysts as they're looking at that is the
25 question of whether or not it is accurate with regard to

1 A. Will the discharge degrade the natural water
2 quality? Is that a first step in the council making its
3 decision?

4 Q. Is that a valid first step, from your point of
5 view, in trying to set permit limits that are protected?

6 Let me ask you --

7 A. Yeah, I would say it is a valid step. I don't
8 know -- it is not necessarily the first step. The first
9 step is usually to see what is being --

10 HEARING OFFICER BOAL: Mr. Ruppert, if
11 this is your theory of the case, I think trying to get it
12 in through the testimony of Mr. Thomas is going to take a
13 long time. So if I were you, I would find another method.
14 We understand -- the Council understands the theory of
15 your case.

16 Q. (BY MR. RUPPERT) Let me ask you this. When you
17 do a Section 20 analysis, if you have the data to look at
18 natural water quality and natural soil conditions -- you
19 have already touched on this -- but you would use that
20 data if you have it and consider that data preferable?

21 A. That's correct.

22 Q. And you're familiar with Dr. Munn -- I know you
23 didn't sit through his testimony. I don't know if you
24 have had the chance to read his deposition testimony. But
25 his opinion on this matter was that what matters is the

1 what the plant is seeing. And that's not necessarily a
2 completely settled question. There's, you know, a general
3 rule of thumb in gypsiferous soils you can expect a lab
4 reading to be as high as 2000 micromoles per centimeter
5 higher than your soil EC.

6 But we don't necessarily get into that in
7 setting our limits because of the simple reason for us
8 that, if anything, what that indicates to us is an
9 artifact of the analysis itself, not necessarily any
10 change with regard to the actual salt tolerance of the
11 crop.

12 So it is not something that we necessarily get
13 into in a lot of detail in setting limits.

14 Q. So you don't really get involved in the adding
15 2; you pretty much stay with the concentration factor and
16 targeting where you want to be in terms of soil EC?

17 A. Correct.

18 Q. Now, during my opening this morning I don't know
19 if you had a chance to look at this chart, but I'm going
20 to put it up again. I don't want to go through it in
21 excruciating detail, but I am interested in getting your
22 thoughts for the council on the methodology and the
23 appropriateness and the validity of the methodology.

24 Step 1, generally looking at will produced water
25 degrade natural water quality; is that a valid first step?

1 quality of the water that comes in contact with the
2 fields, whether it is rainwater, whether it is pure CBM
3 water, whether it is mixed water that overtops a channel.
4 Whatever our scenario, his opinion was that's really the
5 bottom line is the quality of that water that's applied to
6 the fields.

7 Do you agree with that?

8 A. I agree that that's what the plant will respond
9 to, yes.

10 Q. I'm sorry, I didn't hear you.

11 A. I agree that's what the plant would respond to
12 and that's what would ultimately impact the soils would be
13 water actually reaching the fields, yes.

14 Q. And you have seen Dr. Kern's mixing
15 calculations. We have gone over those somewhat before
16 when I asked you to graph those values of 2400 EC and a
17 4.4 SAR. Do those values give you any concern as a permit
18 writer trying to set protective permit limits about
19 sodicity or risk to the soils?

20 A. Those values themselves, if they were something
21 we considered, would not necessarily generate a concern
22 with regard to impact on livestock or crop production, no.

23 Q. When you say not necessarily, is there any harm
24 or risk that you would expect from those values assuming
25 those values were accurate?

1 did you testify on Williams' behalf with respect to the
2 issue of piping this water?

3 A. I did.

4 Q. And as part of that testimony -- and I'm not
5 going to go into all of the findings of fact here. I
6 realize time is precious. Did you hear Mr. Morris'
7 question about whether piping water around Mr. Maycock's
8 ranch would solve the problem? Did you hear that
9 question?

10 A. I did hear that question.

11 Q. Did you present testimony on that very point in
12 the court proceedings?

13 A. I did.

14 Q. And what was your testimony?

15 A. Basically, we evaluated a system whereby we
16 would collect water from the entire watershed. We would
17 take water from not only Mr. Maycock, but landowners
18 upstream of Mr. Maycock, Mitch Maycock, Joe Maycock, Joan
19 and Jerry Record, collect the water in a system series of
20 pipelines, pipe the water around and off of Mr. Maycock's
21 property to other properties.

22 And what the court found was that we would
23 actually be probably disturbing more ground in doing
24 that, and also, that it was an impractical and really
25 unfeasible option for us in this area.

1 very conservative based on recent estimates we've gotten
2 on that, the cost of that was \$116 million.

3 Q. Let me stop you there, though. What if you
4 didn't treat the water? Did you look at that issue, as
5 well?

6 A. We did look at that option. We looked at the
7 option of just trying to contain and manage water off of
8 Mr. Maycock's property, which would have meant that we
9 would have taken all of the water off of Mr. Maycock to
10 all of his neighbors, which means that the disturbance --
11 from a surface disturbance perspective, the amount of
12 ground we would have taken up would have been much
13 larger --

14 MR. TONER: Excuse me. I'll object to the
15 relevancy of this testimony at this time. He's talking
16 now about production on Mr. Maycock's property. This
17 permit relates to 1.25 million gallons per day only on
18 lands that are not on Mr. Maycock.

19 HEARING OFFICER BOAL: Overruled. Go
20 ahead.

21 A. As I was saying, we looked at that option. And
22 what we came up with is that we would have disturbed much
23 more ground on those landowners around Mr. Maycock than
24 if we were to have some surface discharge down Barber
25 Creek, both from outside of Mr. Maycock's property and

1 Q. Well, let me ask you why you consider it
2 unfeasible, and then we'll get to the court findings on
3 this point.

4 A. Well, there are many issues. Number one, when
5 we put together these water management plans, we put
6 together a plan that's based on estimates. They're not
7 hard numbers. So we would have designed a system for
8 years' and years' worth of development. Because we were
9 doing it based on estimates, you're either going to
10 overdesign or underdesign the system, but you're going to
11 have to design it, and you're going to have to put it in
12 right off the bat. So in other words, you're going to
13 build this pipeline all the way through there for
14 something that you're estimating production years and
15 years into the future. So that gets to some of the
16 practicality issue.

17 It was also extremely expensive. We estimated
18 that the pipeline alone would cost \$13 million to get it
19 from the point where it began. And this doesn't include
20 all the feeder lines. It just includes the main for --
21 to get it with the pipeline, the pump stations and
22 everything else, to a point where it would be discharged.

23 And then we estimated a cost for treatment
24 within that option. And the cost for treatment over a
25 15-year period at 15 cents a barrel, which is probably

1 from within Maycock's property, than we would if we were
2 to try and manage all of that water around Mr. Maycock on
3 his neighbors.

4 Q. (BY MR. PALMA) Thank you. And did the court
5 make a finding on that particular issue?

6 A. They did.

7 Q. And let me direct your attention to Finding of
8 Fact Number 20 and ask you if that relates to the issue
9 you just testified to.

10 A. It does.

11 Q. Let's move on. Council members have that
12 finding. I'm not going to ask you to read it. But let
13 me shift focus a bit now and ask you what your
14 understanding is of the conditions under which Williams
15 is granted the right to flow water in Barber Creek down
16 Mr. Maycock's ranch.

17 A. The court granted us an easement for basically
18 the flowage of a 20-foot-wide easement all the way
19 through Mr. Maycock's property.

20 Q. And I am going to ask you to read Finding of
21 Fact 24, because I think it will capsule the court's
22 finding. If you could read that into the record, I'd
23 appreciate it.

24 A. Finding of Fact 24 reads, to reduce potential
25 impact of water flow to the Maycock Ranch, Williams