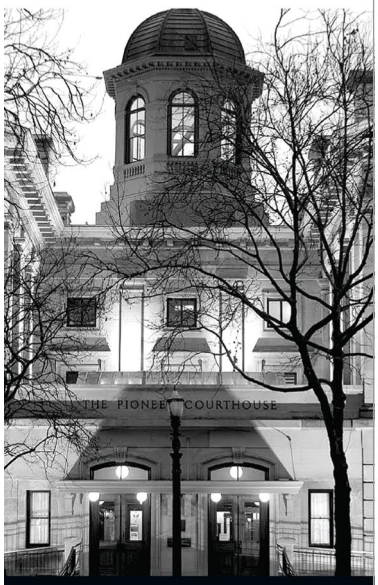

IN THE UNITED STATES DISTRICT
FOR THE DISTRICT OF NEW MEXICO

UNITED STATES OF AMERICA,

and

STATE OF NEW MEXICO ex rel. STATE ENGINEER,

Plaintiffs,

v.

A & R PRODUCTIONS, et. al.,

Defendants.

No. 01cv0072-MV/JHR
ZUNI RIVER BASIN ADJUDICATION
Subfile No. ZRB-1-0148

REMOTE DEPOSITION BY VIDEOCONFERENCE OF

ALAN KUHN, PHD

TAKEN ON
THURSDAY, FEBRUARY 11, 2021
10:10 A.M.

13212 MANITOBA DRIVE NORTHEAST
ALBUQUERQUE, NEW MEXICO 87111

Exhibit 3 - Alan Kuhn Deposition Excerpts

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A. It's evidently a difference in multipliers used.
Q. And -- and what do you mean by a difference in multipliers?
A. Well, from -- well, through June, a multiplier used had one more digit than the multiplier used for the remainder of the year and into January of 2002.
Q. And would it be the individual reading the meter itself who would be responsible for that difference?
A. I think so, yes.
Q. And why would that individual or individuals be compelled, I guess I'm wondering, essentially to read the meter in two different ways during that time period?
A. Well, I don't know that they were compelled in any way. I just think that there was a lapse in continuity, in who was reading or how they were recording, and they probably did not either have or follow the same protocol for each reading.
Q. Take a look if you would for me at Exhibit 7 again, which is the photograph of the G-336 well meter.
A. All right.
Q. Yeah. And you see on that photograph that the time it was taken, there's a reading on that meter. And it shows 0945540. You see that?
A. Yes.
Q. And then there's also on the -- on the face of

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that meter, a red arrow, and the face contains numbers beginning with zero and going to the number nine. You also see that?
A. Yes.
Q. Okay. How would you read that photograph of that meter?
A. Well, I would be a bit confused, frankly. Because the -- the dial -- the diet points to something on the order of 6.5 whatever that multiplier is beyond that. While the -- the display, the digital display reads something else.
Q. Okay. Well, let -- let's start with the digital display. Putting aside the red dial on the face of the meter, the display itself shows 0945540.
And again, you know, you hit the nail on the head because the essence of this case is it comes down to meter reading.
So that -- that's the reason for my questioning. How would you read that digital display on that particular meter as shown in the photograph?
A. Well, before I would attempt to do it, I would have to read the -- the manual on that meter.
Q. Okay.
A. Would it be appropriate right now to take a break, please?

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MR. GOLLIS: Yeah, that'd be fine. Why don't we go off the record and take a -- would you like five or ten minutes, Dr. Kuhn?
THE DEPONENT: I don't need -- I -- I don't need ten.
MR. GOLLIS: Let's go five -- five minutes, then. That'd be great.
THE DEPONENT: All right. Thank you.
THE REPORTER: The time is 11:22 a.m. and we are off the record.
(WHEREUPON, a recess was taken.)
THE REPORTER: The time is 11:28 and we are back on the record.
BY MR. GOLLIS:
Q. Dr. Kuhn, you indicated that you wouldn't want to take a stab at reading that meter depicted in Exhibit 7 without first reading the manual for that meter; is that right?
A. That's correct.
Q. Are you able to take a stab at reading that meter, the digital portion of that meter? Understanding, of course, that we don't have the -- the manual available.
A. Well, I don't see that -- how I could. I mean, I -- I don't think anybody who was looking at this without having read the manual is going to be able to really give

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you a very accurate or confident response.
Q. So in terms of looking at that digital portion of that meter, I mean, is it fair to -- is it fair to say that it appears to depict the number 945,540?
A. I can't say because I don't know where the -- the digit would be. The -- the period, so to speak. To give you ideas what -- what is the fraction and what is the whole number.
Q. Meaning if I understand you correctly that there's the chance that there's a decimal point somewhere in that number, and we don't --
A. Right.
Q. -- know where it goes?
A. Right.
Q. Okay. Based on if we look back at Deposition Exhibit 2, which is the 16-page document showing meter readings for the Well G-336, from '01 through 2016. And we were looking -- we were looking at Page 16 of that document, showing meter readings for 2001.
That first meter reading, do you have that in front of you?
A. You're talking about Exhibit 2?
Q. Yeah, which is the -- the meter readings for Well G-336.
A. Yes, I --

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Q. And we were looking at the last page of that document which is Page 16.
A. Yes, I have it.
Q. Okay. And if you look at the meter reading for January 1, 2001, the very first meter reading.
A. Yes.
Q. It shows 104680?
A. Yes.
Q. Would you agree with me that that appears to depict the number 104,680?
A. Yes.
Q. Okay. And there's no intention as far as you can tell to impugn a decimal point into that number by whoever recorded this meter reading?
A. I wouldn't have any basis to do so.
Q. Okay. If you would take a look at your report? My copy has it on Page 5. I'm interested in taking a look at Table 1. I'm not sure what page -- if that's the page you have it on.
A. Okay. Table 1 on my copy is -- is Page 4, but that's okay.
Q. Okay. Okay. Table 1 which is entitled, "Water Meter Readings Well G-336 Tinaja Quarry"?
A. Right.
Q. 2001 through 2016.

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A. Yes.
Q. Would you just generally describe for us what you intended to show in this table?
A. Well, I wanted to tabulate in one space, in one common space the meter readings that were recorded in the other documents, other exhibits that you've referred to.
And then over on the right-hand side, tried to make some kind of sense between the acre-feet that would be interpreted using one or another multipliers, and how that would total up for, you know, annual water use -- average annual water use.
If you -- and I went back through and tried several different multipliers, which is what those three right-hand columns represent. And the only one in that case that made any sense to me was the right-hand most, the 1000 column figures.
Q. Okay. So if I understand this correctly, if we look at the -- the first row in Table 1, which contains data relating to calendar year 2001.
A. Yes.
Q. Under that second column, which is entitled, "Start", you have the number 104680. And when we look at Exhibit 2, which is the meter readings compiled by C & E Concrete for that same date -- well, for January 1, 2001, that's the meter reading: 104680; is that correct?

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A. Yes.
Q. That's where that number comes from?
A. Yes.
Q. Okay. And then you look at the next column, which is entitled, "End", which I presume means the end of the year; is that right?
A. Well, the end of -- of that record, which actually, the date was, I think, January 2 of the following year. But it represents the end of the -- of the business year, let's say.
Q. Got it. I -- I -- I agree. It's -- it's actually, I was going to say, that would appear to be the meter reading for January 1, 2002, which again on Page 16 of Exhibit 2 shows the meter reading as 12472. And that's where you got that number; correct?
A. Yes.
Q. Okay. Next column on Table 1 shows the total water pumped, I guess, for the year; is that correct?
A. According to a raw reading of the meter, yes.
Q. Okay.
A. Or of -- of the recorded record, yeah.
Q. Okay. And -- and why is -- and -- and that number is 90 -- 92208, but the negative. Why is there a negative sign in front of that number?
A. It's just to show the -- the numerical

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difference between the start and end columns.
Q. Okay. So -- so you -- you calculate that figure by -- how -- how do you calculate that figure?
A. So --
Q. From the start and the end numbers?
A. So -- so dropping the end number from the start number for each year.
Q. Okay. Now the next set of columns come under the heading, "Adjusted Readings". And I take it that refers to the fact that you've now taken the raw data and made adjustments to it?
A. Yes.
Q. Okay. And for 2001 under the Start column for the adjusted readings is the number 10468000; is that right?
A. That's right.
Q. So you've essentially taken the raw number for January 1, 2001's meter reading, and multiplied it by 1000 to get that figure; is that correct?
A. That's correct.
Q. Okay. And then in the End column under Adjusted Readings, you did the same to the January 1, 2002 meter reading of 12472. You multiplied that one by 1000 as well.
A. Well, actually, for year 2001, the start -- the

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adjusted start was multiplied by 100. The adjusted end was multiplied by 1000.

Q. Oh, okay. I see that. Thank you. And you did that why?

A. Well, because otherwise, the numbers really didn't make sense. In other words, you should have a progression, an increase, in the meter readings for the year as you pump.

And if you -- if you took that number down to a multiplier of ten, for instance, it would be way too low. It would be an amount of water not even worth pumping. And so in order to make these rationally, the progression in years -- year totals rational, you have to come up with some kind of adjustment which puts that adjusted number into a reasonable range.

Q. Okay. So here's what I don't get. If you look again at the meter depicted in the photograph in Exhibit 7, the meter for this well, G-336, and you look at that -- again, forgetting the dial for a moment -- we'll talk about that in a second. But the -- the -- the digital display on that meter goes out to eight numbers; correct?

A. Well, no, seven numbers.

Q. Seven numbers. I apologize. I can't count. Seven numbers. Which means if we assume for a moment that there is no decimal point in that digital display, that

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the maximum number of gallons that that meter can show in that digital display is 9,999,999. Would you agree?

A. Well, it could roll over to -- to one million even. I'm not sure how they -- the meter is set up to -- to maximize.

Q. Okay. Well, I mean, it would exceed one million. It would go up to -- it's an order of magnitude of tens of -- of millions, which means, you know, the meter reading would be 99999999; right? It couldn't read any more than that before it would roll over.

A. Well, I think it could roll over to -- to one million. But I'm not acquainted with how these are designed and built and what kind of maximums are -- are built into them. So I think that's kind of a moot point really.

Q. Well, let -- let me ask you another question. And -- and -- and we can kind of decide if it's moot or not.

The start number and the end number, in your adjusted readings, for calendar year 2001, are both of an order of magnitude of tens of millions. And I guess I don't understand how you can reach a conclusion that the well meter reading could be to that order of magnitude when the meter itself can't read a number that high, as I understand it.

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A. Well, you're -- you're asking me to interpret what the manual says when I haven't read that -- that manual. What I'm saying is that the -- the reading, even on -- even if the capacity, the dial might be exceeded, if you take it as a numerical progression, and then that progression reaches let's say maximum of those seven digits, but you need eight digits, then you have a multiplier that you can apply to that.

And, you know, these are things about the design and the operation of the meter that I can't really speak to because I don't know how it was set up.

Q. Okay. So without reading -- without taking a look at the manual, we don't know exactly how this meter is intended to be read; is that right?

A. That would be my conclusion, yes.

Q. Okay. So based on the raw data that was provided for the reading of this meter by C & E Concrete to you, you essentially, not being privy to the manual, made an educated guess to try to make sense out of the meter readings. Is that kind of a fair description of what you did?

A. I don't consider it a guess at all. I consider it to be a reasoned analysis.

Q. Okay. Well, I -- I described it as an educated guess. But I think reasoned analysis is -- is fine. That

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makes sense to me. Okay.

And again, just one last time, so that I can try to be clear in my own mind. The fact that your reasoned analysis carries the numbers out to the tens of millions doesn't seem unreasonable to you given what appears to be the limitations of the meter itself?

Dr. Kuhn, do you need the court reporter to read back that question to you? Are -- are you still thinking about your answer?

A. I didn't know that you asked me anything.

Q. Apologies.

MR. GOLLIS: Rachael, could you play back, I guess, my last question for Dr. Kuhn, which -- which was a question?

THE REPORTER: Please stand by.

MR. GOLLIS: My apologies.

THE REPORTER: One moment.

MR. GOLLIS: Sure.

THE REPORTER: Okay. I'm going to play it back for clarity.

MR. GOLLIS: Thank you.

(WHEREUPON, the record was played.)

THE REPORTER: Were you able to understand, Dr. Kuhn?

THE DEPONENT: Yes, I took that to be his