SUPREME COURT OF THE UNITED STATES
NO. 141, ORIGINAL

STATE OF TEXAS,	)	
	)	
Plaintiff,	)	
	)	
VS.	)	VOLUME XIV
	)	
STATE OF NEW MEXICO	)	
AND STATE OF COLORADO,	)	
	)	
Defendants.	)	

TRANSCRIPT OF PROCEEDINGS

The above-entitled matter came on for HEARING before HONORABLE MICHAEL A. MELLOY, SPECIAL MASTER, held REMOTELY via Zoom, on NOVEMBER 3, 2021, commencing at 11:00 a.m.;

Proceedings reported by Certified Shorthand Reporter and Machine Shorthand/Computer-Aided Transcription.

R E M O T E A P P E A R A N C E S

FOR THE PLAINTIFF STATE OF TEXAS:
Ms. Theresa C. Barfield
Mr. Richard S. Deitchman
SOMACH SIMMONS & DUNN, PC
500 Capitol Mall, Suite 1000
Sacramento, California 95814
(916) 446-7979
tbarfield@somachlaw.com
rdeitchman@somachlaw.com

FOR THE DEFENDANT STATE OF NEW MEXICO:
Mr. John H. Draper
DRAPER & DRAPER, LLC
325 Paseo De Peralta
Santa Fe, New Mexico 87501
(505) 570-4591
john.draper@draperllc.com

-and-

Ms. Susan Barela
ROBLES, RAEL & ANAYA, P.C.
500 Marquette Avenue NW, Suite 700
Albuquerque, New Mexico 87102
(505) 242-2228
susan@roblesrael.com
-and-
Ms. Lisa M. Thompson
TROUT RALEY
1120 Lincoln Street, Suite 1600
Denver, Colorado 80203
(303) 861-1963
lthompson@troutlaw.com

FOR THE DEFENDANT STATE OF COLORADO:
Mr. Chad Wallace
Mr. Preston V. Hartman
COLORADO DEPARTMENT OF LAW
1300 Broadway, 7th Floor
Denver, Colorado 80203
(720) 508-6281
chad.wallace@coag.gov
preston.hartman@coag.gov

FOR THE UNITED STATES:
Mr. James J. Dubois
U.S. DEPARTMENT OF JUSTICE
999 18th Street, Suite 370
Denver, Colorado 80202
(303) 844-1375
james.dubois@usdoj.gov

-and-

Ms. Judith E. Coleman
Ms. Jennifer A. Najjar
U.S. Department of Justice
Post Office Box 7611
Washington, DC 20044
(202) 514-3553
judith.coleman@usdoj.gov
jennifer.najjar@usdoj.gov

INDEX

JUDGE MELLOY: All right. This is in Original No. 141, Texas versus New Mexico and Colorado. We have the same parties as yesterday evening when we broke with Dr. Jorge Garcia so, Mr. Draper, you may resume your examination.

MR. DRAPER: Thank you, Your Honor. Good morning.

JORGE GARCIA,

having been previously duly sworn, testified further as follows:

FURTHER DIRECT EXAMINATION

BY MR. DRAPER:

Q. And good morning to you, Dr. Garcia.

A. Good morning.

Q. All right. I'd like to pick up where we left off yesterday. Looking at now Demonstrative No. 4, I'd like to ask you about the city's water and wastewater systems, Doctor. Looking at this demonstrative, would you please give a summary of what those systems consist of?

A. Yes. The city water sources are from the valley and West Mesa well fields, which are in the Mesilla Basins. The East Mesa well field that is in the Jornada Del Muerto basin. The treated waste water either goes to the Jacob Hands wastewater facility. I

believe the Master visited that facility. Or some of the flows go to the East Mesa water reclamation facility for recycling that wastewater and to put it for irrigation, and some wastewater goes to the West Mesa Wastewater Treatment Plant. The treated wastewater out of the Jacob Hands gets discharged directly into the Rio Grande.

Q. Thank you. Let's turn, now, to the next demonstrative, No. 5. Doctor, what does this exhibit show?

A. This exhibit shows several things. One is in gray shading is the utility service area for the City of Las Cruces water system. Starting to the right of the graph, the green block, is the well field in the Jornada Del Muerto Basin. The dark blue in the middle is the Valley well field, and the light blue is the West Mesa well field. Each of the well fields has several markings. They cross -- the blue crosses with a white circle are the existing wells, and the black triangles are the permitted well locations. This map is similar, I believe, to Figure 1 that was showed yesterday. Also shows in dashed lines the locations of the boundaries between the Mesilla Basin and the Jornada Del Muerto Basin.

Q. All right. And in the middle of the map in

the Mesilla Valley well field, we have the number 70 there?

A. That's correct.

Q. What -- why is that marked?

A. We call that particular existing well, Well 70, to give reference to the Master because I believe he visited that location during his tour.

Q. All right. And this is -- this map is taken from the 40-year water development plan; is that right?

A. That's correct. It's adopted from the Figure 5 of the water development plan. It's a simplified map of that Figure 5.

Q. All right. Let me have brought up the original map in the 40-year plan. That's from Page 16 of Exhibit 2492. This is the figure I think you were referring to, Doctor?

A. That's correct.

Q. And what does this show that the previous version of this map did not show?

A. You can see the labels in each of those wells, and the labels correspond to the numbers as well as some of the city numbers, so we decided to clean up the map a little bit and remove those labels.

Q. All right. And about how many active wells

are there that provide water to the City?

A. Approximately 40.

Q. And are all of those wells subject to New Mexico state engineer permits?

A. Yes, they are.

Q. And are the state engineer well numbers the numbers that have been -- that are shown in this version of the map?

A. That's correct.

Q. Okay. And do the wells have conditions imposed on them by the state engineer?

A. Yes, they do.

Q. Very good. Let's look at the next demonstrative, No. 6, if you please. What does this show, Doctor?

A. This is a table extracted from the 40-year water plan. It's a list of the City's water rights. The different columns, the first column, is the New Mexico Office of the State Engineer file number, the basin, there's a water rights status column and a diversion amount to the -- in the last column of the table. The first row shows the LRG 430. That's a pre-basin right that has wells in the Mesilla and Jornada Del Muerto basin for 21,869 acre-feet. The second row in the table is the series of wells on the

East Mesa permit located in the Jornada Del Muerto Basin for maximum of 10,200 acre-feet. The third one is the LRG 3275 series, that is the West Mesa permit. It's in the Mesilla Bolson, but it's in the West Mesa well field for a maximum amount of 8,000 acre-feet. Then there is other miscellaneous smaller water rights that the City acquired over the years, and listed there in the last row is a series of wells located -- water rights located in the Mesilla and the Jornada that were acquired in the acquisition of a private water company about three or four years ago for an amount of 5,961 acre-feet. The addition of those rights is 51,179.

Q. So the numbers shown in the far right column under the heading diversion amount acre-feet per year, is that the amount actually pumped or is that the amount permitted?

A. That's the amount permitted, the maximum amount permitted by the state engineer.

Q. All right. And the total, I think you said, was the figure at the lower right; is that right?

A. Yes.

Q. Okay. Very good. Are all of the city's water rights that are used to supply the needs of the city, are they groundwater rights?

A. Yes.

Q. And do you know what the approximate percentage is of the city's diversions of groundwater as a percentage of the total metered groundwater diversions in the LRG?

A. It's about 8 percent in 2020.

Q. All right. Now, the first water right that you've listed is -- on this demonstrative is LRG-430. Is this also called the Valley well field permit sometimes?

A. That is correct. Though there is -- there are some wells -- there are some LRG-430 wells on the East Mesa, a couple of them in wells on the West Mesa.

Q. All right.

A. But the majority are in the Valley well fields.

Q. All right. Let's turn to the first appendix, Appendix A, in the 40-year plan, and if we could go to the next page in the exhibit. Do you recognize this document, Doctor?

A. Yes. This appears to be the sub-file order from the Judicial District Court granting the LRG-430 water right to the City. It describes priority, the sources, the underground waters of the Lower Rio Grande.

Q. Is this -- to your understanding, is this from the ongoing general stream adjudication in the state court?

A. Yes, it is.

Q. Does the City consider this an important document with respect to their water rights?

A. Yes. This -- this is the -- probably the original water right dating back to 1905, so this -- this is very important to the City.

Q. In fact, if we look at the lower part of the page here under "priority," we see that the state adjudication court has awarded it a 1905 priority; is that right?

A. That's correct.

Q. All right. And also on this page at the bottom, is the source of water indicated?

A. Yeah. The underground waters of the Lower Rio Grande. That's the main basin in the Mesilla Bolson.

Q. All right. And that's within the Rio Grande Basin with -- with the river; is that right?

A. Yes.

Q. All right. If we look at the next page of -- of this exhibit, what are we seeing there?

A. It's a list of the wells existent at the time

of the order, also called points of diversion, and there's the location and coordinates of those location of those wells.

Q. All right. Let's go to the next page. What do we have on this page of the sub-file order?

A. It continues with -- with a description of the wells and describes the maximum amount of water is 21,869 acre-feet.

Q. And that's specified down at the bottom of the page --

A. Yes.

Q. -- Paragraph 5?

A. Yes.

Q. All right. If we look at the last line of this page and going over to the next page, that Paragraph 5 that starts out with the maximum diversion of 21,869 acre-feet, what else is notable about this paragraph in the order?

A. A basic condition of this order in this right is that in times of drought when the allotment, EBID allotment is less than 2 acre-feet, the effluent derived from the LRG-430 wells must be returned to the stream system.

Q. Now, you normally return the treated effluent from the LRG-430 wells --

A. Correct.

Q. -- to the stream; isn't that right?

A. Yes. That is done anyway, other than the small amount recycled in the East Mesa plant. The rest of the effluent --

Q. But this --

A. -- arrives to the river.

Q. Okay. But this makes it a legal obligation under the circumstances set forth in this paragraph?

A. That's correct. Yes.

Q. Okay. All right. Now, you also mentioned the East Mesa wells. If we could go back to Demonstrative No. 6 that we looked at earlier, in this -- in the second row there, is that -- is that the East Mesa well permit designation?

A. That is correct. The series -- the number series are indicated in the first column.

Q. All right.

A. Those are in the Jornada Del Muerto Basin.

Q. All right. Let's look at Exhibit B to the 40-year plan. I believe this contains those. It's on Page 11 of New Mexico Exhibit 2491. Is this appendix referring to the East Mesa wells?

A. Yes. This is Appendix B of the plan is the East Mesa permit and wells in the Jornada Del Muerto.

Q. All right. Let's go to the next page of the exhibit, please. This is a letter from the state engineer; is that right?

A. Yes. To Mayor Ruben Smith in February of 2002?

Q. All right. I'd like to highlight the first two lines of the letter and ask you to tell us what is referred to in those two lines?

A. The state engineer sends a letter to the mayor indicating that there is a number of applications that were approved. Those were 12 applications were approved, 2 were denied, and 5 were modified. Originally in 1981, there were 14 applications of a thousand acre-feet each filed with the state engineer so that was 14,000 acre-feet. What this letter does is says after analysis by the state engineer, they curtailed or removed two of the proposed wells. They approved seven of them, and the other five, they reduced the amount of water that could be extracted. Those were mainly on the east side of the basin.

Q. All right. And east side of the basin, that is primarily the Jornada area; is that right?

A. East side of the Jornada Bolson, yes.

Q. Okay. All right. Let's look at the next

couple of sentences in this letter, if you please. What is the state engineer imposing on the city in that section of the letter?

A. Well, all of the permits -- I'm sure we'll be reviewing some of them today -- have a condition of water conservation, practices, measurement, and other conditions. All permits have certain conditions. This paragraph is summarizing some of the conditions that are being put on this permit. There's a reporting requirement to the state engineer on an annual basis as to what progress has been made on water conservation.

Q. All right. We'll look at the actual conditions here in a second, but let me ask you to look at the last sentence there of this paragraph. What does that refer to?

A. I believe at the time the state engineer requested that at least the residential per capita where it was reduced to some southwestern average. I believe that was done and submitted to the state engineer subsequent -- in subsequent -- in 2005, because it's within three years so the City had to really ramp up their conservation program as part of this condition.

Q. All right. Let's turn to Page 13 of this

exhibit, please. What do we see here on this page of the exhibit, Doctor?

A. This is the -- I mentioned a minute ago that there's conditions of approval. This is the detail. So when the letter is attached, there's -- the letter contains this document that has a series of conditions that must be met.

Q. So these are the actual legal requirements that were referred to in the letter?

A. That is correct.

Q. All right. Do we see a priority as part of this here on this page?

A. Yeah. So -- so it lists, again, the points of diversion or permit numbers, the priority, the source of water is the sub-basin of the Lower Rio Grande, which is the Jornada Del Muerto, and then it lists all the points of diversion with the appropriate locations, township, range, et cetera.

Q. Let's turn to the next page, if you please. Doctor, in the third -- well, the first three lines of this page, what do you see specified there of importance?

A. Every -- every permit has a maximum amount of water, so this states that the amount of water granted to the City is 10,200 acre-feet. I described earlier

that some of the permits were curtailed on the east side of the basin so this table shows the amount of acre-feet per annum that can be pumped out of those wells. So this is the maximum -- there's not only a maximum total amount, but there is a maximum amount that can be pumped from each individual point of diversion, and that's listed on this table.

Q. And you have applied for a thousand acre-feet from each well, and -- and we can see that some of those were cut back from that request?

A. Yes.

Q. Okay. All right. And then if we go to the bottom paragraph on this page, that's Paragraph No. 4, I believe, what is contained in that paragraph?

A. The Jornada Del Muerto is basically an isolated basin separate from the Mesilla Bolson, so the -- the amount of water required for offsets is really small. It shows an amount -- they calculated an amount about 644 acre-feet after a hundred years so -- and that's what this paragraph indicates.

Q. That's because this is an essentially separate basin; is that right?

A. That's correct, yes.

Q. And what becomes of the treated effluent that is provided to the City from this basin?

A. Well, the basin is pumped. Water goes to customers. Customers send wastewater to the main plant so technically, this -- this wastewater moves into the Mesilla Bolson, we call it imported water into the Mesilla Bolson after it's been treated and discharged into the river.

Q. And where is it discharged into the river?

A. At the Jacob Hands wastewater treatment plant.

Q. And is that a facility that the Special Master visited on the tour?

A. That's my understanding, yes.

Q. All right. Let's turn our attention to the West Mesa wells that you mentioned. This is in Appendix C of the 40-year plan, so it's up -- begins on Page 17 here of Exhibit 2491. The West Mesa wells are the ones we saw on the initial maps we looked at this morning on the left-hand side?

A. It was the left-hand side of the map.

Q. Okay. If we go to the next page of the exhibit, what do we have here?

A. This is the permit that was applied for and was returned with approval and indicates the -- the approval of 8,000 acre-feet diversion from the West Mesa.

Q. All right. And it has a priority date of -- of what?

A. '81.

Q. All right. Which was its date of filing?

A. Correct.

Q. All right. And if we turn to the conditions of approval, which, I believe, is Page 20 of the exhibit, we see these basic aspect of the water rights set out there?

A. That's correct. It lists the permit numbers, the priority, the source, in this case is the Mesilla Bolson, and it lists the seven points of diversion, locations of the seven points of diversion.

Q. All right. Is there a condition requiring offsets in this permit?

A. Yes.

Q. If we go to the next page, I think we may see that in Paragraph 3. Am I right about that?

A. That's correct. This permits require a one-to-one offset meaning that the City has to demonstrate that has acquired or there's return flows in an amount of 8,000 acre-feet before they can exercise this permit.

Q. So this is quite different from the offset conditions that we just saw with regard to the East

Mesa wells in the Jornada Del Muerto Basin; is that right?

A. That's correct. This is the river connected well field, therefore, there is a one-to-one requirement of offsets.

Q. If we look at the next page of the exhibit, Paragraph 6, is -- is this the specific requirement that we saw referred to in the cover letter?

A. That's correct. All the permits have the condition of conservation reporting on an annual basis so this -- this is that provision. You will see this in all of the permits.

Q. All right. And does -- and the next paragraph, Paragraph 7, what is the condition placed on the City there?

A. The -- both the water conservation plan and the 40-year water plan need to be updated as a minimum every ten years.

Q. All right. And Paragraphs 9 and 10, are those the standard requirements of the state engineer that all wells be metered and that those readings be submitted to the state engineer?

A. That's correct. Metering requirements are in all the permits.

Q. Very good. Okay. Let 's turn to

Demonstrative Exhibit No. 7, please. Doctor, what do we see on this demonstrative?

A. This is a simplified map of -- of the location of the wastewater treatment plants, but it also shows, in schematic form, the Jornada Del Muerto Basin to the right and the East Mesa well field that we saw before. You see the Valley well field in darker blue. You see the river. You see the West Mesa well field. And then in the green blocks indicate the approximate locations of the three wastewater plants. The East Mesa water reclamation facility to the right of the map, the wastewater treatment facility, also called the Jacob Hands wastewater treatment facility, in the middle, and the -- at the west -- on the west side or left side of the map, the West Mesa wastewater treatment plant. The main plant, the large plant, is the wastewater treatment facility that the Master visited, and that is in the middle of the map.

Q. All right. And this is a simplified version of a figure that appears in the 40-year water plan?

A. That's correct. Figure 2, I believe.

Q. All right. Let's take a look at Figure 2 of the 40-year water development plan. That's in New Mexico Exhibit 2492 at Page 5. What do we see here,

Doctor?

A. Well, this is basically the same map with -- with a little bit more information. It shows in -- in round circles or some white squares the -- the water supply, the water systems. There is green arrows showing the wastewater of those systems going into the respective plants, and there's also some blue arrows showing water going into the water system so it's just a schematic that shows the flows, but we removed those so that it would be a little simpler to see.

Q. All right. You mentioned the return flow plan. Is that -- of the city. Is that part of the 40-year water development plan?

A. Yes. It's one of the appendices.

Q. And that appears in Appendix New Mexico 2493 at Page 2. There's Page 1 and Page 2. Can you briefly describe what -- what the return flow plan of the city consists of?

A. The return flow plan outlines the framework for the calculation of return flows to the river. This document is an '09 document, but it sets off the calculations and the parameters that go into the reporting -- annual reporting to the state engineer of those return flows.

Q. Very good. Let's look at the discharge

permits, if you please, relating to the Jacob Hands facility. This is Exhibit New Mexico 955 and 944. If we start there, we have both of them, actually, at least the first page of each one. What are these exhibits, Doctor?

A. This appears to be a cover letter in the actual NPDS, the National Pollutant Discharge Elimination System, permit for the city. It was sent to the new director in this year, May of this year. This is the approval from the Environmental Protection Agency to discharge wastewater into the river at the plant that the Master visited.

Q. This is what we normally call an NPDES permit?

A. Yes.

Q. Okay. All right. Let's turn now to New Mexico Exhibit 957, Page 1, if you please. Doctor, what is shown on this exhibit?

A. This is a summary of the last five years of both diversions and returns at the Jacob Hands wastewater plant. The first column is the total diversion. That would include pumping on all of the well fields. The next column is the pumping only on the Jornada Del Muerto Basin, and then the remaining three columns -- or the next one is the Mesilla or the

LRG-430 pumping from the Mesilla Basin. In those years, there was no pumping from the smaller rights of 389 and 399, that's why you show zeros. The next column, JWC, stands for the former Jornada water company that was acquired a few years back. Those wells are being pumped, they're owned by the City now, and those are the amounts of water pumped from those wells. The next column shows the total Mesilla diversions with an average from the bottom being about 16,000 acre-feet -- 16,400 acre-feet. The last column is the total discharge that is the effluent, the wastewater -- treated wastewater that reaches the bed of the river for each of those years. All of these measurements, of course, are in acre-feet per year.

Q. In that upper -- upper part of that column on the right, what does JHWWTF stand for?

A. Yeah. That is the Jacob Hands Wastewater Treatment Facility.

Q. Let me ask you a couple of questions about this table, if I may. Which -- first of all, are these the permitted amounts that are listed here or the actual diversion amounts?

A. Actual diversion amounts

Q. So these are the actual diversion amounts, and what was the -- what's the total of those amounts

on average?

A. Well, the -- the diversion amounts on average are about 21,000 acre-feet. You would notice that from 2016 to 2020, they've been pretty level, increased a little bit after we acquired the water company, but in this period, we added, I estimated approximately 4,000 customers. We had acquired 3,500 customers. So you can see that water offsets, this increasing customers, is the conservation because the diversion amounts are pretty stable.

Q. Which of the water rights is shown by this as being the one that the City relies on most?

A. LRG-430.

Q. All right. That's the City's pre-basin 1905 water right?

A. Yes.

Q. Okay. Very good. The final column are the acre-feet of treated return flows to the river; is that right?

A. Yes.

Q. Okay. All right. This exhibit also has some additional pages as part of it. Let's just take a quick look at the next page. What is this detail that is shown on this -- on this page, Doctor?

A. The -- this was a massive spreadsheet that

the first exhibit -- the first page was the summary. For each of those years, you have the list of all the wells and all of the years, and then the last column is the total. So -- so the -- the basic data or the raw data that generated the summary table is shown in the remaining pages of this exhibit.

Q. All right. And that includes the backup not only for the diversions, the actual amounts pumped, but also for the discharges to the river?

A. That's correct. The discharges are outlined at the bottom of those tables.

Q. All right. We've looked at various permits that the City relies on. Who issues those permits?

A. State engineer.

Q. And do they all have conditions that require monitoring and reporting of amounts pumped to the Office of the State Engineer?

A. Yes, all of them.

Q. Let's turn to Exhibit New Mexico 0949, if you please. What is this? I would mention there's some check marks on this exhibit, but we're not using it for that purpose. We'll make no reference to those. But what -- what is shown in the printed part of this exhibit?

A. This appears to be the report the City

submits to the state engineer for all of the wells -- all of the active points of diversion. This happens to be December of 2020. It outlines the well -- the well name, the LRG number, of course the location, starting and ending points of the -- of the meter, the totalizing meter, and then the production in gallons and conversion to acre-feet. It also shows an accounting of some blow-off water in case some of the wells have blow-off water before they go online. It's a design feature in some of the facilities.

Q. I see. Now, you -- you have the results production in gallons in the third column from the right. You also have acre-feet in the final column to the right. What -- what is the number of gallons in -- in a single acre-foot?

A. 325,851. Some people use 326,000.

Q. But the exact is 325,851 gallons per acre-foot?

A. Yes.

Q. Okay. Now, how is the data shown in this exhibit generated and recorded?

A. The vast majority of the diversions are monitored by meters that are connected to a supervisory control and data acquisition system, SCADA. Those meters log the flow out of the well on a

realtime basis. On those wells is go to the database, and for a given month, you'd compile and report those readings, but -- but the readings on the -- on the majority of the large wells are realtime. Of course, the wells, those meters are calibrated and checked periodically, but there is realtime logging into the supervisory control system database. There's other features of the supervisory control system, as well, that -- that are in each of those facilities.

Q. So you're able to keep tabs on most of the wells on a realtime basis?

A. Yes. The supervisory control system not only controls the wells based on tank levels. You assign a tank to a well, and when levels change, the wells start and stop automatically. But we also have the -- the software in the interface, the human interface, to -- to these wells and well fields through our dispatch system so we have 24/7, 365 monitoring of all the facilities with screens so you can see which wells are up or down or there's an intrusion around. It's a very elaborate supervisory control system.

Q. Do all of the wells that the City is operating, I think you said there were about 40 of them. Do all of them have this -- this technology mounted on them?

A. No. About -- when we showed the summary, I showed some of the Jornada water company wells. Those wells were acquired a few years back are being retrofitted to the new technology so those are not, but they represent only about 10 percent of the diversion. So I can say that 90 percent of the diversion is managed in a realtime basis.

Q. For how long has the City had this type of functionality on its system?

A. Well, I think yesterday, I described that one of my projects was starting a computer-based supervisory control system in the early '90s, so that was the very beginning. The systems were very rudimentary, of course. The City has progressed and improved those systems over the years many times, and, now, we have pretty much state-of-the-art technology on computer and supervisory control monitoring of the facilities.

Q. Now, we've been talking about metering and monitoring of the wells that produce the water for the City's use. What has been done on the customer's side with respect to metering?

A. Yeah, yesterday, I mentioned that one of the last projects I did working with my staff is the implementation of performance contract for advanced

metering infrastructure. So on the customer side, we went ahead and replaced more than 37,000 meters, essentially all of the residential and the majority of the commercial customers, to realtime measurement in the very advanced technology. So that allows the customer to -- to monitor their water use, to be able to manage their -- their -- their consumption, and there's -- the interface allows the customer to -- to be able to receive notifications or the utility to inform the customer that they may have a leak. It's continuous monitoring of a system, and as part of that installation, we also put in place leak detection system on the distribution system. You can do that by -- by putting sensors on the -- on the surface lines throughout the system, so that network of 37,000 meters generated a network of monitoring for leak detections. I understand the City has already made repairs to -- to lines that you can see the leaks on the street. There was a leak, but you couldn't see any leak from the street. So I think that's a state-of-the-art technology that will take us very far in terms of water conservation.

Q. Very good. And replacing 37,000 individual meters at the -- at the customers' points of use, how much did that cost the City?

A. Well, the -- the project is really a 20-year project. The initial cost was a $20 million investment, but with the leak avoidance and the accurate measurement, we showed that financially, we could pay the -- pay off the system in 16.4 years. So -- and it's a performance contract meaning an agreement with the private sector so every year an audit is made, and the system -- the performance of the system is monitored on an annual basis for 20 years to keep that -- that accuracy and reliability of the system.

Q. And has -- has all of that activity served to conserve the water that is used by the City?

A. I believe so. We've reduced our consumption, but more so, I've seen the latest number of unaccounted or non-revenue water. It dropped from 16 percent to 11 percent.

Q. I see.

A. So that's in two years.

Q. Very good. That's water that disappears in the transmission system?

A. It's either leaks or -- or -- or inaccurate measurement, of course.

Q. So you've been able to reduce that situation?

A. Yes.

Q. And in terms of a customer checking their water use, is that something that can be done, say, from a person's cellphone even?

A. Yes. Yes. The interface, you can log into your account. In fact, I logged into my account this morning to see, check my -- my water use.

Q. All right. Now, we've talked about the efforts that the City makes to be sure that it's monitoring its wells and complying with its permits, but has the City ever exceeded its -- its permitted amounts on -- on any wells?

A. It -- yes. It doesn't happen very often, given that -- that we have a technology of monitoring, but it can happen within the last month of the year if -- if a well is not shut down, it's -- it's working automatically against filling a certain tank, and it has happened occasionally and on the East Mesa particular.

Q. I see.

A. On the Jornada Bolson.

Q. When that -- when that type of situation arises, what happens first?

A. Well, if the -- if the utility discovers that, it gets reported to the state engineer, or if the state engineer flags it first, they will send

immediately a letter and contact the utility to -- to discuss how the situation will be remedied.

Q. Let me ask to take a look at Exhibit New Mexico 0947, Page 4. We have a letter here dated May 31st, 2017. Can you describe for the Master what this is?

A. Well, I believe this is the letter to my staff, the director of water -- the deputy director of water, Ms. Widmer, there had been an exceedance on Well 41 of 99.66 acre-feet.

Q. All right. There was a limit on that particular well; is that right?

A. 800.

Q. And what -- what then happens to resolve the matter?

A. The City has to propose a corrective action. In this particular case, the exceedance was basically due to the fact that there was another well half a mile south permitted for 800 acre-feet that had problems with the screen so it was shut down. So in essence, the total amount that would have been pumped at the basin was not exceeded, but the particular one well was exceeded by 99 acre-feet. I believe there was some communication with the staff to attempt to see if we could temporarily increase the amount of one

well because the other well was down, and the response of the State Engineer was that without a full administrative process, we couldn't do that. So there was an amended corrective action that I believe a letter that I sent saying that we would go ahead and reduce the pumping on the following year by 99 acre-feet.

Q. All right. Here on Page 2, we have a letter which suggests the alternative you just mentioned; is that right?

A. Yes.

Q. But the state engineer did not accept that; is that right?

A. Not without a full administrative process, simply a public process where you have to let the public know that you -- you are proposing even temporarily to increase one diversion in lieu of another diversion in place.

Q. And we see the final letter on the right-hand side of the screen here, Page 1 of Exhibit 947, confirming that you had resolved that, as you just testified?

A. That's correct. That we were going to reduce the pumping the following year.

Q. You mentioned that a further process would be

necessary to combine wells and remove the individual well limit. If the City wants to do something like that or replace a well, does it have to go through a procedure with the state engineer?

A. Yes. You have to file an application for a change of water right.

Q. Let's look at Exhibit New Mexico 0881, Page 1. What do we have here on the screen, Doctor?

A. That is the standard form that you -- you fill or for the state engineer to change -- to make a change in the water right. This particular one is a form we submitted to replace one of our valley wells.

Q. I see. And what happens when you submit this to the state engineer?

A. The state engineer evaluates the -- the submittal. Sometimes they may come back and ask for additional information if there's -- something is not clear in the proposal, then the state engineer will send you an advertisement to let the public know that you are proposing to do, in this case replacing a well.

Q. Just had brought up on the screen Page 31 of the exhibit. Is this the letter effectuating that part of the process that you just mentioned?

A. That's correct. Have to advertise for three

weeks the language of what is being done, and that is prepared by the state engineer and must be attached to this letter.

Q. All right. If we look at the next page of the exhibit, I'd like to look at the next page, and that's Page 32 and 33. Very good. What do we have here, Doctor?

A. Well, it has the notice to the publisher at the bottom. After the publication is done, there has to be an affidavit, and you have to demonstrate that you actually did that.

Q. Do we see at the top left here on the screen, the state engineer at the beginning of the transmittal specifying the exact newspapers that -- in which the notice will be published?

A. Yes. Usually it's the papers of circulation.

Q. So there's a publication requirement, it seems to be; is that right?

A. Yes.

Q. Does the state engineer take pains to make sure that somebody doesn't publish their application in a little-known newspaper?

A. That's correct. You can't do that.

Q. All right. Over on the Page 33 here, that last paragraph, what -- what is that part of the

notice?

A. Well, that -- that is the information that a potential protestant or someone that has an issue with the proposed, in this case, replacement of this well. They can -- they can file a protest with the state engineer, and these are the instructions as to how to do that basically.

Q. All right. What happens if somebody does protest a well application like this?

A. If there's a protest, of course, the state engineer will let you know. There may be a possibility of resolving the protest, depending what that is, but if you can't resolve the protest, you have to have a hearing before the state engineer.

Q. All right. What if there is no protest?

A. If there's no protest, then the state engineer does their own technical evaluation of the proposal, and then if they don't see any issues, then they approve the -- the request.

Q. All right. And did this application, was it protested?

A. No. It was not.

Q. So then the application was analyzed by the state engineer staff; is that right?

A. Yes. And then we got a notice of approval.

All we were doing is replacing the well by plugging the old well and moving within a hundred feet in the same property.

Q. All right. Let's look at the conditions very briefly on Page 7 of the exhibit. Is this the beginning of the conditions attached to the approval of the application by the state engineer?

A. That's correct. And you can see that the format is very similar to the ones we saw earlier. You have permit numbers and then the -- the source, the priority is -- this is part of the LRG-430, so we're replacing one LRG-430 well that was old and had problems with the stream. So it's the same format, and there's several conditions of approval on that.

Q. All right. It specifies there, I see, the source, and then points of diversion?

A. Yeah. This shows the existing points of diversion on that same permit, so that's what they're listing this document.

Q. All right. And if we look at Page 13, if you please. What is specified on Page 13 of the exhibit in these conditions?

A. Well, the purpose of use, place of use, of course, is utility service area and the amount of water is the cap that the 21,000 acre-feet. It

reminds you, also, of the 2 acre-foot per acre requirement that is in the sub-file order.

Q. If you could speak a little bit louder or get closest to the microphone. That would help, Doctor.

A. Yeah. This bottom of the permit declares the amount of water but also the sub-file order regarding the requirement of discharge when the allotment is less than 2 acre-feet.

Q. Very good. Now, this process that we just stepped through, is that a process only applied to Las Cruces or -- or to cities by the state engineer?

A. All water -- all -- for any water user. I'm sure wells in other mutual domestics and private water systems have to go through the same process.

Q. All right. Let me turn us -- our attention to Demonstrative No. 6, please. I'm sorry. I should have said 8. There we go. What is shown on this demonstrative, Doctor?

A. It's an outline of some of the elements of our water conservation program.

Q. Would you step through those elements briefly?

A. Yes. I'll start with some of the more -- the recent changes since -- since the last water conservation -- since -- since the water conservation

-- 2012 water conservation plan. More recently, the City has implemented inclining block rate structure. I believe Mr. Balliew wrote up the fact that one of the important or most important tools in the conservation is pricing, and I have to agree with him because inclining block rate charges more for more use at a higher rate, and it works. It does reduce the use. It limits the customers to their basic uses, but it really controls the high users, and it costs much more to really use a lot of water. So it is a very important conservation tool. There's different designs of that rate structure. I believe ours is really different than El Paso's, but it's the same purpose and same objective is water conservation at higher levels.

Q. Okay. Let me ask you about that, Doctor. Exactly how does an inclining block rate structure work? What does that mean? Is that a -- well, if you could say a little bit more about that.

A. Well, you have a certain amount of water that you buy. In our case, it's about $13.60, I believe, the access charge. The base charge gives you 3,000 gallons, three units, because we measure water in thousand-gallon units. Then you have -- if you use from another 10,000, so you go to 13,000 gallons, you

-- you pay a little more, might be $2 and so, and then you go for another 10,000 gallons, that costs more per thousand gallons, and then up to -- after 23,000 gallons, you pay much more per thousand gallons. So -- so it's not the same rate. It's a rate change on each block, and when you have -- you know, it depends how -- how steep your rate structure is, but it is -- it is a very good tool to limit residential use to reasonable amounts.

Q. All right. I -- I stopped you in the middle of your description of Demonstrative No. 8. If you could go ahead.

A. Well, I described the second bullet, the metering and leak detection system. I think that is providing very good results. We have the -- the program contains elements of watering restrictions for odd/even watering on certain addresses on certain days, times of day for watering, et cetera. We have updated some of the elements of the city ordinance in the last few years. Reclamation -- I measured the reclamation facility, approximately 500 acre-feet of water are reclaimed or reused, and that supplies some city parks, one high school, and the City sold some water to a golf course. And then the -- the utility conservation program has done a lot of emphasis on

public information and public education. There is a series of seminars on there called the latch and lean program that are taught every year. Unfortunately with the pandemic, that stopped, but for many years, that was the case. We have utility developed some years back a demonstration garden where you can show what plants can be grown with very little water use so -- and then very popular annual water festival for 3rd and 4th graders. That was done for about, I believe, nine years until the pandemic hit. I understand that in 2022, they'll resume the festivals.

Q. All right. You mentioned the city ordinance prohibiting waste. Tell us a little more about that and -- and what enforcement actions are necessary using that?

A. Well, the ordinance has two provisions. One is, of course, there could be fines if there's excessive water, you know, like water running down the streets or if that customer does not make corrective action of a problem that is identified. There are also some administrative penalties that can be imposed. They're much smaller in the 20 to 50 dollar through the utility bill if the customer doesn't want to work with the utility in trying to minimize their use. I think our customers have been very good in

responding to -- to the program and the water audits that are done. The -- the metering and leak detection system has already allowed staff to -- to call a customer and say you do have a leak in your house, we're letting you know you have continuous flow of anything more than 5 gallons an hour can be detected in the system. So that proactive approach is really -- is going to have tremendous benefits for that water system.

Q. And have you found the population to be cooperative in terms of addressing problems with waste or leaks?

A. My understanding is that -- that the need to take someone to municipal court because that's what is required to the penalties in the ordinance. Has not been necessary, but the process is there if someone does not react to something that is very serious. I think the staff interaction with customers has been very positive and proactive on part of the utility.

Q. All right. Can you tell if the City's conservation efforts have been effective?

A. Yes. Yes.

Q. Let me -- let me bring up an exhibit that I'd like to have you look at as you answer my question. It's Exhibit New Mexico 957, Page 1, which we looked

at earlier. This is the one that has the data on diversions and discharge that you discussed in detail earlier. Can you draw any conclusions with respect to the effectiveness of your conservation efforts from this tabulation?

A. I described earlier that from '16 to '20, we had an increase of approximately 4,000 customers with the acquisition of company, and you see that the fluctuation in the diversions are not that large. So -- so that tells me the program is working, and there's been reduction in the gallons per capita day. Back in 2000, we were at about 255 gallons per person per day, and I believe the 2020 number is 173 of total diversion.

Q. Let me draw your attention to part of the 40-year water development plan in this regard. If we look at New Mexico Exhibit 0956 at Page 73, this is part of Appendix P of the 40-year water plan, and we also have here Page 81 following that cover sheet. Could you describe what we are showing here?

A. Yes. That was what I was trying to -- to -- I was talking about, the -- the fourth column, the GPCD, gallons per capita day, in 2000 were really high, 255. The plan shows the decrease in the first ten years up to 191. Like I mentioned earlier, we're

at about 173 right now. The last column is -- also shows the -- the wastewater discharge at the Jacob Hands plant, and you can see that number has increased, but it is in the -- in the same order of magnitude so -- so even with growth, you know, you have -- you have a very -- you have increases in your wastewater flow, but they are not drastic. They are all in the -- in the range. So any other question?

Q. All right. And let me turn your attention to how this City has been planning for meeting the needs of the City in the future. Is it fair to say that that is the major purpose of the 40-year water development plan is to plan for providing the water necessary to meet the City's needs in the future?

A. The 40-year water plan is the main document that -- that provides guidance for the water planning, water conservation, the water rights, and provides you estimates of -- of population projections. Underneath the 40-year water plan, you have a 20-year water wastewater master plan, which outlines the infrastructure needed for that growth over the next 40 years, and within the water wastewater master plan, you have the five-year capital improvement plans that are executed on, again, increments of five years.

Q. All right.

A. But there's three layers of planning basically.

Q. One item that we haven't touched on in your testimony yet is the fact that -- and if we could look at Exhibit 943, New Mexico 943, is the fact that the City has, in the past, purchased some acreages within the EBID service area; is that right?

A. That is correct.

Q. And is that -- are the locations of the various parcels shown on this exhibit?

A. Yeah. This exhibit shows some of the locations of some of the parcels that have -- the City owns and have the surface water rights. The -- there is two inserts in this figure that -- that -- there's a property called the Rincon, and that's further north, but it's been brought into this map so I want to clarify that. And then the Santa Tomas property is another one where we have surface water rights appurtenant to that land, and that is southwest of the city. Some of the earlier maps that we showed show the location of the Santa Tomas.

Q. All right. And does the City pay an assessment to the Elephant Butte Irrigation District every year for these lands?

A. Yes. The City pays approximately $122,000 a

year to keep the water rights. It's a tax on the EBID rights.

Q. And I'm just showing here Exhibit NM-0946. Is this an example of the type of payments that you're referring to?

A. Yes. And that -- this exhibit is a summary spreadsheet of the -- of the properties, the properties are listed, the taxable acres, the -- all the information that -- that you have with EBID, but the -- the water-righted acres is what is -- water rights that you have in this particular case, the total is about 1,355 water-righted acres within the district.

Q. All right. Thank you. Let me ask you why the City purchased those acres?

A. In the early 2000s, there was an attempt in the plan to -- to use surface water, potentially build a surface water plant, and try to provide some of the supply to the City through a surface water plant.

Q. Did the -- did the City do a thorough investigation of that possibility?

A. Yes. There was a preliminary engineering report prepared in 2012 by CH2M Hill, now Jacobs Engineering, that outlined different locations, did the complete study. It was a very elaborate study in

costing of the plant.

Q. All right. What was the next step after obtaining that preliminary engineering report?

A. The preferred alternative, which had the plant located on the Santa Tomas side, was going to cost the utility approximately $152 million so -- so the finances did not work for the treatment of about 5 million gallons a day for 152 million with a customer base of -- of -- now, we have 37,000 customers, but we have less then. So the finances did not work.

Q. But the -- the City continues to hold onto some of those acreages; is that right?

A. Yeah. The policy decision of the Board and the city council is that they will keep those water-righted acres and those parcels, and perhaps there is a possibility of those rights being useful in the future.

Q. All right. Are you aware of the cross-examination of Mr. Schmidt-Petersen by Mr. Leininger where he referred to the 2017 Lower Rio Grande Regional Water Plan?

A. Yeah. I was made aware of that.

Q. And specifically, Mr. Leininger referred to the Las Cruces Sustainable Water Project that was referenced in the 2003 Regional Water Plan referring

particularly to Exhibit NM-0616 at Pages 16 and 17. Are you aware of that line of questioning?

A. Yeah. I was --

MS. BARFIELD: Your Honor, I need to assert an objection, please. We're now raising Exhibit New Mexico 0616, which is not on the direct examination list for this witness so there's been no notice that this witness was going to discuss this issue.

MR. DRAPER: Your Honor, I'm just -- if I may.

JUDGE MELLOY: Go ahead.

MR. DRAPER: I'm just quoting here the rough transcript, and it mentions that particular exhibit.

JUDGE MELLOY: I'll let you ask the question, and we'll see where we are. Go ahead, Mr. Draper.

MR. DRAPER: Thank you, Your Honor.

Q. (BY MR. DRAPER) And in that rough transcript reference that I'm referring to, which is Page 71 for the record, from the Monday transcript, there was a reference to the Las Cruces Sustainable Water Project. Is that -- is that your understanding?

A. Yes. That appears to be.

Q. And we're showing here that part of the transcript, and you can see that he then follows this up with the statement, after referring to the fact that the project was no longer on the regional water plan, and he says, "And that's because the City of Las Cruces just wants to continue to pump the aquifer and not acquire additional surface water rights, correct?"

Do you -- my question to you is this reference in the transcript, do you agree with that characterization of the City's activities?

A. No. Because to me, makes it sound like we just dropped the effort without any due diligence.

Q. And did you perform due diligence to the City?

A. I just described that. And by the way, that study will cost close to half a million dollars to do the preliminary engineering report and be able to get the answers that we need to have from engineering point of view.

Q. And once the costing of the project could be done based on the engineering report, was there an option to pursue so-called sustainable surface water supply option?

A. Not financially, no.

Q. Let me turn to one last issue, if I may, and

that is, Doctor, does the City support the gathering of groundwater data in -- in the basin?

A. Yes. The City has participated with the USGS. I believe Mr. Schmidt-Petersen brought up the study for USGS monitoring. The City has been a contributor to that project since the inception of the Project.

Q. And does the City conduct some of its own monitoring of water levels?

A. Yes. For the last almost eight or nine years now, the City has conducted groundwater monitoring throughout our basin, both the Jornada and the Mesilla Bolson Basin.

MR. DRAPER: Very good, Doctor. That's all I have. Thank you very much.

Thank you, Your Honor.

THE WITNESS: Thank you.

JUDGE MELLOY: All right. Who's going to go first, Ms. Barfield or Ms. Coleman?

MS. BARFIELD: I am, Your Honor.

JUDGE MELLOY: All right. Go ahead, Ms. Barfield.

CROSS-EXAMINATION

BY MS. BARFIELD:

Q. Good morning, Dr. Garcia.

A. Good morning.

Q. To be clear, at the beginning of your testimony yesterday, we did hear a little bit about your educational history, and we did see your resume, but despite your engineering education and licensing, you're not offering testimony yesterday or today in this matter in that capacity; is that right?

A. That's correct. I'm not an expert witness.

Q. Okay. You have not been disclosed by the State of New Mexico as an expert on any level, correct?

A. Yes.

Q. Okay. Now in the very last part of this testimony, you were talking about water-righted acre, surface water rights that the City of Las Cruces holds, and the City of Las Cruces does consider itself to be a member of Elephant Butte Irrigation District; is that right?

A. Yes.

Q. Okay. And, in fact, you said you paid close to $122,000 a year to maintain those rights?

A. Yes.

Q. Okay. You just got done talking about the CH2M Hill report and the feasibility and said it would cost about a half a million dollars I think you said?

A. Yes.

Q. Is --

A. I recall it was close to that amount.

Q. I'm sorry. I spoke over you. Go ahead.

A. That's the approximate amount that whole study costs.

Q. Okay.

A. It was a very elaborate study.

Q. And that was cost intrusive for the City; is that right?

A. Can you repeat again?

Q. That was cost intrusive for the City; is that right?

A. Yeah, it -- it was -- it was an expensive study to do, but I'm glad we did it because it provided a lot of good information.

Q. Okay. Are you aware that all of the water in the Rio Grande is Project water? You are aware of that, right?

A. Yes.

Q. Okay. And you mentioned -- go ahead.

A. Go ahead. I said yes.

Q. All right. You mentioned a lot of cost reasons for not pursuing surface water essentially to assist in municipal concerns. Did I have that

correct?

A. That -- that was the main factor, yes.

Q. Okay. Isn't it also true that you have to have a contract with the Bureau of Reclamation to use Project water for municipal purposes?

A. That is true.

Q. Okay. And the City of Las Cruces doesn't have one of those contracts; is that right?

A. No.

Q. So even if the City of Las Cruces wanted to spend the money to pursue the surface water, they could not, in fact, do so because they do not have a contract with the Bureau of Reclamation, correct?

A. That is correct.

Q. Now, the City, we spoke a little bit about your conservation efforts, the City's conservation efforts rather. The City of Las Cruces has not explored the use of brackish groundwater supplies, has it?

A. No, not yet; however, the -- the -- the 2017, 40-year water plan, one of the options could be deep wells and brackish desalination, so it's not off the table. It's one of the many alternatives listed at the beginning of that document.

Q. I was just about to ask you about that. It

is, in fact, listed in the 40-year plan, but despite its consideration in the 40-year plan, the City of Las Cruces doesn't have any plan at least in the five-year capital plan to pursue a desalination plant; is that right?

A. That's right.

Q. Okay. Are you aware that the City of El Paso has a desalination plant?

A. Yes.

Q. Okay. And, in fact, the 40-year plan for the City of Las Cruces actually refers to El Paso Water Utility's desalination plant and refers to it as proof of the technical feasibility of this type of conservation; isn't that correct?

A. That's correct. The plan refers to that plant, and we visited that plant, by the way, yes. We are very aware of that plant.

Q. Okay. The 40-year plan for the City of Las Cruces also notes that the El Paso Water Utilities desalination plant has a capacity to produce up to 27.5 millions of gallons of freshwater per day; is that right?

A. I would have to look at the document, but I know what -- I think I know which section that is, yes.

Q. We can look at the document if you need to, but -- but does that sound approximately right to you?

A. Yes.

Q. Okay. And is that almost 31,000 acre-feet per year?

A. I believe so, yes.

Q. Okay. And the City of Las Cruces, according to the 40-year plan, estimates that it only needs about 5,000 acre-feet a year; is that right?

A. What are you talking about? On surface water, you mean?

Q. In term -- well, why don't we just take a look at it. Let's look at New Mexico 2492.

MS. BARFIELD: Justin, if you could pull that up for us, please.

A. I think, if I may, I think you're referring to the application for 5,000 acre-feet of deep groundwater that's saline groundwater, and I think that amount is correct, yes, if that's what you're referring to.

Q. (BY MR. DRAPER) Okay. Yet the City of Las Cruces has no current intention of proceeding in the direction of a desalination plant; is that right?

A. I don't believe in the needed future. I can't speak to what changes are going to happen in

this next year or two years or three years because I no longer -- I'm a consultant. I'm telling you my story over the last 30 years, so I don't know that there's going to be a change in direction. The 40-year water plan shows different options of alternative supply, one being importation from the Corralitos basin, which is about 4 miles away from the airport, and potentially the Nutt-Hocket. So -- so it's my understanding, and I'm not there anymore, but my understanding, the utility is exploring those alternatives and costing those alternatives and evaluating each of those elements. I'm sure the utility board would be presented with those options some time.

Q. When you had your deposition taken in 2019, isn't it correct that according to you at that time when you were still the City of Las Cruces' utilities director, there were no current plans for the City to proceed in that direction; isn't that right?

A. That's correct. I mean, it was in the plan, but we hadn't initiated the further step, which is costing the different alternatives and ranking them. That started shortly after I left.

Q. What started shortly after you left?

A. Looking into some of those alternatives in

further detail and ranking those. There is an effort to -- to look at -- out of the 40-year plan, look at 10-year action plan, and I believe the utility is working on a 10-year action plan, but I'm not part of that at this point.

Q. Now, according to the 40-year water development plan, which you said was the primary layer of planning for the City of Las Cruces, the City of Las Cruces ranks the prospect of a desalination plant lowest on its list on the basis of cost alone; isn't that correct?

A. I believe that's correct.

Q. Okay. So instead of spending the money like the City of El Paso spent, the City of Las Cruces opts to continue to rely upon groundwater resources, even if it means importing groundwater from other basins; isn't that true?

A. The -- the feasibility will determine what is the -- the appropriate option. I can tell you, it's much easier to put a plant when you have 200,000 customers versus, you know 40,000 or 30,000 customers. So I think the City -- I assume they'll be evaluating all of the alternatives and then they will be ranking those, but there is possibilities of bringing some water from some of the adjacent basins more

efficiently than -- than drilling 4,000-foot well and then putting a plant to treat that and remove the salt and then -- and then supply it to customers.

Q. So I appreciate that detailed explanation, but I'm not certain that I got an answer to the question. Is it correct that the City of Las Cruces has no current intention of pursuing a desalination plant due to cost issues, but instead, prioritizes and -- and intends at this time to continue importing groundwater from other basins and have groundwater supply be the priority source?

A. That -- that -- that is correct. That is the priority in the plan.

Q. Now, you agree that the wells that the City of Las Cruces pumps from, particularly in the LRG-430 group, those are connected to the Rio Grande, correct?

A. Yes. They're in the Mesilla aquifer, uh-huh.

Q. I'm sorry. Could you --

A. They're in the Mesilla Bolson, yes.

Q. I understand that they're in the Mesilla Bolson, but you agree that they are interconnected, that the pumping of that groundwater is interconnected with the surface water flow with the Rio Grande, correct?

MR. DRAPER: I need to object. This is

getting, Your Honor, into the area of expert hydrologic questioning and is not appropriate for a non-expert witness.

MS. BARFIELD: Your Honor, I'm not asking -- in fact, I started my questions today with an assertion or a question as to whether or not this witness was testifying as an expert. I don't want any testimony from this witness as an expert, but I'm entitled to know what his understanding is of the interrelation between groundwater and surface water as the City of Las Cruces utilities manager for 30-odd years.

JUDGE MELLOY: I'll let him testify based upon his understanding as utility manager, but not as an expert witness on hydrology.

All right. Go ahead.

MS. BARFIELD: Thank you, Your Honor.

JUDGE MELLOY: You can answer, Dr. Garcia.

A. Yes. The aquifer system is connected to the river. The degree of connection in time and space will be determined by the experts in the next -- the experts that will testify in the next part of the trial.

Q. (BY MS. BARFIELD) Now, in your capacity as

the director of the utility for City of Las Cruces, understanding you're retired now, but in that capacity prior to your retirement, you had concerns regarding declining water levels and water quality changes; isn't that right?

A. That's correct. I think there was a discussion in my deposition that in that -- that there are declining water levels, particularly in the East Mesa Basin, that is a disconnected basin. There are some declines in the -- in the Valley well field and some in the West Mesa. That's exactly why the City has a very sophisticated groundwater monitoring program and a series of threshold indicators for drawdown in water quality so that the -- the basin can be monitored and managed accordingly. I never denied that the water is not dropping. There are drops in water levels. My inspection of some of the recent 2020 data shows a drop of about from three tenths to about nine tenths of a foot per year on the -- on the Valley well field. So, yes, they're dropping, but they're being monitored very carefully by the program.

Q. Okay. So you do agree that there are declining water levels in the City's wells in the Mesilla Bolson aquifer area, correct?

A. There are declining water levels, yes.

Q. Okay. And you also agree that the Jornada Basin has declining water levels, as well, correct?

A. Yes.

Q. Okay. In fact, you perceive the declining water levels in the Jornada Basin, those are declining even faster than the Mesilla Bolson; isn't that right?

A. That's correct.

Q. Okay. What's the rate there?

A. It's about 4 foot a year.

Q. Okay. And you consider that to be the least reliable basin; is that right?

A. Well, it's a closed basin, if that makes it less reliable, I would agree with that, but it also has potential for aquifer storage and recovery, for example.

Q. And do you -- well, isn't it true that you relate some of these concerns regarding the declining water levels in the City's wells to the -- the initiation or the institution of the operating agreement?

A. I believe there was some discussion about that in my deposition, if I recall, but my -- my observation was that there was, after the operating agreement, we observed more pumping, and we also observed more decline on water levels.

Q. And that decline was a concern to you, correct?

A. Yeah. The decline is a concern, and it needs to be monitored.

Q. Okay. But despite your concerns with the declining water levels in the City's wells, and especially during now what's been, I think, 12 years since the operating agreement has been in effect, you never took any steps to challenge groundwater pumping in New Mexico, either in administrative agencies or in adjudications; isn't that correct?

A. I don't understand your question.

Q. You had a concern about groundwater pumping and depletions --

A. Okay.

Q. -- in New Mexico; is that correct, in the City's wells?

A. Yeah. We had concerns about some dropping water levels, but I didn't understand the second part of your question.

Q. Okay. But despite those concerns and particularly related to the operating agreement, as you just stated, and understanding that the operating agreement has now been in play for the better part of 12 years, you've never taken any steps to challenge

groundwater pumping in New Mexico, either through administrative agencies or through adjudications; is that correct?

A. I believe that is correct.

Q. Okay. Now, you -- you mentioned your deposition a few times now, and that was back in February of 2019. Since that deposition and before your retirement, did you take any steps to challenge groundwater pumping in New Mexico in light of the concerns you shared with us?

A. I don't believe so.

Q. Now, the utility department as a whole has not taken any steps to object to increased agricultural pumping, has it?

A. No, it has not.

Q. And at least as of 2019, the City of Las Cruces has not taken any steps to manage the water level declines; isn't that right?

A. I don't know if that -- I don't know that that is exactly correct. I believe that -- that by us having a very detailed groundwater monitoring program, we are being very proactive about which areas need to be watched for. That's -- that's exactly why now in the ten-year action plan, the City is developing the threshold indicators and the latest plan, the 2020

plan, is already utilized in threshold indicators, which sent to the wells to monitor in the long-term. The groundwater levels drops right now have not impaired any of the water pumping on the city. They're still very -- they're not severe enough to -- to have to abandon a well or to affect water quality, but they're being watched every year. Some wells may have to be shut down for periods of time in production use elsewhere. Along those lines, some of the wells in the -- in the 2020 report, some of the wells appear to show in the Mesilla -- in the Valley well field, appear to show actually increasing water levels rather than just decrease. So labeling just decrease of water level is inaccurate.

Q. Well, considering that some of them show increasing water levels, do you still have a concern regarding the operating agreement and what you described as increased groundwater pumping?

A. I still have concerns about well -- particularly well -- and I think the 40-year water plan says this, as -- as more wells get developed or if they get developed deeper, that's when you're going to see more drastic changes. Depth as to from which you pump makes a difference in my experience.

Q. So some well levels have increased, but you

do still have a concern about groundwater pumping related to the operating agreement and depletions that that causes, correct?

A. Correct. As I explained, particularly if more wells are added and they're deeper, then it's going to be a more -- then we may see more drastic effects.

Q. Okay. But my statement was correct, yes?

A. Yes.

Q. Okay. Yet the only step that the City of Las Cruces has taken to manage this problem or to address this problem is the monitoring you described; isn't that true?

A. Well, the monitoring is -- is to monitor the well field, but I described earlier in this testimony that the large improvements we've made in conservation and metering, I anticipate that a lot of the future water supply will come from conservation and aquifer storage and better -- better managing the water resource. The technology that was adopted for metering is -- has been installed in a few places in the country, but it's not very common, and we made the effort to do that because if you can meter it correctly, then you can manage it.

Q. Has the City of Las Cruces or its

consultants, at least since 2019, performed any analyses on the depletive effects of the LRG-430 wells?

A. I'm not aware of any specific analysis, other than the work that is being done as part of the monitoring program.

Q. Can we take a look at New Mexico 853, please? Now, you've seen this document before; is that correct?

A. Yes.

Q. Okay. And this is the New Mexico State University order out of the Lower Rio Grande Adjudication. It's similar to the City of Las Cruces' LRG-430; is that right?

A. Yes.

Q. Okay. And this relates to NMSU's water rights?

A. Yes.

Q. Okay. And taking a look at the first page here that we see on the screen, you see that the purpose of use includes university uses. It also includes supply to the City of Las Cruces; is that right?

A. Yes.

MS. BARFIELD: By the way, I don't think

this is an admitted document, Your Honor. I'd move to admit New Mexico 853.

MR. DRAPER: Your Honor, we -- we did have an objection to this exhibit because the witness was not familiar with this exhibit until the State of Texas showed it to him at his deposition, so there's not foundation that this witness can answer questions with respect to this document that he has no knowledge of, other than just reading it into the record.

MS. BARFIELD: May I respond, Your Honor.

JUDGE MELLOY: You may.

MS. BARFIELD: The witness just testified he's familiar with the document, and we've also just established that one of the purposes of the use within the document itself includes supply to the City of Las Cruces, and certainly as the water utilities director for the City of Las Cruces for many of the 30 years he worked there, he should be able to talk about it. But at any rate, he admitted knowing the document.

JUDGE MELLOY: I'll admit 853.

MS. BARFIELD: Thank you.

Q. (BY MS. BARFIELD) Can we look at the second page, please? So let's focus on, if we go down for

purposes of my tech person to amount of water in 6. All right. This says, "2,890 acre-feet per year is the amount of water placed in the beneficial use as December 31st, 2003." Is that correct?

A. That's what it says.

Q. Okay. Do you understand that to be true?

A. I assume it's true.

Q. Well, I don't want you to assume anything. We -- I believe you talked about this at your deposition, as well. You understand that New Mexico State University has certain rights, and there's a beneficial --

A. That's correct.

Q. -- establish -- I'm sorry. You'll need to let me finish my question or it makes a very difficult time for the court reporter if we talk over each other.

JUDGE MELLOY: Finish your question.

MS. BARFIELD: Okay.

Q. (BY MS. BARFIELD) Let me just ask a different question. Here's -- here's what I'm asking: As of the certain point in time the New Mexico State University had a certain amount of water that it was entitled to beneficially use, and that's stated in this document, can you agree with that?

A. Yes.

Q. Okay. And you had an understanding, at least when you were utilities director, that there was an additional amount of water that the New Mexico State University would be entitled to use, but they needed to establish the beneficial use or right to; is that right?

A. Yes.

Q. Okay. In fact, it says here, "New Mexico State University may place to beneficial use up to an additional 8,564 acre-feet per annum." Do you see that?

A. Yes.

Q. Now, isn't it true that in 2015, the City of Las Cruces assisted New Mexico State University in pumping some of the water under LRG-35?

A. In 2015, the City of Las Cruces used a 2007 agreement that allowed us to use approximately 4,000 acre-feet of the water for emergency purposes. It was a water delivery -- supply and delivery agreement -- water sale and delivery agreement, yes, out of LRG-35.

Q. Okay. But the use of that 4,000 acre-feet of water, did that not perfect a certain portion of the NMSU rights by the City of Las Cruces pumping that water?

MR. DRAPER: Objection, Your Honor. She's asking for a legal conclusion with respect to the perfection of a water right. That's a matter of legal opinion.

JUDGE MELLOY: I'm going to sustain that.

Q. (BY MS. BARFIELD) Did the City of Las Cruces have any need to pump the 4,000 acres in 2015 that you just referred to?

A. Yes.

Q. What was that need?

A. In 2015, knowing that we had this agreement and the availability of this -- as I testified in my deposition, by the way, this -- this agreement was for emergency. In 2015, we had the opportunity to get state funding to be able to replace three wells with one contract in the Valley well field, in the water called the low zone pressure zone. In addition, we had another large well with the stream being repaired so it was a good opportunity to take the state funding and use this agreement to supplement that supply for at least one year and then proceed with the repair of one well and the drilling of the other three wells.

Q. Isn't it actually true that those three wells, in 2015, were abandoned?

A. They were -- they were not abandoned. They were -- they were -- production had been reduced quite a bit. One was still pumping some; the other two were pumping very little. When we shut them down and decommissioned them for the -- once we made a decision to -- to use this, the agreement, the agreement to pump that water into the system.

Q. Who was the water charged to?

A. The water charged to? Can you explain that? We had a -- we paid for the price of water to NMSU, if that's what you're asking.

Q. The pumping was charged to New Mexico State University, not the City of Las Cruces, even though the pumping was for the City of Las Cruces; isn't that right?

A. Charged meaning accounting of the water?

Q. Exactly.

A. Yeah. We took -- we took water from a well at the university. The university reported that usage, yes.

Q. At the time when this discussion happened at your deposition, and you just mentioned that discussion at your deposition a minute ago during this testimony, your -- your take on this entire situation was that New Mexico State University had an interest

in rights, and because they had a lot of land and they might need a lot of water one day; isn't that right?

A. I think that's a true statement. NMSU has a large amount of land that they -- where they planned it using the water rights.

Q. Which is why the City of Las Cruces did this pumping in the summer of 2015; isn't that right, too?

A. The pumping in 2015, as I said in my deposition, and I'm going to say it again, the pumping in 2015, with a 2007 agreement, was to provide us the additional supply we needed during that time where we drilled three wells, and we were repairing another large well.

Q. Okay. So you testified a little while ago that under LRG-430, the City of Las Cruces can pump a certain amount of water, I think it was one of the exhibits that Demonstrative No. 6 showed us that that amount was 21,869 acre-feet per year from the LRG-430 wells; is that right?

A. Yes.

Q. Okay. And that LRG sub-file, it requires the return of effluent, and you described that to us, from the City's pumping, and that water goes to the Jacob Hands plant, and then it goes back, correct?

A. That's correct.

Q. And LRG-430 defines or includes offsets for depletions associated with pumping of the City of Las Cruces' wells. That's true, right?

A. LRG-430 doesn't have any offset requirements, other than returning the effluent when -- when the allotment is less than 2 acre-feet. There's no separate offset requirements.

Q. Okay. So you just don't define return of the effluent to the river as an offset; is that what I'm understanding?

A. Well, it -- I -- my opinion is that it is an offset, yes.

Q. Okay. And there's also other offsets that are imposed on the City of Las Cruces by way of permits, and those permits were shown in Demonstrative No. 6, right?

A. That's correct, yes.

Q. Okay. And I probably asked a bad question because I ended it with "those permits were shown in Demonstrative No. 6," and you said, "Yes," but I want to make sure I get an answer to the substance of that question, which was: Other offsets are required of the City of Las Cruces pursuant to those permits, right?

A. That's correct.

Q. Okay.

A. The East Mesa wells have a minor amount of offsets required.

Q. Okay. So as you sit here today, you're not able to say whether those offsets are adequate to protect Texas' apportionment of Project water; is that right?

MR. DRAPER: I need to object here, Your Honor. This is now asking for a highly technical response from the witness with respect to whether offsets to what degree they may -- they may offset pumping effects, and that is something that is obviously a matter of central concern to the experts in this case and not to this witness.

JUDGE MELLOY: I'm going to sustain that. Go ahead.

MS. BARFIELD: I have no further questions, Your Honor.

JUDGE MELLOY: Ms. Coleman, do you have anything?

MS. COLEMAN: I do.

CROSS-EXAMINATION

BY MS. COLEMAN:

Q. Good morning, Mr. Garcia.

A. Good morning.

Q. So you testified yesterday and a bit with Ms. Barfield today about the water development plan being the first level of planning, and then today you explained are three layers of planning, right?

A. Yes.

Q. And that was the 40-year plan, the 20-year plan, and the 5-year capital improvement plan, right?

A. Yes.

Q. And then there's also the 10-year action plan in addition to that; is that right?

A. The 10-year action plan is sort of a subset of the 40-year water plan and the specific actions that need to be taken. For example, I mentioned the drought indicator, water quality indicators. Those are two examples of what the action plan is.

Q. And that's different from the water conservation plan?

A. Yes.

Q. And that's another 10-year plan; is that right?

A. It's updated every ten years.

Q. Updated?

A. Yeah.

Q. So currently are all of these different plans we've just been talking about in the process of being

updated?

A. Let me see. The water conservation plan is being updated as we speak, and I understand there will -- should be a 2022 standalone new water conservation plan.

Q. Okay. And you're working as a consultant for the City currently, right?

A. Yes.

Q. Are you consulting on any of these planning efforts?

A. I -- I -- I'm working for the City as a consultant for this proceeding through the city utility attorney, the water rights attorney. I have a separate contract with a utility for water system training, which I'm doing with the engineers, and some other elements. I have not been provided any drafts or documents from other -- the ten-year action plan or any other plans. But you're asking the scope. Yes, they could ask me to review future plans if under the scope of that other agreement.

Q. Okay. So you've been testifying about LRG-430 in that sub-file order. Now, the sub-file order issued in 2005; is that right?

A. Yes.

Q. Okay. And as utilities director, were you

involved in the process that led to that sub-file order?

A. Well, yes. I worked with the water rights attorney, provided information. There's a lot of system information. Yes, I was involved.

Q. And that sub-file order adopts a signed offer of judgment made by the state engineer to the City of Las Cruces; is that right?

A. Yes.

Q. Okay. So it's the result of negotiation; that's right?

A. That's correct, yeah.

Q. Okay. So we saw that LRG-430 has a priority date of 1905. Remember that?

A. Yes.

Q. Okay. And what is that based on?

A. I believe it was based on some historical research done by our historian in a document provided to the state engineer through the attorney's office.

Q. And in your capacity as utilities director, did you have responsibility for supervising litigation on behalf of the city for water rights issues?

A. Yes and no. The contract attorneys work for the city attorney's office, but I was very involved in providing data, providing information they need, and

all that. So it's -- it's the support, but technically, the contract attorneys work for the city attorney's office.

Q. So was there litigation over that sub-file order?

A. If you're referring to the -- the adjudication litigation, yeah, but not -- not -- I don't -- I don't -- I'm not aware of any other litigation individually for that order itself.

Q. So when Mr. Draper said that the 1905 date was, quote, awarded to the City, he just means that the court adopted the agreement between CLC, the City of Las Cruces, and the state engineer, right?

A. I -- I don't know what the state engineer -- I believe the state engineer relied on the historical information provided of the city's water use back to 1905 to make the decision and award that grant -- grant that date.

Q. Okay. So we saw on the sub-file order that the amount is 21,869 acre-feet, right?

A. Yes.

Q. What's that number based on?

A. I believe that number was based on the -- on the pumping -- the capacity of the existing wells and the projections of those -- the pumping of those wells

prior to the declaration of the basin. And that was slightly before my time so that's what I hear that that was the case.

Q. So that would be the -- it's your understanding that it's based on the amount of pumping as of around 1980?

A. I believe so, yes.

Q. But you would agree that 21,869 acre-feet does not reflect the amount of pumping that was occurring in 1905, right?

MR. DRAPER: Your Honor, this is asking -- I'm -- if I may object here to historical questioning that is beyond the -- beyond the experience of this witness and is requesting evidence that's not in -- not in the record by this witness.

JUDGE MELLOY: Well, he has testified that he's provided data so based upon his analysis of the data that he gave input on, I'll let him testify.

A. The data -- just to clarify. The data I provided for this was the -- the well locations and the pumping of those wells, but this is not prior to 1980, so -- so -- and then the historical record so I am not aware of the individual wells prior to '80. Both submissions were done by two utilities directors before me and so I'm not -- when I said I provided

data, I said I provided data that -- of the system that the state engineer needed in that sub-file order. For example, the order has the locations of the LRG-430 wells that are in that order. Well, most likely my staff got those coordinates and provided that data. So a lot of the data in that order is provided -- was provided through the attorneys by my office.

Q. (BY MS. BARFIELD) Okay. So you had a role supervising and doing review of the 40-year plan, right?

A. Yes. With my staff, but yes.

Q. And there was modeling involved in that plan, right?

A. I believe that Shomaker did some modeling, but there's no -- they may have done some -- used an existing model, but I don't believe the scope of work had comprehensive modeling, no.

Q. But that modeling did look at historical pumping in the -- in the basin, right?

A. I assume if they modeled, they looked at historical, but I cannot certify that they modeled or they used just an existing model.

Q. Okay. So the water -- the 40-year plan we've been talking about issued in April, 2017; is that

right?

A. Yes.

Q. And at the time that this plan was developed, the City was assuming that the Project's priority date was 1906, right?

A. I'm not sure.

Q. Okay. But at the same time in April, 2017, the Project was adjudicated a 1903 date. Are you aware of that?

A. Yes.

Q. Okay. So are you aware of -- let me withdraw that.

After the Project priority date was adjudicated a 1903 date, did the state engineer approach the City of Las Cruces to discuss the offset requirement for LRG-430?

A. Not that I'm aware of.

Q. And was that 1903 priority date a factor that the City considered after 2017 in its planning efforts?

A. I don't believe that's explicitly indicated in the plan. It may be. But we were aware of that -- of that priority, yes.

Q. Okay. And has this litigation -- has this litigation factored into the City's planning efforts

since 2017?

A. Yes. Certainly, yes. It's a -- I think there's a statement in the 40-year water plan alternatives, and there's a paragraph there on the concerns about -- about the litigation, yes.

Q. Okay. Let's go to -- back to that water plan, New Mexico Exhibit 2492.

JUDGE MELLOY: Ms. Coleman, maybe this would be a good time -- if you're switching subjects here a little bit, maybe this would be a good time to take a break. Why don't we break until 1:15. All right? Thank you, everyone.

MS. COLEMAN: Okay. Thank you.

(Recess.)

JUDGE MELLOY: All right. Are we ready to go? Ms. Coleman, you may proceed.

MS. COLEMAN: Yes. Sorry. The -- we didn't get a notice to leave the breakout room. Apologize for the delay a minute.

Q. (BY MS. COLEMAN) Okay. So we're going to pull up New Mexico Exhibit 2492 at Page 42. Okay. And this is -- this is still on the 40-year plan. So we see there in -- in the top paragraph, "As indicated in the LRG-430 sub-file order, Las Cruces is not to consumptively use the treated effluent derived from

the wells in periods of drought in which the EBID allotment is less than 2 acre-feet per acre." You described this earlier as an offset, yes?

A. I believe so.

Q. Okay. Now -- but you were saying that the effluent discharged to the -- the effluent is discharged to the river, you know, all the time, regardless of this condition, right?

A. That is correct. We don't -- the City does not have a -- a reclamation facility other than the one on the East Mesa, so the wastewater goes back to the river.

Q. And isn't it true that this effluent that's discharged outside of periods of drought is used as the offset for other wells that the City operates?

A. I believe it could, but we are not -- we -- other than the minor offset of the East Mesa well, there's no other offset requirements right now.

Q. Right now. And so you -- I believe that we also saw on that list the LRG-3275 series, that's the West Mesa well fields?

A. Yes.

Q. Is that right? And those haven't been drilled, right?

A. No.

Q. But they have a permitted amount of 8,000 acre-feet; is that correct?

A. Yes.

Q. What's that 8,000 acre-feet number based on?

A. That was the application for 8,000 acre-feet.

Q. Okay. And that has an offset requirement that you would meet through the effluent that's already being discharged into the stream; is that right?

A. Or other water rights.

Q. Or other water rights?

A. Yeah.

Q. What other water rights are you discharging into the stream?

A. Yeah. You have to offset 8,000 acre-feet, whether it's in, I believe, the language in the -- in the permit says that you could use wastewater or retire other rights, but it needs to be offset.

Q. So is there any practical effect of this provision that -- in the LRG-430 right that you can't consumptively use the treated effluent when the allotment is less than 2 acre-feet per acre?

A. Well, the practical effect is that, especially if the allotment is -- is less than 2 acre-feet for a period of time, you're not -- you

don't -- you cannot re -- you don't make plans to reuse the water and put a tertiary plant or a secondary plant like we have in the East Mesa. So the practical effect is you just discharge to the river.

Q. Right. So the only use that stops in those less than 2 acre-feet per acre years is the small amount that goes to the Reclamation plant and the small off -- the ability to use it as an offset for the East Mesa; is that right?

A. That -- that is correct, yeah.

Q. Okay. So we see in the second paragraph on there, the 25 wells currently in service in the valley, one paragraph up from there. So you see the 25 wells currently in service in the Valley were completed between 1953 and 2012. Are you aware of any wells in the Valley that were completed prior to 1953?

A. I'm not aware that there are still existing any wells prior to '53.

Q. So the state engineer gave you a judgment of a 1905 priority date and 21,869 acre-feet based on wells that date back to 1953 at the earliest?

MR. DRAPER: Your Honor, this is asking for a legal interpretation of a court order and is beyond the -- beyond the scope of the direct testimony, as well.

JUDGE MELLOY: I'll sustain that on the legal conclusion. I'm not sure it's beyond the scope, but I think this is asking for a legal conclusion as to what the state attorney general thought or did.

MS. COLEMAN: Okay. Thank you. We'll move on.

Q. (BY MS. COLEMAN) All right. Let's go to New Mexico Exhibit 2492 at 37. This is what you used in -- it was your Demonstrative 6. Okay. So we see here that, as you testified, this 51,179 acre-feet per year of groundwater rights and permits, of which you use about 21,000 a year, give or take, right?

A. Correct.

Q. So you have about 30,000 acre-feet of unused permitted water rights, correct?

A. Correct.

Q. Okay. And that -- and you have acquired that many water rights based on population projections; is that right?

A. Yeah. Partially, yes.

Q. All right. Okay. So when you did the 2017 plan, there were different population projection scenarios, right, high, medium, and low population projections; is that right?

A. That's correct.

Q. Okay. And you testified yesterday that the City's population is about 111,000 or so currently; is that right?

A. That's correct.

Q. Okay. Where does that fall in the projected -- population projections?

A. It's in the low -- actually, a little under the low at this time, yes.

Q. Okay. So the City planning to -- well, let me ask this: Can the City sell any of that 30,000 additional acre-feet that it's on its water rights?

MR. DRAPER: Objection. This is a legal question, whether the City can sell water rights legally. It's asking for a legal conclusion.

JUDGE MELLOY: Well, I'll let him answer. As the city utilities director, he had testified about acquiring these rights and so I think testimony about selling them would be fair game. Go ahead.

A. I don't know. I assume the City could sell the rights, but it would be subject to state engineer approval and the protest process and all that.

Q. (BY MS. COLEMAN) Okay.

A. I don't -- I'm not saying that they will or they will not. I can't speak for the City.

Q. Okay. Now, you -- so the City owns some water-righted acres in EBID that we talked about, right?

A. Yes.

Q. Are those leased out?

A. There is -- there are two parcels that are being leased right now.

Q. And are they leased for agricultural use?

A. Yes.

Q. Are there -- are there pumps on those parcels?

A. I -- I know there is a ground -- groundwater rights associated with those two parcels. I can't speak for pumps being there. I haven't been involved in those leases.

Q. Okay. One more document to look at. Let's look at New Mexico Exhibit 956 at 73. This is the water conservation plan you were talking about with Mr. Draper. Let's go to Page 104. Okay. So under Heading 3 there, we see, "The Lower Rio Grande Basin surface water supply and most of the groundwater supply is fully or over appropriated." Can you tell me what that sentence means?

A. It means that all the waters in the basins are fully appropriated. I don't know what over

appropriated is.

Q. Well, you reviewed this plan, right?

A. Yes. I believe -- I believe I reviewed this. This is the water conservation plan, but I probably reviewed it before submittal, yes.

Q. Does this -- well, as utilities director, did you interpret this part of the plan to mean that there were no more water rights the City could acquire in the Mesilla Basin?

A. That's correct.

MS. COLEMAN: That's all I have.

JUDGE MELLOY: Mr. Draper, any redirect?

MR. DRAPER: Yes, Your Honor, a couple of questions if I may.

JUDGE MELLOY: Go ahead.

REDIRECT EXAMINATION

BY MR. DRAPER:

Q. Dr. Garcia, on the -- during your cross-examination, you were asked whether the City took any steps to manage or address the groundwater declines that were thought to be caused by the operating agreement. Isn't it true that you are aware that the City had joined in the original lawsuit challenging the operating agreement in Federal District Court?

A. That's correct.

Q. You were also asked during cross whether, to your knowledge, all of the water in the river was Project water. Isn't it true that you were aware that there are certain Project -- pre-Project rights with earlier Project priorities with rights to water in the river?

A. That's correct.

MR. DRAPER: I have no further questions, Your Honor. I believe you're on mute.

JUDGE MELLOY: I didn't give you a chance, Mr. Hartman. Do you have anything you want to -- have any questions you have?

MR. HARTMAN: Thank you, Your Honor. I have no questions.

JUDGE MELLOY: All right. Ms. Barfield, anything further?

MS. BARFIELD: No, Your Honor.

JUDGE MELLOY: Ms. Coleman?

MS. COLEMAN: No, Your Honor.

JUDGE MELLOY: All right. Then Dr. Garcia, you're excused. I appreciate your testimony. You're free to go. Thank you.

We'll take five minutes, let everybody get resituated. And our next witness, as I understand

it, will be Scott Eschenbrenner; is that correct?

MR. DRAPER: That's correct, Your Honor.

JUDGE MELLOY: We'll take five minutes and let -- get Mr. Eschenbrenner lined up. Thank you.

MR. DRAPER: Thank you.

(Recess.)

JUDGE MELLOY: All right. Looks like we have everyone back. Let me ask that we enter appearances for this section session since it looks like just about every chair has been replaced here. Mr. Deitchman, you can start for Texas.

MR. DEITCHMAN: Good afternoon. Rich Deitchman for Texas.

JUDGE MELLOY: For New Mexico?

MS. BARELA: Susan Barela for the State of New Mexico, Your Honor.

JUDGE MELLOY: For the United States?

MS. NAJJAR: Jennifer Najjar for the United States.

JUDGE MELLOY: I'm getting a little feedback on your microphone, Ms. Najjar. Might want to check that. Mr. Wallace I see for Colorado.

MR. WALLACE: Yes, good afternoon, Your Honor.

JUDGE MELLOY: Okay. New Mexico may

call its next witness. Ms. Barela?

MS. BARELA: Thank you, Your Honor. New Mexico calls Mr. Scott Eschenbrenner.

JUDGE MELLOY: Mr. Eschenbrenner, I need to swear you as a witness. Will you raise your right hand, please? Mr. Eschenbrenner, can you hear me?

THE WITNESS: Yes. Can you hear me?

JUDGE MELLOY: My screen was frozen there for a second. Okay. Do you swear or affirm the testimony you're about to give will be the truth, the whole truth, and nothing but the truth?

THE WITNESS: I do.

JUDGE MELLOY: Mr. Eschenbrenner, I need to go over a couple of the ground rules with you that we've reviewed with each of the witnesses. First, let me ask you: Is there anyone in the room with you at the -- during your testimony?

THE WITNESS: No, Your Honor.

JUDGE MELLOY: Do you have any documents available to you other than the exhibit books?

THE WITNESS: No, Your Honor.

JUDGE MELLOY: I need to advise you that you're not allowed to have any communication devices available to you during your testimony, including iPads, iPhones, laptops with texting, e-mail

capability, or anything of that nature. Do you understand?

THE WITNESS: Yes, Your Honor.

JUDGE MELLOY: All right. And before we start the examination, let me just indicate for Mr. Eschenbrenner's testimony, it does not appear that any of the exhibits are A exhibits. They're all objected to; is that correct, as far as everyone knows?

MS. NAJJAR: Yes, Your Honor.

MR. DEITCHMAN: That's correct, Your Honor.

MS. BARELA: That's correct, Your Honor. I will add that New Mexico 0853 was admitted just now with Dr. Garcia's testimony. New Mexico 0853.

JUDGE MELLOY: All right. I'll show that 0853 has been admitted.

MS. BARELA: Thank you, Your Honor.

JUDGE MELLOY: All right. Ms. Barela, you may proceed.

MS. NAJJAR: Your Honor, before we get started here, the United States would like to assert a standing objection to Mr. Eschenbrenner's testimony, which I can state now for the record if you'd like.

JUDGE MELLOY: Go ahead.

MS. NAJJAR: New Mexico declined to disclose Mr. Eschenbrenner as an expert, a retained expert or a nonretained expert witness, yet as described in New Mexico's September 23rd, 2021, filing regarding the anticipated order of witnesses, which is Docket 599, Page 4, New Mexico now seeks to elicit testimony from Mr. Eschenbrenner about New Mexico State University's economic impacts in the region, economic value, and impacts of agriculture in the Lower Rio Grande and New Mexico and impacts of the 2008 Operating Agreement on surface water supply. On its face, this testimony requires expert opinion. Economic and hydrologic evaluations of this magnitude and geographic scope, the entire Lower Rio Grande and state of New Mexico, plainly requires specialized knowledge beyond that of an ordinary person. Accordingly, the United States requests the testimony proffered by Mr. Eschenbrenner is limited to what is rationally based on his profession.

MR. DEITCHMAN: And, Your Honor, the State of Texas joins that objection. This is the second attempt here by New Mexico to elicit expert testimony from a fact witness who was never disclosed as an expert, so we join that objection.

JUDGE MELLOY: Ms. Barela, do you have

any response?

MS. BARELA: Yes, Your Honor. This is, in fact, not a first attempt nor a second attempt to offer a fact witness as an expert testimony. New Mexico has never identified Mr. Eschenbrenner as an expert or nonretained expert. We have entirely always claimed that he is a fact witness, and this goes specifically to Your Honor's question of whether there's still an issue with pre-project water rights. New Mexico State University has both pre-project rights and post-1903 rights, and it is critical to include these uses as a part of the record. Mr. Eschenbrenner's testimony will lay the foundation and show the history of 130 years of water use and development by the university and so we ask Your Honor to allow testimony -- factual testimony from Mr. Eschenbrenner as a representative of New Mexico State University.

MR. DEITCHMAN: And, Your Honor, I mean, we have not objected to generally testimony regarding New Mexico State University. The issue here is, as Ms. Najjar laid out, he's listed as providing testimony on the economic value and impacts of agriculture in the LRG and New Mexico, which is plainly expert testimony, and extremely similar to

what you heard yesterday from Mr. Carrasco.

JUDGE MELLOY: Well, I think we're basically going to be pretty much handling Mr. Eschenbrenner as we did Mr. Carrasco. He can testify, and he can certainly testify about the university and its activities and things of which he has personal knowledge or has knowledge through his research and study of the university, but he's not been disclosed nor can he testify as an expert at this point.

Let me ask you one thing, Ms. Barela. I haven't gone back and studied the -- the witness list or who we may be calling in the spring. Do you have an economist that you have disclosed that will be talking about economic impacts in the spring?

MS. BARELA: Your Honor, we -- I'm being told that we are going to be offering economic evidence in the spring.

MR. DEITCHMAN: Your Honor, as far as disclosed experts, though, the only economist that New Mexico has offered is Dr. Dana Hoag, who merely provided a rebuttal to the expert report of Dr. David Sunding, who is the expert for Texas. So in that case, I would renew Motion in Limine 3 that Texas filed, which was a motion to exclude evidence of

damages at trial by the State of New Mexico because they did not offer an expert witness who would describe those damages. It was merely a rebuttal to Texas' report.

JUDGE MELLOY: Well, we'll take that up in the spring. I'm not going to get into that now.

Go ahead, Ms. Barela. You may begin.

MS. BARELA: Thank you, Your Honor.

SCOTT ESCHENBRENNER,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MS. BARELA:

Q. Good afternoon, Mr. Eschenbrenner?

A. Hello. Good afternoon.

JUDGE MELLOY: Excuse me a second. Mr. Eschenbrenner, would you pull the microphone a little closer? That's not real -- need a little more volume. Thank you.

Q. (BY MS. BARELA) Mr. Eschenbrenner, what is your current professional position?

A. I'm special assistant to the president of New Mexico State University, and I'm also president of Aggie Development Incorporated.

Q. Where is New Mexico State University located?

A. We're located in Las Cruces, New Mexico.

Q. What are your responsibilities as special assistant to the president?

A. I manage the real estate assets for the university as well as the water assets, as well.

Q. And you mentioned Aggie Development Incorporated. What is Aggie Development?

A. Aggie Development is a 501C3 not for profit that was established by the university about seven years ago with the intention of developing our underutilized land resources.

Q. What is your role as president of Aggie Development?

A. Basically, oversee the day-to-day operations of the organization. I'm also responsible for reporting to our board, our board of directors.

Q. I'd like to learn a little bit more about your background and so let's go into your background a little bit. Where did you go to college?

A. I went to Texas State University.

Q. Did you earn any undergraduate degrees?

A. Yes, I did.

Q. What year did you graduate?

A. In 1986.

Q. Mr. Eschenbrenner, do you have any additional accreditation?

A. I'm also a member of the Appraisal Institute, and I'm also a general certified real estate appraiser in the State of New Mexico.

Q. When did you first begin working for New Mexico State University?

A. In June of 2015.

Q. Have you worked there since 2015?

A. Yes, I have.

Q. Other than assistant to the president and your role as president of Aggie Development, have you had any other positions with the university?

A. No, I haven't.

Q. Prior to NMSU, what employment did you have before working for the university?

A. Before coming to the university, I was a real estate appraiser from 1986 to -- to 1995 in El Paso, and I started my own practice in Las Cruces in 1995 and operated that all the way to 2015, when I started for the university.

Q. Did you do any work appraising irrigated land?

A. Yes, I did.

Q. Including any lands within the Lower Rio Grande within New Mexico?

A. Yes.

Q. Now, I'd like to ask you a few questions about your work as special assistant to the president of NMSU. I assume you report to the president; is that correct?

A. Well, the title still remains the same special assistant to the president, but we've had a change in our administration about three-and-a-half years ago, and we now have separate duties that are by the president and the chancellor that run the university system. I actually now report to the vice chancellor and the chancellor of the university.

Q. How about in your capacity of president of Aggie Development, who do you report to?

A. Aggie Development has a board of directors. The chair of the board is the chancellor of the university. We also have two of the five board of regents members on that board, as well as the CFO from the university and the dean of college of agriculture and consumer environmental science. We refer to it as A CES, and then there's four community members on that board, as well.

Q. What role do you play with respect to the university's water rights and use of water?

A. Primarily, my responsibility is to monitor the water rights and the current activities in the

Lower Rio Grande Basin. Also responsible for overseeing those in the rest of the state to at our other ag experiment stations, but it's primarily to provide information to our senior leadership and our board of regents, as well.

Q. Are you involved with any water-related organizations?

A. Through my employment with New Mexico State University, we're a party to the Lower Rio Grande Water Users Group.

Q. I'll ask you more in a bit about the Lower Rio Grande Water Users. Turning to the university status in the Lower Rio Grande Basin and role as water user and provider, I'd like to ask you some background questions about the university. When was NMSU founded?

A. In 1888.

Q. When the university was founded in 1888, what was its mission?

A. The mission primarily focused on education, research, and extension.

Q. Mr. Eschenbrenner, can you expand on extension? What is extension?

A. Well, extension is our outreach to our community. We have an office in every county in the

State of New Mexico. We try -- we provide information to those community members in those areas. We provide information on the research that university has done over the years. We also help with agriculture-related issues, 4H programs. We're also -- one of our main functions is to provide educational nutrition, and it's targeted for those individual areas throughout the -- throughout the state.

Q. Does that mission continue to this day?

A. Yes, it does.

Q. What academic programs does the university offer?

A. We offer the Department of Agriculture, an agriculture degree. We have a business degree, arts and sciences, and we have a social -- social services and education, have an engineering degree. We have a graduate program and an honors program.

Q. I'd like to turn to the first exhibit, Exhibit New Mexico 0857, entitled, "Economic and Functional Impact," dated September 2018. Do you recognize this document?

A. Yes, I do.

Q. What is it?

A. It's a report put out by the College of ACES. It's reporting on the economic impact of agricultural

and environmental sciences, also the agricultural experiment station system, and cooperative extension services.

Q. Is this kept in the regular course of business of the university?

A. Yes, it is.

MS. BARELA: Your Honor, at this time, I would like to move the admission of New Mexico's Exhibit NM-0857.

JUDGE MELLOY: Any objection?

MS. NAJJAR: Foundation, relevance.

MR. DEITCHMAN: Texas joins that objection. Further, to the extent it provides economic analysis, it's outside the scope of the fact witness' testimony.

JUDGE MELLOY: Well, I think the relevance --

MS. NAJJAR: Your Honor --

JUDGE MELLOY: -- is somewhat marginal, but I'll admit 857. I believe foundation is laid as a business record, so I'll admit 857.

MS. BARELA: Thank you, Your Honor.

Q. (BY MS. BARELA) Turning your attention to Page New Mexico 0857-0004 of this exhibit, you see the executive summary there. What does this diagram in

that first page show?

A. Diagram is basically mirroring our original founding, which -- which is College of ACES is focused on academics, research, and extension.

Q. How does the university through the College of Agriculture carry out those three core elements?

A. If we could -- well --

MS. BARELA: And if we could highlight those three bullet points on the bottom there, April, thank you.

A. Thank you. It's providing R&D based innovations and practice recommendations that enhance productivity across agricultural and associated industrial value-chains. It's solving specific problems and challenges identified by producers, industry, and key stakeholders, and it's assuring a safe and secure domestically produced food supply.

Q. (BY MS. BARELA) I'd like to turn your attention to the next page, Page 5, Figure 12, "The functional impact of ACES." What impacts does the university seek to achieve by implementing these three core elements?

A. The core focus is on education and training, food and fiber, agriculture and associated industries, water resources, natural resources and environmental

stewardship, youth, family, and health.

Q. How important is agriculture to the university's mission?

A. It's critical to our mission.

Q. Does the university's mission include promoting agriculture in the Lower Rio Grande Valley of New Mexico?

A. Yes, it does.

Q. How does the university promote agriculture in the LRG?

A. Well, we do it through -- obviously through our education, training of our students. We utilize our ag research centers for that purpose. We also use our ag research centers for research, as well, and -- and then we take this research and this information and provide it in extension services, as well, so all three are focused in -- in the LRG, as well as the state of New Mexico.

Q. If we could turn to Page 6, I'd like to refer you to Figure ES-2 Case Studies. What does this diagram show?

A. This diagram is just showing just six of probably over 70 examples of agricultural impacts in New Mexico through -- through ACES involvement. It's basically a positive investment of over $190 million

for New Mexico annually.

MR. DEITCHMAN: Your Honor, objection. He's providing testimony regarding agricultural impacts to the State of New Mexico. The relevance to the Lower Rio Grande has not been established, and the relevance to this lawsuit has not been established nor is the witness an expert.

MS. NAJJAR: The fact that the witness compared the rest of this case study does not mean they're qualified to attest to the validity of the underlying contents.

JUDGE MELLOY: I'll let him testify generally about the activities of the university impact on the state. You know, I'm not -- granted, it doesn't break it out in the Lower Rio Grande, but I think the witness can generally testify about what the university does. Go ahead.

MS. BARELA: Thank you, Your Honor.

Q. (BY MS. BARELA) Mr. Eschenbrenner, did you have anything more to say on this diagram?

A. No, Ms. Barela, I think that's all.

Q. Thank you. I was just making sure. I would like to turn over to Page 9, Table ES-1 of the executive summary. What does this table show?

A. This table is also study done by ACES to

determine increase in agricultural output through the research and work that NMSU does. It basically is -- is showing that for a 1 percent increase of total economic output impact is about $54 million. Labor income generated for New Mexicans would be almost 15.2 million for an additional 1 percent increase, and 531 jobs would be created in the state by just a 1 percent additional output.

Q. Similarly, please turn to the next page, Page 10. Do you see Figure ES-5, "Components of the Economic Impact of Institutional Expenditures"?

A. Yes, I do.

Q. What does this diagram show?

A. This diagram is showing the direct impacts plus indirect impacts and induced impacts equals the total impact. I really think what's significant here is just an example of what ACES academic programs, experiment station, and extension in '16 and '17, we spent over 71 million dollars and employed 742 full-time personnel to deliver that mission.

Q. I'd like to move on from this exhibit and move onto Exhibit New Mexico 0854. This exhibit is entitled, "College of Agricultural Consumer and Environmental Sciences Strategic Plan or ACES Strategic Plan." Mr. Eschenbrenner, do you recognize

this document?

A. Yes, I do.

Q. What is it?

A. It's the strategic plan for the College of ACES for 2020 through 2025.

Q. Is this kept in the regular course of business of New Mexico State University?

A. Yes, it is.

MS. BARELA: Your Honor, at this time, New Mexico moves its admission, New Mexico 0854.

JUDGE MELLOY: Any objection?

MR. DEITCHMAN: Texas objects to relevance.

MS. NAJJAR: The United States joins the objection.

JUDGE MELLOY: I guess I'm having a little trouble. What is the relevance of this to water use of the Lower Rio Grande?

MS. BARELA: Your Honor, the purpose of this testimony is to lay the foundation and show the importance of agriculture and water use to the mission of the university.

JUDGE MELLOY: But, again, what does that have to do with the issues that are before us? I guess I'm having a little trouble connecting the dots

of how -- I mean, I know what a land grant university is. We have Iowa State University here. I know that their mission is to study and promote agriculture, but I guess I don't understand what this has to do with -- with -- with the issues that we're trying to decide here.

MS. BARELA: Yes, Your Honor. Mr. Eschenbrenner, again, is just laying the foundation for the importance of agriculture and water to the university's mission. We only have a few questions on this document, similar to the other ACES exhibit.

JUDGE MELLOY: All right. Well -- all right. I'll admit 854, but I -- I guess I'm really having trouble understanding this whole line -- the whole issue of -- of the university in this case, but -- but go ahead.

MS. BARELA: Thank you, Your Honor.

Q. (BY MS. BARELA) Beginning on Page 8, Objective 2.2, but continuing onto Page 10, please take a look at the strategic priorities. What does Objective 2.2 indicate?

A. Objective 2.2 addresses the critical water use and conservation issues in New Mexico and beyond using the science-based approach.

Q. Which of the stated actions relate to sustainability and conservation of water?

A. Well, I've highlight -- I'd like to highlight four of these here. One is, "Advance our understanding of impacts of using alternative water sources for irrigated agriculture, characterize groundwater or surface water resources to understand water availability, discover requirements for water resource sustainability within the fragile environment of semi-arid systems, and optimize agricultural water resources including ground and surface water through water allocation, water conservation, and water management to provide safe and secure food systems while ensuring ecosystem services."

Q. Does the university operate any farms in New Mexico?

A. Yes, we do.

Q. How about --

A. I'm sorry. I was just going to state that we have 12 ag research science centers throughout the state of New Mexico.

Q. Thank you, Mr. Eschenbrenner. And I'm sorry. I didn't mean to interrupt. How about in the Lower Rio Grande, what experimental farming facilities does the university have?

A. Well, just north of Las Cruces, we have the 60,000 acre Chihuahuan Desert Range Research Center. On our main campus, we have research plots. On the main campus, we also have the Fabian Garcia Horticulture Research Facility, about a 45-acre farm. We also have a horse farm that's about 47 acres about a mile south of the horticulture farm, and about 7 miles south of the main campus. It is a 202-acre research farm referred to as Leyendecker Plant Research Center.

Q. What water supply do these farming facilities receive?

A. Receive both surface water and groundwater and supplemental groundwater.

Q. Does the university receive its surface water supply from Elephant Butte Irrigation District, or EBID as I may refer to it sometimes?

A. Yes, it does.

Q. How does the university get its groundwater for these experimental facilities?

A. Through groundwater pumping.

Q. Do they rely on surface or groundwater more?

A. I'd say over the past 12 years, it's been primarily groundwater due to lack of availability of surface water.

Q. What has caused them to become more reliant on groundwater?

A. There's just been less water available to the EBID members in the Lower Rio Grande Basin.

Q. What would happen to the university's experimental farms if they could not pump groundwater to make up for the loss of surface supply?

A. Well, if we didn't have groundwater and with very limited surface supply, we probably wouldn't be able to continue our mission of research and agricultural production.

Q. What role does the availability of groundwater play in allowing agriculture to thrive in the Lower Rio Grande Valley in New Mexico?

A. Plays a critical role. Without water, we -- we don't have an agriculture. I think that's been testified to before by other farm members.

Q. How is groundwater used by NMSU?

A. Well, it's used -- it's used as municipal use for our main campus, for our faculty staff and students. It's also used for agricultural output, and we also use it for research, as well.

Q. I'd like to turn to the university's history of using water. If we can please pull up Exhibit New Mexico 1027. This is entitled, "A history of New

Mexico State University's Well Development and Groundwater Use," by Calvin Lashway dated July 1988. Do you recognize this document?

A. Yes, I do.

Q. What is it?

A. It's just that. It's a -- it's a graduate student's report back in 1988 reporting on a hundred-year history of New Mexico's water use, groundwater use, and well development.

Q. Is this an official record of the university?

A. Yes, it is.

Q. Kept in the regular course of business?

A. Yes.

MS. BARELA: Your Honor, at this time, New Mexico moves Exhibit New Mexico 1027 for admission.

JUDGE MELLOY: Hold on a second. All right. What's your position, Ms. Najjar?

MS. NAJJAR: Yes. Object to hearsay, relevance, foundation, and improper testimony as a lay witness. This technical report purports to opine on the history of New Mexico State University's well development. The principal investigator is Calvin Lashway, who at the time in 1988, was a history department student. It is not authored by anyone at

NMSU, and additionally, as Mr. Eschenbrenner has opined today, he has -- he didn't start at NMSU until 2015, so there simply is no foundation. To the extent that this could be a business record, which is questionable, again, because it's not an NMSU document, there's hearsay within hearsay. Mr. Lashway states in his methodology that it's reported on primary and secondary resources, many of which he couldn't find or identify as stated in his conclusions. Additionally, this report was developed in part for the purpose of litigation that they were preparing for so those are our objections.

MR. DEITCHMAN: And Texas joins those objections.

JUDGE MELLOY: What do you mean was prepared in part for litigation? What litigation?

MS. NAJJAR: Your Honor, on NM-1027, Page 10, the justification of work performed states, "A history of the university's use and development of its water resources, especially groundwater, is important in light of the claims of El Paso, Texas to groundwater in the Mesilla Valley. This report can help the university in establishing and defending its water rights in the Mesilla Valley by documenting its water development history."

JUDGE MELLOY: Do you have any response, Ms. Barela?

MS. BARELA: Yes, Your Honor. New Mexico feels that it has laid the proper foundation for this document to be admitted. This is a business record. It relates to the history of water use of the university in the same way that other witnesses have testified, such as Art Ivey and Bobby Sloan. Mr. Eschenbrenner is not testifying as a historian nor as an expert. The purpose of this testimony is to lay the foundation and show the history of water development by the university. This exhibit is a university report held in the regular course of business, and the Special Master has already allowed testimony on the history of water use by other witnesses.

MR. DEITCHMAN: Your Honor, just, if I may, she just mentioned Art Ivey and Bobby Sloan. You know, Mr. Ivey, for sure, did not seek to introduce a, you know, historic technical history report from 1988 about historic water use. It was merely his live testimony.

MS. BARELA: Your Honor, if I may?

JUDGE MELLOY: Go ahead.

MS. BARELA: It is important for New

Mexico State University to identify its pre-Compact and pre-Project water rights in this case, and for the university to have its voice heard as a New Mexico water user, a very outstanding ...

JUDGE MELLOY: Well, I'm going to --

MS. NAJJAR: Your Honor --

JUDGE MELLOY: Go ahead.

MS. NAJJAR: As I stated before, it's very --

JUDGE MELLOY: Can you speak up, Ms. Najjar? I'm having trouble with your microphone.

MS. NAJJAR: Sorry. It's questionable whether this could be a business record because it was not -- the record was not made by someone from NMSU. Additionally -- sorry. It's not a record of regularly-conducted activity under 803.6.

JUDGE MELLOY: Well, I'm going to let you ask some questions about it, but I'm going to reserve ruling. I'm not sure a student paper qualifies as a business record of the university, but that -- quite frankly, I don't know the answer to that. I am very concerned about the hearsay nature of it, and I'm very concerned about the fact it was prepared to help the university defend against a claim by the City of El Paso. So I want to review it a

little more, and I also want to think about it a little bit more, but I'll -- for purposes of making the record and subject to possibly having testimony stricken and disregarded, I'll let you go ahead and ask the witness about the exhibit. Go ahead.

MS. BARELA: Yes, Your Honor. I will add that New Mexico Water Resources Research Institute, as stated on this first page of New Mexico 1027, is a department within New Mexico State University, Your Honor, but I've noted your comments. Thank you.

JUDGE MELLOY: Let me ask -- let me also add, one of the justifications, as I understand it, is to -- is to show priority dates. As I understand it, that's already been adjudicated. Now, maybe -- of course, I guess, based on the United States cross-examination, they may be challenging those priority dates, but go ahead. All right.

MS. BARELA: Thank you, Your Honor.

Q. (BY MS. BARELA) Mr. Eschenbrenner, do you know why this report was prepared?

A. Yes. It was prepared to show the history, hundred-year history, back when this was reported in 1988 of NMSU's water well development and groundwater use.

Q. It is a long report, so I'd just like to ask you about some of the early use of water shortly after university's founding in 1888 and refer to you some of the historic photos and diagrams. If we could turn to Page 12 of this document, does this report reflect the historical importance of groundwater use?

A. As I stated here, yes. It's reporting that over the years, this water has been used by students, faculty staff for dormitories, classrooms, and research. It's been used by our ag experiment stations to fulfill its agricultural research and responsibilities for the people in New Mexico. It also states there because of erratic Rio Grande water flows and NMSU's continued growth, the river was not able to provide and meet these educational resource needs. The university found the only way it could fulfill those needs in the semi-arid climate was to drill wells for access to groundwater. Drilling these wells is a vital part of the university's history. Without access to underground water, NMSU would not exist as we know it today, and institutions providing agricultural engineering and humanities to many students.

Q. If we could turn to Page 24, what was the university water supply available in 1888 when the

university was established?

MS. NAJJAR: Your Honor --

A. It was established as surface water from the Rio Grande.

MS. NAJJAR: I need to assert an objection. The United States will renew its objection here. This is hearsay. There is no -- very limited citations and the fact that the witness can read to us the report does not establish his qualifications to opine on these matters.

MR. DEITCHMAN: And Texas joins the objection.

JUDGE MELLOY: Well, as I said, I'll let some questions about the report come in, but I also understand that both Texas and the United States are objecting to this line of testimony based on the report, but as I say, subject to whether I ultimately decide to admit the report, I'll let the witness answer. I think the answer is already in, if I'm not mistaken.

MS. BARELA: Yes, Your Honor. Thank you.

Q. (BY MS. BARELA) Mr. Eschenbrenner, do you see the paragraph that started, "During construction"?

A. Yes.

Q. Would you please read that paragraph. It starts on this page and then it goes on.

MR. DEITCHMAN: Your Honor, I understand that you understand our objection, however, counsel is merely asking him to just read the document into the record. There's no basis for him to do that.

JUDGE MELLOY: Go ahead. You can read it.

THE WITNESS: Thank you, Your Honor.

A. "During construction it became immediately evident that the water from the Rio Grande would not sufficiently meet the needs of the college and experiment station. In 1890, the college began developing alternative sources of water." Our first president, Hiram Hadley, wrote the need for supplemental groundwater experiment station in their first bulletin.

Q. (BY MS. BARELA) What was the university's plan to secure reliable water supply?

A. Through groundwater.

Q. Turning your attention to Page 13, Table 1 entitled, "NMSU wells," and I'll have Ms. Ferguson scroll through these pages. What are these headings at the top of the page?

A. It's the name of the wells, the location, the

dates they were put in service, and the dates they were taken out of service.

Q. How is this table ordered?

A. It's chronologically from the first well to -- until the report date, I think the last one was in 1986.

Q. And what is this table showing?

A. It's basically showing NMSU's long history of water use and the need for -- for groundwater.

Q. Let's turn to Page 27. What does Figure 5 show?

A. That's a picture of a hall and our first windmill that was in 1890, circa 1890.

Q. Based on this report, was it difficult for the university to obtain a reliable water supply in these early days?

A. Yes. It's apparent when you look at the dates of these wells being put in place and taken out of service early on, these wells weren't lasting very long, so this well, for instance, I think, only lasted a period of about four years before it had to be redrilled.

Q. How did the university obtain water for its agricultural properties?

A. It -- it obtained it through both surface and

supplemental groundwater.

Q. Let's turn to Page 29 of this exhibit. What does this photo show?

A. This is a view of the experimental station looking west from that building that was just in the previous picture. This is circa 1895. In the left-hand side, left-hand center portion of the picture, you can see the building. That was our first pumping plant, pulsometer pumping plant.

Q. Was this also a stop on the basin tour?

A. Yes. Over on the far -- to the -- to the right, far right-hand side of the picture, that's where the basin tour met when we -- when we looked at the university, about in that area.

Q. Let's look at the photo on Page 35. What does this photo show?

A. This is circa 1896. Again, this is showing the hall and the replacement windmill that was erected there.

Q. Now, let's turn to Page 41, and what does this photo show, Mr. Eschenbrenner?

A. This is a photo of our -- of a well circa 1902, irrigation -- Irrigation Department Well No. 1.

Q. On the next page, Page 42, there's another picture of this. Do you know how this well was

operated?

A. Yes. This well was a steam-powered well. Steam-powered pump.

Q. What was the purpose of this well?

A. Again, it was used for -- for agriculture and domestic uses, as well.

Q. Next, let's please turn to Page 54. What is this a diagram of?

A. It's a diagram of Mesa Pumping Plant, and just a moment. I'll tell you the year. I think it was, yeah, 1908.

Q. How was this powered?

A. This one was powered by a gasoline-driven motor that powered the well.

Q. Was it successful in providing water supply?

A. Yes. This well, I think, I believe provided water for -- through to the '40s, I believe.

Q. And who did it supply water to?

A. It supplied water for the university, faculty staff and students. It also supplied water for research, and it supplied water for our agricultural output, as well.

Q. Did it supply water to residential customers?

A. Yes. Just north of the university, there was some residences north of the university that were

outside the city limits, and we supplied water to those residents, as well.

Q. At that time, Mr. Eschenbrenner, did the City of Las Cruces not provide water supply in the area around the university?

A. I believe it was outside of what they had established as a service territory, yes. They did not supply it there.

Q. Let's just look at a couple of later photos. I'd like you to look at Figure --

JUDGE MELLOY: Ms. Barela, can I interrupt you for a moment?

MS. BARELA: You may, Your Honor.

JUDGE MELLOY: I was just looking through this report. On Page 58, it references a Conover report from 1926 titled, "Groundwater Conditions in the Rincon and Mesilla Valleys and Adjacent Areas in New Mexico." Do you know or does anyone know if that particular report is part of the record? I know obviously the -- we've talked a lot about the later Conover report, but do we know if that one is part of the record in this case.

MS. NAJJAR: Your Honor, I'm being informed that in 1926, that's when they bought the land, and then it goes onto continue to the 1947

report.

JUDGE MELLOY: I'm sorry. What did you say? The 19 -- when who bought the land?

MS. NAJJAR: In 1926, the college came into possession of the College Ranch property.

JUDGE MELLOY: Okay. Oh, I see. It was referring to the College Ranch property. Okay. All right. Okay. Go ahead, Ms. Barela.

MS. BARELA: Yes. Thank you, Your Honor.

Q. (BY MS. BARELA) I believe I had just asked to turn to Page 66. What does this show?

A. This is a drilling rig that was used in -- on a horticultural farm to replace a well. This is back in 1935.

Q. What was the purpose of this new irrigation well?

MR. DEITCHMAN: Your Honor, I'm going to object on relevance. I'm not sure how any of this testimony is related to the interstate Compact claims that are at issue in this litigation. This appears to be more New Mexico state attempting to prove its water rights, which I'm not sure how that's relevant to this case.

MS. NAJJAR: The United States joins the

objection.

JUDGE MELLOY: You may continue. Go ahead.

MS. BARELA: Thank you, Your Honor.

Q. (BY MS. BARELA) There's a quote that starts on Page 65 and continues on to the page -- top of Page 69. Mr. Eschenbrenner, would you please read that quote?

A. Yes. "Owing to the anticipated shortage of irrigation water for the Mesilla Valley for 1935 growing season, the College and Experiment Station considered it advisable to install two pumping plants to provide water in case of emergency. The drought situation had decreased the supply of irrigation water in the Elephant Butte Reservoir to such an extent that by the spring of 1935, the district officials believed that there would be insufficient water for crop production for that year."

Q. I also want to ask you about the 1950s drought and how the university adapted to the lack of water. Please turn to Page 86. Do you see at the top there, Mr. Eschenbrenner, "Drought affects college"?

A. Yes, I do.

Q. According to this history, how did irrigators in the Valley cope with the lack of surface water?

A. The report states that, "Throughout most of the 1950s, there was a shortage of irrigation water in the Mesilla Valley. From 1951 to 1957, a severe drought caused a shortage of surface irrigation water. During this period, several hundred wells were drilled and groundwater was developed for irrigation purposes."

Q. The middle of this page references a university document entitled, "Irrigation Situation 1951." Do you see that?

A. Yes, I do.

Q. Can you please read the quoted portion that starts, "On the main College Farm," as Ms. Ferguson is highlighting there for you?

A. Yes, Ms. Barela. "On the main College Farm, besides the 174 acres noted above, we are now irrigating at least 70 acres on the campus and at least 20 acres at the U.S. Cotton Field Station. As the picture appears at present, we will in 1951 have 174 acre -feet of water from the canal, whereas last year we used 734 acre-feet. The only source of irrigation for all lands west of the Las Cruces lateral is the canal water. This is also true for the U.S. Field Station. It is estimated for the main farm that to supply 560 excess acre-feet would require

3,360 hours of operation, or 140 days of 24 hours each day. It is further estimated that under continuous operation, it would require 27 days to complete one irrigation of the entire 264 acres."

Q. If we could please turn to Page 89. Please look at the photo here. What does this show?

A. This is showing the wells that -- that NMSU had circa 1953, the locations of them.

Q. What purposes did these wells serve?

A. They served both for domestic use and also for agricultural and research.

MS. BARELA: Your Honor, I would like to renew my -- New Mexico's moving to admit this exhibit.

JUDGE MELLOY: I'm going to continue to reserve ruling. I'm not sure I'm going to be able to make a decision today. Go ahead.

MS. BARELA: Your Honor, may I respond?

JUDGE MELLOY: Go ahead.

MS. BARELA: Your Honor, New Mexico states that it is not a hearsay document under Rule 803, and as an ancient document based on its date. It is relevant to show New Mexico State University's long reliance on groundwater, which is challenged in this case.

JUDGE MELLOY: I understand your

relevance to -- well, I'm not sure that I completely understand the relevance either way of New Mexico State University's reliance on groundwater, but -- well, let me think about it. I -- I told you what I'm going to do. I'm going to think about it so go ahead.

MS. BARELA: Yes, Your Honor. Thank you. And I did misspeak a amount ago. I said Rule 803. I meant Rule 803.16 as an ancient document.

JUDGE MELLOY: I know what you were talking about. Go ahead.

MR. DEITCHMAN: Your Honor, I think this is the case, but I just want to make sure it's clear on the record, that we would move to strike all the testimony he just gave relying on New Mexico Exhibit 1027 for the reasons stated in the objection.

MS. NAJJAR: United States will join that motion to strike.

JUDGE MELLOY: I understand. Go ahead.

MS. BARELA: Thank you, Your Honor.

Q. (BY MS. BARELA) I'd like to turn to another university water document, Exhibit New Mexico 0847. I'm showing you exhibit entitled, "New Mexico State University Water Plan 2002-2042." Do you recognize this document?

A. Yes, I do.

Q. What is it?

A. It's a document that's stating our history of our water use, and also our 40-year water plan for where we are at that point in time in 2002 and where they anticipate going in the next 40 years.

Q. Is this an official record of the university?

A. Yes.

Q. Held in the regular course of business for NMSU?

A. Yes, it is.

MS. BARELA: Your Honor, at this time New Mexico moves for New Mexico Exhibit NM-0847 into evidence.

JUDGE MELLOY: Any objection?

MS. NAJJAR: Yes, Your Honor. The United States objects again to hearsay, relevance, improper testimony by a lay witness. This document is dated June, 2003. While it is for NMSU, it lists 11 authors, none of whom are Mr. Eschenbrenner. Indeed, it relies on Mr. Calvin Lashway, the same student who authored the last exhibit we looked at, NM-1027. So I'd say there's hearsay within hearsay, which cannot be cured, and to the extent that this is improper lay opinion testimony, New Mexico had Dr. Stevens to opine as an expert historian. Mr. Eschenbrenner is simply

not qualified to speak to the contents of this document.

MR. DEITCHMAN: Texas joins the United States' objection.

MS. BARELA: Your Honor, may I respond?

JUDGE MELLOY: You may.

MS. BARELA: Your Honor, this is similar to the Las Cruces water plan that was previously admitted for Dr. Garcia just a few moments ago. This is an official business record of the university. It describes the different lands on which the university uses water, and it is relevant to describing the university's water use. Mr. Eschenbrenner is not testifying as an expert or a historian and, again, the purpose of this testimony is to lay the foundation and show the history of water development by the university. This is a university report held in the regular course of business.

JUDGE MELLOY: Well, I will at least admit that part of the report that talks about their plans going forward for water use. Again, I'm going to reserve any ruling as to that portion dealing with the history. As I understand, it's just basically a regeneration of the history that we just got done discussing, and to the extent that I'm still not sure

if I'm going to admit that, I'll reserve ruling as to that portion of the report. You may go ahead.

MS. BARFIELD: Thank you, Your Honor.

Q. (BY MS. BARELA) Referring to Page 13 on this exhibit, why did the university prepare this plan?

A. The purpose of the water plan for NMSU is to document its historic water resource development, describe present water infrastructure and use, and provide projections for water needs for the next 40 years.

Q. Please turn to Page 16 of this exhibit. What does this map show?

A. This map shows NMSU properties in the Lower Rio Grande Basin. If you'd like me to, I can describe what's in here. Obviously, you have circled at the top the Chihuahuan Desert Rangeland Research Center north of Las Cruces as the 60,000 acre facility. We also have the main campus down below, and adjacent to that is the Fabian Garcia Horticultural Farm, about a 47-acre farm. A horse farm just below Fabian Garcia, which is 45 acres and the Leyendecker Plant Science Farm about 7 miles south of campus, 202-acre farm.

Q. Mr. Eschenbrenner, if I can ask you what water users, does the Chihuahuan Desert Rangeland Research Center use?

A. It's primarily just groundwater. We -- we have mostly cattle and sheep up there -- no, just cattle at that facility.

Q. I would like to ask you about these properties individually. Let's first turn to the map of the main campus on Page 29. What does this map show?

A. In the areas that are in yellow cross hatch, that's NMSU's real estate that we own located in the center part of the picture, the triangle, that we consider our main campus bounded by Interstate 25 to the east, Interstate 10 to the south and west, and University Avenue to the north. Then just to the left or west of the main campus, you'll see the cross hatched area that's the Fabian Garcia Horticulture Farm and right below that another area is the university horse farm.

Q. Did the Special Master visit this area during the basin tour?

A. Yes, he did. He visited the main campus.

Q. Is that near the university's Well No. 16?

A. Yes, it is. Yeah. We were close to -- it is just off the University Avenue by a little bit south of that location but very close in general proximity.

MS. BARELA: Thank you, Ms. Ferguson.

Q. (BY MS. BARELA) What is NMSU Well No. 16 used for?

A. Well, it's used for our domestic water. It's also used for our agricultural output on the main campus, and it's also the water well that we have an interconnect with the City of Las Cruces.

Q. I'd like to ask you about that interconnect in a few minutes, but let's finish looking at these maps first. Please turn to the map of Fabian Garcia Horticultural Farm on Page 38. What does this show?

A. This is our first ag experiment station other than on the main campus. It's right adjacent to the main campus to the west. It's a 47-acre research facility.

Q. Next, let's turn to Page 40. What does this show?

A. This is the university's horse farm where we raise horses and also do educational work. That's a 45-acre horse farm facility just about a mile south of the horticulture farm.

Q. And if we could please turn to Page 42, what does this show?

A. That map shows the 202-acre Leyendecker Plant Research Center about 7 miles south of campus.

Q. Mr. Eschenbrenner, are you personally

familiar with this area?

A. Yes, I am. Actually had a residence there a few years back about 2 miles away from there so I'm familiar with the area. Actually my first foray into small hobby farm. Had about 7 acres where we grew alfalfa for -- for livestock and wound up having to rely on surface water for our farming. We do not have any groundwater nor could we afford to put in a well. Unfortunately, just the lack of reliance on groundwater or surface water, we had to do away with the agricultural output on that and rely just on turning into pastureland and purchasing our alfalfa from the market.

Q. What is the purpose of these NMSU agricultural properties?

A. Again, it's education. It's research, and we also run extension services out of here, too, as well.

Q. What crops are grown on these farms?

A. Well, it's a multitude. It's pecans. It's onions. It's chile. We do research on cotton, research on alfalfa. It 's just -- it's just -- I'm just probably scratching the surface on the different plants that -- that the college does research on in this area.

Q. How did they receive water?

A. It's both surface water and groundwater.

Q. How much of their supply comes from surface water from the Rio Grande Project?

A. Well, this year, we received 4 acre -- 4-inch acre-feet of water out of into a full allotment that would have been 3 acre-feet.

Q. Do you know why they've been getting so little surface water?

A. I think it's partly to do with some drought situations, and also I feel like part of this is a challenge that we have with the 2008 Operating Agreement in that a lot of this water is just not being made available to Elephant Butte Irrigation District members.

Q. Do you know how much the university pays EBID each year for water from the Rio Grande Project?

A. Last two years, we paid approximately $33,000 a year for our water.

Q. And what do you expect for your $33,000?

A. We hope it'll be a full allotment of 3 acre-feet.

Q. What did you get?

A. This year, 4 inches, basically one irrigation in the month of June.

Q. Is this $33,000 a significant amount for NMSU

to pay?

A. Well, the number may not seem big to -- to a lot of folks here, but I'll tell you that from NMSU's budget, we operate 12 ag research science centers throughout the state. We probably -- I just saw a report that we have over $80 million in deferred maintenance. When you're paying even an amount of $33,000 a year, it's not only the cost of the water that you're not getting, but it's also the cost of energy to pump the water to supplement this lack of surface water. In addition to that, it's additional maintenance costs that's associated with running those wells. So it's -- it's a challenge.

Q. Have the farms had to pump their wells more in the last few years?

A. Oh, yes, certainly. Uh-huh. It's had to pump it to supplement the lack of surface water.

Q. Has this increased pumping from their wells caused any problems?

A. I think some of the problems would be associated with additional wear and tear on the equipment for the wells and then water quality issues, as well.

Q. Have some of these problems included well failures?

A. It has in the past, uh-huh.

Q. What happens when you have a well failure?

A. If it's significant in the casing, we can't reutilize the well, we'll have to try to find appropriation of funding. We'd cap that old well and try and drill a new well in very close proximity after we get approvals from the state engineer to do that.

Q. Are these considered new wells?

A. No. They're just replacement wells.

Q. I would like to ask you now the university's history of sharing water with the City of Las Cruces. Do these histories, the Lashway report, and the water plan describe the origin of the relationship, and in particular, the interconnect of water lines?

A. Yes, it does.

Q. What is that history?

A. My understanding, the history goes back to probably about a 70-year history back to the '50s where we had water sharing agreements between the City and New Mexico State University. The agreements were basically put in place that if one entity had challenges or needed some supplemental well -- supplemental water, that we could rely on that entity to help provide that.

MS. NAJJAR: Your Honor, I don't mean to

interrupt. It seems like my mic is going in and out, and I just got a notification from the trial administrator that I could not be heard. I had objections to the previous statements based on foundation, improper lay witness testimony. I'd just like to state that now for the record. Apologies for the technical mishap.

JUDGE MELLOY: Are you talking about the -- the statement about the 70-year history?

MS. NAJJAR: Yes, Your Honor.

JUDGE MELLOY: All right. Well, the prior witness was cross-examined pretty extensively about the well sharing agreement between the City and the university, so I think it certainly would for the university representative to talk about that, as well, so I'll allow the testimony. Go ahead.

MS. BARELA: Thank you, Your Honor.

At this time, New Mexico renews its movement of admission of New Mexico Exhibit 847.

JUDGE MELLOY: As I've said before, I'm going to reserve ruling. Let's move on.

Q. (BY MS. BARELA) I would now like to discuss some specifics of the university 's water rights. What water rights does the university own today?

A. We own both surface and groundwater rights.

Q. Is the university a party to the state adjudication involved water rights in the Lower Rio Grande and New Mexico?

A. Yes, we are.

Q. I'd like to move on to the next exhibit, New Mexico Exhibit 0853.

MS. BARELA: And, Your Honor, this was the exhibit that was previously admitted with Dr. Garcia.

JUDGE MELLOY: All right.

Q. (BY MS. BARELA) Mr. Eschenbrenner, this is the sub-file order for New Mexico State University. When was this document entered by the adjudication court?

A. On November 9th, 2007.

Q. Beginning here with the first page and looking at the bottom of Page 1, what water right is described here?

A. This is a groundwater right for our main campus for LRG Well 35 -- for LRG 35. I'm sorry.

Q. What is the priority date?

A. It's April 30, 1890.

Q. What is the purpose of use?

A. Its purposes and related are consistent with the teaching, research, and public service mission and

historic uses of NMSU, including supply to the City of Las Cruces.

Q. Moving on to the next page, Page 2, what other elements of the water right does this describe?

A. Showing the points of diversion, the place of use, and the amount of water.

Q. What is the place of use?

A. It's the contiguous and noncontiguous New Mexico State University campus and properties within the Lower Rio Grande Basin, and said campus and properties may be modified or changed from time to time pursuant to law and use within the City of Las Cruces municipal boundaries of water supplied to the City of Las Cruces.

Q. Continuing onto Page 3, right after this first full paragraph, what water right is described here?

A. This is NMSU's groundwater and surface water rights.

Q. What is the priority date there?

A. Again, the groundwater is April 30, 1890, and the surface water is January 25, 1906.

Q. And what is the purpose of use?

A. Again, it's for purposes and related consistent with the teaching, research, and public

service mission and historic use of NMSU.

Q. (BY MS. BARELA) And without going through the rest of this exhibit, what does the rest of this sub-file address?

A. It's just showing other wells on some of our ag experiment stations within the Lower Rio Grande Basin. It also mentions some other monitoring wells and some geothermal wells, as well.

MS. BARELA: Thank you. You may take down this exhibit.

Q. (BY MS. BARELA) Moving to the last topic, Mr. Eschenbrenner, why is NMSU an amicus party in this case?

A. NMSU has been a continual water user. We've been in existence for 130 years. We have a case that comes before us that may jeopardize those water rights, our ability to continue with our mission, we certainly have a strong interest in wanting to have a say and be a party to that.

Q. Is NMSU concerned with the effects of the 2008 Operating Agreement?

A. Yes, we are.

MR. DEITCHMAN: Your Honor, Ms. Najjar asserted an objection. I don't think she could be heard, though.

MS. NAJJAR: Can you hear me? Objection. There we go.

MR. DEITCHMAN: Yeah.

MS. NAJJAR: Foundation; improper lay witness testimony.

MR. DEITCHMAN: And Texas joins that objection.

JUDGE MELLOY: All right. Go ahead. Tell us -- tell us your problems with the operating agreement, if that's the question.

A. Yes, Your Honor. The challenge has been since the operating agreement has been in place. It just appears that we've had less and less surface water so the challenges that we've mentioned before would have more reliance on our groundwater, the increased operating cost associated with it so that's why we have an interest in the outcome of this trial and feel like that the 2008 Operating Agreement had been a challenge for New Mexico State University.

MS. BARELA: So that Ms. Najjar can prepare herself, I only have a few more questions, Your Honor.

Q. (BY MS. BARELA) Is NMSU a member of the Lower Rio Grande Water Users?

A. Yes, we are.

Q. Did NMSU's decision to help form that group relate to the concerns you just described?

A. Yes.

Q. What is the purpose of the Water Users Group?

A. The Water Users Group is trying to be proactive. We're trying to look for alternative administration ideas and also for groundwater management, as well. That's been the primary function of the group.

MS. BARELA: Thank you, Mr. Eschenbrenner. I have no further questions.

THE WITNESS: Thank you.

JUDGE MELLOY: Well, it's a little early to take our recess, but seems like a good breaking point, so why don't we -- why don't we break for about 15 minutes and then we'll come back. Are you going first, Ms. Najjar?

MR. DEITCHMAN: No, Your Honor, I'm going to go first. I will say, at least from my perspective, I only have one question for this witness.

JUDGE MELLOY: Okay. Go ahead.

CROSS-EXAMINATION

BY MR. DEITCHMAN:

Q. Mr. Eschenbrenner, nice to meet you. My name

is Rich Deitchman. I'm one of the attorneys for Texas in this case, and like I said, I have one question for you. Isn't it true, Mr. Eschenbrenner, that regardless of the outcome of this U.S. Supreme Court litigation, New Mexico State University will continue to assert its water rights under state law?

A. Can you repeat the question? I'm sorry, Mr. Deitchman.

Q. Gladly. Isn't it true -- I've just got to read it off of here again. Isn't it true that regardless of the outcome of the U.S. Supreme Court litigation, New Mexico State University will continue to assert its water rights under state law?

A. I don't know that I can answer that question. That's probably more of a legal question.

Q. But you manage the water rights for New Mexico State University; you testified to that, correct?

A. That's correct.

Q. So you can't answer -- you don't think you can answer my question?

A. Well, I think it depends on the outcome of this case, doesn't it?

Q. So you don't know the answer to the question?

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

MR. DEITCHMAN: Okay. I have no further questions, Your Honor.

JUDGE MELLOY: Ms. Najjar, do you have cross-examination?

MS. NAJJAR: Your Honor, I only have a handful of questions. I'm happy to do so now, but if there's trouble with the mic, I am happy to switch computers, if that would be helpful, during the break.

JUDGE MELLOY: Why don't we do that? Let's take about a 15 -- we'll break until 3:05 our time and maybe can get your mic set up. Okay? All right. Thank you.

(Recess.)

JUDGE MELLOY: All right. We ready to proceed?

MS. NAJJAR: Yes, Your Honor. Can you hear me now?

JUDGE MELLOY: I can. Much better. Thank you.

MS. NAJJAR: Sorry about that.

CROSS-EXAMINATION

BY MS. NAJJAR:

Q. Good afternoon, Mr. Eschenbrenner. My name is Jennifer Najjar. I'm here on behalf of the United States. How are you?

A. I'm doing fine. Thank you.

Q. I just have a couple questions for you. Could we please pull up New Mexico 1027, the technical report? This report is dated July, 1988; is that right?

A. That's correct.

Q. And your employment with NMSU did not begin until 2015?

A. That's correct.

Q. And you'll agree with me that the principal investigator is Calvin Lashway?

A. That's correct.

Q. And in 1988, Calvin Lashway was enrolled as a student in the Department of History at NMSU, wasn't he?

A. That's my understanding.

Q. The report contains a disclaimer. Let's turn to NM-1027, Page 2. The report contains a disclaimer that says, "The views expressed are those of the author and do not necessarily reflect those of the Water Resources Research Institute," right?

A. Yes. I read that as the case.

Q. Let's turn to Page 10. The report also contains a section -- section entitled, "Justification of Work Performed." "The report was created in part

to help defend New Mexico State University's water rights in light of the claims after El Paso, Texas to groundwater in the Mesilla Valley," right?

A. That's -- that's what it states in the document, yes.

Q. Okay. Let's just turn to "Methodology" very quickly, Page 11. This report was based on primary and secondary documents; is that right?

A. Yes. That's what it says.

Q. And physical plant department records from 1888 to 1930 were not relied upon in this report; is that right?

A. It says they could not be found.

Q. Additionally, only a few documents dating from the 1930s and early 1940s were found for this report?

A. Yes. That's what I -- what I read to be correct here.

Q. And it was difficult to use physical plant documents to trace the well history over the years because the university changed its well numbering system, right?

A. Yes. That's correct. I read that here to be the case.

Q. And this change in numbering created

inconsistencies and confusion?

A. Yes. I see what -- yes. I read that to be correct here, as well.

Q. And just to clarify, you're not testifying here today as an expert historian?

A. That is correct.

Q. All right. Let's shift gears a little bit.

JUDGE MELLOY: Just a second, Ms. Najjar. On that page you were just asking about on methodology, do we know what USGS report is referenced in the last sentence.

MS. NAJJAR: Your Honor, it's unclear from this document, and as I review the document, there are numerous assertions without citation so it's very difficult to understand the reliability of the sources stated within.

JUDGE MELLOY: All right. Go ahead.

MS. NAJJAR: Could you please pull up New Mexico 853?

Q. (BY MS. NAJJAR) Mr. Eschenbrenner, you were shown this document, which was titled, "Sub-file Order." Do you recall this document?

A. Yes, I do.

Q. And you refer to the underground and surface water described there as a water right; is that right?

A. Yes.

Q. But it's not adjudicated -- it's not an adjudicated water right, correct?

A. No. My -- the adjudication process has not been finalized with the state engineer's office yet.

Q. And a sub-file order is subject to challenge by all other parties in the Lower Rio Grande adjudication?

A. I don't know the answer to that. That's probably more of a legal question.

Q. You do manage the water rights for New Mexico State University?

A. Yes. I oversee the water rights. We also have a engineer at New Mexico State University that handles all the day-to-day activities of recording wells, submitting for when we have to try and get a new well, but yes.

Q. And you're aware that there's two phases of challenges in New Mexico adjudications?

A. No, I'm not.

Q. Do you have an understanding of the inter se phase of an adjudication?

A. No, I don't.

MS. NAJJAR: All right. Your Honor, I don't have any other further questions for

Mr. Eschenbrenner. Thank you.

JUDGE MELLOY: Ms. Barela, do you have any further questions?

MS. BARELA: Yes. Just a few, Your Honor.

REDIRECT EXAMINATION

BY MS. BARELA:

Q. Mr. Eschenbrenner, the report that Ms. Najjar just been speaking to you about, has it been made an official report of WRI, W-R-I?

A. Yes. That's where we obtained the document was from the Water Research Institute.

Q. And is the Water Research Institute part of New Mexico State University?

A. Yes, it is.

Q. Was one of the purposes of this report for planning?

A. For -- for 1027, that document? Is that what we're referring to?

Q. That's correct. New Mexico 1027.

A. This report, based on the cover, was for history -- history of NMSU's well development and groundwater use.

Q. And did this assist the university in preparing its water plan, which was New Mexico 0847?

A. Yes. It's referred to in that document.

MS. BARELA: No further questions, Your Honor.

JUDGE MELLOY: Anything further from Mr. Deitchman or Ms. Najjar.

MR. DEITCHMAN: Nothing further.

MS. NAJJAR: Nothing.

JUDGE MELLOY: If not, you're excused, Mr. Eschenbrenner. We appreciate your testimony, and you're free to go. Thank you very much.

THE WITNESS: Thank you, Your Honor.

JUDGE MELLOY: All right. Who's next up for New Mexico?

MS. BARELA: For New Mexico, it's Mike Greene, Your Honor.

JUDGE MELLOY: Okay. Do you need a few minutes to get him ready?

MS. BARELA: Yes, we do, Your Honor. We'll have to switch chairs again.

JUDGE MELLOY: All right. Let's take five minutes. We'll start with Mr. Greene.

MS. BARELA: Thanks very much.

(Recess.)

JUDGE MELLOY: All right. It looks like we're about ready to go. Let's enter the appearances

for the attorneys who will be participating in this last session this afternoon. For Texas, Ms. Barfield?

MS. BARFIELD: Good afternoon, Your Honor. Theresa Barfield for Texas.

JUDGE MELLOY: And Ms. Barela for New Mexico; is that right?

MS. THOMPSON: It's actually Ms. Thompson.

JUDGE MELLOY: Excuse me. Ms. Thompson. I'm sorry.

MS. THOMPSON: That's okay.

JUDGE MELLOY: And Mr. Hartman for Colorado, Mr. Dubois for U.S.

MR. DUBOIS: Good afternoon, Your Honor.

JUDGE MELLOY: All right. You may call your witness, Ms. Thompson.

MS. THOMPSON: New Mexico calls Mr. Greene.

JUDGE MELLOY: Mr. Greene, I need to swear you as a witness. Would you raise your right hand, please? Do you swear or affirm that the testimony you're about to give will be the truth, the whole truth, and nothing but the truth?

THE WITNESS: Yes, I do.

JUDGE MELLOY: All right. Mr. Greene, I

need to go through a couple of things with you that we have reviewed with each of the witnesses. First, is there any one in the room with you during your testimony?

THE WITNESS: There's no one here.

JUDGE MELLOY: Do you have any documents that you will be referring to during your testimony other than the exhibit book?

THE WITNESS: No.

JUDGE MELLOY: And then finally, I need to advise you that you're not allowed to have any communication devices available to you, including laptops, iPhones, iPads, et cetera, that have any communication capabilities such as texting, e-mail, and so on. Do you understand?

THE WITNESS: Yes.

JUDGE MELLOY: All right. Before we start the examination, let's talk about the exhibits for a minute. New Mexico has three exhibits listed for direct examination, all of which are A exhibits and will be admitted. Those are New Mexico 864, 873, and 874. So those three exhibits are admitted. For cross-examination purposes, we have New Mexico 6 -- excuse me -- New Mexico 864, New Mexico 865, 867, 868, 870, and 874. Those are all A exhibits and will be

admitted. We also have Greene Demonstrative Exhibit 1, which will be admitted.

All right. Ms. Thompson, you may proceed.

MS. THOMPSON: Thank you, Your Honor. Just real quick before we get going, I wanted to make sure you were aware that the next witness, Mr. Chavez, is not available this afternoon. He's an adverse witness and is not available until tomorrow. We do believe we'll get through Mr. Greene here. It's not a very lengthy direct, but I did want to make sure that you were aware and the others were aware he would be the last witness for today.

JUDGE MELLOY: Okay. Well, let me ask you this: Who do you have on deck for tomorrow because most of these you have -- most of the witnesses you have after Mr. Greene are listed as one-hour witnesses.

MS. THOMPSON: That's right, Your Honor. And we do expect the next witnesses, Kelly Mills, Larry French, John Stomp, and Brent Westmoreland, those will all be fairly brief direct examinations, and I think that leads into one of the concerns is that we're a little bit ahead of schedule related to disclosure of exhibits and review of exhibits, and

Mr. Westmoreland isn't available until Monday morning and so it's possible we end up finishing Friday earlier than we would have expected.

JUDGE MELLOY: Well, can we take any of the other witnesses out of order? I think if we -- if we're done very early on Friday, is there any chance we can take Garay or Stahmann-Solis or any of the other witnesses out of order?

MS. THOMPSON: Your Honor, I'll check on that. Hopefully I can get back to you here during our next break. I will check on that and see.

JUDGE MELLOY: All right. Okay. Let's proceed with Mr. Greene.

MS. THOMPSON: All right.

MIKE GREENE,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MS. THOMPSON:

Q. Good afternoon, Mr. Greene.

A. Good afternoon.

Q. Mr. Greene, what's your current professional position?

A. I'm a project manager of water resources for Public Service Company in New Mexico.

JUDGE MELLOY: Mr. Greene, could you

pull the microphone a little closer? We've had that problem with other witnesses. Need to be fairly close to the mic.

THE WITNESS: Sure.

JUDGE MELLOY: All right. Go ahead.

Q. (BY MS. THOMPSON) Mr. Greene, as the water resource manager, you're responsible for managing the water resources for Public Service Company of New Mexico?

A. Yes, ma'am.

Q. And what is Public Service Company of New Mexico?

A. It's the largest electric provider in the State of New Mexico. We have over a million New Mexicans that we serve power to.

Q. And is Public Service Company of New Mexico often referred to as PNM?

A. Yes. PNM is what we usually call it.

Q. Okay. I may refer to it then throughout your direct as PNM on occasion. Why is water required by PNM for generating electricity?

A. Well, some of our generating resources use steam-driven turbines so as you heat water into steam, it expands, and we channel that through turbines. Those turbines turn and -- and generate electricity,

and so the water that we use is used to cool that steam back into water so that we can reuse it. So it's basically for cooling.

Q. So so far, we've heard testimony from a number of water users in New Mexico in the Lower Rio Grande, including municipal water users and agricultural water users. What type of water use does PNM have?

A. Industrial.

Q. And what are your specific responsibilities as the water resource manager?

A. Well, generally, since, you know, electricity is such an important resource for New Mexicans, we need to have a reliable supply of water so that we can generate the electricity that our customers expect.

Q. And how do you do that? What are some of your specific activities that you do in your role?

A. Oh, I acquire water rights for new generation. I try and identify risks, peril, to our water rights, and develop strategies to deal with that. I meet with other stakeholders in, you know, water users and environmental folks and talk about, you know, shortage sharing, endangered species, act compliance. I also -- just some of the care and feeding of -- of a water right in terms of doing all

the paperwork and, you know, filing the applications, et cetera, et cetera. So I do a lot of administrative work, as well.

Q. And then just to be clear, PNM has water rights in the Lower Rio Grande Basin, correct?

A. Yes. Yes, ma'am.

Q. Okay.

A. We have water rights all over the state.

Q. Okay. And I'm going to come back to those water rights specifically and ask you about those on your direct, but before we go any further, just tell me very briefly just your background. First start just your educational background, please.

A. Sure. I graduated high school in Las Cruces, Mayfield High School. I joined the Navy to see the world and spent all four years in San Diego as a surgical intensive care tech and physician's assistant. Then after I got out of the Navy, I went to San Diego State University for a while, decided I was never going to get my degree there so I went back to New Mexico State University and got serious and got any degree there, joined IBM after that, and although I -- I loved all 300,000 people I worked with, I decided to take a -- a job with a company selling industrial wastewater treatment equipment all over the

western U.S. and Mexico.

Q. When did you first start to work with PNM?

A. In 1997, I decided that I was on the road way too much and so I wanted to settle down, and I -- I found an opportunity with PNM in 1997.

Q. And have you been with PNM since then?

A. Yes, ma'am.

Q. So is that about 24 years now?

A. Yep.

Q. And, again, very briefly, just as background for you and your role, describe your different positions you've had at PNM?

A. Well, I was hired on -- at the time PNM owned the gas utility in Southern New Mexico, and since I, you know, was the Southern New Mexico resident, I was asked to help with gas marketing in the southern area, Santa Teresa in particular, and then also I supported economic development in the area, so we were helping industrial parts and others recruit industry to the area. That was in 1997 through 2000.

Q. And what did you do after that?

A. Then I worked with -- well, wholesale power marketing group, which was responsible for generation development and acquisition so I was involved in acquiring several plants, developing power plants,

Afton being one of them, and so -- and we were looking at a lot of different resources at the time.

Q. You just said Afton being one of them. Would you describe what you mean by Afton?

A. Afton generating station is a power plant that we have. It's down there in the Lower Rio Grande about 12 or 15 miles from Las Cruces.

Q. And then after your position in the development role, did you move on to the water resource management role you're in now?

A. Yes, ma'am. In 2010, I became project management for the water resources for PNM.

Q. And you still hold that position today, right?

A. Yes.

Q. You mentioned earlier that sometimes you meet with stakeholders. What did you mean by stakeholders that you meet with?

A. Well, one example is we have a shortage-sharing agreement among major water users up in the San Juan on the San Juan River, but, you know, I also meet with -- have met with a lot of folks in the Lower Rio Grande. There 's a Lower Rio Grande Water Users group, and so I -- I have met with them, as well.

Q. I think we've heard from a couple prior witnesses about the LRG Water Users Group. Will you just describe what that group does?

A. Well, I -- it's basically just a group of municipal, agricultural, and industrial water users who are interested in the sustainability of the aquifer and continued water use.

Q. Turning then to PNM's role as an electricity provider in New Mexico, let's discuss briefly their operations. Describe what the operations are for PNM in New Mexico, please.

A. So like I said, we serve over a million New Mexicans. We have 540,000 or so meters, and so those include residential meters, but also commercial, industrial, and military customers, and so, you know, I think I might have said that even since energy is such a vital economic resource, we are required, obligated, to keep a very reliable supply available to our customers. We -- we serve -- you know, we have territory -- service territory all over the state, 13 different municipalities, you know, Santa Fe, Albuquerque, Taos, you know, Belen, Las Lunas up in the north part, over in Silver City area, over in the east, Ruidoso, up in the very northeast little town called Clayton. And we also serve eight of the Indian

pueblos or communities around the state, as well.

Q. Does PNM serve the area around Las Cruces in the LRG area?

A. No, ma'am, we don't.

Q. And who does that?

A. That's El Paso Electric.

Q. But you do have a generating plant in the LRG, correct?

A. Yes. Yeah, that's the Afton facility there.

Q. When did PNM first start providing services in New Mexico? When was it first founded?

A. Well, back when Mr. Eschenbrenner was starting New Mexico State University in 1888, we started serving wood lumber mills in the Albuquerque area. We didn't formulate until, you know, this current company until 1917, but we have been around since 1888.

Q. So you mentioned that El Paso Electric actually serves the electricity in the LRG?

A. Yes.

Q. Are you aware of where the El Paso Electric plants are located?

A. Well, they have an interest in Palo Verde nuclear generating station. They have several plants in the El Paso area. In fact, there's one down in

Sunland Park, New Mexico, right there by the river, and that's been there quite a while.

Q. So El Paso Electric has a plant in Sunland Park in New Mexico; is that correct?

A. That's right, yeah.

Q. What water rights do they have; do you know?

A. Yeah, I looked -- I looked at their file on the state engineer's. They have New Mexico permitted water rights.

Q. Those groundwater rights?

A. Yes. There was some mention that they used to have surface water, but now they've been converted to groundwater.

Q. So, again, just to make sure the record is clear, if PNM does not serve the LRG area with electricity, what specifically is your interest in this case?

A. Well, when I first became aware of the case, you know, since I -- like I said, I'm responsible for making sure we have water available all the time, I became concerned because the -- Afton is a very valuable resource to our company, and it is also a very valuable resource to the western grid, and so, you know, I don't know how the attorneys will take this or the judge, but sometimes bad things come out

of court cases and so I was -- I just wanted to make sure that, you know, we were involved in -- in doing what we could to make sure that we didn't have an adverse outcome.

Q. Are you concerned, though, about the PNM groundwater rights specifically?

A. Yeah. We -- yeah. We have 556 acre-feet of permitted groundwater rights there.

Q. So we're going to talk a little bit about the specifics of your PNM generating station. Let's turn to Exhibit 874, please. Before we do, though, do you recall when you were doing your review online of how large of a water right the El Paso Electric Company -- how much water it utilizes?

MR. DUBOIS: Objection, Your Honor; hearsay.

JUDGE MELLOY: I'll sustain that. Move on, Ms. Thompson.

Q. (BY MS. THOMPSON) So looking at Exhibit 874, do you recognize this document?

A. Yes, I do.

Q. And what is it?

A. Well, when you -- when you've been around as long as I have, you get the opportunity to train new supervisors from time to time, and this is kind of a

document that I put together to achieve two things, to update new management of what our resources are, but also if there are any risks associated with those and how important I am in making sure that we have plans to mitigate those risks.

Q. Sorry. Did you say you prepared this document; is that right?

A. Yeah. So this is what I would use to, you know, brief management.

MS. THOMPSON: Your Honor, this one is obviously already admitted, New Mexico 874.

Q. (BY MS. THOMPSON) So, Mr. Greene, looking at the first page of this document, would you just describe looking at the map here where the Afton generating plant is located?

A. Sure. Well, you can see from the map, it's west of the Rio Grande River about, you know, 10 or so miles, and southwest of Las Cruces by 10 or 15 miles, so it's basically up on a Mesa out in the middle of nowhere.

Q. And when was the plant built?

A. 2004 it came online as a simple cycle gas-fired station, 150 megawatts. In 2007, it was upgraded to a combined cycle operation of 230 megawatts.

Q. Is that the amount it produces today?

A. Yes.

Q. And how many households will that capacity serve?

A. It's about 500 households per megawatt so what's the math on that? It's over -- over a half a million or -- I'm sorry. Over 500.

Q. Sorry. Is that 500 homes? I didn't get that?

A. Yeah. 500. Well, 500 -- I'm sorry. One megawatt is 500 homes. 230 times 500 is -- I don't know. I don't have my calculator with me.

Q. Okay. That's fine. So on the first page, though, looking back at the photograph of the Afton plant, first off, I should say, is that the Afton plant on that photograph?

A. Yes, it is.

Q. Okay. Would you just briefly describe what we're seeing here in this photograph?

A. Sure. I'm going to start in the lower right-hand corner. I don't have a pointer, but in the lower right-hand corner is the switch yard so that's where the electricity is gathered from the generator and put out on to the electric grid. If you keep going towards the upper left-hand corner, you'll see

there's kind of a box-looking thing and a couple of smokestacks or they're actually -- yeah, those are not really smokestacks. They're just exhaust stacks. The first generator is in, you know, where you see that little box back further down towards the -- towards the substation. Sorry. Yeah. I wish I could control that. Anyway, there is a -- so where that first exhaust stack is is the first generator. It's -- it's powered by gas so gas is put in into that chamber. It's ignited, and it -- as it expands, it turns a turbine generating electricity, and then behind that, all of that waste heat is captured and used to turn water into steam and so that is -- that's the cycle that's called heat recovery steam generator. That's where, you know, we're using water to create steam to drive another turbine to generate more electricity.

Q. And, Mr. Greene, how many wells are associated with this facility?

A. We have two wells there on the -- on the fence line there towards the upper left-hand corner.

Q. And just to make sure I'm clear then on how specifically the water is used, is it used for the cooling of -- at this facility?

A. Yes. So we use it to cool that -- that steam back into water so we can run it through the steam

generator again. There are two methods we use at this plant to do that. One is a water-cooled cooling tower, and that's -- you see the pond over there in the upper right-hand corner, that's an evaporation pond. There's a small little water cell just to the left of that. The very large facility or very large object up near the fence line is an air-cooled condenser. So we use air instead of water to -- it's just basically like a very large radiator to cool the water, and that helps us save quite a bit of water versus other plants that don't have that technology.

Q. Did PNM receive state engineer authorization to utilize groundwater rights?

A. Yes, we did.

Q. So turning to those water rights specifically, if we could also continue to look at this map on the first page, does the map indicate the original location of specific water rights that you currently use at the Afton plant?

A. Yes, ma'am, it does.

Q. Would you explain for the Court, please, exactly what the purple dots are and how those purple dots relate to your water rights at the Afton plant?

A. Well, that indicates the location of the original well that those water rights were associated

with and then subsequently moved up to our wells.

Q. And when you say "moved," is the term used in New Mexico a transfer of water rights?

A. Yes.

Q. And how many total original water rights did you transfer to the PNM plant?

A. Seven. Little green dot where Afton generating station is, is also a water right for El Paso Natural Gas that we also transferred into our well.

Q. And why did PNM have to go out and purchase these original water rights that we see in the purple dots versus just seeking new appropriations or new water rights?

A. Well, the basin was closed in 1980s so there weren't any new appropriations available so, you know, you basically had to identify water rights that you could transfer to the -- to your own well. There's a rigorous process to go through to do that.

Q. So you couldn't seek new water rights; you had to find pre-basin water rights; is that right?

A. Yes.

Q. And then were you personally involved in the work identifying these original water rights and transferring them to PNM?

A. Yes, ma'am. I -- since I was local, I did a lot of the ground work. We had water counsel available to us and then some administrative folks and another developer, who was also involved.

Q. And since you were part of that team that looked at these original water rights, what was your criteria for evaluating which water rights to go out and purchase?

A. Priority date was a very critical one. This power plant is very important to us and to the -- and to the western grid and to our customers. We have to have a good reliable source and, you know, the more senior your water right, the better, and so we had -- we did our best to cobble together enough water rights with good -- good priority date. We also were concerned with the hydrographic survey or basically the evidence of whether or not those rights had, in the view of the state engineer, been used beneficially. So if you try and transfer a water right that doesn't -- hasn't been identified as having been used beneficially, then you'll -- you'll end up with a lot of wasted effort so we were looking for rights that had good records of beneficial use. There was also, you know, some concern. We had -- you know, we looked at a lot of different water rights. I mean,

we got these -- we, you know, ended up with these seven, but we looked at a lot of different water rights and, you know, one of the things that we discovered is that, you know, the state engineer's office takes a look at the water right and determines if you transfer it, determined whether or not it will have an impact on other water users in the area but also what impact that might have on -- on the river, you know, the whole system there, and so we did look at water rights that are actually west of the plant, and as we, you know, went through and discussions with the state engineer's office, they said, you know, we're -- you know, you're not going to be able to transfer all of these rights to the -- to the plant because they'll have a greater impact on the river than you -- than if you were moving away. So as you can see, we moved, you know, six of those water rights further away from the river and so we were able to move all of the rights that had been beneficially proven.

Q. So if we turn to the second page of this same exhibit, there's a table at the top of the page. Do you recognize this table?

A. Yes.

Q. And would you just briefly describe what this

table is listing here?

A. Well, it talks about the original OSE file numbers, so if you wanted to, you could look into the state engineer's file and find out, you know, what information they have about that and then what the priority date was and then the diversion and per priority date. So, in other words, I ranked these in this table by, you know, the oldest to the newest and then summed them all up in the last column.

Q. And so just to confirm then, the priority date column, it looks like your priority dates are from 1949 to 1972; is that correct?

A. Yes, ma'am.

Q. Then you said earlier that you were specifically targeting pre-1980 pre-basin rights; is that right?

A. Yes.

Q. Okay. So all of these seven rights are indeed pre-basin rights?

A. Yes, they are.

Q. And then on the right two columns, it says, "Diversion per priority date" and "cumulative diversion," which can be a little bit confusing, but would you just describe for the Court please what you mean there by "diversion"?

A. Yeah. It probably would have been better to use consumption, but since we are a zero discharge facility, in other words, whatever we take in, whatever we divert, we're going to consume. You know, they're pretty much interchangeable. But -- so anyway, that's the amount that we would, you know, legally by -- by using that right, that we would be able to use 67.5 acre-feet of -- of that first 1949 right.

Q. So is that the consumptive use amount then of the original rights?

A. Yes. Yeah. So most of these were agricultural. There were two -- the LRG-15 was from the El Paso Natural Gas, and LRG-8740, which is the one all the way on the bottom, was from a RV park or trailer park. All the rest of them were ag rights and so they had much larger diversion rights because they would have return flows into the system so they could divert more. You know, let's just say they used -- they diverted 100 acre-feet. Their crops used 70 acre-feet. They'd return 30 acre-feet to the system and so the diversion was 100, but their consumption was only 70 and that's what we would be able to transfer to our site.

Q. And what was the process then that you had to

go through with the state engineer's office to transfer the original water rights to the PNM site?

A. Well, you have a lot of discussions with -- with the engineer. Hopefully you can get comfortable with, you know, what their perception of those rights are so you fill out an application. The original owner is basically the one that fills out that application. They say they want to transfer those rights to -- to our site and that kicks off a number of processes. The state engineer's office will look at the record of the beneficial use, see if there was any -- a sub-file order or anything associated with that, but whatever the hydrographic survey said, then they'll look at the modeling to see if this -- they believe this will have an impact on, you know, the -- the system there, and then, also, they'll look to see if there are other wells in the area that you are -- you know, you're wanting to transfer these rights to, to make sure that you're not going to harm others by your moving the location of those -- of those diversions and consumption. And so you go through that process, and the -- then another step is you've got to publicize the fact in, you know, the paper three weeks in a row, you know, the intent to move those water rights. There's, you know, a lot of

information about, you know, the move where the wells are -- where the water rights are now, where they're intending to move them, and other locations. So other information so that other water users can evaluate whether or not that means anything to them, if it's going to -- if it's going to impact them at all.

Q. And so as part -- sorry.

A. If they do think that, you know, there's going to be harm to them or, you know, harm to conservation or the good of New Mexico, then they can protest those moving of those rights, and then that kicks off another process of hearing those protests and -- and sorting all that out. We never had any protests so haven't had to go through that.

Q. And so as part of PNM's transfer, PNM did provide public notice in the newspaper; is that right?

A. Yes. On every single one of these.

Q. And then did you receive any protests on any of the transfers?

A. None of those were protested.

Q. Even though there weren't any protests, does the state engineer's office still do their own detailed evaluation of the transfer?

A. Right. Yeah. Well, that's the process about looking at the beneficial use and looking at the

models to make sure and then, you know, make sure that it's not going to impact the system, make sure it's not going to impact others.

Q. And then ultimately, and you can refer back to this table, the last column, what was the total amount of water that was allowed to be transferred?

A. Yeah. 555.756 acre-feet.

Q. Then let's look then at the bottom of Page 2, please. I want to just understand a little bit about the importance of PNM and its importance of the interconnected system here. Looking at this map, would you describe what this is showing, Mr. Greene?

A. Well, this is a map of the Western Electric Coordinating Council, so what it shows is that all of these -- all the western states, you know, they are so colored in whatever that putty, are all interconnected. We're all synchronized. All the -- all the frequency of all the power on that whole grid is synchronized. So it -- it is basically a bunch of different nodes that are supporting the electric grid and so the way -- the way the grid works is if you have failure in some area, then hopefully other generators will be able to pick up the -- the difference and keep the transmission system alive. It's almost like if you have, you know, a pipeline of

-- you have to have a pipeline completely full or it'll fall apart. That's what the electric grid is like. If you -- if -- if you had -- well, let's just say like Texas had last year in their ERCOT system, they had a serious failure of some of their generators, a lot of their generators, so they ended up having a lot of blackouts, et cetera. And so, you know, we're -- you know, I'm not going to say that's never happened here in the WECC, but it's just -- that's an indication of what could happen. And you can see that, you know, PNM and El Paso Electric are, you know, part of the same system and so that's why, you know, I say this -- Afton is a very important part of our system. It provides over 10 percent of our power, and it also provides a lot of support to the transmission system, you know, and we and El Paso Electric, you know, rely on each other to -- to keep this same amount of electricity in the -- in the grid.

Q. And then looking over at the next page, Page 3 at the very top, the first paragraph, first sentence says, "While evaluating potential sites for new generation facilities, several factors were deemed critical to the successful development of the project." Do you see that paragraph?

A. Yes, uh-huh.

Q. And since you were part of the team that acquired Afton, what were some of the critical factors to the success of this particular station?

A. Well, the first thing you do in site development is look for fuel supply and transmission, and so this -- you know, back in the picture, El Paso Natural Gas pipeline was right next to Afton, so that had fuel, and there was significant transmission sources available right adjacent to the -- to the site. And the next thing on the list is if you require water to operate, is there water available, both physical water, and also the right to use it. And so that -- the availability of water will trump any -- you know, you may have a great site, but if you can't get water to cool it, then -- then you've got to move on.

Q. And how much did PNM invest in this particular Afton site?

A. $240 million.

Q. And what would be the impact to PNM if it wasn't able to utilize its water rights and couldn't utilize this station?

A. Well, the real impact would actually be on our customers. The -- you know, this -- this plant has been in our customers' rate based since 2004. Out

of the $240 million that, you know, was put in -- approved to be put in the rate base, the customers paid about 80 million of that. So there's another $160 million left of -- of rate base. If Afton were to go away because the water issues, then they'd still be on the hook for -- for that 180 million, plus then we'd have to build another power plant in its place.

Q. So just to make sure that I understand your testimony then, what would be the -- the total financial impact then to PNM for losing the Afton plant?

MS. BARFIELD: Your Honor, I'm going to object on relevance. I -- this has gone way beyond the scope of anything appropriate for this litigation.

MS. THOMPSON: Your Honor, may I respond? Oh, you're on mute, Your Honor.

JUDGE MELLOY: Go ahead.

MS. THOMPSON: Your Honor, we're just asking a very few simple questions about financial impact. There's long-term reliance on groundwater in this basin. Many of the water users have already explained their testimony on this. We have claims against use of groundwater in New Mexico. We also have affirmative defenses of estoppel and latches, and the idea that our water users wouldn't be able to

testify not only to the impacts to them as the ag and municipal community, but in the industrial community is critical, we feel like, to Mexico's positions in this case, as well as its defenses.

JUDGE MELLOY: All right. Go ahead. You may answer.

MS. THOMPSON: Thank you, Your Honor.

A. So I asked our integrated resource planning group if Afton were not available or if there was no water available to run Afton, you know, what -- what would we likely do, and what they proposed, and I think there's a chart about that a little bit later, but what they said is that, you know, the solar voltaic and battery resources, which we are beginning to install, would probably -- would likely be, you know, what we would use to generate that -- that much electricity in -- in this area. So the solar -- the solar voltaic is non-dispatchable so you have to -- you know, in other words you can't tell the sun when the shine. So that's why you couple it with the batteries so that you can tell the battery, discharge the energy that the grid needs right now. So, you know, their estimate of that came up to around $330 million.

Q. (BY MS. THOMPSON) And if we look at the

bottom of the page, I believe you referenced a table. We'll just pull that up quickly to show that the Afton replacement cost estimates here, I think you pointed out the $330 million number plus this increased annual cross at the bottom. Would you just describe for the Court, please, what that last number is, the 2 -- I think that's 2,217,000?

A. Yes. So the -- you see the label replacement operating cost. That's how much it would cost to operate the solar voltaic battery facility, and then -- but you're not going to have to run Afton because Afton is no longer there so you subtract those out, and so the net is around $2.2 million additional operating costs that our customers would -- would also have to bear.

Q. So am I correct in that you would lose the cost of your investment in Afton; you'd also have the cost of the new plant, plus the increased operation and maintenance cost?

A. Yeah, again, it's not me. It's not PNM. It's our customers would lose the original investment. They would have to pay for the -- the replacement, and they would have to pay the additional operating costs.

Q. Moving on then past the finances, what's the timing then, you know, if you had to replace a plant

like Afton?

A. Well, that's a really loaded question, but three to five years, if everything goes great.

Q. So then the -- the last area I want to cover on this particular exhibit and before we move onto another exhibit is the plant's conservation of water. There's a reference back on Page 2, the second paragraph, that, "To conserve water, Afton employs a hybrid cooling system to utilize air-cooling technology to augment the water-cooling system." Would you just describe for me what that means? What does the plant do to conserve water?

A. Right. Well, can we go back to the picture that was on the -- I don't know if it's the next page or not, but with the --

Q. Sure. Page 4, please.

A. There.

Q. Okay.

A. So you see the very large radiator in the sky is an air-cooled -- air-cooled condenser. So like I said, it works just like a radiator in your car. There is cooling water recirculated throughout that enclosed system. Air is drawn through, and that cools the steam back into water, and then that goes back into the steam turbine. And so we -- we can operate

this plant almost all year without using any water, but during the summer months when our load is high and the heat is high and relative humidity is high, we need to use the water-cooling towers, which -- so -- so this is what is called a hybrid system. It uses both air-cooling and water-cooling.

Q. How does the water use at the Afton plant compare to other similar water-cooled, gas-fired plants?

A. Well, so I look at different studies. Similar combined cycle plants, you know, they have data points, they do studies at the National Electric Reliability Institute and so they show 200 gallons per megawatt hour. That's how you measure how efficient your plant is, how many gallons do you need to -- to create one megawatt hour of electricity. So 200 to 300 gallons per megawatt hour is typical in a plant like this. We have very -- we have some plants in our system very old that consume quite a bit more. Afton uses only 99. It averages 99 so let's round it to a hundred.

Q. And if you look --

A. So it's two to three times more efficient.

Q. Okay. Thank you. And then on this same page, if we look at the single-line table, it

says, "Historical water use at AGS," which is the Afton plant. This is showing over the years it looks like, and then there's an average at the end. Would you describe for me what the average number there is?

A. It's 177 acre-feet used per year.

Q. And based on that, just so that we all understand then, why does the Afton plant need the 556 that you mentioned earlier?

A. Right now, we -- we run Afton between 30 and 40 percent of the time. As we are stepping back from coal-fired resources, we're going to be running Afton a lot more, and we actually -- you know, because of our interconnection in the WECC, we need to be able to run that plant a hundred percent of the time. If there was some failure, for instance, well, in El Paso or, you know, Palo Verdo or whatever, we need to be able to run it a hundred percent of the time. That's why you -- you get enough water rights to support the plant a hundred percent of the time.

Q. Thank you. We're going to move on then to the next exhibit, New Mexico Exhibit 873, please.

MS. THOMPSON: And, again, Your Honor, this one has been admitted, as well.

Q. (BY MS. THOMPSON) Mr. Greene, do you recognize this exhibit?

A. Yeah. It's from the state engineer's water rights database.

MS. THOMPSON: Ms. Ferguson, if you could just pull on to the whole document for a minute, that'd be great. Thank you.

Q. (BY MS. THOMPSON) Just describe for me what this water rights summary is, please.

A. Well, it basically is the story of our water rights at Afton if you -- you can see -- you know, it takes a little while to learn all the acronyms and whatnot, but you can see that, you know, we have a permit that we changed, you know, that we were allowed to change the location. You can see right in the middle there is one, "DEN." That was one that we submitted an application to transfer, and it was denied. All the way at the bottom, there's some that we submitted for transfer, and they were -- we later decided to withdraw them. And so if you click on those links, then it takes you to, you know, the relevant documents.

Q. And is this water rights summary database that we're showing here, is that available to the public?

A. Yes.

Q. And do you use these types of summaries as

part of your work?

A. Yeah. All the time.

Q. And you mentioned that there was denial of one of your water rights that you -- excuse me -- one of the water rights you've requested to transfer; is that right?

A. Right.

MS. THOMPSON: And if we could pull up Texas Demonstrative No. 1, I believe, the Texas cross exhibits. Greene demonstrative.

Q. (BY MS. THOMPSON) While we're pulling that up, Mr. Greene, would you just describe your understanding of why that particular request was denied?

A. Well, it basically came down to the fact that they didn't have as good a record of beneficial use as -- as it was going to be required by the state engineer. They had claimed, you know -- I guess I would say they had over claimed the amount of water. I think they -- they had claimed a thousand acre-feet for a subdivision or something, and so -- so, you know, it was just one of those lessons learned that they aren't -- they aren't all what you think they are going in. So here's the application. You can see in November of 2006, I guess.

Q. So this application, was this one reviewed like the others by the state engineer's office?

A. Yes, ma'am.

Q. And then did the state engineer's office do a detailed evaluation of this request for transfer?

A. Right. Yeah. Somewhere in here, I think there's a memo that the -- you know, one of the water rights folks writes to the water master or to the division chief about that and so, you know, you'll see the specific reason why they were denying this encapsulated in that.

Q. But as far as you know, it was denied, though, by the state engineer --

A. Oh, yeah.

Q. -- so couldn't transfer this one?

A. It was definitely denied.

Q. Then going back then to the water rights summary, New Mexico 873, Page 2, there's a priority summary list on Page 2. Is that the list of the seven transferred water rights, Mr. Greene?

A. Yes, ma'am.

Q. And we won't do it right now, but, you know, the hyperlinks there you mentioned before can lead you to additional information. Have you ever clicked on these hyperlinks, and if so, what do they take you to?

A. They take you to a list of the documents that are relevant to that water right. So, like, if you did LRG 11409 POD2, which is a point of diversion, that's our second well there, you'd see a well-drilling record, how many -- you know, how many feet, what kind of casing, all that kind of stuff. You'll see the water -- you know, the history of the water right that was transferred into 11409.

Q. So POD and POD2, those are just references to your two wells; is that right?

A. Yeah. Point Of Diversion 1, Point Of Diversion 2.

Q. Through these hyperlinks, can you access all of your meter readings for those two points of diversion?

A. Yes.

Q. And, again, those are all public, those meter readings?

A. Yes.

Q. And does the state engineer track your PNM specific use of water from those two points of diversion?

A. Yeah. One of the conditions of approval was that we would report our water use to the state engineer's office every month.

Q. And is there a separate permit file for each one of the transferred water rights just like this one, details with hyperlinks showing meter reads?

A. Yes.

Q. So I'm going to ask you now to look at -- excuse me. I -- we are not going to go through all seven of those permit files. There's no reason to. It would take too long. But I do want to just look at one briefly as an example so if we could pull up 0864, New Mexico Exhibit 0864, which, again, has already been admitted. And, Mr. Greene, do you recognize this document?

A. Yes, I do.

Q. And you've seen this document before, correct?

A. Uh-huh.

Q. And then just for background purposes, this is a fairly lengthy permit file; is that right?

A. Yeah. There's over 50 pages, I think.

Q. Just on the very beginning here, and since -- you've looked at all the pages, though, right?

A. Yes, uh-huh.

Q. Just describe for me what would be included in this type of permit file, just kind of the general categories, please.

A. Well, so this is the application. You would find the memorandum, you know, like I said, the specialist who's advising the section chief or division chief, whether or not the water right should be -- the transfer of that water right should be approved, you know, that's usually in there, and there's also some surveys like some aerial surveys showing where the land is. There's extensions of time. You know, in some cases, you will find the -- the well record, you know, for the -- for those water rights.

Q. And would this file include, in addition to the original application, the ultimate approval from the state engineer?

A. Yes. Which includes the conditions for approval.

Q. Would --

A. I have yet to see one approved that doesn't have conditions.

Q. Would it also include the detailed memorandum where the state engineer has evaluated the request?

A. Uh-huh, yes, ma'am.

Q. And are these files also available online through that same database?

A. Right. Yes, they are.

Q. So looking at the first page here, Page 1, at the top there it says, "Application for permit to change the location." So this is the actual application that PNM filed with the state engineer's office; is that right?

A. Yes.

Q. And what year do you recall this one was filed?

A. 2007. Looks like I see the -- they stamp it in the lower right-hand corner.

Q. It's a little hard to read but --

A. Yeah. I know.

Q. Yeah.

A. But they stamp it -- I think it's 2007.

Q. Would you please describe what water right this is seeking to transfer? It says here at the top the current owner is the Bess owners, but describe for us what they were using the right for and how you transferred this.

A. Well, this was an agricultural right. This first Section 2, you know, talks about, you know, where -- where those wells were located. You see this one refers you to Attachment A. That means there's not enough space on this application to provide all the information so you include an attachment, and so

it gives the details of where -- you know, where those water rights currently reside and, you know -- you know, some details about -- about the transfer, et cetera.

Q. If we could go to Page 41, please. What is this memorandum from the state engineer's office?

A. So this is -- like I said, this is -- so this is, you can see water resources specialist Cheryl Thacker is writing to Erek Fuchs, who at that time was the water resource master. So she's done an analysis. You know, I was looking at this. This doesn't happen right away. It takes them, like, three or four, sometimes six months to go through all of the analysis, looking at the models and -- and, you know, the -- the -- you know, whatever the proof of beneficial use of that water right, and so this is -- you know, it talks about the application, summarizes, you know, what we were asking for. You see this one was submitted in January of 2007, and this is dated in June of two thousand -- yeah, June of 2007. So took them around six months to do this analysis. So then, you know, after that, it shows the existing wells, where they're from, how big they are, what dates they were drilled, et cetera, and then on the next --

Q. And then --

A. I'm sorry.

Q. Oh, no, I was going to say, and then Page 2. It seemed like you were going into the next page.

A. Yeah. So there's more information about what those wells were and then what they were used for and how many acre-feet of water were associated with that right, and then what were they -- you know, what was going to happen to those moved-from wells. So in this case, they were going to keep those wells in use, but they were going to use them for other rights. And then there's information about where are you going to move them to and then what are -- you know, what are you going to do -- what's the purpose of use at, you know, where you're going to move those rights to. So it just tells the story of where they were, what they were used for and where they're going and what they'll be used for there.

Q. And if we could go to the next page, please.

A. So this is where -- yeah.

Q. Go ahead.

A. Yeah, this is where they -- this is an analysis of the hydrographic survey. So that is basically the evidence that they had of -- of that water right. You know, we -- we looked at quite a few of their hydrographic surveys over some of these water

rights. They're quite exhaustive, including aerial photographs from decades ago. But any rate, this one describes the sub-file order in the adjudication case so it basically -- there is -- it describes the water right, the amount, and then -- then this section LRG-11409 describes, you know, the move-to location. So it's kind of a story of -- of our wells, and, in fact, you know, it also will alert, you know, the water master to, you know, what other rights have been transferred into those wells.

Q. And if we could go to the next page.

A. So -- yeah.

Q. Sorry, Mr. Greene. Let me just ask a quick question here. So then on this page, you see after that history, it is recognized there is pumping effects on the nearest well and then there's also surface water depletion effects. Would you describe what the state engineer is evaluating there?

A. Right. So, you know, looking at their models and whatnot, they have -- so in the location that you're going to move this water right to, they analyze whether or not our pumping of this water is -- would harm them and -- and their conclusion was that they are -- you know, that was going to be negligible, and then since we were -- they were moving from 4 miles

east of the Rio Grande to 12 -- I'm sorry -- 10 miles west of the Rio Grande, that the effects on the river would be assumed to be negligible.

Q. Excuse me. For transferring the consumptive use amount; is that right?

A. Yes.

Q. And so location is a relevant factor that the state engineer evaluates; is that right?

A. Yeah. So like I said, we had water rights that, you know, you can see we had to cobble together these seven different rights to get up to 555. We did look at other water rights that were in greater amounts, but moving -- they were moving closer to the river and so they ended up -- we wouldn't be able to transfer all of that water.

Q. There's also wells, if I understood you right early on in your testimony, that the original wells were located near the river and then where are the PNM wells located?

A. Ten miles west of the river.

Q. Is it up on the Mesa?

A. Yeah.

Q. So all of these --

A. 400 or so feet above.

Q. So all of those factors are relevant to the

state engineer's analysis; is that right?

A. Yes.

Q. Then do these water rights have any offset requirements?

A. None.

Q. And why is that?

A. Because, well, they were pre-basin rights, and we -- we weren't going to have -- we weren't going to have any negligible impact on the river.

Q. And then just real quickly at the bottom of this page, there's the notice in the protest, and that's just confirming, right, what you, I think, already testified to about notice and protest, correct?

A. Right.

Q. That there is required --

A. In fact, there were no protests, and another part of the file, I don't know if it's in this one, but, you know, you'll see the actual advertisement and an affidavit from the publication that ran them that they were actually ran on those days, and you can see the text.

Q. Over on the last page then that we'll look at, there's the first paragraph, and the very first paragraph is making a recommendation in this

evaluation memorandum. What's that recommendation?

A. That they be approved to move into our 11409.

Q. And then on the same page, there's Paragraphs 2 through 8 -- excuse me. Sorry. On the next page over. I apologize. There's Paragraphs 2 through 8, and what is your understanding about what these paragraphs are in the memorandum -- the evaluation memorandum from the state engineer's office?

A. So the water --

MS. BARFIELD: Your Honor, Texas is going to assert another relevance objection. None of this discussion in the last 15 minutes has been relevant to Compact issues or to New Mexico's defenses. I'm attempting not to be an obstructionist as it goes to this question-and-answer session, however, I want the record to be clear that we object to this entire line of testimony.

MS. THOMPSON: May I, Your Honor?

JUDGE MELLOY: Go ahead. Well, let's not go too much farther. I think we're -- I hope you're getting close to the end.

MS. THOMPSON: We are. But could I respond to that comment from Ms. Barfield, please?

JUDGE MELLOY: Go ahead.

MS. THOMPSON: I just wanted to make

sure that it was clear that the United States has filed a motion in this place specifically targeting and claiming lack of administration in New Mexico and from the state engineer's office, in addition to a number of other assertions, and so this is, in our opinion, incredibly relevant to the positions of the parties.

JUDGE MELLOY: Go ahead.

Q. (BY MS. THOMPSON) So then for these conditions here, Mr. Greene, starting at Paragraph 2, what are some of the conditions that are required when you do a transfer of water right?

A. Well, these are -- I mean, these are very typical that you're not going to harm existing water users. That's in 2. 3 says that we're going to put in totalizing meters of the type that's acceptable to the state engineer and that -- and then 4, we're going to report those meter readings to the state engineer's office every month and then, you know, 5 is we're going to be using as, you know, highest and best technology to conserve water. So we're not going to waste water. And then 6, you know, they don't want us just to transfer water and not prove it up, so they're asking us to be able to file proof of beneficial use, and then the 7 is pretty typical that wherever you

move them from, those lands or that -- those 30 acres would not be irrigated from any source. And then -- and then an acceptable survey plat identifying the acres, I don't see that in all of them, but sometimes they just want to have that survey done so that it is clear when people are doing field checks, the exact property that they're going to go look at and make sure it's not irrigated any more.

Q. Okay. I just wanted to highlight one of those conditions in Paragraph 7. Would you just explain why it's important to not irrigate the original lands when you transfer the water rights?

A. Well, they're trying to keep this -- you know, the system in balance, zero sum gain, so that you can't move it to a new location and pump it and keep pumping it in the old location.

Q. And then on Page 47, there's an aerial photo and a survey. What's your understanding about how the state engineer's office uses this original aerial photo survey to track whether or not it's been irrigated, the original lands?

A. Well, like I say -- I don't know if you want to go to it, but anyways, there's -- it is a survey which very clearly describes the location of those areas, those fields that the water rights were moved

from. So, again, in enforcing, you know, the -- you know, no continued irrigation clause, you know, their water masters or whoever they have can go to those exact locations and -- and verify that they are no longer being irrigated.

Q. And then on the next page, the -- the notice, is this the official notice that you mentioned before?

A. Yes, uh-huh.

Q. And then did the state engineer ultimately issue a permit approving the transfers for PNM 7 transfer requests?

A. Yes.

Q. And is that approval on this exhibit, as well?

A. Yeah.

Q. Okay. If we go back to Page 8, it's on 8 and 9, I believe, is this what the approval looks like from the state engineer's office?

A. Yeah. Well, I -- I would -- these are -- these are the conditions of approval, and so, you know, what you'll get is the original application with, you know, a statement at the end of it that says, you know, action taken by the state engineer approved and then these are the conditions of the approval. So it summarizes, again, you know, priority

date, source, you know, where it's going to be used and how much you can use, and then you can see those -- those recommended conditions from the specialist were incorporated into the permit. So these are part of the permit.

Q. Okay. And is PNM in compliance with its permit conditions?

A. Yes, ma'am.

Q. And then just to wrap up, PNM is not an amici in this case, correct?

A. That is true.

Q. But is PNM closely following this case?

A. Yes, we are.

Q. And why are you closely tracking this case?

A. Well, like I said, bad things happen when states sue each other over water, and so I just want to make sure that we're prepared for anything that happens that could hurt our customers in critical ways and the western grid.

Q. And then last question, I think you mentioned this before, but if some of the parties are arguing for reduction or elimination of groundwater use in New Mexico, how would that affect PNM at the Afton plant?

A. Well, it would shut this particular plant down. Like I said, we'd have to go to -- you know, if

we could -- I don't know -- you know, that's part of, you know, what scenario is going to happen, you know, what's going to happen, do I need to get back in line and sign a federal contract. I have no idea what's going to happen and so that's why we're concerned. So -- but without water, we would close this plant down.

Q. How would that affect your customers?

A. Well, it would lose reliable fairly cheap electricity and so the reliability of the grid would be harmed and our customers would -- their bills would go up.

MS. THOMPSON: Your Honor, we have no further questions for Mr. Greene.

JUDGE MELLOY: All right. Who's going to go first, Ms. Barfield or Mr. Dubois?

MR. DUBOIS: Mr. Dubois is, Your Honor. Good afternoon.

CROSS-EXAMINATION

BY MR. DUBOIS:

Q. Mr. Greene, my name is Jim Dubois. I'm an attorney with the United States Department of Justice representing the United States in this case. I'd like to clarify a couple things. You're the water operations manager for PNM in New Mexico. That is -- that is not something that is specific to the Afton

plant, is it?

A. No. I'm the water resource manager for the company.

Q. Okay. And so are you familiar with the operation and finances of the Afton plant?

A. Operation and finances?

Q. Yeah. Like, the annual -- the annual budget, so to speak?

A. I am not.

Q. Okay. Then I'll skip those questions. So Afton was built in about 2004; is that right?

A. Yeah. I mean, that's when it went online.

Q. Okay. And then it was upgraded in 2007?

A. Uh-huh.

Q. Okay. When were the wells drilled for Afton?

A. Before 2004. You know, I think in one of those records, it'll tell you when those wells were drilled.

Q. All right. And you testified that you've got seven different water rights there and at least five of them were converted from irrigation rights; is that right?

A. Yes.

Q. And did you acquire the surface estate when you acquired those well rights?

A. No. These were groundwater rights.

Q. Okay. And were those water rights all within EBID? The irrigation -- let me rephrase that. Were all the irrigation rights within EBID?

A. I believe so. One of the rights was partially approved because part of the land was in EBID and so it was not approved for all of the water that we wanted to move.

Q. All right. And you did not acquire the -- were there any surface water rights used on those lands, as well?

A. Not that I was aware of.

Q. All right. So they were -- they were lands that were irrigated groundwater only?

A. That's my understanding.

Q. All right. And as I understood what your testimony was, those lands are no longer able to be irrigated at all?

A. I think all of those conditions said that they would not be used -- they would not be irrigated by any other source.

Q. Okay. And if I recall your discussion with Ms. Thompson, the water rights that you acquired range between 1949 and 1972 ; is that right?

A. Yes.

Q. And so those are all considered valid existing water rights?

A. Yes.

Q. The Rio Grande Project also has valid existing water rights, doesn't it?

A. That's -- that's not my --

Q. Okay. So the Rio Grande Project was diverting and using water long before the water rights that were purchased for the Afton plant, right?

A. That's --

Q. You don't know whether the Rio Grande -- you don't know whether the Rio Grande Project was operating before 1949?

A. I have friends who are farmers. Yeah, they --

Q. They? You were saying?

A. They say the Project was built.

Q. Okay. So you're not familiar with any of that?

A. I really -- no.

Q. Okay. I'm eliminating questions in my mind here that you've already talked about with Ms. Thompson. So six of the changes that were granted from the Office of the New Mexico State Engineer occurred in 2007; is that correct?

A. Yes.

Q. And you discussed the fact that the changed permits were granted with conditions; is that right?

A. Yes.

Q. Okay. I'm going to show you New Mexico 684 that you were just talking about with Ms. Thompson at Page 9. Next page. Do you remember discussing this with Ms. Thompson?

A. 1177, yes.

Q. Okay. And I'd like you to focus on Condition No. 2. Do you see that?

A. Yes.

Q. And it says, "This permit shall not be exercised to the detriment of valid existing water rights." Is that correct?

A. That's what it says, yes.

Q. Okay. And, in fact, all of the permits that allow the changes from irrigation to industrial use contain that same condition, don't they?

A. I've seen it on every one that I've looked at.

Q. Okay. Now, would you consider taking water away from farmers, the senior water rights to be detrimental to those water rights?

MS. THOMPSON: Objection; foundation.

That calls for a technical analysis, Your Honor.

JUDGE MELLOY: Overruled. The witness can answer.

A. Okay. You're going to have to --

Q. (BY MR. DUBOIS) Sure.

A. -- explain it to me.

Q. Sure. Can we agree Condition No. 2 states that the permit shall not be exercised to the detriment of valid existing water rights?

A. Yep.

Q. Okay.

A. I can agree to that.

Q. Would you consider taking water away from farmers with senior water rights to be detrimental to those water rights?

A. I don't see how those two things are connected, but I -- yeah, I just don't see the connection.

Q. Well, it wasn't a question. The question is: Would taking water away from the senior water rights be detrimental to those water rights?

A. In the abstract, yes.

Q. Okay. And how about if you were taking water away from those farmers when they were short of water for their senior rights, would that be detrimental?

MS. THOMPSON: Objection, Your Honor. Same objection. This calls for technical analysis.

JUDGE MELLOY: All right. You may answer.

A. Yes. In the abstract, yes.

Q. (BY MR. DUBOIS) Okay. I'd like to go to New Mexico 874, please, at Page 3. Mr. Greene, I think you said that the cost for the -- the cost for the Afton plant is about $240 million; is that correct?

A. Yes.

Q. Okay. And 874 at 3. Oh, there it is. I think that in talking with Ms. Thompson, you focused on this page and stated that the replacement cost for the Afton plant would be roughly $330 million; is that correct?

A. Yeah. That's what my integrated resource planning group advised me.

Q. Okay. You prepared this document, right?

A. Yes.

Q. And so you think that these figures are reasonable, correct?

A. Yeah. I mean, I am familiar with their work, and I trust this.

Q. Okay. So as -- as the water resources manager, is it your opinion that PNM would close down

the Afton plant if it were necessary to purchase or lease sufficient water to offset any impact to senior water users that were ultimately determined to be caused by PNM's groundwater pumping?

A. No, I don't think necessarily. I mean, we would have to look at, you know, the economics of it.

Q. Well, let's just say, what was the original cost for the water rights for Afton?

A. I don't know. I think they're in there, like, a couple million bucks, I think.

Q. 1.8 million or so?

A. Yeah.

Q. So let's say it even costs another 1.8 million to acquire additional water rights to provide a permanent source if any were needed to offset depletions caused by pumping. You got that?

A. Uh-huh.

Q. Was that clear? Okay. If -- if PNM were faced with that kind of an additional cost, would it shut down effectually a $330 million facility rather than --

A. You were breaking up there a lot there at the end.

Q. Sorry.

A. I'm sorry.

Q. I said -- all right. That's all right. One of the quirks of technology is every once in a while, there are little glitches.

So my question was, so in your opinion as the water resources manager for PNM, assuming even that it costs an additional 1.8 million to acquire sufficient water rights to provide a permanent source to offset depletions to the Rio Grande, would PNM shut down effectively a $330 million facility rather than acquire those additional water rights?

A. Well, my opinion as a water resource manager doesn't really make any decisions about assets, but I would -- I would say that, you know, there's a couple of things. One, I don't believe you could get those water rights at that same price today, but, you know, there has to be -- you know, that's part of, you know, the calculus that I assume our company would make is so what's it going to take to keep this open as-is and then, you know, we would make a decision based on -- on that.

Q. But in your opinion as a water resources manager, would PNM shut down a multimillion-dollar facility over the acquisition of an additional amount of water?

A. Well, like I said, my opinion as the water

resources manager would not matter to anybody making those decisions.

Q. And the cost of any such water acquisition could also be passed along to the customers, would it not?

A. That would be typical.

MR. DUBOIS: Okay. All right. Nothing further from this witness. Thank you, Your Honor.

JUDGE MELLOY: Ms. Barfield?

MS. BARFIELD: I have one question, Your Honor.

JUDGE MELLOY: Go ahead.

CROSS-EXAMINATION

BY MS. BARFIELD:

Q. Mr. Greene, isn't it true that PNM will assert whatever water rights that it has under state law regardless of what happens with this litigation?

A. I don't know. That sounds like a legal question to me, and I'm not a lawyer.

Q. I'm certainly not asking you the question as a lawyer, and I don't seek a legal opinion. I'm asking for the intent of PNM, and it's yes or no, isn't it true that PNM would assert whatever rights that it has under state law, regardless of what happens here in this litigation?

MS. THOMPSON: I'm going to object, Your Honor. It does call for a legal conclusion.

JUDGE MELLOY: I'll sustain that.

MS. BARFIELD: Okay. No further questions.

JUDGE MELLOY: Any redirect?

MS. THOMPSON: Yes, Your Honor. Just two quick questions.

REDIRECT EXAMINATION

BY MS. THOMPSON:

Q. Mr. Greene, PNM has relied upon its pre-1980 groundwater rights to run the Afton plant, correct?

A. Yes.

Q. And it invested heavily in those groundwater rights and the PNM plant, correct?

A. Yes.

Q. And PNM is actively administered by the Office of the State Engineer in New Mexico for its groundwater rights, correct?

A. Very actively.

MS. THOMPSON: No further questions, Your Honor.

JUDGE MELLOY: Let me ask something here. We've had a lot of discussion about the 2008 Operating Agreement, and I think if I understand the

way the operating agreement works, one of the benefits to New Mexico water users is that the use of groundwater was grandfathered in to the agreement. So do I understand, since PNM does not use surface water, that they would have been one of the biggest beneficiaries of the operating agreement.

MR. DUBOIS: That's not necessarily accurate, Your Honor.

JUDGE MELLOY: Why is that?

MR. DUBOIS: Because -- how far do I go into legal argument? Your Honor is asking so I will -- I will give you my -- my sense of this, is that the notion of a grandfathering is not accurate. What the operating agreement does is have an agreement regarding the amount of water that EP1 is willing to accept in fulfillment of this -- of its contracts as part of an overall settlement. The operating agreement does not grandfather in particular rights. If anything, that it is -- it is tied to the groundwater pumping within EBID by EBID farmers. It is not an agreement by either Texas or E P1 that certain individual water rights are entitled to continue pumping. There will be testimony, I believe in the spring, that will relate to some of this and what entities are or are not entitled to sort of use

water from the Rio Grande Project and are, therefore, beneficiaries under the -- the programmatic apportionment, if you will. And that does not include non-irrigation, and there will, I believe, be testimony, including from New Mexico witnesses to that effect. So it is not quite accurate to make the assumption of individual water users or individual types of water users being subject to, quote, grandfathering. That is not what the -- that is not what the OA does.

MS. THOMPSON: May I respond, Your Honor?

JUDGE MELLOY: You may.

MS. THOMPSON: I just wanted to make clear that New Mexico strongly disagrees with the United States' characterization that you just heard from the 2008 Operating Agreement, and, in fact, is contrary both to prior testimony, and certainly a number of U.S. experts that you're going to hear in the spring, the 2008 Operating Agreement does grandfather in groundwater pumping, and it has a basis in the D2 curve, which is groundwater pumping from 1951 to 1978, which is the amount of groundwater pumping that had occurred historically and was continued to allow by Reclamation and recognized as

the amount that was allowed to continue to operate the Project. So we do strongly disagree with the characterization of the United States.

JUDGE MELLOY: All right. Well, I didn't mean to open up a can of worms. It just seemed to me --

MR. DUBOIS: That's why I was reluctant to get into the argument in the first place, Your Honor, because I knew we would be opening a can of worms, so I apologize.

JUDGE MELLOY: I just -- I just -- I just wanted to make this comment that -- that a number of the witnesses have characterized it as grandfathering. That may have been an incorrect assumption by those witnesses or that may have been how it was sold to them, but it wasn't correctly characterized. I don't know. But if one assumes that groundwater pumping was grandfathered under the operating agreement, then it would seem that PNM would be the big winner in -- in any -- in the operating agreement, but that -- I'll leave it at that.

MS. THOMPSON: We'd love to respond if you'd like.

JUDGE MELLOY: Go ahead. I would like to know why -- why somebody who only had groundwater

pumping, assuming that they're guaranteed to allow to be continued to do that, would not have been the big winner in the operating agreement.

MS. THOMPSON: So under New Mexico state administration, of course, the basin was declared in 1980, and the grandfathering in of the groundwater pumping from '51 to '78, they closely match up, and so you're correct that pre-80 groundwater pumping does not require offsets and so there is a benefit in New Mexico for being pre-1980, which matches up with the D2 curve, absolutely. So there are some components of an operating agreement like the D2 curve that New Mexico supports, and so there's -- there's no one that you're going to hear from New Mexico that says there's not components of it that we don't support, but there are a number of components that we don't, that we think over allocated to Texas, and allowed for an illegal carryover.

JUDGE MELLOY: Well, I understand all that. All I'm saying is -- and -- and probably shouldn't have said anything, but all I am saying is that -- is that not everybody's going to be treated the same under the operating agreement. Some entities in New Mexico, and it just seems to me that PNM is one of them, are going to probably be greatly benefitted

by the operating agreement, even as it's currently written; others may not be, but this is probably one entity that is -- would -- if -- if grandfathering is correct, would -- would probably just as soon see the operating agreement remain in effect. But I'll just leave it at that. Everybody is going to be different. Some will be -- some will be hurt more than others, I guess is all I can say, and some will be benefitted more than others, and that probably is true in Texas as well as New Mexico. It's -- the operating agreement is a compromise, and in any compromise, some people make out better than others. I guess that's -- that's -- I'll leave it at that. All right. So, Mr. Greene, I'm sorry you had to sit through all that, but you're done. You're excused for the evening. We thank you for your testimony.

THE WITNESS: I do appreciate the opportunity.

JUDGE MELLOY: Thank you. All right. Well, it looks like we're at about 5:00 so we'll break for the evening.

Well, looking at the schedule, though, we probably won't get much past Mr. Westmoreland on Friday, and that would leave us with Longworth, Serrano, Garay, and Stahmann-Solis, which I would

think we should be able to get through in about three days next week, don't you? I would hope we'd be done by Wednesday?

MS. THOMPSON: I agree, Your Honor. I think we will definitely be done early next week. We do have one witness, Mr. Westmoreland, who is not available until Monday, so we'll work on what your request was, whether or not we could for this week, if we end early on Friday, if there's anyone we can shift, but Mr. Westmoreland isn't available until Monday morning.

JUDGE MELLOY: Let me ask this of Texas and United States. Of these witnesses who are listed as hostile witnesses, Chavez, Mills, and French, do you anticipate that you'll be examining them very extensively?

MS. BARFIELD: Your Honor, regarding the two Texas agency witnesses, I do have some examination for them. It's not extensive. Approximately half an hour for each, depending on what's raised in the direct examination, of course.

JUDGE MELLOY: Which are your two witnesses?

MS. BARFIELD: Mr. French and Mr. Mills.

JUDGE MELLOY: Okay. Then Chavez is the

U.S. witness? Do you expect much?

MR. DUBOIS: No, Your Honor. I would think that would be Ms. Klahn for Texas.

MS. BARFIELD: That one is actually related. That's a Hudspeth witness so it is under the Texas umbrella. Ms. Klahn is handling that and she may have some examination, but I don't think it's extensive.

JUDGE MELLOY: What I'm getting at, assuming these one-hour estimates are correct, and you've been pretty right on so far, Ms. Thompson, we probably will be through those three witnesses by the end of the day tomorrow and maybe through Stomp. So I really would like to get one more witness on, on Friday, at least. So see what you can -- see what you can do. All right?

MS. THOMPSON: Will do.

MS. BARFIELD: If I could comment on that, Your Honor, I will say that on -- from Texas' perspective, as well, the document exchange issue, we're willing to waive the five days for all of the witnesses if they can advance them with the exception of Mr. Serrano. That could be a little more document intensive, which would need the five days. But, for example, if they want to make Mr. Longworth available

on Friday, we'll do the document exchange on an expedited basis, and we'll do it.

JUDGE MELLOY: Is that all right with you, Mr. Dubois?

MR. DUBOIS: I'm not handling Mr. Longworth. I think that that would probably be okay.

JUDGE MELLOY: All right. Well, let's see where we are, what you can get put together, and we'll talk in the morning. All right. We'll be recessed then until 9:00 a.m. -- excuse me -- I guess 9:00 a.m. Ms. Barfield's time, 11:00 our time. Thank you.

MS. BARFIELD: Thank you, Your Honor.

MR. DUBOIS: Thank you, Your Honor.

MS. THOMPSON: Thank you.

(The proceedings adjourned at 5:01 p.m.)

CERTIFICATE

I, HEATHER L. GARZA, a Certified Shorthand Reporter in and for the State of Texas, do hereby certify that the facts as stated by me in the caption hereto are true; that the foregoing pages comprise a true, complete and correct transcript of the proceedings had at the time of the hearing.

I further certify that I am not, in any capacity, a regular employee of any of the parties in whose behalf this status hearing is taken, nor in the regular employ of any of the attorneys; and I certify that I am not interested in the cause, nor of kin or counsel to any of the parties.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, on this, the 13th day of December, 2021.

HEATHER L. GARZA, CSR, RPR, CRR
Certification No.: 8262
Expiration Date: 04-30-22

Worldwide Court Reporters, Inc.
Firm Registration No. 223
3000 Weslayan, Suite 235
Houston, TX 77027
800-745-1101

B

Q

T

U

V

X