

Las Cruces Utilities
Minutes of the Work Session Meeting on
Thursday, September 10, 2020
1:30 pm
via Zoom Video Transmission

Board Members Present

William Little, Chairman
Ed Archuleta, Vice-Chairman
Jim Carmichael, Commissioner
Dr. Harry Johnson, Commissioner
Dr. Harry Hardee, Commissioner
Gill Sorg, Commissioner

Board Members Absent:

Johana Bencomo, Commissioner

Others:

Cassie McClure, Public Outreach Consultant
Harry Romine, Johnson Controls
Annie McCoy, John Shomaker and Associates, Inc.
John Shomaker, Shomaker and Associates, Inc.

City Staff Present:

Waleed Abu-Issa, Senior Engineer, Environment/Technical Support
Robert Cabello, Senior Assistant City Attorney
Carl Clark, Deputy Director Environment/Technical Support
Rhonda Diaz, Water Conservation Program Coordinator
Jeff Dillard, Business Systems Analyst
Lucio Garcia, Deputy Director Natural Gas
Adrian Guzman, Interim Communications Director
Robin Lawrence, Deputy Director Solid Waste
David Maestas, Director Public Works
John Mrozek, Deputy Director Wastewater
Lizeth Nanez, Senior Office Assistant
Jose Provencio, Deputy Director Business Services
Mario Puentes, Gas Business Analyst
Peggy Risner, Administrative Assistant
Domonique Rodriguez, Rate and Economic Analysis Manager
Alma Ruiz, Senior Officer Manager
Matthew Saenz, Senior Budget Analyst
Delilah Walsh, Interim Utilities Director
Adrienne Widmer, Deputy Director Water

Chair Little called the Work Session meeting to order at approximately 1:30 p.m.

1. 10-Year Water Action Plan:

Chair Little: I'm going to turn the floor over to Adrienne Widmer.

Widmer: Thank you. Mr. Chairman, Commissioners. I'm Adrienne Widmer. I'm the Deputy Director for Water. I am terribly sorry my video isn't showing.

John Shomaker and Associates is going to present where we are with the 10-Year Water Development Action Plan Implementation. Right now, draft for the Drawdown Warning Indicator, Water Supply Availability for the Corralitos and Nutt-Hockett Basins and the Water Supply Availability for the Mimbres Basin

have been completed today. They are currently working on the reclaimed water and ASR evaluation and recommendations. When we're through with this, if you will then think about—because there are two additional water supply development alternatives that they can take a look at for us, for you to think about. Perhaps either by the end of this meeting you'll have an idea or even via next week, as there are legal implications related with any and all of these. With that, we can go ahead and get started. Annie McCoy who is with Shomaker and Associates, she is going to start out. Annie.

McCoy: Okay, great. Is someone on your end going to share a screen and pull up the presentation? Was Alma going to do that?

Ruiz: It will be Delilah.

Walsh: I apologize. I know we've been having some technical difficulties. I need to pull that up now. That wasn't part of my USB. I'm sorry Annie. If you want to start with an introduction and just give me a moment. Or if you, Mr. Chair will give us a moment I'll get that pulled up.

McCoy: Yes, I could just start with a little introduction. Thank you Chairman, Commissioners, and Adrienne for giving us the opportunity to talk today about progress we've been making on the Las Cruces 10-Year Water Development Action Plan, which we developed in coordination with Adrienne and with Dr. Garcia as a follow on to the 40-year water planning process. Today, I want to provide an update on two components of the Water Development Action Plan that are currently in draft form. The Drawdown Warning Indicator and the Updated Study of Groundwater Availability for the Corralitos Basin and the Nutt-Hockett Basin. Probably will just wait for the presentation to pop up to start talking a little bit about the Drawdown Warning Indicator, the memo that we prepared that has a draft date of May 2020.

This memo has already been through several rounds of review with the Utilities staff. Basically, the Drawdown Warning Indicator has been developed by defining water level decline rates that would lead to water level declines approaching a threshold of irreversible subsidence near the end of the 40-year planning period. The threshold of irreversible subsidence for the Valley well field in the Mesilla Basin has been defined at about 660-ft from below the pre-development water levels in the area. The threshold for the East Mesa could be significantly less than that.

It should be noted that the scope of this current Drawdown Warning Indicator study does not really address actions to be taken in the case that rates are exceeded at individual wells or groups of wells, even though that's going to be an important topic to address going forward.

This is a hydrogeologic cross-section through the Las Cruces area from southwest to northeast. It shows the threshold of irreversible subsidence—sort of this blue shaded area and a light blue line. I guess the downside to this is I

don't have a pointer to be able to point you to it. As estimated in the Mesilla Valley based on a method developed by the USGS about 660-ft below pre-development water levels; then a smaller value of about 400-ft below predevelopment water level was chosen as a conservative value for the East Mesa well field area and for the West Mesa well field area.

Chair Little: Let me interrupt for a moment. Commissioner Sorg, you had a comment?

Sorg: I got a question or two. I've been through this presentation and there's been a few terminologies that I didn't quite understand, so I would ask you to explain some of the unusual type of names are in the whole presentation. In this particular one do you have a level where the water turns from fresh to salt water? Is there a line or an area there?

McCoy: This cross-section does show sort of a zone where the total dissolved solids sort of reflective of water quality in general—yes, sort of 500 to 1,000 milligrams per liter, the idea that it drops off. Probably when you start to approach this Drawdown Warning Indicator, this warning indicator that's based on water level declines; at the same time that's probably when you would be seeing water quality dropping off to the point that you would need to treat the water because the total dissolved solids would be getting too high. I mean it's a secondary drinking water standard, right? Non-enforceable, but there would be aesthetic issues related to the saltiness of the water.

Sorg: So, it would be a gradual.

McCoy: That would be sort of occurring in tandem as you would be approaching this Drawdown Warning Indicator that we're talking about.

Sorg: What's the tandem?

McCoy: The deterioration of water quality.

Sorg: And the?

McCoy: As the water levels are dropping towards what we're calling this threshold of irreversible subsidence which would be sort of a compaction of the sedimentary aquifer to the point where you would lose the ability to recharge the aquifer. You would lose the ability to store water effectively in the aquifer, which is something that we don't want to have happen.

Sorg: Of course, yes. Thank you.

McCoy: We're sort of talking about that depth to the threshold of irreversible subsidence in the valley area and then assuming a little bit smaller value, more like 400-ft for the East Mesa and the West Mesa areas. The other thing I should draw your attention to is that there's sort of the pre-development water levels, the water levels in the basins before we started pumping groundwater,

historically going back in time. Then we have to make some assumption about our current water levels and in some cases those might be 50 or 60-ft lower than the pre-development water levels and sort of factor that into the equation. That sort of zone that's shaded in blue between the pre-development water levels and this threshold we're talking about shaded in blue includes saturated thickness in the Upper Santa Fe Group aquifer and the upper part of the Middle Santa Fe Group aquifer. You'll notice that Las Cruces does have some deeper supply wells that are completed even deeper than that, so we wouldn't want to see drawdown into that zone sort of below the blue shaded zone.

This is a schematic cross-section based on the one we just saw and it's sort of a simplification showing that blue shaded zone between the water level and the threshold of irreversible subsidence. To preserve the aquifer we want to avoid irreversible subsidence and compaction of the aquifer which would mean diminished capacity for aquifer recharge in the future. We want to build in a margin of safety so you see right above threshold of irreversible subsidence you see safety margin. We kind of took a 20% margin and then we have what we call the drawdown threshold to which drawdown in wells should be limited. Water level trends in...

Shomaker:

Question.

McCoy:

Here's John. We're making our way through.

Shomaker:

I just saw Jim ask a question.

Carmichael:

Annie. Is any indicated actions regarding the fact that we have existing wells with maximum depths beyond the threshold?

McCoy:

Well, I mean dating back to 2011 we've had a really good water level monitoring program for the City. In terms of developing drawdown threshold, I think there's no concern really in having these deeper wells, but the important thing is that we monitor the water level trends for these wells. If we saw trends in water levels that were signaling an approach to this drawdown threshold over the 40-year period, that's when we would be wanting to do further evaluation and take actions.

Carmichael:

Thank you.

McCoy:

This is a table summarizing the variables that we've defined in the Mesilla Basin, in the Valley area, and on the West Mesa, and then in the Jornada Basin, and the East Mesa area. This subsidence threshold that we have defined as a decline from the current water level, we defined it at about 610-ft in the Valley and about 330-ft for the West Mesa and the East Mesa. Then we build in a 20% safety margin and then in order to arrive at this drawdown threshold that we don't want to see exceeded in terms of water level declines in the City's

wells, we can take that subsidence threshold, subtract out the safety margin, and then we know the number that we don't want to exceed.

Then in terms of talking about a Drawdown Warning Indicator, something that would trigger that we were headed in a bad direction. We can look at it in terms of an average water level decline rate like a straight line and that's what we're calling Drawdown Warning Indicator 1, or we can look at it in terms of if we saw the rate of water level decline accelerating, getting steeper and steeper, that would also be problematic and that's what we're calling Drawdown Warning Indicator 2. For Indicator 1, we just have an average decline rate. We wouldn't want to exceed 12 feet per year in the Valley area and on the West and East Mesa it's closer to seven feet per year. In terms of Indicator 2 we wouldn't want to see more than a 10% annual acceleration in the rate of water level declines or about 3% annually for the West and East Mesas.

This graph kind of provides the visual representation of the Drawdown Warning Indicators for wells in the Valley and the I-25 corridor areas. We've sort of selected sentinel wells from the water level monitoring program that we want to look at more carefully, trying to make sure these wells have sort of a good representation in terms of spatially and with depth. These are also wells that have a clear trend already established through the Water Level Monitoring Program going back to 2011. These wells have an average decline rate of only about one foot per year, so when we're looking at this and evaluating whether we might have a problem we are going to look first at Drawdown Warning Indicator 1. Okay we're nowhere near an average decline rate of 12 feet per year, right. We have an average decline rate of about one foot per year in these wells. We're thinking okay things are looking pretty good in terms of the average decline rate. Then we want to look at Indicator 2 and we want to look out for any acceleration of the water level declines. That's going to be something we're going to be looking out in a 10 or 20 year time frame as the monitoring program goes forward.

The story's a little different on the East Mesa. We have some fairly steep water level declines. Generally three or four feet per year in most of the wells we're monitoring out there but up getting close in one well to six feet per year so we're getting close to that Drawdown Warning Indicator Number 1 and obviously any acceleration decline would be a real problem on the East Mesa as well. Even though I said that the scope of this current study doesn't really include evaluation of actions to sort of curb this drawdown, but you know in a general sense, and we've included it in this current draft of the memo, a larger well field with pumping distributed over a larger area with more wells could help with the drawdown in some of these wells that we are seeing on the East Mesa.

Right now we really only have one well that we've selected as a sentinel well on the West Mesa. We're currently working on that with the Water Level Monitoring Program to expand and improve the monitoring on the West Mesa

to eventually being able to add other wells as sentinel wells on the West Mesa. In this well again we only see drawdown on average about one foot per year and so you compare that to Drawdown Warning Indicator 1, yes we're nowhere close to six or seven feet per year. Then we want to be looking forward as the monitoring program goes forward to see if we're seeing any acceleration in the rates of decline. The next slide segues to the other study that we've been working on so I don't know if we have any questions that we want to discuss about the Drawdown Warning Indicator right now or wait until the end of the presentation and then have some more discussion.

Walsh: I'm sure you'd rather handle questions regarding the drawdown indicator first before we move to the next study.

McCoy: Sure.

Walsh: I'll leave it up to the Chair to recognize the next speaker for questions.

Chair Little: Okay let's go on with the presentation.

Sorg: Jim has a question.

Carmichael: Yes, this Carmichael and this may be a question for Adrienne. They were going to be talking about Well 40 on the East Mesa that has one of the better situations as far as rate of drawdown I guess on the East Mesa but it's still I think was identified like two and a half foot per year or something like that. Given what this study has uncovered, has the staff reviewed that and is there anything different that we should consider at this point in terms of re-drilling Well 40 on East Mesa?

Widmer: Chairman, Commissioner Carmichael. That's a really good question. When we look at that the East Mesa is a mined basin so either way the aquifer is going to get drawn down. Well 40 as Annie mentioned it has more wells out there then that means the pumping of each of the wells is going to be at a lower rate. Right now a lot of those wells, especially with Well 40 down we've been running them nearly 24/7. A really good example of that is Well 68.

Well 68 is presently running 24/7 and that's for a couple of reasons. One of them is that it can run that and it's never going to get to its maximum amount that it can actually pull out of the aquifer. Yes we're going to keep an eye on it and that's why we like having this discussion in here and we have the Drawdown Warning Indicators so we can keep an eye on that because then we can always take a look and say what other pumping regimes can we use in order to minimize the drawdown in one particular area as opposed to another. It is something that we've looked at, but we do have to realize that no matter what this is a mined aquifer and then on top of that actually as part of our permitting process it was not going to be unusual to see anywhere from 2 to 6-ft drawdown no matter what.

Chair Little: Thank you.

Carmichael: Thank you.

Chair Little: Commissioner Sorg. Commissioner Sorg, you had a question.

Sorg: Yes. Now as I understand it the West Mesa well is tied into the rest of the City's water supply, right Adrienne?

Widmer: Mr. Chairman, Commissioner. The West Mesa does have connection into the rest of the water system across the river in one place. Is that what you're talking about?

Sorg: Yes.

Widmer: Yes. As growth continues for the City of Las Cruces and demands for water increases, as part of the master plan that was completed back in 2008 there is, actually even before 2008, it was the previous one, there is additional river crossing that needs to occur. In which case we will be able to utilize more of the West Mesa water as demand increases and as needed.

Sorg: Okay, but what percentage of the City's, not counting the West Mesa, Industrial Park, and airport—what percentage of the City's water comes from the West Mesa now?

Widmer: It is fairly minimal.

Sorg: Okay. Yes. I was wondering about that because I actually surveyed for that pipeline before it was put in. What I really want to know is what percentage of the City's water supply comes from the East Jornada aquifer and what comes from the Valley?

Widmer: Mr. Chairman, Commissioner. We can certainly look that up. As you know we're only using approximately 19,000 to 20,000 acre-feet a year and our main water right, the LRG-430 is 21,869 acre-feet and up on the East Mesa is 10,200. I'd say at least 75% is coming from the Valley from the LRG-430.

Sorg: Okay.

Widmer: We can get you a more precise number if you would like.

Sorg: No that's fine. About 25/75 then.

Widmer: Yes sir, as a rough estimate unless Annie can pull that. I know she's been working on the how much water actually has been used over the last year so she may actually have a better number than I do off the top of her head.

Sorg: That's okay. Thank you. Thank you, Mr. Chair.

Walsh: Okay, Mr. Chair. Would you like Annie to proceed?

Chair Little: Yes, please.

McCoy: We've prepared this updated study of groundwater availability in the Corralitos Basin and the Nutt-Hockett Basin. We'd previously studied these basins for the City back in 2004 and now we have an updated study that's in draft form with a date of March 2020 and is currently under review by City staff. The Corralitos Basin and the Nutt-Hockett Basin represent two potential sources for alternate groundwater supply for the City. The Corralitos Basin really only has one water right that may become available for transfer up to about 1,500 acre-feet per year. In the Nutt-Hockett Basin pumping for irrigated agriculture has been estimated by the State Engineer in recent years to be about 13,500 acre-feet per year in terms of net pumping or the consumptive use portion; that would represent the maximum amount of groundwater that could be exported from that basin.

This map shows the boundaries of these basins. The Corralitos Basin kind of in the center of the map there with the black-dashed line, and the Nutt-Hockett Basin over to the west, northwest with respect to Las Cruces City limits. This map also shows land ownership, most of it you're seeing the BLM lands shaded in yellow and the State lands shaded in blue and private lands in white. We've added some hypothetical pipeline routes. Obviously, a pipeline from the Las Cruces airport area to the Corralitos Basin wouldn't be a very long pipeline and it would cross BLM and State lands before entering private land in the Corralitos Basin. A pipeline to the Nutt-Hockett Basin would be much longer and could utilize right-of-way along I-10 and along the railroad possibly as well before cutting north across BLM, State, and private lands before reaching the highway right-of-way to enter into the Nutt-Hockett Basin. That north/south stretch could be aligned to maximize crossing of state lands and minimize the crossing of BLM and private lands.

Here is the basin boundary for the Corralitos Basin and then we're showing the Las Cruces airport area down there in the lower right. We're showing the target aquifer in the Corralitos Basin in sort of a yellow or tan shading, the upper Santa Fe Group aquifer and the irrigation wells that have been developed in that aquifer. The upper Santa Fe Group aquifer is up to 250 feet thick and we've updated our estimates of groundwater and storage in the Corralitos Basin and it's about 100,000 to about 268,000 acre-feet of recoverable groundwater and storage. Based on the maximum water right that could be transferred from the basin this is about 100-year water supply. The hypothetical pipeline route we're showing is about six miles and for this study we estimate that another couple miles of collector lines would probably be needed to develop the well field in the Corralitos Basin.

We put together a "Strawman development plan" for the Corralitos Basin just to give an idea of what kind of time frame and what kind of steps would be

involved to develop a groundwater supply there. The first step would be evaluation of existing wells which could take place over about a one year period. Obviously, if acceptable to the well owner and the City wanted to engage in doing that.

The well evaluation would really be about evaluating the water quality and how it compares to drinking water standards. Evaluating well production and the condition of the wells; whether the existing wells could be used for municipal supply or whether replacement wells would be required.

The next step in the Corralitos Basin would be establishing full beneficial use of the water right because it appears that the full water right, as declared, has not been fully put to beneficial use for irrigation historically. That would be another place where if the City chose to do so, the City could assist with putting that water to beneficial use for irrigation first to demonstrate full beneficial use before applying to the State Engineer or to transfer the right for municipal use, which would follow on as a three or more year process. That could be in tandem with the environmental assessment process that would be required for pipeline infrastructure to cross BLM lands and would also probably be a three or more year process.

Following a favorable opinion from the State Engineer's office and BLM record of decision to allow the building of a pipeline across to the Corralitos Basin, then the construction of the infrastructure and the rehabilitation or the replacement of wells could take place over a two or three year period. You're looking at a total time period of 10 years at least for developing a project in the Corralitos Basin.

This map is showing the basin boundary for the Nutt-Hockett Basin and showing locations of wells used for irrigation and for dairy use and also for municipal use for Village of Hatch in the Nutt-Hockett Basin.

Here the upper Santa Fe Group aquifer is again the primary target aquifer and it's up to 500 feet thick here so thicker than in the Corralitos Basin. In some places it's underlain by saturated bell-top formation and there are wells that are completed in both of those aquifers. If you include the bell-top formation some areas you have aquifer saturated thickness up to 900 feet.

Recharge has been estimated at only 840 to about 2,500 acre-feet per year for the Nutt-Hockett Basin and if you compare that to estimated net pumping in the basin of 13,500 acre-feet per year you see that pumping has greatly exceeded estimated recharge to the basin over the last 50 year period. Many wells have water level declines in an average rate of three feet per year is typical, although there are some wells that have more complicated trends and no clear overall trend. Recent data on water levels in the last few years is lacking for the basin. We have laid out this hypothetical pipeline route that would be over 60 miles long to reach the basin and estimated that another 12

miles of collector lines would also be needed to develop a well field in the Nutt-Hockett Basin.

We put together a "Strawman development plan" for the Nutt-Hockett Basin. At this really preliminary planning stage it's impossible to know which specific water rights might become available for lease or purchase in the basin, but it might be reasonable to assume that about 4,000 acre-feet per year may be available in any given year. That's a little less than a third of the net pumping in the basin and that is equivalent to maybe four of the larger licensed or adjudicated water rights in the basin.

The evaluation of wells—that step would take a little bit longer; two to three years because there would be more wells to evaluate and more well owners to interface with.

The application to the State Engineer to transfer water rights may take about three or more years. Similar to in the Corralitos Basin even though potentially more rights could be transferred and that is true of the environmental assessment process as well which again could be performed in tandem with application to the State Engineer.

Then construction of infrastructure and rehabilitation or replacement of wells would take longer; six to seven years we estimate based on the amount of infrastructure that would need to be constructed and potentially more wells that would need to be replaced or rehabilitated. Then you're looking at maybe a 15 or more year period to develop a water supply project in Nutt-Hockett Basin.

Chair Little: Okay. Commissioner Sorg.

Sorg: Thank you. I have a question, but I'll wait until she gets done.

Chair Little: Very good. Go ahead.

McCoy: This is a table summarizing and comparing aquifer properties for the two basins, Corralitos and Nutt-Hockett Basins. In both cases the upper Santa Fe Group is our primary target aquifer. The aquifer thickness is thicker in the Nutt-Hockett Basin; depth to water is similar in the two basins; total well depths may be deeper in the Nutt-Hockett Basin especially in places where the wells are completed in the upper Santa Fe Group and the underlying bell top formation. Well yields may be higher in the Nutt-Hockett Basin. Hydraulic connectivity or permeability may be similar for the two basins. This information here would suggest that it may be a little bit higher in the Corralitos Basin, but that's based on a fewer number of wells that are all located within very close proximity to one another so in reality permeability of the aquifer may be similar in the two basins.

We are also presenting here a summary of the groundwater quality for the two basins. In the Corralitos Basin the total dissolved solids and sulfate concentrations may be elevated above the secondary aesthetic related drinking water standards, the non-enforceable standards.

In the Nutt-Hockett Basin total arsenic, down at the bottom, the very last line in the table, may be elevated in some wells in some locations above the primary health related standards. No data were available for the Corralitos Basin thus emphasizing the importance of the well evaluation component of a development plan. There was one sample in the Nutt-Hockett Basin with elevated iron and aluminum above secondary standards and no data available for the Corralitos Basin. Again the importance of a well evaluation.

This is a summary table comparing some estimates of capital costs that we put together for the Corralitos Basin for the Nutt-Hockett Basin. In terms of the amount of water that could be available, we're looking at about potentially three times as much water in the Nutt-Hockett Basin as in the Corralitos Basin. In terms of cost for the well evaluation component, we estimated \$340,000.00 for the Corralitos and about \$550,000.00 for the Nutt-Hockett Basin. In terms of the cost to purchase the water rights, we estimated about \$5.9 million for Corralitos Basin and \$17.5 million in the Nutt-Hockett Basin based on the similar pricing to Main Stem Rio Grande rights.

The cost of constructing a pipeline is about \$9.5 million for the Corralitos and almost an order of magnitude more \$79.2 million in the Nutt-Hockett Basin and that's based on costs that were available for similar pipeline projects such as a component of the Ute Pipeline Project in eastern New Mexico called their Interim Groundwater Pipeline Project.

Then the cost to drill new wells, assuming that existing wells would not be able to be rehabilitated that would probably be somewhat cheaper than having to drill new wells. Estimated those costs at about \$16.2 million in the Corralitos Basin and \$105.2 million in the Nutt-Hockett Basin. Then we broke these costs down in terms of the cost per acre-foot of water for municipal supply and the costs for the Corralitos Basin came out to about \$11,000.00 and the cost for the Nutt-Hockett Basin came out to more than twice that much; more like \$24,000.00. These were the elements of the two studies that we wanted to share with you today before opening it up to questions and discussion.

Archuleta: Mr. Chairman.

Chair Little: Go ahead.

Archuleta: Yes, it looks to me like the Corralitos water would have to be treated because the TDS is almost 1,000 parts per million and the sulfates are high too. It's almost a desalination project, don't you think?

Sorg: Annie. Would it be a desalinization problem?

McCoy: Yes, well I mean those values range. There's a range of values—you know it may still be worthwhile to proceed, if the owner of the water rights and the wells was willing and interested it might be worthwhile to go to the well evaluation component of that project to get better information on water quality. It depends on how much above the standard of 500 that the City would be willing to go, if any. Obviously, some communities use drinking water that has TDS elevated above the secondary standard.

Archuleta: Yes, but with the sulfates being high and it's sodium and chloride are high too it seems to me like it's a, and people are used to drinking water at less than 500 part per million I think you'd almost have to look at desalination as a possibility for that water.

McCoy: For blending with other waters?

Archuleta: Right, blend it. Right.

Sorg: Mr. Chairman.

Chair Little: Okay, Commissioner Sorg.

Sorg: Annie. Could you go back one slide or whoever's controlling the slides go back one. Just reverse one slide.

McCoy: Was that Delilah?

Sorg: Delilah.

Walsh: Sorry, I knew how to go forward, but evidently not backwards.

Sorg: That's it. You got her. I think this might be a question for our staff more so. What is the cost per acre-foot of the water we use now in Las Cruces? Averaging all the water we use from all of our wells and so on.

Walsh: Adrienne or Joe would you have that information on hand, off-hand of the per acre-foot cost?

Widmer: Mr. Chairman, Commissioner. Right now, actually utilizing, and Joe can correct me, it's running a little bit, I think it's about \$1.09.

Sorg: What?

Widmer: Yes, I think Joe can, I think he's come up with a \$1.09, but that's because we already own it, right. If we were out buying water rights right now, wet water rights you're talking probably about \$1,600.00 to \$2,000.00 an acre-foot.

Sorg: \$1,600.00?

Widmer: To \$2,000.00.

Sorg: Okay. All right, that's what we'd have to compare. We want to talk about opportunity costs. Anyway, \$1,600.00 to \$2,000.00 so that's what, five times more cost with the Corralitos Basin alone, wouldn't it be?

Archuleta: Yes.

Sorg: Yes, okay. Then as far as the Nutt-Hockett Basin if those agricultural people there want to keep their water that price may even go higher. I know if I was in their shoes, I would want a pretty penny for the water rights there, especially since the water's good, I think right. The water was better, good quality I mean. Anyway, so I would even say that might be a little more expensive and then the cost per acre-foot there is really high. Well, we need to compare what we can do with our own water we have now to extend it, get the use per capita down more, so we don't have to go to these expensive waters or at least not sooner rather than later.

Chair Little: Let me share with you plans of this briefing today, this Work Session is going to lead to another Work Session once the Board has had a chance to digest all the data we've gotten since last night. I anticipate that that Work Session will be among the Board and Utilities staff and we will have to all bring our calculators and our white boards and talk about all this stuff in considerable detail. This is just the beginning not the end.

Sorg: Okay, thank you.

Chair Little: I have one question. The Corralitos Basin is geologically and hydrologically part of the Lower Rio Grande (LRG) Basin is that right?

McCoy: Yes, I'll let John address some questions to help you. I'm not sure he's still on here.

Shomaker: Yes. Mr. Chairman, Commissioners. Yes, I think the Corralitos Basin is part of the LRG administratively.

Chair Little: One shadow over its use is Texas v. New Mexico.

Shomaker: I think that shadow hangs over both of these possibilities actually.

Chair Little: The Nutt-Hockett is also somehow or another covered by the suit?

Shomaker: Yes, I think it is. That's a legal question really, but geologically or hydrologically Nutt-Hockett is associated with the Rio Grande. It's tributary to the Rio Grande groundwater system at least and the Rio Grande project map encompasses all of it and more.

Chair Little: Okay. Thank you. Okay. More questions?

Archuleta: Mr. Chairman. Just for clarification, what you're saying is that this is just a briefing of this part of the possibilities for additional water. I agree with Commissioner Sorg that we need to take a look at what we can do with what we have. More conservation, more reclamation, reuse, and desalination before we start looking at importation or at least look at them all simultaneously together to make sure that we've got the best water for the least cost and for the long-term solutions of the basin.

Chair Little: Agreed. As they say the expectation is that sometime soon we will be able to have a Work Session with the Board and staff to talk about everything we've heard today, plus the possibilities for aquifer storage and use. The possibilities for more robust conservation and also other sources of water including desalination. At the end of that Work Session or sessions we should be in a position to give Utility staff guidance as to the options to continue to pursue on a planning basis and an attempt to rank order those options. It's going to take a lot more talk, a lot more work, and a lot more calculations. I'll just remind everybody of my favorite explanation that is that we're not running out of water, but we're running out of cheap water.

Archuleta: Yes.

Widmer: Mr. Chairman. May I make a comment?

Chair Little: Please.

Widmer: Adrienne Widmer, Deputy Director for Water. As part of this, the next time that we get together we're definitely going to be going over the discussion on the Mimbres Basin and the reclaimed water in Aquifer Storage and Recovery evaluation and recommendations.

As we had mentioned previously, there is the additional water supply development alternatives. There is at least two that you can kind of talk about. From what I'm hearing, perhaps you would like to talk a little bit more about, perhaps when you're talking about desalination—we did put in two permits for the extremely deep wells into the aquifer where it is in to the very high TDS.

If you would like us to take a look at desalination as one of the options we can certainly do that because that will be something Shomaker and Associates can actually look and see how it may affect the Lower Rio Grande. Then also any other suggestions that you may have.

It sounds like you would like to take a closer look at maybe, I guess, a more extreme water conservation. As part of that, we can certainly have them take a look at that but I think as we have discussed before at this point the way the water system is designed it has been designed and constructed for fire

protection. As the public is getting better and better at conserving our water use is still about the same because water quality issues arise where we're having to flush. There's positives and there's negatives, but to actually look at additional conservation that is something that we can definitely take a look at and that way it kind of brings it down, I think, a little more for perhaps a better understanding as moving forward.

Then another potential discussion would be the aquifer storage and recovery—a type of indirect reuse. If you are interested we can also have them take a look at something that's a little bit more out of the box, which would be a direct reuse where we're treating the wastewater into drinking water standards and then putting it, for instance, into a tank and then delivering it after excessive amount of testing.

As we're talking about this we're talking about what are we going to do moving forward instead of just right now. We have look at forward where we're talking with NMED (New Mexico Environment Department). Eventually, I think some of these issues such as direct use is going to be a little more open perhaps as we move forward. That's all sir.

Chair Little: Thank you.

Hardee: Mr. Chair. I have a question or two. I don't have an ability here to raise my hand for some reason on my screen.

Chair Little: That's all right. This is Commissioner Carmichael. Go ahead.

Hardee: This is Commissioner Hardee.

Chair Little: Okay, go ahead.

Hardee: I had some questions about how well we know the area around the bottom of the current main basin on the Mesilla Basin here on which this critical level is predicted. I saw an earlier graphs here in this presentation that they elude to papers by Hawley. I'm familiar with one of the earlier papers by Hawley and mainly he was basing that a lot on outcroppings he observed. Do we have some good confirming data from drilling as to where exactly the bottom of this current reservoir exists or are we strictly going on just some outcropping data?

Chair Little: Probably the best source of data is really a very large paper by Hawley and Kennedy which does a very good job of mapping out the hydrogeologic framework of the basin, and someone here at Utilities probably has a copy of that.

Hardee: I would enjoy reading that. I have 1975 paper by Hawley and King, I think it is.

Chair Little: Okay, well there's something from the 21st Century.

Hardee: Okay.

Chair Little: I don't have it, haven't seen it, but there was a subsequent paper which was hydraulic modeling, based on the hydrogeologic framework that those two established.

Hardee: They don't have actual core samples or drilling data?

Chair Little: Yes, they do.

Hardee: Okay. Yes, I'd like to see that if that's available.

Chair Little: Okay. Adrienne can you lead the charge to find those documents?

Widmer: Mr. Chairman, Commissioners. Yes sir, I will.

Chair Little: Okay. I wish I just kept the one that I had my hands on, but someone else thought it was theirs. Spoil that story.

Walsh: Mr. Chair. We'll make sure we get that information out to all the Board Members as a refresher.

Chair Little: Okay. Commissioner Carmichael had a comment.

Carmichael: I agree with all the thoughts and comments that we've heard. At some point during the ongoing discussions there's two other areas I'd like to see us spend some time on. I'm not quite sure when the right time is, but one is that this is not just a City of Las Cruces issue for the next 40 or 50 years. This obviously includes everything going on in the Lower Rio Grande Valley, especially the farming, irrigation, and so forth. At some point, I don't know how, but I'd like to hear a little bit more about what's going on around the state and with other groups or the coalitions going on that I'm not aware of or whatever. That's one item.

The other item, at some point we need to talk about the options regarding funding. I know we accumulate some funds for water rights or whatever through our charges and so forth, but sooner or later it's going to take lots of money to do almost anything that we've talked about, down the road at some point whether it be 10 years from now or whatever. I feel like sooner that we can start accumulating those dollars the better. Thanks, that's my input.

Chair Little: Okay. Commissioner Sorg.

Sorg: Commissioner Carmichael. I don't know, several of us in this group here have been part of statewide water, what do we call it, exercise of our whole water supply in the state; carved out in regions. Several of us we're on multiple committees, subcommittees for over a year I know to report to the Interstate

Stream Commission. At the time, Commissioner Billy Garrett and I presented that report to the Interstate Stream Commission. I don't know what's happened. I don't remember what year that was, maybe Adrienne can remember what year they took the reports. Anyway I don't know what's happened since, but it has been worked on. That's what I wanted to point out.

Chair Little: There does exist a recently published State Water Plan which also incorporates or includes all of the sub-basins statewide and there are a lot of issues surrounding that plan, but it does exist. There's also a couple of organizations and I'm not going to be able to name them, that are trying to look at the basin-wide water needs separate from the outcome of the suit. Yes, people are thinking about it, they may not be thinking fast enough or carefully enough, but the thought has occurred to more than one person.

Carmichael: The idea will be when actions first coming out of those discussions. Thank you.

Chair Little: Indeed. Other comments? Okay. Adrienne. That probably ends the Work Session for today.

Widmer: Okay, thank you Chair and thank you, Annie. We really appreciate you doing that. Then as soon we get more reports completed we'll come back to you. In the meantime, you all start thinking about what else for alternatives and/or other areas that you would like us to take a look at. I think some of you had some really great ideas. We've given somethings to think about, so that way among you, you can make the discussion and that way Chairman Little can let us know which way to move forward on this. Thank you all very much.

Chair Little: Thank you. Three things, we're going to adjourn the Work Session here in a bit. We will rejoin for the regular meeting. I make it about seven minutes until 3:00. Can we make it back in front of the screen by 3:00 p.m.? Okay, I see people nodding their head.

Let's do that and by the time we get to Board General Discussion during the regular meeting let's contemplate scheduling another Work Session. Okay, and with that ... go ahead.

Ruiz: I can't raise my hand because I'm a co-host, but for those of you that are participating in the regular meeting don't leave the meeting just take a break. We're using the same link for the regular meeting. Thank you.

Chair Little: Okay, so the Work Session is adjourned. Don't turn off your set. I'll start talking again at 3:00 o'clock.

Dr. Shomaker and Annie thank you very much. We really appreciate getting this information. The data that we got last night and this morning is going to take some time to go through, but we will do that as well.

Shomaker: Thank you very much for the opportunity Mr. Chairman. We enjoy being involved with Las Cruces and it's always fun to see everybody. Thanks a lot.

Chair Little: Okay. Anything else before we adjourn?

Meeting was adjourned at approximately 2:53 p.m.

William M. Little
Las Cruces Utilities Board Chair

Date

DRAFT