



Agenda

CITY CLERK'S OFFICE

DATE 3/5/15 TIME 10:40am

SERVED BY Caryn Grosse

RECEIVED BY Heather Hartig

SANTA FE WATER CONSERVATION COMMITTEE MEETING

CITY HALL - 200 LINCOLN AVE.

CITY COUNCILORS' CONFERENCE ROOM

TUESDAY, MARCH 10, 2015

4:00 PM TO 6:00 PM

AMENDED

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
4. APPROVAL OF CONSENT AGENDA
5. APPROVAL OF MINUTES FEBRUARY 10, 2015 WATER CONSERVATION COMMITTEE MEETING
6. CONSENT ITEMS

DISCUSSION ITEMS:

7. DROUGHT, MONSOON AND WATER RESOURCE UPDATE (Rick Carpenter, 10 minutes)
8. CLIMATE ACTION TASKFORCE (Councilor Ives, 10 minutes)
9. VOTE TO SUPPORT AND RECOMMEND WATER CONSERVATION BILLS CURRENTLY UNDER CONSIDERATION IN 2015 LEGISLATURE (Doug Pushard, 10 minutes)
10. SPRING EVENTS UPDATE (Caryn Grosse, 10 minutes)

INFORMATIONAL ITEMS:

11. UPDATE ON BASIN STUDY (Bill Schneider, 30 minutes)
12. GROUP REPORTS FROM WATER CONSERVATION COMMITTEE INITIATIVES: (Councilor Ives, 40 minutes)
 - A. GROUP #3- WATER CONSERVATION CODES, ORDINANCES & REGULATIONS (10 minutes)
 - B. GROUP #4- REESTABLISH TREND OF NET ANNUAL REDUCTIONS IN PER CAPITA WATER USAGE AND IDENTIFYING LARGE WATER USERS (10 minutes)
 - C. *NEW!* GROUP #5-WATER SYSTEM MAP (10 minutes)
 - D. GROUP #2- WATER CONSERVATION EDUCATION/OUTREACH (10 minutes)

MATTERS FROM STAFF:

- Search Process for Water Conservation Manager

MATTERS FROM COMMITTEE:

- Reminder Regarding Attendance

MATTERS FROM PUBLIC:

NEXT MEETING – TUESDAY, APRIL 14, 2015:

CAPTIONS: MARCH 30, 2015 @ 3 pm PACKET MATERIAL: APRIL 1, 2015 @ 3 pm

ITEMS FOR NEXT AGENDA:

- New Working Groups/Priorities

ADJOURN.

Persons with disabilities in need of accommodations, contact the City Clerk's office at 955-6520, five (5) working days prior to meeting date.



Agenda

DATE 3/3/15 TIME 4:25pm
PREPARED BY Caryn Grosse
APPROVED BY Alicia Hartig

SANTA FE WATER CONSERVATION COMMITTEE MEETING
CITY HALL - 200 LINCOLN AVE.
CITY COUNCILORS' CONFERENCE ROOM
TUESDAY, MARCH 10, 2015
4:00 PM TO 6:00 PM
AMENDED

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
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5. APPROVAL OF MINUTES FEBRUARY 10, 2015 WATER CONSERVATION COMMITTEE MEETING
6. CONSENT ITEMS

DISCUSSION ITEMS:

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- Search Process for Water Conservation Manager

MATTERS FROM COMMITTEE:

- Reminder Regarding Attendance

MATTERS FROM PUBLIC:

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ITEMS FOR NEXT AGENDA:

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ADJOURN.

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Agenda

CITY CLERK'S OFFICE

DATE 2/25/15 TIME 11:37am

RECEIVED BY Caryn Grosse

RECEIVED BY Alicia Martuf

SANTA FE WATER CONSERVATION COMMITTEE MEETING

CITY HALL - 200 LINCOLN AVE.

CITY COUNCILORS' CONFERENCE ROOM

TUESDAY, MARCH 10, 2015

4:00 PM TO 6:00 PM

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
4. APPROVAL OF CONSENT AGENDA
5. APPROVAL OF MINUTES JANUARY 20, 2015 WATER CONSERVATION COMMITTEE MEETING
6. CONSENT ITEMS

DISCUSSION ITEMS:

7. DROUGHT, MONSOON AND WATER RESOURCE UPDATE (Rick Carpenter, 10 minutes)
8. CLIMATE ACTION TASKFORCE (Councilor Ives, 10 minutes)
9. VOTE TO SUPPORT AND RECOMMEND WATER CONSERVATION BILLS CURRENTLY UNDER CONSIDERATION IN 2015 LEGISLATURE (Doug Pushard, 10 minutes)
10. SPRING EVENTS UPDATE (Caryn Grosse, 10 minutes)

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- Search Process for Water Conservation Manager

MATTERS FROM COMMITTEE:

- Reminder Regarding Attendance

MATTERS FROM PUBLIC:

NEXT MEETING – TUESDAY, APRIL 14, 2015:

CAPTIONS: MARCH 30, 2015 @ 3 pm PACKET MATERIAL: APRIL 1, 2015 @ 3 pm

ITEMS FOR NEXT AGENDA:

- New Working Groups/Priorities

ADJOURN.

Persons with disabilities in need of accommodations, contact the City Clerk's office at 955-6520, five (5) working days prior to meeting date.

WATER CONSERVATION COMMITTEE
INDEX
MARCH 10, 2015

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| Cover Page | | Page 1 |
| Roll Call/Call to Order | The Water Conservation Committee Meeting was called to order by the Chair, at 4:00 pm in the City Councilor's Conference Room. | Page 2 |
| Approval of Agenda | <p>Request to move #11 under Informational Items – Update on Basin Study after #6.</p> <p>Mr. Michael stated that he had requested items under Discussion Items and did not get listed on the Agenda but the support material did make the agenda packet. Will they be heard under Discussion Items or under Matters from the Committee? The Chair stated that it will be heard under Matters from the Committee.</p> <p><i>Mr. Pushard moved to approve the agenda as amended, second by Ms. Randall, motion carried by unanimous voice vote.</i></p> | Page 2 |
| Approval of Consent Agenda | No Action needed | Page 3 |
| Approval of Minutes, February 10, 2015 | <p>CORRECTIONS:</p> <p>Under group reports change all references from weather trap to Weather TRAK.</p> <p>Under C. – Change Mr. Nelson to Win Nelson Co.</p> <p>Change Mr. Bob Wood, Water Department to Mr. Wood, Water Conservation Office</p> <p><i>Mr. Wiman moved to approve the minutes as amended, second by Ms. Randall, motion carried by unanimous voice vote.</i></p> | Page 3 |
| CONSENT AGENDA | No Action Needed | Page 3 |
| <u>Discussion Items</u> #11 – Update on Basin Study, Bill Schneider (Exhibit A) | Informational | Page 3-11 |

| | | |
|--|----------------------------------|------------|
| Discussion Items (Cont'd) <ul style="list-style-type: none"> • Drought Monsoon and Water Resource Update • Climate Action Task Force • Vote to support and Recommend Water Conservation Bills Currently Under Consideration in 2015 Legislature • Spring Events Update | | Page 11-13 |
| Informational Items | Informational | Page 13-15 |
| Group Reports | | |
| Matters from Public | None | Page 16 |
| Next Meeting | Tuesday, April 14, 2015 | Page 16 |
| Adjournment and signature | Meeting was adjourned at 6:15 pm | Page 16 |

**SANTA FE WATER CONSERVATION COMMITTEE MEETING
CITY HALL - 200 LINCOLN AVE.
CITY COUNCILORS' CONFERENCE ROOM
TUESDAY, MARCH 10, 2015
4:00 PM TO 6:15 PM**

MINUTES

1. CALL TO ORDER

Councilor Ives, Chair called the meeting to order at 4:00 pm

2. ROLL CALL

Present:

Councilor Peter Ives, Chair
Stephen Wiman
Nancy Avedisian
Tim Michael
Lisa Randall
Grace Perez
Bill Roth
Doug Pushard

Not Present/Excused

Giselle Piburn
Karen Schmitt
Not Present

Others Present:

Caryn Grosse, Water Conservation Specialist
Quita Ortiz, Water Conservation Education and Compliance Specialist
Robert Wood, Water Conservation Specialist, Sr.
Andy Otto, Santa Fe Watershed Association
Daniel Chacon, Santa Fe New Mexican
Bill Schneider, P.G., Water Resources Coordinator
Elizabeth Martin for Fran Lucero, Stenographer

3. APPROVAL OF AGENDA

Request to move #11 under Informational Items – Update on Basin Study after #6.

Mr. Michael stated that he had requested items under Discussion Items and did not get listed on the Agenda but the support material did make the agenda packet. Will they be heard under Discussion Items or under Matters from the Committee? The Chair stated that it will be heard under Matters from the Committee.

Mr. Pushard moved to approve the agenda as amended, second by Ms. Randall, motion carried by unanimous voice vote.

4. **APPROVAL OF CONSENT AGENDA**
No Items under Consent Agenda.

5. **APPROVAL OF MINUTES FEBRUARY 10, 2015 WATER CONSERVATION COMMITTEE MEETING**

CORRECTIONS:

Under group reports change all references from weather trap to Weather TRAK.

Under C. – Change Mr. Nelson to Win Nelson Co.

Change Mr. Bob Wood, Water Department to Mr. Wood, Water Conservation Office

Mr. Wiman moved to approve the minutes as amended, second by Ms. Randall, motion carried by unanimous voice vote.

6. **CONSENT ITEMS**

Introduction

Ms. Grosse introduced Quita Ortiz who is the new Water Conservation Education and Compliance Specialist.

The WCC members introduced themselves to Ms. Ortiz and extended a warm welcome.

(Item #11) Update on Basin Study – Bill Schneider, P.G. (Exhibit A)

Mr. Schneider provided for WCC members a power point presentation in their packets related to the Projections of Current and Future Water Supply for the Santa Fe Basin. This presentation was made to the Public Utilities Committee on February 4, 2015.

Mr. Schneider noted that in working together with Mr. Otto on some of the maps, there may be some items repeated. The basin study was designed to address a 40-year forecast on basically the projections for the city of Santa Fe as well as Santa Fe County within the region water supply vs. demand. It will give you a baseline of what the current water summary is for 2014 and Segway in to the basin study report itself and providing additional planning they are doing now and the near future.

Mr. Schneider explained each slide individually:

1) **Water Supply 1999-2014**

City of Santa Fe Water Production, we have had a steady to slow decline in production. Reason being is that it is driven mostly by conservation; reclaimed water reuse, which is another big contributor. We are around 10,000 ac. ft. per year. It was noted that the line on the bottom, the blue itself represents surface water. Mr. Schneider likes to point out that in 2002 we were using 93% groundwater; as you see from 2002 and proceed up to 2015 you see a general ramping up of using sustainable surface water supplies. This year we had the highest use of surface water, which was 84%; again there are a lot of factors that lead to this conclusion, the numbers don't lie that we are trending upwards and utilizing more sustainable sources.

2) **San Juan-Chama Project Storage, December 2014**

Another take away is part of our water management strategy, trying to bank San Juan-Chama water. This slide is dated in December 2014 but numbers haven't

changed too dramatically since. We have about 17,000 ac. ft. of water in storage in the reservoirs north of us to be able to be diverted.

3) Key Components of Basin Study

There are four components of the Basin Study; one I have spoken to Steve and other about, something Claudia Borchert had led which was the Preliminary Assessment and Public Outreach and out of all of that citizen participation and input in terms of what Adaptation Strategies could be used and mitigate shortfalls in the future and we would roll those in to the basin study. That is a key feature. Evaluation of water supply and demand for City-County combined water system in 2055 based on climate and population projects.

Assessment of surface-water reliability, 2055.

Evaluation of proposed adaptation strategies. What can the city and the County move forward with to constructively limit the likelihood of a short fall? That could be through conservation, purchasing water rights, etc., those would be adaptation strategies.

Ms. Perez asked about Mr. Schneider's statement on stored acre-feet of water, what is the shortfall up there?

Mr. Schneider said that 17,000 ac. ft. does not include any appropriation for 2015; we have not yet received our predictions. Some of the reservoirs are down to 10-15% in capacity, there is plenty of storage space but it is more the matter of lack of water.

The Chair stated that there are others like City of Albuquerque who also stores water in those various reservoirs so the 17,000 ac. ft. merely represents the city of Santa Fe's share in those. There are complications from reduced storage capacity including carrying capacity in the river itself, Mr. Schneider will talk about that.

The Chair asked about NOAA and NRCS and models they use, is there any reason to believe they use the same models?

Mr. Schneider said, yes, that is the key point, there are four primary models and those are adopted through the federal agencies as the core models. There is a lot of variability and Mr. Schneider said he would share results at a later date.

4) Preliminary Assessment

Mr. Schneider said that members around this table participated in the preliminary assessment; the key take away was that we carried this forward, it was a very good exercise and gave us a good head start in terms of basin studies and what adaptation strategies might be viable for the city.

5) Historic Climate Variability – Blue line is 100-year record of storage in Elephant Butte Reservoir, which is rare anywhere in America to have a hydrologic record with that information. We have had almost 2 million-acre feet of storage down to less than 100,000, dramatic variation. A key take away point is you can see when the reservoir levels are low; the city starting back in the 1950's is adapted, with finding new sources of supply. The city well field, the Buckman Well Field and then we cruised along through the mid-70's through almost the 90's – the good old days – didn't have to do a lot, the Canyon Road treatment plant was producing a significant amount of the total needs. The take away is we had to

react and this is part of our resiliency. Buckman well did expansion, and the direct diversion.

- 6) Another point of the Basin Study is we are now looking at 2015 – what is it going to look like in 2055 – we are having to rely on simulated projections and forecast because that is all we have.

Due to time constraints Mr. Schneider showed some of the findings; it is a study that is published by the Bureau of Reclamation and is included in one of the appendices of the Basin Study, the climate based model. The key take away is that we are going to see luckily a 5 degree increase in temperature, more troubling is we are going to see significant reductions of the 75% in snow pack and that is concerning. What is unique is a lot of the models are also indicating that the total precipitation may not vary too greatly which means we may get more rainfall, more dramatic monsoon. The question we need to ask ourselves is; how we as a city are going to be prepared to capture some of that water. These are the kinds of variability's you are seeing in the models; the standard deviations are pretty wide.

This is all output from the model which is showing each of the 121 assimilations from the models, spikes showing the range, your variance, and the blue line being the median or the middle, we are looking at roughly a 33% decline in surface water in 2055 on average. That is obviously troubling and not news for many in this room, but certainly something we need to plan around.

Mr. Pushard asked; when we are talking about the Rio Grande, are we talking about the Colorado Basin, San Juan Basin or just the Rio Grande Basin?

Ms. Schneider answered; in this case it is native rivers so it is only the Rio Grande.

Mr. Pushard asked if the study looked at the other side of the watershed.

Mr. Schneider said yes, it looked at the three watersheds that we derive at the basins our source of water. They looked at the upper San Juan and those that are part of the BDD – San Juan-Chama project and again it is not as severe. Instead of 33% we are looking at 25% declines but again fairly significant. Again, a lot of variance, Mr. Schneider said he tries to put out the reminder that you have to hope for the best and plan for the waters, but we are looking at shortfalls and right now thanks to the storms in the last few weeks we are at about 75% of average, 2 weeks ago we were at 43-45%, and we were getting concerned for the reasons that the Chair has presented in terms of conveyances.

Question: At 25% decline does that take in to account population?

Mr. Schneider said no.

On the Adaptation strategies what we carried forward for the analysis was conservation and that can consist of irrigation efficiencies, technology upgrade, rebates and line loss prevention. Reclaimed water was one that played a key role in a lot of different factors in environmental permitting but basically is looking at how we can better utilize an asset of treated waste water. In terms of using return flow credits as aquifer storage recovery basing on a direct potable or further use of irrigation water. That is key, reclaimed water conservation and other entities include living river ASR, Storm Water ASR, something we discussed before the meeting, San Juan-Chama Leases and other available sources of water from the project. One that is becoming less and less favorable not only in Santa Fe

but with Albuquerque is the purchase of additional service water rights. We are not going to buy ourselves out of this problem essentially.

Mr. Pushard asked if these were all the adaptation strategies that were evaluated or are going to be evaluated. Mr. Schneider said they were evaluated.

Mr. Schneider said they have linked with their partners, Bureau of Reclamation, Sandia National Laboratory, the county and our contractor to work with integrating the models with our water maps, a decision support tool to try to evaluate options in terms of after we have had these projected shortages, in this case surface water, how do we overcome them. I rendered it down to three steps; Adaptation Strategy which is what we tested, then we ran in to a series of permutations for screening, we essentially assigned metrics. You have to fill the supply gap, we can't pump our way out of this problem so we set constraints on pumping, we can't have any annual deficit less than 2000 acre-feet which is essentially 20% of our current demand, if it exceeded that any given year then we threw out that hybrid of adaptation strategy. For 90% of the year you cannot have deficits less than 100 acre-feet and that is key because that is essentially implying we are building resiliency in to our portfolio. Once we accomplished that we went to our performance screening.

The Chair asked if Mr. Schneider could explain more fully the reference for the 90% of year's deficits less than 100 acre-feet per year as the measure of resilience.

Mr. Schneider said that how the modeling worked was that basically they got output from the climate models that were in the form of hydrographs, essentially simulated stream flow. It is a statistical analysis and we plugged that in to water maps and ran it for the 40 year time period and so over that range of time we were not allowing the model to basically carry forward adaptations that didn't meet those criteria. A real life example; if we basically said we are only going to buy water rights, and we are going to buy up the Acequias, that is a radical analogy. That necessarily would not produce water because in many of these years we are going to have such dry shortfalls in surface water that we own a paper water right that doesn't produce real wet water. That is where the value of water maps comes in to play is allowing us to sort of have the metrics by the test output to. Another comparison is if we basically routed all reclaimed water to the Buckman Diversion and had that as a source of supply and you could argue based on the model that it is a very viable and resilient source because it is always going to exist. As much water as we produce, roughly historically since we have kept measurement, 60% of that water ends up at the end of the pipe. You are essentially having the ability to produce, in our case, 6,000 acre-feet a year of source if we are willing to treat it and drink it.

The Chair said, he wanted clarity if we are talking about keeping – we know we use a little under 10,000 acre-feet per year; are we using that as a presumption against the measure of 90% with no more than 100 acre-feet.

Mr. Schneider said, thank you, I am glossing over some of the modeling details because of time constraints. So no, the model basically has projected population growth, and I think it is very conservative it is at 1.8% and I am told it is below .acre and again that is an assumption, we can always rerun the model with various assumptions. Basically there is that projected growth and demand.

Mr. Schneider talked about the base line simulations; for example – simulated historic, no climate change. Basically that model represents essentially that the climate basically stays the same under the past current 40 years so we use real data and project that without imposing climate change on it. Even with basically no climate change imposed on it, we are still going to see a supply gap and that is basically driven by population growth.

Mr. Michael asked what number is being used for population growth.

Mr. Schneider: 1.8% per year. Even with no climate change we are looking at, and this includes city and county. Mr. Schneider thought that the county projections were a little more difficult to hone in on because it depends on their area / market.

Mr. Pushard asked; the 1.8% includes county growth? Mr. Schneider said it does. Mr. Pushard said they couldn't be too far off from the number, .8% is good for us and the county is growing faster than we are. Mr. Schneider said when you are doing models it is always safe to air on the conservancies. These are things we plan to test.

Mr. Schneider provided additional information on top slide, page 7. These are essentially different extractions of 121 global climate models; it how you want to pick and pull out the model results and then plug them in to water maps so you can get this range. I like to target max and medium and try to design towards the max for conservancy.

Mr. Schneider talked about Adaptation Portfolios and what portfolios are for the sake of a better term are either a single or multitude or hybrid series of adaptation. Portfolio 1 is essentially conservation. If you go to the previous slide on top of page 7, 375 ac. ft. is circled that would be the assumed target shortfall we want to close the gap based on the climate model and the population projection. The red line noted above is essentially the 7,000 acre-feet, so how are we going to grow sources to meet this future demand in 2055. If we were to impose a 20% reduction in conservation so our GPCD is going to drop by 20% we could essentially save or create 4,000 acre-feet of water if you want to think of it in content. The challenge we face and the take away point is that in itself conservation alone will not meet the projected demands.

Mr. Pushard comments; you put in a projection of 1.8 population growth, did you assume the current GPCD number stays constant when you are doing this? You then said the 20% reduction is the net so we go from 107, so it is a constant number.

Mr. Schneider said that with some effort you could develop an algorithm to grow it over time. That certainly was not the scope for this exercise but it could be done if need be. The take away point here is single solution entities are not going to get us where we need to be in terms of addressing a shortfall. That was a quick lesson learned and we started looking at hybrid portfolios which essentially is integration of conservation, ASR, some additional water rights and reclaimed water.

Aquifer storage recovery is a subject of putting water in the ground for future use, for years where there is severe drought you can pump that out; it is like having a bank account. It is done quite frequent in Arizona and Southern California so the different types that we modeled were infiltration ASR which is basically releasing water to the Santa Fe River and having extraction wells downstream that would basically pull it back out when you create a loop, put it in and take it out. The limitation is you don't get as much storage as you are spreading your water out. Another type of infiltration ASR

would be storage infiltration basins like Tucson is doing. You basically dig basins and pump the water in to these basins and let the water infiltrate, you do lose some water to evaporation but they are still very effective if you have the right aquifer characteristics permeating the soils. They will allow them to infiltrate quickly. The _____ ASR which is something I have dealt with in my previous career in different applications are a maintenance and operations headache because you are pushing water against pressure for formations that have dissolved metals, you oxygenate that water, they are a challenge but they are doable. We modeled them all.

The Chair said, in doing some simple math, if the City uses like 10,000 ac. ft. per year and we have 16% that regularly gets the water treatment facility that would be 6,000 ac. ft. we show 4 here as a presumable maximum, what happens to the other 2.

Mr. Schneider said so much is built in to the various scenarios. We struggle with this one because there are no clear defined rules. Say you left some water in the river for environmental purposes as well as our neighbors, Sandia, La Cienega and La Bajada. That is a big debate and moving forward it is going to be a bigger debate. One model run takes about 1/2 day to run, process, but what we essentially have, in conclusion, we will short falls in surface water and we need to essentially plan for it accordingly. No single adaptation solution is going to satisfy that shortfall so we really need to look at combinations. A lot of these adaptation strategies require good engineering, good hydro-geologic analysis, geo-chemical assessment – there is going to be effort and cause associated with dealing with good sciences, there is no way around it. Conservation is critical and an integral part, how we get to that 20% target I think ties back to questions that came up a few months back in terms of defining metrics, that was even a criticism in the conservation plan and duly noted that we are meeting internally to revisit this. One key thing that needs to be done is to update the long range water supply plan. What we need that the city did not provide, we have a projection out for 4-years, but where do those lines cross in supply and demand. We now have this powerful tool and we need to rerun the model and process in the climate models in time steps – 2035, 2045, and 2055. You don't want to build a bridge to nowhere and go full ASR with today's technology if you don't need it for 20 years because in 20 years technology will be so much better. We are going to move ahead with a new upgrade long range water supply plan this year.

Ms. Perez asked about the conservation percentage for the multiple. Mr. Schneider said specifically range is between 10-20%, we had some weeks that I didn't illustrate, one where we asked what would it take just to conserve our way out of this and think of production at 44 UPCD. No way does the model itself tell you how you accomplish.

Mr. Schneider talked about the reclaimed water. I don't think as we move forward and the model does not show this, we are going to meet our projected shortfalls without better utilizing that as an asset. How we do that I think is going to be polling public opinion, and we are going to hit the streets on how to best reach them. Now that we have raised the problem what are some of the solutions. Mr. Schneider said that one of his first months here and the Chair actually championed this and supported it, we had a resolution and we pursued a grant through the Title XVI program, we won a grant for \$132,000 to do a feasibility study on reclaimed water reuse. We have an RFP out and should have results in 2-3 weeks depending on procurement. The thing about Title XVI is that it is the biggest source of grant funding for water resources in the country. For example, I have been told that Albuquerque has gotten over \$38 million dollars through Title XVI. So by us essentially having this report completed it is going to allow us to leverage some

efforts and shortfalls we have identified in basin study. We have also applied to EPA for \$850,000 5-year grant; I am a co-pi with New Mexico Tech. We also applied as partner with Water Rese Research Grant for \$50,000 to do a triple bottom line analysis. We don't want to just look at economics in a feasibility study we want to weigh other considerations, keeping water in the river for our neighbors, environmental concerns, etc. There are new tools in place that allow us to assign performance metrics. Leading in to Adaptation, we are going to do the Feasibility Study this year, doing the audit RFP, we plan to do a long range water supply plan update that gets us to where we have to be incrementally so we can look at projected capital costs that are going to be incurred to meet these shortfalls. Depending on the EPA grant in particular, we would like to start initiating some aquifer storage and recovery analysis as well fields sustainability. Wells are of key importance, wells take maintenance, and wells take optimization. Key point is blue bar is 2007 to current on how much water we are producing, roughly 10,000 ac. ft. that we touched on of which 60% or 6,000 roughly makes it to wastewater treatment plant and back to the river. Of that 6,000 about 1,500 acre-feet is being diverted and reused for irrigation, MRC, Country Club, mostly golf and other parts of recreation. This is where the feasibility study is how to better utilize this water, revisiting current contracts or developing new technologies to add in to the supply is some form or fashion.

Mr. Wyman asked what are the obligations to the river, the return flows and how much of an option is there to use more of that water in other means, and also the elephant in the room is if you start taking away water from some of these uses that are in place now, some of those initiatives could be very unpopular for people who like to play golf and use the recreation fields.

The Chair did clarify that the particular transaction that is in place with the Country Club is one that was negotiated long ago before there were any water problems and basically they get a little more than 700 acre-feet per year without charge; it is the city's obligation to make that delivery. Presumably that was a perpetual contract put in to place so there are some anomalies that will need to be dealt with if we get in to a short supply circumstance that is hard to predict at the moment.

Mr. Schneider said that our City Attorneys have put in a declaration so we have a Reclaimed Water Plan for 2013 published and there are residences in the legal view that all that water can be diverted and put to beneficial use. Not that the city is going to obtain that pursuit but it is certainly something that legally could be done. That is really the reason we are going to do the feasibility study to try to understand the regulatory, legal, cost implications of any decision we make moving forward.

The Chair asked; you mentioned the 33% drop in surface supply, is that consistent across the Rio Grande, Rio Chama and the Santa Fe? Mr. Schneider said it is a little less than the Santa Fe River percentage wise, but fairly consistent.

The Chair said at the beginning Mr. Schneider talked about the periods which there has been greatest production from the wells and how we have been able to move successfully to more and more surface use, more sustainable supply; can you say based upon current analysis of the well fields what kind of production could be derived from them for what period of time before you start really impacting the productive capacity of those well fields? Mr. Schneider said that only roughly, that is why that is an action item. Mr. Schneider spent a lot of time in his previous career doing and so there are several steps that need to be completed to give further refinement to that answer and we are working

towards that which is a collaborative effort to create the numerical model, assimilated ground work flow model, it is basically the root of many issues for the city including the Northwest Well negotiations and the La Cienega off set obligations. The model basically needs an upgrade. Mr. Schneider said that he would provide future information on a planned meeting with many stakeholders concerned about this same subject.

Mr. Schneider said that the model that will most likely be used and had been used is a standard in the industry called the MODFLOW which was developed by the United States Geological Survey.

Ms. Perez asked if the feasibility study strictly a city enterprise. Mr. Schneider said they partnered with the county, the city is the lead and he will be the project manager, funded by BOR, although the city and the county are partners and contributing technical expertise as well as a small amount of funding for the project. It has an 18-month life cycle, in a little over a year we will have some preliminary results to share. We plan to unveil something similar to a preliminary assessment which is public participation because none of these adaptation strategies are going to be fully embraced.

Mr. Pushard asked about the Long Range Water Supply Plan update, what is the tentative schedule on that?

Mr. Schneider said that since they don't have an RFP out they are going to need some scorers; he would venture to say 18 months would be a realistic goal. It is going to be very complicated in the sense they have to process all the climate models for each of the time steps. Plug it in, run the water maps, process the output and do a comparative analysis. Mr. Schneider said what they are trying to do is look at the demand growth vs. the shortfall in supply due to surface water declines and see where those lines cross so that can be digitally expressed. We can then know are we in a 10-year planning cycle, 20-year in terms of when we will be in a crisis.

Mr. Pushard said it sounds like the preliminary models already say that this committee and the Water Conservation should target at least a 20% and try to put together programs to get us to 20%.

Mr. Schneider said if we don't conserve 20% we will have to get that water somewhere else. That is for all of us to resolve. Where that water will come from, there is a lot of resistance to going out and buying water rights.

Ms. Perez asked; you said that the report as it stands now is at the Bureau of Reclamation, what happens there?

Mr. Schneider said that caught him off guard, the level of scrutiny review and process, he has gone through Albuquerque, Colorado District, Salt Lake City and now it has been to Washington, DC, it is in the Office of Policy and Management. We have had severe amount of comments and constructive support to fine-tune it. They are trying to make these basin studies consistent across the board.

Ms. Perez asked if they could get a current copy and the Chair said we have to wait until it has been through the BOR process.

The Chair asked about the 20%, given where we are on our GPCD would bring us roughly down somewhere to 80-84, and of course 84 was the figure this group saw 2 years ago that Claudia had produced to indicate that we would have a fairly stable supply of somewhere between 2040-2050. That sounds reasonably consistent in terms of what we are talking about, the figures seem to hold. In a sense the end point hasn't necessarily changed dramatically even though there is much more rigorous climate information available to us.

The Chair invited Mr. Schneider as he did this presentation previously to the PUC and especially given the chart that shows the significance of conservation to those future efforts. If you look at that conservation segment it looks like much more than 20%, and I know it is 20% of existing use as opposed to 20% of the solution, so that 20% additional savings seems to represent up to 50% plus of any solution. The relevance again of the work done here remains if nothing else in my mind even more important. I think our challenge is, and especially as you run those other models, the Chair would like to have Mr. Schneider back to talk about where the lines intersect. If we are looking at a predicted 10-year time frame and we can see what if any supply or demand imbalances are gives us a greater opportunity to figure out what the proper level of response is across the city and the county as well.

Mr. Schneider said it isn't an equal proportion; the county is driving it more than the city due to the population growth.

Thank you to Mr. Schneider for his presentation. (Exhibit A attached)

DISCUSSION ITEMS:

7. DROUGHT, MONSOON AND WATER RESOURCE UPDATE (Bob Wood)

Mr. Carpenter's report was included in the packet for review. Mr. Carpenter was not present for this meeting. The Chair said that the recent snows have pumped up where we stand against the annual precipitation to 75% and hopefully some of the indications for San Juan deliveries which had been starting to hover at the 50% level, we will see an adjustment upward as was even the case last year with several wet heavy snows, especially in southern Colorado.

Ms. Perez commented that a couple of days after the last meeting there was an article in the Reporter about problems with the Buckman Direct Diversion and she wanted to ask Mr. Carpenter about this.

The Chair noted that the Buckman Diversion minutes are available on line. Essentially the understanding is that it is issues with infiltration galleries which have been clogged with significant levels of sediment. The sense was that some design issues so they are looking at basically putting in place a check dam to keep water flows out. They will probably be shut down during some 5-6 week period during which repairs will be made. They will try to accomplish all that before significant spring run-off begins and is in the river and they were still looking at who they were going to contract with because there was an initial company or two who thought that they could handle it inexpensively. They had hoped to have that work completed by early May, which was one reference date in the BDD information.

Mr. Pushard noted that Wolf Creek is only at about 55% of normal which would be the San Juan Basin approximate. That side of the basin is not at the number we are talking about here even with the recent 100 inches, they are still very low. The other thing on the graph, included in the packet, and Mr. Pushard would like to see it continue to be included; the reservoir level volumes, there is a question on what is zero. The person who created the graph is out of the country right now and they don't know if zero is actually zero or if zero is the minimum drainage capacity which would make the number very different.

8. CLIMATE ACTION TASKFORCE

Councilor Ives will present to the City Council following night from this meeting, the first recommendations from the Council on Energy. It will then go out to the task force and working groups. The task force continues to formulate their short term plan and want to get the information from the Council of Energy out there for others to support. Hopefully we will be able to move across the city scape to increase things like recycling. The Chair also invited members of the Water Conservation Committee to participate with County Commissioner Holian on land, food.

Ms. Randall asked about the status of conversation on renewable energy.

Councilor Ives said those matters will be coming forward and should be exciting.

Ms. Randall said that the Solid Waste Ad Committee stands ready to be engaged with working groups.

Councilor Ives will be attending the meeting on the 18th to talk about it.

9. VOTE TO SUPPORT AND RECOMMEND WATER CONSERVATION BILLS CURRENTLY UNDER CONSIDERATION IN 2015 LEGISLATURE

Councilor Ives: Thank you to Mr. Pushard for his work. The Chair, as Councilor said he has moved it along to the city level to voice support. The council has adopted a resolution to support those measures.

Mr. Pushard noted that he hopes by the time the session ends we have not moved backwards. SB 280 has been withdrawn and most of the bills are dying in the House. 279 have been modified and are moving forward. It has been in the news that 279 will get through both Senate and the House.

Mr. Pushard informed the committee members that Senator Wirth took out the increase and is fighting for a 10 year extension. Mr. Roth commented that he took out any additional funding for current period. Mr. Pushard added that he was not 100% sure how that works. Mr. Roth said they are not looking for additional funding and Mr. Pushard said it may be a short fall.

Mr. Pushard said there are several other bills of interest and will send out a note to the WCC members. HB157 is the water project fund bill that will carve 20% for water conservation projects.

Councilor Ives noted that Councilor Maestas introduced a resolution supporting SB633.

Mr. Pushard will check on 5 other bills that are water related.

Councilor Ives expressed his thanks to Mr. Pushard for his hard work.

10. SPRING EVENTS UPDATE

Ms. Grosse talked about the spring events listed in the meeting packet. Mr. Pushard volunteered for the Railyard Event and asked the date for Community Day. Ms. Grosse said she could use volunteers for Children's Water Festival and noted that Earth Day is a big day. Mr. Michael's volunteered for the Chavez Community center event.

Mr. Wood said Community Day is held every year and is a fun day with groups gathering in the plaza with dancing and mariachi's. The date will be sent to the WCC members.

Mr. Wood talked about the Mayor's Office Water Challenge. Ms. Randall asked that information be sent to her and she will distribute to the teachers at SFPS.

Mr. Wiman talked about the Master Gardener Event; recycle folks go every year. It was recommended that if all possible we should coordinate with the recycle folks and get literature there. This event is May 2nd at the Santa Fe County Fairgrounds.

INFORMATIONAL ITEMS:

A. GROUP REPORTS FROM WATER CONSERVATION COMMITTEE INITIATIVES:

GROUP #3- WATER CONSERVATION CODES, ORDINANCES & REGULATIONS

SB 279 – Passed Conservation Committee and scheduled for Corporation Committee. SB 280 – Passed Conservation Committee and scheduled for Corporation Committee.

WERS – Mr. Pushard said they are getting feedback from builders and people nationally. They are starting to pull together training materials which is a big item. Several local builders are testing it. Working on how to update SF Building Code. Working on training that will be provided via SFCC. Applying for grant monies to help with developing the course materials.

GROUP #4- REESTABLISH TREND OF NET ANNUAL REDUCTIONS IN PER CAPITA WATER USAGE AND IDENTIFYING LARGE WATER USERS

Mr. Michaels is the only remaining member on the group. Nothing to report at this time.

NEW! GROUP #5-WATER SYSTEM MAP

Mr. Wiman reported that he had met with Andrew, Tim and Andy and had previewed the presentation today by Mr. Schneider. Mr. Wiman said they have a plan, they are enthusiastic, attitude and progress is positive.

The Chair commented that he is interested in keeping that forward progress in place. If any problems arise, the Chair would like to be notified and he will step in and help solve them.

Mr. Pushard talked about the letter to the editor about Las Campanas. People don't realize what rights are in place. Mr. Pushard is excited about the project and noted that it is sometimes hard to get time from city staff.

The Chair asked if they will bring a draft of the map to the next meeting. Mr. Pushard said he will push for that. Mr. Michael said this all sounds very optimistic and an update of where the map is going would be good. The Chair commented that the biggest challenge is what data you want to capture and the format.

Ms. Perez asked if they are developing any kind of design requirements.

Mr. Wiman said yes, he has a list. Andrew took that to put in a format with the key elements; a status has not been returned to Mr. Wiman.

The Chair asked if a PDF exists with a list of the elements. Mr. Wiman said he does have what was proposed but not what he did with it afterwards.

GROUP #2- WATER CONSERVATION EDUCATION/OUTREACH

Ms. Perez said that she has been in contact with a fellow who does plumbing supply and they are discussing a mini event in May which will focus on rebates. Ms. Perez said that after today's presentation her thought is to include something from the Santa Fe Basin plan in the upcoming presentation.

The Chair said that there is a possibility for a 5th working group and to keep in mind any proposals. He said that one thing he is interested in doing is a competition to design an indoor victory garden and to look at standalone interior wall structure for hydroponic. This would be a project that would conserve water as close as you can get or to offer a challenge to builders to come forward with recommended code changes. This would be a good way to introduce fresh vegetables in kid's diets.

Mr. Michael: I did make a stab at looking at total carbon footprint of the city of Santa Fe. I ask the question, how much of that carbon footprint is to produce water?

Mr. Roth commented that there are many programs in the country; California has a program that does just that, energy footprint. They have broken the state down in to regions and basically know where the water is coming from and they can model in that carbon footprint. It is worth it even on a local level, a great piece of information to know.

The Chair said that just yesterday he suggested to the Mayor and others that they adopt a new city reporting mechanism that says impact on budget and carbon report.

Mr. Michael responded that there are many things he is concerned about. The carbon footprint for the city is to produce water less than 1%. City carbon footprint is transportation and heating.

The Chair said that the city rays were put in place. Sustainable Santa Fe Commission is working on carbon footprint for the city. It has gone to John Alejandro to true up the data to make the report more useful. He is actively working on this project.

Mr. Roth said when you mention heating, heating water. There is an amount wasted when you heat the hot water. 30% of your energy use in your house is heating hot water.

The Chair expressed his thanks to all, all points presented are valid.

MATTERS FROM STAFF:

- Search Process for Water Conservation Manager
Mr. Wood reported that the Water Conservation Manager Job description has been rewritten and delivered to the HR department for finalization. Once they approve they will publish and the interview process will proceed.

Ms. Perez asked if this position would be the same as Mr. Trevizo's position. Mr. Wood said he could not respond until the position description is finalized. Mr. Wiman asked that a copy of the job description be sent to the WCC members once approved.

MATTERS FROM COMMITTEE:

- Reminder Regarding Attendance
Mr. Michael brought to the attention of the WCC members the importance of the packet materials and committee procedures. The city of Santa Fe strives to obtain and maintain a geographically balance on committees. It says that after 3 unexcused absences members may be excused. If an absence is excused at a low level it doesn't seem right that there is a consequence for an unexcused absence. This should be made at a high level.

The Chair said the professional ethics and courtesy of saying you will be there or not be there is an expectation. The Chair is happy to engage in a discussion with the city about the absences and the term limits. The Chair said a couple years back they tried to advertise in the paper for those who may be interested to serve. The Chair would like to have this placed back on the agenda for recommendations about formation and filling of vacancies. The Chair also added a reminder that a Vice Chair needs to be selected by the Mayor. Mr. Roth asked if WCC members could make a nomination. Ms. Grosse said that the Mayor appoints the Chair and Vice Chair. Mr. Pushard and Mr. Roth submitted Lisa Randall as a recommendation for Vice Chair.

Mr. Michael would like to know what the process is for nominating new members.

Mr. Pushard mentioned his concern about the proposed resolution by Councilor Maestas which repeals the Water Conservation Committee. Councilor Ives said there was not enough support for this resolution and Mr. Maestas withdrew his request.

Mr. Roth stated that they have discussed in passing the issue for an ideal system for water conservation and code and policy in Land Use. Mr. Roth would like for the Chair to call a meeting with Lisa Martinez and Paul from Plumbing to look at what WCC is proposing, what is acceptable and what is being done to reclaim rain water. Mr. Roth said it has been hard to get a straight answer.

Mr. Pushard also requested a meeting with Planning and Permitting to start moving forward the process for adopting the 2012 green code supplement. We have not moved forward since 2006. The goals are to discuss how we can move forward to update the code whereby green projects would be much easier to do. Current code does not do that.

Councilor Ives will follow up on both meeting requests. Mr. Pushard and Mr. Schneider will gather materials for the Chair to present at the meetings when set.

It was reported that a reevaluation of the rebate program was discussed. It has flattened out and the city is going to do a new rebate program. It was unique to hear that they are discussing giving away rain water systems. There would be a 50% rebate on systems they give away. This would also include the installation costs. It is a water utility non-profit and public partnership that will make this happen. WCC members were also updated that they will publish a new rain water guide. They will sell Ads to fund part of the program through local companies. More information will be brought to next meeting. Mr. Roth asked if there will be a cap at 50%.

Mr. Pushard said that they have applications, projection of 100 applicants and will end up with 175. They will not be doing all; they will review on a sliding scale based on income. Under \$30,000 net income is free. Mr. Pushard said this partnership is unique.

The Chair would love to share this information across the city.

MATTERS FROM PUBLIC:

NEXT MEETING – TUESDAY, APRIL 14, 2015:

CAPTIONS: MARCH 30, 2015 @ 3 pm PACKET MATERIAL: APRIL 1, 2015 @ 3 pm
ITEMS FOR NEXT AGENDA:

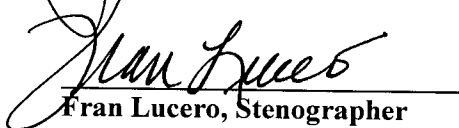
- New Working Groups/Priorities

ADJOURN.

There being no further business to come before the Water Conservation Committee, the meeting was adjourned at 6:15 pm.

Signature Sheet:



Councilor Peter Ives, Chair

Fran Lucero, Stenographer

Projections of Current and Future Water Supply for the Santa Fe Basin

Public Utilities Committee

4 February 2015

Bill Schneider, P.G. on behalf of Public Utilities Team and
Project Partners

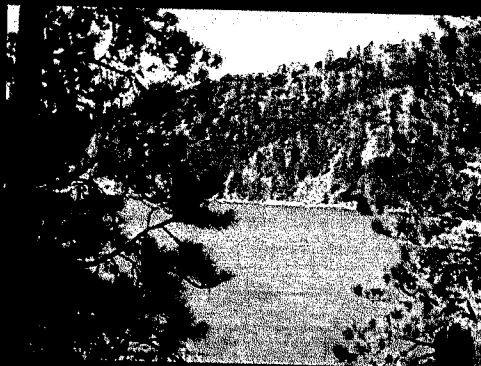


Sandia National Laboratories

CDM
Smith

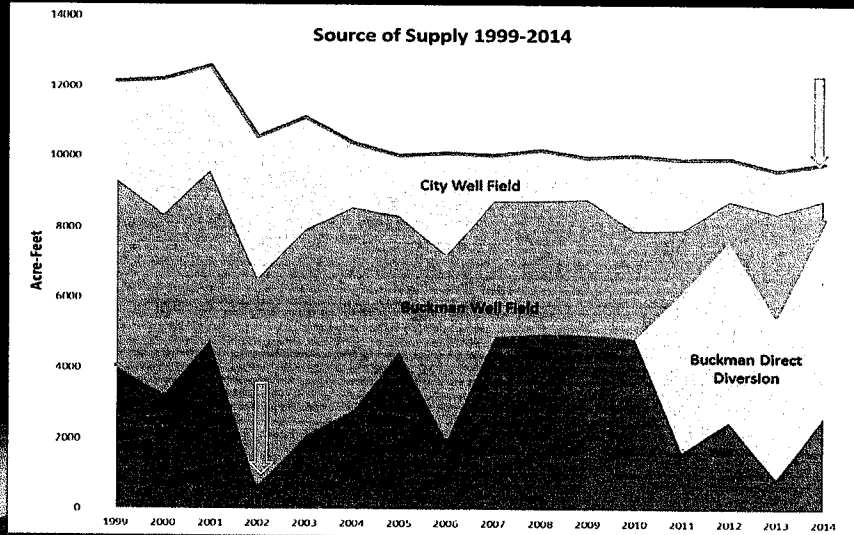
Outline

- 2014 Water Supply
Summary
- Basin Study Report
- Planning for the
Future



Enlighten A

Water Supply 1999-2014



San Juan-Chama Project Storage, Dec-2014



HERON
• 5,849 AF*

EL VADO
• 8,414 AF

ABIQUIU
• 2,667 AF

TOTAL
• 16,930 AF



Key Components of Basin Study

Santa Fe Basin Study: Adaptations to Projected Changes in Water Supply and Demand

Draft Summary Report

Santa Fe Basin, New Mexico



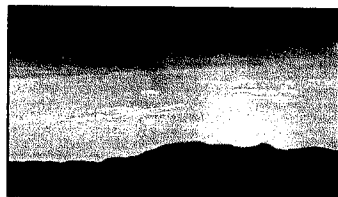
- Preliminary Assessment and public outreach
- Evaluation of water supply and demand for City-County combined water system in 2055, based on climate and population projections
- Assessment of surface-water reliability, 2055.
- Evaluation of proposed adaptation strategies

Preliminary Assessment

October, 2012

Climate Change and the Santa Fe Watershed: A Preliminary Assessment

Bureau of Reclamation WaterSMART Program Initiative



Prepared for:

Bureau of Reclamation City of Santa Fe Santa Fe County

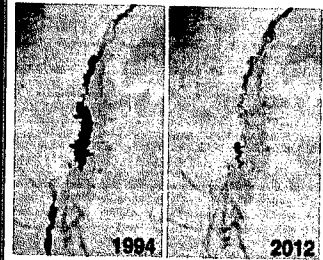


Stakeholder participation

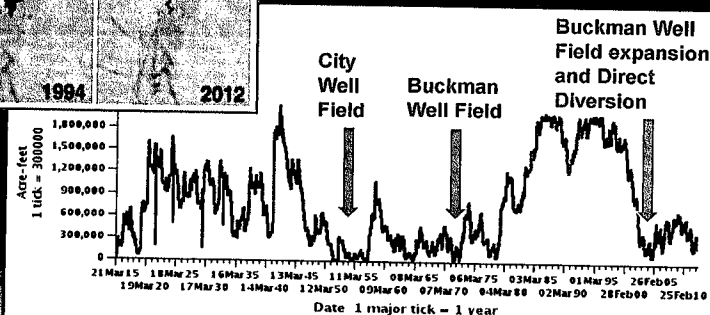
- Watershed vulnerabilities
- Brainstorm of adaptation strategies for watershed, ecosystem, food security, transportation, quality of life...
- Assessment of adaptation actions already underway in the community.

Historic Climate Variability

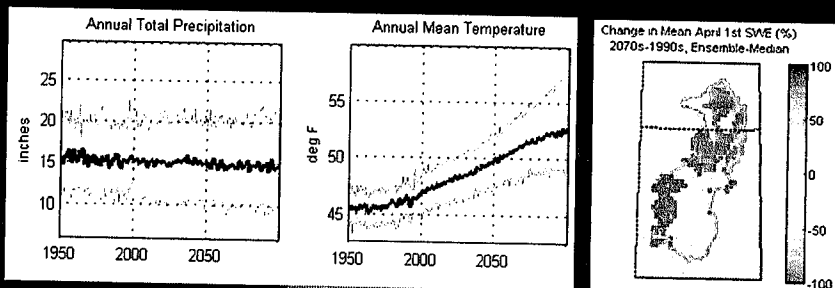
Elephant Butte & Caballo Lake



New water supply sources added during times of drought



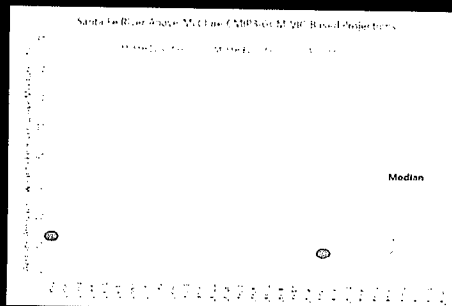
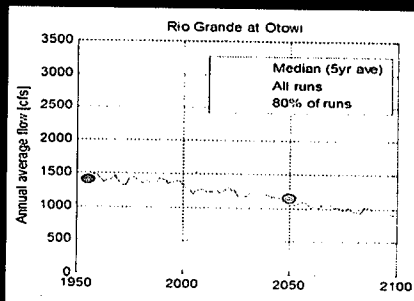
Projected Climate Changes



Key Takeaways:

- Upward of 75% Snowpack Reduction by the 2070s
- 5 Degree F Temperature Increase by 2050
- Higher Evapotranspiration Rates
- Potentially Greater Monsoonal Intensity

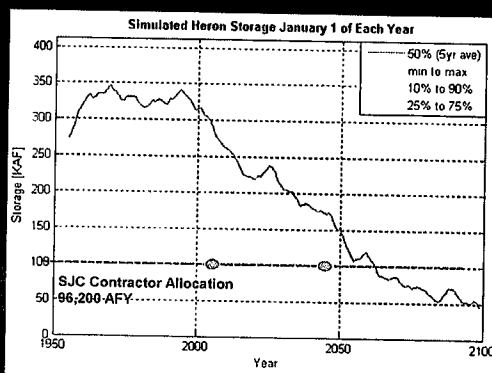
Projected Native River Flows



Key Takeaway (2055):

- ~33% average decline in availability of the native (Santa Fe Watershed and Rio Grande) surface-water supply

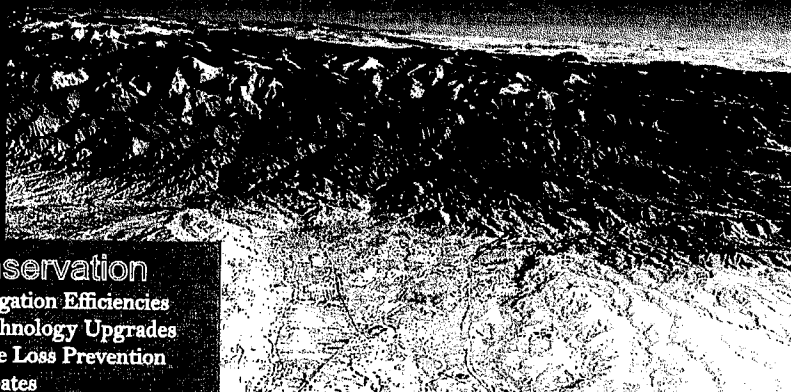
Projected Changes to San Juan-Chama Project Allotments



Key Takeaways (2055)

- San Juan-Chama Project water shows greater reliability than native surface water
- 25% Decline in Project Water Availability
- Initial (Jan. 1) Allocations Diminish over Time

Adaptation Strategies



Conservation

- Irrigation Efficiencies
- Technology Upgrades
- Line Loss Prevention
- Rebates

Reclaimed Water

- Potable Use via BDD
- Return Flow Credits via BDD
- Aquifer Storage and Recovery
- Gray Water

Living River ASR

Storm Water ASR

SJCP Leases

Purchase MRG SW Rights

Testing Adaptation Strategy Portfolios using WaterMAPs

Adaptation Strategies

Reliability Screening

Fill Supply Gaps

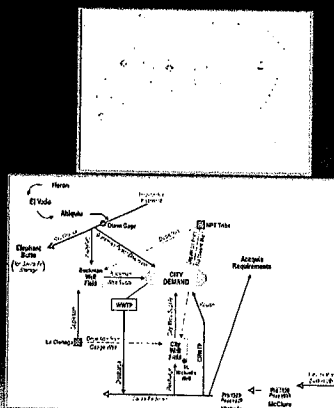
Sustainable Groundwater Pumping

Annual Deficit less than 2000 AF

90% of years, deficits are less than 100 AFY

Performance Screening

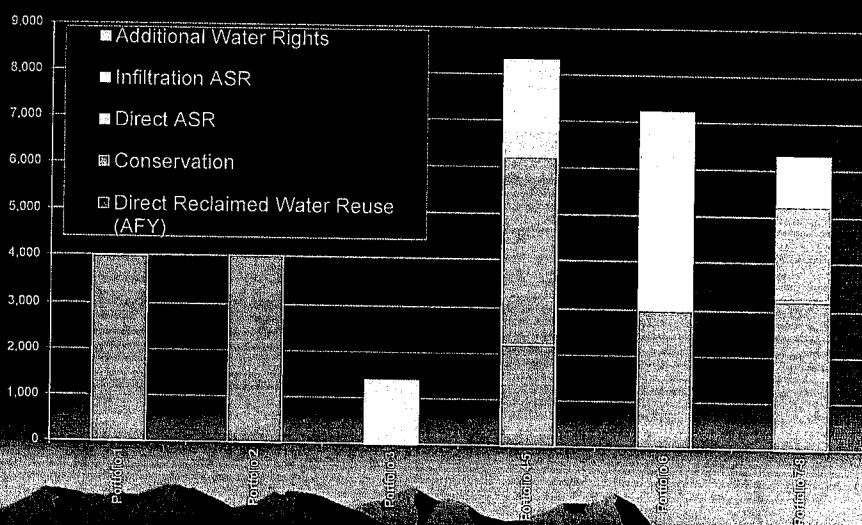
Weighted Criteria and Scoring



Projected Gap between Water Supply and Demand (2055)

| Santa Fe Basin Projected 2055 Water Supply Gap | | | | |
|---|--|---------------------|--------------|---------|
| | Climate Scenario | | | |
| | Simulated Historic (no climate change) | Central Tendency | Warm- Wet | Hot-Dry |
| Total Demand - Average Annual (AFY) | 21,643 | 22,925 | 22,646 | 23,299 |
| Total Supply - Average Annual (AFY) | 16,488 | 15,550 | 16,304 | 13,976 |
| Water Supply Gap - Difference between Demand and Supply (AFY) | -5,155 | -7,375 | -6,342 | -9,323 |

Adaptation Portfolios



Basin Study Key Findings

- Considerable uncertainty remains regarding future climate and its impacts
 - Projected surface water supply shortfalls of 20-35%
- No single adaptation solution alone is sufficient to address the projected supply gap
 - Combination of strategies required
 - Additional monitoring and data analysis and future refinements
- More Conservation will be needed
 - Further reductions in GPCD (20% target)
- Increased use of reclaimed water will be a key adaptation
 - 3 highest ranked portfolios emphasized reclaimed water

Planning for Adaptation 2015 Grant Funding

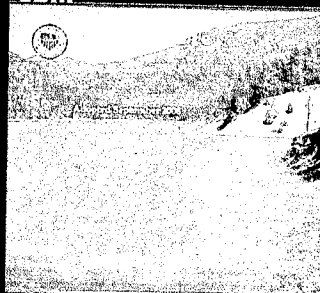
- BOR: Title XVI Water Reuse Program - \$132,000
 - "Providing for Santa Fe Basin's Future Water Supplies Needs: A Feasibility Study to Optimize the Use of Regional Reclaimed Wastewater"
- EPA: National Climate Research - \$850,000 (shortlisted)
 - "Managing forested watersheds for both water and fire during drought"
- WRRF: Water Reuse Research Foundation \$50,000
 - "Comprehensive Analysis (Triple Bottom Line) of Alternative Water Supply Projects Compared to Direct Potable Reuse"

Planning for Adaptation

2015 Monitoring, Analysis, and Refinements

- Reclaimed Wastewater Feasibility Study
- Water Loss Audit
- Long Range Water Supply Plan Update (2008)
- Well Field Sustainability Analyses*
- Aquifer Storage and Recovery Preliminary Assessment**

CDM



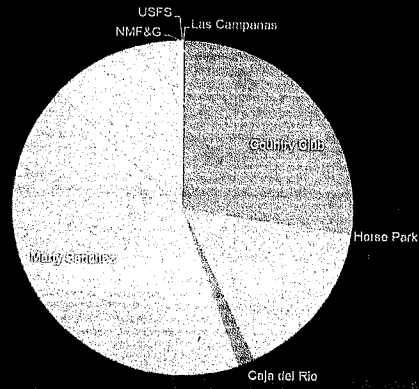
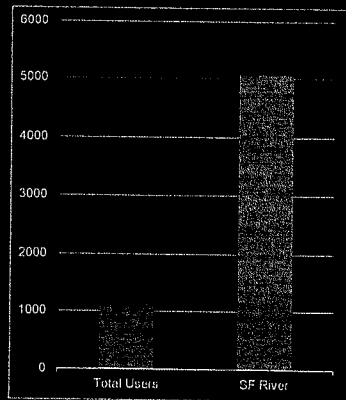
Long-Range Water Supply Plan



Water Reuse Availability

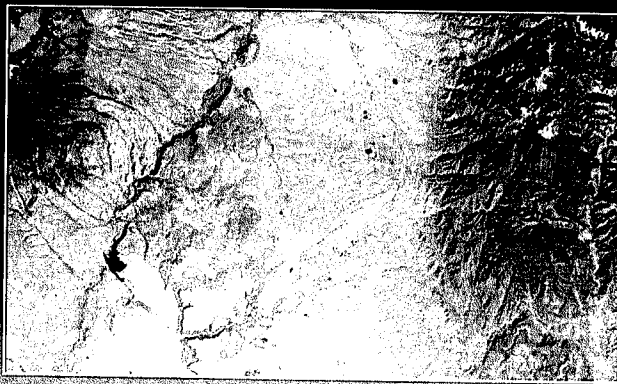


Water Reuse and SF River Releases



Ensuring Future Water Supply for the Santa Fe Basin

Thank You!
Questions?



San Juan Basin

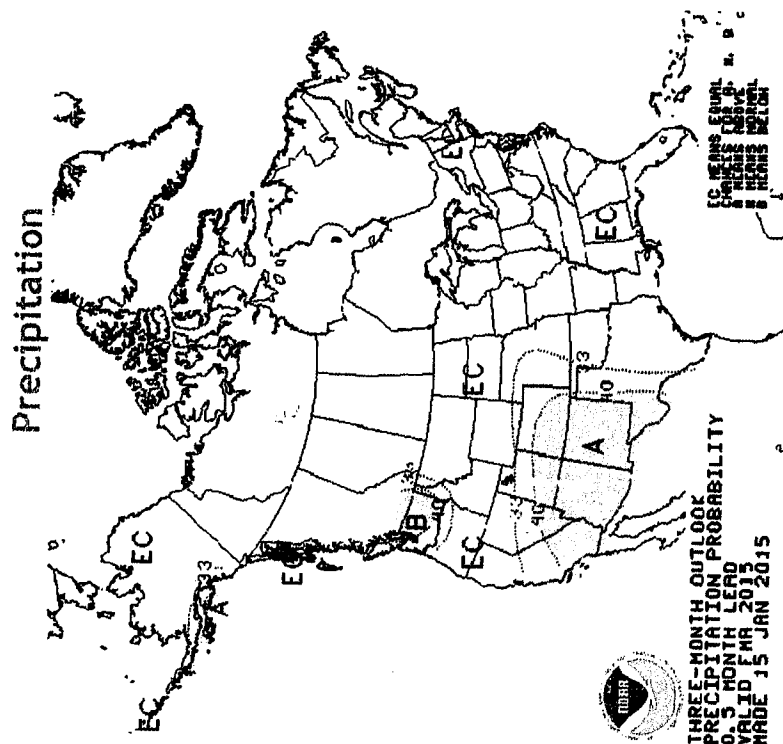
It should be stressed that, conditions could significantly worsen for San Juan Chama Project deliveries this coming year, if the drought persists, due to a lack of carry-over storage in Heron from last year to this year. Heron Reservoir is currently at a very low level. However, the San Juan Basin as well as the local Sangre de Cristo Mountains have experienced several snow storms recently. Recent estimates by the BoR suggest that the snow pack is about 50-60% of normal for this time of year (through December 2014), but with the dry conditions and unseasonably warm temperatures, these figures will likely continue to be revised downward.

U. S. Seasonal Outlooks

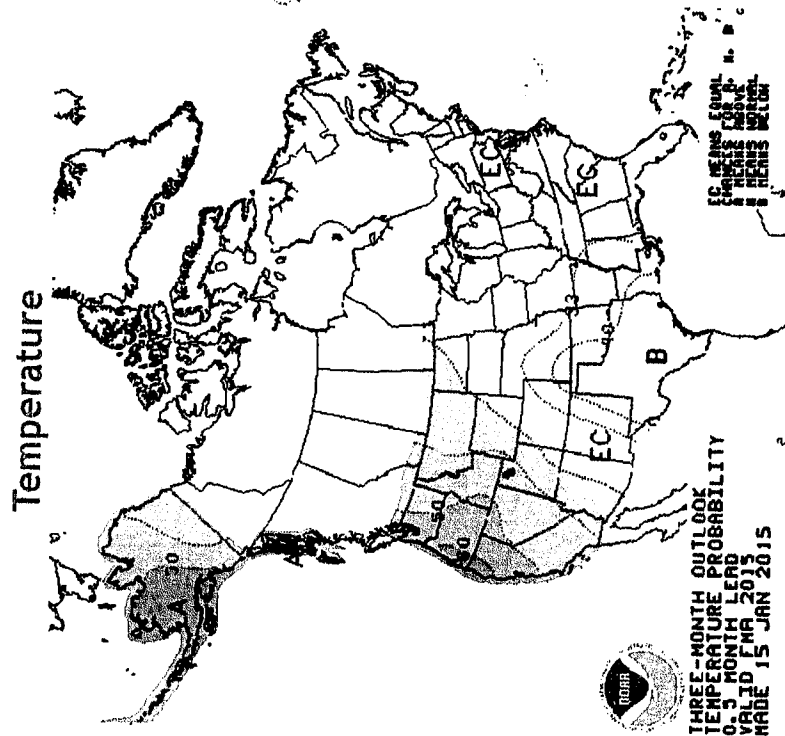
February - April 2015

The seasonal outlooks combine the effects of long-term trends, soil moisture, and when appropriate, ENSO.

Precipitation



Temperature

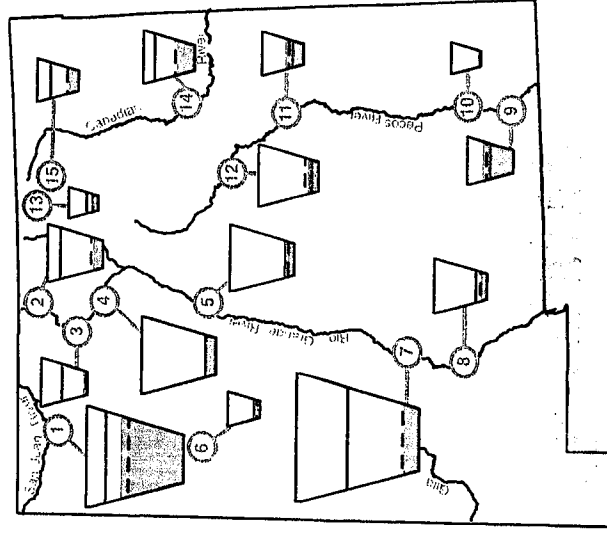
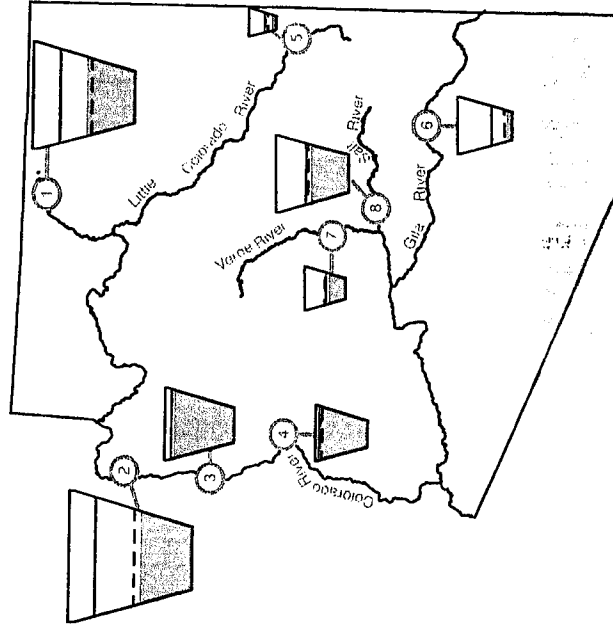
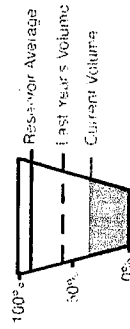


Reservoir Volumes

DATA THROUGH DECEMBER 31, 2014

Data Source: National Water and Climate Center, Natural Resources Conservation Service

Portions of the information provided in this figure can be accessed at the Natural Resources Conservation Service



Notes

The map gives a representation of current storage for reservoirs in Arizona and New Mexico. Reservoir locations are numbered within the blue circles on the map, corresponding to the reservoirs listed in the table. The cup next to each reservoir shows the current storage (blue fill) as a percent of total capacity. Note that while the size of each cup varies with the size of the reservoir, these are representational and not to scale. Each cup also represents last year's storage (dotted line) and the 1981-2010 reservoir average (red line).

The table details more exactly the current capacity (listed as a percent of maximum storage), current and maximum storage are given in thousands of acre-feet for each reservoir. One acre-foot is the volume of water sufficient to cover an acre of land to a depth of 1 foot (approximately 325,851 gallons). On average, 1 acre-foot of water is enough to meet the demands of 4 people for a year. The last column of the table lists an increase or decrease in storage since last month. A line indicates no change.

These data are based on reservoir reports updated monthly by the National Water and Climate Center of the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS).

| Reservoir | Capacity | Current Storage* | Max Storage | One-Month Change in Storage* |
|-----------------------------|----------|------------------|-------------|------------------------------|
| 1 Lake Powell | 47% | 11,523.0 | 24,322.0 | 406.0 |
| 2 Lake Mead | 41% | 2,386.0 | 26,159.0 | 367.0 |
| 3 Lake Mohave | 86% | 1,559.7 | 1,810.0 | 33.6 |
| 4 Lake Havasu | 89% | 551.1 | 619.0 | 24.6 |
| 5 Lynden | 13% | 4.0 | 30.0 | 0.2 |
| 6 San Carlos | 8% | 74.3 | 875.0 | 0.5 |
| 7 Verde River System | 38% | 110.0 | 287.4 | 3.3 |
| 8 San River System | 30% | 1,020.5 | 2,025.8 | 11.1 |
| KAF: thousands of acre-feet | | | | |

| Reservoir | Capacity | Current Storage* | Max Storage* | One-Month Change in Storage |
|------------------|----------|------------------|--------------|-----------------------------|
| 1 Navajo | 64% | 1,090.5 | 1,696.0 | 5.4 |
| 2 Heron | 16% | 64.3 | 400.0 | 3.6 |
| 3 El Vado | 7% | 13.5 | 190.3 | 4.2 |
| 4 Abiquiu | 11% | 128.6 | 1,192.8 | 0.9 |
| 5 Cochiti | 9% | 45.3 | 491.9 | 0.1 |
| 6 Blue Water | 6% | 2.1 | 38.5 | 0.0 |
| 7 Elephant Butte | 12% | 256.4 | 2,195.0 | 43.9 |
| 8 Catalina | 10% | 32.3 | 332.0 | 0.9 |
| 9 Lake Avrae | 56% | 2.6 | 4.0 | 0.5 |
| 10 Blantley | 8% | 81.1 | 1,008.2 | 1.6 |
| 11 Sumner | 41% | 41.5 | 102.0 | 3.3 |
| 12 Santa Rosa | 15% | 98.2 | 436.3 | -0.8 |
| 13 Cosmilia | 21% | 3.3 | 16.0 | 0.4 |
| 14 Coronado | 33% | 63.9 | 254.2 | 0.7 |
| 15 Eagle Nest | 22% | 17.2 | 79.0 | 0.2 |

*KAF: thousands of acre-feet

January Southwest Climate Outlook

Figure 1,4
High Plains Regional Climate
Center - HPRCC

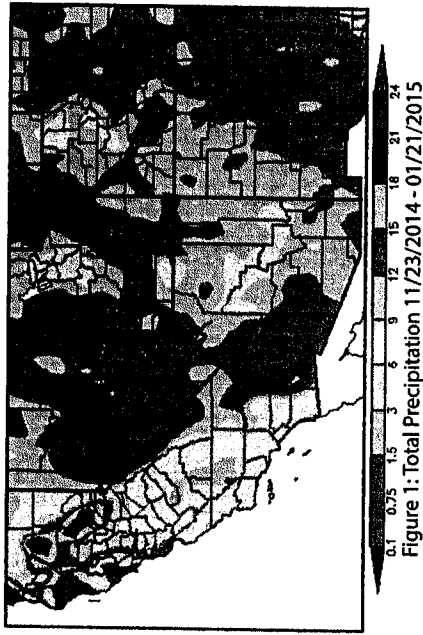


Figure 2
National Climatic Data Center -
NCDC

Figure 3
Natural Resources Conservation
Service - NRCS

Figure 5-6
NOAA-Climate Prediction Center

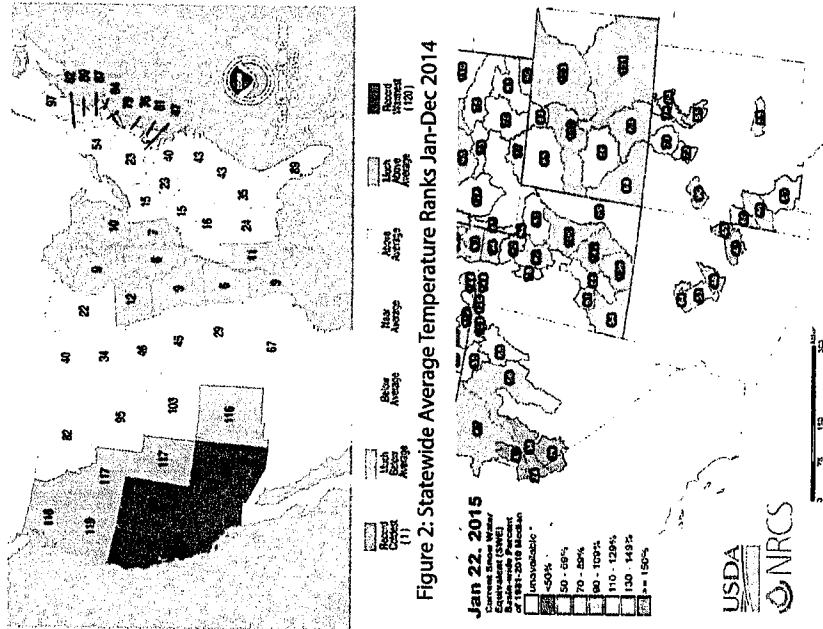


Figure 3: Percent of Normal Snow Water Equivalent (SWE) by Basin



Figure 4: Percent of Normal Precipitation 1/22/2014 - 1/21/2015

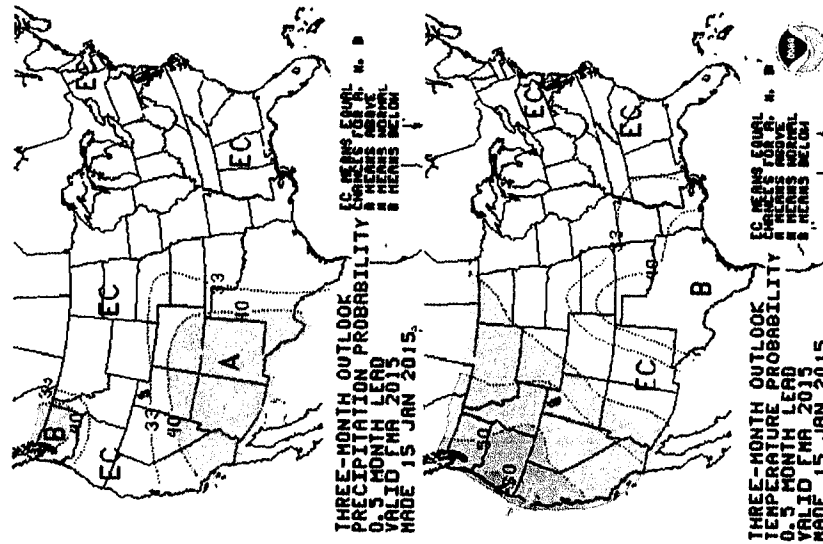



Figure 5-6: Three-Month Seasonal Outlook

MEMORANDUM

TO: City of Santa Fe Public Utilities Committee
City of Santa Fe Water Conservation Committee
Buckman Direct Diversion Board

FROM: Rick Carpenter, Water Resources and Conservation Manager 

VIA: Nick Schiavo, Public Utilities Department and Water Division Director

DATE: February 18, 2015

SUBJECT: 42nd Monthly Update on Drought and Water Resource Management

CURRENT UPDATE – GENERAL WATER RESOURCE MANGEMENT

As the Committee/Board is aware, our region is still suffering through a drought. Our region has gone through four consecutive years of record drought and heat, and it appears that we may be heading into our fifth year of drought. This drought is likely present significant challenges to all water purveyors, utilities, and irrigators going forward into the rest of this water-year.

July/August/September, 2014 yielded good summer rains due to a series of moist northeast cold fronts and monsoonal flow, but the monsoons generally exited by early October. Most models are still predicting the likelihood of a return of an El Nino weather pattern, 50%-60% chance of a return to El Nino conditions with normal to above normal precipitation over the rest of winter and through early spring. This could mean good precipitation for the remaining winter months (snow pack) (see attached figure). Therefore, while El Nino seems to be weakening relative to early predictions, normal to above normal snow pack is still likely over the next several weeks. The most recent February NOAA ENSO update states that:

ENSO-neutral (El Nino) conditions continue. Positive equatorial sea surface temperature (SST) anomalies continue across the Pacific Ocean. There is an approximate 50%-60% chance of El Nino conditions for winter and early spring."

It is worth noting that City of Santa Fe has invested in a robust and diverse portfolio of four distinct water supply sources that allows for flexibility in meeting demand: Buckman well field, City well field, Canyon Road Water Treatment Plant on the Upper Santa Fe River, and the Buckman Direct Diversion on the Rio Grande. Supply from these groundwater and surface water sources are expected to be adequate in meeting local demands. The City also has a considerable amount of SJCP water stored ("banked from previous years") in reservoirs upstream from the BDD diversion, and that water could be called for if needed over the coming 2 or 3 years.

Exhibit B

LOCAL CONDITIONS

Source of Supply Utilization Summary

January 2014

| | | |
|-------------------------------------|-----------------|-----------------|
| City Wells | 14.78mg/m | 45.36af/m |
| Buckman Wells | 0.00mg/m | 0.00af/m |
| CRWTP | 84.05mg/m | 257.93af/m |
| BRWTP | 141.46mg/m | 434.14af/m |
| <i>Other Wells(Osage, MRC, etc)</i> | <i>0.00mg/m</i> | <i>0.00af/m</i> |

Upper Santa Fe River/CRWTP

| | Total Combined Reservoir Level | Santa Fe Snow Gage | Reservoir Inflow |
|---|-----------------------------------|--------------------|------------------|
| February 18, 2015 | 7.1.0% | 34.00 inches | 2.33 MGD |
| 5-Year Average for This Date (2010 – 2014) | 45.35 % | 32.40 inches | 1.53 MGD |

As of February 18, 2015 total combined storage in Nichols and McClure reservoirs is 7.1% of total (or about 280 acre-feet of storage out of 4,000 acre-feet of capacity). Some flows have been by-passed due to construction on the new intake facilities. Minor inflows are expected to continue for the near future and so the reservoirs have been managed to allow for water treatment plant production, active construction, and draining/drying.

Buckman Regional Water Treatment Plant (BDD)

Flows in the Rio Grande are relatively good for this time of year, and turbidity has been generally good. The BDD has been able to divert and treat in line with demand.

REGIONAL CONDITIONS

Rio Grande Basin

Surface flows in the Rio Grande and its tributaries through mid-January have been relatively good. However, storage levels in regional reservoirs are still very low (see attached figure). There was very little carry-over storage from 2014 into 2015. A good snow pack this winter is essential if there is to be significant runoff into regional reservoirs for next high demand season, but time is running short.

There are no new updates regarding Wild Earth Guardians legal actions or endangered species issues.