



Department of Public Utilities

Electric, Gas, Water, and Wastewater Services

February 6, 2017

Robert Wells
1001 Oppenheimer Drive, Unit #301
Los Alamos, NM 87544

Dear Mr. Wells,

This letter is in response to your email dated November 21, 2016 in regards to the Long-Range Water Supply Plan, November 2016 draft.

Your comments, observations, and long-term perspectives are in some cases reflections of the internal discussions that took place as we prepared the plan. In particular, the uncertainty of projecting LANL demands. We relied on LANL to provide projections of their future water demand, which is limited to a 10-year horizon due to their uncertainty.

We agree with your comment that "while a 2060 planning horizon is understandable, it must be kept in mind that, hopefully, the Los Alamos community will exist much longer, possibly hundreds of years. The reality of Southwest water resources management is that increasing dependence is being placed on groundwater "mining" and that even aggressive restoration methods might take hundreds of years, even if good snow packs continue to feed ground water reserves." The State uses a 40-year water planning horizon, with communities continually updating their plans to continue planning into the future. Our consultants recommend that the LACWU continue to plan for development of a San Juan-Chama project, given the uncertainty of water demand and the U.S. Department of Energy (DOE) water rights lease, and the availability of the water; however, it will be up to the County and the public to select whether or not to construct a project, and to define its scope. Additional language has been added to the final plan to better explain how bringing San Juan-Chama project water online would diversify the water supply.

You suggest that the County pursue the exchange of the San Juan-Chama contract water for groundwater water rights that could be pumped in our existing and future water wells. There is a fundamental difference in the SJC contract water being a surface water right and the groundwater rights owned by the county and DOE. Consistently and historically, the OSE does not view favorably the intermingling of water rights from different supply

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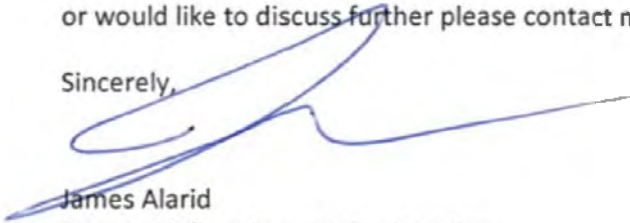
sources (in our case SJC water being a surface diversion associated with an interstate water transfer and the groundwater rights whose origin is the aquifer below the Pajarito Plateau). Performing such an exchange is much more complicated than a "political problem" to be overcome. For this reason, a transfer of SJC water to existing water wells is not a proposed option in the plan.

Other comment responses:

- On Figure 2-1, community and county boundaries for Los Alamos and White Rock that were available were used.
- Figures 3-1 and 3-2 come from LANL publications and correctly represent the regional hydrogeology.
- Regarding the County's San Juan-Chama water supply, it will be up to the County and its residents to decide whether to pursue a project.
- In the event of a SJC water shortage, Los Alamos will have the same priority as other SJC contractors. We do not support the concept that SJC water can be traded for additional groundwater rights.
- The County population projections were put together by a demographer for the State, and LANL/DOE provided the LANL projections. We agree that it is especially difficult to project what will happen at LANL. Los Alamos certainly has many attractive attributes that could lead to increases in population.
- The long-range water supply plan update reports on the LACWU's existing conservation program, but is not a water conservation plan itself. We have added information to the final plan about the quantity of water that would be conserved if the per capita water use were reduced in the future.

We thank you for taking the time to review the plan and provide valuable input. If you have any questions or would like to discuss further please contact me at 663-3420 or by email at james.alarid@lacnm.us.

Sincerely,



James Alarid
Deputy Utility Manager Engineering

Cc: Gaylyn Meyers, LAC
Amy Ewing, DBS&A
Tim Glasco, LAC

From: Robert Wells, 1001 Oppenheimer Dr., Unit #301, Los Alamos, NM 87544

To: James Alarid, DPU/BPU, Los Alamos County

Subject: Comments on County Water Plan (draft)

November 21, 2016

As a **general comment**, I found the draft plan to be professionally credible. The consultants demonstrated a good understanding of the issues and complexities of making an essentially forty year projection under conditions of considerable uncertainty regarding County needs and weather changes impacting water. While a 2060 planning horizon is understandable, it must be kept in mind that, hopefully, the Los Alamos community will exist much longer, possibly hundreds of years. The reality of Southwest water resources management is that increasing dependence is being placed on ground water "mining" and that even aggressive restoration methods might take hundreds of years, even if good snow packs continue to feed ground water reserves.

Page 3 and associated Figure 2-1.

Los Alamos County does not contain "cities/towns" – it is simply and solely a "county" with three postal codes (87544/Los Alamos townsite or "hill", 87545/LANL, and 87547/White Rock). Thus, "city" boundaries shown in Figure 2-1 should be discussed with appropriate County authorities.

Figures 3-1 and 3-2, which show conceptual hydrological models for Los Alamos County, appear to misrepresent the reality that Los Alamos County is founded on the apron of a massive and complex volcanic system that formed the Jemez Mountains region. The idea that there is an essentially uniform saturated zone under the County (i.e., the Santa Fe Group shown in Figure 3-2) should be reconsidered as being a system of largely disconnected perched aquifers within the shoulders of the volcanic system formation. (This more realistic characterization is noted on page 11; i.e., "Intermediate-depth perched aquifers are widely distributed across the northern, western and central parts of the Pajarito Plateau ...")

Section 4. -- Water Rights, pages 38-48

One of the major issues raised at the public meeting on November 16th, involved how best to use the San Juan-Chama 1200 acre-feet annual allocation for Los Alamos County. I first raised the question whether the County's long –term water needs might best be realized by considering trading the 1200 acre-feet of San Juan-Chama surface water rights for an equivalent amount of additional ground water right within the County. The consultants were dismissive of this because of bureaucratic difficulties (e.g., BLM versus State Engineer responsibilities and authorities). This response was vehemently countered by a White Rock attendee. It is recommended that the following factors be considered by County authorities:

- a. The San Juan-Chama diversion was planned in the 1950s, when factors such as water availability and downstream demands were much different than now – let alone for the long-term future.
- b. Los Alamos has not needed the San Juan-Chama water allocation to date – and may not need it under more optimistic 2060 projections of this plan. The County's San Juan allocation has been beneficially used thus far for other State/Rio Grande needs -- without endangering the County's original allocation.
- c. However, there are less optimistic 2060 projections that would need the 1200 acre-feet allocation.
- d. The overall annual San Juan-Chama diversion to New Mexico is about 100,000 acre-feet; but this year that amount of water could not be delivered. Should such shortfalls become the norm – and given the projected needs of other beneficiaries (especially Santa Fe, Albuquerque and further down Rio Grande users) – Los Alamos might find its allocation a low priority vis-a-vis such other users.
- e. Assuming that only Los Alamos County (including LANL) will have direct access to ground water within Los Alamos County, there should be considerable ground water in addition to the present County and LANL/DOE ground water right authorizations (using either 5,379 acre-feet per Figure 4-1 or 5,541 acre-feet per Figure 5-1, neither figure including the 1200 acre-feet of San Juan-Chama surface water rights).
- f. The State Engineer would likely welcome the additional 1200 acre-feet of San Juan-Chama surface water rights to help adjudicate water long-standing and worsening water right disputes along the Rio Grande.

g. While the Bureau of Land Management would have to concur in the suggested transfer, there is no obvious reason why they should object – other than bureaucratic inertia. As emphasized during the November 16th public meeting, this appears to be a political problem, not a technical problem or a judicial problem involving potential harm to other parties involved in the San Juan-Chama scheme.

h. Ultimately, the acquisition of an additional 1200 acre-feet of ground water rights would assure Los Alamos County of water it can reasonably count on having available – as opposed to San Juan-Chama surface water that already could be in jeopardy. Further, Los Alamos County access to an additional 1200 acre-feet of ground water from Pajarito Plateau would be relatively inexpensive, as compared to the cost of using water pumped one way or another from the Rio Grande.

Section 5 -- Future Water Demand, pps 49-72

Table 5-2, page 55, shows that Los Alamos County resident population has been very stable for at least the past thirty years; i.e., 17,599 in 1980 and 17,950 in 2010, with a peak of 18,343 in 2000. This plan uses a reasonable range of projections through 2060 (i.e., a 2060 low of 15,863 versus a 2060 high of 22,092). A major uncertainty will be the needs of LANL during this planning period. During the period 1987-1994, I served as LANL's Program Director for Construction Development. Periodically, DOE would survey their sites for potential major new developments. Their queries would typically include (a) buildable land, (b) water, and (c) power. Consequently, it should be easily recognizable that water availability – in terms of water rights and actual water that could be inexpensively acquired -- would likely be the most crucial decision factor. Another factor that should be included is whether Los Alamos County might attract significant population growth from high end residents now in Santa Fe and the northern Rio Grande Valley generally – who are attracted by (c) excellent schools and community facilities and (d) availability of very good and relatively inexpensive community water. This last point should be considered in light of excessive water shortfall projections, such as -35% deficiency in Santa Fe County by 2030. It is particularly important to note (e) of the eight north central New Mexico water sheds, only Los Alamos is free of major shortfalls for 2030. Further, most if not all of these "valley" communities are depending heavily on San Juan-Chama surface water diversions that (f) might not be as available as expected and (f) very expensive diversion schemes, such as those constructed for Santa Fe and Albuquerque are supposed to be returning diversion water to local aquifers and/or the Rio Grande – a very questionable presumption. Thus, Los Alamos may draw significant new population that has nothing to do with LANL mission growth – but which could be a critical factor for long term community welfare should the LANL mission be seriously curtailed.

Section 8 – Recommendations: Water Conservation, page 87

Both Los Alamos County and LANL appear to have started to take water conservation seriously. Where not too long ago at least one member of the Board of Public Utilities expressed support for ensuring that traditional "green lawns" should be mandated, this plan appears to start thinking seriously about water conservation. However, the recommendations listed in pages 87-90 essentially address fairly easy-to-accomplish administrative and educational measures. For example, a Conservation Advisory Group was formed in 2011 to assist the LACWU conservation coordinator with development of conservation goals, such as "implement incentives for replacement of lawns, including rebates for plant purchases and technical assistance." It should be noted in the mid-1970s, Albuquerque threatened to fine home owners who wanted to practice xeriscaping rather than have traditional green lawns. When Albuquerque subsequently faced water crunches, a program of financial compensation for removing green lawns in favor of xeriscaping was implemented, which in large part helped Albuquerque roughly halve its water consumption. Thus, it would seem that Los Alamos County needs to put some "teeth" into its conservation program.

While, on one hand, Los Alamos County has what appears to be a uniquely favorable water future – at least for the next few decades, but on the other hand, if future weather does not provide historical snow packs – which are essential for ground water recharge – future water consumption will necessarily be "mining" explicitly limited ground water reserves. Again, 2060 is merely a practical planning horizon; the community's fundamental responsibility is to pursue a concerted effort ensuring very long-term water availability – potentially hundreds of years -- which can best be achieved by reasonably optimum conservation; i.e., never use more water than what seems to be reasonable when keeping long term water availability in mind.

One thing that might be helpful would be for this plan to include specific examples of various types of water conservation techniques and community programs that have shown significant progress. At present, the plan merely alludes to such possibilities – which does not promise much reader comprehension regarding what things he/she could/should be doing.



Department of Public Utilities
Electric, Gas, Water, and Wastewater Services

February 3, 2017

Reid Priedhorsky, Secretary
Pajarito Conservation Alliance

Sent Via Email

Dear Mr. Priedhorsky,

BOARD OF PUBLIC UTILITIES

Jeff Johnson, Chair
Stephen McLin, Vice Chair
Andrew Fraser
Paul Frederickson
Kathleen Taylor

EX OFFICIO MEMBERS

Timothy Glasco
Harry Burgess

This letter is in response to your letter to Jeff Johnson, Chair of Board of Public Utilities dated December 21, 2016 in regards to the Long-Range Water Supply Plan, November 2016 draft.

We have reviewed your comments and prepared the following responses:

1. The purpose of this long-range (40-year) water plan is to provide the New Mexico Office of the State Engineer (OSE) with updated demand projections and a comparison of projected water demand to the water rights portfolio. Water conservation is important, and the Los Alamos County Water Utility has a stand-alone water conservation plan. Conservation will be a part of the solution when the time comes to make large investments in water supply and balance future demands. This will be a future decision for our community to make.

The New Mexico Water Code allows covered entities to set aside water for use in the future (i.e., hold more water rights than they can currently use but will need in the future to meet projected water requirements). This 40-year plan is an instrument that allows Los Alamos County to protect unused water rights. The scope of this project does not include going into detail about the water conservation program, since the County has an existing water conservation program and a compliant plan is on file with the OSE. Information has been added to the final 40-year water plan update to quantify the volumes of water that would be conserved if the per capita water use were reduced by various amounts, to as low as the City of Santa Fe's 2015 value of 90 gallons per capita per day.

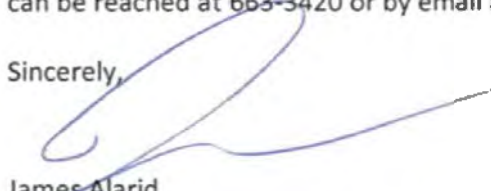
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2. Conservation planning is required by statute for any public water supply system with diversions of at least 500 acre-feet annually. The OSE developed a guidance document for water conservation plans that was published in 2013 (this document is available at http://www.ose.state.nm.us/WUC/PDF/Planning%20Guide_Final_.pdf), although there is no current requirement for water conservation plans to meet this guidance. Our consultants expect that this will be required in the future and recommend that the guidance document be followed when preparing a conservation plan (the LACWU water conservation plan follows the guidance). The 40-year water plan is a different type of plan, and the conservation plan guidelines do not apply to these plans. Section 72-1-9 of the New Mexico Water Code allows for 40-year water planning, but it does not specifically outline what should go into 40-year water plans. There have been a few efforts to adopt specific guidelines for 40-year water plans, but none of them has been passed by the legislature. Discussions of water quality are not usually included in 40-year water plans, but is beneficial for Los Alamos. The rest of the outline of the draft plan (water rights, water supply, projected demand, and the comparison of supply and demand) reflects the content of all 40-year water plans.
3. The County's consultants recommend that the LACWU continue to plan for development of a San Juan-Chama project, given the uncertainty of water demand and the U.S. Department of Energy (DOE) water rights lease, and the availability of the water. It will be up to the County and the public to select whether or not to construct a project, and to define its scope. Additional language has been added to the final plan to better explain how bringing San Juan-Chama project water online would diversify the water supply, and to discuss the potential effects of climate change on this source of supply.
4. Development of a cost-benefit analysis for drilling replacement wells is outside of the scope of this project and plan.
5. The scenario where the LACWU is unable to lease the DOE water rights but is required to supply LANL with their water supply is unlikely; however, it provides a worst case scenario for projecting demand. The current LACWU-DOE contract will expire in 2019. LANL does not have its own wells, and so we assume that the LACWU will continue to provide LANL with water supply in the future under a new agreement. LANL water projections have uncertainty. We would like to note that Los Alamos County does not have authority to impose conservation measures on LANL.
6. It is possible that the LACWU and DOE will receive return flow credits for treated water that gets reinjected as a part of the chromium interim measure and/or the eventual remediation project; however, for planning purposes, the consultants feel that it would be premature to assume that any return flow credits will be obtained. This will be something to re-evaluate during the next update of the plan.

7. The San Juan-Chama project planning is entirely separate from this effort, and the scope of the 40-year water plan update does not call for evaluation of the potential impacts to White Rock Canyon from a potential project.

We thank you for taking the time to review the plan and provide valuable input. We would like to invite you and other members of the Alliance to discuss our conservation plan. Conservation is a common goal of our two organizations, and we see an opportunity to work together on future conservation efforts. I can be reached at 663-3420 or by email at james.alarid@lacnm.us.

Sincerely,



James Alarid
Deputy Utility Manager Engineering

Cc: Gaylyn Meyers, LAC
Amy Ewing, DBS&A
Tim Glasco, LAC



Jeff Johnson
Chair, Board of Public Utilities
Los Alamos, NM

<http://pajarito.org>
info@pajarito.org

Board:
Craig Martin, president
Carlos Chiquete, treasurer
Reid Priedhorsky, secretary

December 21, 2016
RE: *Long Range Water Supply Plan*, Nov. 2016 draft

Dear Mr. Johnson and BPU members:

I write on behalf of the Pajarito Conservation Alliance, a non-profit community organization that supports the ecosystems and outdoor experience of the Pajarito Plateau.

We have reviewed the *Long Range Water Supply Plan* draft dated November 2016 and have several concerns, which are summarized in this letter under three themes.

First, the draft does not sufficiently consider water conservation. That is, the draft says that conservation is good but does not incorporate it into any of the scenarios. We believe this is insufficient for the following reasons:

1. The impact of conservation on demand is not quantified. As the draft states, "further reductions in per capita demand are expected" (p. 68), but rather than attempting to quantify these reductions, the draft instead assumes that conservation demand reductions equal the high-side error in LANL estimates. These two things are not the same, and it is inappropriate to misuse conservation to offset deficiencies in LANL-provided documents. Reasonable estimates of high and low conservation effects are available and should be used.
2. The draft understates conservation opportunities. Specifically, the goal of 12% per capita reduction in demand by 2050 (p. 89) is unrealistically low. For example, Las Vegas, Nevada reduced its per-capita demand by 40% in 25 years [1], and the Los Angeles Metro's water use was the same in 2014 as 1970 [2], despite growing from 10 to 18 million people.
3. The draft references legally required conservation planning on pp. 1-2 but does not address whether water supply plans must actually plan for conservation and what the relevant criteria are. These criteria along with a justification of how they are met should be included.

Second, we find the claim that San Juan-Chama water is a good hedge against supply/demand imbalance unconvincing:

1. Surface water such as SJC will be significantly less reliable than groundwater in a drier climate (p. 82). That is, the draft states that diversification of water sources is important (p. 42) but does not quantify the value of SJC water for this purpose. Quantifying the expected value of specific diversification scenarios will avoid false confidence. That is, simply having diverse water sources is not enough; the plan must convincingly justify each source in the proposed mix.
2. The alternative of drilling new groundwater wells upstream of potential contamination is not sufficiently analyzed. No financial analysis versus White Rock Canyon wells is presented. Several risks of new wells — that drilling permits might be unobtainable (p. 47), that “technical and legal fees” might be prohibitive (p. 43), that other municipalities “encountered difficulties” in trading or purchasing water rights (p. 46) — are advertised but not quantified. This produces an invalid cost/benefit analysis.
3. A scenario where LANL does not lease its water rights to the county but nevertheless forces the county to supply it with water (p. 74) seems far-fetched and should be either convincingly justified or removed.
4. The draft does not quantify the possible effects of return flow credits (p. 47, etc.), which again distorts the cost/benefit analysis.

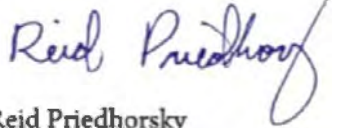
Third, the draft does not consider the impacts of San Juan-Chama water development on White Rock Canyon:

1. The canyon contains numerous springs. “[G]roundwater that would have naturally discharged to the river” does so via springs. This is the very definition of a spring: a place where groundwater emerges to the surface. Thus, an approach that develops SJC water via wells in or near White Rock necessarily impacts springs; the only question is which ones and by how much.
2. These springs support state-listed sensitive species that would also be impacted.
3. Regardless of whether the approach involves groundwater interception, development of SJC surface water anywhere in White Rock Canyon is likely to impact the White Rock Canyon Archaeological District.
4. We realize that the draft is not an environmental or cultural assessment. However, such assessments are expensive, and Los Alamos rate-payers should not be expected to shoulder those costs without a reasonable likelihood of success. This includes both an acceptable outcome of the assessments and a proper cost/benefit analysis supporting the alternative that requires the assessments.

In short, while the draft spends a lot of words on conservation, its proposed actions largely ignore conservation opportunities, and its cost/benefit analyses are distorted in favor of expensive, environmentally damaging policies. This way of thinking will harm the future of our community.

We urge you to revise this plan as described above, in order to incorporate the quantitative, evidence-based reasoning and conservation values prized by the citizens of Los Alamos. We look forward to remaining engaged with this water planning process.

Sincerely,

A handwritten signature in blue ink that reads "Reid Priedhorsky". The signature is fluid and cursive, with the first name "Reid" and last name "Priedhorsky" clearly distinguishable.

Reid Priedhorsky
Secretary, Pajarito Conservation Alliance

Citations:

[1] Jonathan Thompson, *High Country News*, Jan. 23, 2014. [The Vegas Paradox.](#)

[2] Jon Christensen, *High Country News*, Jan. 23, 2014. [Brave New L.A.](#)



Department of Public Utilities
Electric, Gas, Water, and Wastewater Services

February 6, 2017

Ed Jacobson
White Rock, NM 87544
Sent via email

Dear Mr. Jacobson,

This letter is in response to your emails dated November 21 and December 6, 2016, and January 17, 2017 in regards to the Long-Range Water Supply Plan, November 2016 draft. In addition, we would like to express our appreciation to you for taking the time to meet in person on January 17, 2017.

Your earlier emails presented various objections to the County proceeding with development of the San Juan-Chama (SJC) water, and questioned why the Long-Range Water Supply plan included the SJC water in the planning effort. After meeting on January 17, 2017, you indicated (via email) that after the discussions that took place in our meeting, you recognize why the SJC water is a part of the County's water resource planning.

We want to ensure that you have received an adequate response from the DPU. If our assessment of your comments stated above are not correct, please let me know. The content of the final plan that will be presented for approval remains the same with respect to the SJC water, with exception of some clarifying statements to address comments from others.

If you have any questions or would like to discuss further please contact me at 663-3420 or by email at james.alarid@lacnm.us.

Sincerely,


James Alarid
Deputy Utility Manager Engineering

BOARD OF PUBLIC UTILITIES

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Cc: Gaylyn Meyers, LAC
Amy Ewing, DBS&A
Tim Glasco, LAC

Alarid, James

From: A,E,A Jacobson <beepbeep@cybermesa.com>
Sent: Tuesday, January 17, 2017 10:45 PM
To: O'Leary, Susan
Cc: Chandler, Christine; Maggiore, Antonio; Glasco, Timothy; Alarid, James
Subject: A couple of comments re this morning's water plan mtg

Councilor O'Leary,

You, Councilor Chandler, and Councilor Maggiore asked good questions and Utilities Manager Glasco and Deputy Manager Alarid had good answers.

Such an exchange in which there are also answers to questions that didn't get asked means they were good questions, in my opinion.

New information that I hadn't thought about is the fact that Bureau of Reclamation interpretations of rules have varied depending on which BuRec lawyer was in charge at a given time. That doesn't surprise me, but I hadn't thought about county officials having to contend with that sort of variable in their planning. Not that it matters for this long range water plan, but State Engineers seem to have come and gone fairly frequently recently, too. I've been unable to find a list of those who served following Steve Reynolds, who had the job for 35 years until his death in 1990, but I'm pretty sure there have been two in the past three years.

It doesn't seem it would be necessary to put Section 9, Recommendations, in the document submitted to the OSE.

I recognize that San Juan-Chama water needs to be mentioned. Perhaps it would be sufficient to say that the County intends to continue to sell/lease/whatever the term is, its allocation to the Bureau of Reclamation, or to any other San Juan-Chama Project contractor if the Bureau no longer wants it. If the County at some time in the future needs the water, and any is still coming through the tunnels, it could then do the NEPA work necessary and drill the well(s) needed to produce it. (That source might be short-lived, as the eventual need for treatment for sediment removal could make it too costly to use.)

It was noted in brief discussion after the close of the meeting that the dollar amounts of San Juan-Chama maintenance costs and BuRec reimbursement are no longer balanced at \$60K per year. Those amounts are now more like \$30K per year.

Thanks again for the invitation to attend the meeting, Ed Jacobson

Alarid, James

From: A.E.A Jacobson <beepbeep@cybermesa.com>
Sent: Monday, December 05, 2016 7:26 AM
To: Reiss, Rick; O'Leary, Susan; Chrobocinski, James; Girrens, Steven; Henderson, Kristin; Izraelevitz, David; Sheehey, Pete
Cc: Alarid, James; McLin, Stephen
Subject: Long-Range Water Plan

12/5/16

Councilors,

Councilor O'Leary is to be commended for wanting to spend the time needed to get more familiar with the required periodic water plan for the Office of the State Engineer.

This e-mail will be an attempt to argue that any county funds spent to actually pump water from wells drilled in proximity to surface flow of the Rio Grande to draw from groundwater is an improper use of funds. (I should note that what little I know of the San Juan-Chama issue has been learned since I became interested as a result of comments made at a public meeting at which the Comprehensive Plan was being discussed. Any errors are due to ignorance, not an intentional attempt to mislead.)

1. The water is not needed. Even without recharge, at present rate of pumping, the water available is sufficient for hundreds of years.
2. Although perhaps it would not initially need to be treated, eventually, within 25 years is a number recalled being heard, there would be enough sediment that an expensive water treatment plant would be required and need a location. The reason is that wells said to be using San Juan-Chama water have to be close enough to the Rio Grande to actually be drawing from water that is being replaced by flow in the Rio Grande.
3. There is good reason to think that in the perhaps not too distant future there will not be any water flowing from the Colorado River Basin to the Rio Grande basin.

Support of 1. is provided in the DBSA Long-Range Water Supply Plan. Even if it is thought that it would be good for the county's population to increase, despite the fact that it is trending downward, water conservation measures are available. If there is money available to drill wells, they should be located with the intent to learn more about how recharge occurs. Just because the aquifer is good for hundreds of years is no reason not to try to learn if there is a way to replenish it or if it may already be getting recharged.

It's my impression that underground movement of water is a very complicated subject, and that there are real requirements/calculations for wells drilled near rivers. There are both legal and physical aspects for 2.

There can be talk about storage in the lakes on the Chama upstream from Los Alamos in which water from wet years can be kept for dry years, but it seems to be unreasonable to think that could keep 1200 acre-feet available for Los Alamos. It has already been the case that it has not been available.

Support for 3., in addition to other sources, can be found here:
<https://www.abqjournal.com/518371/san-juan-water-dries-up-for-first-time-in-40-years.html>

I don't think there are any villains. James Alarid and others at the county are on top of this and would be irresponsible not to be looking at San Juan-Chama water as a possible source for the county. The Daniel B. Stephens hydrologists have provided a tremendous amount of information, probably more than needed, but I don't have a problem with that -- it's good for the historical record. However, their conclusions and recommendations

from their findings don't have to be the conclusions of the county in the plan submitted to the Office of the State Engineer. The conclusion with regard to San Juan-Chama water can be simply to continue selling to the Bureau of Reclamation for \$60K per year, about the share of the county's cost of maintaining the San Juan-Chama infrastructure. It's being put to beneficial use at the present, when there is flow. In the unlikely event the county somehow needed the water in the future, and the more likely case that it would not be available then, an impact statement could be funded, but not before.

One item I just noted this morning, which might be of interest:

http://www.ose.state.nm.us/Basins/Colorado/isc_CO_pilot_program.php

Thanks for your consideration,
Ed Jacobson
607 Meadow Lane

Alarid, James

From: A,E,A Jacobson <beepbeep@cybermesa.com>
Sent: Monday, November 21, 2016 11:09 PM
To: Alarid, James
Cc: ~County Council
Subject: Draft Long-Range Water Supply Plan

Mr. Alarid,

The November 20, 2016, Los Alamos Monitor states that comments on the draft Long-Range Water Supply Plan should be sent to you by November 22. It is noted that that's not a very long time to review a 111-page document.

My comments are summarized by this statement. San Juan-Chama water should not be considered as a source of water for Los Alamos County, and no money and staff time should be expended in pursuing it.

There is no need for it now, and should a need for additional water arise, San Juan-Chama water would likely not be available. Excerpts from five sections of the draft Plan are copied below with my comments in parentheses.

Section 3.2

Barring potential water quality issues, continued pumping of the regional aquifer at current rates is likely to be sustainable for hundreds of years. (This is even if there is no recharge, and it's not clear to me that recharge of this aquifer is understood. If water quality in the present wells becomes a problem, it will probably be even more of a problem for wells drilled close the Rio Grande.)

Section 4.1.2

Bringing the San Juan-Chama Project water online would diversify the water supply, helping the LACWU to mitigate any future effects due to contamination of existing wells and/or climate change. (If contamination becomes an issue in existing wells it may be even more of an issue in wells that are receiving some water from the Rio Grande.)

Section 4.3.3

The Navajo Water Rights Settlement, which was approved in August 2013, defines flows and other requirements in a manner that could result in shortages to the San Juan-Chama Project. These shortages would likely be shared on a pro rata basis among all contractors.

Although conditions giving rise to shortage sharing may be rare, implementation of the act could nonetheless reduce the quantity of San Juan-Chama water available to contractors in some years. (In a very dry year, there might be no diversion of Colorado River basin water.)

Section 7.2

The study additionally projected a decrease in native Rio Grande water by about a third and a decrease in tributary flow by about a quarter, increasing frequency, intensity, and duration of droughts and floods, earlier snowmelt runoff, and increased variability in the magnitude, timing, and spatial distribution of streamflow and other hydrologic variables. (It just makes sense not to rely on flow associated with the Rio Grande.)

Section 7.3

Higher temperatures will result in a longer and warmer growing season, resulting in increased water demand for outdoor watering during the spring and summer months and

potentially lower rates of recharge. (If Los Alamos County was a major producer of alfalfa or chile, this might be a consideration, but the County is not. Even if the population of the county increased, which does not seem likely, outdoor watering could simply be reduced or eliminated.)

To repeat Section 3.2, "Barring potential water quality issues, continued pumping of the regional aquifer at current rates is likely to be sustainable for hundreds of years."

Thanks for your consideration,
Ed Jacobson
White Rock



Department of Public Utilities

Electric, Gas, Water, and Wastewater Services

February 3, 2017

C.M. Gillespie
427 Estante Way
Los Alamos, NM 87544

Dear Mr. Gillespie,

BOARD OF PUBLIC UTILITIES

Jeff Johnson, Chair
Stephen McLin, Vice Chair
Andrew Fraser
Paul Frederickson
Kathleen Taylor

EX OFFICIO MEMBERS

Timothy Glasco
Harry Burgess

This letter is in response to your email dated November 22, 2016 in regards to the Long-Range Water Supply Plan, November 2016 draft. The purpose of this long-range (40-year) water plan is to provide the New Mexico Office of the State Engineer (OSE) with updated demand projections and a comparison of projected water demand to the water rights portfolio. Your comments have been reviewed and incorporated into the plan as described below.

A number of your comments were related to the County's San Juan-Chama (SJC) water rights and the potential future development of this water. This revised Long-Range Water Supply Plan does not endorse a specific SJC project. Our consultants recommend that the LACWU continue to plan for development of a San Juan-Chama project, given the uncertainty of water demand and the U.S. Department of Energy water rights lease, and the availability of the water. It will be up to the County and the public to select whether or not to construct a project, and to define its scope. Additional language has been added to the final plan to better explain how bringing San Juan-Chama project water online would diversify the water supply, and to discuss the potential effects of climate change on this source of supply.

We have removed Figure 6-1 from the plan. The figure was meant to show that at least under the high growth scenario, there is no room for losing any production due to contamination. We have covered that in the text.

The long-range water supply plan update reports on the LACWU's existing conservation program, but it is not intended to be a water conservation plan itself. While there has been opposition to water conservation in Los Alamos in the past, we agree that

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conservation could reduce demands in the future. We have added information about the volume of water that would be potentially conserved, and have discussed the possibility of per capita water use to be reduced to as low as the City of Santa Fe's 2015 value of 90 gallons per day.

In your comments, you question the consistency of various sections of the plan. The plan has been organized and content selected to be consistent with the requirements of the Office of the State Engineer. Although there are not published criteria, DBS&A has been contracted, due to their experience and knowledge of the OSE requirements, for the purpose of preparing a plan that meets the requirements of the OSE and best protects the County's unused water rights.

Your input has been valuable, and incorporating some of your suggestions has added to the quality of the plan. If you have any questions or would like to discuss further please contact me at 663-3420 or by email at james.alarid@lacnm.us.

Sincerely,



James Alarid
Deputy Utility Manager Engineering

Cc: Gaylyn Meyers, LAC
Amy Ewing, DBS&A
Tim Glasco, LAC

Comments on the Long-Range Water supply Plan Draft
Nov 2016

The last line in the top paragraph on page 42 of the report states "Bringing the SJC water online would diversify the water supply". This is not correct since the new wells proposed are just more wells in the regional aquifer and would be subject to the same threats as the other wells. Also, how does SJC water mitigate the effect of climate change, especially when the climate change envisioned could result in a reduction in our SJC allocation?

Section 5.4 (p68) states that water conservation beyond what has already been accomplished in the county has not been incorporated in the water demand projections. This means that the demand projections in Table 5-9 (p69) and Figures 5-5 and 5-6 (p70 & 71) do not acknowledge plausible lower demand numbers at all. This is very unlike the high demand Scenario 2 (p75) and Figure 6-1 (p77) which depict plausible reductions in supply against the high demand projections.

The City of Santa Fe has accomplished water conservation that lowers their per capital water demand below that which has been accomplished in Los Alamos. This report should acknowledge this and show what the Los Alamos water demand would be if Los Alamos were to achieve the same conservation that has been done in Santa Fe. This could be done on the existing Figures 5-5 and 5-6 by crosshatching, for example.

Figure 6-1 (p 77) of the draft report is misleading. A well that was shut down due to some problem would not be a 40 year problem. It would be fixed in a few years by a repair, addition of a well-head purification technology, or by drilling a new well. This would return the orange bar to the level shown for 2010. If the OSE required a full offset for the repaired well as postulated in Section 6.2 (p75), the San Juan Chama water rights would be used for this offset and not be physically available for Los Alamos.

There is a major inconsistency in the report between the recommendations in Section 9 and the earlier discussion in Sections 4,5 and 6.

The second bullet under "Water Supply (Quantity)" (p91) recommends an environmental assessment of the SJC project "---and evaluate whether to initiate steps toward implementation---. Bringing the San Juan Project water online would help the LACWU address the potential for contamination of the existing wells---". Note that as discussed elsewhere in the document, Section 4.1.2 (p41), and clarified in the discussion at the 11/16/16 meeting by the DPU, this is referring to the plan for three wells on the WR canyon rim as proposed in the CDM Smith study.

Various threats to existing LAC ground and SJC surface water rights in Sections 4.2.2; 4.2.3; 4.2.4 (p43-45). Section 4.3 (p45) continues this discussion and makes the point that with respect to Senior Water Rights and Rio Grande Offset Requirements the OSE could required the LACWU to use SJC rights to meet these demands (p47). Section 4.3.3 further notes that the county SJC allocation could be reduced if there is not enough water available to meet existing allocations.

In Section 6.2 Scenario 2: High Water Use and Loss of Water Rights (p75) the third paragraph gives the assumptions used to derive Figure 6-1 (p77). Just why 1200 ac-ft/yr would disappear in the three years

from now to 2020 is not stated and seems unlikely, but it implies the need for very prompt action to avert a very serious problem.

Here is the problem. The first complete sentence on page 76 states "Under this scenario there is a gap between the diminished groundwater supply and projected demand starting in 2030 that would need to be addressed, either by bringing the San Juan-Project water supply online or through reduction in demand (water conservation)". We can only 'spend' the SJC rights once. If we choose to develop the SJC water, which seems to be the preferred course, we no longer have those rights to 'defend' our existing groundwater rights, for example, to enable new wells to be developed to replace contaminated wells or in the event OSE invokes demands on our water rights for Senior Users or Rio Grande Offset.