

Bennett, Jim

From: DIANE JOHNSON <depjohnson@aol.com>
Sent: Tuesday, May 21, 2019 2:58 PM
To: LUEG, GroundWater, PDS
Subject: Comment on Borrego Valley Draft GSP (1)
Attachments: Borrego GSP Comment Risk Brief.docx

Please see attached file. If you prefer that I copy the file into its own email message, please let me know.

Diane Johnson
Borrego Springs

21 May 2019

To: County of San Diego
Planning & Development Services
C/O: Jim Bennett
5510 Overland Avenue, Suite 310
San Diego, CA 92123

From: Diane E.P. Johnson, Borrego Springs

Re: Groundwater Sustainability Plan
Borrego Valley Groundwater Basin
Borrego Springs Sub-basin

Dear Mr. Bennett,

I wish to submit the following Risk Brief as a Public Comment. As you are aware, but as others might not be, Lyle Brecht has been an active member of the Core Team of the Borrego Valley GSA, and the Borrego Water Coalition before that. His business and academic background give him a particular expertise in discerning both potential risks and potential ways to mitigate those risks. I am commending his careful and comprehensive risk analysis to you because the hydrologically-oriented structure of SGMA and the GSP do not lend themselves to the kind of economic, and social, aspects of sustainability that Mr. Brecht discusses here. I imagine that this is because SGMA's authors did not hold a place like Borrego Springs in mind when they crafted the law.

As you are well aware, the Borrego basin and community are almost -- or are in fact -- unique in California in that we have and likely will never have access to water from a source other than our aquifer. We are very isolated geographically; our municipal water district is very small, with roughly 2000 customers; and the entire community is designated as an SDAC by DWR. Yet the community has outsized importance in that it is the sole provider of hospitality services to visitors to Anza-Borrego Desert State Park, which attracts up to a million visitors (regional, American, and international) per year.

Clearly, our groundwater usage must be reduced to a sustainable level in order for the aquifer, the town, and the Park to survive. But it's also essential that the quality of our potable water remains high.

We cannot import cleaner water to dilute any well water that has become contaminated with pesticides (there are a few thousand acres of agricultural land here, and farming has gone on since the 1950s) or naturally occurring contaminants. Thus if water quality gets low enough, our small municipal water district would face building an extremely expensive water treatment plant, which would be ruinous and could in fact lead to the death of our community. And because we are the only community around to offer visitor services to the Anza-Borrego Desert State Park (the largest in California), that public resource/benefit would be heavily impacted as well.

Mr. Brecht backs up these points and raises many others as well in the following Risk Brief. We look forward to seeing these issues addressed in a revision of the Draft GSP.

The present March 2019 draft Groundwater Sustainability Plan (GSP) for the Borrego Springs Subbasin (Subbasin) of the Borrego Valley Groundwater Basin is the result of thousands of hours of expert analysis. The GSP has cost approximately \$6 million since 2010 (see attached) to arrive at a scientifically and legally defensible, carefully crafted approach to addressing the overdraft.¹ The draft GSP is a monumental step forward after so many years of neglect.²

I have a few technical concerns mostly related to the over reliance on adaptive management driven changes to the plan to potentially correct for starting assumptions, given such a short 20-year planning period.³ These technical concerns primarily arise from the variability and frequency distribution of Subbasin physical recharge events over the US Geological Survey (USGS) numerical model calibration period (see attached).⁴ Many of these technical concerns

¹ SGMA sets an arbitrary date of January 1, 2015 for *reimbursement* of GSP development-related expenses. However, what I am accounting for in the approximately \$6M GSP actual development costs to date are the direct costs of the technical, legal, and administrative work necessary for developing the Subbasin GSP. For example, the draft GSP as it stands would not have been possible without the previous grant and BWD ratepayer funded studies by the USGS that provided a numerical model of the Subbasin that establishes a defensible sustainable yield; the US Bureau of Reclamation that establishes that running a pipeline to Borrego is economically infeasible; the USEPA that establishes that there are no economically available water sources from aquifers over the next hill; DWR's extensive data collection efforts; Dudek's various analytical work on issues of critical concern to the GSA such as Subbasin boundaries; Raftelis's estimates of potential financial costs to ratepayers from SGMA; Best Best & Krieger's legal work on the intersection of GSP requirements, CEQA and California water law; Downey Brand's legal work on water law and MOU development; the gracious contributions of time by citizens of Borrego with special expertise in hydrology, planning, field biology, fundraising, civic organization, and government relations, etc.

² About thirty-five years ago, a USGS study, funded by San Diego County, unequivocally established that the Subbasin was in severe overdraft. But, 35-years have gone by with no reduction of the annual overdraft. Between 1982 and 2010, the annual overdraft more than

doubled and is now considered *critical* by DWR. The overdraft is economically expensive (water supply uncertainty is an impediment to growth). This expense for municipal ratepayers only increases with time as the overdraft continues.

³ Assuming that *adaptive management measures* can correct for the entirety of systemic risk is not warranted. See Holly Doremus, Professor of Law, University of California, Berkeley, *Adaptive Management as an Information Problem* (2011). “Faced with the reality that adaptive management is not a panacea, policymakers may have to directly confront difficult questions about the relative costs of different sorts of errors and develop forthright approaches to making decisions in light of uncertainty.”

⁴ Due to the variability and frequency of natural recharge events based on the USGS 66-year calibration period, statistically it is highly unlikely that by altering a reduction schedule based on 5-years of new recharge data one can improve the odds of reaching a sustainable yield target by year 20. Instead, it is more likely one would decrease the probability of reaching the desired sustainable yield target.

are discussed and enumerated in the studies performed for the Subbasin Groundwater Sustainability Agency (GSA) under a California Department of Water Resources (DWR) Severely Disadvantaged Community (SDAC) Proposition 1 grant to the Borrego Water District (BWD) by Environmental Navigation Services, Inc. (ENSI).⁵

However, my comments on the draft primarily are focused on risk.⁶ My contention is that bringing the Subbasin into sustainable use by January 2040 is *path dependent*. That is, one could potentially bring the Subbasin into sustainable use by 2040, but do it in a manner that causes water rates to rise so high and so fast that some of the customers of BWD would not be able to afford to continue to live in Borrego.⁷ The problem with the loss of municipal customers is the potential for creating a vicious circle where loss of customers causes yet more increasing rates, given fixed costs that continue to drive even greater rate increases with less customers. This may seem far-fetched to some, but when I was consulting with the US Environmental Protection Agency, Office of Water, in Washington, DC, I saw firsthand that this has happened in other places. *Path dependency* matters.

Below are my comments that derive from this risk management perspective:

1. Insufficient Addressing of SDAC Considerations

- Under GSP Regulations Section 355.4: “Criteria for Plan Evaluation by DWR:” Whether the interests of the beneficial uses and users of groundwater in the basin, and the land uses and property interests potentially affected by the use of groundwater in the basin, have been considered;⁸

⁵ ENSI, *Methodology To Examine Future Groundwater Overdraft In Terms Of The Overall Hydrologic Water Balance Considering Recharge Variability And Parameter Uncertainty* (September 12, 2018); *Water Quality Review and Assessment: Borrego Water District (BWD) Water Supply Wells* (December 7, 2018); *Assessment Of Water Level Decline, Hydrogeologic Conditions, and Potential Overdraft Impacts For Active BWD Water Supply Wells* (January 7, 2019); *Comparison of Pumping Rate Reduction Schedules Under SGMA* (February 11, 2019); Decision Management Analysis (April 16, 2019).

⁶ Risk in complex systems = sum (probability of an adverse event occurring X its attendant costs). Thus, low probability, high consequence events are not excluded from one’s analysis. Risk in this context results in a dollar amount. Groundwater basins are a complex system. Linear analysis only approximates the physical reality of the system. See Stefan Thurner, Rudolf Hanel, and Peter Klimek, Introduction to the Theory of Complex Systems (Oxford, UK: Oxford University Press, 2018).

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⁷Based on the data, so carefully and thoughtfully presented in the draft GSP, bringing the Subbasin to sustainable use as quickly as economically feasible is necessary for future sustainable economic activity and development opportunity in the Borrego Valley.

⁸See draft GSP (March 2019), Appendix A: “DWR Preparation Checklist for GSP Submittal.”

- From the draft GSP text, it is not clear that the interests of municipal customers of BWD in a SDAC have been adequately *considered* or *addressed*.⁹ The projected approximately \$20 million cost to implement the proposed GSP may drive water rates for municipal customers beyond affordability for some BWD SDAC customers;
- For example, as an SDAC community, many of the BWD ratepayers are rate sensitive. Water rates are not infinitely elastic and undue risk that puts pressure on water rates can have a deleterious impact, not only on BWD's finances, but the economic viability of the Borrego community and its embedded property values served by municipal water service.¹⁰ Future water rates, driven by SGMA implementation costs may become a primary factor in future economic development opportunities for Borrego Springs.¹¹

2. Assumptions of Business-As-Usual for San Diego County Administrative Practices & Policies

Business as usual by the County may render the efforts of the GSA to bring the Subbasin into sustainable use no later than January 2040 with no undesirable results extremely unlikely.¹² The end result is that BWD ratepayers may experience a disproportionate amount of risk.¹³

An important issue regarding risk is that without adequate management of this risk, it can become destructive of the BWD's credit. Given the capital intensity of BWD's business, BWD requires good credit in order to borrow for adequately maintaining its municipal water and sewer system.¹⁴ Loss of credit would put undue pressure on water rates.

⁹ See draft GSP (March 2019) pp. 36, 58, 203, 213, 315, 421-2, 588.

¹⁰ It is uncertain that the District's SDAC customer base would be able to afford the resultant water rates. See Raftelis Financial Consultants, *Borrego Water District County Zoning and SGMA Impact Assessment* (November 17, 2016) and *Borrego Water District Water Rates Affordability Assessment* (October 4, 2017); LeSar Development Consultants, *Borrego Springs Community Characteristics Report* (1/30/2019) and ENSI, *SDAC Impact/Vulnerability Analysis (Task 2)* (April 15, 2019).

¹¹ Water rates are what they are to provide **potable water** to Borrego's homes & businesses. Under State law, the District is required to charge rates that produce revenues to cover its *costs*. So, the deeper issue is not rates, but *costs* to provide potable water. Rates are a direct result of the District's *costs*. The District share of projected GSP implementation costs are likely to increase future water rates.

¹² SGMA states that sustainability must be achieved within "20 years of implementation of the plan." (Water Code, § 10727(b)(1)).

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¹³“Managing risks [is] an act of the imagination...” See Michael Lewis, The Fifth Risk (New York: W. W. Norton & Company, 2018), Location 577.

¹⁴The current replacement cost of BWD’s municipal water, sewer, and wastewater system is approximately \$62.5 million.

- *Land Use Decisions*: Full general plan buildout of existing approved zoning, given permitting constraints is presently presumed to add an additional 3,000 residential, 215 commercial, 108 public agency, 207 irrigation and 179 multiple unit EDU to the basin for a total of 6,811 EDUs. Applying the current residential water demand of 0.55 acre-feet per account would result in a future municipal water demand of 3,746 acre-feet per year, which is about 66% of the basin sustainable yield of 5,700 acre-feet per year. The estimated future municipal water demand of 3,746 acre-feet per year combined with the existing golf course water demand of 2,852 acre-feet per year is 6,598 acre-feet per year or 116% of the sustainable yield. This indicates that the municipal water demand at the already County-approved zoning buildout, assuming the current water use per EDU, combined with existing recreational water demand, will consume all available supply and that there would be limited to no available supply for agriculture.¹⁵ This situation appears to be a result of the County's past policy to approve new development independent of the water supply availability to serve such new development.
- *Well Abandonment Enforcement*: San Diego County Code, Sections 67.401 through 67.424 provide the regulatory authority to abandon wells. In addition, Section 67.421 adopts standards from Department of Water Resources Bulletin 74-81 and 74-90 (i.e., California Well Standards) for the construction, repair, reconstruction, or destruction of wells. Chapter 4, Wells Section 67.401 states: "It is the purpose of this Chapter to provide for the construction, repair and reconstruction of wells to the end that the ground water of this County will not be polluted or contaminated and that water obtained from such wells will be suitable for the purpose for which used and will not jeopardize the health, safety or welfare of the people of this County, and for the destruction of abandoned wells or wells found to be public nuisances to the end that such wells will not cause pollution or contamination of ground water or otherwise jeopardize the health, safety or welfare of the people of this County" (Amended by Ord. No. 10238 (N.S.), effective 1-4-13). Section. 67.402. defines Abandoned and Abandonment. The terms "abandoned" or "abandonment" shall apply to a well that has not been used for a period of 1 year, unless the owner declares in writing, to the director his intention to use the well again for supplying water or other associated purpose (such as a monitoring well or injection well) and receives approval of such declaration from the director. All such declarations shall be renewed annually and at such time be resubmitted to the director

¹⁵ Dudek, *Theoretical Water Demand at Buildout of Present Unbuilt Lots Under County's Current Zoning in Borrego Springs* (October 4, 2016) and draft GSP (March 2019) Section 2.1.3 "Land Use Considerations" pp. 2-17-20.

for approval (Dudek research). Presently, Dudek estimates approximately 50 improperly abandoned wells in the Subbasin at a cost of approximately \$40,000/well to properly abandon (draft GSP estimate). Without adequate and timely enforcement of State and County well abandonment regulations, this approximate \$2.0 million cost potentially jeopardizes adequate management of the Subbasin for no undesirable results.¹⁶

- *Ministerial Well Permitting*: Under SGMA, assessment of well interference and impacts of new wells on pumping allowances will be required to adequately manage the Subbasin for no undesirable results;^{17, 18}
- *Land Restoration Sureties*: Pre-SGMA land following standards may not have had to meet California Environmental Quality Act (CEQA) requirements. It is anticipated that CEQA requirements will have to be met for all following under the Groundwater Sustainability Plan and for any land that is fallowed in the Subbasin with public or private funds for water transfer purposes. Anticipated additional CEQA requirements beyond proper well abandonment include soil stabilization, Phase I Environmental Site

¹⁶ Proper well abandonment enforcement may be a pre-requisite for sound Subbasin management. For example, in May 2000 in Walkerton, Ontario, a town of 5,000 people, a perfect storm of a broken water main, a sick animal, heavy rains, poor maintenance and repair practices, and operator error combined to introduce *E coli 0157:H7* into the public water supply sickening 2,300. Hundreds were hospitalized, and seven people died. The ultimate villain was an improperly maintained, barely used well. In other words, protecting groundwater quality is a big deal for the ongoing economic security of a community that is too often taken for granted. Lack of proper well abandonment enforcement may threaten the entire population of municipal ratepayers who represent approximately \$300 million in assessed property value in the Borrego Valley.

¹⁷ “The passage of SB 252 added Article 5, Wells in Critically Overdrafted Groundwater Basins, to chapter 10 of the California Water Code requiring collection of specific information for water wells proposed in critically overdrafted groundwater basins. To facilitate the collection of the required information, San Diego County Department of Environmental Health (DEH) has revised the Well Permit Application and created a Supplemental Well Application. The Supplemental Well Application is included in the Well Permit Application and must be submitted for wells proposed in the Borrego Springs Subbasin. Wells drilled by the BWD to provide water solely for the residents are exempt from this requirement. The provisions of SB 252 are effective until January 30, 2020.” See draft GSP (March 2019, Section 2.1.2 “Water Resources Monitoring and Management Programs,” p. 2-17.

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¹⁸ Annual groundwater extractions exceeding the amount that a groundwater user is authorized to pump under regulations adopted by the GSA may be subject to fines or penalties under Water Code section 10732. The fine may be up to \$500 per acre-foot extracted in excess of their authorized amount (Water Code §10732 (a)(1)), as well as potential additional fines under Water Code, 10732(a)(2).

Assessment (ESA), and removal of existing infrastructure.¹⁹ Based on Dudek’s analysis of land restoration costs, the County’s sureties on existing land that was cleared for its approved solar farms may be only approximately 50% of the actual costs to properly return the land to acceptable condition once the economic useful life of these projects has run its course. Having an adequate surety for these projects is important since the experience nationally is that oftentimes once the project reaches its useful economic life, the project owner declares bankruptcy, leaving those land restoration costs to the public sector not covered by the original surety.

3. Water Quality (WQ) Issues (See draft GSP (March 2019) Section 2.2.2.4 “Groundwater Quality, pp. 2-55-64)

- *The potential degradation of WQ due to the critical overdraft of the basin is the #1 risk factor for the District and its ratepayers.* This risk factor is due to the potential treatment and/or well abandonment/re-drilled/or replaced costs associated with degrading water quality from the *critical* overdraft.²⁰ The degradation of WQ in the basin is a low probability high consequence concern. These days, a new municipal well is an approximately \$1.5 million cost. Already, the upper aquifer of the basin, where the highest water quality is found has largely been dewatered in the Central Management Area due to the overdraft. Thus, the majority of municipal pumping is now from municipal wells screened in the middle and lower aquifers;²¹
- *Historically (over the past 50-years), the most expensive WQ problem for municipal water supplies has been degraded WQ from septic tank effluent.* As many as 4 municipal wells have either been abandoned or had to be re-drilled or replaced due to nitrate contamination from septic tanks (ID4-1, ID4-4 (deepened), WC #1, Roadrunner);²²

¹⁹ “The GSA also has authority to ‘provide for a program of voluntary following of agricultural lands or validate an existing program’ (CWC, Section 10726.2(c)).” See draft GSP (March 2019) Section 4.2.1 “Water Trading Program Description,” p. 4-7. A passive restoration of disturbed land can take many years, and even decades, in a desert environment.

²⁰ Dudek, *Water Replacement and Treatment Cost Analysis for the Borrego Valley Groundwater Basin* (November 24, 2015).

²¹ ENSI, *Water Quality Review and Assessment: Borrego Water District (BWD) Water Supply Wells*
Page 12 of 8

FOR DISCUSSION PURPOSES
ONLY

(December 7, 2018).

²² ENSI, *Water Quality Review and Assessment: Borrego Water District (BWD) Water Supply Wells*
(December 7, 2018).

- *Historically, 2 municipal wells (ID-1 & ID1-2) have been abandoned due to naturally occurring contaminants that exceed Minimum Contaminant Levels (MCLs),²³*
- *Historically, BWD presently knows of no municipal wells that have been adversely affected by pollution from return flows from agricultural pumping. However, return flows from agricultural irrigation are highly polluted with salts and chemicals.²⁴ Return flow water is non-potable. This water would need to be treated before it was suitable for human consumption.²⁵ The precautionary principle suggests that the GSA should today plan for an uncertain future and make allowances for the potential treatment of historical return flows from agricultural irrigation;²⁶*
- *Presently, the District is closely watching water quality trends for one production well showing potential arsenic concentrations that may exceed MCLs for arsenic in the near future. Thus, BWD is planning on replacing this well with a new production well in the near future;*
- *Waiting to see if pollution of municipal supplies occurs sometime in the future is not the most prudent approach to managing the potential risks to public health.²⁷*

²³ These wells, no longer useful for municipal use, were conveyed to the owners of the Rams Hill Golf Course for golf course irrigation use.

²⁴ A list of the toxic pesticides, herbicides and pesticides applied to land in the Borrego Valley is sourced from the California Pesticide Information Portal (CALPIP) hosted by the California Department of Pesticide Regulation. Site is as follows: <http://calpip.cdpr.ca.gov/main.cfm>.

²⁵ ENSI, *Assessment Of Water Level Decline, Hydrogeologic Conditions, and Potential Overdraft Impacts For Active BWD Water Supply Wells* (January 7, 2019).

²⁶ Testing for Emerging Contaminants of Concern (COCs) is expensive and may not be identified by traditional Mann-Kendall Trend Analysis until after-the-fact. Some chemicals such as 1,2,3 TCP toxic concentrations for drinking water are presently measured in parts per trillion (ppt). Large molecules (traditional with many pesticides) that sorb with soils do not typically make their way to the groundwater table. Many pesticide molecules can make their way into a drinking water supply from surface runoff into surface water bodies. Since the BWD does not rely on any surface water for its municipal drinking water supply, exposure to some COCs may be limited. However, the issue in Borrego is that we have approximately 50 improperly abandoned wells in the Basin, so an assumption that a large molecule toxin will not reach the water table may not be a good assumption.

²⁷ In April 2014, a decision to cut Flint, Michigan's water supply budget caused widespread lead poisoning of children in Flint, MI. Lead poisoning is an irreversible neurotoxin that interferes with the development of

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the nervous system in children, causing permanent learning and behavioral disorders. Additionally 10 people have died from Legionnaires' disease amidst a surge in infections caused by water-borne bacteria. The costs for attempting to save \$2 million/year is expected to reach \$1 billion.

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