Borrego Water District Board of Directors
Regular Meeting
January 29, 2019 @ 9:00 a.m.
806 Palm Canyon Drive
Borrego Springs, CA 92004

I. OPENING PROCEDURES

- **A.** Call to Order
- **B.** Pledge of Allegiance
- **C.** Roll Call
- **D.** Approval of Agenda
- **E.** Approval of Minutes:
    1. Special Meeting Minutes December 11,2019 (3-7)
- **F.** Comments from the Public & Requests for Future Agenda Items (may be limited to 3 min)
- **G.** Comments from Directors
- **H.** Correspondence Received from the Public

II. ITEMS FOR BOARD CONSIDERATION AND POSSIBLE ACTION

A. Borrego Water District
1. Request from Bill Wright for Sunset Avenue Sewerline Extension –General Manager Poole (8)
2. RoadRunner Farms Fallowing Plan and Water Credit Request – Poole (9-12)
3. Notice of Exemption: Well Replacement #1 ID 4-4 – Poole (13-15)
4. Request for Proposal for Cost of Service Study – L Brecht (16-21)
5. Alternative Dates and Draft 2019 Town Hall PPT - Director Brecht (22-28)
6. Cyber Security for Municipal Water Utilities – Brecht (29-31)
7. SpringBrook Training For BWD Staff (32-36)

B. GSA: Borrego Springs Sub Basin
1. ENSI, Assessment Of Water Level Decline, Hydrogeologic Conditions, and Potential Overdraft Impacts For Active BWD Water Supply Wells (January 7, 2019) (37-135)
2. GSP Questions and Answers v#12 (136-139)
3. Draft GSP Public Outreach (140)

III. STANDING AND AD-HOC BOARD COMMITTEE REPORTS –

A. STANDING:
1. Operations and Infrastructure – Dice/Duncan

B. AD-HOC:
1. GSP Preparation – Brecht/Duncan
2. 2018 Audit – Brecht & Ehrlich
3. Rams Hill Operating Agreement – Brecht
4. Risk – Ehrlich

AGENDA: January 29, 2019
All Documents for public review on file with the District's secretary located at 806 Palm Canyon Drive, Borrego Springs CA 92004
Any public record provided to a majority of the Board of Directors less than 72 hours prior to the meeting, regarding any item on the open session portion of this agenda, is available for public inspection during normal business hours at the Office of the Board Secretary, located at 806 Palm Canyon Drive, Borrego Springs CA 92004.
The Borrego Springs Water District complies with the Americans with Disabilities Act. Persons with special needs should call Geoff Poole – Board Secretary at (760) 767 – 5806 at least 48 hours in advance of the start of this meeting, in order to enable the District to make reasonable arrangements to ensure accessibility.
If you challenge any action of the Board of Directors in court, you may be limited to raising only those issues you or someone else raised at the public hearing, or in written correspondence delivered to the Board of Directors (c/o the Board Secretary) at, or prior to, the public hearing.

5. 2019 Town Hall Meeting – Dice/Duncan
6. Proposition 68 Funding – Dice
7. Association of California Water Agencies/Joint Powers Authority - Ehrlich

IV. STAFF REPORT

A. Financial Reports: (141-171)
November 2018
December 2018

B. Water and Wastewater Operations Report: (172-176)
September 2018
October 2018
November 2018
December 2018

C. Water Production/Use Records: (177-181)
September 2018
October 2018
November 2018
December 2018

D. General Manager (182-190)
1. Goals and Objectives Report

V. CLOSED SESSION:

A. Conference with Legal Counsel - Significant exposure to litigation pursuant to paragraph (3) of subdivision (d) of Section 54956.9: (Three (3) potential cases)

VI. CLOSING PROCEDURE

A. Suggested Items for Next/Future Agenda
B. The next Regular Meeting of the Board of Directors is scheduled for Tuesday, February 26 - 9:00

AGENDA: January 29, 2019
All Documents for public review on file with the District's secretary located at 806 Palm Canyon Drive, Borrego Springs CA 92004
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Borrego Water District Board of Directors
MINUTES
Special Meeting
December 11, 2018 @ 9:00 a.m.
806 Palm Canyon Drive
Borrego Springs, CA 92004

I. OPENING PROCEDURES

A. Call to Order: Vice-President Brecht called the meeting to order at 9:00 a.m.

B. Pledge of Allegiance: Those present stood for the Pledge of Allegiance.

C. Roll Call:

Directors:	Present:	Vice-President Brecht, Delahay, Dice, Duncan, Ehrlich	
Staff:	Geoff Poole, General Manager		
	Kim Pittman, Administration Manager		
	Carlos Beltran, District Engineer		
	Steve Anderson, Best Best & Krieger		
	Wendy Quinn, Recording Secretary		
Public:	Rebecca Falk, Sponsor Group	Beth Hart	
	Bill Berkley	Rick Alexander	
	Saul Miller	Julian Peabody	
	Diane Johnson	Laara Maxwell	
	Michael Sadler, *Borrego Sun*	Ray Shindler	
		Suzanne Lawrence	

D. Oath of Office for Directors Brecht, Dice and Duncan: Geoff Poole administered the Oath of Office to Directors Brecht, Dice and Duncan.

E. Approval of Agenda: ***MSC: Ehrlich/Delahay approving the Agenda as amended (postpone Item II.A.2, FY 2018 Audit).***

F. Approval of Minutes:

Approval of Minutes:

1. Regular Meeting Minutes: November 13, 2018

MSC: Ehrlich/Delahay approving the Minutes of the Regular Meeting of November 13, 2018 as written.

G. Comments from the Public and Requests for Future Agenda Items: None

H. Comments from Directors: Director Brecht announced that a President, Vice-President and Secretary/Treasurer would be elected at the first meeting in January.

II. ITEMS FOR BOARD CONSIDERATION AND POSSIBLE ACTION

A. Borrego Water District:

1. Capital Improvement Plan Update:

a. BWD Pipelines – Phase One: Bid Results. Mr. Poole reported that the bids for phase one of the pipeline projects were opened yesterday. There were two bids, one for $400,000 and one for $518,347. The engineer's estimate was $485,000. Steve Anderson's partner and Carlos Beltran are reviewing the bids.

b. Well Replacement #1 & #2 Bid Strategy & Documents. Mr. Poole reported that Dudek had selected Well ID4-4 for the first well replacement and developed plans, specifications and bid documents. Trey Driscoll suggested bidding both replacement wells together, but if the second well documents are not ready, an alternate procedure could be used.

A general area has been selected for the second well, but access for a test well needs to be negotiated. If the test is successful, property acquisition will follow.

Director Ehrlich thought there was risk associated with bidding the two wells together. He pointed out that the documents call for award on the base bid and the time of construction to be the same whether the bid is for one or two wells. Mr. Poole agreed to bring the item back to the Board at its next meeting. Director Ehrlich suggested extending the bidding period because of the holidays.

Rebecca Falk inquired about documents for property access for the test well, and Mr. Anderson reported that they are ready. There is an Option Agreement for right of entry, which he agreed to provide to Mr. Poole.

2. FY 2018 Audit: Squar Miler LLP and Future Special Meeting Dates & Timing. This item was postponed.

3. Proposition 218 Rate Study process. Director Brecht recommended that the Proposition 218 rate study process begin in February. Mr. Anderson explained Proposition 218, which was enacted in 1996 and added provisions to the State Constitution requiring water districts and other public agencies to follow certain procedures, including the retention of a rate consultant or performing an analysis in house to justify that the rates charged are in line with costs. Notices and a public hearing are required, and if there is a majority protest, the rates cannot be increased. The process needs to occur at least every five years. Discussion followed concerning whether GSP costs would be combined with BWD costs in the rate study, or if there would be a separate 218 process for the GSP. Director Ehrlich said he would rather wait until the draft GSP is released before retaining a consultant. Ray Shindler hoped that other funding sources would be explored before raising rates.

4. Dolly Mack Associates Board Strategy Development Proposal & Bio. Director Brecht reported that Brian Brody, a consultant to the District, had worked with Dolly Mack Associates and suggested them as possible facilitators for a strategy session with the new Directors. It could include something about the Board's history and focus during the past eight years to regain credit and improve cash flow. The session would hopefully help the Board and staff work better together on complicated issues. Dolly Mack's proposal is for $6,000. ***MSC: Ehrlich/Delahay retaining the services of Dolly Mack and authorizing a contract not to exceed $6,000.***

5. Resolutions of Appreciation for Directors Hart and Tatusko. ***MSC: Ehrlich/Delahay adopting Resolution No. 2018-12-01 of the Board of Directors of the Borrego Water District Commending Beth Hart for Eight Years of Outstanding Service, and Resolution No. 2018-12-02 of the Board of Directors of the Borrego Water District Commending Joseph Tatusko for Four Years of Outstanding Service. The motion passed by unanimous roll call vote.***

B. <u>GSA: Borrego Springs Sub Basin:</u>

1. Rick Alexander Supplemental Proposal for Evaluation of Additional Grant Opportunities. Director Brecht invited the Board's attention to written material in the Board package, arising from a meeting with the community. He summarized integrated planning, showing that the GSP leads to land use, water availability and affordability, and economic development; these factors in turn lead to a healthy, sustainable community. Rick Alexander explained that he has a contract with the District focusing on grant funding for the CIP. He proposed to expand it to include funding for GSP planning and land use. The supplemental tasks were set forth in the Board package, for an estimated cost of $3,200. Director Brecht highlighted the funding opportunity through Proposition 68, which provides money for water and park

activities. ***MSC: Ehrlich/Delahay modifying Rick Alexander's contract with the District as proposed, not to exceed $3,200.***

2. Local Government Commission Proposal to work with TRAC on this proposal. Director Dice opined that the opportunities the Local Government Commission could provide in connecting the District with funding sources fits into what we are trying to do with SGMA and could be very valuable. Director Ehrlich agreed but was concerned about moving too fast. Mr. Alexander explained that the LGC is a nonprofit "local government think tank" which offers services to local government to resolve issues. They have a good reputation and reasonable prices. They can focus on climate change, water and energy issues and community design. Director Ehrlich suggested a joint effort with other agencies, maybe the County, to share costs. Director Brecht pointed out that sometimes more money is spent in identifying grant opportunities than what is obtained through the grant. LGC could help to avoid this. Suzanne Lawrence added that they would bring a high level of government relations, and there will be many grant opportunities in the spring. It would be good to identify them now. The Stewardship Council is already discussing it. Further discussion followed regarding whether to enter into a contract with LGC now or postpone it. ***MSC: Delahay/Ehrlich accepting the proposal for technical assistance to Rick Alexander by the Local Government Commission, not to exceed $4,000.***

3. Report from BWD Ratepayer Representative on Groundwater Sustainability Plan Advisory Committee. No report.

III. INFORMATIONAL ITEMS

A. Borrego Water District

1. Rick Alexander Monthly Grant Update. Mr. Alexander reported that for some time he had been pursuing Proposition 1 grants from the State Water Resources Control Board for treatment plant improvements and replacement of three tanks. The State Board recently decided to merge State and federal funds, so the grant application must comply with the Endangered Species Act and the Historical Preservation Act. Archeological and biological consultants have been retained. The archeological consultant has completed the work and found nothing significant that would affect the District's projects. The biological consultant entered into the contract on November 30 and work is in process. Mr. Alexander and District staff may visit Sacramento to meet with Assembly and Senate staff, discuss SGMA planning and gain support for the District's funding requests. He also hoped to meet with Toni Atkins' staff, and will work on arranging the meetings.

B. Borrego Sub Basin GSA**:**

1. BWD Big Picture Analysis PPT. Director Brecht invited the Board's attention to his outline in the Board package and presented slides. He showed some District history since 2011 and the Board's efforts to regain credit. A graph showed the financial health of the District, i.e. net increase or decrease in cash and cash equivalents. Reserves were increased to $4 million over eight years. Another chart showed management and workflow transitions, from a private water company management style to public water company accountability, and from ad-hoc groundwater basin management to the GSA. A graph showed the physical groundwater system from 1945 to 2016. He explained that there is uncertainty in the model because of fluctuation in precipitation and because many wells are not metered.

Rebecca Falk expressed concern about the Groundwater Dependent Ecosystems (GDEs), which have not yet been included in calculating the sustainable yield. She asked whether the GSA was considering this. Director Brecht suggested she put her concerns in

writing to the GSA. Director Ehrlich pointed out that some decisions have to be delayed until the GSP is released.

IV. STANDING AND AD-HOC BOARD COMMITTEE REPORTS

A. STANDING:

1. Operations and Infrastructure. Director Brecht asked Director Ehrlich to join the Committee.

B. AD-HOC:

1. GSP Preparation. No report.

2. 2017-18 Audit. Director Brecht reported the Committee was awaiting the draft audit.

3. Rams Hill Operating Agreement. Director Brecht requested that this Committee be deleted.

4. Risk. Director Ehrlich invited the Board's attention to the proposal from JPIA in the General Manager's Report. The second proposal has not yet been received.

5. Rams Hill LCTA. Director Brecht asked that "Rams Hill" be changed to "T2." He announced that Beth Hart had agreed to be on the Committee as a public representative.

6. ACWA/JPIA Conference. Director Ehrlich invited the Board's attention to his written report on the ACWA/JPIA Conference, in the Board package. BWD is one of approximately 30 agencies which participate in all three JPIA programs. Our loss ratio is low, so the District will be getting rebates, and liability insurance rates will go down. Director Ehrlich noted he had attended sessions on team building and avoiding trouble for Board members.

V. STAFF REPORTS

A. Financial Reports: September and October 2018: Kim Pitman offered to answer questions on the September Financial Report. In October, residential and commercial water revenues were up, but irrigation was down. Trash costs, included in the CSD fees, have increased. Director Ehrlich inquired about the solar rebate, and Ms. Pitman explained that the District gets a monthly credit. Director Brecht asked staff to look at the cash flow again in January and see if any adjustments are needed.

B. Water and Wastewater Operations Report: October 2018: Director Ehrlich noted that members of the public had commented on the BWD crew's quick response to a recent water main break at night. Michael Sadler asked him to forward the comments.

C. Water Production/Use Records: October 2018: The Water Production/Use Records were included in the Board package.

C. General Manager:

1. Goals and Objectives Report. Mr. Poole invited the Board's attention to his written report and offered to answer questions. In response to Director Ehrlich, he reported that water quality testing would be done this week and agreed to show him the e-mails he sent to the consultant.

Vice-President Brecht declared a recess at 11:25 a.m.

VI. CLOSED SESSION

A. Conference with Legal Counsel – Significant exposure to litigation pursuant to paragraph (2) of subdivision (d) of Government Code Section 54956.9 (three (3) potential cases):

B. Conference with legal counsel for Public Employee Performance Evaluation – Title: General Manager Employee Performance Review – pursuant to subdivision (d)(4) of Government Code Section 54957:

Following the recess, the Board held a closed session. The open session reconvened at 1:15 p.m. There was no reportable action.

VII. CLOSING PROCEDURE

A. Suggested Items for Next/Future Agenda: Items for the next Agenda were discussed earlier in the meeting.

B. The next Meeting of the Board of Directors is scheduled for January 15, 2019 at the Borrego Water District. There being no further business, the Board adjourned at 1:15 p.m.

BORREGO WATER DISTRICT

BOARD OF DIRECTORS MEETING – JANUARY 29, 2019

AGENDA BILL II.A.1

January 24, 2019

TO: Board of Directors, Borrego Water District

FROM: Geoff Poole, GM

SUBJECT: Request from Bill Wright for Country Club Road Sewerline Extension –General Manager Poole

RECOMMENDED ACTION:

Authorize Staff/Legal Counsel to draft Agreement with Bill Wright for Country Club Road Sewerline extension

ITEM EXPLANATION:

In 2018, Bill Wright funded an extension of the Sunset Ave sewerline to serve the library and other structures. Mr Wright paid for construction and related costs, including a deposit for BWD engineering review and inspection. Mr Wright would like to continue the sewerline extension on Country Club Rd to service a proposed Health Care Facility along Country Club Road west of the County Library Facility. These plans would extend the existing 8" Sewer Line an additional 887 feet west in an easement along the southerly side of County Club Road. Please review these plans and contact me if there are any questions.

Staff is requesting authority to have BBK create an Agreement, which will be reimbursed by Mr Wright. If the Board concurs to proceed, staff will work with O and I Committee on the details. Mr Wright intends to attend the meeting to explain the project and answer any questions.

FISCAL IMPACT
N/A.

ATTACHMENTS

1. None

BORREGO WATER DISTRICT

BOARD OF DIRECTORS MEETING – JANUARY 29, 2019

AGENDA BILL II.A.2

January 24, 2019

TO: Board of Directors, Borrego Water District

FROM: Geoff Poole, GM

SUBJECT: RoadRunner Farms Fallowing Plan and Water Credit Request – Poole

RECOMMENDED ACTION:

Authorize Staff/Legal Counsel to process Water Credit Application and Fallowing Plan

ITEM EXPLANATION:

Jack Mc Grory had previously submitted a request for Water Credits and Fallowing Plan for Road Runner Farms in 2016 and did no complete the transaction. Mr McGrory desires to resurrect the project complete the transaction at this time. The following actions are needed:

FISCAL IMPACT
N/A.

ATTACHMENTS

1. Fallowing Plan

Roadrunner + CDZ Nursery Fallowing Plan

APN: 140-130-28-00

Time frame for grinding the standing palms from the designated 50-acre portion of APN: 140-130-28-00 (see map)

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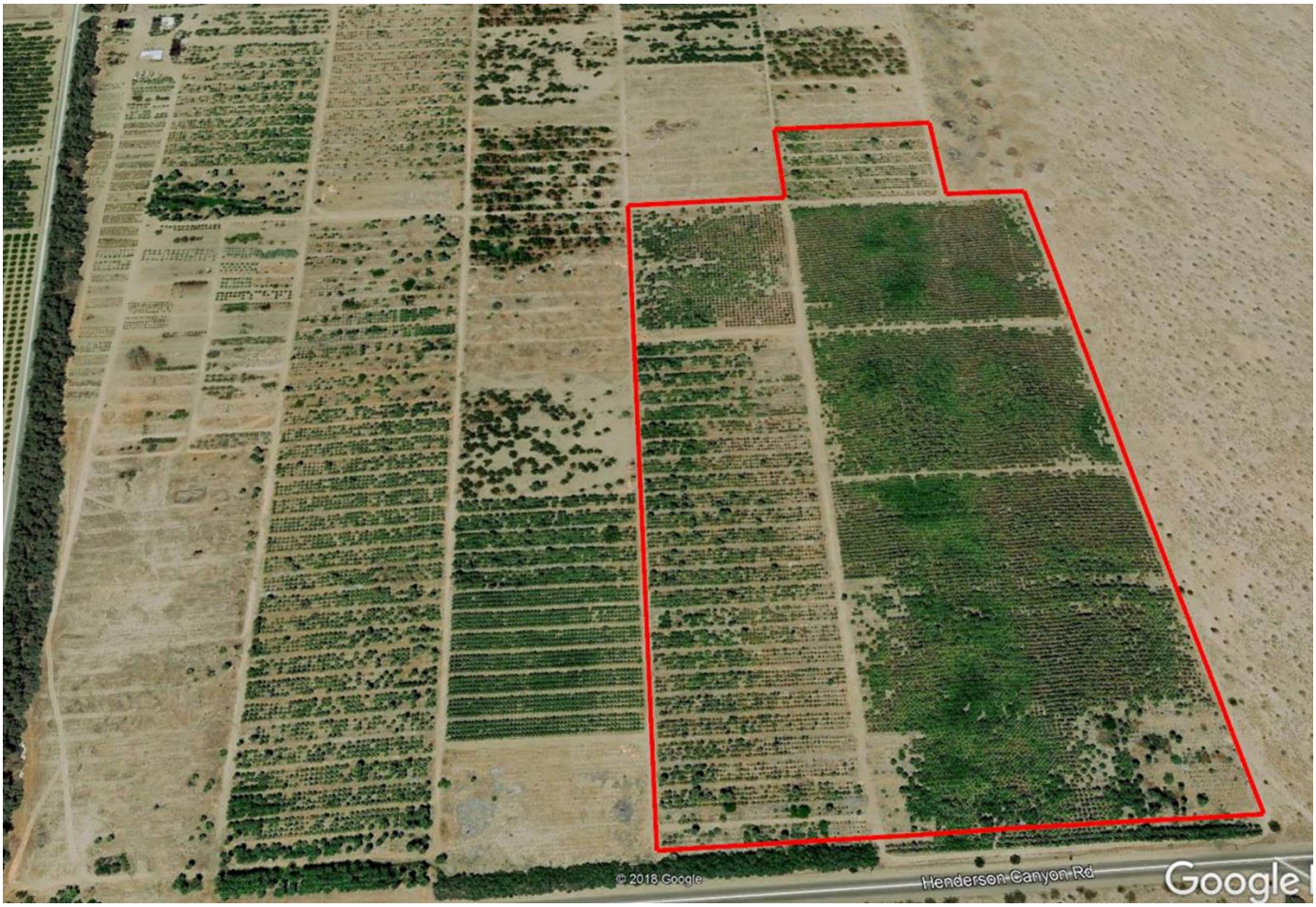
1. Begin Aug. 1 ,2018 – Complete Aug.1 ,2019
    a. Sequence of events:
        i. Shut down irrigation Aug. 1 and begin grinding of standing plant material
        ii. Grinding Aug. 1, 2018 – June 1, 2019
        iii. Spread material in even fashion across total fallowed area to mitigate blowing dust and sand June 1,2019 – July 31, 2019
        iv. Cap irrigation hard line in the fallowing zone Aug. 1, 2019

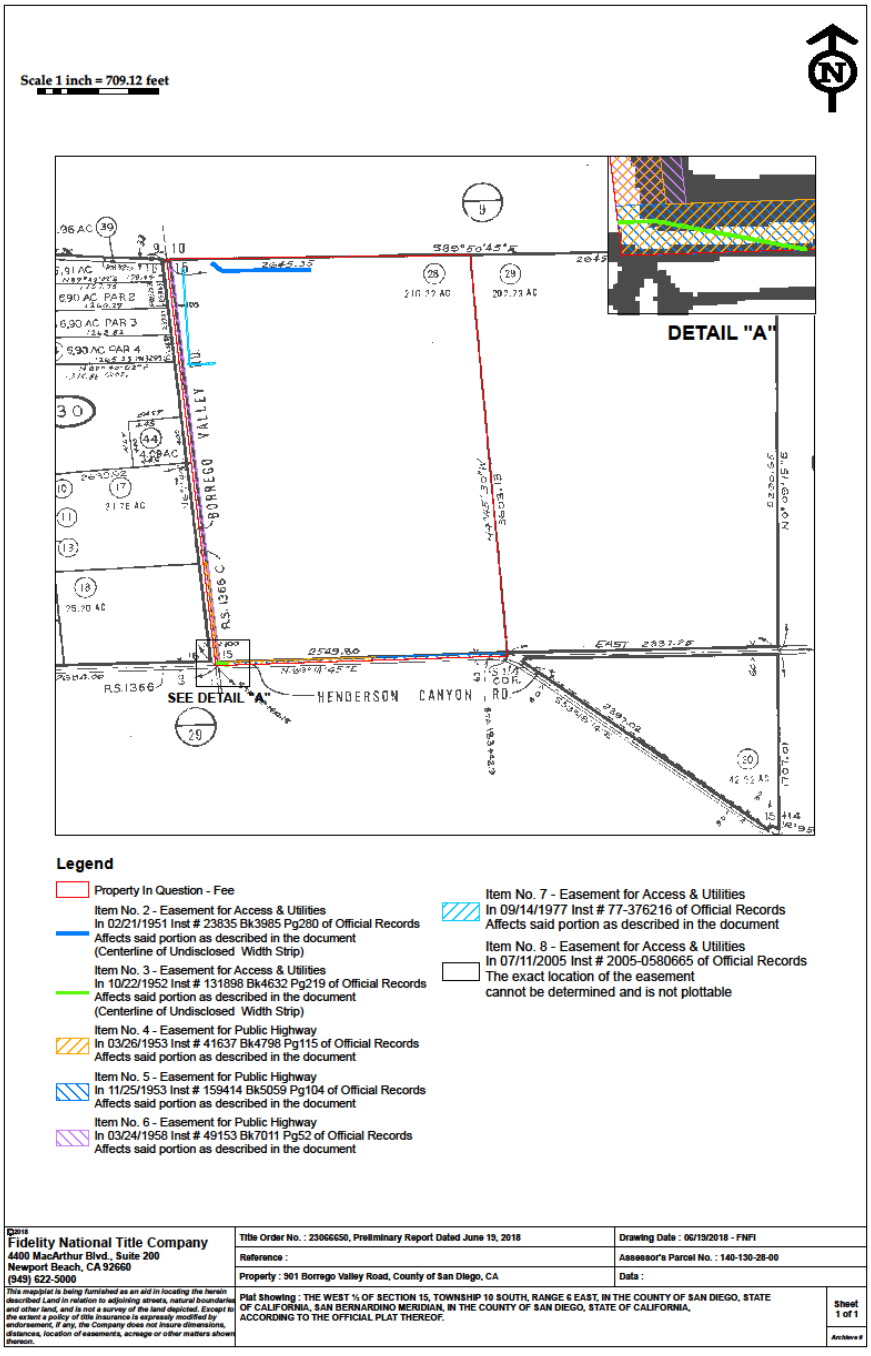
**see map attached*

MAP:

Fallowing Border Map



Plotted Easement Map (APN 140-130-28)



BORREGO WATER DISTRICT

BOARD OF DIRECTORS MEETING – JANUARY 29, 2019

AGENDA BILL II.A.3

January 24, 2019

TO: Board of Directors, Borrego Water District

FROM: Geoff Poole, GM

SUBJECT: Notice of Exemption: Well Replacement #1 ID4-4 - Poole

RECOMMENDED ACTION:

Approve Notice of Exemption for Well Replacement #1 and authorize staff to provide supplemental information for recommended attachments.

ITEM EXPLANATION:

Following is information on Environmental review for our well projects.

General CEQA Background

In general, CEQA allows use of exemptions for some categories of projects, including some alterations to existing facilities, some replacement of existing facilities, and construction of some new small structures. The determination of whether an exemption applies is fact-based; key factors include whether the project is at the same site as the existing facility, whether the project expands the scope of existing operations, and the extent of the alterations to the existing facility. An agency's CEQA decisions need to be based on evidence. Although CEQA does not require an agency to make findings of fact to use an exemption, because the decision does need to be based on evidence, the best practice is for the agency to prepare a document identifying the reasons why the exemption(s) applies and discussing the facts that support those reasons. That document will be attached to this NOE and placed in the agency's project file.

Staff will create the aforementioned attachments for NOE #1 and share with the Board when complete. Since there are unknowns for Well #2 site, Staff needs to provide additional analysis before the final determination is made. Staff intends to continue on the development of the Environmental documents for Well #2 and will report to the Board on the results in February.

FISCAL IMPACT

TBD

ATTACHMENTS

1. Proposed Notice of Exemption for Replacement Well #1.

NOTICE OF EXEMPTION

TO: County Clerk for the County of San Diego 1600 Pacific Highway, Suite 260 San Diego, CA 92101	FROM: Borrego Water District Address: 806 Palm Canyon Drive Borrego Springs, CA 92004

1.	Project Title:	Installation of a New Extraction Well at the Well ID4-4 Location ("Project")
2.	Project Applicant:	N/A
3.	Project Location – Identify street address and cross streets or attach a map showing project site (preferably a USGS 15' or 7 1/2' topographical map identified by quadrangle name):	See attached map. [We need a USGS 15' or 7 1/2' topographical map for the project location]
4.	(a) Project Location – City:	Borrego Springs [Please confirm this is accurate]
	(b) Project Location – County:	San Diego
5.	Project Description:	The Project entails the drilling, constructing, developing, pump testing, and disinfecting of one extraction well ("Replacement Well"). The Replacement Well is to be drilled into the unconsolidated deposits of the Borrego Springs Groundwater Subbasin to a depth of approximately 1,000 feet using direct or reverse circulation mud-rotary drilling. The Replacement Well will replace the Borrego Water District's Well No. ID4-4. Upon completion of the Project, Well No. ID4-4 will no longer operate. The Replacement Well will have substantially the same purpose and capacity as Well No. ID4-4.
6.	Name of Public Agency approving project:	Borrego Water District
7.	Name of Agency undertaking the project:	Borrego Water District
8.	Exempt status:	Categorically exempt
	Applicable categorical exemption(s):	State CEQA Guidelines, §§ 15302 [Replacement or Reconstruction], 15303 [New Construction or Conversion of Small Structures]
9.	Reason why project was exempt:	State CEQA Guidelines section 15302 provides a categorical exemption for projects that replace an existing structure or facility "where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced." The exemption expressly applies to the "replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity." The Project here is exempt under State CEQA Guidelines section 15302 as it seeks to replace an existing District-owned well, Well No. ID4-4. The Replacement Well will be located on the same site as the District's Well No. ID4-4. Moreover, the Replacement Well will have substantially the same purpose and capacity as Well No. ID 4-4.

	The Project is further exempt under State CEQA Guidelines section 15303. That section categorically exempts projects that consist of "construction and location of limited numbers of new, small facilities or structures." Here, the Project is categorically exempt under Section 15303 as it consists of the construction of a new structure, the Replacement Well.
10. Responsible Agency Contact Person:	Geoff Poole, General Manager
Telephone:	(760) 767-5806

Signature:_____ Date:_____ Title: General Manager
Geoff Poole

Signed by Lead Agency

Date Received for Filing: _____

(Clerk Stamp Here)

Authority cited: Sections 21083 and 21100, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

BORREGO WATER DISTRICT

BOARD OF DIRECTORS MEETING – JANUARY 29, 2019

AGENDA BILL II.A.4

January 24, 2019

TO: Board of Directors, Borrego Water District

FROM: Geoff Poole, GM

SUBJECT: Request For Proposals for Cost of Service Study – L Brecht

RECOMMENDED ACTION:

Approve RFP and authorize staff to advertise for the requested services

ITEM EXPLANATION:

Director Brecht requested this item be placed on the Agenda. As part of BWD rate setting process required under Proposition 218, a clear understanding of future costs of service and impacts on rates are needed. The attached draft proposal solicits the services of Consulting firms to provide the requested services.

FISCAL IMPACT

TBD

ATTACHMENTS

1. Draft RFP for Cost of Service Study

The Board of Directors (the Board) of the Borrego Water District (the District) is issuing this Request for Proposals (RFP) for a consultant to develop a Cost of Services Study including an appropriate water rates rate structure and Proposition 218 justifiable water, and wastewater and sewer rates for the period FY 2021-2025. The Board wishes to complete this work in time for holding a Proposition 218 required public hearing in the first half of February 2020.

In addition to being a retail water and wastewater services agency, the District is also part of a multi-agency Groundwater Sustainability Agency (GSA) for the Borrego Springs SubBasin (Subbasin) of the Borrego Valley Groundwater Basin. The Subbasin is in *critical overdraft* and must be brought into sustainable use by no later than January 2040, or sooner, under requirements of the Sustainable Groundwater Management Act (SGMA). This requires a reduction of use by all sectors of the Borrego economy: agricultural irrigators, golf courses, and municipal water users of approximately 75% from present annual groundwater pumping. The additional costs for the unfunded mandates from SGMA have placed a severe cash flow strain on the District. Thus, this has resulted in the Board's desire to establish new rates for FY2021-FY2025.

Municipal residential water users have already reduced their usage per EDU between FY2010 and FY2018 by approximately 20%, primarily due to the impact of increasing rates of a Proposition 218 approved approximately 100% between FY2011-FY2016 and a Proposition 218 approved additional 56% from FY2016-FY2020. It is not feasible for municipal users to reduce usage further to meet SGMA requirements. Instead, the District will be required to purchase additional supply from current water rights holders in the Subbasin in order meet SGMA usage requirements. This will require a fundamental change in the District's business model as it has never had to pay anything for the groundwater it extracted from the Subbasin before nor purchase supplemental water supply for its customers.

The purpose of the proposal is to demonstrate the qualifications, competence, and capacity of the firms seeking to undertake this Proposition 218 work for the District. The proposal shall demonstrate the qualifications of your firm and of the particular staff to be assigned to this engagement. Please also specify an approach that will meet the RFP requirements (see below). There is no expressed or implied obligation from the District to reimburse responding firms for any expense incurred in preparing proposals in response to this request.

If your firm wishes to provide a response to this RFP, please present your firm's qualifications and experience with other water districts' rates; the experience and qualifications of your firm's proposed

consultants; and proposed task approach and costs **by no later than Thursday, February 28, 2019, 3:00 PM Pacific Time via email to Kim Pitman, Financial Manager at kim[at]borregowd[dot]org.**

RFP Requirements

(1) With a Severely Disadvantaged Community (SDAC) residential customer base, the Board would like at least a three-tier water rate structure for residential customers, with the first tier being a lifeline rate, a middle tier for moderate water users, and a third tier (or more) for larger volume water users as well as, a tier for commercial, institutional and irrigation customers;

(2) Rates are adequate to meet debt covenants on $11 million on new CIP debt that will have been incurred by FY2021;

(3) No additional debt-funded CIP is anticipated within the period FY2021-2025. Annual CIP funded by operating cash flow is expected to be less than $300,000/yr.;

(4) The Board wishes to increase its cash reserves by approximately $3 million from its present $4 million in cash reserves by FY2030;

(5) By FY2021, the Board expects to spend approximately $500,000 of its present cash reserves for adjudication of water rights. It wishes to replace these reserves by FY2025;

(6) Given SGMA-mandated groundwater supply constraints, the District wishes to purchase approximately 900 acre-feet (AF) of permanent water rights by 2030 and wishes to have the cash flow necessary to use tax-free public debt to accommodate these purchases;

(7) Under SGMA Groundwater Sustainability Plan (GSP) implementation of Project and Management Actions (PMAs), beginning by not later than FY2022, the District will have to pay a pumping fee for each AF of water pumped. An approach as to how best to apportion the District's share of the projected $16 million in basin-wide GSP implementation costs on an annual or amortized basis will need to be determined as more and more of these annual implementation costs will likely need to be borne by the District as agricultural pumping declines and District pumping allowances governed by SGMA will increase to meet municipal demand;

(8) The Board wishes the consultant to also develop developers' charges appropriate for new Equivalent Dwelling Units (EDUs) added to the District water system in light of SGMA.

Background

One deficit in the District's previous Proposition 218 justified past rates (2016) is that it did not include adequate measures of financial risk or environmental risk that is now made evident by SGMA-supply constraints mandates. Past rates have assumed financial risk and environmental risk from the *critical overdraft* was nearly zero, which was likely the economic situation for the District, neither historically, presently, nor in the future.

Financial Risk is primarily driven by the approximately 3,000 County approved and buildable but unbuilt Equivalent Dwelling Units (EDUs). The County approved these EDUs without due consideration of whether there was sufficient water to serve them. Thus, present County zoning for the District's service area may be unsupportable under SGMA constraints. The District's updated Developer's Policy addresses some of this risk, but does not address the potential cash flow needs of the District between the time it must provide additional water supply and infrastructure for these new EDUs and the time it must make investments in infrastructure or provide a public market for the purchase of new supply for these developable new EDUs. Initial estimates are that rate increases may potentially be needed to generate an additional $1-2 million of reserves over a 20-25 year period to handle the cash flow requirements from this overhang of County approved EDUs, if buildout occurs.

Environmental Risk is primarily driven by the choice of reduction period and velocity of reductions during this period in the Groundwater Sustainability Plan (GSP). Quantifying this Environmental Risk includes:

(a) if the mass storage change during this chosen reduction period exceeds a tipping point for water levels declining in the Central Management Area of the Subbasin, where the majority of District wells are located, this could cost the District as much as $13.5M to re-drill or relocate wells. This is a low probability, high consequence risk to the District;

(b) if the reduction period is too long and a tipping point for water quality is reached for the Central Management Area of the Subbasin, this could potentially cost the District as much as $40M for advanced treatment (infrastructure and O&M costs over the 40-50 year economically useful life of this capital investment). This is a low probability, high consequence risk to the District.

Water Poverty impacts. The present District's rate structure exposes this Severely Disadvantaged Community (SDAC) to water poverty for some of the District's customers. This is where the household expenditure of water (including sewer services) is equal to or more than 3-5% of disposable household

income (the recommended United Nations [UN] standard). The State of California has recently enacted a Human Right to Water Law that establishes the per capital daily indoor water allowance. However, in a desert climate, this allowance does not address water needed for evaporative cooling needs required for indoor living six months of the year in Borrego. Also, some minimal irrigation is necessary for any residential xeriscape landscaping in the desert, without which property values would be severely impacted.

Other Rate considerations

- *Lock-in Effect* – The phenomenon whereby technologies remain dominant as a result of large sunk investment costs, complimentary technologies and widespread usage. The Board does not want to be in the business of paving the cowpaths by ever increasing rate increases to invest in outdated infrastructure. Are there opportunities to alter the cost structure of the District and/or speed-up new, lower cost technology adoption cycles to improve the economic operations of the District?

- *Incentives* – are their programs that when combined with the District's proposed new rate structure and rates, can help its customers get out of or offer some relief from a spiraling rate increase regime? That is, what incentive programs can the District offer its ratepayers to take advantage of that enables ratepayers to invest in end use efficient water appliances (where approximately 30% of residential water is used) and landscaping (where approximately 70% of residential water is used) that lock in water savings? How can the District fund these incentive programs? The Board wishes to consider incentives as part and parcel of any new rate structure and rates offering.

- *Marginal costs* – The extra cost of producing an additional unit of output. This is especially troublesome for calculating Developer's Charges. The District's method of calculating marginal costs does not necessarily correspond to potential cash out costs by the District. Example: the District is required to spend $1.5M for a new well and distribution lines to serve 100 new EDUs that may use less than 5% of this new incremental capacity.

- *Water supply augmentation costs* – the groundwater basin is a common pool resource (characterized by being rival [use of the resource reduces the amount available to others] and non-excludable). However, for the District's purposes, 1 acre-foot of clean water is not necessarily of equal value as 1 acre-foot of agricultural return flows of groundwater that contains agricultural chemicals, salts and other materials that would likely require treatment. This potential externality (the wider impacts imposed on others from private or individual actions that are not necessarily transmitted through market prices) adds to the cost uncertainty of the District's operations.

Profile of the District

The District was established in 1962 as a State of California special district (Water Code § 35565) to provide water and sewer services and flood control and gnat abatement for areas in the Borrego Springs, California community. The District acquired neighboring Borrego Springs Water Company in 1997 and in 2009 acquired Borrego Springs Park Community Services District. The present size of the District's service area is approximately 50 square miles. Borrego Springs is an unincorporated destination community of approximately 3,500 full-time and more than 6,000 winter residents, located in a remote northeast corner of San Diego County, approximately 90 miles drive from San Diego and 87 miles from Palm Springs. Borrego Springs is surrounded by the Anza-Borrego Desert State Park, a park the size of the state of Rhode Island.

The District has 8 active municipal production wells located primarily in the Central Management Area of the Borrego Springs Subbasin connected to approximately 100 miles of distribution lines to serve its approximately 2,073 residential, commercial, institutional, and irrigation customers. The District currently delivers approximately 1,600 acre-feet (521 million gallons) annually to its water services customers. The District also provides sewer collection and wastewater treatment services to approximately 830 customers located primarily in the Town Center, Club Circle and Rams Hill developments. The District's flood control authority is presently exercised only at Rams Hill.

The estimated present replacement cost value of the District's water, sewer collection and wastewater treatment facility infrastructure is approximately $62,500,000. The District's annual revenues are approximately $4,000,000 and in FY2019, it is presently in its first year of a 3-year $5,500,000 bank debt-funded CIP build. Additional information about the District, including past fiscal year audits and rate studies are available on the District's website located at: http://www.bvgsp.org.

BORREGO WATER DISTRICT

BOARD OF DIRECTORS MEETING – JANUARY 29, 2019

AGENDA BILL II.A.5

January 24, 2019

TO: Board of Directors, Borrego Water District

FROM: Geoff Poole, GM

SUBJECT: Alternative Dates and Draft 2019 Town Hall PPT - Director Brecht

RECOMMENDED ACTION:

Discuss alternate dates and Power Point

ITEM EXPLANATION:

Unfortunately, Legal Counsel is not available for the originally planned Town Hall date of Feb 28th (A significant Birthday for Steve). Therefore, staff would like to discuss his participation in the event and if a change in date is needed. In addition, Director Brecht has provided an updated PowerPoint

FISCAL IMPACT

TBD

ATTACHMENTS

1. Draft 2019 Town Hall PowerPoint

FINANCE & ECONOMICS

Town Hall 2019

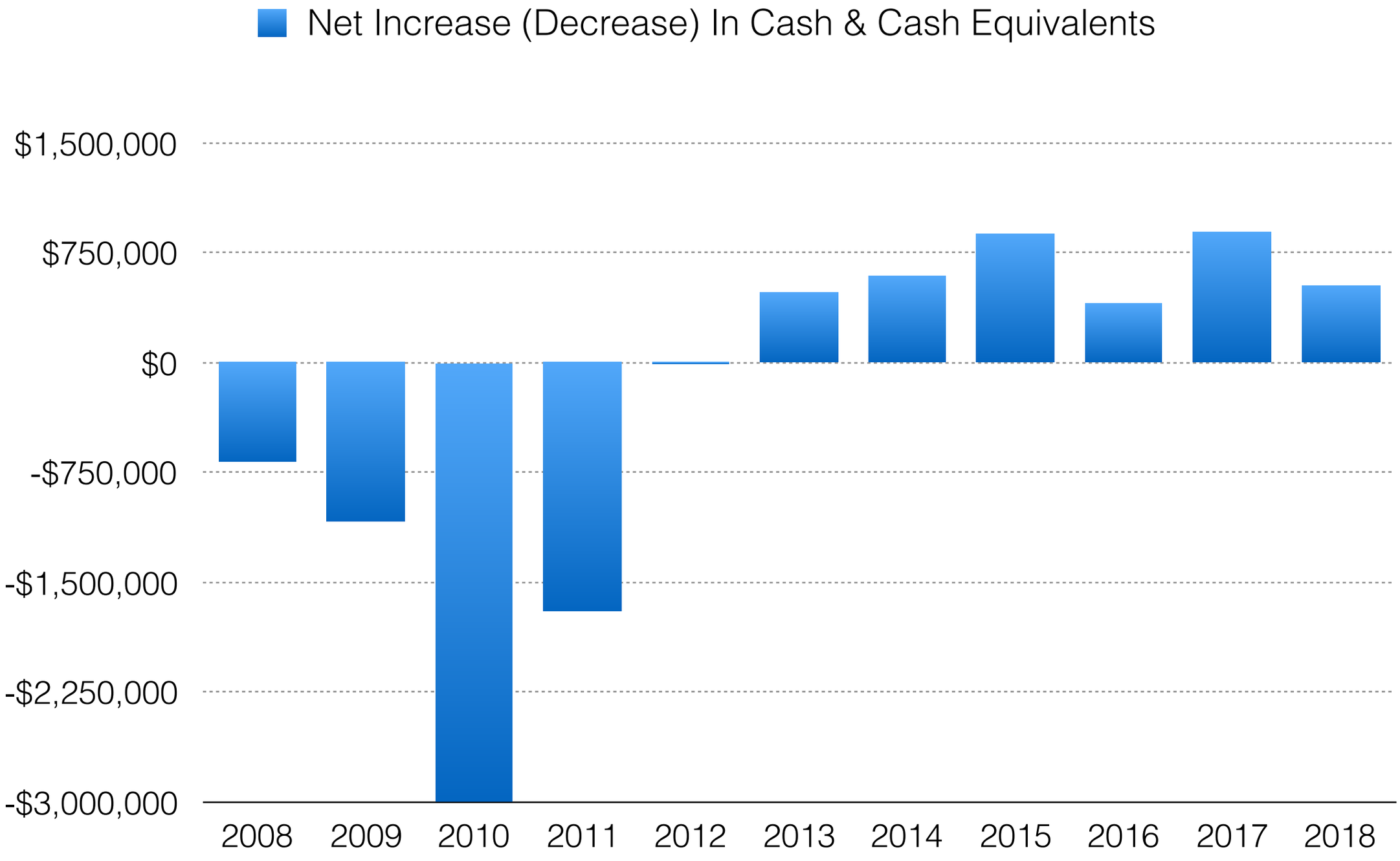
SOME HISTORY - IN FY 2011

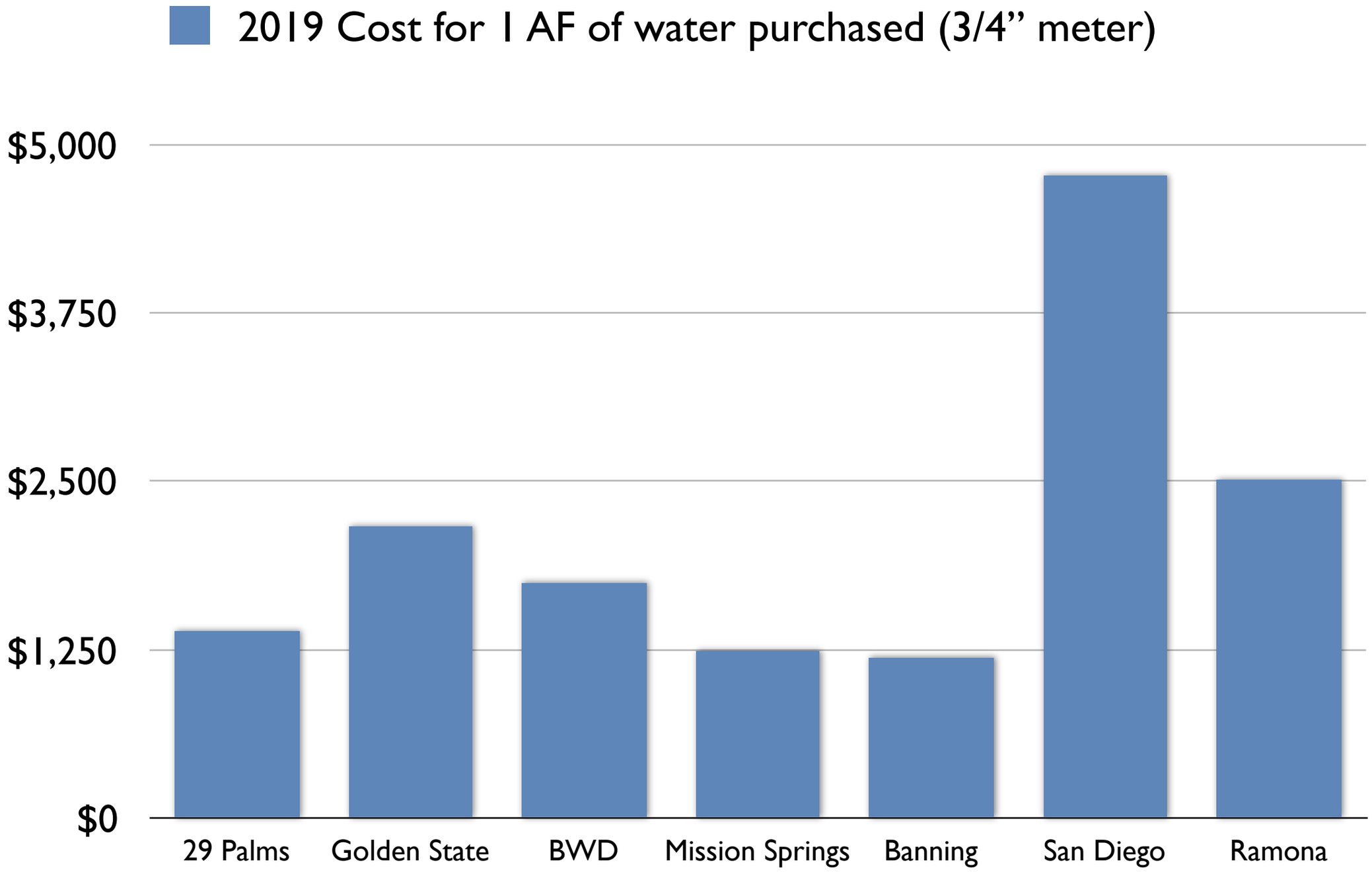
- $200,000 of ~$6.2 million in reserves left; remainder allocated
- ~$1.2 million annual operating deficit
- ~$7.0 million in potential new debt from pre-2011 business deals with no means to pay P&I
- 6 disputes and threats of litigation (est. cost >$1 million)
- no ability to borrow, even short-term (lost all credit)
- no longer-term CIP plan; no cash flow management reporting

BOARD STRATEGIC FOCUS OVER 8-YEARS: TO REGAIN CREDIT

- eliminated $5.5 million of $7.0 million in future debt payment obligations
- refinanced $1.5 million Viking loan saving $1 million in financing costs
- cut $1.2 million in annual operating expenses
- negotiated resolutions with all disputants saving ~$900,000
- conduced 2 Proposition 218s that raised Tier 1 residential commodity rates 200% between FY 2011-2019
- wrote off ~$1.4 million in previously capitalized expenses to clean up Balance Sheet
- developed rolling 10-year CIP; monthly detailed cash flow report; consolidated FY budget
- deferred ~$11.0 million in CIP expenses until credit was restored

Financial Health of the District




2019 Cost for 1 AF of water purchased (3/4” meter)
$5,000
$3,750
$2,500
$1,250
$0
29 Palms
Golden State
BWD
Mission Springs
Banning
San Diego
Ramona

SGMA ECONOMICS

- SGMA is a massive unfunded State mandate
- managing the GW basins in CA is necessary to support continued growth of the State's economy
- bringing the critically overdrafted Borrego Springs Subbasin into sustainable use in a timely fashion is necessary to preserve the future economy of Borrego
- SGMA changes the economics of GW use; for the first time GW itself will have a cost. Today, this is not the case

BORREGO WATER DISTRICT

BOARD OF DIRECTORS MEETING – JANUARY 29, 2019

AGENDA BILL II.A.6

January 24, 2019

TO: Board of Directors, Borrego Water District

FROM: Geoff Poole, GM

SUBJECT: Cyber Security for Municipal Water Utilities – Brecht

RECOMMENDED ACTION:

Discuss information

ITEM EXPLANATION:

Director Brecht wanted to share this information with the Board.

FISCAL IMPACT

TBD

ATTACHMENTS

1. Cyber Information

United States Environmental Protection Agency

Cyber Security 101 for Water Utilities

Many drinking water and wastewater utilities today depend on computer networks and automated control systems to operate and monitor processes such as treatment, testing and movement of water. These industrial control systems (ICSs) have improved drinking water and wastewater service and increased their reliability. However, this reliance on ICSs, such as Supervisory Control and Data Acquisition (SCADA), has left the Water Sector and other interdependent critical infrastructures, including energy, transportation and food and agriculture, potentially vulnerable to targeted cyber attacks or accidental cyber events. A cyber attack causing an interruption to drinking water and wastewater services could erode public confidence, or worse, produce significant public health and economic consequences.[1]

Establishing facility and information access controls, which includes cyber security, is one of the Key Features of an Active and Effective Protective Program. The U.S. Environmental Protection Agency (EPA), in collaboration with the Water Sector, developed the Key Features to strengthen the security and resiliency of water systems in the face of all hazards.

THE KEY FEATURES

1. Integrate protective concepts into organizational culture, leadership and daily operations
2. Identify and support protective program priorities, resources and utility-specific measures
3. Employ protocols for detection of contamination
4. Assess risks and review vulnerability assessments (VAs)
5. **Establish facility and information access control**
6. Incorporate resiliency concepts into physical infrastructure
7. Prepare, test, and update emergency response and business continuity plans
8. Develop partnerships with first responders, managers of critical interdependent infrastructure, other utilities and response organizations
9. Develop and implement internal and external communication strategies
10. Monitor incidents and threat-level information

Types of Cyber Attacks on Water Systems

A cyber attack is an attempt to undermine or compromise the function of ICSs, or attempt to track the online movements of individuals without their permission. Attacks of this type may be undetectable to the water utility or SCADA system administrator but can lead to a total disruption of a water utility's network. Examples of these attacks include:

- **Denial of Service:** Flooding a resource (a network or Web server) with thousands of false requests so as to crash or make the resource unavailable to its intended users
- **Spyware:** Monitors user activity
- **Trojan Horse:** Malicious file or program that disguises itself as a legitimate file or program
- **Virus:** Attaches to existing programs, then replicates and spreads from one computer to another
- **Worm:** Malicious file that replicates itself and spreads to other computers
- **Sniffer:** Monitors information traveling over a network
- **Key Loggers:** Records and transmits keystrokes and transmits to the originator
- **Phishing:** Fake websites or e-mail messages that look genuine and ask users for confidential personal data

1 "Water Security Roadmap to Secure Control Systems in the Water Sector," developed by the Water Sector Coordinating Council Cyber Security Working Group, March 2008.

How Can Cyber Attacks Affect Water Systems?

Cyber incidents can affect water system operations in a variety of ways, some with potentially significant adverse effects to public health and the environment. Examples of potential impacts include:[1]

- Interference with operation of water treatment equipment, causing chemical over- or under-dosing
- Unauthorized changes to programmed instructions in local processors which enable individuals to take control of drinking water distribution or wastewater collection systems potentially resulting in disabled service, reduced pressure flows of water into fire hydrants, or overflow of untreated sewage into public waterways
- Changing or disabling alarm threshold, which could delay detection of intrusion or water contamination

Preventing Cyber Attacks

Water utilities can reduce vulnerabilities from cyber attacks or events by: (1) identifying systems that need to be protected, (2) separating systems into functional groups, (3) implementing layered or tiered defenses around each system, and (4) controlling access into, and between, each group. Utilities should also:

- Institute procedures to limit number of individuals with authorized access to networks
- Update software on a regular basis
- Require strong passwords
- Install and maintain anti-virus software
- Employ intrusion detection systems and firewalls

To be most effective, water utility cyber security programs should build on strong organizational security policies, utility-wide security awareness, and effective personnel and physical security practices.

Highlighting Real-World Cyber Attacks

The following are actual cyber incidents that impacted water utilities and illustrate the types of damages and impacts these attacks can cause:[1]

Queensland, Australia, 2001: Former employee of software development company hacked 46 times into the SCADA system that controlled a sewage treatment plant, releasing over 264,000 gallons of raw sewage into nearby rivers and parks.

Harrisburg, PA, 2006: Foreign hacker penetrated security of a water filtering plant through the Internet. The intruder planted malicious software that was capable of affecting the plant's water treatment operations.

Where to go for additional information on Cyber Security

Additional resources and guidance documents on cyber security applicable to the Water Sector include:

- **Water Security Roadmap to Secure Control Systems in the Water Sector:** Developed by Water Sector Coordinating Council Cyber Security Working Group, in accordance with the Department of Homeland Security's National Infrastructure Protection Plan partnership model: http://www.awwa.org/files/GovtPublicAffairs/PDF/WaterSecurityRoadmap031908.pdf
- **Water Information Sharing and Analysis Center (WaterISAC):** Secure, Web-based clearinghouse that helps water utilities, state and federal agencies, first responders, law enforcement, and public health officials prepare for water service interruptions: https://portal.waterisac.org
- **U.S. Department of Homeland Security, Control Systems Security Programs (CSSP):** Coordinates activities to reduce likelihood of success, and severity of impact, of cyber attacks against critical ICSs: http://www.us-cert.gov/control_systems
- **CSSP's Cyber Security Evaluation Tool (CSET):** Desktop software tool that guides users through step-by-step process to assess their control systems and IT network security practices: http://us-cert.gov/control_systems/satool.html

FOR MORE INFORMATION: EPA is committed to ensuring the Water Sector can access information and tools that enable utilities to enhance the security of their cyber systems. For more information on EPA's support for the Key Features of an Active and Effective Protective Program, visit http://water.epa.gov/infrastructure/watersecurity/features or email WSD-Outreach@epa.gov.

Office of Water (4608-T) EPA 817-K-12-004 www.epa.gov/watersecurity July 2012

BORREGO WATER DISTRICT

BOARD OF DIRECTORS MEETING – JANUARY 15, 2019
AGENDA BILL II A.7

January 15, 2019

TO: Board of Directors, Borrego Water District

FROM: Kim Pitman, Administration Manager

SUBJECT: Springbrook Onsite Utility Billing Training

RECOMMENDED ACTION:

FYI

ITEM EXPLANATION:

Extra training on the Springbrook Utility Billing system

FISCAL IMPACT:

Budgeted $10,000 for this training. Quote for Professional Services is $7,632. Does not include flight, lodging or food. Springbrook will fly in Friday and fly out Friday.

ATTACHMENTS:

Springbrook order form for this training

Borrego Water District, CA- Onsite UB Training
December 21, 2018

Natalie Sowers
Project Manager
503-820-6275
natalie.sowers@sprbrk.com

Springbrook
An Accela Company

Borrego Water District, CA ORDER FORM

Professional Services				
Product Name	Description	Qty	Sales Price	Total Price
PS - Item Professional Services	T&M Services Standard professional services	48.00	$159.00	$7,632.00
			Grand Total:	$7,632.00

Order Detail	
General Information	
Customer Name	Borrego Water District, CA
Customer Contact	Kim Pitman
Customer Address	P.O. Box 1870, Borrego Springs, California, 92004
Governing Agreement(s)	This Order Form is governed by the applicable Springbrook Professional Services terms found at **https://accela.box.com/v/sprbrk-svcs-terms**.
Order Terms	
Order Start Date	Unless otherwise specified in the Special Order Terms, Professional Services start on the date listed in this Order Form, the applicable Statement of Work, or the Governing Agreement, as applicable.
Order Duration	Unless otherwise specified in the Special Order Terms, Professional Services continue for the duration as outlined in this Order Form, the applicable Statement of Work, or the Governing Agreement.
Special Order Terms	In the event of an inconsistency between this Order Form, any governing agreement, purchase order, or invoice, the Order Form shall govern as it pertains to this transaction.
Payment Terms	
Currency	USD
Invoice Date	Unless otherwise stated in the Special Payment Terms, Invoices will be issued monthly as work is performed.
Payment Due Date	Unless otherwise stated in the Special Payment Terms or the Governing Agreement(s), all payments are due on the Invoice Date and payable **net 30 days**.
Special Payment Terms	None unless otherwise specified in this section.

Springbrook
An Accela Company

Borrego Water District, CA – ORDER FORM

Accounts Payable Contact Information *(Required)*	
Name	Kim Pitman
Title	Finance Officer
Phone Number	+1.760.767.5806
Email Address:	kim@borregowd.org
Billing Address	P.O. Box 1870, Borrego Springs, California, 92004
Delivery Address	806 Palm Canyon Dr., Borrego Springs, California, 92004
Method of Invoicing	All invoices will be sent electronically to the Email Address provided above unless otherwise specified in Special Invoicing Needs. .
Special Invoicing Need	Invoice Delivery by Post is Required

Signature Section *(Required)*			
Vendor	Springbrook Holding Company, LLC	Customer	Borrego Water District, CA
Signed By	DocuSigned by: Eric Wells 52E46B0D6A2C47D...	Signed By	
Date	12/21/2018	Date	
Title of Authorized Signatory	Head of Professional Services	Title of Authorized Signatory	Administration Manager
Name (Print) of Authorized Signatory	Eric Wells	Name (Print) of Authorized Signatory	kim@borregowd.org

Additional Signatures Section *(Optional)*			
Customer		Customer	
Signed By		Signed By	
Date		Date	
Title of Authorized Signatory		Title of Authorized Signatory	
Name (Print) of Authorized Signatory		Name (Print) of Authorized Signatory	

Purchase Order Reference *(Optional)*	
If Customer requires PO number on invoices, it **must** be provided to the right and Customer **must** provide Springbrook copy of the PO prior to invoice issuance. If no PO number provided prior to invoice issuance date, invoices issued on this Order Form will be valid without a PO reference.	PO# *(If required)*:

BORREGO WATER DISTRICT

BOARD OF DIRECTORS MEETING – JANUARY 29, 2019

AGENDA BILL II.B.1

January 24, 2019

TO: Board of Directors, Borrego Water District

FROM: Geoff Poole, GM

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

RECOMMENDED ACTION:

Receive Report and Direct Staff as Deemed Appropriate

ITEM EXPLANATION:

Dr Jay Jones prepared the attached Study (originally inserted into the previous meeting) and will be available to present the information and answer any questions.

FISCAL IMPACT
N/A.

ATTACHMENTS

1. ENSI Assessment

January 7, 2019

Mr. Geoff Poole
General Manager, Borrego Water District
806 Palm Canyon Drive,
Borrego Springs, CA 92004

RE: Assessment Of Water Level Decline, Hydrogeologic Conditions, and Potential Overdraft Impacts For Active BWD Water Supply Wells

Dear Geoff,

The following draft Report was produced under our existing contract to provide technical support to BWD for to the Borrego Valley Groundwater Basin Groundwater Sustainability Plan Proposition 1 Grant Project. This Report completes Task 2 in combination with reports dated 9/12/2018 and 12/7/2018, and provides supporting data for Task 3 specific to the assessment of overdraft impacts on BWD's water supply.

Subsequent analyses are in process that will build from this Report to examine the effect of overdraft on BWD supply well production rates and water quality.

Thank you for your time and attention.

Sincerely,

Jay W. Jones
CA PG#4106
Environmental Navigation Services Inc.

ASSESSMENT OF WATER LEVEL DECLINE, HYDROGEOLOGIC CONDITIONS, AND POTENTIAL OVERDRAFT IMPACTS FOR ACTIVE BWD WATER SUPPLY WELLS

OVERVIEW

The purpose of this Report is to assess groundwater elevation decline trends for the Borrego Water District's (BWD) nine water supply wells[1], examine well-specific hydrogeologic conditions at the well locations, and assess the potential impact of overdraft on future water production. Measured groundwater elevations at the nine BWD wells are reviewed in combination with model-predicted groundwater elevations to assess ongoing water level decline at the BWD wells. Site specific drilling logs, measured groundwater level data, and model-calculated groundwater elevation data are evaluated in the context of the hydrogeologic characterization developed in the USGS Model Report[2]. An analysis of potential aquifer productivity at BWD wells is then developed based on an evaluation of how aquifer transmissivity[3] changes as a function of water level using the aquifer geometry and hydraulic parameters from the USGS Model Report.

The overall intent of this analysis is to examine the potential impact of overdraft on BWD water supply wells and provide technical support to assess the uncertainty associated with water level trend analyses and predictions for individual BWD water supply wells. Specific objectives include:

1) Construct and evaluate hydrographs depicting measured groundwater levels and model-predicted groundwater levels at each well, and examine water level decline trends at each BWD water supply well.

2) Develop lithologic logs for each of the BWD wells as derived from driller's logs and available detailed geologic cross-sections and related studies. Use the interpreted logs to compare local well conditions to the larger-scale hydrogeologic parameters used in the USGS Model [USGS Model Report, 2015].

3) Compare the hydrographs and model-based water level predictions to the lithologic logs to provide an understanding of well-specific hydrogeologic conditions at BWD's nine water supply wells.

4) Use the model aquifer geometry and local hydraulic conductivity values to calculate aquifer transmissivity, a measure of aquifer productivity, for each BWD well location. Based on observed water level decline, calculate the change in transmissivity as a function of aquifer saturation to assess how overdraft will potentially affect BWD water supply well production.

[1] There are currently eight active water supply wells and one reserve well (see **Table 1**).

[2] [USGS Model Report, 2015] Faunt, C.C., Stamos, C.L., Flint, L.E., Wright, M.T., Burgess, M.K., Sneed, Michelle, Brandt, Justin, Martin, Peter, and Coes, A.L., 2015, Hydrogeology, hydrologic effects of development, and simulation of groundwater flow in the Borrego Valley, San Diego County, California: U.S. Geological Survey Scientific Investigations Report 2015–5150, 135 p., http://dx.doi.org/10.3133/sir20155150

[3] Transmissivity is a hydraulic parameter defined as the product of the hydraulic conductivity times the aquifer thickness. As further described in this Report, decreases in transmissivity are occurring due to overdraft.

ASSESSMENT OF WATER LEVEL DECLINE, HYDROGEOLOGIC CONDITIONS, AND POTENTIAL OVERDRAFT IMPACTS FOR ACTIVE BWD WATER SUPPLY WELLS

The Borrego Springs Subbasin (Subbasin) of the Borrego Valley Groundwater Basin has been declared by the California Department of Water Resources (DWR) to be in a state of critical overdraft and is subject to the Sustainable Groundwater Management Act (SGMA). Per SGMA "A basin is subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts."[4] Pursuant to SGMA a Groundwater Sustainability Plan (GSP) is currently under development[5] for the Subbasin.

Water level and pumping rate measurements will provide the primary data to monitor overdraft and the effectiveness of pumping rate reductions under the GSP. The USGS's numerical model and supporting information contained in the USGS Model Report provide supporting insights specific to future groundwater conditions data to assess water level decline due to ongoing overdraft. The model was designed and calibrated to evaluate groundwater levels across the ~88 mi^2 Subbasin. It discretizes the aquifer system into three layers described as the upper, middle, and lower aquifers. Each of the model layers are composed of 2,000 x 2,000 ft cells (~92 acres/ 0.15 mi^2) that average hydrologic properties at a much larger scale than occurs at individual wells. As a result, approximations and averages are used at a scale broader than the immediate area surrounding individual BWD water supply wells. The analysis provided in this report is intended to be used, in part, to support the application of the model at the scale of the BWD wells.

Evaluation of the relationship between individual well production and BWD's water storage and distribution system is not included in this report. BWD's current water supply system consists of six pressure zones further described in a Dudek report entitled *Proposition 1 SDAC Grant Task 5 Water Vulnerability/New Extraction Well Site Feasibility Analysis* (dated 12/21/2018). Also included in the 12/21/2018 report is information regarding the physical condition of BWD's wells, evaluations of well longevity, and recommendations for well replacement.

Water quality has also been changing over time at BWD wells. This Report focuses on water production- for supporting details please refer to an ENSI Report entitled *Water Quality Review and Assessment: Borrego Water District (BWD) Water Supply Wells*, dated 12/7/2018.

[4] See: https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118/Critically-Overdrafted-Basins

[5] The GSP is being developed by the Groundwater Sustainability Agency (GSA) that consists of the County of San Diego and the Borrego Water District. See overview at: https://www.sandiegocounty.gov/pds/SGMA.html

The following sections are included in this Report:

Section 2 of this Report provides an overview of aquifer conditions and includes hydrographs for each of the BWD wells. Water quality is not discussed- a review of water quality conditions for the BWD water supply wells is included in a separate ENSI report dated 12/7/2018.

Section 3 examines hydrogeologic conditions at each of the wells and compares the local, well-specific information to conditions described in the larger-scale groundwater model developed by the US Geological Survey. Generalized well logs are developed for each of the BWD wells based on driller's logs

Section 4 examines how the aquifer productivity will decrease as water levels decline due to critical overdraft. Here an analysis of the aquifer transmissivity, a measure of aquifer productivity, is used to examine how the wells will be affected over time under current rates of water level decline.

1.0 WELLS USED IN THIS ANALYSIS

The focus of this Report is on the assessment of eight active and one reserve BWD water supply wells (**Table 1, Figure 1**). The wells have been segregated by management areas as established in prior work by Dudek (North/Central/South; see the GSP for details).

TABLE 1

Management Area	Well Name	GSA GWM Well	Status	Year Installed	GPM	Static Water Level (ft)	Draw Down (ft)	GPM/Ft ***	Plant Efficiency ****	Well Depth (ft)
North	**ID4-4***	Yes	Active	1979**	395	205.4	63.5	6	71	802
	ID4-11	Yes	Active	1995	920	223.2	5.8	159	73	770
	ID4-18*	Yes	Active	1982	130	311.2	7.6	17	50	570
Central	**ID1-10***	Yes	Active	1972	317	213.9	11.5	28	54	392
	ID1-12	No	Active	1984	890	145.5	10.4	86	72	580
	ID1-16	Yes	Active	1989	848	230.9	24.3	35	71	550
	ID5-5	Yes	Active	2000	542	182.1	16.1	34	62	700
	Wilcox	Yes	Stand-by	1981	205	305.2	5.8	35	NA	502
South	**ID1-8**	Yes	Active	1972	448	71.2	47.7	9	51	830

Notes:
Data from 2018 Pump Check Results (see **Appendix A**)
*, wells being considered for replacement (currently three: ID4-4, ID4-18, and ID1-10)
**, ID4-4 was redrilled/deepened in 1979
***, gpm/ft calculated from Pump Check data
****, Plant Efficiency from Pump Check, in percent.
Values less than 60% are viewed to be of concern.

Note that BWD well locations do not fully represent hydrologic conditions within the Borrego Subbasin as they are located in populated areas within their historical service areas (or Improvement Districts [ID] as indicated by the well names) (**Figure 1**).

1.1 BWD Well Production and Demand

BWD currently serves approximately 1600 acre-feet of water per year (2017 Consumer Confidence Report[6] dated July 1, 2018). This is equivalent to a continuous pumping rate of 992 gpm. The total pumping capacity of the wells listed in **Table 1** is 4,695 gpm. Water supply wells are typically operated 8 to 12 hours per day so BWD's operating capacity is on the order of 1,565 to 2,348 gpm, approximately 1.6 to 2.4 times the current demand (992 gpm). This overview assessment focuses on BWD's water supply wells and does not account for the ability of BWD's water distribution system to store and transmit water to meet customer demand. Please refer to Dudek's 12/21/2018 Report for further system-specific details.

It is understood that well ID4-4 is in poor condition and will be replaced in 2019 at its existing location. It is likely that the new well will be more efficient and have a higher pumping capacity. It is also understood that well ID1-10 will be replaced in 2019 at new well location yet to be finalized but within the Central Management Area. Like ID4-4 it is being replaced due to it being in poor condition, and a replacement well will also be likely to be more efficient and have a higher pumping capacity.

Well ID4-18 is also reportedly in poor condition and is the lowest yielding BWD well per **Table 1**. However, it is understood that it currently serves a very small water demand in the northern portion of BWD's service area. Because it is able to meet the demand ID4-18 will likely not be replaced in the near future.

1.1.1 Future Water Demand

BWD's service area includes many undeveloped residentially- and commercially-zoned parcels that, when developed, will require water. Potential future water demands were assessed in a Dudek report entitled *BWD Theoretical Water Demand at Buildout of Present Unbuilt Lots Under County's Current Zoning in Borrego Springs*, dated October 4, 2016. The Report states:

"Under the County's current zoning there are 4,439 vacant and undeveloped parcels that could be converted to residential development and 526 vacant and undeveloped lots that could be converted to commercial, industrial, office space, rural commercial, open space, public agency, or public/semi-public facilities (County of San Diego 2011a). Because an undetermined number of lots do not have legal lot status and because many of the lots are not developable due to environmental and other physical constraints, it was assumed that development of approximately 3,000 residential units would approach maximum buildout of the Borrego Valley. To estimate increased demand for commercial and other user types, it was conservatively assumed that their

[6] See BWD website: http://nebula.wsimg.com/c30a61991a5160ddf5e577fe9f7b3c01?AccessKeyId=D2148395D6E5BC38D600&disposition=0&alloworigin=1

demand would increase proportionally to their existing percentage of the overall demand as growth occurs in Borrego Springs.

Full General Plan buildout of legal lots given constraints was presumed to add an additional 3,000 residential, 215 commercial, 108 public agency, 207 irrigation, and 179 multiple unit EDUs to the basin for a total of 6,811 EDUs at buildout of the Borrego Valley. A conservative estimate of future water demands was estimated by applying the current residential EDU water demand of 0.55 acre-feet per account. This results in a future estimated 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[7]."

Dudek's report concluded with three findings that are copied below:

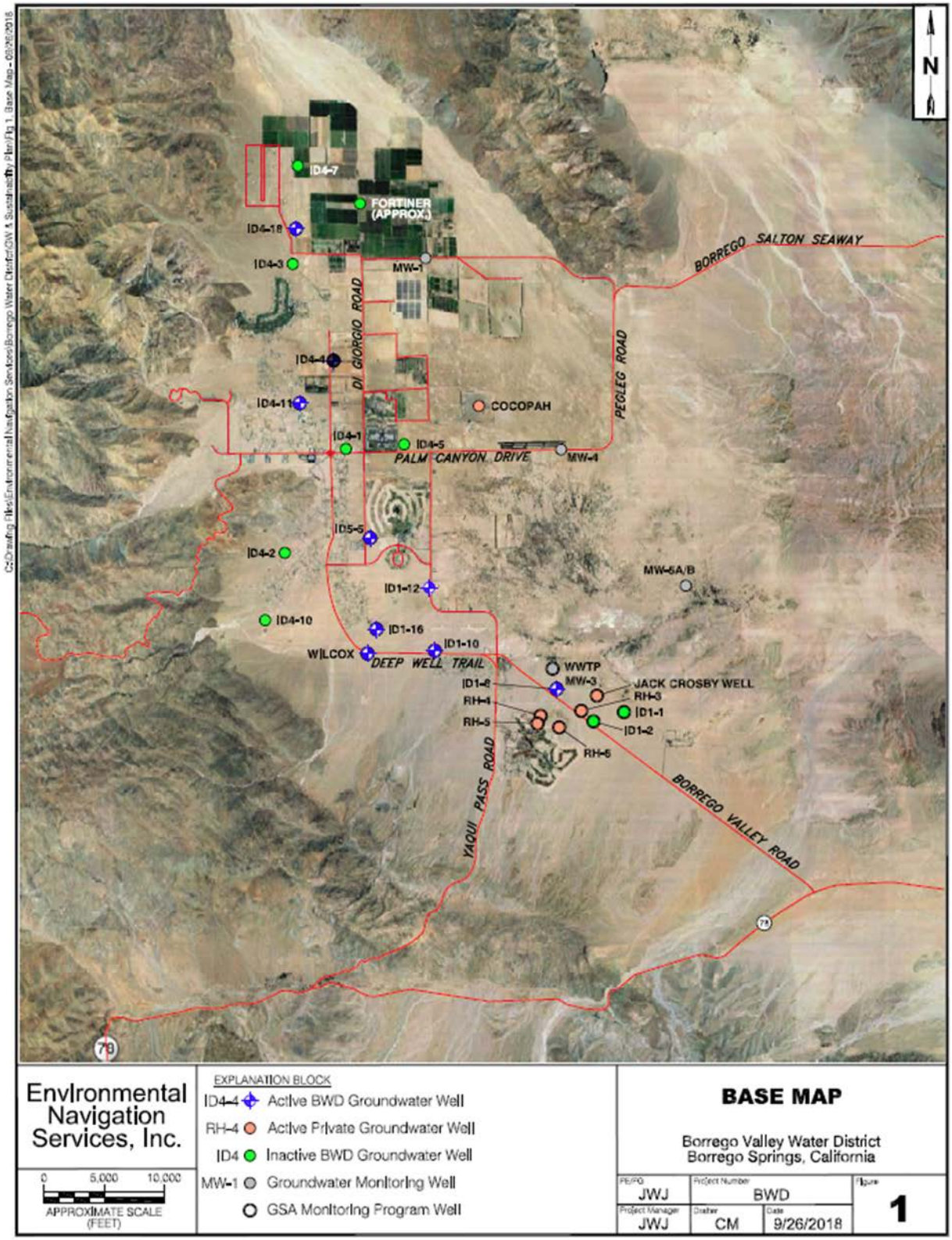
- *"Present County zoning for the BWD's service area may be unsupportable under SGMA constraints. Even with drastic reductions in residential EDU, it is uncertain that municipal demand can be met, given current competition with agriculture, recreation, and other water users of the basin, including potential environmental water necessary to maintain the groundwater system.*

- *Existing County General Plan assumptions need to be reevaluated given physical water constraints under SGMA.*

- *Any up-zoning in the BWD's service area would necessarily require as preconditions significant down-zoning of existing properties given physical constrains of available groundwater supply to meet municipal demand at buildout of Borrego Springs. Otherwise, an up-zoning without first meeting these preconditions would create a significant contingent liability for the BWD and its ratepayers as well as potentially difficult litigation risk due to the District's cost to purchase water and potential inability to provide potable water to the up-zoned property due to SGMA constraints. In other words, upfront mitigation for new development is required to offset the condition of overdraft in the BVGB."*

Clearly the estimated future demand cannot be met with BWD's current water supply as the total water demand could potentially triple. This Report will focus on BWD's existing wells independent of any SGMA considerations and defers to the GSP for further analysis of how population growth will be accommodated under SGMA.

[7] Report Footnote 3: "*This estimate of the theoretical municipal water demand at buildout of present unbuilt lots under the County's current zoning in Borrego Springs is based on the current residential water use per EDU of 0.55 acre-feet per year, the existing distribution of user types, and an assumed additional 3,000 residential units at buildout. It is recognized that change in the water use per EDU and change in the distribution of user types will vary the actual municipal water demand.*"


C:\Drawing Files\Environmental Navigation Services\Borrego Water District\GW 1 Sustainability Plan\Fig 1 Base Map - 09/26/2018
N
ID4-7
FORTINER (APPROX.)
ID4-18
ID4-3
MW-1
BORREGO SALTON SEAWAY
DI GIORGIO ROAD
PEGLEG ROAD
ID4-4
ID4-11
COCOPAH
ID4-1
ID4-5
PALM CANYON DRIVE
MW-4
ID5-5
ID4-2
MW-6A/B
ID1-12
ID4-10
ID1-16
ID1-10
WILCOX
DEEP WELL TRAIL
WWTP
MW-3
ID1-8
RH-4
RH-5
JACK CROSBY WELL
RH-3
ID1-1
ID1-2
RH-6
YAQUI PASS ROAD
BORREGO VALLEY ROAD
78
Environmental Navigation Services, Inc.
0 5,000 10,000
APPROXIMATE SCALE (FEET)
EXPLANATION BLOCK
ID4-4 Active BWD Groundwater Well
RH-4 Active Private Groundwater Well
ID4 Inactive BWD Groundwater Well
MW-1 Groundwater Monitoring Well
GSA Monitoring Program Well
BASE MAP
Borrego Valley Water District
Borrego Springs, California
PE/PG JWJ
Project Number BWD
Project Manager JWJ
Drafter CM
Date 9/26/2018
Figure 1

2.0 HYDROGEOLOGIC CONDITIONS AND CONCEPTUAL MODEL

This section provides an overview of the current hydrogeologic conceptual model for the Subbasin's aquifer system. More comprehensive presentations and discussions of hydrogeologic conditions are presented in the GSP.

Reports to date generally describe the Subbasin as consisting of three unconfined aquifers named the upper, middle, and lower aquifers. The upper and middle aquifers are the primary sources of water currently in use and are comprised of unconsolidated sediments. The lower aquifer sediments become consolidated with depth and have been subject to folding and faulting. The effects of overdraft are primarily seen in the upper aquifer as much of this portion of the aquifer system has been dewatered. It is generally understood that the productivity of the aquifer system decreases with depth from declines in both the hydraulic conductivity (the relative rate of flow to a well for a given amount of drawdown) and in the aquifer storativity (the amount of water that will be produced from the aquifer in response to a drop in water level).

The types and distribution of sediments that occur in the aquifer system are related to the geologic conditions that formed the sediments. The USGS Model Report generally depicts the Borrego Subbasin geology as initially described by Moyle, 1982[8]. The three aquifers were described by the USGS as follows (USGS Model Report, page 31):

"The upper aquifer is the regional water-table aquifer and consists of the saturated part of the alluvium (Quaternary gravels [Qg] of Dorsey, 2002). Historically, it has been the principal source of groundwater in Borrego Valley and yields as much as 2,000 gallons per minute (gal/min) to individual wells (Mitten and others, 1988[9]). The upper aquifer is composed of Holocene to Pleistocene age alluvial, fan, playa, and eolian deposits. These deposits are composed of unconsolidated sand, gravel, silt, and clay (Mitten and others, 1988). The upper aquifer ranges in thickness from 0 to 643 ft (table 2) and is thickest at the north end of the valley where Coyote Creek enters the basin. It thins to the southeast and is only about 50 ft thick near the Borrego Sink (Mitten and others, 1988) (fig. 10A).

The middle aquifer is composed of the upper part of Pleistocene age continental deposits. Moyle (1982) correlated the middle aquifer with the upper Palm Spring Formation/upper QTc. The middle aquifer yields moderate quantities of water to wells, but is considered a non-viable source of water south of San Felipe Creek because of its diminished thickness (Mitten and others, 1988). Descriptions on well logs penetrating these deposits indicate that the deposits range in size from

[8] Moyle, W. R., 1982, Water resources of Borrego Valley and vicinity, California; Phase 1, Definition of geologic and hydrologic characteristics of basin: U.S. Geological Survey Open-File Report 82–855, 39 p.

[9] Mitten, H.T., Lines, G.C., Berenbrock, Charles., and Durbin, T.J., 1988, Water resources of Borrego Valley and vicinity, California, San Diego County, California; Phase 2, Development of a groundwater flow model: U.S. Geological Survey Water-Resources Investigation Report 87–4199, 27 p.

gravel to silt with moderate amounts of consolidation and cementation and that the predominant grain sizes range from medium sand to clay (Moyle, 1982). The middle aquifer is as much as 908 ft thick (table 2) in the northern part of the valley, but it thins substantially in a southeasterly direction (Mitten and others, 1988) (fig. 10B).

The lower aquifer includes the combined deposits of the lower Palm Spring and Imperial Formations (Moyle, 1982; Henderson, 2001). The lower aquifer yields only small amounts of water to wells (Moyle, 1982); it is composed primarily of partly consolidated siltstone, sandstone, and conglomerate in the lower part of the continental deposits (Mitten and others, 1988). The separation of the middle and lower aquifers is based on drillers' log descriptions of "hard, dry, red clays" that extend over the southern half of Borrego Valley at increasing depth to the north. Drillers' logs indicate sediments above the red clays are easy to drill, whereas those below the red clay are hard to drill (Moyle, 1982). On the basis of the most recent interpretations of gravity data, this aquifer is as thick as 3,831 ft (table 2) and is thickest in the eastern part of the valley (figs. 9, 10B, 10C)."

Review of the USGS Model Report indicates that the aquifer details were developed for the model as follows:

- Began with the three-layer aquifer geometry primarily based on work done by Moyle (1982) and Mitten et al (1988).

- Reviewed 230 well and driller logs and interpreted sediment types and grain sizes from the logs. Based on the interpretation developed a data base with grain size distributions. "*Each lithologic log was divided into discrete binary texture classifications of either coarse-grained or fine-grained intervals on the basis of the description in the log (table 3).*"

- The hydraulic properties of each layer (upper/middle/lower aquifer) were then estimated based on grain sizes. "A *2-D geostatistical model, both incorporating kriging and cokriging methods, was used to interpolate*[10] *the percentage of coarse-grained deposits of the nearest wells onto a 2,000-ft grid across each aquifer for the entire study area.*" The results were used to create 14 roughly concentric zones per layer for model parameter estimation. The zones are vertically contiguous across the three layers in the model.

- Refinement of layers and hydraulic properties based on review of groundwater model calibration results where parameter refinement was done to improve the model's ability to match historical water levels.

[10] Ed: In simple terms a map was made by using known values of sediment grain size and estimating the value across the groundwater model grid. The estimates were determined using a multi-step process where each point estimate is a linear combination of nearby points. Please refer to the USGS Model Report for additional details.

In contrast to the USGS's geostatistical approach, hydrogeologic stratigraphic analysis was conducted as part of SDSU graduate student research for the Borrego Valley (Netto, 2001[11]). He has a different aquifer interpretation than that used in the USGS Model Report as follows (Netto, page 37):

"The conceptualization of hydrostratigraphic units described above is different from the previous conceptualization made by the USGS (Moyle, 1982), which has since been the basis for other groundwater modeling and water resource studies in Borrego Valley (DWR, 1984b; Mitten, 1988). Moyle (1982) described a three-aquifer system corresponding to the alluvium, upper Palm Spring Formation, and the combined lower Palm Spring and Imperial Formations, respectively. Each unit was described as uniform, with no variation of the physical characteristics within any of the three units. In this current study, the alluvium, comprising the upper aquifer of Moyle (1982), has been divided into three separate hydrostratigraphic units, each with varying physical characteristics based on the distribution of soil texture within the alluvium. The middle and lower aquifers of Moyle (1982), have been combined into one unit, partly because sufficient data is lacking to make clear distinction between separate hydrostratigraphic units within the Palm Spring Formation and potentially underlying Imperial Formation, and also because groundwater production from this unit is limited to relatively shallow portions of the Palm Spring Formation from a limited area in southern Borrego Valley. The current model has increased the definition of the hydrostratigraphy in the principal water bearing portions of the aquifer system, namely the alluvial aquifer."

Netto's conclusions further explain the difference in the hydrostratigraphic interpretation (page 136):

- *"The geologic materials found within the groundwater basin include Tertiary rocks, predominantly the Palm Spring formation, and Quaternary alluvium. The Quaternary alluvium has been divided into older, intermediate and younger alluvium and is mostly comprised of alluvial fan and intermittent stream deposits, as well as some lacustrine deposits found within the intermediate alluvium."*

- *"The aquifer system is comprised of four hydrogeologic units of Quaternary and Tertiary age. The uppermost three units are the Quaternary Alluvium, designated as younger, intermediate and older, each with varying hydraulic properties. The oldest and lowermost unit is the Tertiary Palm Spring Formation. The hydrogeologic units are underlain by the Cretaceous and older crystalline basement rocks."*

[11] Netto, S.P., 2001, Water Resources of Borrego Valley San Diego County, California: Master's Thesis, San Diego State University, 143 p.

- *"The Quaternary older alluvium is the principal water-bearing unit of the aquifer. It is relatively coarse grained and is thickest in the northern portion of the basin."*

The USGS Model Report includes multiple references to Netto (2001) but describes the work as a water resources study (page 9) and defers to Moyle (1982) as their primary guidance for the aquifer designations and interpretation. While a direct comparison of the two approaches has not been developed for this report, Netto's hydrogeologic cross-sections have been used to support review of the BWD well conditions by comparing the developed detailed geologic cross-sections and lithology maps to the driller's well logs.

The upper aquifer in the vicinity of the BWD water supply wells has been extensively dewatered as a result of ongoing overdraft. Thus, future water production will increasingly need to rely on the middle and lower aquifers. Historically the upper aquifer was the primary water source and most of the wells and drilling-related data have focused on the upper aquifer. As a result comparatively less data are available for the middle and lower aquifers.

A significant question specific to BWD wells is whether the water production from the sediments of the middle aquifer will decrease with depth, leading to lower water production rates as water levels decline with ongoing overdraft. The USGS Model is a finite element model that discretizes the aquifer using a square grid of cells, assigns one set of hydraulic properties per 92-acre cell, and assumes that each of the aquifer "blocks" per layer is homogeneous. Thus, the hydraulic properties within each layer do not vary with depth. **Section 3** includes an analysis of lithologic conditions at each of the BWD well used to assess potential variations within the aquifer system that may affect future well performance. Further refinement of the Subbasin-wide hydrostratigraphy and aquifer conditions is beyond the scope of this report.

2.1 Aquifer Properties Assigned to the Groundwater Model at BWD Wells

Aquifer properties assigned to each layer of the USGS Model at the nine BWD well locations have been compiled and provided to ENSI by Dudek staff (**Table 2**). The model discretizes the aquifer into 92-acre cells and the cell properties for each BWD well location include the hydraulic conductivity (ft/day) and specific yield (dimensionless). These values correspond to how quickly water will flow through the aquifer under a unit hydraulic gradient and the water volume (ft^3) that will be released from one-cubic foot of water subject to a one-foot water level drop, respectively. Lower values of either parameter correspond to lower production rates. The ratio of the parameters is indicative of how the well will produce water with increasing depth.

Table 2. Model Parameters at BWD Well Locations (per Modflow cell)

Parameter	ID4-4	ID4-11	ID4-18	ID1-10	ID1-12	ID1-16	ID5-5	Wilcox	ID1-8
Hydraulic Conductivity of Layer 1 (ft/day)	41.77	41.27	97.15	82.61	56.99	96.62	71.39	97.24	56.00
Hydraulic Conductivity of Layer 2 (ft/day)	3.92	4.49	5.87	5.26	5.67	6.35	5.13	6.15	1.15
Hydraulic Conductivity of Layer 3 (ft/day)	0.54	0.92	0.52	0.28	0.12	0.80	0.85	0.78	0.16
Specific Yield Layer 1	0.30	0.30	0.08	0.07	0.11	0.08	0.05	0.08	0.11
Specific Yield Layer 2	0.03	0.03	0.05	0.03	0.03	0.05	0.20	0.05	0.03
Specific Yield Layer 3	0.04	0.04	0.08	0.04	0.04	0.08	0.03	0.08	0.04
Thickness of Layer 1 (feet)	292	233	392	125	123	188	184	259	120
Thickness of Layer 2 (feet)	420	268	908	222	286	147	274	71	125
Thickness of Layer 3 (feet)	221	300	0	1516	1821	939	1509	601	1538
Elevation of Top of Layer 1 (Feet above MSL)	597	613	692	561	528	643	561	725	531
Elevation of Top of Layer 2 (Feet above MSL)	305	381	300	436	405	454	377	466	411
Elevation of Top of Layer 3 (Feet above MSL)	-114	113	-608	214	119	308	103	394	286
K layer 1: layer2	11	9	17	16	10	15	14	16	49
S layer 1: layer2	9.1	9.1	1.8	2.4	3.6	1.8	0.3	1.8	3.6
K layer 2: layer 3	7	5	11	19	49	8	6	8	7
S layer 2: layer 3	0.9	0.9	0.6	0.8	0.8	0.6	6.8	0.6	0.8

FIGURE 2

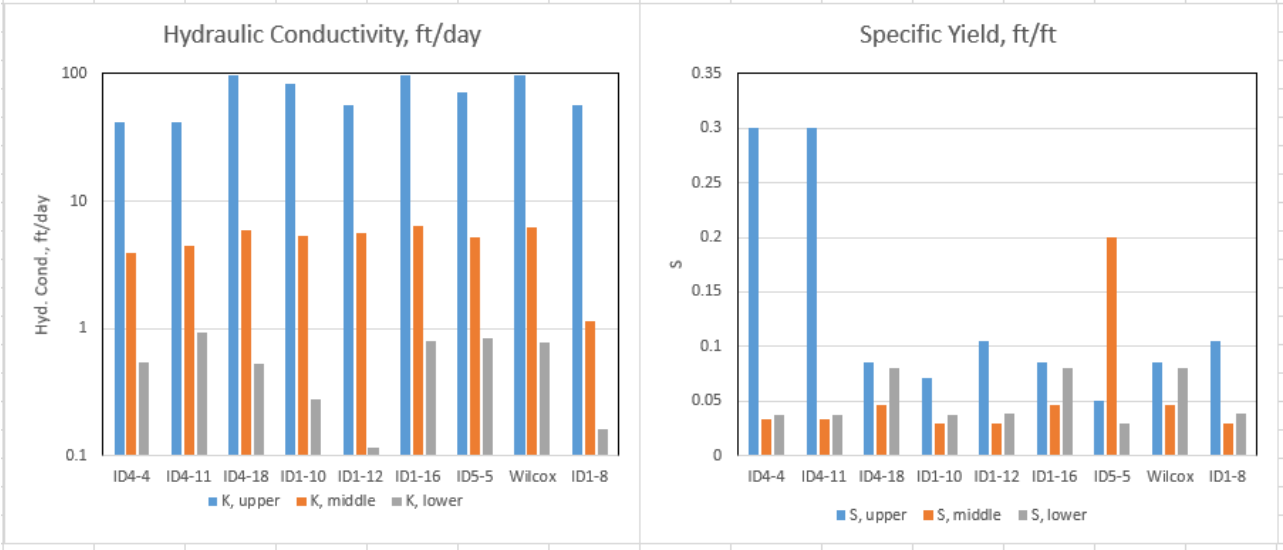


Figure 2 depicts the hydraulic parameters. Hydraulic conductivities consistently decrease with depth at all well locations. Here the values are shown on logarithmic scale because they decrease by factors of 10 from layer to layer. Specific yield values in the middle and lower aquifers are more similar in magnitude versus the upper aquifer and are shown linearly.

The aquifer parameter values are generally consistent with the conceptual model for the aquifer system where water production rates and the amount of groundwater in storage decrease with depth. Here, the sharp drop in hydraulic conductivity with depth at aquifer boundaries means that the wells, as simulated in the model based on their interpretation of well log data, will have decreasing production rates with depth. Further the model parameters illustrate that the loss of the upper aquifer because of overdraft is very significant in that the upper aquifer can support much higher production rates than the middle aquifer. Production from the middle aquifer, in turn, will be significantly better than expected from the lower aquifer.

Aquifer parameter measurements normally obtained through controlled aquifer testing are in short supply. The well-specific hydraulic parameters listed in **Table 2** were developed by the USGS based on interpretation of lithologic descriptions based on driller's logs and calibration of the numerical model. While the process likely results in reasonable estimates of the hydraulic parameters, none of the values are based on well-specific aquifer test results. The lack of well-specific hydraulic test data represents a major data gap toward the understanding of aquifer conditions with depth at BWD water supply wells.

2.2 BWD Water Supply Wells: Water Level Hydrographs and Observed Long-Term Water Level Decline

Observed groundwater elevations at the nine BWD wells and model-estimated groundwater elevations calculated as part of the Groundwater Model Update by Dudek are presented in hydrograph plots (**Figures 3 to 12**). Dudek's update used the calibrated USGS model (1945 to 2005) and incorporated additional hydrologic data to extend the model period through 2016.

In the larger perspective the model generally replicates the overall decrease in water levels and loss of groundwater from storage that has been and continues to occur in the Subbasin due to overdraft. The differences between the observed and modeled groundwater elevations over time are depicted for eight of the nine BWD water supply wells (**Figure 3**). Groundwater elevation decline observed at each of the BWD wells has ranged from 20 to 89 feet for each of the wells. The water level elevation decline rates observed in eight of the nine wells over the past decade range from 0.6 to 4.5 feet/year based on linear trends fitted to the water level data (**Table 3**). Well ID1-10 is an exception and has exhibited a rise in groundwater elevation over the past 10 years.

Comparison of the observed and model-calculated water level elevations can be used to support the use of the groundwater model at BWD well locations. The model works to provide a statistically-based 'fit' of observed and predicted water levels and tends to average conditions across the Subbasin. As a result, while the model provides a Subbasin-wide assessment of hydrologic conditions, local water level elevations calculated by the model can be higher or lower than those observed by water level elevations obtained by measurements at the wells. If the water level elevations calculated by the model are lower than observed, the model is said here to overestimate water level declines and thus overestimate overdraft. From a BWD management perspective this means that the use of the model is protectively conservative and allows for a margin of error. Conversely, if the model-calculated water levels are higher than those observed at a well the model is said to underestimate water level decline and overdraft. In both cases the understanding of model behavior can be used to support the localized use of the model.

The USGS Model was calibrated[12] by the USGS for the period of 1945 to 2010. It was updated by Dudek where the hydrologic parameters such as recharge and pumping were added for the

[12] Ed: Calibration specific to the hydrograph analysis refers to the process where the model parameters are adjusted to improve the match between observed and model-predicted water levels. It is a large-scale model so the calibration will locally over- and under-estimate water levels with to statistically obtain a 'best fit' across the Subbasin. As noted in the Model Report (page 99) "Although the model was designed with the capability of being accurate everywhere, the conceptual and numerical model still retains simplifications that could restrict appropriate use of the current model to regional and sub-regional spatial scales and within seasonal to inter-annual temporal scales. Potential future refinements and enhancements could improve the level of accuracy and the spatial and temporal resolution."

period of 2011 to 2016 without changing the aquifer parameters (hydraulic conductivity, specific yield, etc.). Nine wells were analyzed:

- The model overestimates water decline when compared to water level elevation measurements at five wells. The following wells are listed in the order of increasing magnitude: ID1-5, ID4-4, ID4-18, ID4-11, and ID1-8. Increasing trends were observed in four of these five wells. The exception, as illustrated by **Figure 3**, is ID4-4 where the difference between modeled and measured groundwater elevations started decreasing in 2014 and becoming more accurate over time.

- The model matches observed water level elevations reasonably well at ID1-12.

- The model underestimates water level decline over time at two wells; ID1-16 and Wilcox. Increasing trends over time were observed at these wells.

- Model-predicted and observed groundwater elevations have dissimilar trends at ID1-10, and the differences between observed and predicted groundwater elevations are at times greater than 50 feet so it has not been included in **Figure 3**. Measured groundwater elevations vary greatly over the monitoring period, observed water levels have been rising at ID1-10 since 2008, and groundwater model predictions of this variability has been poor (see **Figure 4**). The cause of the water level rise is not known. It is known that this well is in poor condition and it is scheduled to be replaced in 2019.

- All of the wells have experienced long-term water level decline that is generally captured by the model.

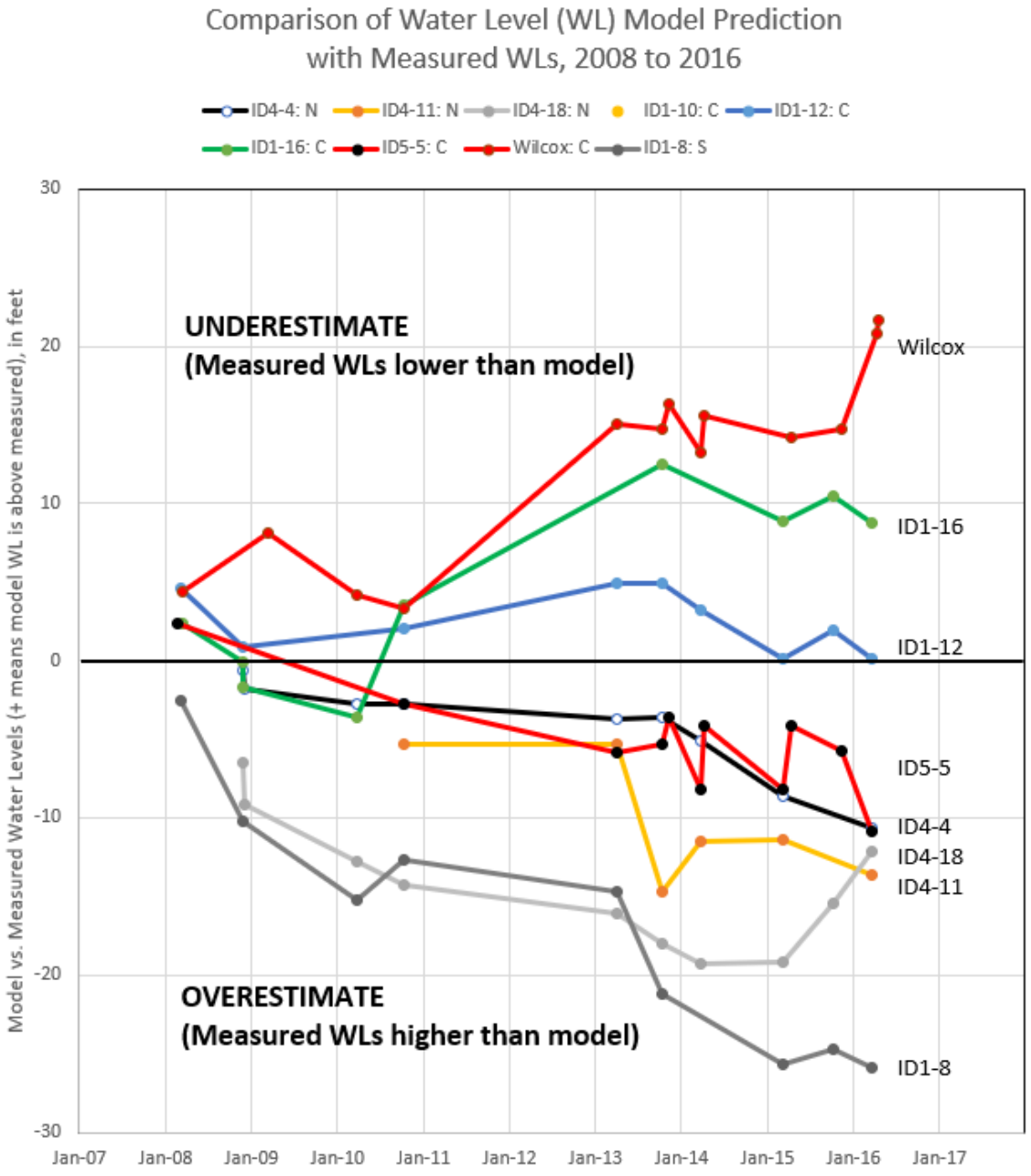
The differences between the observed and model-calculated water level elevations are described in this Section to provide a refined understanding of the model behavior. There are multiple factors included in the model including pumping rates, recharge rates, assumed aquifer geometry, and estimated hydraulic properties. As previously noted, the model parameters are based on a statistical fitting process, and differences will arise during the calibration process. Overall the model remains useful to understand the hydrology of the Subbasin and the differences do not negate the long-term observations of water level decline and overdraft impacts.

A series of Tables and Figures follow.

Figure 3 and **Table 3** summarize the comparison of the model-calculated water level elevations versus observed.

Figures 4 through **12** depict the observed and model-calculated water level elevations for each of the BWD wells. Please note that varying characteristics are highlighted among the figures.

FIGURE 3



Notes:

1. Overestimates mean that the model calculations lead to more overdraft than is being observed. This may provide a factor of safety for the well operation.
2. ID1-10 is not shown because results show the model water levels are higher than observed by 60 to 40 ft (See **Figure 4**)

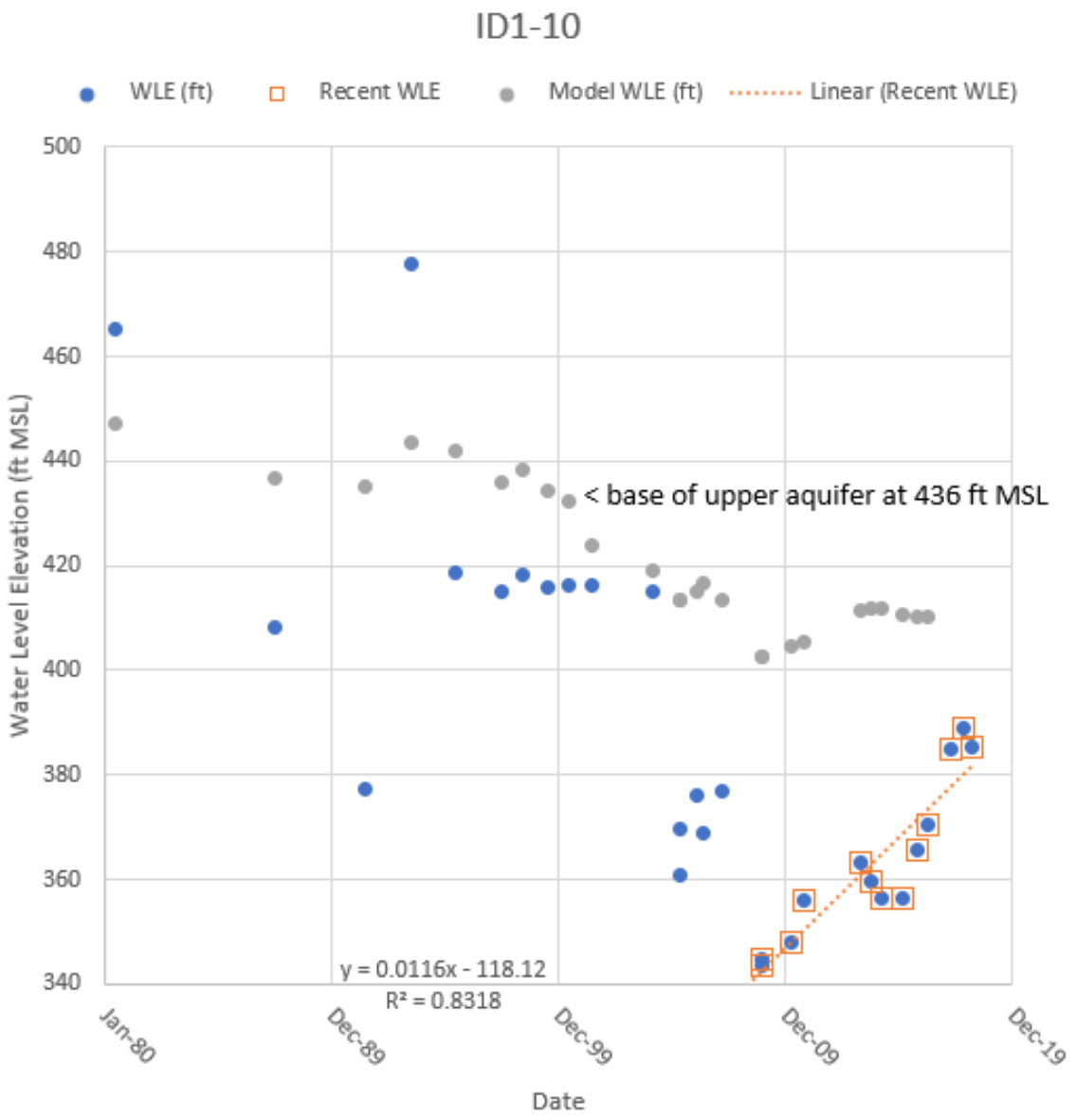
TABLE 3

Well ID	Long-term Measured Water Level Decline[1] (ft)	Measured Water Level Decline Rate (period in yrs)[2] ft/yr	Model Predictions versus Observed Water Levels **Overestimate:** **Model water level elevations are lower than observed (overestimates overdraft).** **Underestimate:** **Model water level elevations are higher than observed.**
ID4-4 (Fig 5)	74[3] (1980**)	-2.0 (7.3 years)	Model Overestimates water level decline. 2017- 2018 water level data show sharp drop after model period (not included in trend calculation)
ID4-11 (Fig 6)	56 (1995)	-1.0 (5.5 years)	Model Overestimates water level decline. Difference is increasing from 2010-2016.
ID4-18 (Fig 7)	89 (1987)	-2.6 (9.3 years)	Model Overestimates water level decline. Rates of water level decline are similar for model and observations.
ID1-10 (Fig 4)	80 (1980**)	+4.4 (9.3 years)	Indeterminate. Highly variable water levels are observed together with poor model calibration. Cause of variability is unknown. Observed water levels have risen.
ID1-12 (Fig 8)	58 (1987)	-1.4 (10 years)	Model predicted water levels match well with observed water levels.
ID1-16 (Fig 9)	53 (1991)	-0.6 (10 years)	Model Underestimates water level decline.
ID5-5 (Fig 10)	20 (2004)	-1.0 (10 years)	Model Overestimates water level decline.
Wilcox (Fig 11)	26 (2000)	-0.9 (10 years)	Model Underestimates water level decline.
ID1-8 (Fig 12)	20 (1980)	-4.5 (2.5 years)	Model Overestimates water level decline. Difference between observations and model trend is decreasing.

Notes:

1) Since well installation. The year of well installation is indicated in (parentheses). Wells ID4-4 and ID1-10 scheduled to be replaced in 2019.
2) Based on linear regression of observed water levels to calculate the annual decline rate over the time period as indicated.
3) Period ending 2016. Recent WL data obtained from the well during and not included in this analysis (see **Figure 5**).

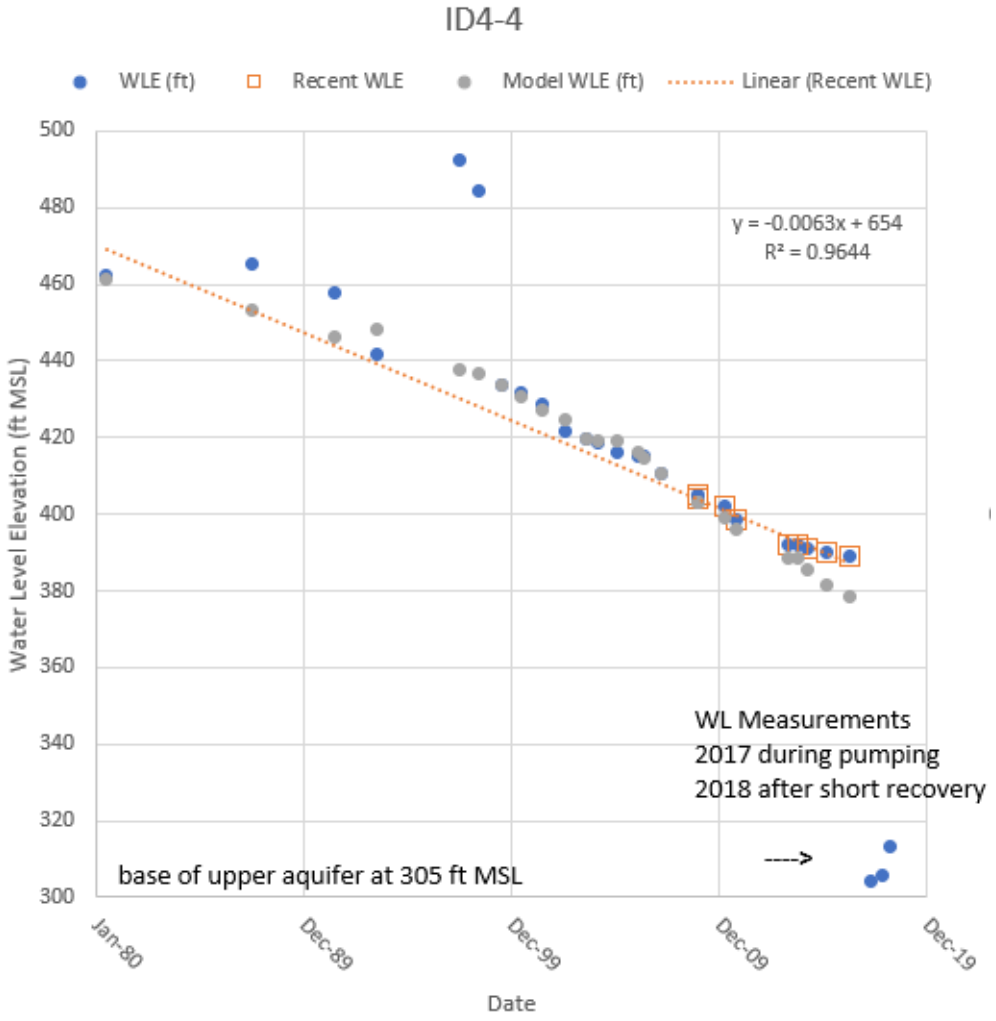
FIGURE 4. ID1-10 Hydrograph (Well in poor condition, to be replaced in 2019)



Notes:

1. Trend shown for recent measured groundwater elevation highlight the disparity with model predicted groundwater elevations. Measured and model-calculated groundwater elevations both show a rise in water levels over the past 10 years. Causes of observed groundwater elevation variability and rise have not been examined or determined.
2. Upper aquifer has been dewatered.

FIGURE 5. ID4-4 Hydrograph (Well in poor condition, to be replaced in 2019) Current water level decline is 2.0 ft/yr.

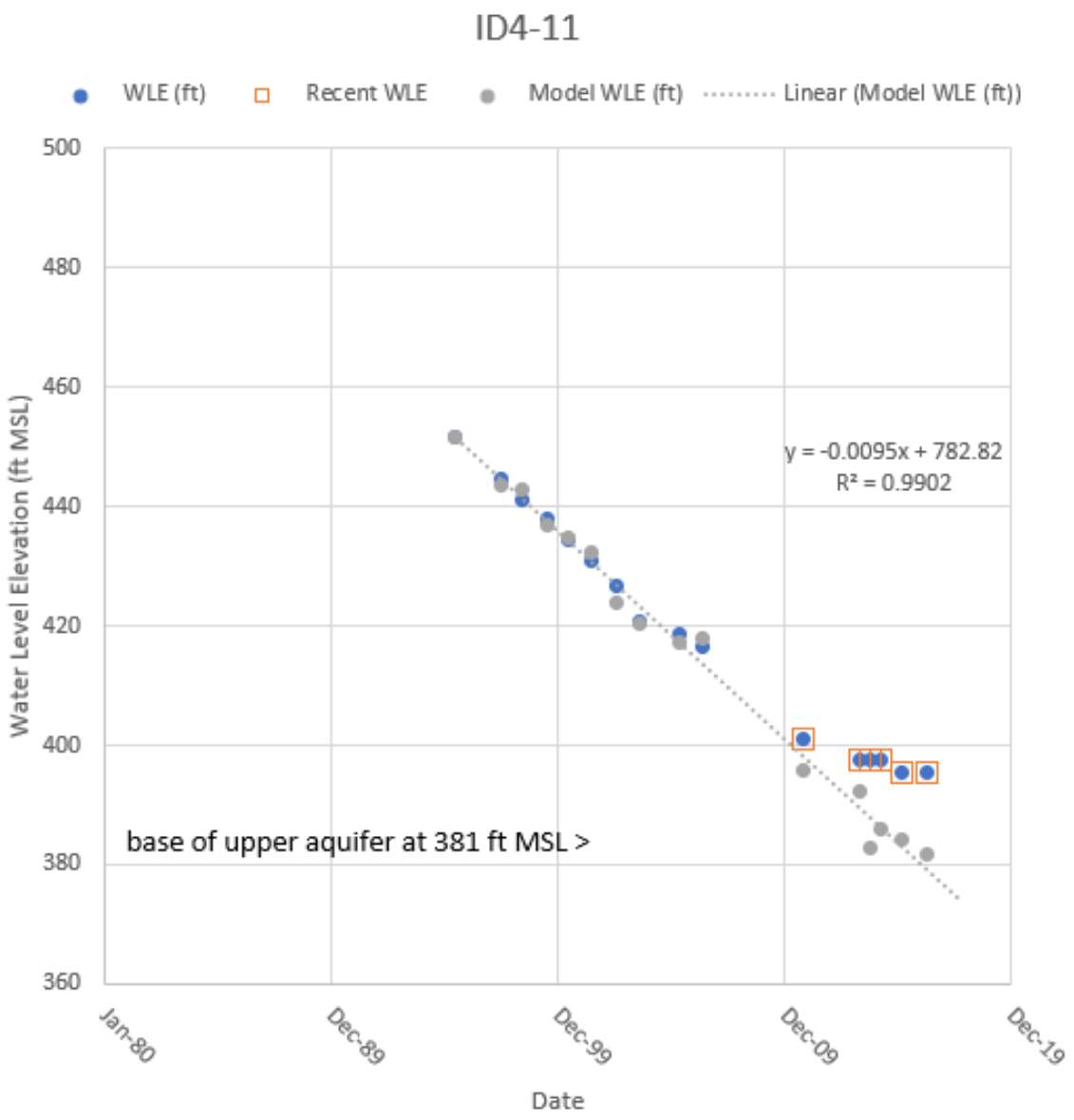


Notes:

1. Model predicted groundwater elevations are lower than measured groundwater elevations observed 2008-2014. The rate of decline is also less.
2. Linear regression shown for recent data (in red squares) to highlight data versus model since 2010.
3. Upper aquifer remains viable; however, water level measurements in 2017 and 2018 are affected by pumping and likely overestimate the depth to water and water level decline.

FIGURE 6. ID4-11 Hydrograph

Current water level decline is 1.0 ft/yr.

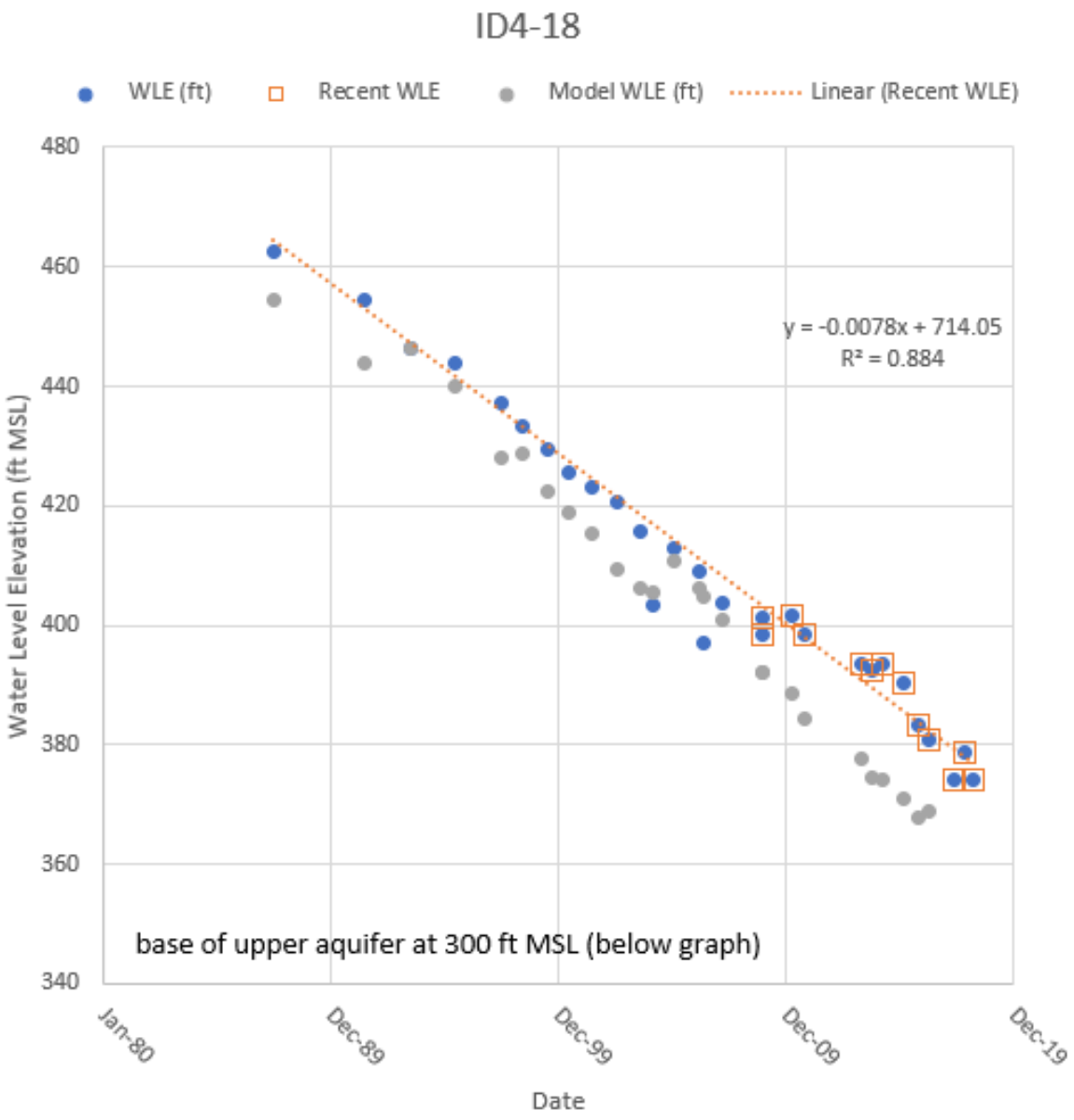


Notes:

1. Model predicted groundwater elevations are lower than measured groundwater elevations, 2009-2016. Model predicted rate of drawdown from 2009-2016 shown by the linear regression line is also greater than currently measured rate of drawdown.
2. Upper aquifer has been dewatered in model simulation but measured groundwater elevations indicate the upper aquifer has not yet been completely dewatered.

FIGURE 7. ID4-18 Hydrograph

Current water level decline is 2.6 ft/yr.

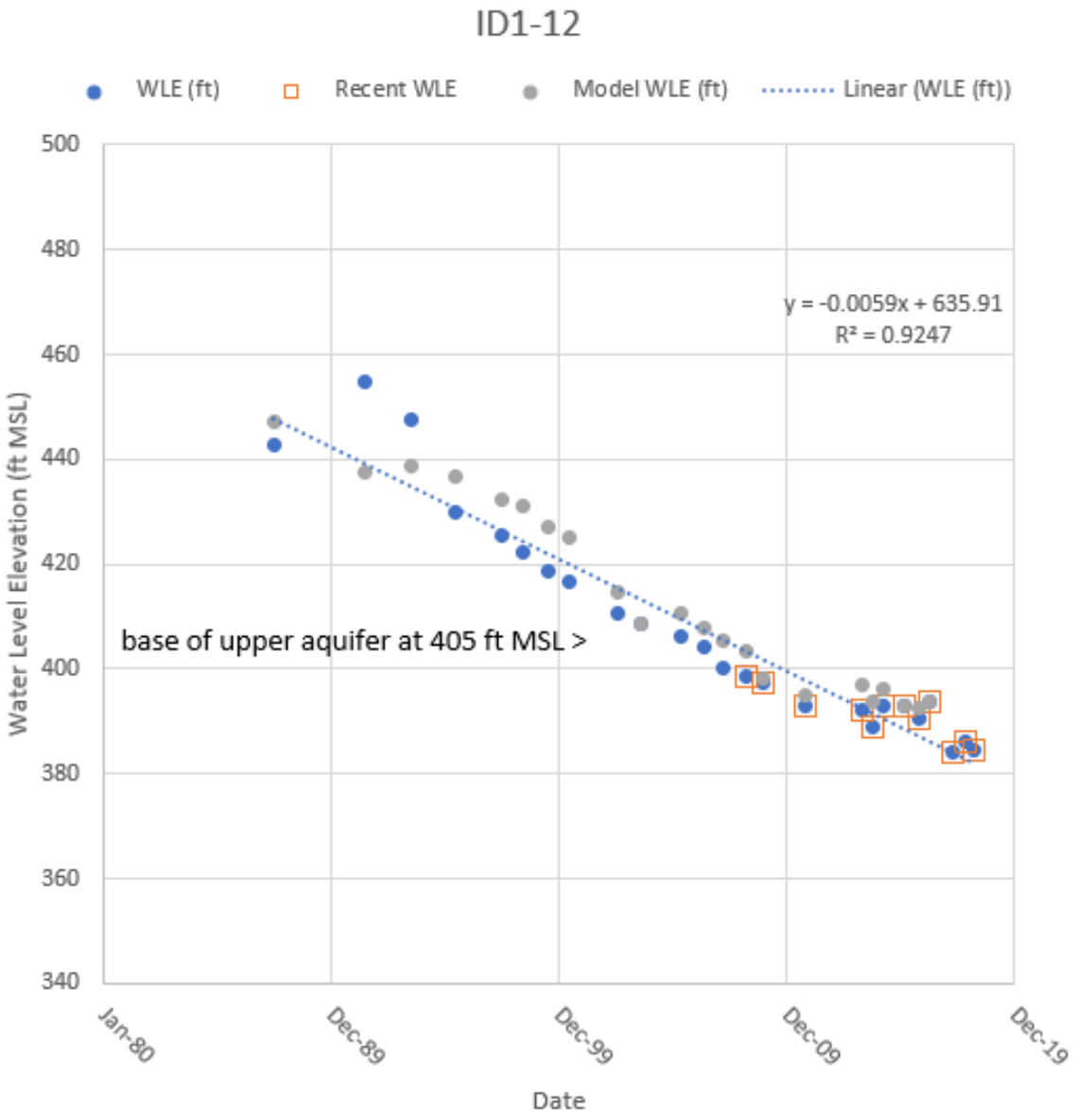


Notes:

1. Model predicted groundwater elevations are lower than measured groundwater elevations from 1995-2016. Trend shown for recent groundwater elevations (shown as squares).
2. Rates of groundwater elevation decline for predicted and measured data are similar.
3. Upper aquifer remains saturated (approximately 75 ft of saturated thickness remains).

FIGURE 8. ID1-12 Hydrograph

Current water level decline is 1.4 ft/yr.

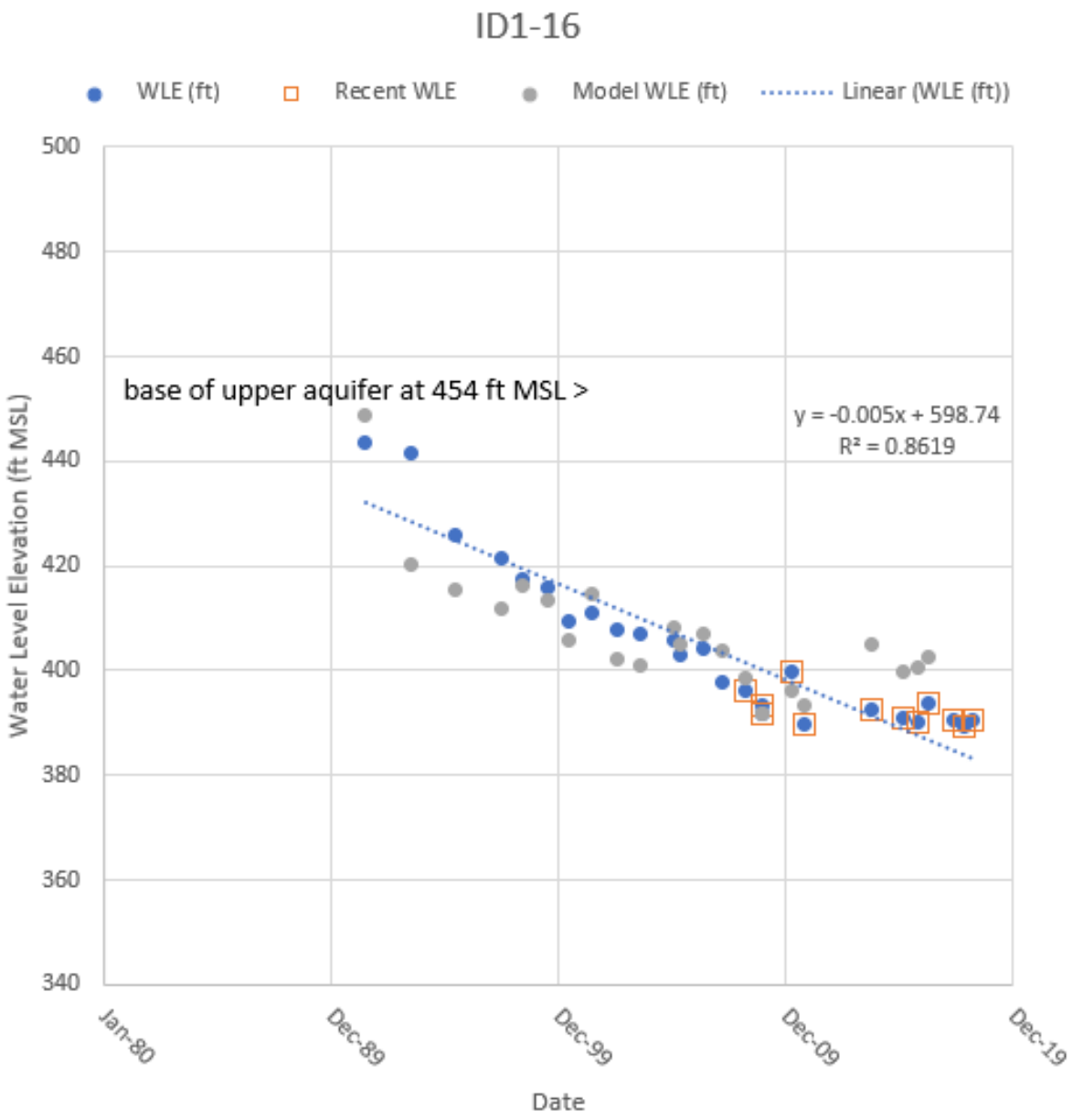


Notes:

1. Linear regression trend shown for all measured groundwater elevations. Model match is reasonably good.
2. Upper aquifer dewatered during USGS model calibration period that ended in 2010.

FIGURE 9. ID1-16 Hydrograph

Current water level decline is 0.5 ft/yr.

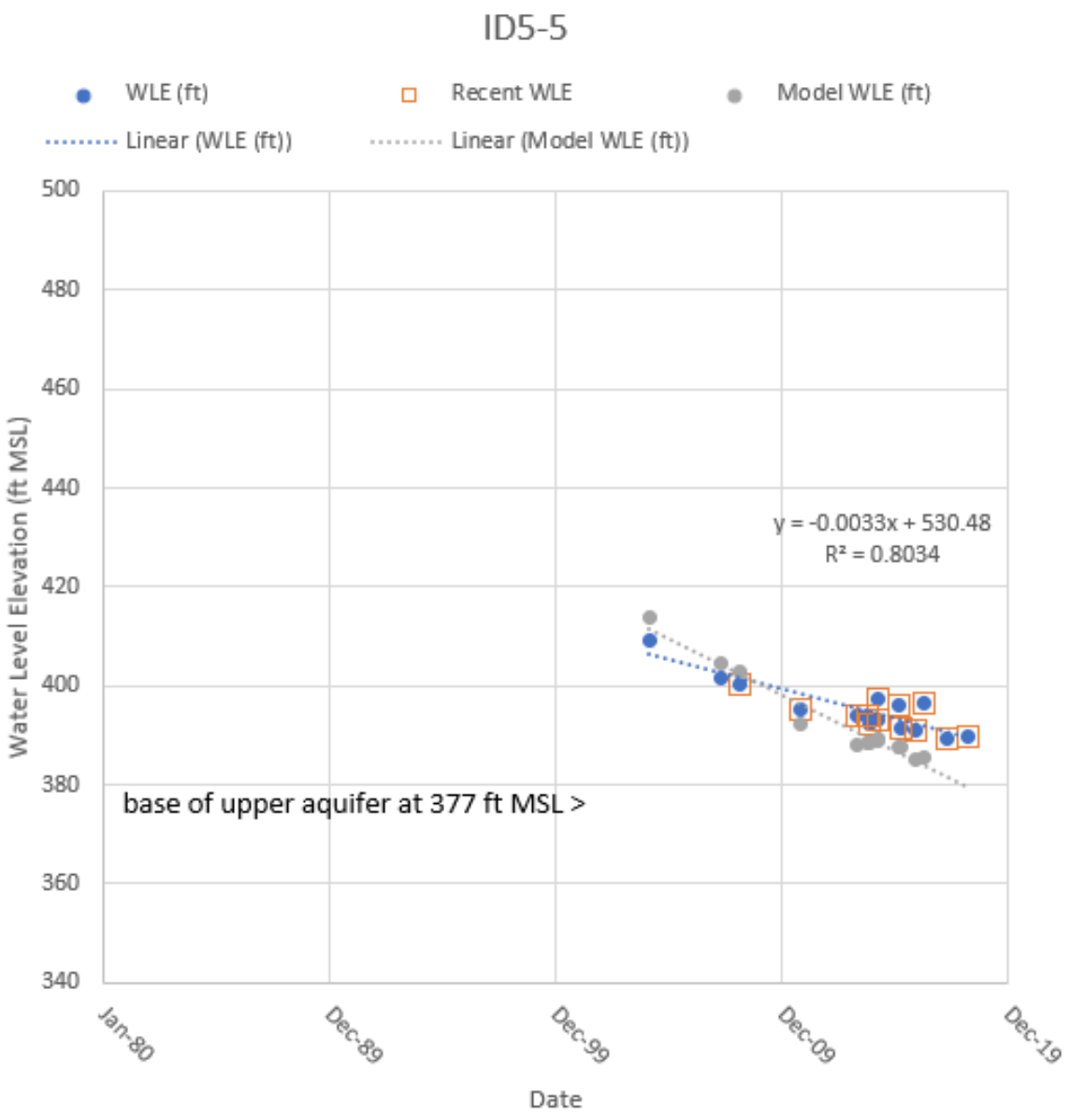


Notes:

1. Since 2014 indicate the model predicted groundwater elevations are higher than observed. Linear trend shown for all observed water levels.
2. Upper aquifer dewatered over 30 years ago.

FIGURE 10. ID5-5 Hydrograph

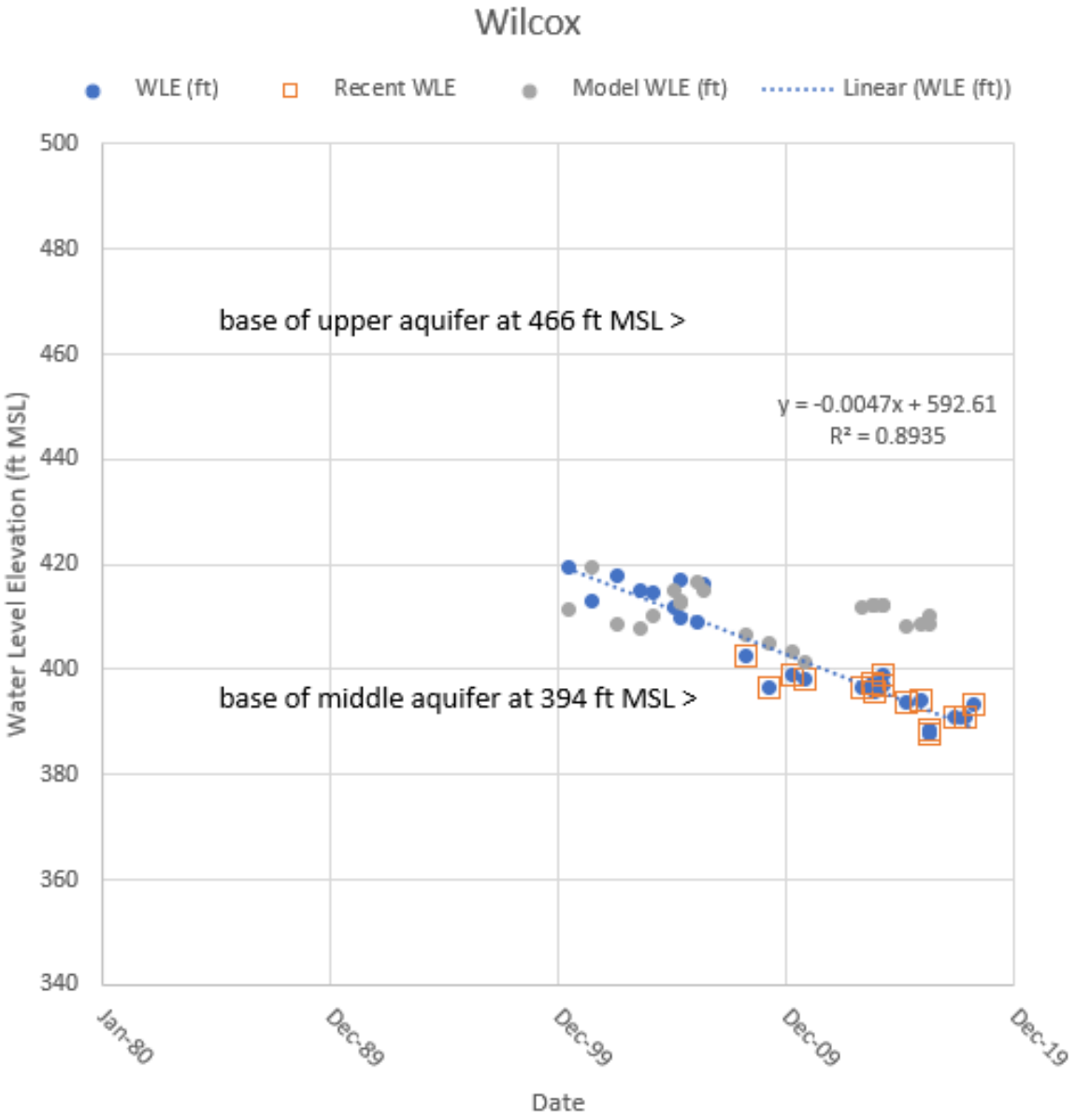
Current water level decline is 1.0 ft/yr.



Notes:

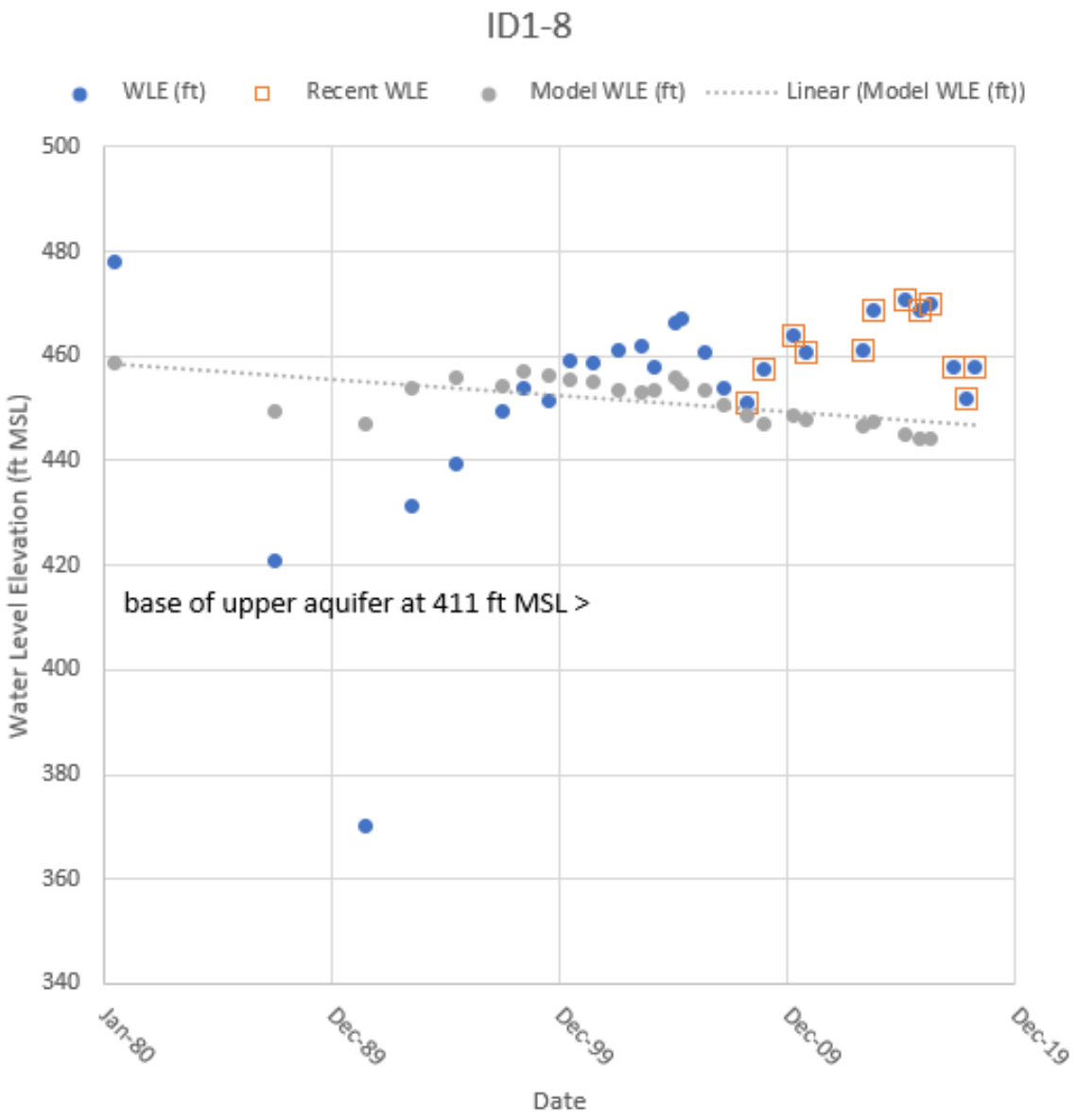
1. Model predicted groundwater elevations are lower than observed.
2. Model predicts that the upper aquifer will soon be dewatered. Observed water level data also support the upper aquifer will be dewatered but not as rapidly as calculated by the model. Linear trends have been fit to both to illustrate the relative rates.

FIGURE 11. Wilcox Hydrograph
Current water level decline is 0.9 ft/yr.



Notes:
1. Model predicted groundwater elevations over the past decade are higher than the observed groundwater elevations and thus underestimate the measured rate of groundwater elevation decline.
2. Upper aquifer dewatered many decades ago. Middle aquifer dewatered in ~2015. Thus, remaining production is from the lower aquifer.

FIGURE 12. ID1-8 Hydrograph
Current water level decline is 4.5 ft/yr.



Notes:
1. Model predicted groundwater elevations do not include the rise or variability in measured groundwater elevations observed over the past decade. The model-calculated groundwater levels predict consistent groundwater drawdown instead of the groundwater level recovery observed from approximately 2000 to 2014.
2. Water levels remain within the upper aquifer.

3.0 BWD WATER SUPPLY WELLS: INTERPRETED HYDROGEOLOGY FROM DRILLER'S LOGS

The description of drill cuttings and drilling observations by the well drillers included in the well completion reports for each of the nine BWD wells were used to develop hydrogeologically-interpreted well logs. Though the observations are subjective and the quality and type of the observations can vary from driller to driller, the results were reviewed from a hydrogeologic perspective and used to develop generalized lithologies for each of the wells. It is recognized that the interpretations are subjective and are provided here as the logs are currently the only means to be able to review well-specific hydrogeologic conditions. Hydrogeologic conditions and well construction details are graphically presented (**Figures 13-21**).

The primary purpose of this review is to compare the large-scale aquifer conditions used in the model to the stratigraphic features observable in the driller's logs. The stratigraphic interpretations have also proven useful toward evaluation of the behavior of the groundwater model.

Figures 13 to 21 depict the lithologic and well construction information for each of the BWD wells in the context of USGS and SDSU stratigraphic interpretations.

The figures depict:

- Well construction and screen intervals.
- Lithologies based on a hydrogeologic interpretation of the driller's log for each well. None of the wells were geophysically logged and all observations were as reported by the drillers. The reported lithologies vary among drillers so the logs have been reviewed and described and interpreted herein using more consistent terms.
- Depths where USGS Model Aquifer Boundaries occur (from **Table 2**).
- Depths of Hydrogeologic boundaries and aquifer units as described by Netto (2001)
- Select historical water level data to illustrate overdraft impact. Please refer to **Figures 4** to **12** for specific hydrograph data for each of the wells.
- Projected water level decline. Two values are shown that correspond to a rate of 1 to 3 feet/year over 20 years, roughly in the currently-observed range for the BWD wells. The projected water level decline depicted on **Figures 13** to **21** are shown for general illustration and are not directly linked to current observations.

The lithology reported in each well log has been compared to the aquifer units and groundwater flow parameter that were incorporated into the groundwater model for the cell where each well is located in the model (see **Table 4**). The actual likely contact elevation is estimated based on the driller's log, and review of nearby logs that have been depicted in cross-sections developed by Netto (2001). **Table 4** also provides for a review of the model's aquifer discretization and parameterization and ties those findings with the hydrograph findings in **Section 2**.

TABLE 4

Well ID	Upper Aquifer Base: Model (ft, msl)	Upper Aquifer Base: Well Log (ft, msl)	ELEVATION DIFFERENCE, (Model Estimate- Well Log) For Upper Aquifer Base (ft)	Middle Aquifer Base Per Model (ft, msl)	Middle Aquifer Base Per Well Log (ft, msl)	ELEVATION DIFFERENCE, (Model Estimate - Well Log) For Middle Aquifer Base (ft)	Middle Aquifer Thickness: Log versus model (+value is thicker)	UPPER AQUIFER	MIDDLE AQUIFER	COMMENT
ID4-4	300	321	-21	-115	-163	48	69	Nearly Dewatered. Lithology log indicates base is 21 feet higher than model.	Lithology log indicates middle aquifer is thicker than model estimate.	The model's understimate of middle aquifer thickness will lead to slight overestimate of water level decline. NOTE: Lithology log indicates confined aquifer conditions may have occurrred until recently.
ID4-11	381	335	46	113	-195	308	262	Nearly Dewatered. Lithology log indicates base is 46 feet lower than model.	Lithology log indicates middle aquifer is much thicker than model estimate.	The model's understimate of middle aquifer thickness will lead to an overestimate of water level decline. NOTE: Lithology log indicates confined aquifer conditions occur.
ID4-18	300	282	18	-608	Not encountered in 700' deep well bore.	Not Calculated	very deep	Remains Viable. Lithology log indicates base is 18 feet lower than model.	Base of middle aquifer not indicated in lithology log (very deep or log lacks detail necessary to identify base).	Thicker upper aquifer than used by model will lead to an overestimate of water decline.
ID1-10	408	423	-15	219	216	3	18	Dewatered. Lithology log indicates base is 15 feet higher than model.	Lithology log indicates middle aquifer is slightly thicker than model estimate (by 18 ft).	Rising water levels and poor model match.
ID1-12	405	385	20	118	-65	183	163	Dewatered. Lithology log indicates base is 20 feet lower than model.	Lithology log indicates middle aquifer is much thicker than model estimate.	The model's understimate of middle aquifer thickness will lead to an overestimate of water level decline. NOTE: Lithology log indicates confined aquifer conditions may have occurred until recently.
ID1-16	454	197	257	308	Not encountered in 700' deep well bore.	Not Calculated		Dewatered. Lithology log indicates base is very deep- 257 feet lower than model.	Lithology log indicates middle aquifer is much thicker than model estimate. However extreme lack of fine-grained materials in the driller log suggests that the log is incomplete.	Very thick upper aquifer observed in lithology log versus model will lead to an overestimate of water decline by the model. Uncertainty: Assumes the drillers log accurately reflects lithology.
ID5-5	375	Not Analyzed		Not Analyzed				Nearly Dewatered.		Driller's log grossly generalized, of limited use, not analyzed.
Wilcox	466	550	-84	394	200	194	278	Dewatered. Lithology log indicates base is 84 feet higher than model (has no effect on model).	Lithology log indicates middle aquifer is much thicker than model estimate. However, the sediments were observed to be consolidated and may have low hydraulic conductivity like the lower aquifer.	The model's understimate of middle aquifer thickness will lead to an overestimate of water level decline. Uncertainty: the presence of consolidated sediments will lower hydraulic conductivity and cause the model to underestimate water level decline.
ID1-8	410	310	100	290	-33	323	223	Remains Viable. Lithology log indicates base is much lower than in the model by 100 feet.	Lithology log indicates middle aquifer is also thicker than model estimate. Clay at base of middle aquifer may cause confined aquifer conditions to occur within lower portion of well.	Very thick upper aquifer observed in lithology log versus model will lead to an overestimate of water decline by the model. Will also mean that the well production from the more prolific upper aquifer will be maintained for a longer duration.

NOTE:

Indicates a well where the model-calculated water levels may overestimate water level decline.

ID4-4 (to be replaced, currently scheduled for 2019)

Comparison of model-predicted and measured water levels at Well ID4-4 (**Figure 4**) shows that the model overestimated water level decline from 2010 to 2016 by approximately 10 feet.

Upper aquifer has been dewatered so water production is now from the middle and lower aquifers. By apparent USGS criteria, review of the lithologies supports that the model over estimates middle aquifer base elevation by 48 feet, thereby underestimating middle aquifer thickness and over estimating lower aquifer thickness greater by 48 feet respectively. Because the model assigns a middle aquifer hydraulic conductivity value that is 11 times greater than lower aquifer hydraulic conductivity, the underestimate of the middle aquifer thickness will lead to slight overestimate of water level decline at well.

Review of the SDSU stratigraphy interpretation the upper aquifer thickness is underestimated by 600 feet. By this criterion the model would lead to an overestimate of water level decline at the well.

The lithology log indicates that confined aquifer conditions may have occurred until recently.

ID4-11

Comparison of model-predicted and measured water levels at Well ID4-11 (**Figure 5**) shows the model overestimated water level decline from 2010 to 2016 by approximately 15 feet.

Upper aquifer, as defined by the USGS model, is dewatered at this point in time and water production is now from the middle and lower aquifers. The model overestimates middle aquifer base elevation by 308 feet, thereby underestimating middle aquifer thickness and overestimating lower aquifer thickness greater by 308 feet, respectively. Because the model assigns a middle aquifer hydraulic conductivity value that is 5 times greater than the lower aquifer the model's underestimate of middle aquifer thickness will lead to an overestimate of water level decline at the well.

Review of the SDSU stratigraphy interpretation supports that the model under estimates upper aquifer thickness by approximately 600 feet. By SDSU criteria, hydraulic conductivity values in the model are further underestimated. leading to a greater overestimate of water level decline at the well.

The lithology log indicates that confined aquifer conditions may have occurred until recently.

ID4-18 (being considered for replacement)

Comparison of model-predicted and measured heads at Well ID4-18 (**Figure 6**) indicate that from 2010 to 2016 the model overestimated water level decline. The difference is decreasing and the model estimate is improving toward the end of the model update period (2016).

The upper aquifer remains partially saturated and currently viable. Review of the lithologic log indicates that the model slightly underestimates the thickness of the upper aquifer. This will lead to a slight underestimate of water level decline at the well. Should the upper aquifer be dewatered water production will be primarily from the middle aquifer.

A pilot borehole was drilled when the well was constructed in 1982. The well was not completed between 560 and 699 feet bgs likely because of better production from the upper aquifer at that time. The sediments encountered at depth may prove to be reasonably productive.

ID1-10

Comparison of model-predicted and measured water level elevations at Well ID1-10 indicate both are rising with time since 2009. Observed water levels are approximately 60 feet below modeled water level elevations and rising much faster than model-predicted heads during this period (**Figure 3**). Overall comparison shows high observed water level variability and poor model performance.

The upper aquifer is dewatered at this point in time. Model contacts (top and bottom of the middle aquifer) are close to drillers log based on apparent USGS criteria. Review of SDSU stratigraphic criteria supports that the model underestimates the upper aquifer thickness by approximately 140 feet. If so, the model will overestimate water level decline at the well.

ID1-12

Model-predicted and measured water level elevations at Well ID1-12 are reasonably similar and indicate the model is performing well.

The upper aquifer as defined by USGS model was dewatered in the mid-2000s. The well currently produces water from the middle and lower aquifers. Review of the lithologic log supports that the elevation of the base of the middle aquifer is higher by 183 feet versus the model and 163 feet thicker. The review also supports that the well may not be completed in the lower aquifer. If so, the model underestimates the contribution of the middle aquifer. Since the model assigns a hydraulic conductivity value for the middle aquifer that is 47 times greater than that of the lower aquifer the model, the lithology review suggest that the model has the potential to overestimate water level decline at this well. The lithology log also indicates confined aquifer conditions may have occurred until recently.

Review of SDSU stratigraphic criteria suggest that the model underestimates the thickness of the upper aquifer by over 400 feet. If the SDSU criteria are appropriate, the model underestimates hydraulic conductivity and will over estimate water level decline. However, current model-predicted heads and measured heads match closely at Well ID1-12 (**Figure 7**) so these effects are not being realized.

ID1-16

Model-predicted head and measured water level elevations at Well ID1-16 indicate that model predicted water levels are higher than observed. Data obtained for 2013 through 2016 support that the model performance is improving (**Figure 8**).

The upper aquifer has been dewatered for decades. The well currently produces water from the middle and lower aquifers.

The driller's log for the 705' boring is very generalized and does not report encountering any silt or clay. Hence the boring does not appear to have encountered the lower aquifer. In contrast the model predicts the base of middle aquifer at 225 ft MSL. Review of the lithology log indicates middle aquifer is much thicker than model estimate. If so the model-predicted water levels will be higher than observed; however, the conspicuous lack of silt and clay in the driller log suggests that the log is incomplete.

By SDSU criteria, the model underestimates the thickness of the upper aquifer by approximately 380 feet. If SDSU's criteria is appropriate this would lead to a greater under estimated of hydraulic conductivity in the model and a greater under estimate of drawdown.

ID5-5

Driller's log is grossly generalized and has limited useful information.

Water production will soon be from the middle and lower aquifer as the upper aquifer is nearly dewatered.

Wilcox

Comparison of model-predicted and measured water level elevations at the Wilcox well indicate that model underestimates water level decline in recent years by approximately 20 feet (**Figure 10**).

Water production is from the lower aquifer- the upper aquifer had been dewatered prior to the time of well installation and the middle aquifer dewater in ~2015.

Review of the lithologic log indicates that the elevation of the base of the middle aquifer base is underestimated by 194 feet leading to a thicker middle aquifer than assumed by the model. Because the model assigns a hydraulic conductivity value for the middle aquifer that is 8 times greater than that of the lower aquifer the model may calculate more water decline than observed at this well if the middle aquifer has not yet dewatered.
By SDSU criteria the model under estimates upper aquifer thickness by approximately 180 feet. If SDSU's criteria is appropriate this would lead to a greater underestimate of hydraulic conductivity in the model and a similar effect on the model calculations.

ID1-8

Comparison of model-predicted and measured water level elevations at Well ID1-8 indicate that model overestimates water level decline in recent years by approximately 25 feet (Figure 10).

The upper aquifer remains viable in this well; however, the current rate of water level decline is 4.5 ft/year and an estimated saturated thickness of 47 feet remains per the model-estimated aquifer base. Significant upper aquifer water production remains in this well but the upper aquifer is likely to become dewatered as a result of ongoing overdraft.

Both the upper and middle aquifer thicknesses per lithologic log review are significantly greater that estimated in the model. The model assigns a hydraulic conductivity value for the upper aquifer that is 49 times greater than that of the middle aquifer, and assigns a middle aquifer hydraulic conductivity value that is 7 times greater than that of the lower aquifer. As a result, the well will be more prolific than calculated in the model and thus the model may be overestimating water level decline at this well.

The driller's log makes little reference to lithification/density of sediments making the stratigraphic assignment of the base of the middle aquifer tenuous. The base of middle aquifer as designated by the model is interpreted by SDSU as the top of the Palm Springs Formation. In contrast the USGS Model Report (see **Section 2**) indicates that they correlated the middle aquifer with the upper Palm Spring Formation. If so, this would suggest the middle aquifer is much thinner. Overall the comparison highlights the difficulty in the aquifer interpretations based on geologic boundaries.

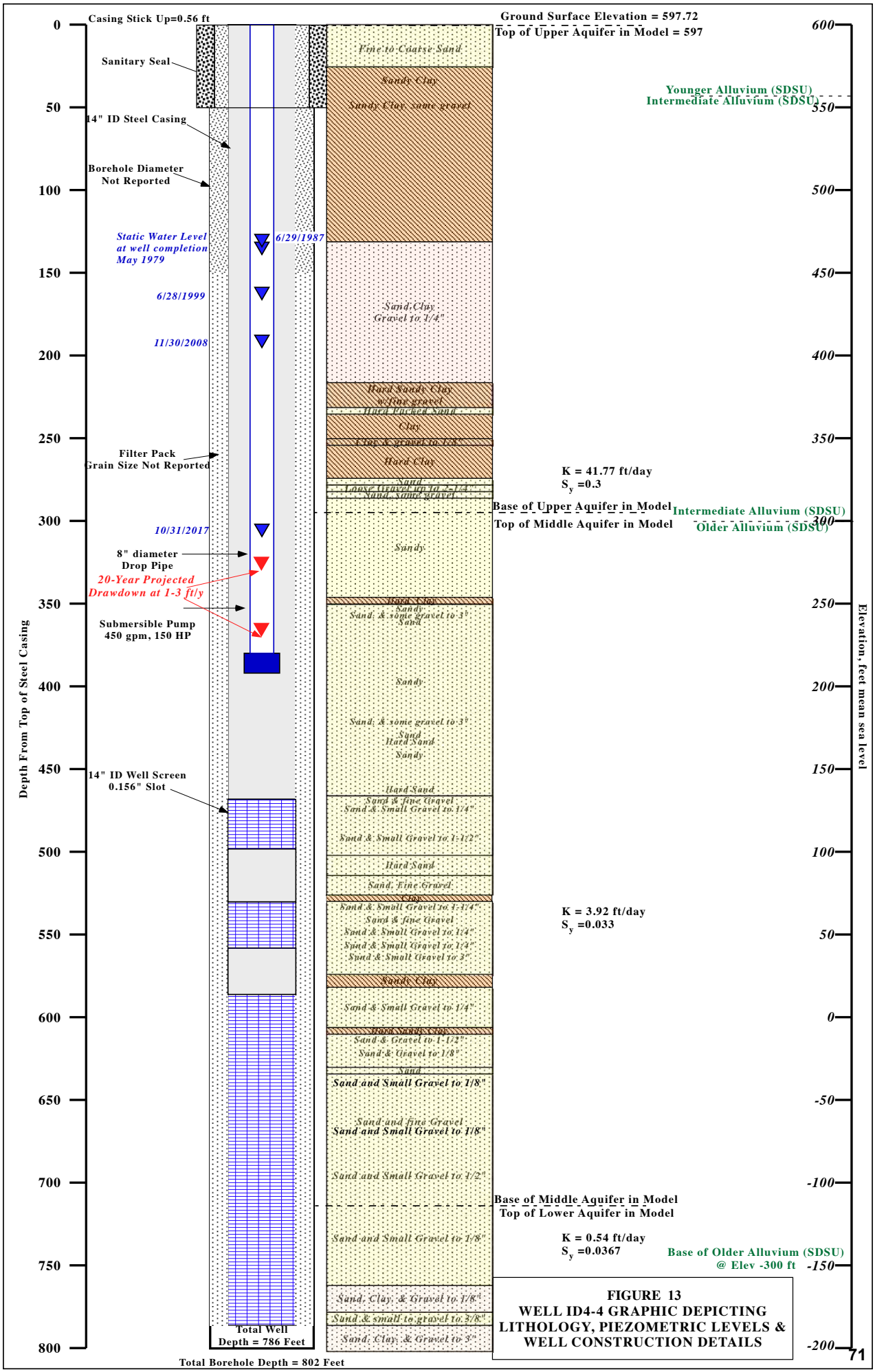


FIGURE 13
WELL ID4-4 GRAPHIC DEPICTING LITHOLOGY, PIEZOMETRIC LEVELS & WELL CONSTRUCTION DETAILS

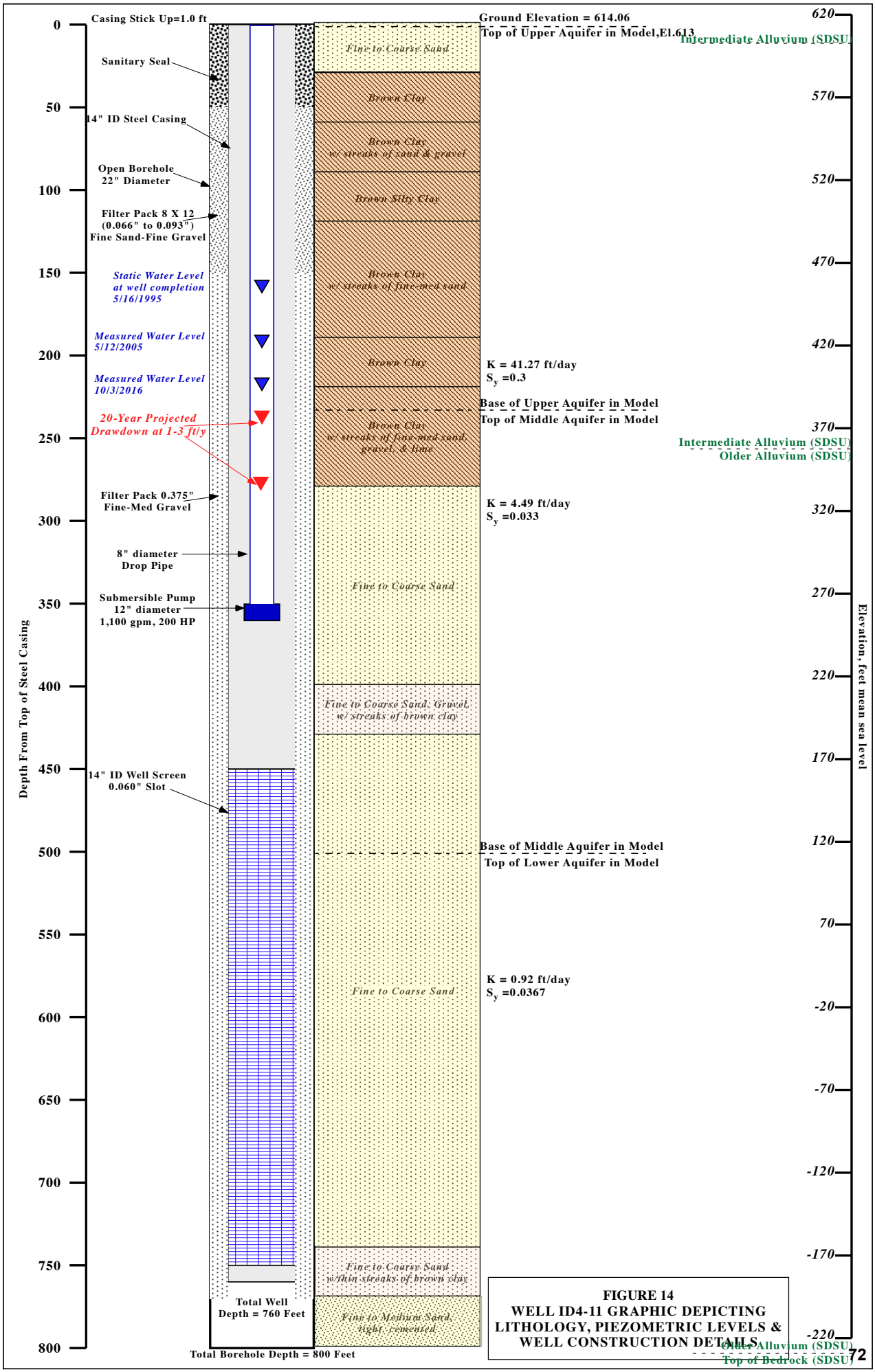


FIGURE 14
WELL ID4-11 GRAPHIC DEPICTING LITHOLOGY, PIEZOMETRIC LEVELS & WELL CONSTRUCTION DETAILS

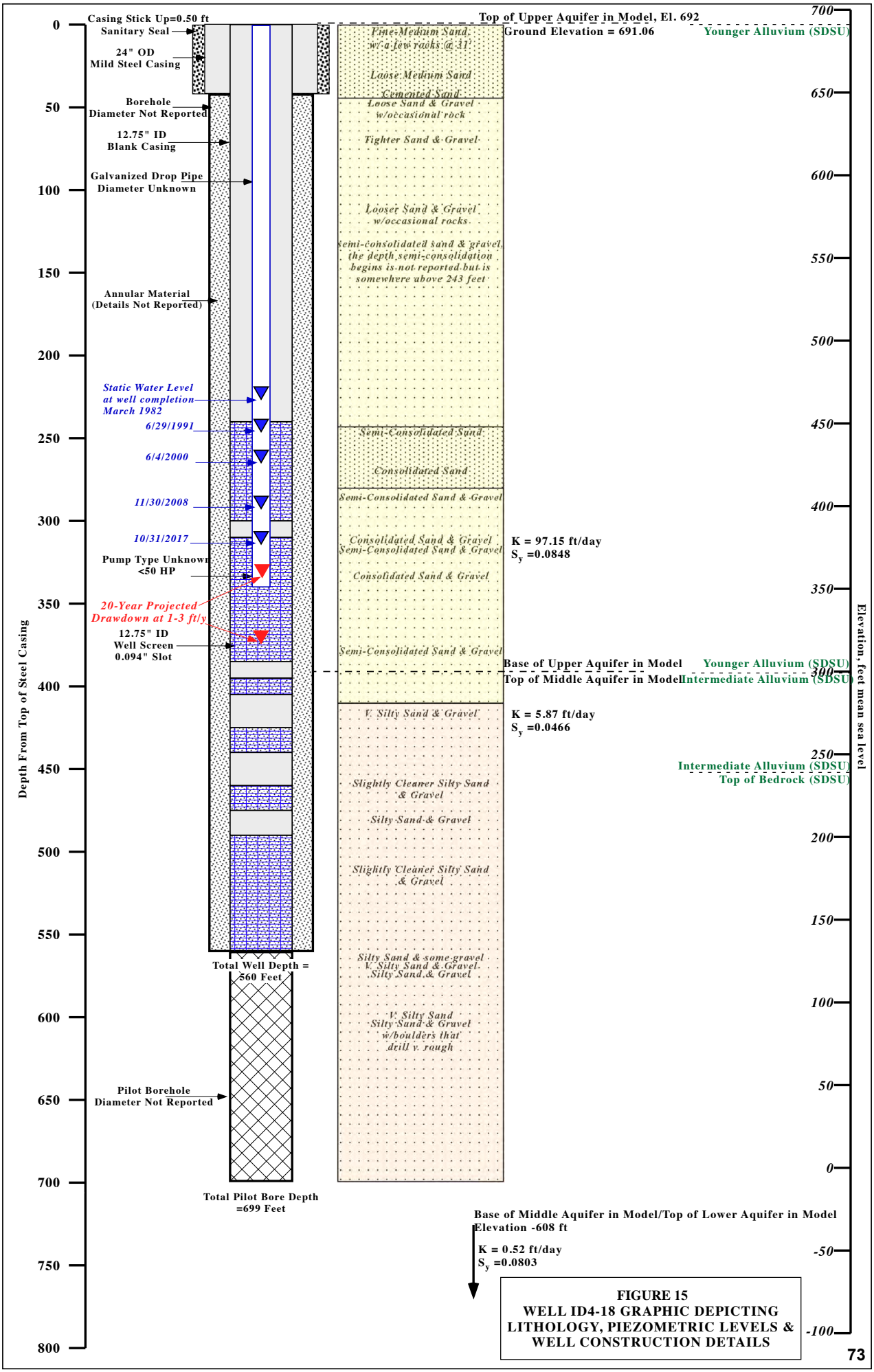


FIGURE 15
WELL ID4-18 GRAPHIC DEPICTING LITHOLOGY, PIEZOMETRIC LEVELS & WELL CONSTRUCTION DETAILS

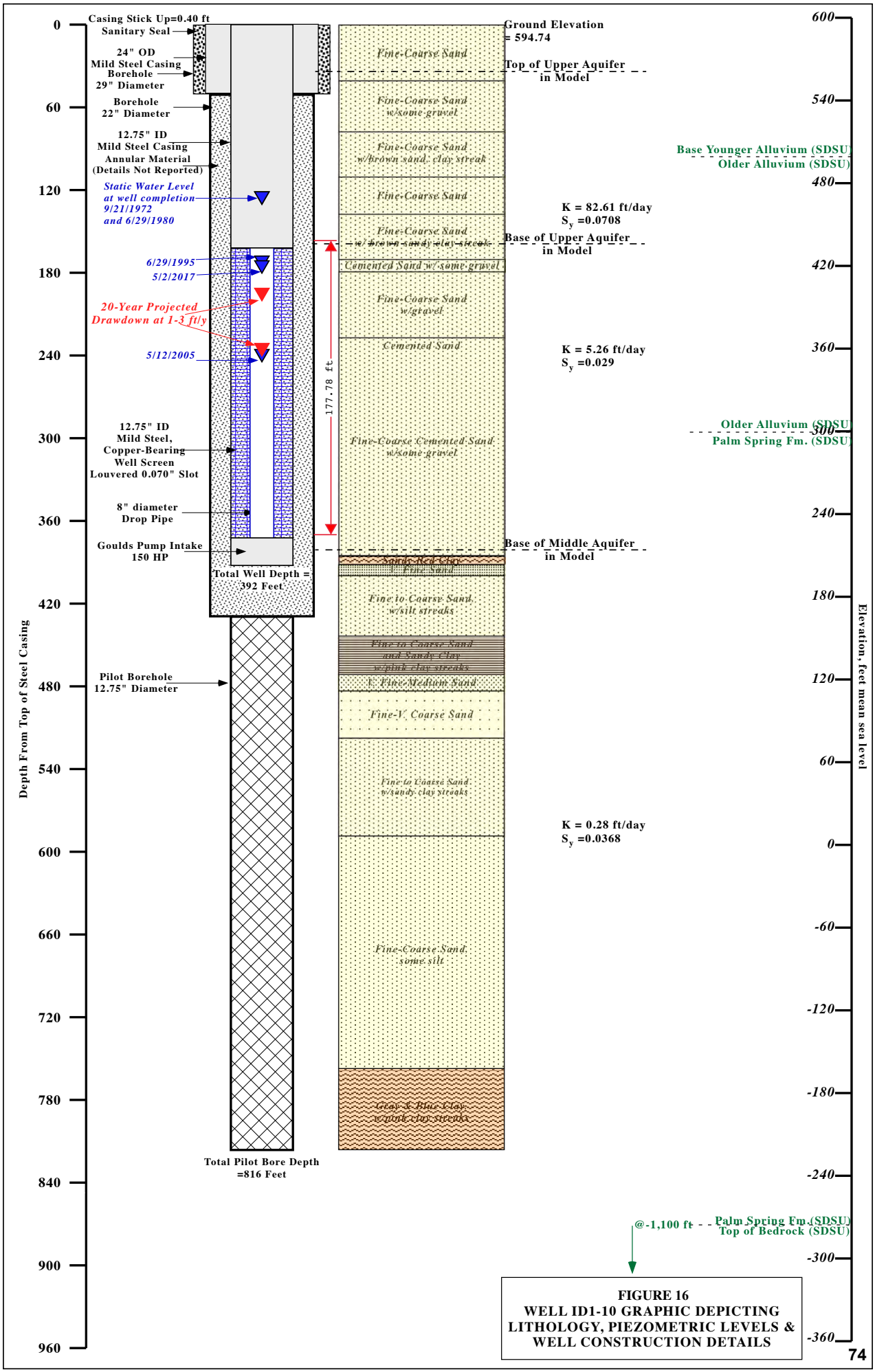


FIGURE 16
WELL ID1-10 GRAPHIC DEPICTING LITHOLOGY, PIEZOMETRIC LEVELS & WELL CONSTRUCTION DETAILS

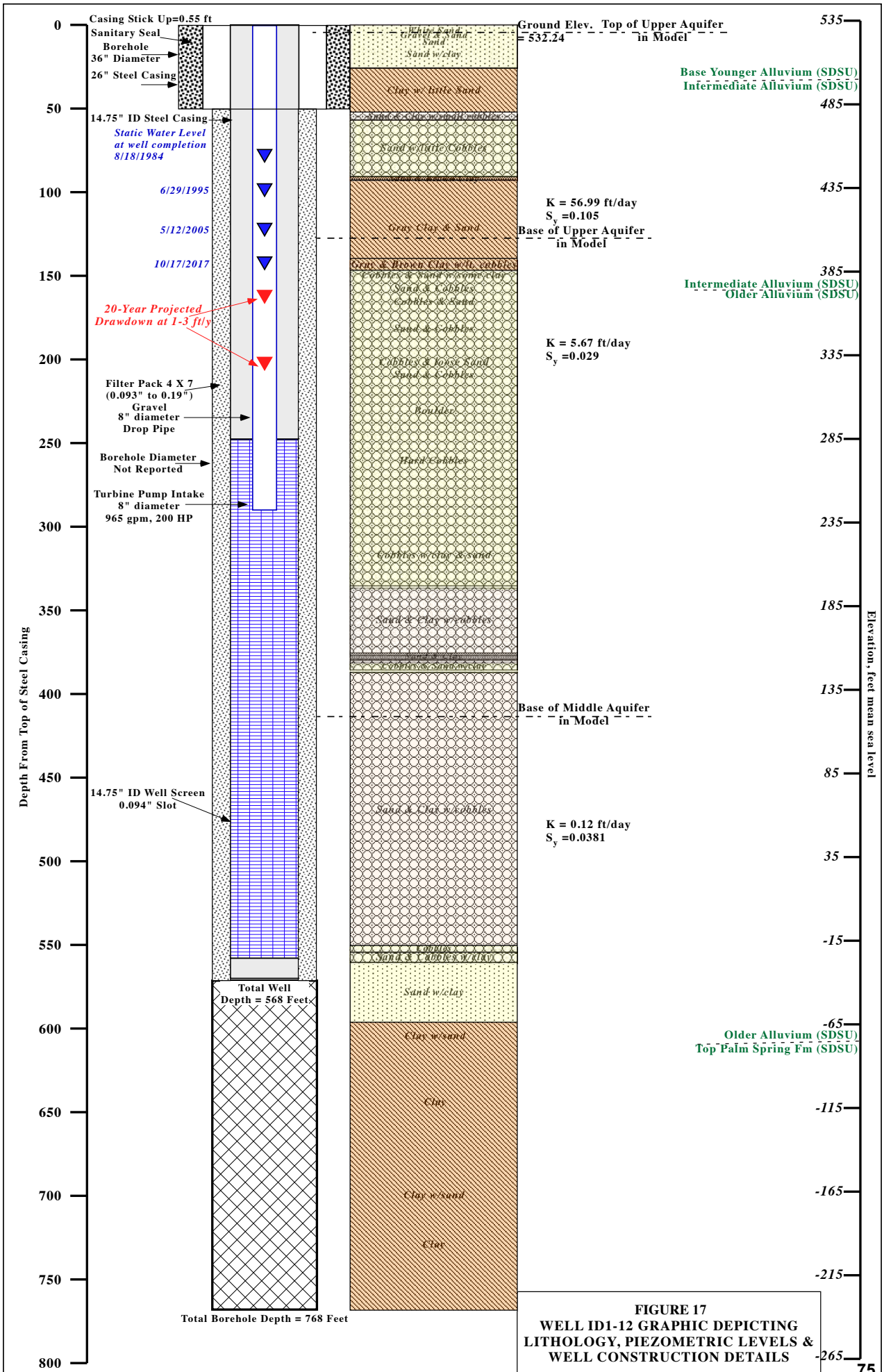


FIGURE 17
WELL ID1-12 GRAPHIC DEPICTING LITHOLOGY, PIEZOMETRIC LEVELS & WELL CONSTRUCTION DETAILS

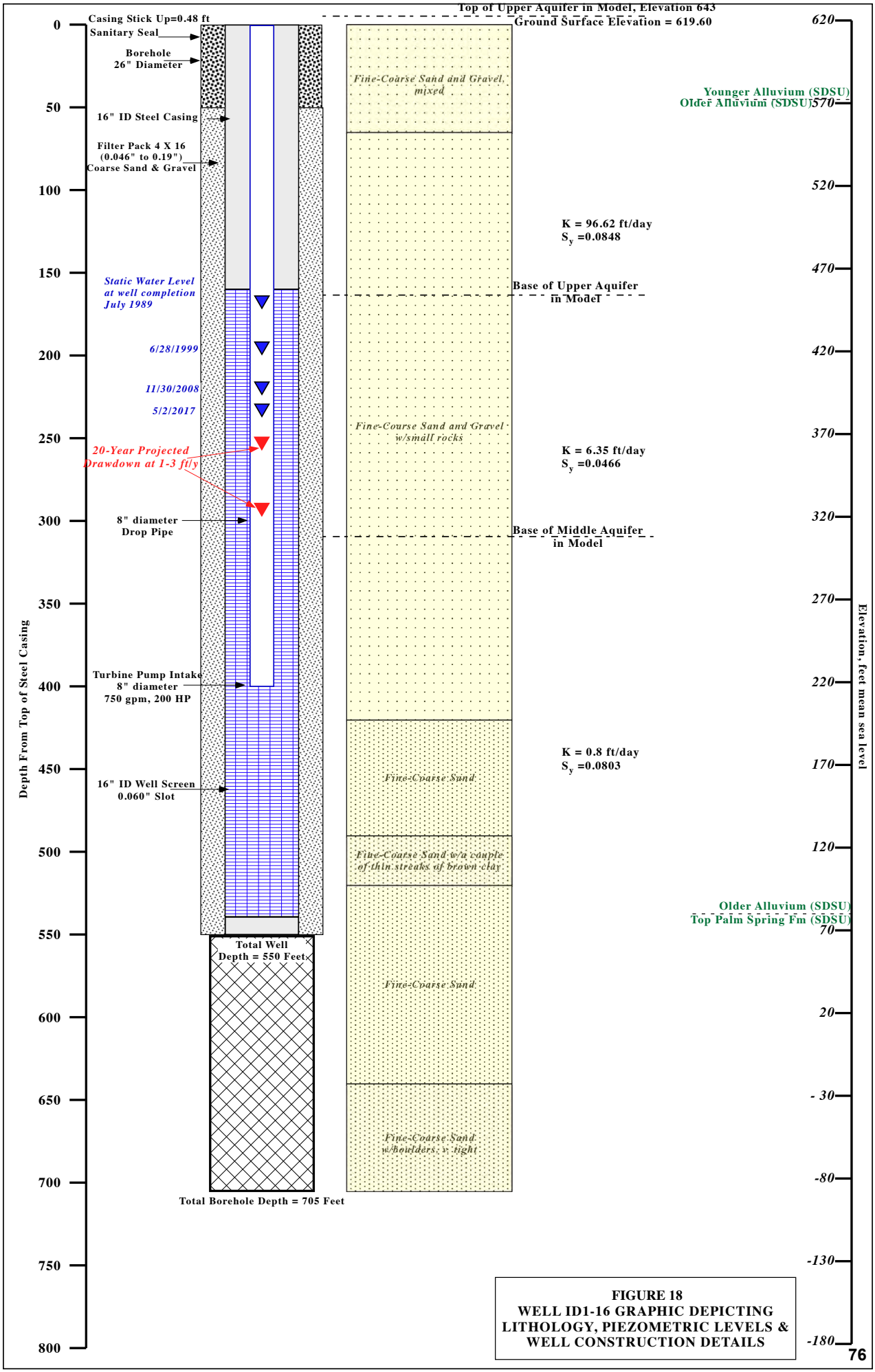


FIGURE 18
WELL ID1-16 GRAPHIC DEPICTING LITHOLOGY, PIEZOMETRIC LEVELS & WELL CONSTRUCTION DETAILS

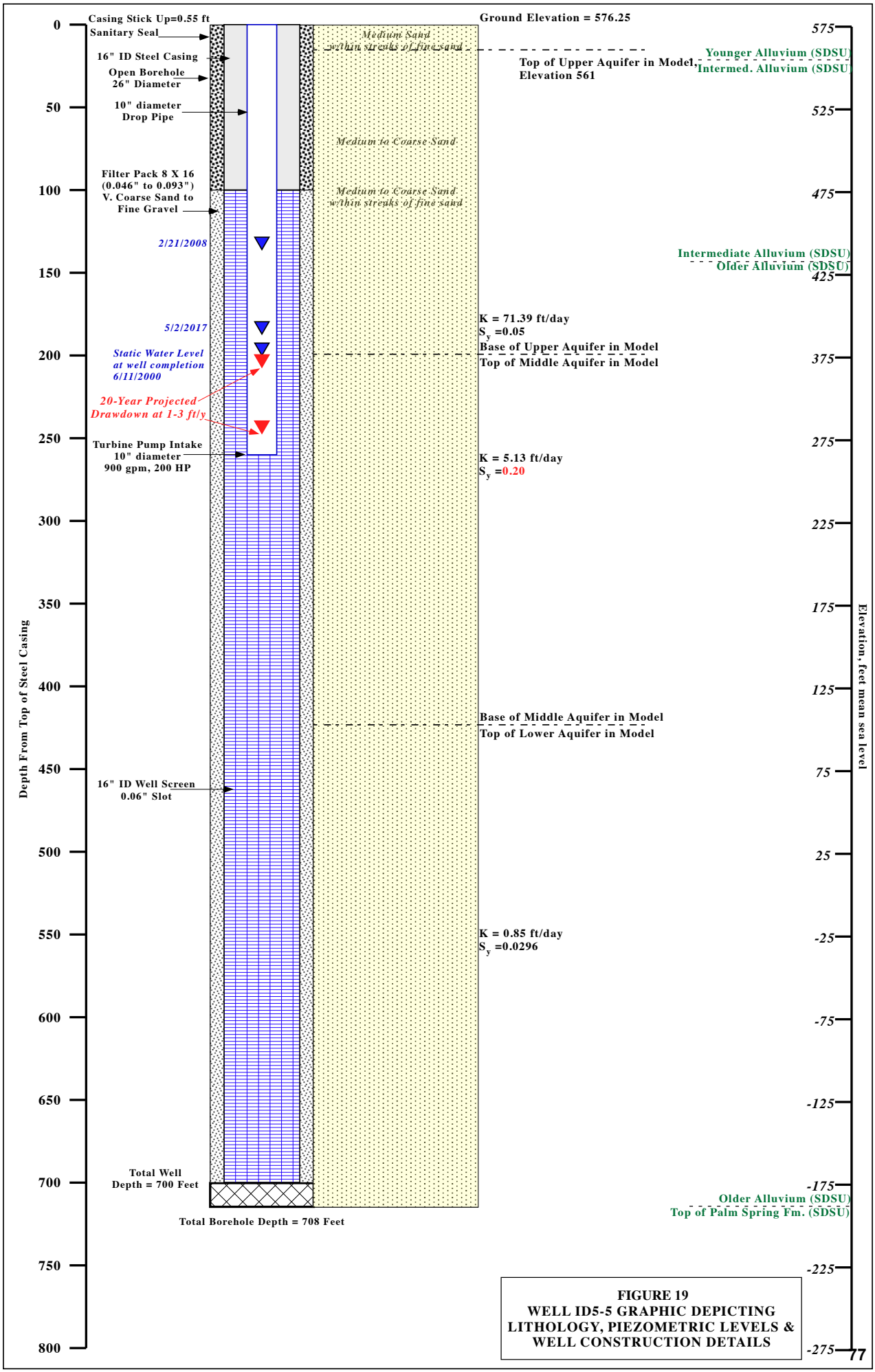


FIGURE 19
WELL ID5-5 GRAPHIC DEPICTING LITHOLOGY, PIEZOMETRIC LEVELS & WELL CONSTRUCTION DETAILS

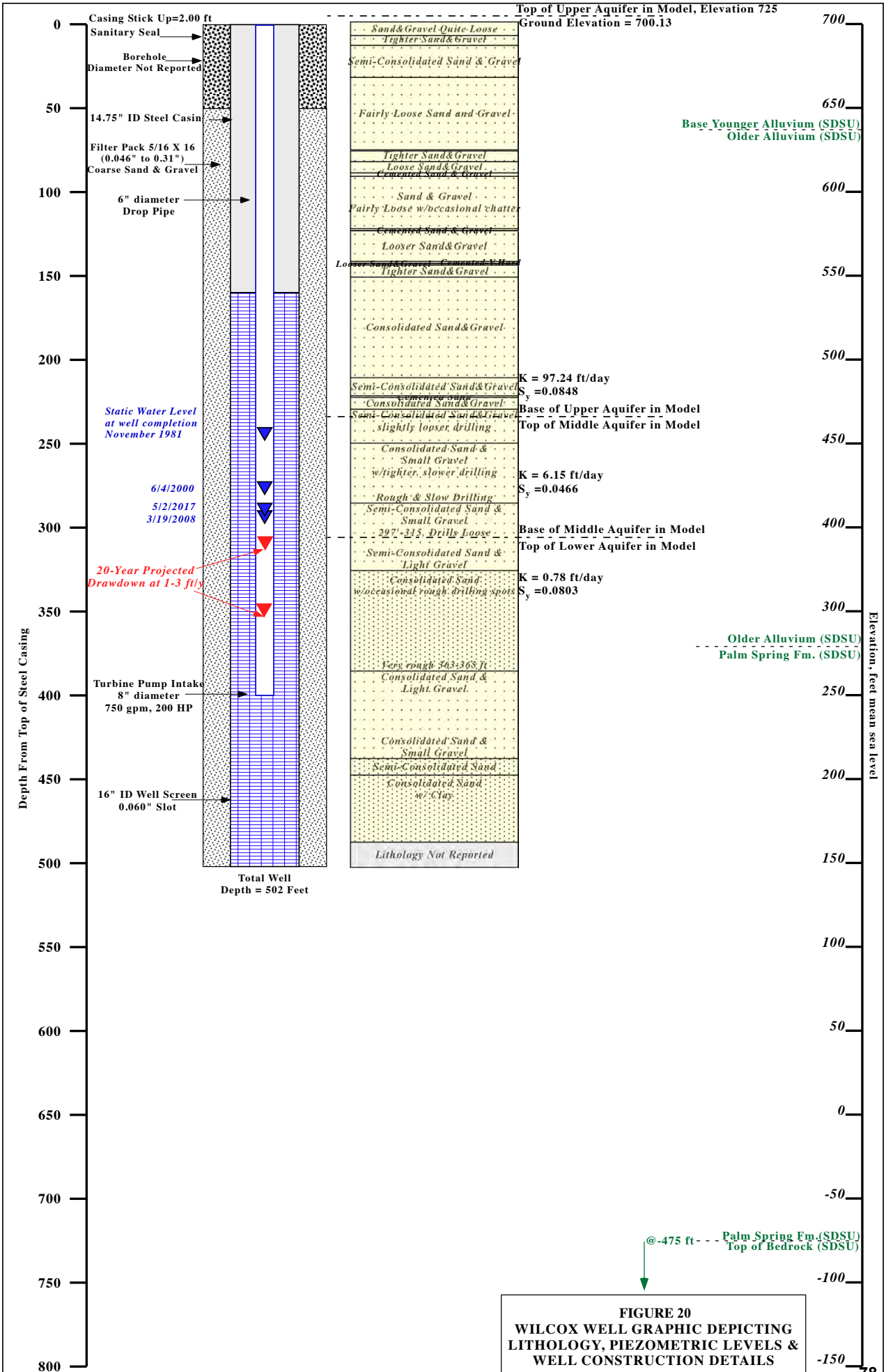


FIGURE 20
WILCOX WELL GRAPHIC DEPICTING LITHOLOGY, PIEZOMETRIC LEVELS & WELL CONSTRUCTION DETAILS

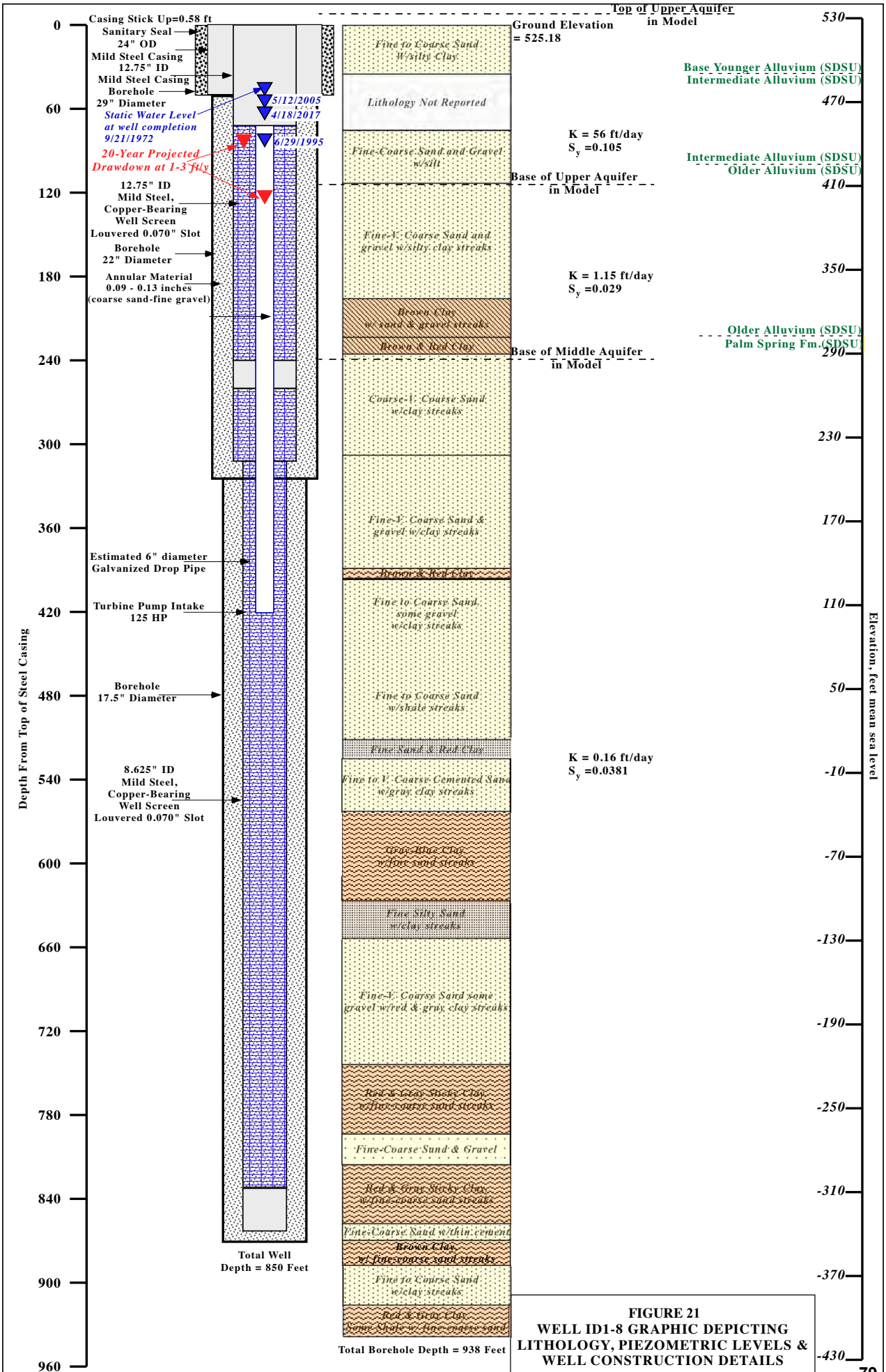


FIGURE 21
WELL ID1-8 GRAPHIC DEPICTING LITHOLOGY, PIEZOMETRIC LEVELS & WELL CONSTRUCTION DETAILS

4.0 EFFECT OF CONTINUED OVERDRAFT (LONG-TERM WATER LEVEL DECLINE) ON AQUIFER CONDITIONS AT BWD WELLS

The long-term ability of a well to produce water is directly related to the saturated thickness and hydraulic conductivity of the aquifer where a well is constructed. A parameter known as transmissivity, T, is used to support numerical estimates of aquifer productivity and in well hydraulics. It is the product of the saturated thickness (b, in feet) multiplied by the hydraulic conductivity (K, in ft/day), or K*b. The higher the value of T, the greater will be the amount of water that can flow through an aquifer and enter a water supply well. Declining water levels cause the aquifer transmissivity to decrease as a function of the saturated thickness as there is simply less water flowing through an aquifer and into a well. T, for a layered aquifer, is the sum of the transmissivities of each of the layers.

Transmissivity calculations were conducted for each of the wells based on current water levels, the aquifer layer elevations developed by the USGS for use in the model, and the hydraulic conductivity at the well. Future water levels were then calculated based on current rates of water level decline observed at each of the wells as depicted in the well hydrographs in **Section 2.2**. While not a direct assessment of well yields, the calculations provide insight regarding how overdraft will affect long-term well yield.

TABLE 5

	Well	delWL, ft/yr	K, upper ft/day	b, upper ft	K, middle ft/day	b, middle ft	K, lower ft/day	b, lower ft	rated gpm
NMA	**ID4-4***	2.0	41.77	8	3.92	420	0.54	72	395
	ID4-11	1.0	41.27	12	4.49	268	0.92	252	920
	ID4-18	2.6	97.15	74	5.87	170	0.52	0	130
CMA	**ID1-10***	1.0	82.61	0	5.26	171	0.28	0	317
	ID1-12	1.4	56.99	0	5.67	265	0.12	147	890
	ID1-16	0.6	96.62	0	6.35	83	0.80	230	848
	ID5-5	1.0	71.39	13	5.13	225	0.85	276	542
	Wilcox	0.9	97.24	0	6.15	0	0.78	192	205
SMA	**ID1-8**	4.5	56.00	47	1.15	102	0.16	498	448
			provisional estimate (after well replacement)						

The calculations for each of the wells are based on the saturated sediment thickness based on the depth of each of the wells. As illustrated by **Figure 2** and the values in **Table 5**, the hydraulic conductivities (K, in ft/day) decrease from the upper to the middle aquifer, and again from the middle to the lower aquifer. The aquifer thicknesses (b, in ft/day) vary depending on aquifer geometry and degree of overdraft. Note that the upper aquifer has been substantially

dewatered in all but 2 of the wells, and the middle aquifer has been dewatered at the Wilcox well. The results of the calculation are shown in graphical form in **Figures 22** and **23**, below, and further discussed in **Section 5** and in **Table 6**.

FIGURE 22

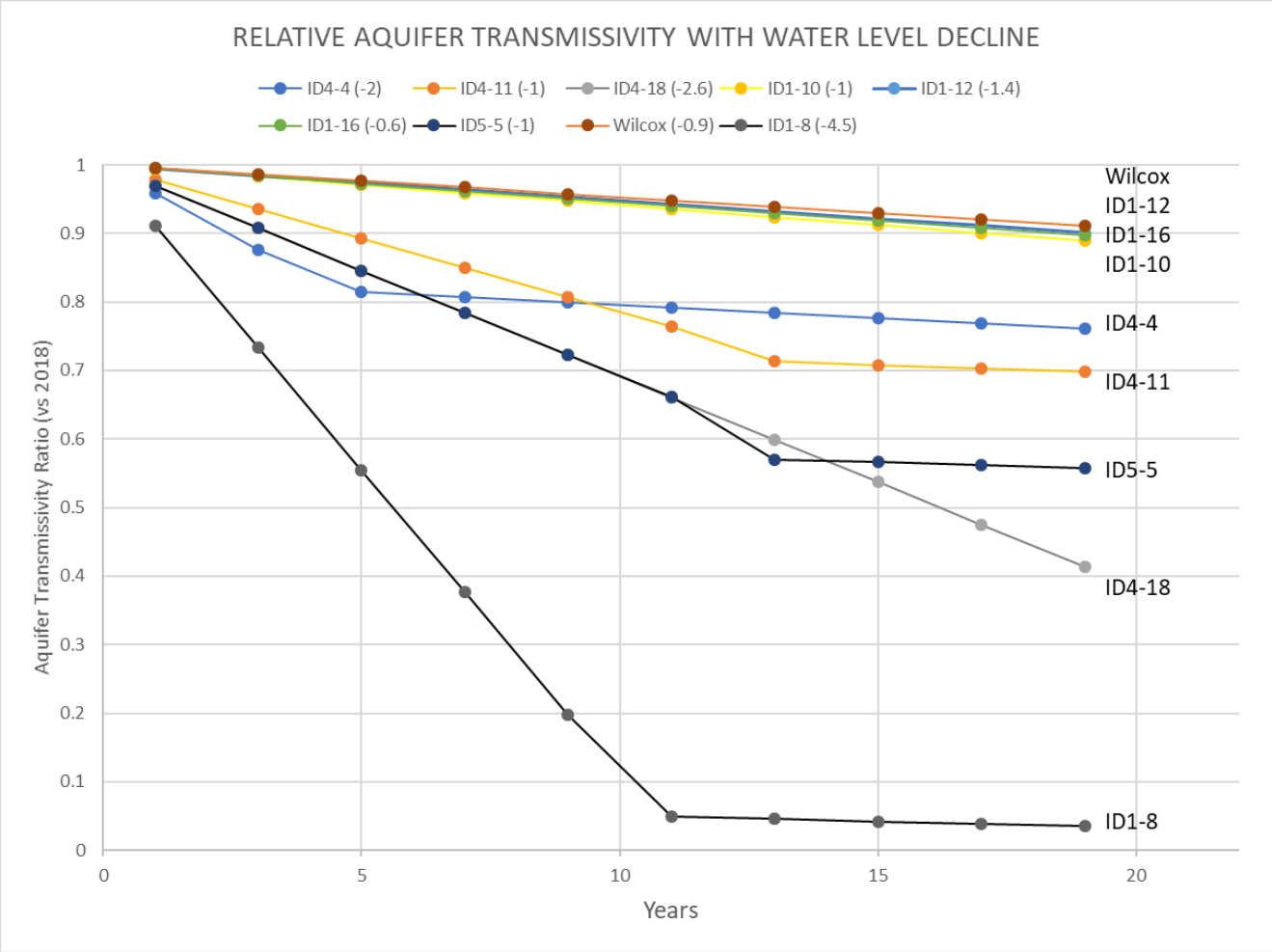


Figure 22 depicts the change in transmissivity over time expressed as a ratio, starting at a value of 1 and decreasing. The annual rate of water level decline is noted for each well in the chart labels, was assumed constant, and ranges from 0.6 to 4.5 ft/year. A future water level decline rate of 1.0 ft/year is provisionally assumed for the ID1-10 replacement well. Three behaviors can be noted:

- Linear decrease (Wilcox, ID1-12, ID1-16, and ID1-10) to approximately 90% of initial. Water levels remain within an aquifer layer so T decreases linearly with water levels. For example, a 10% decrease in water level equates to a 10% decrease in T.

- T decreases linearly but at a much higher rate (ID4-18). Here the more prolific upper aquifer is being dewatered so the impact on T is more severe, decreasing to approximately 40%.

- The decrease in T after the upper aquifer is dewatered changes. This is observed in ID4-4, ID5-5, and ID1-8 after 5, 13, and 11 years, respectively.

FIGURE 23

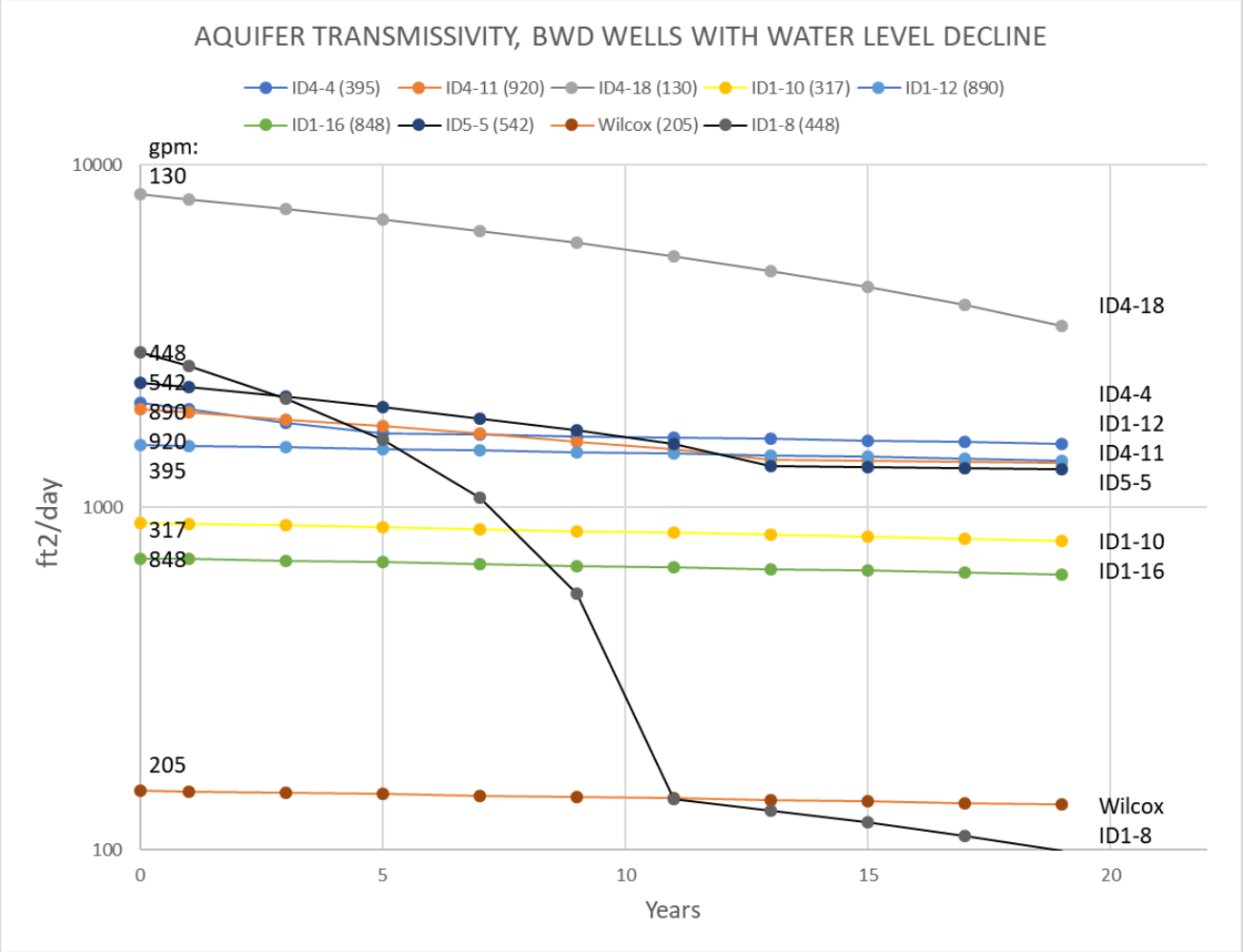


Figure 23 shows the magnitude of the changes in Transmissivity over time at the various well locations. The changes in the magnitude of T per well are depicted in **Figure 22.** Significant changes occur when an aquifer that provides water to a well is dewatered. The chart illustrates the following:

- Well ID1-8, where water levels are declining 4.5 ft/year, is severely affected by overdraft. For reference it is currently rated at 448 gpm and the Wilcox well is at 205 gpm.

- Dewatering of the more prolific, higher permeability upper aquifer is having a significant effect on ID4-18, and a lesser effect on ID5-5.

- The calculated T values do not necessarily reflect the observed well performance as the well conditions are not accounted for. The gpm ratings are indicated along the left side of the chart. ID4-18, a well reportedly in poor condition, is located in an area of high T but has a relatively poor production rate.

Long-term overdraft has led to the loss of the upper aquifer as a source of water for many of the BWD wells, and the upper aquifer will become dewatered over the next 20 years at the currently-observed rates of water level decline in all but one of the wells (ID4-18 is the exception). Fortunately, the middle aquifer has proven to be a reliable source of water with sufficient production rates to meet current BWD demand.

Water supply well production rates are expected to decrease as a result of ongoing water level decline. The greatest impact occurs when the upper aquifer is dewatered as indicated by the four wells (ID4-4, ID4-11, ID5-5, and ID1-8) where the upper aquifer is projected to become dewatered as best illustrated in **Figure 22**. For reference the hydraulic conductivity of the Upper Aquifer included in the model ranges from 9 to 49 times that of the Middle Aquifer. This means relative to potential aquifer productivity that a 10-foot thick layer of the Upper Aquifer is equivalent to a 90- to 490-foot thick layer of the Middle Aquifer.

Where the upper aquifer has already been dewatered (e.g. Wilcox, ID1-12, ID1-16, and ID1-10) transmissivities decrease by approximately 10% and the wells are relatively unaffected. ID1-8 is especially affected because of water levels that are falling at a rate of 4.5 ft/yr. **Figure 23** shows the calculated values of transmissivity over time. Review of the results supports that the magnitudes of transmissivity are in a range where the wells should remain productive, with the exception of ID1-8.

The transmissivity values are used to provide an approximate measure of the potential decrease in well productivity. The flow rates are adjusted based on the change in transmissivity presented in **Figure 22** and the calculations presented in **Table 6**.

TABLE 6

	NMA			CMA					SMA
Well:	**ID4-4***	**ID4-11**	**ID4-18**	**ID1-10***	**ID1-12**	**ID1-16**	**ID5-5**	**Wilcox**	**ID1-8**
Rated Flow, gpm	395	920	130	317	890	848	542	205	448
% T at 10 years	80%	80%	70%	95%	95%	95%	70%	95%	15%
Adjusted Rate, gpm	316	736	91	301	846	806	379	195	67
% T at 20 years	75%	70%	40%	90%	90%	90%	55%	90%	5%
Adjusted Rate, gpm	296	644	52	285	801	763	298	185	22
	* Poor condition wells scheduled to be replaced in 2019.								
	Evaluation of Pumping Rate at 1600 AFY Demand (992 gpm continous pumping rate)								
	TOTAL	% loss	**8 hr/day**	versus demand	**12 hr/day**	versus demand			
Flow Rate, gpm	4695		1565	158%	2348	237%			
Adjusted Rate, 10 yrs	3737	20%	1246	126%	1868	188%			
Adjusted Rate, 20 yrs	3347	29%	1116	112%	1673	169%			

The calculations presented in **Table 6** assume that the current well performance depends solely on the model-calculated transmissivities. Individual well performance depends on multiple factors aside from the transmissivity. These include whether a well is properly functioning and hydraulically efficient, the heterogeneity of sediments in the vicinity of a well, and how the well and aquifer will respond to pumping. While multiple assumptions and approximations are involved in the calculations, they do provide insight regarding how the well productivity can be expected to change over time as water levels decline. Here periods of 10 and 20 years are included for general comparison. Two total well pumping rate values are presented as a range based on an operating schedule of either 8 or 12 hours/day. Review of the results supports:

- Current flow rates provide 158 to 237 percent of current demand capacity, assuming that all of the wells are in production and that the flows can be managed by BWD's water storage and distribution system.

- After 10 years the wells provide 126 to 188 percent of current demand capacity- a reduction of approximately 20% from current capacity.

- After 20 years the wells provide 112 to 169 percent of current demand capacity- a reduction of approximately 29% from current capacity.

- Production rates of Wells ID4-18 and ID1-8 significantly diminish. These wells are likely to be no longer cost-efficient to operate.

This analysis indicates that while combined pumping capacity of the wells will support BWDs' current demand, the reserve capacity of the water supply is diminishing and at least two of the wells may no longer be cost effective to operate. Pumping (lift) costs will also increase as water levels fall. Some of the impacts on reserve capacity may be offset, depending on timing, by pumping rate reductions required under the GSP.

The transmissivity-based production rate analysis does not account for the physical condition of the wells and is based on the aquifer properties for three distinct aquifer layers as describes in the USGS groundwater model. Well conditions are known to be poor at ID4-4, ID1-10, and ID4-18 and their production rates as tested (see **Table 6**) likely underestimate potential well performance. Wells ID4-4 and ID1-10 are scheduled to be replaced in 2019 and both will be completed in the middle and possibly lower aquifers depending on the results of drilling and testing. For additional details please refer to Dudek's report entitled *Proposition 1 SDAC Grant Task 5 Water Vulnerability/New Extraction Well Site Feasibility Analysis* (dated 12/21/2018). Also included in the 12/21/2018 report is information regarding the physical condition of BWD's wells, evaluations of well longevity, identifies six pressure zones used in BWD's water supply system, and supporting details and recommendations for well replacement.

The foregoing analysis examines the total well production and does not include the ability of BWD's pipeline and storage system to deliver the water. Review and analysis of ongoing well testing and water level monitoring will be necessary to track the performance of the wells relative to the approximations and estimates developed for this report.

5.0 SUMMARY

The Borrego Water District (BWD) actively operates eight water supply wells and has a ninth in reserve. Of concern is the impact of continued overdraft to BWD's ability to reliably produce drinking water. Overdraft is being addressed under the Sustainable Groundwater Management Act (SGMA) by the development and implementation of a Groundwater Sustainability Plan (GSP) as previously explained in this report. The combined production from these wells is sufficient to meet the current water demand provided the water can be delivered via BWD's water storage and distribution system. Two wells (ID4-4 and ID1-10) are in poor condition and scheduled for replacement in 2019. The new wells will improve the reliability of the water supply and will likely increase BWD's available pumping capacity.

Long-term overdraft has affected all of the BWD water supply wells and water level decline is ongoing. Current rates of water level decline at BWD wells range from 0.6 to 4.5 ft/year. BWD water supply wells are becoming increasingly reliant on water produced from deeper, less productive sediments. This results in wells that become less productive and to have increased pumping costs as water levels decline. Conceptually the aquifer system consists of three units termed the upper, middle, and lower aquifers. Of these the upper aquifer has historically water proven to be the most prolific since it generally consists of coarse-grained alluvial sediment with hydraulic conductivities roughly 10 times higher than the middle aquifer. Much of the upper aquifer has been dewatered forcing well production to become dependent on the middle and lower aquifers.

Calculations presented in **Section 4** support that the combined well production has the potential to continue to be able to support the quantity of water necessary for BWD's current water supply demands over the next 10 to 20 years. While the middle aquifer and lower aquifers are less prolific than the upper aquifer, BWD water supply wells are currently able to maintain pumping rates ranging from 130 to 920 gpm. Future water production rates are projected to decrease approximately 20 to 30 percent over the next 10 to 20 years based on current rates of water level decline.

Note that this analysis does not consider the potential impact of overdraft on water quality or future water demand related to undeveloped properties in the Borrego Valley. Please refer to the GSP and a separate ENSI report dated 12/7/2018 included within the GSP that provide an assessment of how groundwater quality is being affected by overdraft and land use. As noted in **Section 1.1.1**, the future water demand due to undeveloped parcels as currently zoned and/or entitled may prove to be unsupportable under SGMA constraints. Evaluation of future water demands will be addressed under SGMA will be included in the GSP.

ASSESSMENT OF WATER LEVEL DECLINE, HYDROGEOLOGIC CONDITIONS, AND POTENTIAL OVERDRAFT IMPACTS FOR ACTIVE BWD WATER SUPPLY WELLS

This report examines the model results and aquifer conditions at the scale of BWD water supply wells. This was done by comparing the current model results at BWD water supply wells together with review of driller's logs and the aquifer boundaries and parameters included in the model construction.

Analyses are presented in this report to:

1) Compare observed and modeled water level decline at BWD wells (**Section 2**). Hydrographs depicting groundwater levels measured over time at each of the BWD water supply well were developed and presented in this report. Water level observations are the primary measure of overdraft.

2) Examine available lithologic data from BWD wells to assess the performance of the large-scale groundwater model relative to local conditions (**Section 3**). Hydrogeologic evaluation of driller's logs and review of available detailed geologic cross-sections and structure maps were conducted to establish stratigraphic conditions at each BWD water supply well. The model was developed to address groundwater conditions across the 88 mi^2 Subbasin and necessarily requires that aquifer conditions be assessed at a relatively large scale as compared to hydraulic conditions that occur at the scale of individual wells.

3) Evaluate potential changes in aquifer productivity, as measured by aquifer transmissivities used in the model, in the vicinity of BWD wells as a function of water level decline (**Section 4**).

The overall goal of the GSP is to attain a sustainable hydrologic condition where water extracted from the aquifer system is replenished by recharge and thus eliminate long-term overdraft within the Borrego Subbasin. The analyses of this report assume that current water level decline rates observed at BWD wells will continue over the next 20 years. Overdraft will affect all of the wells, with the most significant loss in production occurring in a subset of the wells when the upper aquifer is dewatered. As water production shifts to the middle aquifer the well capacities decrease and production rates are expected to generally decrease to varying degrees as a function of water level.

Among the findings of this report include:

1. Hydrograph Analyses

- Current rates of water level decline range from 0.9 to 4.5 ft/yr. The highest rate is observed at ID1-8 where nearby Ram's Hill wells are being operated. On average the other wells are experiencing a decline of approximately 1.3 ft/year (ranging from 0.6 to 2.6 ft/year).

- The upper aquifer as defined in the groundwater model has been dewatered in 4 of the 9 BWD wells (**Table 5**). Where the upper aquifer remains saturated three of the wells have residual saturations of 8 to 13 feet and will soon be dewatered. The upper aquifer in the other 2 wells may remain viable with 47 and 74 feet of remaining saturations, respectively.

- From a BWD perspective, overestimated water level decline by the groundwater model is preferred at it provides a factor of safety to the use of the model for water supply management. This applies to four wells: ID4-4, ID4-11, ID4-18, and ID5-5. A fifth well, ID1-8, is being overestimated by the model but review of the well conditions supports that conditions may change.

- Underestimated water level decline is of concern from BWD water supply management perspective. This applies to two wells- Wilcox and ID1-16. The Wilcox well is currently inactive and available for reserve capacity.

- The model prediction closely matches current hydrographs at ID1-12.

- The model behavior at ID1-10 is not understood and the observed water levels are very dissimilar to the model predictions. The model and well conditions are similar so it is suspected that the model behavior is not related to the aquifer properties used in the model. ID1-10 is in poor condition and scheduled to be replaced in 2019.

  In terms of the use of the groundwater model for prediction of BWD well water elevations in the GSP, the overall rate of water level decline determined by the model is similar to what has been observed in all wells except for ID1-10. There are differences between observed and model-calculated water levels (as illustrated by **Figure 3)** that will need to be monitored. While the model may be recalibrated or refined in the future, it remains useful for evaluation of BWD's water supply wells provided the differences between observed and model-calculated water levels are considered.

2. Lithologic Review

- There is evidence based on review of the lithologic logs that the model may underestimate the thickness of the upper aquifer at six of the water supply wells (**Table 7**). If this is the case, the model may be using lower hydraulic conductivity for the sediments that occur in the vicinity of the water supply wells. This will cause the model to overestimate the rate of water level decline where the upper aquifer has not yet been dewatered.

- Comparison of local hydrogeologic conditions to the generalized hydrogeologic conditions incorporated into the broader scale groundwater model indicates that there is considerable uncertainty associated with the designation of hydrogeologic units. For example, the aquifer system is described as unconfined in the USGS Model. However, the driller's log review supports that fine-grained strata that could well be confining units occur in ID4-11 and ID1-12. If so, future performance of these wells may vary from what would be predicted for wells pumping from a confined aquifer.

  Of the BWD wells, ID4-11 and ID1-12 have the highest specific capacity (159 and 86 gpm/ft, see **Table 1**). A high specific capacity indicates a high performance well. Review of lithologic logs suggest confined aquifer conditions occur instead of the unconfined conditions assumed in the model. The well performance will likely change if water levels drop sufficiently to cause the aquifer to be dewatered to a depth that occurs below the confining layer.

- The local stratigraphy inferred from the driller's logs can differ significantly from the regional model aquifer boundaries. The discrepancies observed between the model and the drilling logs were used to evaluate whether the model, as configured, has the potential to over or under estimate water level elevation decline (**Table 5**). Where the model-predicted water levels are lower than observed, review of the lithologic logs support that higher hydraulic conductivities may occur than incorporated by the model.

- The assessment of the model based on the well hydrostratigraphy compared favorably with the independent review of the hydrographs (**Table 6**). Since there are multiple parameters such as pumping and recharge rates that can affect the model, the well log review provides confirmation of the potential predictive bias of the model. For general reference the well logs use a range of 1 to 3 ft/year to graphically depict potential water level decline over the next 20 years.

- Wells ID4-4, ID4-11, ID1-12 are expected to have the least decline in well performance as drawdown continues over the next 20 years (**Table 5**)

- Wells ID4-18, ID1-16, and the Wilcox Well are expected to have a greater decline in well performance as drawdown continues over the next 20 years (**Table 5**).

- Future hydraulic performance at Wells ID1-8, ID1-10, and ID5-5 is subject to high uncertainty. Inconsistencies between USGS and SDSU interpretations of stratigraphic conditions lead to different conclusions at Wells ID1-8 and ID1-10. Lithologic descriptions reported by the drilling contractor at Well ID5-5 are too generalized to develop a meaningful assessment.

- Measured aquifer parameters have not been measured in many locations within the Subbasin. Measured aquifer parameters via aquifer testing and vertical flow meter profiling at BWD water supply wells would be expected to reduce uncertainty by better refining model calibration and drawdown prediction. The primary benefit would be to provide BWD a better understanding of how well yield will decline as drawdown continues.

TABLE 7

Well ID	Upper Aquifer Status as Defined by USGS Model Geometry (as of 4/2018)	Model Prediction vs Observed Water Levels (Table 3)	Lithologic Review (Section 3)	20 Year Model-Projected Transmissivity Change at Well (Section 4)	20-Year Projection of Future Aquifer Condition	Summary of Assessment
					Unconfined or Confined/Leaky?	
ID4-4 (TBR)	8 ft of saturated fine-grained sediments remain.	Model overestimates water level decline	Model overestimates water level decline	Moderate Reduction (~75%). Upper aquifer dewaters at ~ 5 years.	Confined until recently. Clay reported at base of upper aquifer as defined in the model.	Production supported by potentially high yielding upper aquifer basal sediments; however, a marked change in model well performance may occur as the aquifer is dewatered over the next ~5 years. Well performance will then likely decline relatively slowly. Lithologic logs indicate fine-grained, low permeability sediments that may have acted as a confining layer. Well is scheduled to be replaced so testing will provide more certain understanding of potential well production.
ID4-11	12 ft of saturated fine-grained sediments remain. Nearly dewatered.	Model overestimates water level decline	Model overestimates water level decline	Moderate Reduction (~70%). Upper aquifer as defined by the model dewaters at ~ 13 years.	Confined/Leaky; moderate change in well yield unless water level drops below confining layer.	Lithologic log indicates that well performance will likely decline relatively slowly as next 20 years will bring a slow dewatering of a fine-grained, low permeability sediments that may act as a confining layer. Local conditions likely are confined now and will remain so assuming 1-3 ft/yr drawdown. Middle aquifer permeability may be significantly greater and support more production versus the value assigned in the model as the driller's log shows sediment texture is fairly coarse-grained.
ID4-18 (PTBR)	74 ft of saturated sediments remain	Model overestimates water level decline	Model overestimates water level decline	Reduces to ~40% as upper aquifer dewaters. T remains fairly high if upper aquifer remains vialble	Unconfined	Well performance may decline roughly in half as the thickness of the better yielding sediments are dewatered and reduced by roughly half over the next 20 years. Anticipate that the pump intake will need to be lowered as static groundwater levels drop to or below the current pump intake.
ID1-10 (TBR)	Dewatered in late '90s.	Uncertain, note that water levels are rising	Model and Lithology are Similar	Gradual Reduction (90%)	Unconfined. Well is realtively shallow and currently has about 175 ft of wetted screen. Accelerated water level decline of 2 to 3 ft/yr would be significant impact to water production.	Well performance may decline gradually as wetted screen length diminishes with drawdown over 20 years. No key high yield zones identified in well log, but limited well depth and screen length puts well at risk of decreased production. This assessment is subject to a fair degree of uncertainty as groundwater levels have been on the rise and the cause of that rise has not yet been evaluated. Well is scheduled to be replaced so testing will provide more certain understanding of potential well production.
ID1-12	Recently dewatered.	Model provides reasonable prediction of measured heads.	Model overestimates water level decline	Gradual Reduction (90%)	Unconfined. Confining layer will soon be dewatered. Underlying sand and cobbles may have greater K than the model assumes.	Well performance may significantly change over the 20 year projection if the area around the well changes from a confined condition to an unconfined condition. The lithologic log shows ~200 feet of coarse grained sediments with little clay underlain by ~220 feet of coarse grained sediments with clay. The occurence of realtivley productive sediments at depth suggests water level decline over the next 20 years will not greatly impact well performance.
ID1-16	Dewatered.	Model underestimates water levels versus observed.	Uncertain: Driller's log lacks fine-grained sediments	Gradual Reduction (90%)	Unconfined. However conditions are uncertain due to the conspicuous absence of silts and clays in the driller's log	Well performance may decline gradually on the order of 10 to 30% as aquifer thickness is reduced 20 to 60 ft over the next 20 years. While the driller's log indicates that the lower aquifer will support water production as well as the middle aquifer, this assessment is uncertain as the driller's log suspiciously lacks fine-grained sediments.
ID5-5	13 ft of saturated sediments remain	Model overestimates water level decline	No Data	Reduces to ~55% as upper aquifer dewaters in ~ year 13. T of middle aquifer remains sufficient to support well production.	Unconfined. However, the lithologic log lacks details	Though driller's log is grossly simplified and provides little information, neaby SDSU stratigraphic analysis suggests good permeability and over 500 ft of middle aquifer thickness to support water production.
Wilcox	Dewatered prior to 2000. Middle aquifer dewatered in ~2015.	Model underestimates water levels versus observed.	Uncertain: Middle auifer may be thicker than modelled but sediments are consolidated and may be lower K	Gradual Reduction (90%). Water coming from Lower Aquifer so pumping rate expected to be relatively low.	Unconfined. Presence of consolidated and semi-consolidated sediments may lead to semi-confined/leak auifer conditions.	Production is from the lower aquifer. Well currently has about 200 ft of wetted screen. Well performance may decline gradually as the wetted screen length diminishes due to overdraft. No key high yield zones identified in well log, but limited well depth puts well at risk to production loss due to overdraft.
ID1-8	47 ft of saturated sediments remain	Model overestimates water level decline	Model overestimates water level decline	Sharp Reduction (to 5%) when upper aquifer dewaters in ~ year 11. Water will then be coming from middle aquifer so pumping rate expected to be sufficient to support the well.	Unconfined. Realtively thick clay layers at depth suggest the Lower Aquifer will transition to leaky or confined aquifer conditions.	Model anticipates a significant drop in K when the upper aquifer dewaters. Lithologic log and SDSU analysis suggests thicker and more permeable conditions where the well is screened. By the model's critieria, the upper aquifer may be dewatered in ~11 years with a sharp reduction in well productivity. Lithologic log data and SDSU analyses suggest the upper aquifer is thicker which suggests production will not be impacted as severely.
Notes:	TBR= to be replaced; PTBR = potentially to be replaced (see text)					

3. Relative Aquifer Productivity (Transmissivity as function of water level decline)

- Well production is directly related to the aquifer transmissivity. Calculations presented in **Section 4** provide insight regarding the effect of water level decline on the aquifer transmissivity at each well. The USGS model parameters including aquifer thickness and hydraulic conductivity were employed in the calculations. The well production capacity is compared to a baseline demand of 1600 AFY and a range is presented where the wells are operated from 8 to 12 hours/day. Review of the results supports:

    - Current flow rates provide 158 to 237 percent of current demand, assuming all of the wells are in operation fully connected into BWD's water storage and distribution system.
    - After 10 years the wells provide 126 to 188 percent of current demand, decreasing to 118 to 169 percent after 20 years. Assuming current rates of water level decline and overdraft, BWD's production capacity potentially decreases by 29% - roughly by a third, over the next 20 years.
    - Production rates of Wells ID4-18 and ID1-8 significantly diminish. These wells may prove to not be cost-efficient to operate.

    The transmissivity analysis indicates that while combined the pumping capacity of the wells will support BWDs' current demand, the reserve capacity of the water supply is diminishing and two of the wells may no longer be useful. The reduced production capacity of BWD water supply wells will likely be offset by pumping rate reductions will be required under the GSP. On the other hand, much of BWD's service area remains undeveloped and a significantly increased water demand may be realized due to population growth (see **Section 1.1.1**).

- Three conditions occur at BWD wells that depend on whether the transmissivity calculations indicate that the upper aquifer has been or will be dewatered (see **Figure 22**).

    - Where the upper aquifer has been dewatered and production comes from a single deeper aquifer, aquifer productivity declines linearly. A linear decrease occurs in four wells (Wilcox, ID1-12, ID1-16, and ID1-10).
    - In one case (ID4-18) the upper aquifer remains sufficiently saturated to remain viable. In this case the transmissivity decreases linearly but at a much higher rate (ID4-18).
    - In four cases the upper aquifer is dewatered over the next 20 years, resulting in a distinct decrease in aquifer transmissivity. This is observed in ID4-4, ID5-5, and ID1-8 after 5, 13, and 11 years, respectively.

6.0 RECOMMENDATIONS

This analysis of aquifer conditions based on observed conditions at BWD wells revealed there are potentially significant differences in hydrogeologic stratigraphy, groundwater flow parameters, and groundwater level decline rates among the wells. The analyses provided in this report highlight how a large-scale groundwater model necessarily approximates and averages aquifer properties across the Subbasin. Identified differences between broad scale model conditions and site-specific well conditions are intended to be used to identify how the differences may impact BWD's management decisions. For example, identification of overestimated model-predicted groundwater elevation decline at a given well location provides BWD management with a factor of safety when assessing model results for an individual well. Conversely, model-predicted drawdown rates that underestimate observed well specific conditions serves notice to BWD management the need to more carefully monitor conditions at specific wells and to develop contingency plans should the well performance be adversely impacted by overdraft conditions. While the model provides insights toward future water level conditions, the ultimate test of the whether overdraft has been controlled by pumping reductions will come from water level measurements.

Going forward it is understood that at least two new wells will be installed by BWD. Accordingly, it is to BWD's advantage to improve their understanding of well-specific conditions and potential overdraft impacts through ongoing site characterization. Opportunities to do so include:

- Conduct detailed geologic sampling and geophysical logging during future well installation and construction to improve the current interpretation of aquifer conditions at water supply well locations.

- Conduct aquifer testing at new water supply wells to optimize pump selection and to quantitatively measure basic groundwater modeling input parameters. Use nearby wells to the extent possible as potential observation wells so that an extended aquifer volume may be tested and groundwater storage parameters used in the model can be directly estimated.

- When accessible, conduct video logging of wells to assess the physical condition of the well casing and screen. Also evaluate the extent and type of microbial biomass that may be accumulating in the wells.

- Conduct vertical flow meter tests in new and existing water wells to quantitatively characterize how well yield changes with depth and to support selection of pump size and pump depth. Combine these data with ongoing specific capacity testing (measurement of flow rates versus drawdown) to project long-term well performance as a function of water level decline.

- If the model is updated consider re-discretization of the model in the areas of critical to BWD water production by adding layers to the model and locally increasing the number of nodes and this decreasing the nearby cell sizes. Also consider the use of an irregular grid using MODFLOW-USG, an unstructured grid version of MODFLOW.

- The USGS Model Report states that 230 well logs were reviewed and analyzed to provide averaged lithologic properties per aquifer layer (i.e. upper, middle, and lower). Consider re-analyzing the USGS' lithologic texture data using a 3-dimensional approach to examine potential changes with depth. When news wells are drilled and tested, jointly interpret the geologic and geophysical logs, and well hydraulic test findings to the prior lithologic texture data analysis.

- Consider detailed subsurface analysis of each of the well areas to further evaluate whether confined aquifer conditions occur locally. The primary reason for this is that the effect of pumping will be seen further from wells under confined aquifer conditions and well interference may become a complicating factor in the assessment of water level decline under the GSP. Geophysical techniques such as seismic reflection may prove applicable.

- Compile and review BWD's well testing information, such as flow and pump test records, and assess changes over time that may be related to water level decline due to overdraft. Specific capacity data may provide additional insights relative to how production rates have decreased as a result of overdraft.

7.0 REFERENCES

All references are included as footnotes or within the text.

APPENDIX A

WELL TESTING REPORT
by
PUMP CHECK Pumping Systems Analysis, Riverside, CA
April 24, 2018

PUMP CHECK
PUMPING SYSTEMS ANALYSIS • RIVERSIDE CA, SINCE 1958
P.O. Box 5646 Riverside, CA 92517 (951) 684-9801 Fax (951) 653-1950

April 24, 2018

Greg Holloway
Borrego Water District
P.O. Box 1870
Borrego Springs, CA 92004

Dear Greg:

Congratulations! The pump and motor work performed at **ID 1 Well 12** has resulted in a reduction of 163.5 kWh's per acre foot water pumped. Based on the acre feet water pumped last year by ID 1 Well 12, **the annual savings will be 50,750 kWh's.**

This is enough energy saved (kWh's) to power 4.8 average household for one year. *(National average for electricity consumed per household 10,500 kWh's per year. Source: U.S. Department of Energy, Table 1.5 Energy Consumption, Expenditures and Emissions Indicators, 2012, www.energy.gov).*

And

Reduce Green House CO2 gases by 46.9 tons annually.
(National average emissions factor for electricity is 1.85 pounds CO2 per kilowatt-hour. Source: Energy Information Administration. Electric Generator Report 2013, Table 8.2, www.eia.doe.gov).

Continued regular pump testing keeps you aware of the water table and pump operating conditions. This also provides current information for pump redesign when necessary. By tracking pump wear and potential saving from pump replacement, you can determine the most cost effective time to replace a pump. Pumping cost reduction is a major benefit of regular pump testing.

Please call me at (951) 684-9801 if you have any questions.

Sincerely,

Jon Lee

Jon Lee

PUMP CHECK

Pumping Systems Analysts

Since 1958

Hydraulic Test Report

(951) 684-9801 • Lic. 799498 • Fax (951) 684-2988

Borrego Water District
5037 Borrego Springs Road

Test Date: 03/16/2018
Pump type: DWT
Plant: ID 1 Well #8

A test was made on this well pump and the following information was obtained.

EQUIPMENT

PUMP:	Byron Jackson	SERIAL:	841L0168
MOTOR:	Newman	SERIAL:	S20046807
H.P.	125	LAT/LON:	33.12.191n116.18.860w
METER:	6578837	REF #:	PC 1222

TEST RESULTS

	TEST 1
Discharge, PSI	118.0
Discharge head, feet	272.6
Standing water level, feet	71.2
Drawdown, feet	47.7
Pumping water level, feet	118.9
Total pumping head, feet	391.5
Gallons per minute flow	**448**
Gallons per foot of drawdown	9.4
Acre feet pumped per 24 hours	1.977
KW input to motor	64.7
HP input to motor	86.7
Motor load, % BHP	63.1
Measured speed of pump, RPM	1788
KWH per acre foot	785.2
Overall Plant efficiency in %	**51.0**

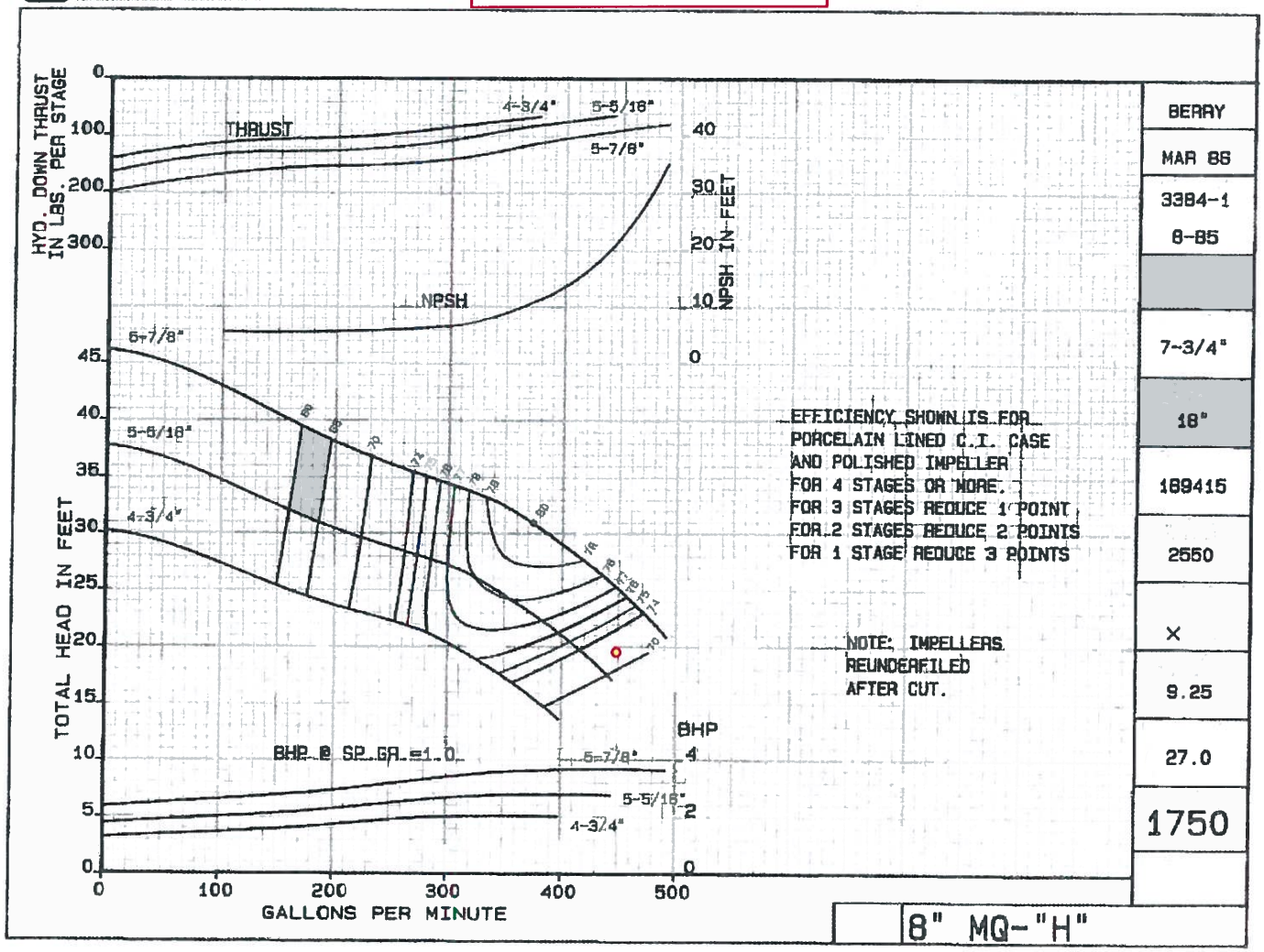
Test 1 was with this pump operating to waste as found at the time of the test.

The available water measurement location does not meet recommended industry standards. We recommend 8-10 diameters of straight pipe for the ideal test location.

If you have any questions please contact Jon Lee at (951) 684-9801.

ID 1 Well #8 3/16/2018
Test 1 391.5 h 448 q

PUMP CHECK
PUMPING SYSTEMS ANALYSIS - RIVERSIDE CA. SINCE 1950



BERRY
MAR 86
3384-1
8-85
7-3/4"
18"
189415
2550
X
9.25
27.0
1750

8" MQ-"H"

PUMP CHECK

Pumping Systems Analysts

Hydraulic Test Report

Since 1958

(951) 684-9801 • Lic. 799498 • Fax (951) 684-2988

Borrego Water District
4201 Borrego Springs Road

Test Date: 03/16/2018
Pump type: DWT
Plant: ID 1 Well #10

A test was made on this well pump and the following information was obtained.

EQUIPMENT

PUMP:	Aurora	SERIAL:	V81-726831
MOTOR:	Newman	SERIAL:	S20066201
H.P.	150	LAT/LON:	33.12.708n116.20.812w
METER:	6695547	REF #:	PC 1186

TEST RESULTS

	TEST 1
Discharge, PSI	133.0
Discharge head, feet	307.2
Standing water level, feet	213.9
Drawdown, feet	11.5
Pumping water level, feet	225.4
Total pumping head, feet	532.6
Gallons per minute flow	**317**
Gallons per foot of drawdown	27.5
Acre feet pumped per 24 hours	1.399
KW input to motor	59.0
HP input to motor	79.1
Motor load, % BHP	48.2
Measured speed of pump, RPM	1787
KWH per acre foot	1011.9
Overall Plant efficiency in %	**53.9**

Test 1 was with this pump operating to waste at the time of the test.

The airline length was calibrated at 352.5'.

The available water measurement location does not meet recommended industry standards. We recommend 8-10 diameters of straight pipe for the ideal test location.

If you have any questions please contact Jon Lee at (951) 684-9801.

Since 1958

PUMP CHECK

Pumping Systems Analysts

Hydraulic Test Report

(951) 684-9801 • Lic. 799498 • Fax (951) 684-2988

Borrego Water District
3352 Borrego Valley Road

Test Date: 03/16/2018
Pump type: DWT
Plant: ID 1 Well #12

A test was made on this well pump and the following information was obtained.

EQUIPMENT

PUMP:	No Data	SERIAL:	N/A
MOTOR:	Newman	SERIAL:	S21612703
H.P.	200	LAT/LON:	33.13.571n116.20.897w
METER:	6695546	REF #:	PC 1221

TEST RESULTS

	TEST 1	TEST 2
Discharge, PSI	215.0	226.0
Discharge head, feet	496.7	522.1
Standing water level, feet	145.5	
Drawdown, feet	10.4	9.3
Pumping water level, feet	155.9	154.8
Total pumping head, feet	652.6	676.9
Gallons per minute flow	**890**	**844**
Gallons per foot of drawdown	85.5	90.8
Acre feet pumped per 24 hours	3.932	3.732
KW input to motor	152.2	152.0
HP input to motor	203.9	203.7
Motor load, % BHP	93.8	93.7
Measured speed of pump, RPM	1788	
KWH per acre foot	929.1	977.6
Overall Plant efficiency in %	**71.9**	**70.9**

Test 1 was the normal operation of the pump at the time of the test. The other results were obtained by throttling the pump discharge.

The available water measurement location does not meet recommended industry standards. We recommend 8-10 diameters of straight pipe for the ideal test location.

The airline length was calibrated at 303.4'.

If you have any questions please contact Jon Lee at (951) 684-9801.

Since 1958

PUMP CHECK

Pumping Systems Analysts

Hydraulic Test Report

(951) 684-9801 • Lic. 799498 • Fax (951) 684-2988

Borrego Water District
951 Rangor Way

Test Date: 03/16/2018
Pump type: DWT
Plant: ID 1 Well #16

A test was made on this well pump and the following information was obtained.

EQUIPMENT

PUMP:	Layne & Bowler	SERIAL:	801084
MOTOR:	US	SERIAL:	V047590079-0005-R0007
H.P.	150	LAT/LON:	33.12.993n116.21.744w
METER:	6695579	REF #:	PC 1219

TEST RESULTS

	TEST 1
Discharge, PSI	134.0
Discharge head, feet	309.5
Standing water level, feet	230.9
Drawdown, feet	24.3
Pumping water level, feet	255.2
Total pumping head, feet	564.7
Gallons per minute flow	**848**
Gallons per foot of drawdown	34.9
Acre feet pumped per 24 hours	3.748
KW input to motor	127.9
HP input to motor	171.4
Motor load, % BHP	109.5
Measured speed of pump, RPM	1785
KWH per acre foot	818.9
Overall Plant efficiency in %	**70.6**

Test 1 was with the VFD operating at 60.0 Hz to waste at the time of the test.

The airline length was calibrated at 402.5'.

The available water measurement location does not meet recommended industry standards. We recommend 8-10 diameters of straight pipe for the ideal test location.

If you have any questions please contact Jon Lee at (951) 684-9801.

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Hydraulic Test Report

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Borrego Water District
1775 Borrego Springs Road

Test Date: 03/16/2018
Pump type: DWT
Plant: ID 4 Well #4B

A test was made on this well pump and the following information was obtained.

EQUIPMENT

PUMP:	Goulds	SERIAL:	N/A
MOTOR:	US	SERIAL:	Y017664360-0005M0003
H.P.	100	LAT/LON:	33.16.627n116.22.463w
METER:	6561482	REF #:	PC 1180

TEST RESULTS

	TEST 1	TEST 2
Discharge, PSI	148.0	161.0
Discharge head, feet	341.9	371.9
Standing water level, feet	205.4	
Drawdown, feet	63.5	60.1
Pumping water level, feet	268.9	265.5
Total pumping head, feet	610.8	637.4
Gallons per minute flow	**395**	**380**
Gallons per foot of drawdown	6.2	6.3
Acre feet pumped per 24 hours	1.743	1.679
KW input to motor	64.0	63.9
HP input to motor	85.8	85.6
Motor load, % BHP	81.8	81.7
Measured speed of pump, RPM	1788	
KWH per acre foot	881.0	913.5
Overall Plant efficiency in %	**71.0**	**71.4**

Test 1 was the normal operation of the pump at the time of the test. The other results were obtained by throttling the pump discharge.

The airline length was calibrated at 388.5'.

If you have any questions please contact Jon Lee at (951) 684-9801.

PUMP CHECK

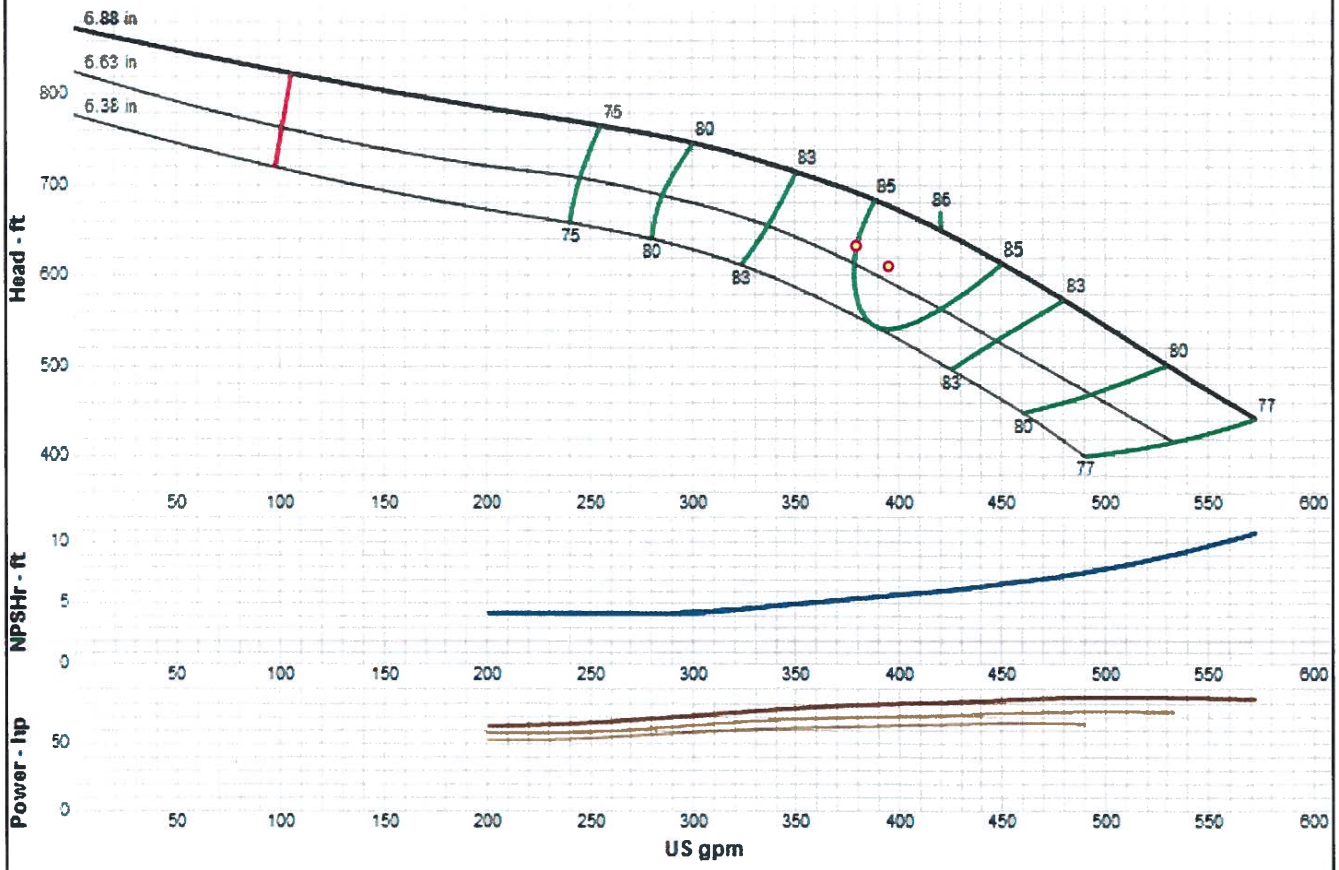
xylem
Let's Solve Water

ID4 Well #4B 3/16/2018
Test 1 610.8 h 395 q
Test 2 637.4 h 380 q

PERFORMANCE CURVE

Quote Number: 9001-170503-053
Product Name: DWT - Deep Well Lineshaft Turbine
Product Id: GWT_DWT

BORREGO WD ID4 WELL 4
HIDDEN VALLEY PUMP SYSTEMS, INC



Sizing Criteria

Series	GWT_DWT	Max Power on Design Curve	83.7 Hp
Size	9RCLC	Max Power on Max Imp Trim	83.7 Hp
Additional Size	9RCLC	Flow at BEP	420 USGPM
Speed	1770	Head at BEP	650 ft
Number of Stages	16	NPSH Required	0 ft
Stages	16 Stages	Specified NPSH Avail.	34 ft
Frequency	60 Hz	NPSHaMargin	2 ft
Impeller Trim	6.88 inch	Min Flow	105 USGPM
Additional Impeller Trim	6.88 inch	Flow on Max Imp Trim @ Max Power	530 USGPM
Impeller Maximum Trim	6.88 in inch		
Specified Flow	420 USGPM	Shut-Off Head	872 ft
Specified Head	0 ft	Shut-Off Disc Pressure	377 psi
Flow at Design	420 USGPM	Fluid Type	Water
Head at Design	872 ft	Temperature	70 F
Head at Design	872 ft	Allowable Sphere Size	0.75 inch
Run-Out Flow	0 USGPM	Exact Bowl Diameter	9.25 inch
Run-Out Head	0 ft	Curve ID	E6409CFPC2
Efficiency at Design	0	Thrust K Factor [lb/ft]	4.9
Best Efficiency	86	Add Thrust K Factor [lb/ft]	4.9
Driver Size	100 Hp	Max Lateral	0.88 inch

PUMP CHECK

Pumping Systems Analysts

Hydraulic Test Report

Since 1958

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Borrego Water District
2201 Diegueno Road

Test Date: 03/16/2018
Pump type: DWT
Plant: ID 4 Well #11

A test was made on this well pump and the following information was obtained.

EQUIPMENT

PUMP:	Goulds	SERIAL:	N/A
MOTOR:	US	SERIAL:	X07X125R612R4
H.P.	250	LAT/LON:	33.16.047n116.23.004w
METER:	6695581	REF #:	PC 1183

TEST RESULTS

	TEST 1	TEST 2
Discharge, PSI	131.0	140.0
Discharge head, feet	302.6	323.4
Standing water level, feet	223.2	
Drawdown, feet	5.8	4.7
Pumping water level, feet	229.0	227.9
Total pumping head, feet	531.6	551.3
Gallons per minute flow	**920**	**819**
Gallons per foot of drawdown	158.6	174.3
Acre feet pumped per 24 hours	4.065	3.621
KW input to motor	126.7	126.6
HP input to motor	169.8	169.6
Motor load, % BHP	65.3	65.3
Measured speed of pump, RPM	1785	
KWH per acre foot	748.1	839.2
Overall Plant efficiency in %	**72.7**	**67.2**

Test 1 was the normal operation of the pump at the time of the test. The other results were obtained by throttling the pump discharge.

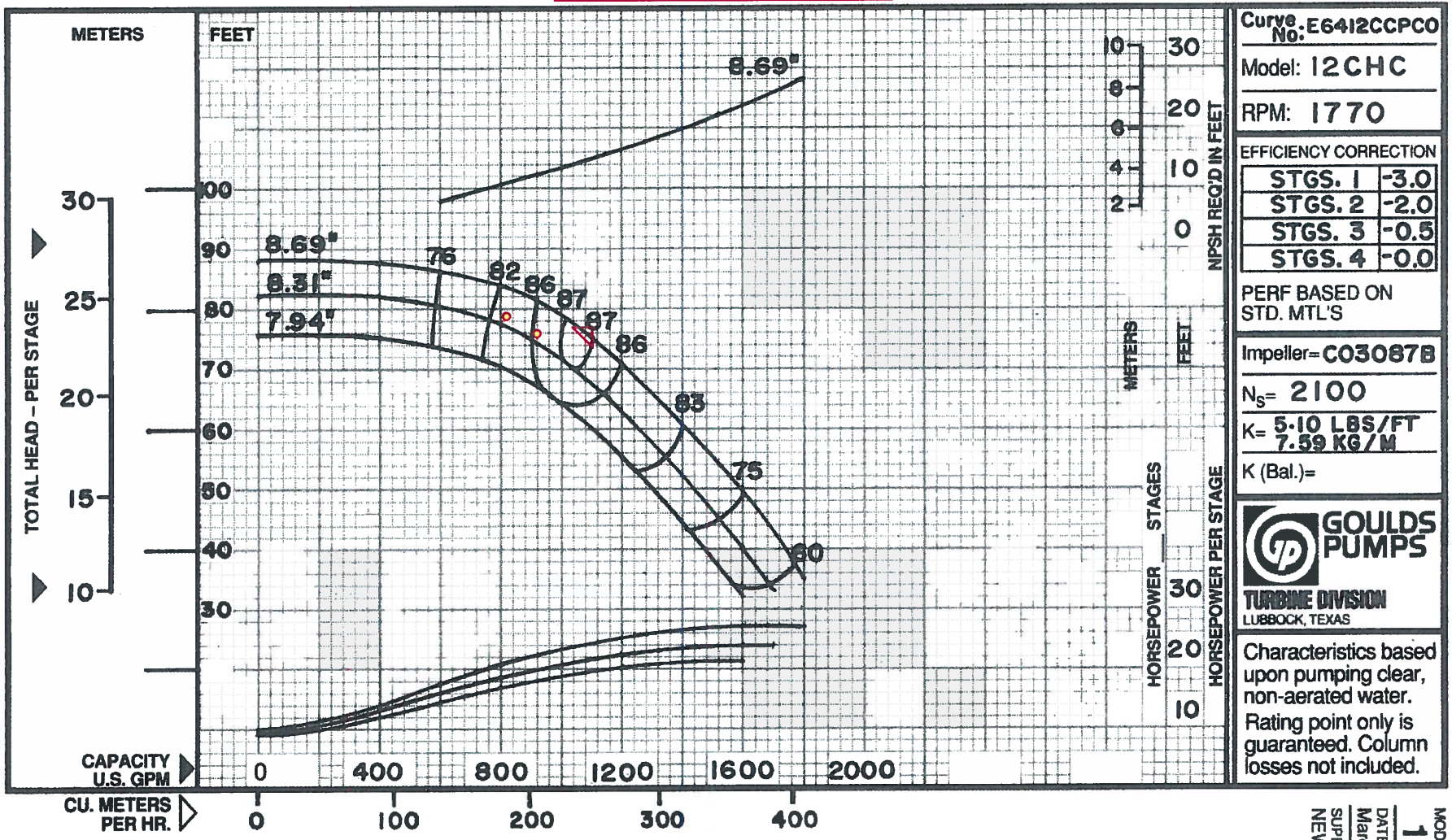
The airline length was calibrated at 283.3'.

The available water measurement location does not meet recommended industry standards. We recommend 8-10 diameters of straight pipe for the ideal test location.

If you have any questions please contact Jon Lee at (951) 684-9801.

ID 4 Well #11 3/16/2018
Test 1 531.6 h 920 q
Test 2 551.3 h 819 q

PUMP CHECK
PUMPING SYSTEMS ANALYSIS • RIVERSIDE CA. SINCE 1934



Curve No. E6412CCPC0
Model: 12CHC
RPM: 1770

EFFICIENCY CORRECTION

STGS. 1	-3.0
STGS. 2	-2.0
STGS. 3	-0.5
STGS. 4	-0.0

PERF BASED ON STD. MTL'S

Impeller= C03087B
N_S= 2100
K= 5.10 LBS/FT 7.59 KG/M
K (Bal.)=

GOULDS PUMPS
TURBINE DIVISION
LUBBOCK, TEXAS

Characteristics based upon pumping clear, non-aerated water.
Rating point only is guaranteed. Column losses not included.

MODEL 12CHC
DATE March 1995
SUPERCEDES NEW

C12CHC

PUMP CHECK

Pumping Systems Analysts

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Hydraulic Test Report

Borrego Water District
111 Indian Head Ranch Road

Test Date: 03/16/2018
Pump type: SUB
Plant: ID 4 Well #18

A test was made on this well pump and the following information was obtained.

EQUIPMENT

PUMP:	Goulds	SERIAL:	N/A
MOTOR:	Franklin	SERIAL:	16J19-15-16154A
H.P.	40	LAT/LON:	33.18.404n116.23.087w
METER:	6597551	REF #:	PC 1181

TEST RESULTS

	TEST 1	TEST 2
Discharge, PSI	110.0	126.0
Discharge head, feet	254.1	291.1
Standing water level, feet	311.2	
Drawdown, feet	7.6	6.5
Pumping water level, feet	318.8	317.7
Total pumping head, feet	572.9	608.8
Gallons per minute flow	**130**	**109**
Gallons per foot of drawdown	17.1	16.8
Acre feet pumped per 24 hours	0.573	0.482
KW input to motor	27.8	27.6
HP input to motor	37.3	37.0
Motor load, % BHP	82.0	81.4
Measured speed of pump, RPM	n/a	
KWH per acre foot	1164.6	1375.0
Overall Plant efficiency in %	**50.3**	**45.3**

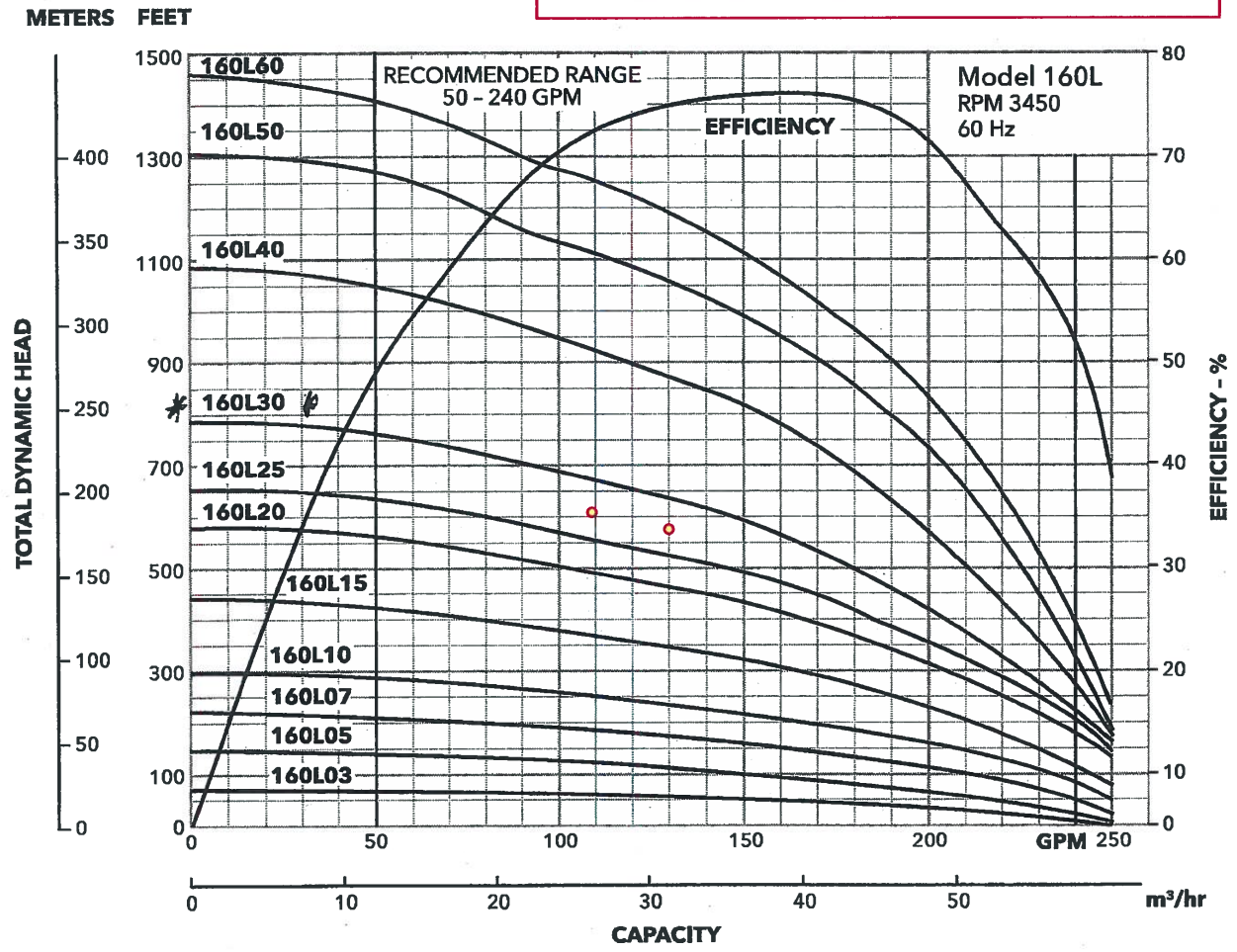
Test 1 was the normal operation of the pump at the time of the test. The other results were obtained by throttling the pump discharge.

If you have any questions please contact Jon Lee at (951) 684-9801.

PUMP CHECK
PUMPING SYSTEMS ANALYST • RIVERSIDE CA. SINCE 1950

MODEL 160L

ID4 Well #18 3/16/2018
Test 1 572.9 h 130 q
Test 2 608.8 h 109 q



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PUMP CHECK

Pumping Systems Analysts

Hydraulic Test Report

(951) 684-9801 • Lic. 799498 • Fax (951) 684-2988

Borrego Water District
3003 Lofter Drive

Test Date: 03/16/2018
Pump type: DWT
Plant: ID 5 Well #5

A test was made on this well pump and the following information was obtained.

EQUIPMENT

PUMP:	Goulds	SERIAL:	N/A
MOTOR:	US	SERIAL:	C09-6349-M01
H.P.	200	LAT/LON:	34.14.222n116.21.857w
METER:	6697749	REF #:	PC 3557

TEST RESULTS

	TEST 1
Discharge, PSI	183.5
Discharge head, feet	423.9
Standing water level, feet	182.1
Drawdown, feet	16.1
Pumping water level, feet	198.2
Total pumping head, feet	622.1
Gallons per minute flow	**542**
Gallons per foot of drawdown	33.7
Acre feet pumped per 24 hours	2.395
KW input to motor	102.4
HP input to motor	137.2
Motor load, % BHP	64.2
Measured speed of pump, RPM	1781
KWH per acre foot	1026.3
Overall Plant efficiency in %	**62.0**

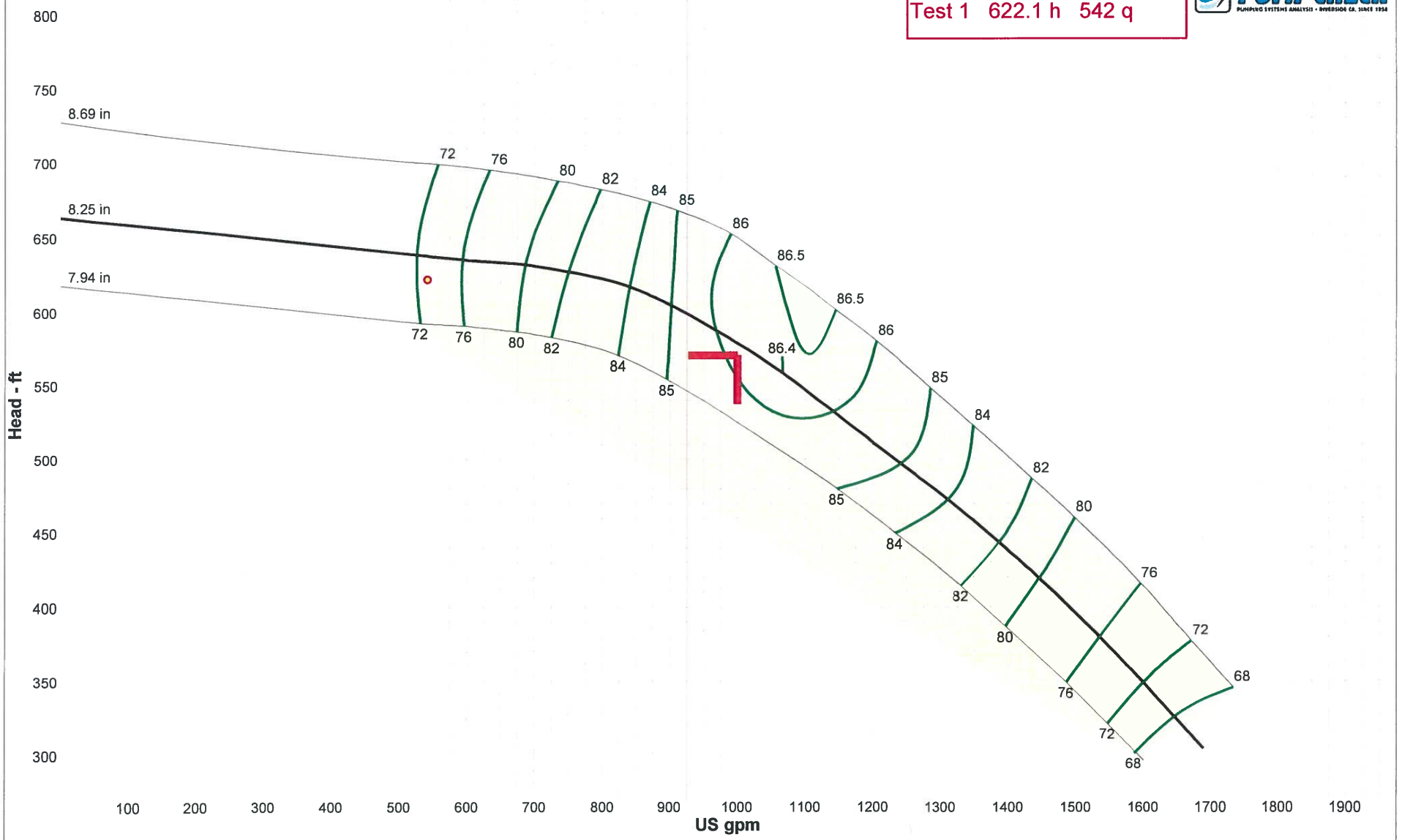
Test 1 was the normal operation of the pump at the time of the test.

The airline length was calibrated at 258.3'.

If you have any questions please contact Jon Lee at (951) 684-9801.

ID 5 Well #5 3/16/2018
Test 1 622.1 h 542 q

PUMP CHECK



Suction Size-8",10" Discharge Sizes-6",8",10". Curves are certified for water at 60°F only. Consult factory for performance with any other fluid.

Company: Borrego Water District
Name: ID 5 Well #5
4/1/2013

Turbine 60 Hz
Catalog: goulds lineshaft .60, Vers 3.36
Lineshaft - 1800
Design Point: 1000 US gpm, 570 ft

Size: 12CHC 8 stage
Speed: 1770 rpm
Dia: 8.25 in
Curve: E6412CCPC4

GOULDS WATER TECHNOLOGY
a xylem brand

PUMP CHECK

Pumping Systems Analysts

Hydraulic Test Report

Since 1958

(951) 684-9801 • Lic. 799498 • Fax (951) 684-2988

Borrego Water District
3816 Borrego Springs Road

Test Date: 03/16/2018
Pump Type: DWT
Plant: Wilcox Well

A test was made on this deep well turbine pump and the following information was obtained.

EQUIPMENT

Pump:	Goulds	Serial:	88583
Engine:	Cummins	Serial:	45848487
HP:	130	Lat/Lon:	33.12.660n116.21.887w
Meter:	Diesel	Ref #:	PC 1218

TEST RESULTS

	TEST 1
Discharge, PSI	94.0
Discharge head, feet	217.1
Standing water level, feet	305.2
Drawdown, feet	5.8
Pumping water level, feet	311.0
Total pumping head, feet	528.1
Gallons per minute flow	**205**
Gallons per foot of drawdown	35.3
Acre feet pumped per 24 hours	0.906
Measured speed of engine, RPM	1810
Measured speed of pump, RPM	1645

Test 1 was the normal operation of the pump at the time of the test.

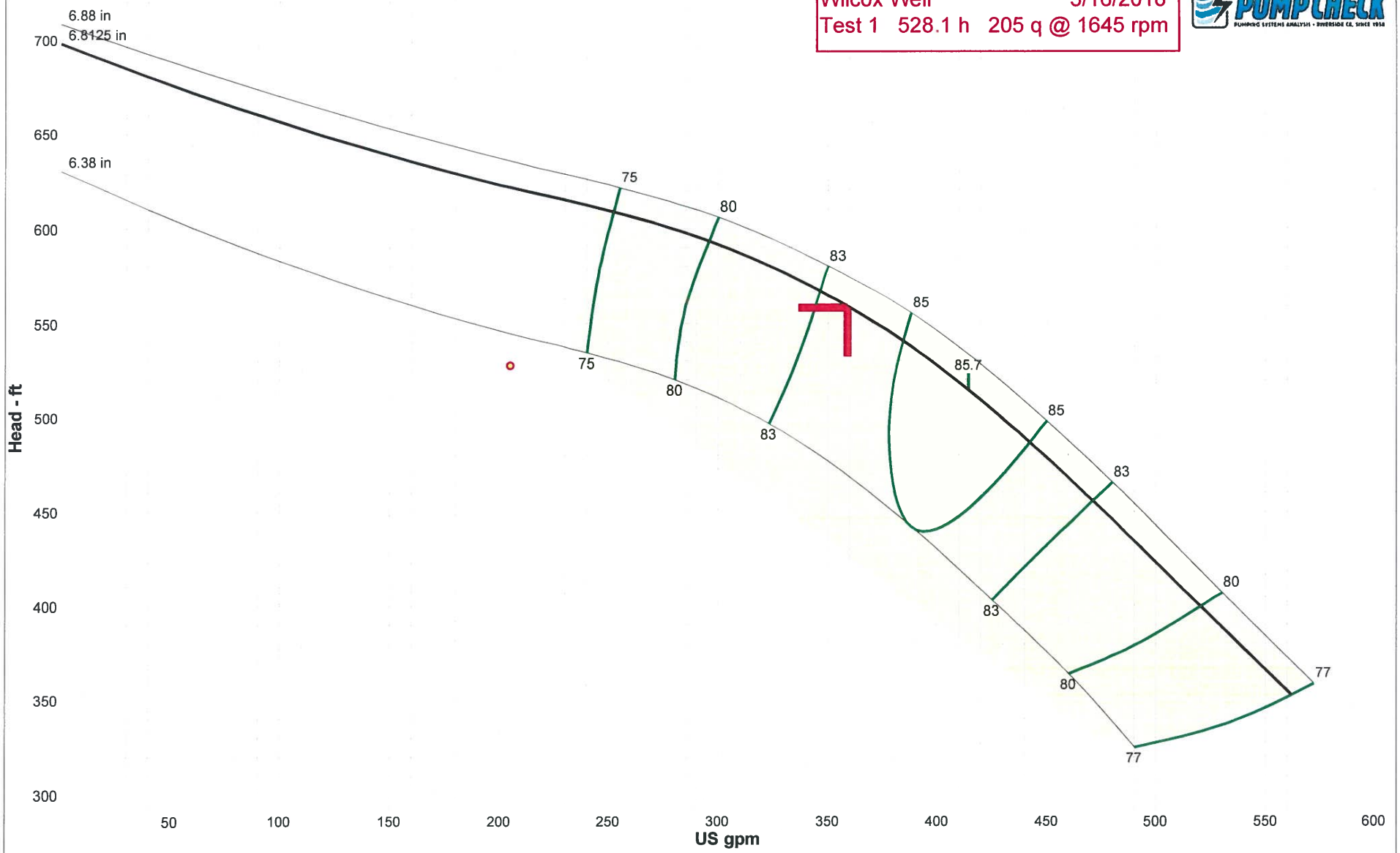
The airline length was calibrated at 397.6'.

The available water measurement location does not meet recommended industry standards. We recommend 8-10 diameters of straight pipe for the ideal test location.

If you have any questions please contact Jon Lee at (951) 684-9801.

Wilcox Well 3/16/2018
Test 1 528.1 h 205 q @ 1645 rpm

PUMPCHECK



Suction Size-6" Discharge Sizes-5",6",8". Curves are certified for water at 60°F only. Consult factory for performance with any other fluid.

Company: Borrego Water District
Name: Wilcox Well
4/1/2013

Turbine 60 Hz
Catalog: goulds lineshaft .60, Vers 3.36
Lineshaft - 1800
Design Point: 359 US gpm, 558 ft

Size: 9RCLC 13 stage
Speed: 1770 rpm
Dia: 6.8125 in
Curve: E6409CFPC2

GOULDS WATER TECHNOLOGY
a xylem brand

APPENDIX B

Copies of Well Drilling Logs For BWD Wells

ROSCOE MOSS COMPANY

4360 WORTH STREET
LOS ANGELES, CAL.

RM114

l No. 8 Drilled for DiGiorgio Corporation
ne (Borrego Springs Water Company)
ress P. O. Box B
Borrego Springs, California 92004
cation

rted Work July 20, 1972
mpleted Work August 2, 1972
tal Depth Drilled 938 Feet
tal Depth Completed -0-
lled By Hydraulic, Reverse Rotary Hydraulic Rotary

	DIAMETER	FROM	TO
PILOT BORE	12-1/4 in.	0 ft.	ft.
	29 in.	0 ft.	50 ft.
CONDUCTOR BORE	in.	ft.	ft.
	in.	ft.	ft.
COMPLETED WELL BORE	in.	ft.	ft.
	in.	ft.	ft.
	in.	ft.	ft.

CASING AND SCREEN SCHEDULE

Conductor Casing

aterial Mild Steel
iameter (OD) (ID) 24 in. Wall Thickness 1/4 in.
nstalled From 0 ft. To 50 ft.
emented From 2 ft. To 50 ft.

Well Casing

DIAMETER (ID) (OD)	WALL	MATERIAL	FROM	TO
	None			

Screen

Type None
Material

DIAM. (ID) (OD)	WALL	NO. PERF. PER ROW	ROWS PER FOOT	SIZE	FROM	TO

Formation: Mention size of water gravel —

0	ft. to	35	ft.	Fine to coarse sand with
"	"	"	"	silty clay
75	"	108	"	Fine to coarse sand and
"	"	"	"	gravel with silt
108	"	190	"	Fine to coarse sand and
"	"	"	"	gravel with silty clay
"	"	"	"	streaks
190	"	218	"	Brown clay with sand
"	"	"	"	and gravel streaks
218	"	230	"	Brown and red clay
230	"	302	"	Boarse to very coarse
"	"	"	"	sand with clay streaks
302	"	383	"	Fine to coarse sand and
"	"	"	"	gravel with clay strks
383	"	390	"	Brown and red clay
390	"	465	"	Fine to coarse sand, some
"	"	"	"	gravel with clay streaks
465	"	505	"	Fine to coarse sand with
"	"	"	"	shale streaks
505	"	519	"	Fine sand and red clay
519	"	546	"	Fine to very coarse cem-
"	"	"	"	ented sand with grey clay
"	"	"	"	streaks
546	"	610	"	Grey blue clay with fine
"	"	"	"	sand streaks
610	"	627	"	Fine to coarse sand with
"	"	"	"	grey clay streaks
627	"	654	"	Fine silty sand with clay
"	"	"	"	streaks
654	"	745	"	Fine to very coarse sand
"	"	"	"	some gravel with red &
"	"	"	"	grey clay streaks
745	"	795	"	Red & grey caly with fine
"	"	"	"	to coarse sand streaks,
"	"	"	"	some gravel
795	"	817	"	Fine to coarse sand and
"	"	"	"	gravel
817	"	859	"	Red and gray sticky clay
"	"	"	"	with fine to coarse sand
"	"	"	"	streaks

Formation: Mention size of water gravel —

859	ft. to	871	ft.	Fine to coarse sand
"	"	"	"	with thin cemented streak
"	"	"	"	some clay

Completed Work August 2, 1972

Total Depth Drilled 938 Feet

Total Depth Completed -0-

Drilled By Hydraulic, Reverse Rotary Hydraulic Rotary

	DIAMETER	FROM	TO
PILOT BORE	12-1/4 in.	0 ft.	ft.
	29 in.	0 ft.	50 ft.
CONDUCTOR BORE	in.	ft.	ft.
	in.	ft.	ft.
COMPLETED WELL BORE	in.	ft.	ft.
	in.	ft.	ft.
	in.	ft.	ft.

CASING AND SCREEN SCHEDULE

Conductor Casing

Material Mild Steel

Diameter (OD) (ID) 24 in. Wall Thickness 1/4 in.

Installed From 0 ft. To 50 ft.

Cemented From 2 ft. To 50 ft.

Well Casing

DIAMETER (ID) (OD)	WALL	MATERIAL	FROM	TO
None				

Screen

Type None

Material

DIAM. (ID) (OD)	WALL	NO. PERF. PER ROW	ROWS PER FOOT	SIZE	FROM	TO

Water level when first started Test ft.

Draw down from standing level ft.

No. of gallons per minute pumped when Test first started

No. of gallons per minute pumped when Test completed

Draw down at completion of Test ft.

Hours Testing Well

No. of tons gravel installed

Gravel size: From in. To in. (Screen Size)

	"	"		and gravel streaks
218	"	"	230	Brown and red clay
230	"	"	302	Boarse to very coarse
	"	"		sand with clay streaks
302	"	"	383	Fine to coarse sand and
	"	"		gravel ~~with~~ with clay strk
383	"	"	390	Brown and red clay
390	"	"	465	Fine to coarse sand, som
	"	"		gravel with clay streaks
465	"	"	505	Fine to coarse sand with
	"	"		shale streaks
505	"	"	519	Fine sand and red clay
519	"	"	546	Fine to very coarse cem-
	"	"		ented sand with grey clay
	"	"		streaks
546	"	"	610	Grey blue clay with fine
	"	"		sand streaks
610	"	"	627	Fine to coarse sand with
	"	"		grey clay streaks
627	"	"	654	Fine silty sand with clay
	"	"		streaks
654	"	"	745	Fine to very coarse sand
	"	"		some gravel with red &
	"	"		grey clay streaks
745	"	"	795	Red & grey caly with fine
	"	"		to coarse sand streaks,
	"	"		some gravel
795	"	"	817	Fine to coarse sand and
	"	"		gravel
817	"	"	859	Red and gray sticky clay
	"	"		with fine to coarse sand
	"	"		streaks

Formation: Mention size of water gravel —

859	ft. to	871	ft.	~~Fine to coarse sand~~
	" "		"	with thin cemented streaks
	" "		"	some clay
871	" "	889	"	Brown clay with fine to
	" "		"	coarse sand streaks
889	" "	918	"	Fine to coarse sand
	" "		"	with clay streaks
918	" "	938	"	Red and gray clay, some
	" "		"	shale with fine to coarse
	" "		"	sand streaks
	" "		"	

of conductor pipe cemented in place (only)
AND THEN CASED AT A LATER DATE.

Date of report 8/2/72

Don Pittman

Type and Rig No. used Hyd. Rotary #9, Lloyd ~~Xess~~ Wells

Driller

115

Superintendent

ROSCOE MOSS COMPANY

4360 WORTH STREET
LOS ANGELES, CAL.

rm RM114

1D1-8

ell No. 8 Drilled for DiGiorgio Corporation
ame (Borrego Springs Water Company)
ddress P. O. Box "B"
Borrego Springs, Calif. 92004
ocation Continuation of log done for same well
mpleted 8/2/72 showing additional work done
d casing installed.
arted Work September 10, 1972
ompleted Work September 21, 1972
otal Depth Drilled 938
otal Depth Completed 850
illed By Hydraulic, Reverse Rotary Hydraulic Rotary

	DIAMETER	FROM	TO
PILOT BORE	12-1/4 in.	0 ft.	938 ft.
	in.	ft.	ft.
CONDUCTOR BORE	29 in.	0 ft.	50 ft.
	in.	ft.	ft.
COMPLETED WELL BORE	22 in.	50 ft.	324 ft.
	17-1/2 in.	324 ft.	870 ft.
	in.	ft.	ft.

CASING AND SCREEN SCHEDULE

Conductor Casing

aterial Mild Steel copper bearing plate
ameter ~~(OD)~~ (ID) 24 in. Wall Thickness 1/4 in.
stalled From 0 ft. To 50 ft.
mented From 2 ft. To 50 ft.

Well Casing

DIAMETER ~~(OD)~~	WALL	MATERIAL	FROM	TO
2-3/4	1/4	Mild steel	0	72
2-3/4	1/4	copper-bearing	240	260
8-5/8	1/4	plate	830	850

Screen

pe Standard Machine Louver
terial Mild steel copper-bearing plate

DIAM. D) (OD)	WALL	NO. PERF. PER ROW	ROWS PER FOOT	SIZE	FROM	TO
2-3/4	1/4	8	4.5	.070	72	240

Formation: Mention size of water gravel —
ft. to ft.
(FOR AQUIFER FORMATION SEE PRECEDING WELL LOG) WELL WAS ORIGINAL DRILLED AND NOT CASED & THEN AT A LATER DATE RE-OPENED AND CASED AS LISTED.

" " " "

Development Record

Was Well Swabbed? Yes
Method Line swab
No. of Hours 116
Total Material Removed

Total Depth Drilled 950

Total Depth Completed 850

Drilled By Hydraulic, Reverse Rotary Hydraulic Rotary

	DIAMETER	FROM	TO
PILOT BORE	12-1/4 in.	0 ft.	938 ft.
	in.	ft.	ft.
CONDUCTOR BORE	29 in.	0 ft.	50 ft.
	in.	ft.	ft.
COMPLETED WELL BORE	22 in.	50 ft.	324 ft.
	17-1/2 in.	324 ft.	870 ft.
	in.	ft.	ft.

CASING AND SCREEN SCHEDULE

Conductor Casing

Material Mild Steel copper bearing plate

Diameter ~~(OD)~~ (ID) 24 in. Wall Thickness 1/4 in.

Installed From 0 ft. To 50 ft.

Cemented From 2 ft. To 50 ft.

Well Casing

DIAMETER ~~(OD)~~ (OD)	WALL	MATERIAL	FROM	TO
2-3/4	1/4	Mild steel	0	72
2-3/4	1/4	copper-bearing	240	260
8-5/8	1/4	plate	830	850

Screen

Type Standard Machine Louver

Material Mild steel copper-bearing plate

DIAM. (OD)	WALL	NO. PERF. PER ROW	ROWS PER FOOT	SIZE	FROM	TO
2-3/4	1/4	8	4.5	.070	72	240
2-3/4	1/4	8	4.5	.070	260	312
8-5/8	1/4	6	6	.070	312	830

Water level when first started Test 151 ft.

Draw down from standing level 27 ft.

No. of gallons per minute pumped when Test first started 253

No. of gallons per minute pumped when Test completed 1100

Draw down at completion of Test -80- ft.

Hours Testing Well 30.

No. of tons gravel installed 70 Tons

Gravel size: From ____ in. To ____ in. (Screen Size)

Crystal Silica 6-8 pit run

Development Record

Was Well Swabbed? Yes

Method Line swab

No. of Hours ____

Total Material Removed ____

Gravel Added ____

Rig No. 37 Developer Ronald A. Foster

Give any additional data which may be of future value ____

Date of report September 26, 1972

Donald G. Pittman

Type and Rig No. used Hydraulic Rotary #9, Lloyd Well Driller Superintender

ROSCOE MOSS COMPANY

4360 WORTH STREET
LOS ANGELES, CAL.

121-10

ll No. 10 Drilled for DiGiorgio Corporation
me (Borrego Springs Water Company)
dress P. O. Box "B"
Borrego Springs, Calif. 92004
cation N. W. Corner of Section 22, Twp. 11-S, Rg. 6-E, Borrego Springs, Calif.
(San Diego County)
rted Work August 16, 1972
mpleted Work September 9, 1972
tal Depth Drilled 816
tal Depth Completed 392
illed By Hydraulic, Reverse Rotary Hydraulic Rotary

	DIAMETER	FROM	TO
PILOT BORE	12-1/4 in.	0 ft.	816 ft.
	in.	ft.	ft.
CONDUCTOR BORE	29 in.	0 ft.	50 ft.
	in.	ft.	ft.
COMPLETED WELL BORE	22 in.	50 ft.	429 ft.
	in.	ft.	ft.
	in.	ft.	ft.

CASING AND SCREEN SCHEDULE

Conductor Casing

Material Mild Steel Copper-Bearing Plate
Diameter (~~OD~~) (ID) 24 in. Wall Thickness 1/4 in.
Installed From 0 ft. To 50 ft.
Cemented From 1 ft. To 50 ft.

Well Casing

DIAMETER (ID) (OD)	WALL	MATERIAL	FROM	TO
12-3/4	1/4	Mild steel	0	162
12-3/4	1/4	copper-bearing	372	392
		plate		

Screen

Type Standard Machine Louver
Material Mild steel copper-bearing plate

DIAM. (ID) (OD)	WALL	NO. PERF. PER ROW	ROWS PER FOOT	SIZE	FROM	TO
12-3/4	1/4	9	4.5	.070	162	372

Water level when first started Test 130 ft.
Draw down from standing level 11 ft.
No. of gallons per minute pumped when Test first started 233
No. of gallons per minute pumped when Test completed 1110
Draw down at completion of Test 65 ft.
Hours Testing Well 24
No. of tons gravel installed 45
Gravel size: From ____ in. To ____ in. (Screen Size)

Formation: Mention size of water gravel —

0	ft. to	40	ft. Fine to coarse sand
40	" "	77	" Fine to coarse sand with some gravel
77	" "	110	" Fine to coarse sand with brown sand, clay streak
110	" "	137	" Fine to coarse sand
137	" "	170	" Fine to coarse sand with brown sandy clay streak
170	" "	179	" Cemented sand with some gravel
179	" "	227	" Fine to coarse sand with gravel
227	" "	308	" Cemented sand
308	" "	385	" Fine to coarse cemented sand with some gravel
385	" "	391	" Sandy red clay
391	" "	399	" Very fine sand
399	" "	416	" Fine to coarse sand with silt streaks
416	" "	443	" Fine to coarse with silt streaks
443	" "	471	" Fine to coarse sand and sandy clay with pink cla streaks
471	" "	483	" Very fine to medium sand
483	" "	517	" Fine to very coarse sand
517	" "	588	" Fine to coarse sand with sandy clay streaks
588	" "	757	" Fine to coarse sand, so silt
757	" "	816	" Grey and blue clay with pink clay streaks.

Development Record

Was Well Swabbed? Yes
Method Bailer and wet swab.
No. of Hours 14
Total Material Removed 5 feet
Gravel Added 14 feet
Rig No. 53 Developer Wallace Wilson

Give any additional data which may be of future value

Date of report September 22, 1972
Donald G. Pittman
Driller

Type and Rig No. used Hydraulic Rotary #0

DUPLICATE
Driller's Copy

Well 12

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in

No. 157263

Notice of Intent No.
Permit No. or Date M30037

State Well No.
Other Well No.

(1) OWNER: Name Digiorgio Development Corp.
Address P.O. Box A
City Borrego Springs, CA Zip 92004

(2) LOCATION OF WELL (See instructions):
County San Diego Owner's Well Number
Well address if different from above
Township 11S Range 6E Section
Distance from cities, roads, railroads, fences, etc.

WELL

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☐
Irrigation ☒
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other ☐

WELL LOCATION SKETCH

(5) EQUIPMENT:
Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☒ No ☐ Size 4/9 well rock
Diameter of bore 0 to 50 is 36", 50 to 768 is 24"
Packed from 0 to 580 ft.

(7) CASING INSTALLED:
Steel ☒ Plastic ☐ Concrete ☐

From ft.	To ft.	Dia. in.	Gage or Wall
0	50	26"	
50	580	14 3/4	5/16

(8) PERFORATIONS:
Type of perforation or size of screen:

From ft.	To ft.	Slot size
conductor		
248	568	20 rows of 3/32 x 2½" 40 cuts

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 50 ft.
Were strata sealed against pollution? Yes ☐ No ☒ Interval ft.
Method of sealing sanitary seal, conductor casing cement grout

(10) WATER LEVELS:
Depth of first water, if known ft.
Standing level after well completion 82' 6" ft.

(11) WELL TESTS: Aug. 18 & 19
Was well test made? Yes ☒ No ☐ If yes, by whom? contractor
Type of test Pump ☒ Bailer ☐ Air lift ☐
Depth to water at start of test from 113 ft. At end of test ft.
Discharge 2,000 gal/min after 24 hours Water temperature
Chemical analysis made? Yes ☐ No ☒ If yes, by whom?
Electric log made? Yes ☒ No ☐ If yes, attach copy to this report

(12) WELL LOG: Total depth 768 ft. Depth of completed well 580 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	12	White sand
12	13	Gravel & sand
13	20	Sand
20	28	Sand with clay
28	54	Clay w/ little sand
54	60	Sand & clay with small cobbles
60	94	Sand with little cobbles
94	96	Sand & brown clay
96	143	Gray clay & sand
143	150	Gray & brown clay with light cobbles
150	154	Cobbles & sand with some clay
154	176	Sand & cobbles
176	185	Cobbles & sand
185	205	Sand & cobbles
205	208	Cobbles and loose sand
208	234	Sand & cobbles
234	235	Boulder
235	294	Hard cobbles
294	340	Cobbles with clay & sand
340	380	Sand & clay with cobbles
380	384	Sand & clay
384	387	Cobbles & sand with clay
387	550	Sand & clay with cobbles
550	554	Cobbles
554	560	Sand & cobbles with clay
560	596	Sand with clay
596	645	Brown clay
645	652	Clay with sand
652	665	Clay
665	725	Clay with sand
725	768	Clay

Started July 11 19 84 Completed July 31 19 84

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED (Well Driller)
NAME AMERICAN DRILLING, INC. (Person, firm, or corporation) (Typed or printed)
Address P.O. Box 278
City Aguanga, CA Zip 92302
License No. 324684 Date of this report Aug. 20, 1984

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

101

ORIGINAL
File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in
No. 338383

Notice of Intent No. _____
Local Permit No. or Date _____

State Well No. _____
Other Well No. _____

(1) OWNER: Name Borrego Springs Dev. Corp.
Address P.O. Box 9
City Borrego Springs, Ca. ZIP 92004

(2) LOCATION OF WELL (See instructions):
County San Diego Owner's Well Number W-16
Well address if different from above _____
Township 11S Range 6E Section 16
Distance from cities, roads, railroads, fences, etc. _____

WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well [X] Deepening [ ]
Reconstruction [ ]
Reconditioning [ ]
Horizontal Well [ ]
Destruction [ ] (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic [ ]
Irrigation [ ]
Industrial [ ]
Test Well [X]
Municipal [ ]
Other [ ]
(Describe)

(5) EQUIPMENT:
Rotary [X] Reverse [ ]
Cable [ ] Air [ ]
Other [ ] Bucket [ ]

(6) GRAVEL PACK: 5/16 X
Yes [X] No [ ] Size 4/16
Diameter of bore 26"
Packed from 50 to 550 ft.

(7) CASING INSTALLED:
Steel [X] Plastic [ ] Concrete [ ]

From ft.	To ft.	Dia. in.	Gage or Wall
0	550	16"	.250

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Slot size
160	540	.060

(9) WELL SEAL:
Was surface sanitary seal provided? Yes [X] No [ ] If yes, to depth 50 ft.
Were strata sealed against pollution? Yes [ ] No [X] Interval _____ ft.
Method of sealing Cement Grout

(10) WATER LEVELS:
Depth of first water, if known _____ ft.
Standing level after well completion 172' ft.

(11) WELL TESTS:
Was well test made? Yes [X] No [ ] If yes, by whom? C.V. Pump
Type of test Pump [X] Bailer [ ] Air lift [ ]
Depth to water at start of test X172'. At end of test 230 ft.
Discharge 2500 gal/min after 72 hours Water temperature _____
Chemical analysis made? Yes [ ] No [ ] If yes, by whom? _____
Was electric log made Yes [X] No [ ] If yes, attach copy to this report

(12) WELL LOG: Total depth 705 ft. Completed depth 550 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	65	Coarse med to fine sand
		and gravel mixed
65	420	Coarse med to fine sand
		and gravel w/small rocks
420	490	Fine med to coarse sand
490	520	Fine med to coarse sand
		w/a couple thin streaks
		brown clay
520	640	Fine med to coarse sand
640	705	Fine med to coarse sand
		w/boulders (very tight)

Work started 5/8 19 89 Completed 7-20 19 89

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Signed _____ (Well Driller)
NAME Coachella Valley Pump & Supply, Inc
(Person, firm, or corporation) (Typed or printed)
Address P.O. Drawer qqq
City Indio, Ca. ZIP 92202
License No. 161541 Date of this report _____

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

IV-4-D

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Retain this copy

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do Not Fill In
No 61425
State Well No.
Other Well No.

(1) OWNER:
Name Borrego Springs Water District
Address P. O. Box B - Borrego Springs, Ca. 92004

(2) LOCATION OF WELL:
County San Diego Owner's number, if any Well No. 4
Township, Range, and Section
Distance from cities, towns, railroads, etc. Borrego Springs Road Borrego Springs, Ca.

(3) TYPE OF WORK (check):
New Well X Deepening ☐ Reconditioning ☐ Destroying ☐
If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic X Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☐
Cable X
Other ☐

(6) CASING INSTALLED:
STEEL OTHER:
SINGLE ☐ DOUBLE X

From ft.	To ft.	Diam.	Gage or Wall
0	50	20ID	5/16
0	802	14ID	10 ga.

If gravel packed

Diameter of Bore	From ft.	To ft.

Size of shoe or well ring 14"x14"x1-1/4" Heat treated
Describe joints Welded

(7) PERFORATIONS OR SCREEN:
Type of perforation or name of screen Moss Hydraulics

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.
470	500	6	12	5/32 x 2-1/4"
532	570	6	12	5/32 x 2-1/4"
586	786	6	12	5/32 x 2-1/4"

(8) CONSTRUCTION:
Was a surface sanitary seal provided? Yes X No ☐ To what depth 50 ft.
Were any strata sealed against pollution? Yes ☐ No X If yes, note depth of strata
From ft. to ft.
From ft. to ft.
Method of sealing Cement Grout

(9) WATER LEVELS:
Depth at which water was first found, if known 150 ft.
Standing level before perforating, if known 139 ft.
Standing level after perforating and developing 139 ft.

(10) WELL TESTS:
Was pump test made? Yes X No ☐ If yes, by whom? R. M. Co.
Yield 1155 gal./min. with 90 ft. drawdown after 127 hrs.
Temperature of water Was a chemical analysis made? Yes ☐ No X
Was electric log made of well? Yes ☐ No X If yes, attach copy

(11) WELL LOG:
Total depth 802 ft. Depth of completed well 802 ft.
Formation: Describe by color, character, size of material, and structure

ft. to	
0	25 Sand
25	40 Sandy clay
40	125 Sandy clay some gr
125	210 Sand, Clay, gravel t 1/4"
210	225 Hard sandy clay, fi gravel
225	235 Hard packed sand
235	250 Hard clay
250	254 Clay & gravel to 1/
254	274 Hard clay
274	278 Sand
278	282 Loose gravel up to 2-1/2"
282	286 Sand, some gravel
286	346 Sandy
346	350 Hard clay
350	354 Sandy
354	358 Sand&gravel to 3"
358	394 Sand
394	418 Sandy
418	426 Sand, &some gravel 3"
426	430 Sand
430	438 Hard sand
438	458 Sandy
458	466 Hard sand
466	470 Sand, some gravel t 1-1/2"
470	494 Sand, small gravel to 1/4"
494	502 Sand, fine gravel
502	514 Hard sand
514	526 Sand, fine gravel
526	530 Clay
530	534 Sand&gravel to 1-1/
534	538 Sand&small gravel to 1/4"

Work started 4-4 19 79 Completed 5-23 19 79

WELL DRILLER'S STATEMENT: LOG CONTINUES PAGE 2
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Roscoe Moss Company
(Person, firm, or corporation) (Typed or printed)
Address 4360 Worth Street, Los Angeles, Ca. 900
[SIGNED] Joe Garcia (Well Driller)
License No. 624 (C-57) Dated Nov. 28, 1979, 19

SKETCH LOCATION OF WELL ON REVERSE SIDE

DWR 188 (REV. 9-68)

Borrego Springs Water District
Well No. 4 Well Log:

Page 2. . . . . .

Ft.	Ft. to	Ft.
538	546	San & fine gravel
546	554	Sand & small gravel to 1/4"
554	574	Sand & gravel to 3"
574	582	Sandy clay
582	606	Sand& small gravel to 1/4"
606	610	Hard sandy clay
610	618	Sand & gravel to 1-1/2"
618	630	Sand & small gravel to 1/8"
630	634	Sand
634	666	Sand & small gravel to 1/8"
666	674	Sand & fine gravel
674	686	Sand & gravel to 1/8"
686	746	Sand & gravel to 1/2"
746	762	Sand & small gravel to 1/8"
762	778	Sand, clay, small gravel to 1/8"(gray)
778	786	Sand, & small gravel to 3/8"
786	802	Sand, clay, &gravel to 3".

Form RM 114

ROSCOE MOSS COMPANY

4360 WORTH STREET
LOS ANGELES, CAL.

JUN 6- 1979

Well No. Well No. 4 Job No. A-511
Owner Borego Springs Water District
Address P. O. Box B, Borrego Springs, Ca. 92004
Location T _____ R _____ Sec. _____
¼ ¼ ¼
Borego Springs Road

Started Work 4-4-79
Completed Work 5-23-79
Total Depth Drilled 802'
Depth Water First Encountered 150'

MATERIALS

Conductor Casing

Material Mil Steel
Diameter (OD) (ID) 20" in. Wall Thickness 5/16 in.
Installed From 0 ft. To 50' ft.
Cemented From 45 ft. To 50' ft.

Well Casing

DIAMETER (OD)(ID)	WALL OR GAUGE	MATERIAL	FROM	TO
14" ID	10	Kai Wel	0	802'

Starter Used 18 ft. of 2 ply 8 wall or gauge
Size Shoe 14x14x1¼" Heat treated shoe

PERFORATIONS

Type of Perforator Used Moss Hydraulics

FROM	TO	WIDTH	LENGTH	Rows per FOOT	Perf.
470	500	5/32	2¼	12	6 per row
532	570	5/32	2¼	12	6 per row
586	786	5/32	2¼	12	6 per row

Formation: Mention size of water gravel —

0	ft. to	25	ft.	Sand.
25	" "	40	"	Sandy clay.
40	" "	125	"	Sandy clay, some gravel.
125	" "	210	"	Sand, clay, gravel to ¼".
210	" "	225	"	Hard sandy clay, fine gra
225	" "	235	"	Hard packed sand.
235	" "	250	"	Hard clay.
250	" "	254	"	Clay & gravel to 1/8".
254	" "	274	"	Hard clay.
274	" "	278	"	Sand.
278	" "	282	"	Loose gravel up to 2½".
282	" "	286	"	Sand, some gravel.
286	" "	346	"	Sandy.
346	" "	350	"	Hard clay.
350	" "	354	"	Sandy.
354	" "	358	"	Sand & gravel to 3".
358	" "	394	"	Sand.
394	" "	418	"	Sandy.
418	" "	426	"	Sand, &some gravel to 3".
426	" "	430	"	Sand.
430	" "	438	"	Hard sand.
438	" "	458	"	Sandy.
458	" "	466	"	Hard sand.
466	" "	470	"	Sand, some gravel to 1½".
470	" "	494	"	Sand, small gravel to ¼".
494	" "	502	"	Sand, fine gravel.
502	" "	514	"	Hard sand.
514	" "	526	"	Sand, fine gravel.
526	" "	530	"	Clay.
530	" "	534	"	Sand & gravel to 1½".
534	" "	538	"	Sand & small gravel to ¼"
538	" "	546	"	Sand & fine gravel.
546	" "	554	"	Sand& small gravel to ¼".
554	" "	574	"	Sand & gravel to 3".
574	" "	582	"	Sandy clay.
582	" "	606	"	Sand & small gravel to ¼"
606	" "	610	"	Hard sandy clay.
610	" "	618	"	Sand & gravel to 1½".

See back of paper for rest of formation.

If Well Is Reduced, Indicate:
Amount of Lap at Reduction _____ ft.
Amount of Lap at Reduction _____ ft.
Amount of lap at Reduction _____ ft.
Method of Sealing at Reduction _____

123

Give any additional data which may be of future value _____

Formation: Mention size of water gravel.

618	ft.-to	630	ft.	Sand & small gravel to 1/8".
630	"	634	"	Sand.
634	"	666	"	Sand and small gravel to 1/8"
666	"	674	"	Sand and fine gravel.
674	"	686	"	Sand and gravel to 1/8".
686	"	746	"	Sand and gravel to ½".
746	"	762	"	Sand and small gravel to 1/8".
762	"	778	"	Sand, clay, small gravel 1/8" (gray).
778	"	786	"	Sand, and small gravel to 3/8".
786	"	802	"	Sand, clay, and gravel to 3".

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Owner's Copy

Page 1 of 1

Owner's Well No. 11

Date Work Began 3/30/95 , Ended

Local Permit Agency Co. of San Diego, Environmental Health

Permit No. W62937 Permit Date 3/30/95

ID 4-11

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 460084

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) XXX VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DEPTH TO FIRST WATER ___ (FT.) BELOW SURFACE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0' 30'	Fine to coarse sand gravel
30' 60'	Brown Clay
60' 90'	Brown, Silty, Clay, Strike, sand gravel
90' 120'	Brown, silty clay
120' 190'	Brown, Silty clay, strike fine med sand.
190' 220'	Brown, Clay
220' 280'	Brown, clay strike, fine med sand gravel, lime.
280' 400'	Fine med coarse sand
400 430'	Fine to coarse sand gravel strike brown clay
430' 570'	Fine to coarse sand
570' 740'	Fine to coarse sand
740' 770'	Fine med coarse sand thin strike brown clay
770' 800'	Fine, med sand tight cement sand

TOTAL DEPTH OF BORING 800' (Feet)

TOTAL DEPTH OF COMPLETED WELL 770' (Feet)

WELL OWNER

Name Borrego Springs Water Company

Mailing Address P.O. Box 369

City Vista CA 92805
CITY STATE ZIP

WELL LOCATION

Address 2201 Diegumo

City Borrego Springs CA 92004

County San Diego

APN Book ___ Page ___ Parcel 141-030-36

Township 10S Range R6E Section 32

or

Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WES

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

XX NEW WELL

MODIFICATION/REPAIR

___ Deepen

___ Other (Specify)

___ DESTROY *(Describe Procedures and Materia Under "GEOLOGIC LOG*

PLANNED USE(S) (✓)

___ MONITORING

WATER SUPPLY

___ Domestic

___ Public

___ Irrigation

___ Industrial

___ "TEST WELL"

___ CATHODIC PROTEC TION

XX OTHER (Specify)

Community

DRILLING METHOD Rotary FLUID Bentonite

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 162' (Ft.) & DATE MEASURED 5/16/95

ESTIMATED YIELD* 185' (GPM) & TEST TYPE 2000

TEST LENGTH 7 1/2 Hrs.) TOTAL DRAWDOWN 23 (Ft.)

* *May not be representative of a well's long-term yield.*

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	CASING(S) TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL/GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0' 450'	22"	XX					14"	.250	
450' 760'	22"		XX				14"	.250	.060
760' 770'	22"	XX					14"	.250	

DEPTH FROM SURFACE Ft. to Ft.	ANNULAR MATERIAL TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0' 50'	XXX			
50' 150'			XXX	3/8"
150' 270'				8 x 12

ATTACHMENTS (✓)

___ Geologic Log

___ Well Construction Diagram

___ Geophysical Log(s)

___ Soil/Water Chemical Analyses

___ Other ___

ATTACH ADDITIONAL INFORMATION IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Ari-Cal Pump & Supply, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

PO Drawer 000 Indio, CA 92202
ADDRESS CITY STATE ZIP

Signed [signature] 7-11-95 490061
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 7-90 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE
Owner's Copy

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

No. 230419

Notice of Intent No. 197556
Local Permit No. or Date
State Well No.
Other Well No. Well 18

(1) OWNER: Name ~~Di Giorgio Development Corp~~
Address 3230 5th Ave Suite A
City San Diego Zip 92103

(2) LOCATION OF WELL (See instructions):
County San Diego Owner's Well Number
Well address if different from above Henderson Canyon & Borrego Sp Rd.
Township 10 S Range 6 E Section 18
Distance from cities, roads, railroads, fences, etc.

WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☐
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☒
Other ☐

(5) EQUIPMENT:
Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☒ No ☐ Size ~~#4 x #7~~
Diameter of bore 12"
Packed from 41 yds. ft. to ft.

(7) CASING INSTALLED:
Steel ☒ Plastic ☐ Concrete ☐

From ft.	To ft.	Dia. in.	Gage or Wall
0	50	24	.250
0	570	12	3/4" x .250

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Slot size
240	300	3/32" x
310	385	2" x
395	405	22 row

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 50 ft.
Were strata sealed against pollution? Yes ☐ No ☒ Interval ft.
Method of sealing ~~cement grout~~

(10) WATER LEVELS:
Depth of first water, if known ft.
Standing level after well completion 226 ft.

(11) WELL TESTS:
Was well test made? Yes ☐ No ☐ If yes, by whom? R. Anderson
Type of test Pump ☒ Bailer ☐ Air lift ☐
Depth to water at start of test ft. At end of test ft.
Discharge 1200 gal/min after hours Water temperature
Chemical analysis made? Yes ☐ No ☒ If yes, by whom?
Was electric log made? Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG: Total depth 699 ft. Depth of completed well 570 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	34	Fine-med. sand w/few roc @ 31'
34	42	Loose medium sand
42	44	Cemented sand
44	66	Loose sand & gravel, occasional rock
66	105	Tighter sand & gravel
105	243	Looser sand & gravel, occasional rocks, semi consolidated sand & grav
243	273	Semi-consolidated sand
273	280	Consolidated sand
280	308	Semi consolidated sand and gravel
308	314	Consolidated sand
314	330	Semi consolidated sand & gravel
330	341	Consolidated sand & grave
341	375	Semi consolidated sand & gravel
375	380	Consolidated sand & gfave
380	410	Semi consolidated sand & gravel
410	455	Very silty sand & gravel
455	477	Slightly cleaner sand & gravel
477	507	Silty sand & gravel
507	560	Slightly cleaner sand & gravel
560	565	Silty sand & some gravel
565	570	Very silty sand & gravel
570	585	Silty sand & gravel
585	590	Very silty sand
590	699	Silty sand & gravel w/ occasional boulders that drill very ~~rough~~ rough.

PERFORATION CONTINUED
425 440' 460 475' 490 560'

Work started 1/5 19 82 Completed 3/17 19 82

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED (Well Driller)
NAME ~~REX ANDERSON CORPORATION~~ (Person, firm, or corporation) (Type or print)
Address P.O. BOX 384
City Julian Zip 92036
License No. ~~A 305739~~ Date of this report ~~March 1982~~

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

WELL COMPLETION REPORT

Refer to Instructions Pamphlet

Page 1 of 1

Owner's Well No. 2

Date Work Began 5/15/00 Ended 6/11/00

Local Permit Agency San Diego Co. Dept. Environmental Health

Permit No W30559 Permit Date 4/26/00

No. 765054

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Rotary FLUID Bentonite

DEPTH FROM SURFACE ft	to ft	DESCRIPTION (Describe material, grain size, color, etc.)
0	37	Medium sand with streaks of fine sand
37	67	Coarse medium to fine sand
67	97	Coarse fine to medium sand
97	708	Coarse medium sand with thin streaks of fine sand

TOTAL DEPTH OF BORING 708 (Feet)

TOTAL DEPTH OF COMPLETED WELL 700 (Feet)

WELL OWNER

Name Cameron Brothers

Mailing Address 7756 Balboa Ave

City San Diego, State CA Zip 92111

WELL LOCATION

Address Borrego Springs Country Club

City Borrego Springs

County San Diego

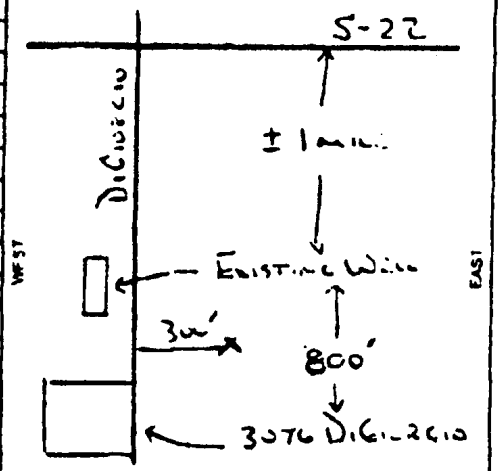
APN Book 199 Page 080 Parcel 14

Township ___ Range ___ Section ___

Latitude ___ DEG. MIN. SEC. NORTH

Longitude ___ DEG. MIN. SEC. WEST

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. Number and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR

___ Deepen

___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY

X Domestic ___ Public

___ Irrigation ___ Industrial

___ MONITORING

___ TEST WELL

___ CATHODIC PROTECTION

___ HEAT EXCHANGE

___ DIRECT PUSH

___ INJECTION

___ VAPOR EXTRACTION

___ SPARGING

___ REMEDIATION

___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 200 (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 200' (Ft.) & DATE MEASURED 6/11/00

ESTIMATED YIELD * 50 (GPM) & TEST TYPE 3000 GPM / TURBINE

TEST LENGTH 24 (Hrs.) TOTAL DRAWDOWN 50 (Ft.)

* May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE ft	to ft	BORE-HOLE DIA. (inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (inches)	GAUGE OR WALL THICKNESS	SLOT SIZE if ANY (inches)
0	400	26"	X				Steel	16"	.250	
400	700	26"		X			Steel	16"	.250	.060

ANNULAR MATERIAL

DEPTH FROM SURFACE ft	to ft	TYPE: CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	100	X			
100	700			X	8 x 16

ATTACHMENTS (✓)

___ Geologic Log

___ Well Construction Diagram

___ Geophysical Log(s)

___ Soil/Water Chemical Analyses

___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Palm Springs Pump Company (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

PO Box 94 Thermal CA 92274

ADDRESS CITY STATE ZIP

Signed [signature] (AS OWNER(S) OR AUTHORIZED REPRESENTATIVE) 5/12/00 (DATE SIGNED) 749713 (C-57 LICENSE NUMBER)

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

County Mail Station –A-21

ASSESSORS PARCEL NUMBER: 200 130 01

FIRST CARBON COPY
send to County Health Dept. Room 104

COUNTY OF SAN DIEGO
DEPARTMENT OF HEALTH SERVICES
1700 PACIFIC HIGHWAY, SAN DIEGO, CA 92101

Notice of Intent No. 154172
Local Permit No. or Date

WATER WELL DRILLERS REPORT
(INSERT under ORIGINAL PAGE w/carbon of State Form)

State Well No.
Other Well No.

(1) OWNER: Name THOMAS WILCOX
Address ONE MONTGOMERY STREET
City SAN FRANCISCO Zip 94104

(2) LOCATION OF WELL (See instructions):
County SAN DIEGO Owner's Well Number
Well address if different from above BORREGO SPRINGS
Township 11S Range 6E Section 21
Distance from cities, roads, railroads, fences, etc. SEE ATTACHED

FOR HEALTH DEPARTMENT USE ONLY
Completed Well Construction:
Date 12 Oct
Date Inspected
Comments
Water Sample Taken?
Sanitarian's Approval:

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item (2))

(4) PROPOSED USE:
Domestic ☐
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other COMMERCIAL ☐

(5) Equipment:
Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) Gravel Pack:
Yes ☒ No ☐ Size 5/16" x #16
Diameter of above 12"
Packed from 35 YDS. ft.

(7) Casing Installed:
Steel ☒ Plastic ☐ Concrete ☐

(8) Perforations:
Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot Size
0	502	12¾	.250	242	502	5/8 x 2½" x 22 RND

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 50 ft.
Were strata sealed against pollution? Yes ☐ No ☒ Interval ft.
Method of sealing CEMENT GROUT

(10) WATER LEVELS:
Depth of first water, if known ft.
Standing level after well completion 245.9 ft.

(11) WELL TESTS:
Was well test made? Yes ☒ No ☐ If yes, by whom? R. ANDERSON
Type of test Pump ☐ Bailer ☐ Air lift ☒
Depth to water at start of test ft. At end of test ft.
Discharge 200+ gal/min after hours Water temperature
Chemical analysis made? Yes ☐ No ☒ If yes, by whom?
Was electric log made? Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG: Total depth ft. Depth of completed well 502 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	8	SAND & GRAVEL, QUITE LOOSE
8	14	TIGHTER SAND & GRAVEL
14	17	ROCKS COMING FROM 125' TO 17'
17	33	SEMI-CONSOLIDATED SAND & GRAVEL
33	76	FAIRLY LOOSE SAND & GRAVEL W/ROCKS @ 38' & 42'
76	82	TIGHTER SAND & GRAVEL
82	89	LOOSE SAND & GRAVEL
89	91	CEMENTED SAND & GRAVEL
91	122	FAIRLY LOOSE SAND & GRAVEL W/OCCASIONAL CHATTER
122	123	CEMENTED SAND & GRAVEL
123	141	LOOSER SAND & GRAVEL
141	141'6"	CEMENTED (VERY HARD)
141'6"	143	LOOSE SAND & GRAVEL
143	152	TIGHTER SAND & GRAVEL
152	212	CONSOLIDATED SAND & GRAVEL DRILLS SLOW W/SLIGHT ROUGHIES
212	223	SEMI-CONSOLIDATED SAND & GRAVEL
223	224	CEMENTED SAND
224	231	CONSOLIDATED SAND & GRAVEL
231	251	SEMI-CONSOLIDATED SAND AND SMALL GRAVELS - SLIGHTLY LOOSER DRILLING.
251	283	CONSOLIDATED SAND & SMALL GRAVEL - TIGHTER & ROUGHER DRL
283	287	ROUGH & SLOW DRLG. CEMENTED SAND.
287	315	SEMI-CONSOLIDATED SAND & SMALL GRAVELS. DRILLS LOOSER PAST 29
315	325	SEMI-CONSOLIDATED SAND & LIGHT GRAVEL
325	385	CONSOLIDATED (CEMENTED?) SANDS W/OCCASIONAL ROUGH SPOTS. VERY ROUGH FROM 363-365.
385	435	CONSOLIDATED SAND & LIGHT GRAVEL
435	437	CONSOLIDATED SAND & SMALL GRAVEL
437	447	SEMI-CONSOLIDATED SAND
447	487	CONSOLIDATED SAND W/CLAY OVE

Work started 8/26/81 19 Completed 11/19 1981

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

SIGNED (Well Driller)
NAME REX ANDERSON CORPORATION (Person, firm, or corporation) (Typed or printed)
Address P.O. Box 384
City JULIAN Zip 92036
License No. A 305731 Date of this report 12-28-81

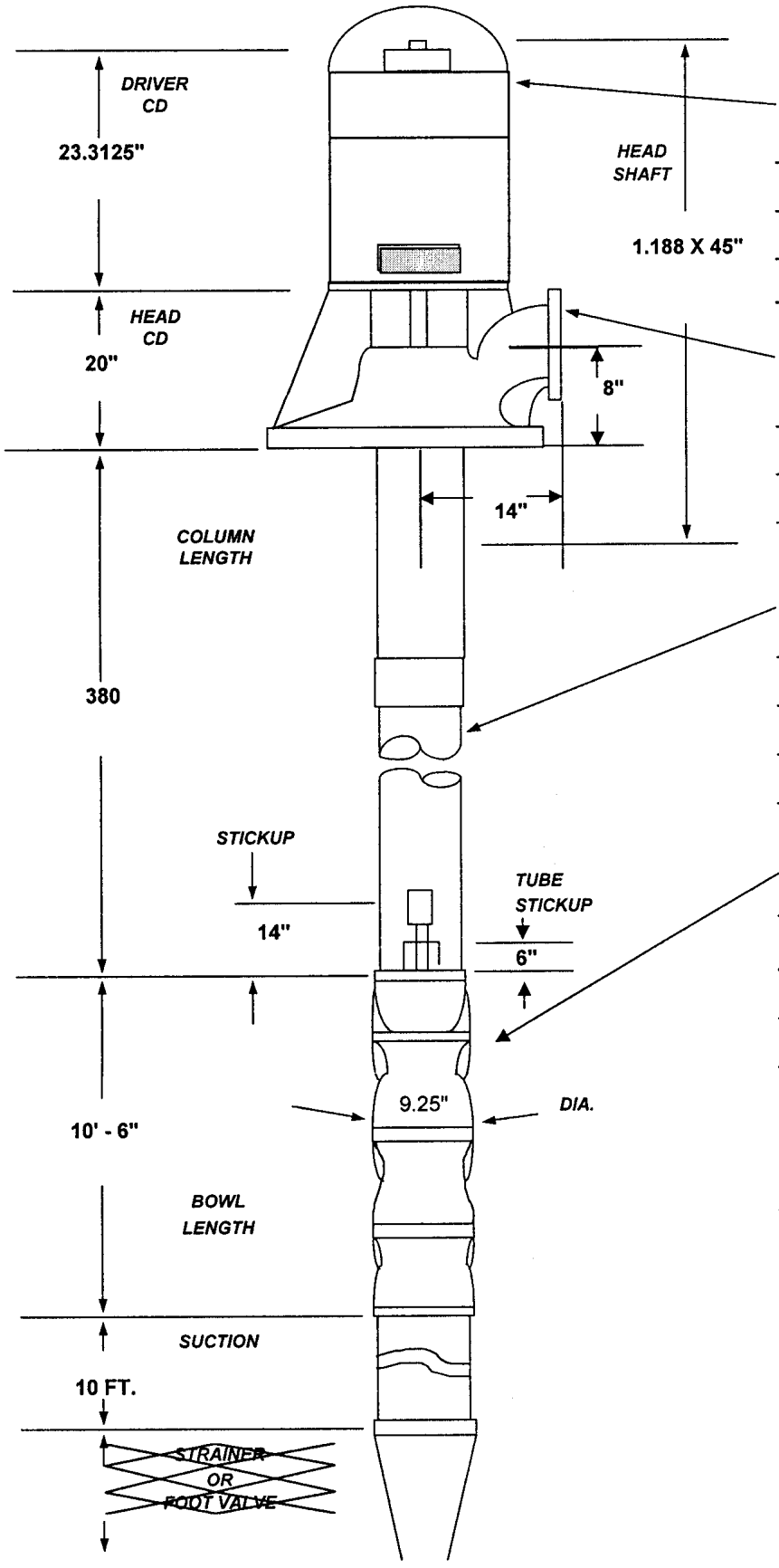
SAN 52 (2-81) **CONFIDENTIAL – NOT FOR PUBLIC USE – WATER CODE SEC. 13752**

HVPS, Inc.

CUSTOMER : BORREGO WATER DISTRICT
WELL #: WILCOX WELL
W.O. # 14514
DATE : 10/27/00

DESIGN CONDITIONS

GPM: 350 FTDH: 570 BHP: 61.2



MOTOR NAMEPLATE INFO.

MFG. AMARILLO VOLTS

MODEL 80A FRAME RPM 1775

ENCL BD 16.5 SHAFT DI 1.188

ID/SER #

SIZE AND TYPE HEAD

INLET 6 OUTLET 6 BASE 14" 150# FLG.

MOTOR B 16.5 MAKE GOULDS MODEL 6 X 16.5 L

TOP COLUM NIPPLE SIZE: 6" LENGTH: 12"

COLUMN ASSY. AND TYPE

TOP	COLUMN:	6"	OIL TUBE:	2"	SHAFT:	1.188"
			TPI:	14	TPI:	12
BOTTOM	COLUMN:	6"	OIL TUBE:	2"	SHAFT:	1.188
			TPI:	14	TPI:	12

BOWL ASSY. INFO.

DIA.: 9.5" #STAGES 13 IMP DIA: 6.8125"

BOWL #: IMP #

MAKE: OULDS MODEL: 9RCLC

SER #: FR430294

SUCTION INFO. (LIST ADAPTIONS)

6" X 10FT. LONG T.O.E. SUCTION NIPPLE

OTHER ADAPTIONS:

WELL DIAMETER AND DEPTH

12" DIA. , 482' DEEP

104-2

ORIGINAL

ile with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in
No. 126538

otice of Intent No.
ocal Permit No. or Date

State Well No.
Other Well No.

1) OWNER: Name Borrego Springs Water Co.
ddress Box B
ity Borrego Springs, Calif. Zip 92004

2) LOCATION OF WELL (See instructions):
ounty San Diego Owner's Well Number No. 2 (New)
'ell address if different from above
ownship T11S Range R6E Section Sec. 7
istance from cities, roads, railroads, fences, etc. Approx. 2 1/2 mi south west of Christmas Circle on Country Club Rd., Borrego Springs, Calif.

(3) TYPE OF WORK:
New Well [X] Deepening [ ]
Reconstruction [ ]
Reconditioning [ ]
Horizontal Well [ ]
Destruction [ ] (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic [ ]
Irrigation [ ]
Industrial [ ]
Test Well [ ]
Stock [ ]
Municipal [X]
Other [ ]

WELL LOCATION SKETCH

(5) EQUIPMENT:
otary [X] Reverse [ ]
able [ ] Air [ ]
ther [ ] Bucket [ ]

(6) GRAVEL PACK:
Yes [X] No [ ] Size #4 x #7
Diameter of bore 24"
Packed from 0 to 380 ft.

(7) CASING INSTALLED:
teel [X] Plastic [ ] Concrete [ ]

From ft.	To ft.	Dia. in.	Gage or Wall
0	50	26	.322
2	380	24	.250

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Slot size
240	325	3/32
355	370	

(9) WELL SEAL:
Was surface sanitary seal provided? Yes [X] No [ ] If yes, to depth 50 ft.
Were strata sealed against pollution? Yes [ ] No [X] Interval ft.
Method of sealing Cement Grout

(10) WATER LEVELS:
Depth of first water, if known — ft.
Standing level after well completion 254 ft.

(11) WELL TESTS:
Was well test made? Yes [X] No [ ] If yes, by whom? Rex Anderson
Type of test Pump [X] Bailer [ ] Air lift [ ]
Depth to water at start of test 254 ft. At end of test 254 ft
Discharge 350 gal/min after 24 hours Water temperature —
Chemical analysis made? Yes [X] No [ ] If yes, by whom? Borrego Springs Water Co.
Was electric log made? Yes [X] No [ ] If yes, attach copy to this report

(12) WELL LOG: Total depth 468 ft. Depth of completed well 380 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	66	Sand
66	73	Fine gravel w/ very little sand
73	86	Sand w/ small gravel
86	141	Sand w/ small gravel & rock
141	154	Sand & Gravel
154	159	Boulders & sand
159	188	Sand & gravel
188	191	Sand & gravel w/ some clay
191	255	Sand & gravel w/ some clay, semi-consolidated
255	270	Boulders & clay
270	290	Sand & gravel w clay
290	294	Boulders & clay
294	320	Sand & clay
320	322	Rocks & clay
322	328	Sand w/ clay, slow drilling
328	337	Sand, clay & gravel
337	338	Sand w/ little clay
338	347	Clay
347	359	Sand, clay & gravel
359	367	Sand & gravel w/ some clay
367	372	Clay & sand, slow drilling
372	418	Sand & clay w/ rock, slow drilling
418	426	Gravel & Rock in clay
426	460	Clay w/ sand & small gravel
460	468	Clay

Work started 3/14 1978 Completed 4/26 1978

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
SIGNED Rex E. Anderson (Well Driller)
NAME Rex Anderson Corp. (Person, firm, or corporation) (Typed or printed)
Address 10303 Channel Rd.
City Lakeside, Calif. Zip 92040
License No. A305739 Date of this report 4/26/78

DWR 188 (REV. 6-75) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

McCalla Bros.

Well Drilling & Pump Sales

MAIN OFFICE:
3132 West 17th Street
Santa Ana, California 92703
Phone: 714-554-4142

BRANCH OFFICES:
13855 Central Avenue
Chino, California 91710
Phone: 714-627-1521

980 Nevada Street
Redlands, California 92373
Phone: 714-793-2913

63-381 Hiway 111
P.O. Box 866
Coachella, California 92236
Phone: 619-398 8867

January 20, 1987

L.R. Burzell
Palm Canyon Estates
1002 Bennie Brea Place
Vista, CA 92084

SUBJECT: 12" Well-Palm Canyon Estates
Borrego Springs

Dear Lin,

Confirming our conversation of 1-15-86, outlined below are details concerning construction of the subject well.

As you are aware the construction of the well proceeded without any unusual problems. The "E" Log was not unusual and the bore samples were as expected.

Outlined here are dates of work as completed:

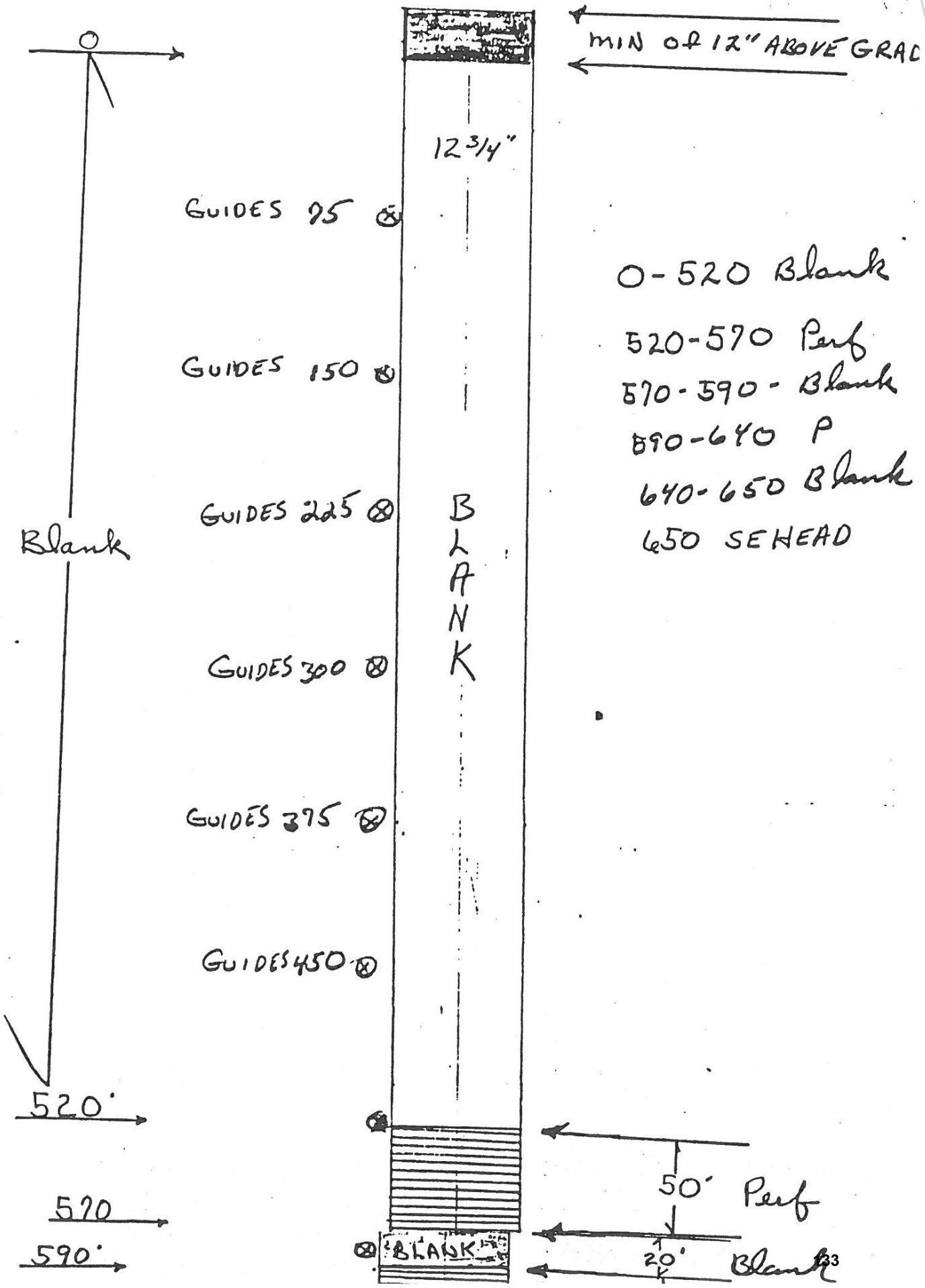
9-10-86	Move In - Set Up
9-16-86	Began Pilot Bore
9-19-86	Ran "E" Log
9-22-86	Began Constructing Conductor
	Set 50' of 25" Pipe Cemented In Place
9-23-86	Began Reaming 24" Hole
10-04-86	Completed Reaming 24" Bore to 659'
10-04-86	Set Well Casing & Gravel Pack
10-06-86	Air Lift Well To Remove Drill Fluids (7 Hrs)
10-07-86	Air Lift Well To Remove Drill Fluids (11 Hrs)
10-20-86	Install Test Pump
10-22-86	Test Pump Well (6 1/2 Hrs)
10-23-86	Test Pump Well (7 1/2 Hrs)
10-27-86	Install 80' Extension to 330' Setting
10-28-86	Test Pump Well (6 Hrs)
10-29-86	Test Pump Well (7 Hrs)
10-30-86	Test Pump Well (4 Hrs)

10S/6E 33Q

Palm Canyon Estates CC-1327

Depth	Material		
1.8	Sand		
6.0	Sand		
26	Sand		
46	Sand		
66	Sand		
86	Sand		
106		Clay	
126	Sand	Clay	Rock
146	Sand		Rock
166		Gravel	Rock
186	Sand	Clay	Gravel
206	Sand		Gravel
226		Clay	
246		Clay	Gravel
266	Sand		Gravel
286	Sand		
306	Sand	Clay	
326		Clay	
346		Clay	
366		Clay	
386	Sand	Clay	
406	Sand	Clay	
426	Sand	Clay	
446	Sand	Clay	
466	Sand	Clay	
486		Clay	
506			Gravel
520			Gravel
526			Gravel
546		Clay	Gravel
566		Clay	Gravel
586			Gravel
606			Gravel
610			Gravel
626		Clay	Gravel
646		Clay	Gravel
666		Clay	Gravel
686			
Bottom			

Palm Canyon Estates CC 1324



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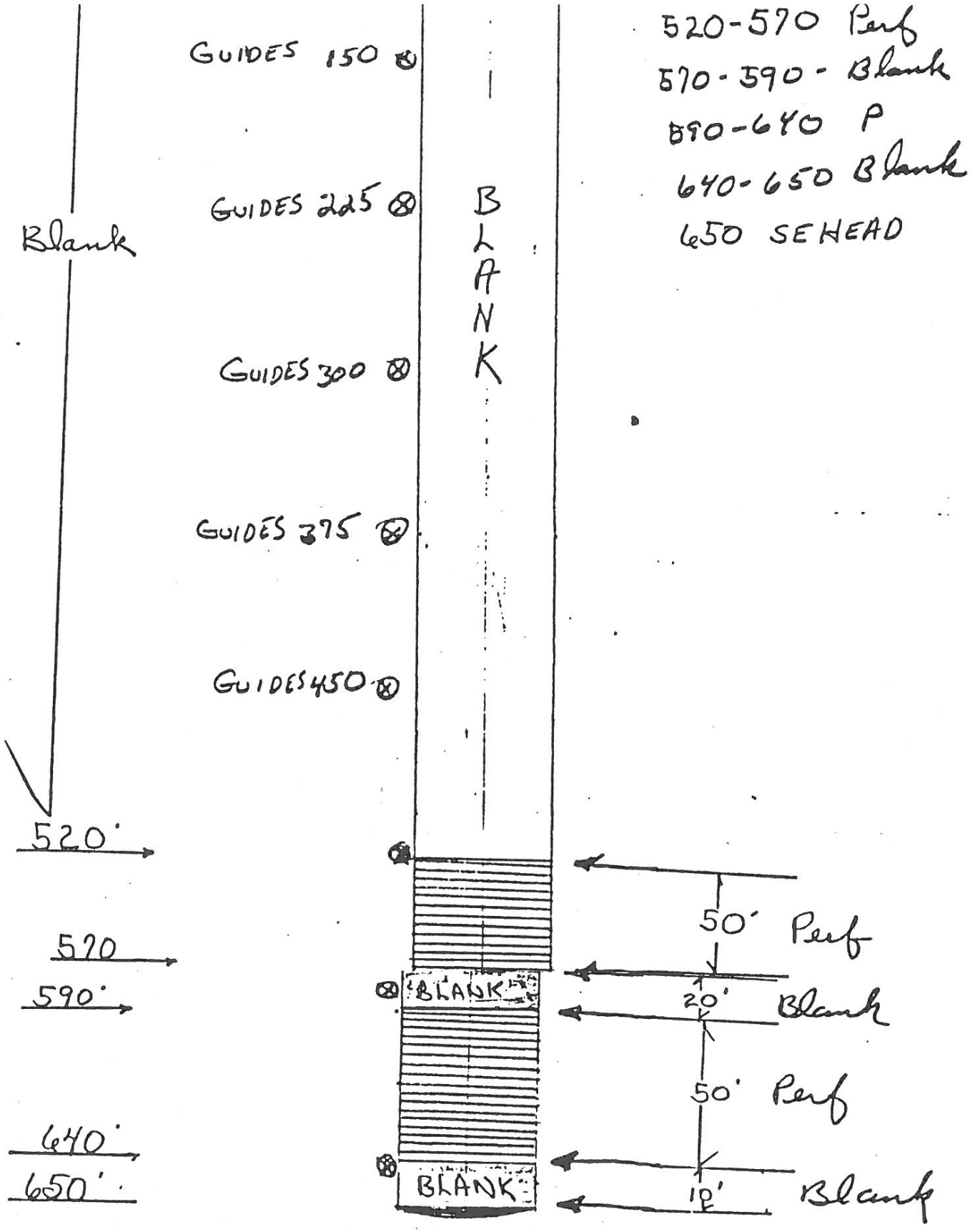
650 SEHEAD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650 SEHEAD
GUIDES 150
GUIDES 225
GUIDES 300
GUIDES 375
GUIDES 450
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BLANK
520'
520
590'
640'
650'
BLANK
BLANK
50' Perf
20' Blank
50' Perf
10' Blank

ESWCo Well 10

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

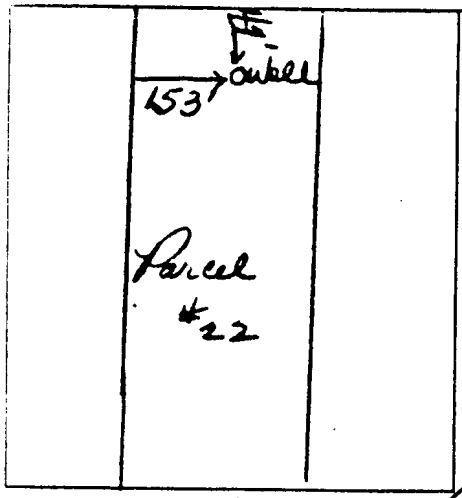
Do not fill in
No. 278130

ID4 Well 10
Assignment No. _____
Local Permit No. or Date _____

State Well No. _____
Other Well No. _____

(1) OWNER: Name Pete Petersen
Address 2436 Five Diamonds Rd.
City Borrego Springs, Ca. 92004 ZIP _____

(2) LOCATION OF WELL (See instructions):
County San Deigo Owner's Well Number _____
Well address if different from above _____
Township 11/S Range 6E Section 18
Distance from cities, roads, railroads, fences, etc. _____



WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☐
Irrigation ☐
Industrial ☐
Test Well ☐
Municipal ☐
Other ☐
(Describe)

(5) EQUIPMENT:
Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☒ No ☐ Size 2/16
Diameter of bore 12"
Packed from 160 ft. to 630 ft.

(7) CASING INSTALLED:
Steel ☒ Plastic ☐ Concrete ☐

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	630	6	.188	420	630	Mill Cut

(8) PERFORATIONS:
Type of perforation or size of screen

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 160 ft.
Were strata sealed against pollution? Yes ☐ No ☐ Interval _____ ft.
Method of sealing Bentonite slurry

(10) WATER LEVELS:
Depth of first water, if known 385 ft.
Standing level after well completion 385 ft.

(11) WELL TESTS:
Was well test made? Yes ☐ No ☒ If yes, by whom? _____
Type of test Pump ☐ Bailer ☐ Air lift ☐
Depth to water at start of test _____ ft. At end of test _____ ft.
Discharge _____ gal/min after _____ hours Water temperature _____
Chemical analysis made? Yes ☐ No ☒ If yes, by whom? _____
Was electric log made Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG: Total depth 630 ft. Completed depth 630 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	50	Coarse med to fine sand & grave
50	120	Med. to fine to coarse sand & gravel
120	245	medfine to coarse sand & gravel with small rocks & cobbles
245	440	Boulders
440	470	Fine to coarse sand with thin streaks of brown clay w/lime
470	630	Fine to coarse sand

Work started 5/24/89 19__ Completed 6/21/89 19__

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Signed _____ (Well Driller)
NAME Coachella Valley Pump & Supply, Inc. (Person, firm, or corporation) (Typed or printed)
Address P.O. Drawer QQQ
City Indio, Ca. 92202 ZIP _____
License No. 161541 Date of this report 7/14/89

DWR 188 (REV. 12-88) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM 135

BORREGO WATER DISTRICT

BOARD OF DIRECTORS MEETING – JANUARY 29, 2019

AGENDA BILL II.B.2

January 24, 2019

TO: Board of Directors, Borrego Water District

FROM: Geoff Poole, GM

SUBJECT: GSP Questions and Answers v#12

RECOMMENDED ACTION:

Receive Report and Direct Staff as Deemed Appropriate

ITEM EXPLANATION:

Director Brecht requested this item be placed on the Agenda

FISCAL IMPACT
N/A.

ATTACHMENTS

1. Info from Director Brecht

As of Wednesday, January 16, 2019

FOR DISCUSSION PURPOSES ONLY - NOT FOR ATTRIBUTION

Note: the estimated cost numbers in this discussion document are based on many assumptions and should be considered provisional and conditional rather than taken on face value. The purpose of this discussion brief is to develop a coherent narrative that addresses many of the questions District ratepayers continue to ask, to dispel inaccurate information and propositions that continue to circulate, and hopefully, to develop better cost estimates that can be shared with some confidence as realistic assumptions can be agreed upon.

1. Do ratepayers have to reduce 76% from current usage? No. SGMA applies to pumpers not individual BWD customers. Any well owner pumping more than 2-acre feet per year (750,000 gallons per year) including the BWD will be required to reduce their pumping by 2040 to establish Basin sustainability as mandated by SGMA. The BWD is assigned a baseline pumping allocation based upon its past highest water use between Jan 1, 2010 - Dec 31, 2014 (see #2 below). That allocation is significantly higher than current use. As a result, it will likely be several years before the District will need to replace the water it is mandated to reduce. To serve current and future customers, the BWD is planning to replace the required water reductions by purchasing water shares from other pumpers (likely agriculture) and by continuing water conservation incentives for ratepayers. In addition, to protect current customers, the District's most recent (2018) Policy on New Development requires new use developers of Equivalent Dwelling Units (EDUs) in the District's service area to supply their own water; meaning they would be required to purchase water from another pumper to serve their new development.

2. When will BWD's ratepayers have to reduce their current use and how much will that reduction be? Currently, BWD's ratepayers use less than the baseline allocation assigned under the GSP, meaning there are no requirements to reduce ratepayer use immediately. Until the GSP is approved, there will be uncertainty as to all the requirements that will be placed on the BWD, but our current estimate is it will likely be approximately 8-10 years from now before actual water reductions will take effect.

3. How will the BWD replace the water it is required to reduce? Our current plan is that the District will replace water needed to serve our customers by acquiring water from other pumpers, likely agricultural.

4. How will BWD's proposed reductions affect future water rates and how much will my bill go up? When the District purchases water from another pumper, there will be an impact on rates that cannot be avoided. The impact on water *rates* is estimated to range from a 50% increase (average case) to 100% increase (worse case) if the District was to replace the entire reduction allocation at one time; meaning buy all the water the District would need for 2040 and beyond all at once. However, even under this unlikely scenario, it does not mean ratepayers' monthly bills would increase by the same percentage. For a conservative residential water user (<0.3 AFY), the monthly increase would likely be a few dollars per month, while a large water user could see a significant increase depending on their consumption. The percentage increase given above assumes the District would purchase all the water rights it would need for the future at one time. Practically speaking, that is unlikely. Instead, a gradual schedule of purchases over time as the various issues surrounding the GSP implementation become settled and resolved is more likely. Thus, water rates would increase but likely more slowly and over a longer period.

Even so in the scheme of District costs, the procurement of water rights is just one of many cost pressures the District faces. For example, the District is presently in an ~$11 million Capital Improvement Projects (CIP) program to replace aging infrastructure that was previously deferred. The impact on water rates from this ~$11 million has already been factored into existing rates by the Proposition 218 process that established rates for FY2017-FY2021. The District's Board is also actively seeking grants and other forms of economic assistance that would reduce the pressure to increase rates and burden our community. Reaching sustainability under the Sustainable Groundwater Management Act (SGMA) is path dependent and BWD's objective of reaching the sustainable use of our basin is not to achieve this objective on the backs of ratepayers. As a municipal water purveyor to a Severely Disadvantaged Community (SDAC), we are keenly aware of managing the District at the lowest economic cost to protect our ratepayer base.

5. If the BWD must replace water it is required to reduce, what is going to keep other pumpers from buying up available water, leaving the BWD without enough water? The issues of hoarding and speculation will be addressed in the "Water Trading Program" that is to be developed during GSP implementation (early 2020). The Water Trading Program is a Project and Management Action (PMA), described in the Groundwater Sustainability Plan (GSP). One of BWD's top priorities is to minimize the impact to ratepayers from land/water acquisition and

the process for the doing so is currently being determined by the BWD and County as the Groundwater Sustainability Agency (GSA) for the Subbasin.

7. How will the BWD afford replacement water if the price is driven up by competing buyers? The market rules and economics of future water sales is yet undefined. However, the BWD is committed to protecting its ratepayers in this process and is carefully considering how to do so. Our current thinking is that the Water Trading Program may address some of these concerns as well as the practical aspects of Subbasin economics.

8. Agricultural pumping accounts for the majority of water use that has overdrafted our basin. Where are assurances that this won't continue? The outcome required by SGMA is a significant reduction in water use by all pumpers. Agriculture is currently the largest user of water in the Basin and will be required to reduce in a verifiable manner with penalties if it fails. These reductions will have an economic impact as the cost of doing business rises. At some future point, much of the water currently in use by Agriculture will transfer through acquisitions to other pumpers, including the BWD.

9. How will required water reductions be enforced? Enforcement will be the responsibility of the GSA. Enforcement options include financial penalties and legal actions.

10. What credit is the BWD receiving for its ratepayers conservation since 2010? The methodology under consideration by the GSA applies the highest water use between Jan 1, 2010 - Dec 31, 2014 as the Baseline Pumping Allocation from which a pumper must begin reductions. The current baseline pumping allocation for the BWD reflects a credit for past conservation.

11. Why does the BWD have to reduce in proportion to other pumpers. As a municipal user, can't it force other user to reduce at a higher rate so that the BWD doesn't have to reduce below it current usage of 1700 AFY? Our research to date has not revealed a legal precedent in California that would allow for disproportional reductions or unilateral favored treatment of a municipal water purveyor. As a result, to press for such a non-proportional reduction alternative would likely trigger a legal challenge. The cost of such a challenge must be paid from the District's revenue, cannot be funded by grant money and likely would require rate increases to pay the ongoing costs of legal defense and litigation, which can be significant. The BWD Board and its advisors do not believe that is a viable alternative and therefore, have not pursed it.

BORREGO WATER DISTRICT

BOARD OF DIRECTORS MEETING – JANUARY 29, 2019

AGENDA BILL II.B.3

January 24, 2019

TO: Board of Directors, Borrego Water District

FROM: Geoff Poole, GM

SUBJECT: Draft GSP Public Outreach

RECOMMENDED ACTION:

Direct Staff as Deemed Appropriate

ITEM EXPLANATION:

Rebecca Faulk requested this item be placed on the Agenda in preparation for the release of the Draft Groundwater Sustainability Plan, staff and Rebecca Falk from the BS Sponsor Group would like to begin the discussion on scheduling a series of meetings during the 60 day public review process.

FISCAL IMPACT - N/A

IV.A

FINANCIALS
NOVEMBER 2018
DECEMBER 2018

	C	AD	AE	AF	AG
1	**BWD**	6/19/2018			
2	**BUDGET CASH FLOW**	ADOPTED	Actual	Projected	
3	**2018-2019**	BUDGET	November	November	Difference
4		2018-2019	2018	2018	Explanations
5					
6	**REVENUE**				
7	WATER REVENUE				
8	Residential Water Sales	950,994	75,636	82,693	
9	Commercial Water Sales	417,885	41,625	42,757	
10	Irrigation Water Sales	237,061	22,394	19,873	
11	GWM Surcharge	181,749	15,523	16,092	
12	Water Sales Power Portion	514,706	42,586	44,450	
13	**TOTAL WATER COMMODITY REVENUE:**	2,302,395	197,763	205,864	
14					
15	Readiness Water Charge	1,154,976	96,011	96,248	
18	Meter Install/Reconnect Fees	20,680	0	340	
19	Backflow Testing/installation	5,100	0	-	
20	Bulk Water Sales	1,200	531	100	
21	Penalty & Interest Water Collection	40,000	(119)	-	
22	**TOTAL WATER REVENUE:**	3,524,351	294,187	302,552	
23					
24	PROPERTY ASSESSMENTS/AVAILABILITY CHARGES				
25	641500 1% Property Assessments	62,300	0	3,114	
26	641502 Property Assess wtr/swr/fld	106,212	0	3,064	
28	641501 Water avail Standby	82,376	0	7,507	
30	641504 ID 3 Water Standby (La Casa)	33,647	0	1,491	
31	641503 Pest standby	17,870	(241)	611	
32	**TOTAL PROPERTY ASSES/AVAIL CHARGES:**	302,404	(241)	15,788	
33					
34	SEWER SERVICE CHARGES				
35	Town Center Sewer Holder fees	234,593	19,549	19,549	
36	Town Center Sewer User Fees	88,695	7,392	7,391	
37	Sewer user Fees	278,304	23,436	23,192	
39	Penalty Interest-Sewer	1,248	0	104	
41	**TOTAL SEWER SERVICE CHARGES:**	602,840	52,378	50,236	
42					
43	OTHER INCOME				
48	Water Credits income	22,000	0	-	
49	WTF Solar Rebate	50,000			
50	R/H Surplus Water Revenue	200,000			
51	Interest Income	6,000	6,498	2,000	
52	**TOTAL OTHER INCOME:**	278,000	6,498	2,000	
53					
54	**TOTAL INCOME:**	4,707,595	352,822	370,576	
55					
56	CASH BASIS ADJUSTMENTS				
57	Decrease (Increase) in Accounts Receivable		11,534		
58	Deposits-refund				
59	Other Cash Basis Adjustments		0		
60	**TOTAL CASH BASIS ADJUSTMENTS:**		11,534		
61					
62	**TOTAL OPERATING INCOME RECEIVED:**	4,707,595	364,355	370,576	
63					
64	GRANT & DEBT PROCEEDS				
65	Prop 1 GSP Grant	500,000			
66	Pacific Western Bank 2018 IPA	5,500,000	6,498		Bank interest paid
67	**TOTAL GRANT & DEBT PROCEEDS:**	6,000,000	6,498	-	
68					
69	**TOTAL INCOME, GRANT & DEBT PROCEEDS:**	10,707,595	370,853	370,576	
70					

	C	AH	AI	AJ	AL	AM
1	**BWD**					
2	**BUDGET CASH FLOW**	Actual	Actual YTD	Projected	Projected	Projected
3	**2018-2019**	YTD	and Projected		December	January
4		2018-2019	2018-2019	2018-2019	2018	2019
5						
6	**REVENUE**					
7	WATER REVENUE					
8	Residential Water Sales	456,223	942,072	485,849	68,756	66,088
9	Commercial Water Sales	218,515	434,315	215,800	30,278	36,898
10	Irrigation Water Sales	114,208	226,514	112,306	14,674	19,746
11	GWM Surcharge	87,626	182,336	94,710	12,532	13,121
12	Water Sales Power Portion	227,299	500,442	273,143	34,619	36,220
13	**TOTAL WATER COMMODITY REVENUE:**	1,103,871	2,285,680	1,181,809	160,860	172,073
14						
15	Readiness Water Charge	481,136	1,154,872	673,736	96,248	96,248
18	Meter Install/Reconnect Fees	690	11,030	10,340		
19	Backflow Testing/installation	300	5,400	5,100	0	0
20	Bulk Water Sales	7,317	8,017	700	100	100
21	Penalty & Interest Water Collection	16,544	40,544	24,000	0	4,000
22	**TOTAL WATER REVENUE:**	1,610,577	3,506,262	1,895,685	257,208	272,421
23						
24	PROPERTY ASSESSMENTS/AVAILABILITY CHARGES					
25	641500 1% Property Assessments	4,835	60,977	56,142	19,749	9,633
26	641502 Property Assess wtr/swr/fld	2,248	69,503	67,254	8,493	10,451
28	641501 Water avail Standby	9,039	88,013	78,974	27,182	29,301
30	641504 ID 3 Water Standby (La Casa)	1,094	34,287	33,193	4,790	14,101
31	641503 Pest standby	486	15,711	15,225	3,631	4,070
32	**TOTAL PROPERTY ASSES/AVAIL CHARGES:**	17,702	268,491	250,790	63,845	67,556
33						
34	SEWER SERVICE CHARGES					
35	Town Center Sewer Holder fees	96,424	233,271	136,847	19,549	19,549
36	Town Center Sewer User Fees	36,674	88,414	51,740	7,391	7,391
37	Sewer user Fees	117,006	279,350	162,344	23,192	23,192
39	Penalty Interest-Sewer	7,769	8,497	728	104	104
41	**TOTAL SEWER SERVICE CHARGES:**	267,793	619,452	351,659	50,236	50,236
42						
43	OTHER INCOME					
48	Water Credits income	-	11,000	11,000	0	0
49	WTF Solar Rebate	-	23,238	23,238		23,238
50	R/H Surplus Water Revenue	-	200,000	200,000		200,000
51	Interest Income	23,501	61,501	38,000	6,500	6,500
52	**TOTAL OTHER INCOME:**	23,501	295,739	272,238	6,500	229,738
53						
54	**TOTAL INCOME:**	1,919,573	4,689,944	2,770,371	377,790	619,951
55						
56	CASH BASIS ADJUSTMENTS					
57	Decrease (Increase) in Accounts Receivable	(69,460)	(69,460)			
58	Deposits-refund	(4,800)	(4,800)			
59	Other Cash Basis Adjustments	35,441	35,441			
60	**TOTAL CASH BASIS ADJUSTMENTS:**	(38,819)	(38,819)			
61						
62	**TOTAL OPERATING INCOME RECEIVED:**	1,901,313	4,651,125	2,770,371	377,790	619,951
63						
64	GRANT & DEBT PROCEEDS					
65	Prop 1 GSP Grant	-	-	0		
66	Pacific Western Bank 2018 IPA	5,632,160	5,632,160	0		
67	**TOTAL GRANT & DEBT PROCEEDS:**	5,632,160	5,632,160	0	0	0
68						
69	**TOTAL INCOME, GRANT & DEBT PROCEEDS:**	7,541,959	10,312,330	2,770,371	377,790	619,951
70						

	C	AN	AO	AP	AQ	AR
1	**BWD**					
2	**BUDGET CASH FLOW**	Projected	Projected	Projected	Projected	Projected
3	**2018-2019**	February	March	April	May	June
4		2019	2019	2019	2019	2019
5						
6	**REVENUE**					
7	WATER REVENUE					
8	Residential Water Sales	66,152	57,509	70,304	75,920	81,120
9	Commercial Water Sales	30,234	31,031	26,000	30,160	31,200
10	Irrigation Water Sales	15,000	12,460	13,520	16,640	20,276
11	GWM Surcharge	12,068	11,075	15,293	15,310	15,310
12	Water Sales Power Portion	33,310	30,560	47,230	44,632	46,572
13	**TOTAL WATER COMMODITY REVENUE:**	156,763	142,625	172,347	182,662	194,477
14						
15	Readiness Water Charge	96,248	96,248	96,248	96,248	96,248
18	Meter Install/Reconnect Fees	10,000		340		
19	Backflow Testing/installation	0	0	0	0	5,100
20	Bulk Water Sales	100	100	100	100	100
21	Penalty & Interest Water Collection	4,000	4,000	4,000	4,000	4,000
22	**TOTAL WATER REVENUE:**	267,111	242,973	273,035	283,010	299,925
23						
24	PROPERTY ASSESSMENTS/AVAILABILITY CHARGES					
25	641500 1% Property Assessments	5,635	2,102	12,153	6,671	200
26	641502 Property Assess wtr/swr/fld	0	693	1,056	46,262	300
28	641501 Water avail Standby	0	3,015	3,732	13,745	2,000
30	641504 ID 3 Water Standby (La Casa)	0	889	396	12,527	490
31	641503 Pest standby	0	416	651	5,936	523
32	**TOTAL PROPERTY ASSES/AVAIL CHARGES:**	5,635	7,114	17,987	85,140	3,513
33						
34	SEWER SERVICE CHARGES					
35	Town Center Sewer Holder fees	19,549	19,549	19,549	19,549	19,553
36	Town Center Sewer User Fees	7,391	7,391	7,391	7,391	7,394
37	Sewer user Fees	23,192	23,192	23,192	23,192	23,192
39	Penalty Interest-Sewer	104	104	104	104	104
41	**TOTAL SEWER SERVICE CHARGES:**	50,236	50,236	50,236	50,236	50,243
42						
43	OTHER INCOME					
48	Water Credits income	11,000	0	0	0	0
49	WTF Solar Rebate					
50	R/H Surplus Water Revenue					
51	Interest Income	5,000	5,000	5,000	5,000	5,000
52	**TOTAL OTHER INCOME:**	16,000	5,000	5,000	5,000	5,000
53						
54	**TOTAL INCOME:**	338,982	305,324	346,258	423,386	358,681
55						
56	CASH BASIS ADJUSTMENTS					
57	Decrease (Increase) in Accounts Receivable					
58	Deposits-refund					
59	Other Cash Basis Adjustments					
60	**TOTAL CASH BASIS ADJUSTMENTS:**					
61						
62	**TOTAL OPERATING INCOME RECEIVED:**	338,982	305,324	346,258	423,386	358,681
63						
64	GRANT & DEBT PROCEEDS					
65	Prop 1 GSP Grant					
66	Pacific Western Bank 2018 IPA					
67	**TOTAL GRANT & DEBT PROCEEDS:**	0	0	0	0	0
68						
69	**TOTAL INCOME, GRANT & DEBT PROCEEDS:**	338,982	305,324	346,258	423,386	358,681
70						

	C	AD	AE	AF	AG
1	**BWD**	6/19/2018			
2	**BUDGET CASH FLOW**	ADOPTED	Actual	Projected	
3	**2018-2019**	BUDGET	November	November	Difference
4		2018-2019	2018	2018	Explanations
71	EXPENSES				
72					
73	MAINTENANCE EXPENSE				
74	R & M Buildings & Equipment	180,000	18,141	10,000	
75	R & M - WWTP	180,000	5,158	15,000	
76	Telemetry	10,000	1,412	-	
77	Trash Removal	4,200	418	420	
78	Vehicle Expense	18,000	1,952	1,500	
79	Fuel & Oil	30,000	4,057	3,000	
80	**TOTAL MAINTENANCE EXPENSE:**	422,200	31,138	29,920	
81					
82	PROFESSIONAL SERVICES EXPENSE				
83	Tax Accounting (Taussig)	3,000	0	-	
84	Administrative Services (ADP)	3,000	214	240	
85	Audit Fees (Squarmilner)	16,995	0	-	
86	Computer billing (Accela/Parker)	25,000	0	2,500	
87	Financial/Technical Consulting (Raftelis) (Fieldman) (Holt Group)	80,000	0	500	
88	Engineering (Dynamic/Dudek)	60,000	0	5,000	No bill
89	District Legal Services (Downey Brand/BBK)	100,000	0	10,000	No bill
90	Testing/lab work (Babcock Lab)	12,000	20	500	
91	Regulatory Permit Fees (SWRB/DEH/Dig alerts/APCD)	25,000	7,952	80	Projected in Jan
92	Management Consulting (CIP)	50,000		6,250	
93	**TOTAL PROFESSIONAL SERVICES EXPENSE:**	374,994	8,186	25,070	
94					
95	INSURANCE EXPENSE				
96	ACWA/JPIA Program Insurance	57,000	0	-	
97	ACWA/JPIA Workers Comp	17,600	0	-	
98	**TOTAL INSURANCE EXPENSE:**	74,600	0	-	
99					
100	DEBT EXPENSE				
101	Compass Bank Note 2018A	254,500	0	-	
102	Compass Bank Note 2018B	143,000	0		
103	Pacific Western Bank 2018 IPA	500,000			
104	**TOTAL DEBT EXPENSE:**	897,500	0	-	
105					
106	PERSONNEL EXPENSE				
107	Board Meeting Expense (board stipend/board secretary)	25,000	989	1,970	
108	Salaries & Wages (gross)	890,000	79,619	79,527	
109	Salaries & Wages offset account (board stipends/staff project salaries)	-60,000	(8,108)	(5,000)	Increased allocation
110	Consulting services/Contract Labor	15,000	0	1,250	
111	Taxes on Payroll	22,300	1,525	1,338	
112	Medical Insurance Benefits	229,000	14,283	18,570	Refund
113	Calpers Retirement Benefits	170,170	7,049	7,100	
114	Conference/Conventions/Training/Seminars	17,000	1,478	488	Cross training
115	**TOTAL PERSONNEL EXPENSE:**	1,308,470	96,735	105,243	
116					
117	OFFICE EXPENSE				
118	Office Supplies	20,000	2,824	2,409	
119	Office Equipment/ Rental/Maintenance Agreements	35,000	718	5,543	
120	Postage & Freight	15,000	2,000	40	
121	Taxes on Property	2,334	0	-	
122	Telephone/Answering Service/Cell	24,000	1,753	2,000	
123	Dues & Subscriptions (ACWA/CSDA)	21,000	1,306	293	
124	Printing, Publications & Notices	2,500	275	167	
125	Uniforms	6,500	565	540	
126	OSHA Requirements/Emergency preparedness	4,000	618	265	
127	**TOTAL OFFICE EXPENSE:**	130,335	10,060	11,258	
128					
129	UTILITIES EXPENSE				
130	Pumping-Electricity	308,000	27,428	25,526	
131	Office/Shop Utilities	1,200	106	100	
133	**TOTAL UTILITIES EXPENSE:**	309,200	27,534	25,626	
134					
135	GROUNDWATER MANAGEMENT EXPENSE				
136	SGMA GSP Costs	308,000	16,785	25,500	
137	Prop 1 Grant Expense	60,000	22,353	5,000	
139	**TOTAL GWM EXPENSE:**	368,000	39,138	30,500	
140					
141	**TOTAL EXPENSES:**	3,885,299	212,791	227,617	
142	CASH BASIS ADJUSTMENTS				
143	Decrease (Increase) in Accounts Payable		(87,999)		
144	Increase (Decrease) in Inventory		(1,883)		
145	Other Cash Basis Adjustments-CSD refunds		5,125		
146	**TOTAL CASH BASIS ADJUSTMENTS:**		(84,757)		
147					
148	**TOTAL OPERATING EXPENSES PAID:**	3,885,299	128,034	227,617	
149					
150	**UNEXPENDED DEBT PROCEEDS:**	4,698,000	5,532,160	0	
151					
152	**TOTAL EXPENSES AND UNEXPENDED DEBT PROCEEDS:**	8,585,489	5,660,194	227,617	
153					
154	**NET OPERATING INCOME:**	822,296	236,321	142,959	

	C	AH	AI	AJ	AL	AM
1	**BWD**					
2	**BUDGET CASH FLOW**	Actual	Actual YTD	Projected	Projected	Projected
3	**2018-2019**	YTD	and Projected		December	January
4		2018-2019	2018-2019	2018-2019	2018	2019
71	**EXPENSES**					
72						
73	MAINTENANCE EXPENSE					
74	R & M Buildings & Equipment	94,420	180,000	85,580	10,000	11,859
75	R & M - WWTP	50,958	170,158	119,200	20,000	15,000
76	Telemetry	3,085	10,000	6,915	1,100	1,815
77	Trash Removal	2,527	5,467	2,940	420	420
78	Vehicle Expense	9,584	18,000	8,416	1,000	1,500
79	Fuel & Oil	10,855	30,000	19,145	3,000	2,500
80	**TOTAL MAINTENANCE EXPENSE:**	171,427	413,623	242,196	35,520	33,094
81						
82	PROFESSIONAL SERVICES EXPENSE					
83	Tax Accounting (Taussig)	2,251	3,000	749	0	0
84	Administrative Services (ADP)	1,079	2,849	1,770	240	330
85	Audit Fees (Squarmilner)	16,994	16,994	0	0	0
86	Computer billing (Accela/Parker)	6,743	25,000	18,257	0	2,000
87	Financial/Technical Consulting (Raftelis) (Fieldman) (Holt Group)	147,234	150,734	3,500	500	500
88	Engineering (Dynamic/Dudek)	-	42,000	42,000	6,000	6,000
89	District Legal Services (Downey Brand/BBK)	13,187	83,187	70,000	10,000	10,000
90	Testing/lab work (Babcock Lab)	5,656	11,520	5,864	800	800
91	Regulatory Permit Fees (SWRB/DEH/Dig alerts/APCD)	19,637	25,000	5,363	1,300	250
92	Management Consulting (CIP)	-	43,750	43,750	6,250	6,250
93	**TOTAL PROFESSIONAL SERVICES EXPENSE:**	212,781	404,034	191,253	25,090	26,130
94						
95	INSURANCE EXPENSE					
96	ACWA/JPIA Program Insurance	23,857	56,857	33,000	0	0
97	ACWA/JPIA Workers Comp	4,120	17,320	13,200	4,400	
98	**TOTAL INSURANCE EXPENSE:**	27,977	74,177	46,200	4,400	-
99						
100	DEBT EXPENSE					
101	Compass Bank Note 2018A	215,291	250,399	35,108	0	0
102	Compass Bank Note 2018B	125,076	140,755	15,679	0	0
103	Pacific Western Bank 2018 IPA	400,268	500,387	100,119		
104	**TOTAL DEBT EXPENSE:**	740,635	891,541	150,906	-	-
105						
106	PERSONNEL EXPENSE					
107	Board Meeting Expense (board stipend/board secretary)	5,079	22,199	17,120	1,970	1,970
108	Salaries & Wages (gross)	370,374	884,828	514,453	72,162	75,890
109	Salaries & Wages offset account (board stipends/staff project salaries)	(19,302)	(89,302)	(70,000)	(10,000)	(10,000)
110	Consulting services/Contract Labor	2,693	11,443	8,750	1,250	1,250
111	Taxes on Payroll	5,497	21,553	16,056	669	5,352
112	Medical Insurance Benefits	108,307	225,877	117,570	18,570	19,500
113	Calpers Retirement Benefits	125,230	174,930	49,700	7,100	7,100
114	Conference/Conventions/Training/Seminars	4,129	8,250	4,121	0	1,783
115	**TOTAL PERSONNEL EXPENSE:**	602,007	1,259,778	657,770	91,721	102,845
116						
117	OFFICE EXPENSE					
118	Office Supplies	10,881	20,000	9,119	1,300	2,917
119	Office Equipment/ Rental/Maintenance Agreements	15,191	35,000	19,809	4,000	4,000
120	Postage & Freight	6,288	15,000	8,712	1,000	0
121	Taxes on Property	2,383	2,383	0	0	0
122	Telephone/Answering Service/Cell	7,846	20,446	12,600	1,800	1,800
123	Dues & Subscriptions (ACWA/CSDA)	2,315	21,000	18,685	16,031	350
124	Printing, Publications & Notices	1,351	2,500	1,149	0	111
125	Uniforms	2,495	6,500	4,005	570	570
126	OSHA Requirements/Emergency preparedness	952	4,000	3,048	432	436
127	**TOTAL OFFICE EXPENSE:**	49,700	126,825	77,125	25,133	10,184
128						
129	UTILITIES EXPENSE					
130	Pumping-Electricity	146,284	304,764	158,480	23,511	22,243
131	Office/Shop Utilities	2,736	3,436	700	100	100
133	**TOTAL UTILITIES EXPENSE:**	149,020	310,393	161,373	23,611	22,343
134						
135	GROUNDWATER MANAGEMENT EXPENSE					
136	SGMA GSP Costs	107,366	287,866	180,500	25,500	25,500
137	Prop 1 Grant Expense	185,497	220,497	35,000	5,000	5,000
139	**TOTAL GWM EXPENSE:**	292,863	501,007	208,145	30,500	30,500
140						
141	**TOTAL EXPENSES:**	2,246,411	3,981,381	1,734,970	235,974	225,096
142	CASH BASIS ADJUSTMENTS					
143	Decrease (Increase) in Accounts Payable	29,748	29,748			
144	Increase (Decrease) in Inventory	6,404	6,404			
145	Other Cash Basis Adjustments-CSD refunds	68,840	68,840			
146	**TOTAL CASH BASIS ADJUSTMENTS:**	104,992	104,992			
147						
148	**TOTAL OPERATING EXPENSES PAID:**	2,351,403	4,086,373	1,734,970	235,974	225,096
149						
150	**UNEXPENDED DEBT PROCEEDS:**	5,532,160	5,532,160	5,532,160	5,532,160	5,532,160
151						
152	**TOTAL EXPENSES AND UNEXPENDED DEBT PROCEEDS:**	7,883,562	9,618,532	7,267,130	5,768,134	5,757,256
153						
154	**NET OPERATING INCOME:**	(450,089)	564,753	1,035,401	141,815	394,854

	C	AN	AO	AP	AQ	AR
1	**BWD**					
2	**BUDGET CASH FLOW**	Projected	Projected	Projected	Projected	Projected
3	**2018-2019**	February	March	April	May	June
4		2019	2019	2019	2019	2019
71	EXPENSES					
72						
73	MAINTENANCE EXPENSE					
74	R & M Buildings & Equipment	10,000	15,000	15,000	10,000	13,721
75	R & M - WWTP	15,000	20,000	15,000	15,000	19,200
76	Telemetry	0	2,000	0	2,000	0
77	Trash Removal	420	420	420	420	420
78	Vehicle Expense	1,500	1,000	1,048	1,000	1,368
79	Fuel & Oil	3,000	2,500	2,645	2,500	3,000
80	**TOTAL MAINTENANCE EXPENSE:**	29,920	40,920	34,113	30,920	37,709
81						
82	PROFESSIONAL SERVICES EXPENSE					
83	Tax Accounting (Taussig)	662	0	0	0	87
84	Administrative Services (ADP)	240	240	240	240	240
85	Audit Fees (Squarmilner)	0	0	0	0	0
86	Computer billing (Accela/Parker)	10,000	4,000	205	2,052	0
87	Financial/Technical Consulting (Raftelis) (Fieldman) (Holt Group)	500	500	500	500	500
88	Engineering (Dynamic/Dudek)	6,000	6,000	6,000	6,000	6,000
89	District Legal Services (Downey Brand/BBK)	10,000	10,000	10,000	10,000	10,000
90	Testing/lab work (Babcock Lab)	800	864	800	1,000	800
91	Regulatory Permit Fees (SWRB/DEH/Dig alerts/APCD)	233	2,380	500	200	500
92	Management Consulting (CIP)	6,250	6,250	6,250	6,250	6,250
93	**TOTAL PROFESSIONAL SERVICES EXPENSE:**	34,685	30,234	24,495	26,242	24,377
94						
95	INSURANCE EXPENSE					
96	ACWA/JPIA Program Insurance	0	33,000	0	0	0
97	ACWA/JPIA Workers Comp	0	4,400	0	0	4,400
98	**TOTAL INSURANCE EXPENSE:**	-	37,400	-	-	4,400
99						
100	DEBT EXPENSE					
101	Compass Bank Note 2018A	0	35,108	0	0	0
102	Compass Bank Note 2018B		15,679			
103	Pacific Western Bank 2018 IPA		100,119			
104	**TOTAL DEBT EXPENSE:**	-	150,906	-	-	-
105						
106	PERSONNEL EXPENSE					
107	Board Meeting Expense (board stipend/board secretary)	1,970	1,970	1,970	5,045	2,225
108	Salaries & Wages (gross)	70,297	75,890	74,026	75,890	70,297
109	Salaries & Wages offset account (board stipends/staff project salaries)	(10,000)	(10,000)	(10,000)	(10,000)	(10,000)
110	Consulting services/Contract Labor	1,250	1,250	1,250	1,250	1,250
111	Taxes on Payroll	2,676	1,784	1,561	2,230	1,784
112	Medical Insurance Benefits	19,500	19,500	19,500	21,000	
113	Calpers Retirement Benefits	7,100	7,100	7,100	7,100	7,100
114	Conference/Conventions/Training/Seminars	34	400	1,278	500	126
115	**TOTAL PERSONNEL EXPENSE:**	92,827	97,895	96,685	103,016	72,782
116						
117	OFFICE EXPENSE					
118	Office Supplies	952	1,000	1,200	750	1,000
119	Office Equipment/ Rental/Maintenance Agreements	4,000	3,327	1,837	1,645	1,000
120	Postage & Freight	1,312	400	2,000	2,000	2,000
121	Taxes on Property	0	0	0	0	0
122	Telephone/Answering Service/Cell	1,800	1,800	1,800	1,800	1,800
123	Dues & Subscriptions (ACWA/CSDA)	124	239	1,449	347	145
124	Printing, Publications & Notices	400	138	200	100	200
125	Uniforms	570	570	570	570	585
126	OSHA Requirements/Emergency preparedness	436	436	436	436	436
127	**TOTAL OFFICE EXPENSE:**	9,594	7,910	9,492	7,648	7,166
128						
129	UTILITIES EXPENSE					
130	Pumping-Electricity	20,518	21,488	23,000	23,721	24,000
131	Office/Shop Utilities	100	100	100	100	100
133	**TOTAL UTILITIES EXPENSE:**	20,618	23,780	23,100	23,821	24,100
134						
135	GROUNDWATER MANAGEMENT EXPENSE					
136	SGMA GSP Costs	25,500	26,000	26,000	26,000	26,000
137	Prop 1 Grant Expense	5,000	5,000	5,000	5,000	5,000
139	**TOTAL GWM EXPENSE:**	30,500	23,645	31,000	31,000	31,000
140						
141	**TOTAL EXPENSES:**	218,144	412,690	218,885	222,647	201,534
142	CASH BASIS ADJUSTMENTS					
143	Decrease (Increase) in Accounts Payable					
144	Increase (Decrease) in Inventory					
145	Other Cash Basis Adjustments-CSD refunds					
146	**TOTAL CASH BASIS ADJUSTMENTS:**					
147						
148	**TOTAL OPERATING EXPENSES PAID:**	218,144	412,690	218,885	222,647	201,534
149						
150	**UNEXPENDED DEBT PROCEEDS:**	5,332,160	5,332,160	5,130,160	5,130,160	4,930,160
151						
152	**TOTAL EXPENSES AND UNEXPENDED DEBT PROCEEDS:**	5,550,304	5,744,850	5,349,045	5,352,806	5,131,694
153						
154	**NET OPERATING INCOME:**	120,838	(107,366)	127,373	200,740	167,147

	C	AD	AE	AF	AG
1	**BWD**	6/19/2018			
2	**BUDGET CASH FLOW**	ADOPTED	Actual	Projected	
3	**2018-2019**	BUDGET	November	November	Difference
4		2018-2019	2018	2018	Explanations
155					
156	**CIP PROJECTS**				
157	Water				
159	Operating Cash Funded	342,000	105,807	-	Tractor
160	Debt Funded	602,000			
161	Grant Funded	265,000	0		
162	TOTAL WATER CIP:	1,209,000	105,807	-	
163	Sewer				
164	Operating Cash Funded		0		
165	Debt Funded	150,000	0		
166	Grant Funded	0	0		
167	TOTAL SEWER CIP:	150,000	0	-	
168					
169	TOTAL CIP EXPENSES:	1,359,000	105,807	0	
170					
171	**CASH RECAP**				
172	Cash beginning of period	4,570,637	4,070,644	4,201,217	
173	Operating Income	822,296	236,321	142,959	
174	Total Non O&M Cash Funded Expenses	-342,000	(105,807)	0	
175	CASH RESERVES AT END OF PERIOD	5,050,933	4,201,158	4,344,177	
176	FY Reserves Target	5,380,000	5,380,000	5,380,000	
177	Reserves Surplus/(Shortfall)	-329,067	(1,178,842)	(1,035,823)	
178					
179					
180					
181					

	C	AH	AI	AJ	AL	AM
1	**BWD**					
2	**BUDGET CASH FLOW**	Actual	Actual YTD	Projected	Projected	Projected
3	**2018-2019**	YTD	and Projected		December	January
4		2018-2019	2018-2019	2018-2019	2018	2019
155						
156	**CIP PROJECTS**					
157	**Water**					
159	Operating Cash Funded	138,535	342,000	203,465		50,000
160	Debt Funded	-	602,000	602,000		
161	Grant Funded	-	265,000	265,000	265,000	
162	**TOTAL WATER CIP:**	138,535	1,209,000	1,070,465	265,000	50,000
163	**Sewer**					
164	Operating Cash Funded	-		0		
165	Debt Funded	-	150,000	150,000		
166	Grant Funded	-	-	0		
167	**TOTAL SEWER CIP:**	-	150,000	150,000	-	-
168						
169	**TOTAL CIP EXPENSES:**	138,535	1,359,000	1,220,465	265,000	50,000
170						
171	**CASH RECAP**					
172	Cash beginning of period	4,789,783	4,201,158	4,201,158	4,201,158	4,342,974
173	Operating Income	(450,089)	564,753	1,035,401	141,815	394,854
174	Total Non O&M Cash Funded Expenses	(138,535)	(342,000)	(203,465)	0	(50,000)
175	**CASH RESERVES AT END OF PERIOD**	4,201,158	4,423,911	5,033,094	4,342,974	4,687,828
176	**FY Reserves Target**	5,380,000	5,380,000	5,380,000	5,380,000	5,380,000
177	**Reserves Surplus/(Shortfall)**	(1,178,842)	(956,089)	(346,906)	(1,037,026)	(692,172)
178						
179						
180						
181						

	C	AN	AO	AP	AQ	AR
1	**BWD**					
2	**BUDGET CASH FLOW**	Projected	Projected	Projected	Projected	Projected
3	**2018-2019**	February	March	April	May	June
4		2019	2019	2019	2019	2019
155						
156	**CIP PROJECTS**					
157	Water					
159	Operating Cash Funded		40,000	34,194	40,000	39,271
160	Debt Funded	200,000		202,000		200,000
161	Grant Funded					
162	TOTAL WATER CIP:	200,000	40,000	236,194	40,000	239,271
163	Sewer					
164	Operating Cash Funded					
165	Debt Funded	150,000				
166	Grant Funded					
167	TOTAL SEWER CIP:	150,000	-	-	-	-
168						
169	TOTAL CIP EXPENSES:	350,000	40,000	236,194	40,000	239,271
170						
171	**CASH RECAP**					
172	Cash beginning of period	4,687,828	4,808,666	4,661,300	4,754,479	4,915,219
173	Operating Income	120,838	(107,366)	127,373	200,740	157,147
174	Total Non O&M Cash Funded Expenses	0	(40,000)	(34,194)	(40,000)	(39,271)
175	CASH RESERVES AT END OF PERIOD	4,808,666	4,661,300	4,754,479	4,915,219	5,033,094
176	FY Reserves Target	5,380,000	5,380,000	5,380,000	5,380,000	5,380,000
177	Reserves Surplus/(Shortfall)	(571,334)	(718,700)	(625,521)	(464,781)	(346,906)
178						
179						
180						
181						

To: BWD Board of Directors

From: Kim Pitman

Subject: Consideration of the Disbursements and Claims Paid
Month Ending November, 2018

Vendor disbursements paid during this period:		**$**	**239,165.87**
Significant items:			
San Diego Gas & Electric		$	27,488.80
Medical Health Benefits		$	15,493.87
CalPERS		$	5,137.33
Capital Projects/Fixed Asset Outlays:			
Empire Southwest-Tractor		$	105,806.80
Hidden Valley-Well 12 repairs		$	13,537.82
Total Professional Services for this Period:			
LeSar Development	Grant-SDAC	$	11,250.00
Dudek-Develop GSP Plan	GSP	$	15,007.78
Spindrift Archaeological Consultants	Prop 1	$	4,718.25
Payroll for this Period:			
Gross Payroll		$	79,518.79
Employer Payroll Taxes and ADP Fee		$	1,749.91
Total		**$**	**81,268.70**

Board Report

November

2018

Check No	Vendor No	Vendor Name	Check Date	Check Amount
32849	1032	A-1 IRRIGATION, INC.	11/27/2018	24.32
32850	1109	ABILITY ANSWERING/PAGING SER	11/27/2018	281.07
32851	1266	AFLAC	11/27/2018	1,551.62
32852	9460	FEDERAL LICENSING,INC	11/27/2018	119.00
32853	1114	ROGELIO MARTINEZ	11/27/2018	190.85
32854	1216	McCALLS METERS,INC	11/27/2018	690.43
32855	1222	DEBBIE MORETTI	11/27/2018	122.00
32856	1208	PACIFIC PIPELINE SUPPLY INC	11/27/2018	1,383.66
32857	1445	SAN DIEGO CO VECTOR CONTROL	11/27/2018	240.87
32858	1065	SAN DIEGO GAS & ELECTRIC	11/27/2018	27,488.80
32859	10885	THE SOCO GROUP, INC.	11/27/2018	1,273.83
32860	9046	STATE WATER RESOURCE CONTROL BC	11/27/2018	365.00
32861	1032	A-1 IRRIGATION, INC.	12/04/2018	94.02
32862	9338	AMERICAN BACKFLOW SPECIALTIES	12/04/2018	167.54
32863	61	AT&T MOBILITY	12/04/2018	922.18
32864	9529	AT&T-CALNET 3	12/04/2018	390.19
32865	1022	JAMES HORMUTH DE ANZA TRUE VALU	12/04/2018	150.23
32866	1094	EMPIRE SOUTHWEST	12/04/2018	105,806.80
32867	1012	HIDDEN VALLEY PUMP SYSTEMS INC	12/04/2018	13,537.82
32868	10891	NEOFUNDS	12/04/2018	2,000.00
32869	1208	PACIFIC PIPELINE SUPPLY INC	12/04/2018	172.09
32870	9633	RAMONA DISPOSAL SERVICE	12/04/2018	3,604.51
32871	1065	SAN DIEGO GAS & ELECTRIC	12/04/2018	45.15
32872	11033	SPINDRIFT ARCHAEOLOGICAL CONSUL	12/04/2018	4,718.25
32873	10885	THE SOCO GROUP, INC.	12/04/2018	810.79
32874	35	U.S. POSTAL SERVICE	12/04/2018	92.00
32875	10847	USA COMMUNICATIONS	12/04/2018	240.94
32876	1000	MEDICAL ACWA-JPIA	12/04/2018	15,493.87
32877	9524	AIR POLLUTION CONTROL DISTRICT, SA	12/11/2018	521.00
32878	1003	BORREGO SPRINGS BOTTLED WATER	12/11/2018	105.68
32879	1135	CENTER MARKET	12/11/2018	648.19
32880	1027	VICTOR VALENTI CONTRON SCADA SYS	12/11/2018	1,412.42
32881	1066	MANUEL RODRIGUEZ DE ANZA READY	12/11/2018	239.60
32882	10854	HARRY EHRLICH	12/11/2018	494.35
32883	9579	GREEN DESERT LANDSCAPE	12/11/2018	4,770.00
32884	1136	HOME DEPOT CREDIT SERVICES	12/11/2018	838.61
32885	65	JC LABS & MONITORING SERVICE	12/11/2018	1,500.00
32887	1059	STAPLES CREDIT PLAN	12/11/2018	1,150.12
32888	9166	SWRCB	12/11/2018	7,431.00
32889	9106	T.S. INDUSTRIAL SUPPLY	12/11/2018	288.00
32890	10885	THE SOCO GROUP, INC.	12/11/2018	1,891.08
32891	9666	UC REGENTS	12/11/2018	300.00
32892	1023	UNDERGROUND SERVICE ALERT	12/11/2018	16.60
32893	9439	USABLUEBOOK	12/11/2018	756.28
32895	92	XEROX FINANCIAL SERVICES	12/11/2018	377.00
32896	10900	BORREGO AUTO PARTS & SUPPLY CO	12/12/2018	106.98
32897	11015	Cooperrider Trust	12/12/2018	355.42
32898	1001	AMERICAN LINEN INC	12/17/2018	565.31
32899	1037	BORREGO SUN	12/17/2018	210.00
32900	96	DISH	12/17/2018	75.72
32901	9640	DUDEK	12/17/2018	15,007.78
32902	11021	J & T Tire and Auto	12/17/2018	768.28
32903	10889	LESAR DEVELOPMENT CONSULTANTS	12/17/2018	11,250.00
32904	3000	U.S BANK CORPORATE PAYMENT SYS	12/17/2018	4,051.01
32905	9439	USABLUEBOOK	12/17/2018	1,898.05
32906	1100	VERIZON WIRELESS	12/17/2018	159.56
			Report Total (56 checks)	239,165.87

TREASURER'S REPORT
November, 2018

	Bank Balance	Carrying Value	Fair Value	% of Portfolio Current Actual	Rate of Interest	Maturity	Valuation Source
Cash and Cash Equivalents:							
Demand Accounts at CVB/LAIF							
General Account/Petty Cash	$ 4,221,253	$ 4,147,118	$ 4,147,118	42.64%	0.00%	N/A	CVB
Payroll Account	$ 26,069	$ 25,919	$ 25,919	0.27%	0.00%	N/A	CVB
MMA (Bond Funds)	$ 5,532,160	$ 5,532,160	$ 5,532,160	56.88%	2.20%	N/A	CVB
LAIF	$ 21,648	$ 21,648	$ 21,648	0.22%	2.16%	N/A	LAIF
Total Cash and Cash Equivalents	**$ 9,801,131**	**$ 9,726,845**	**$ 9,726,845**	**100.00%**			
Facilities District No. 2017-1A-B							
Special Tax Bond- Rams Hill -US BANK	$ 24,410	$ 24,410	$ 24,410				
Total Cash,Cash Equivalents & Investments	**$ 9,825,541**	**$ 9,751,255**	**$ 9,751,255**				

Cash and investments conform to the District's Investment Policy statement filed with the Board of Directors on July 19, 2018

Cash, investments and future cash flows are sufficient to meet the needs of the District for the next six months.

Sources of valuations are Umpqua Bank, LAIF and US Trust Bank.

Kim Pitman, Administration Manager

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ASSETS

	BALANCE SHEET November 30, 2018 (unaudited)	BALANCE SHEET October 31, 2018 (unaudited)	MONTHLY CHANGE (unaudited)
CURRENT ASSETS			
Cash and cash equivalents	$ 4,194,685.23	$ 4,070,673.53	$ 124,011.70
Accounts receivable from water sales and sewer charges	$ 532,599.57	$ 544,205.29	$ (11,605.72)
Inventory	$ 121,088.27	$ 122,970.88	$ (1,882.61)
Prepaid expenses	$ 31,826.98	$ 31,826.98	$ -
TOTAL CURRENT ASSETS	**$ 4,880,200.05**	**$ 4,769,676.68**	$ 110,523.37
RESTRICTED ASSETS			
Debt Service:			
Deferred amount of COP Refunding	$ 92,538.01	$ 92,538.01	$ -
Deferred Outflow of Resources-CalPERS	$ 356,748.00	$ 356,748.00	$ -
Total Debt service	$ 449,286.01	$ 449,286.01	$ -
Trust/Bond funds:			
Investments with fiscal agent -CFD 2017-1	$ 24,410.15	$ 32,278.61	$ (7,868.46)
2018 Certficates of Participation to fund CIP Projects	$ 5,532,159.80	$ 5,525,661.56	$ 6,498.24
Total Trust/Bond funds	$ 5,556,569.95	$ 5,557,940.17	$ (1,370.22)
TOTAL RESTRICTED ASSETS	**$ 6,005,855.96**	**$ 6,007,226.18**	
UTILITY PLANT IN SERVICE			
Land	$ 2,251,663.65	$ 2,251,663.65	$ -
Flood Control Facilities	$ 4,287,340.00	$ 4,287,340.00	$ -
Capital Improvement Projects	$ 306,371.50	$ 284,018.25	$ 22,353.25
Sewer Facilities	$ 6,175,596.99	$ 6,175,596.99	$ -
Water facilities	$ 11,621,513.88	$ 11,621,513.88	$ -
General facilities	$ 974,152.43	$ 1,006,881.07	$ (32,728.64)
Equipment and furniture	$ 585,522.57	$ 585,522.57	$ -
Vehicles	$ 748,049.87	$ 609,514.43	$ 138,535.44
Accumulated depreciation	$ (13,250,787.98)	$ (13,250,787.98)	$ -
			$ -
NET UTILITY PLANT IN SERVICE	**$ 13,699,422.91**	**$ 13,571,262.86**	$ 128,160.05
OTHER ASSETS			
Water rights -ID4	$ 185,000.00	$ 185,000.00	$ -
TOTAL OTHER ASSETS	**$ 185,000.00**	**$ 185,000.00**	
TOTAL ASSETS	**$ 24,770,478.92**	**$ 24,533,165.72**	$ 237,313.20

Balance sheet continued

	BALANCE SHEET November 30, 2018 (unaudited)	BALANCE SHEET October 31, 2018 (unaudited)	MONTHLY CHANGE (unaudited)
LIABILITIES			
CURRENT LIABILITIES PAYABLE FROM CURRENT ASSETS			
Accounts Payable	$ 205,541.40	$ 117,542.47	$ 87,998.93
Accrued expenses	$ 147,386.12	$ 147,386.12	$ -
CSD Refund Payable	$ 46,619.99	$ 51,745.41	$ (5,125.42)
Bond funded CIP Expenses	$ -	$ -	$ -
Deposits	$ 17,303.26	$ 17,303.26	$ -
TOTAL CURRENT LIABILITIES PAYABLE FROM CURRENT ASSETS	**$ 416,850.77**	**$ 333,977.26**	$ 82,873.51
CURRENT LIABILITIES PAYABLE FOM RESTRICTED ASSETS			
Debt Service:			
Accounts Payable to CFD 2017-1	$ 24,410.15	$ 32,278.61	$ (7,868.46)
TOTAL CURRENT LIABILITIES PAYABLE FROM RESTRICTED ASSETS	**$ 24,410.15**	**$ 32,278.61**	$ (7,868.46)
LONG TERM LIABILITIES			
2008 Certificates of Participation-ID 4 infrastructure	$ 1,982,000.00	$ 1,982,000.00	$ -
2018 Certficates of Participation to fund CIP Projects	$ 5,235,000.00	$ 5,235,000.00	$ -
BBVA Compass Bank Loan	$ 727,590.17	$ 727,590.17	$ -
Net Pension Liability-CalPERS	$ 819,059.00	$ 819,059.00	$ -
Deferred Inflow of Resources-CalPERS	$ 163,076.00	$ 163,076.00	
TOTAL LONG TERM LIABILITIES	**$ 8,926,725.17**	**$ 8,926,725.17**	$ -
TOTAL LIABILITIES	**$ 9,367,986.09**	**$ 9,292,981.04**	$ 75,005.05
FUND EQUITY			
Contributed equity	$ 9,611,814.35	$ 9,611,814.35	$ -
Retained Earnings:			
Unrestricted Reserves/Retained Earnings	$ 5,790,678.48	$ 5,628,370.33	$ 162,308.15
Total retained earnings	$ 5,790,678.48	$ 5,628,370.33	$ 162,308.15
TOTAL FUND EQUITY	**$ 15,402,492.83**	**$ 15,240,184.68**	$ 162,308.15
TOTAL LIABILITIES AND FUND EQUITY	**$ 24,770,478.92**	**$ 24,533,165.72**	$ 237,313.20

GROUNDWATER MANAGEMENT
ACCOUNTING
FY 2019
Acct #10154800

Month	BBK	DUDEK	Wendy Quinn Minutes	Town Hall/ Advertising/Postage	One Eleven Water Services	Staff Allocation	Conf/Classes Misc.	Water Advisory Committee-Lunches	Brian Brady	Babcock	Monthly Total	FYE 2019 Total
Jul-18			250.00			5,000.00		798.36			6,048.36	6,048.36
Aug-18	8,862.29	15,079.83	112.50			7,417.44	632.49	175.00		720.00	32,999.55	39,047.91
Sep-18	19,643.70		112.50	1,741.35		7,343.32		385.57			29,226.44	68,274.35
Oct-18	8,088.20		200.00	140.00	462.00	7,876.27		352.23	5,187.50		22,306.20	90,580.55
Nov-18						7,613.04					7,613.04	98,193.59
Dec-18		8,622.78		210.00			39.31	300.00			9,172.09	107,365.68
Total	36,594.19	23,702.61	675.00	2,091.35	462.00	35,250.07	671.80	2,011.16	5,187.50	720.00	107,365.68	107,365.68

PROP 1 GRANT ACCOUNTING
FY 2019
Acct #10117170

	Month		North Gardens Management	DUDEK	COUNTY	LE SAR	TRAC	Spindrift Archaeological	Dynamic Engineering	Environmental Navigation Service	Total
16	09/15/15	Justification Grant Projects	1,552.50								1,552.50
17	09/30/15	Jane Gray-Grant Application		95.00							95.00
18	10/31/15	Notice of Exemption			50.00						50.00
19	12/16/15	Jane Gray-Grant Application		760.00							760.00
20	12/16/15	Jane Gray-Grant Application		380.00							380.00
21	12/29/15	Jane Gray-Grant Application		2,438.75							2,438.75
22	03/01/16	Notice of Exemption			200.00						200.00
23	03/31/16	Jane Gray-Grant Application		53.75							53.75
24	04/29/16	William Kubran-WTF funding review		2,980.00							2,980.00
25	05/27/16	William Kubran-WTF funding review		1,260.00							1,260.00
26	12/30/16	William Kubran-WTF funding review		1,330.00							1,330.00
27	06/24/17	William Kubran-WTF funding coordination		385.00							385.00
28	09/27/17	SDAC Engagement				20,000.00					20,000.00
29	10/31/17	SDAC Engagement				17,269.80					17,269.80
30	12/31/17	SDAC Engagement				7,730.20					7,730.20
31	05/31/18	SDAC Engagement				14,500.00					14,500.00
32	05/31/18	SDAC Engagement				13,000.00					13,000.00
33	05/31/18	Prepare TMF					3,575.75				3,575.75
34	06/30/18	Grant Task 5.1 & 5.2		7,063.75							7,063.75
35	06/30/18	SDAC engagement				3,250.00					3,250.00
36	06/30/18	Technical support								13,500.00	13,500.00
37	06/30/18	Technical support								9,500.00	9,500.00
38	07/31/18	BWD Diesel Engine & Tank Rehab							41,670.00		41,670.00
39	07/31/18	Technical support								16,950.00	16,950.00
40	07/31/18	Review Grant Information					1,487.50				1,487.50
41	07/31/18	SDAC engagement				6,500.00					6,500.00
42	09/30/18	Water model updateWwell ranking system		17,267.50							17,267.50
43	09/30/18	SDAC Engagement				31,650.00					31,650.00
44	09/30/18	Grant review					4,171.25				4,171.25
45	10/31/18	Prop 1 Grant Task 2								39,547.50	39,547.50
46	10/31/18	SDAC Engagement				3,900.00					3,900.00
47	11/30/18	SDAC Engagement				11,250.00					11,250.00
48	11/30/18	Prop 1-Extraction Wells		6,385.00							6,385.00
49	11/30/2018	Prop 1 Grant-Paleontologist						4,718.25			4,718.25
50	Total		1,552.50	40,398.75	250.00	129,050.00	9,234.50	4,718.25	41,670.00	79,497.50	306,371.50

	C	AE	AF	AG	AH	AI
1	**BWD**	6/19/2018				
2	**BUDGET CASH FLOW**	ADOPTED	Actual	Projected		Actual
3	**2018-2019**	BUDGET	December	December	Difference	YTD
4		2018-2019	2018	2018	Explanations	2018-2019
5						
6	**REVENUE**					
7	WATER REVENUE					
8	Residential Water Sales	950,994	52,186	68,756		508,408
9	Commercial Water Sales	417,885	33,240	30,278		251,754
10	Irrigation Water Sales	237,061	12,826	14,674		127,034
11	GWM Surcharge	181,749	11,036	12,532		98,662
12	Water Sales Power Portion	514,706	30,249	34,619		257,548
13	**TOTAL WATER COMMODITY REVENUE:**	2,302,395	139,536	160,860		1,243,407
14						
15	Readiness Water Charge	1,154,976	96,070	96,248		577,207
18	Meter Install/Reconnect Fees	20,680	0			690
19	Backflow Testing/installation	5,100	0	-		300
20	Bulk Water Sales	1,200	360	100		7,677
21	Penalty & Interest Water Collection	40,000	0	-		16,544
22	**TOTAL WATER REVENUE:**	3,524,351	235,966	257,208		1,846,543
23						
24	PROPERTY ASSESSMENTS/AVAILABILITY CHARGES					
25	641500 1% Property Assessments	62,300	19,749	19,749		24,584
26	641502 Property Assess wtr/swr/fld	106,212	8,493	8,493		10,741
28	641501 Water avail Standby	82,376	27,183	27,182		36,222
30	641504 ID 3 Water Standby (La Casa)	33,647	4,790	4,790		5,884
31	641503 Pest standby	17,870	3,631	3,631		4,117
32	**TOTAL PROPERTY ASSES/AVAIL CHARGES:**	302,404	63,845	63,845		81,547
33						
34	SEWER SERVICE CHARGES					
35	Town Center Sewer Holder fees	234,593	19,442	19,549		115,867
36	Town Center Sewer User Fees	88,695	7,546	7,391		44,220
37	Sewer user Fees	278,304	23,177	23,192		140,183
39	Penalty Interest-Sewer	1,248	0	104		7,769
40	Sewer Capacity Fees	0	3,810	-	Carless	14,460
41	**TOTAL SEWER SERVICE CHARGES:**	602,840	53,975	50,236		321,768
42						
43	OTHER INCOME					
47	Water Credits income	22,000	0	-		-
48	WTF Solar Rebate	50,000	0	-		-
49	R/H Surplus Water Revenue	200,000	0	-		-
50	Interest Income	6,000	8,125	6,500		31,626
51	**TOTAL OTHER INCOME:**	278,000	8,125	6,500		31,626
52						
53	**TOTAL INCOME:**	4,707,595	361,911	377,790		2,281,485
54						
55	CASH BASIS ADJUSTMENTS					
56	Decrease (Increase) in Accounts Receivable		79,816			10,356
57	Deposits refund		0			(4,800)
58	Other Cash Basis Adjustments		0			35,441
59	**TOTAL CASH BASIS ADJUSTMENTS:**		79,816			40,997
60						
61	**TOTAL OPERATING INCOME RECEIVED:**	4,707,595	441,727	377,790		2,336,492
62						
63	GRANT & DEBT PROCEEDS					
64	Prop 1 GSP Grant	500,000	0			-
65	Pacific Western Bank 2018 IPA	5,500,000	8,063			5,540,223
66	**TOTAL GRANT & DEBT PROCEEDS:**	6,000,000	8,063	-		5,540,223
67						
68	**TOTAL INCOME, GRANT & DEBT PROCEEDS:**	10,707,595	449,790	377,790		7,991,750
69						

	C	AK	AM	AN	AO	AP	AQ	AR
1	**BWD**							
2	**BUDGET CASH FLOW**	Projected	Projected	Projected	Projected	Projected	Projected	Projected
3	**2018-2019**		January	February	March	April	May	June
4		2018-2019	2019	2019	2019	2019	2019	2019
5								
6	REVENUE							
7	WATER REVENUE							
8	Residential Water Sales	417,093	66,088	66,152	57,509	70,304	75,920	81,120
9	Commercial Water Sales	185,522	36,898	30,234	31,031	26,000	30,160	31,200
10	Irrigation Water Sales	97,632	19,746	15,000	12,450	13,520	16,640	20,276
11	GWM Surcharge	82,177	13,121	12,068	11,075	15,293	15,310	15,310
12	Water Sales Power Portion	238,524	36,220	33,310	30,560	47,230	44,632	46,572
13	TOTAL WATER COMMODITY REVENUE:	1,020,948	172,073	156,763	142,625	172,347	182,662	194,477
14								
15	Readiness Water Charge	577,488	96,248	96,248	96,248	96,248	96,248	96,248
18	Meter Install/Reconnect Fees	10,340		10,000		340		
19	Backflow Testing/installation	5,100	0	0	0	0	0	5,100
20	Bulk Water Sales	600	100	100	100	100	100	100
21	Penalty & Interest Water Collection	24,000	4,000	4,000	4,000	4,000	4,000	4,000
22	TOTAL WATER REVENUE:	1,638,476	272,421	267,111	242,973	273,035	283,010	299,925
23								
24	PROPERTY ASSESSMENTS/AVAILABILITY CHARGES							
25	641500 1% Property Assessments	36,393	9,633	5,635	2,102	12,153	6,671	200
26	641502 Property Assess wtr/swr/fld	58,762	10,451	0	693	1,056	46,262	300
28	641501 Water avail Standby	51,792	29,301	0	3,015	3,732	13,745	2,000
30	641504 ID 3 Water Standby (La Casa)	28,403	14,101	0	889	396	12,527	490
31	641503 Pest standby	11,594	4,070	0	416	651	5,936	523
32	TOTAL PROPERTY ASSES/AVAIL CHARGES:	186,944	67,556	5,635	7,114	17,987	85,140	3,513
33								
34	SEWER SERVICE CHARGES							
35	Town Center Sewer Holder fees	117,298	19,549	19,549	19,549	19,549	19,549	19,553
36	Town Center Sewer User Fees	44,349	7,391	7,391	7,391	7,391	7,391	7,394
37	Sewer user Fees	139,152	23,192	23,192	23,192	23,192	23,192	23,192
39	Penalty Interest-Sewer	624	104	104	104	104	104	104
40	Sewer Capacity Fees	0	0	0	0	0	0	0
41	TOTAL SEWER SERVICE CHARGES:	301,423	50,236	50,236	50,236	50,236	50,236	50,243
42								
43	OTHER INCOME							
47	Water Credits income	11,000	0	11,000	0	0	0	0
48	WTF Solar Rebate	23,238	23,238					
49	R/H Surplus Water Revenue	200,000	200,000					
50	Interest Income	31,500	6,500	5,000	5,000	5,000	5,000	5,000
51	TOTAL OTHER INCOME:	265,738	229,738	16,000	5,000	5,000	5,000	5,000
52								
53	TOTAL INCOME:	2,392,581	619,951	338,982	305,324	346,258	423,386	358,681
54								
55	CASH BASIS ADJUSTMENTS							
56	Decrease (Increase) in Accounts Receivable							
57	Deposits-refund							
58	Other Cash Basis Adjustments							
59	TOTAL CASH BASIS ADJUSTMENTS:							
60								
61	TOTAL OPERATING INCOME RECEIVED:	2,392,581	619,951	338,982	305,324	346,258	423,386	358,681
62								
63	GRANT & DEBT PROCEEDS							
64	Prop 1 GSP Grant	0						
65	Pacific Western Bank 2018 IPA	0						
66	TOTAL GRANT & DEBT PROCEEDS:	0	0	0	0	0	0	0
67								
68	TOTAL INCOME, GRANT & DEBT PROCEEDS:	2,392,581	619,951	338,982	305,324	346,258	423,386	358,681
69								

	C	AE	AF	AG	AH	AI
1	**BWD**	6/19/2018				
2	**BUDGET CASH FLOW**	ADOPTED	Actual	Projected		Actual
3	**2018-2019**	BUDGET	December	December	Difference	YTD
4		2018-2019	2018	2018	Explanations	2018-2019
70	**EXPENSES**					
71						
72	MAINTENANCE EXPENSE					
73	R & M Buildings & Equipment	180,000	4,328	10,000		98,748
74	R & M - WWTP	180,000	13,135	20,000		64,093
75	Telemetry	10,000	1,473	1,100		4,558
76	Trash Removal	4,200	418	420		2,945
77	Vehicle Expense	18,000	328	1,000		9,912
78	Fuel & Oil	30,000	199	3,000		11,053
79	**TOTAL MAINTENANCE EXPENSE:**	422,200	19,881	35,520		191,309
80						
81	PROFESSIONAL SERVICES EXPENSE					
82	Tax Accounting (Taussig)	3,000	0	-		2,251
83	Administrative Services (ADP)	3,000	239	240		1,317
84	Audit Fees (Squarmilner)	16,995	0	-		16,994
85	Computer billing (Accela/Parker)	25,000	481	-		7,224
86	Financial/Technical Consulting (Raftelis) (Fieldman) (Holt Group)	80,000	0	500		147,234
87	Engineering (Dynamic/Dudek)	60,000	1,484	6,000		1,484
88	District Legal Services (Downey Brand/BBK)	100,000	1,735	10,000		14,922
89	Testing/lab work (Babcock Lab)	12,000	2,127	800		7,783
90	Regulatory Permit Fees (SWRB/DEH/Dig alerts/APCD)	25,000	3,815	1,300		23,452
91	Management Consulting (CIP)	50,000	0	6,250		-
92	**TOTAL PROFESSIONAL SERVICES EXPENSE:**	374,994	9,879	25,090		222,660
93						
94	INSURANCE EXPENSE					
95	ACWA/JPIA Program Insurance	57,000	0	-		23,857
96	ACWA/JPIA Workers Comp	17,600	4,356	4,400		8,476
97	**TOTAL INSURANCE EXPENSE:**	74,600	4,356	4,400		32,333
98						
99	DEBT EXPENSE					
100	Compass Bank Note 2018A	254,500	0	-		215,291
101	Compass Bank Note 2018B	143,000	0	-		125,076
102	Pacific Western Bank 2018 IPA	500,000	0	-		400,268
103	**TOTAL DEBT EXPENSE:**	897,500	0	-		740,635
104						
105	PERSONNEL EXPENSE					
106	Board Meeting Expense (board stipend/board secretary)	25,000	873	1,970		5,952
107	Salaries & Wages (gross)	890,000	73,288	72,162		443,663
108	Salaries & Wages offset account (board stipends/staff project salaries)	-60,000	(7,223)	(10,000)		(26,525)
109	Consulting services/Contract Labor	15,000	0	1,250		2,693
110	Taxes on Payroll	22,300	1,691	669		7,188
111	Medical Insurance Benefits	229,000	16,332	18,570		124,638
112	Calpers Retirement Benefits	170,170	7,029	7,100		132,260
113	Conference/Conventions/Training/Seminars	17,000	0	-		4,129
114	**TOTAL PERSONNEL EXPENSE:**	1,308,470	91,991	91,721		693,998
115						
116	OFFICE EXPENSE					
117	Office Supplies	20,000	2,764	1,300		13,645
118	Office Equipment/ Rental/Maintenance Agreements	35,000	9,732	4,000	New computers/desks	24,923
119	Postage & Freight	15,000	0	1,000		6,288
120	Taxes on Property	2,334	0	-		2,383
121	Telephone/Answering Service/Cell	24,000	1,553	1,800		9,398
122	Dues & Subscriptions (ACWA/CSDA)	21,000	15,219	16,031		17,534
123	Printing, Publications & Notices	2,500	0	-		1,351
124	Uniforms	6,500	447	570		2,942
125	OSHA Requirements/Emergency preparedness	4,000	0	432		952
126	**TOTAL OFFICE EXPENSE:**	130,335	29,715	25,133		79,415
127						
128	UTILITIES EXPENSE					
129	Pumping-Electricity	308,000	24,648	23,511		170,933
130	Office/Shop Utilities	1,200	111	100		2,848
132	**TOTAL UTILITIES EXPENSE:**	309,200	24,760	23,611		173,780
133						
134	GROUNDWATER MANAGEMENT EXPENSE					
135	SGMA GSP Costs	308,000	36,057	25,500		143,423
136	Prop 1 Grant Expense	60,000	2,795	5,000		188,292
138	**TOTAL GWM EXPENSE:**	368,000	38,852	30,500		331,715
139						
140	**TOTAL EXPENSES:**	3,885,299	219,434	235,974		2,465,844
141	CASH BASIS ADJUSTMENTS					
142	Decrease (Increase) in Accounts Payable		123,641			153,389
143	Increase (Decrease) in Inventory		316			6,720
144	Other Cash Basis Adjustments-CSD refunds		4,881			73,720
145	**TOTAL CASH BASIS ADJUSTMENTS:**		128,838			233,830
146						160
147	**TOTAL OPERATING EXPENSES PAID:**	3,885,299	348,272	235,974		2,699,674
148						

	C	AK	AM	AN	AO	AP	AQ	AR
1	**BWD**							
2	**BUDGET CASH FLOW**	Projected	Projected	Projected	Projected	Projected	Projected	Projected
3	**2018-2019**		January	February	March	April	May	June
4		2018-2019	2019	2019	2019	2019	2019	2019
70	EXPENSES							
71								
72	MAINTENANCE EXPENSE							
73	R & M Buildings & Equipment	200,000	90,000	5,000	90,000	5,000	5,000	5,000
74	R & M - WWTP	99,200	15,000	15,000	20,000	15,000	15,000	19,200
75	Telemetry	5,815	1,815	0	2,000	0	2,000	0
76	Trash Removal	2,520	420	420	420	420	420	420
77	Vehicle Expense	7,416	1,500	1,500	1,000	1,048	1,000	1,368
78	Fuel & Oil	16,145	2,500	3,000	2,500	2,645	2,500	3,000
79	**TOTAL MAINTENANCE EXPENSE:**	331,096	111,235	24,920	115,920	24,113	25,920	28,988
80								
81	PROFESSIONAL SERVICES EXPENSE							
82	Tax Accounting (Taussig)	749	0	662	0	0	0	87
83	Administrative Services (ADP)	1,530	330	240	240	240	240	240
84	Audit Fees (Squarmiiner)	0	0	0	0	0	0	0
85	Computer billing (Accela/Parker)	18,257	2,000	10,000	4,000	205	2,052	0
86	Financial/Technical Consulting (Raftelis) (Fieldman) (Holt Group)	3,000	500	500	500	500	500	500
87	Engineering (Dynamic/Dudek)	36,000	6,000	6,000	6,000	6,000	6,000	6,000
88	District Legal Services (Downey Brand/BBK)	60,000	10,000	10,000	10,000	10,000	10,000	10,000
89	Testing/lab work (Babcock Lab)	5,064	800	800	864	800	1,000	800
90	Regulatory Permit Fees (SWRB/DEH/Dig alerts/APCD)	4,063	250	233	2,380	500	200	500
91	Management Consulting (CIP)	37,500	6,250	6,250	6,250	6,250	6,250	6,250
92	**TOTAL PROFESSIONAL SERVICES EXPENSE:**	166,163	26,130	34,685	30,234	24,495	26,242	24,377
93								
94	INSURANCE EXPENSE							
95	ACWA/JPIA Program Insurance	33,000	0	0	33,000	0	0	0
96	ACWA/JPIA Workers Comp	8,800		0	4,400	0	0	4,400
97	**TOTAL INSURANCE EXPENSE:**	41,800	-	-	37,400	-	-	4,400
98								
99	DEBT EXPENSE							
100	Compass Bank Note 2018A	35,108	0	0	35,108	0	0	0
101	Compass Bank Note 2018B	15,679	0		15,679			
102	Pacific Western Bank 2018 IPA	100,119			100,119			
103	**TOTAL DEBT EXPENSE:**	150,906	-	-	150,906	-	-	-
104								
105	PERSONNEL EXPENSE							
106	Board Meeting Expense (board stipend/board secretary)	15,150	1,970	1,970	1,970	1,970	5,045	2,225
107	Salaries & Wages (gross)	442,292	75,890	70,297	75,890	74,026	75,890	70,297
108	Salaries & Wages offset account (board stipends/staff project salaries)	(60,000)	(10,000)	(10,000)	(10,000)	(10,000)	(10,000)	(10,000)
109	Consulting services/Contract Labor	7,500	1,250	1,250	1,250	1,250	1,250	1,250
110	Taxes on Payroll	15,387	5,352	2,676	1,784	1,561	2,230	1,784
111	Medical Insurance Benefits	99,000	19,500	19,500	19,500	19,500	21,000	
112	Calpers Retirement Benefits	42,600	7,100	7,100	7,100	7,100	7,100	7,100
113	Conference/Conventions/Training/Seminars	4,121	1,783	34	400	1,278	500	126
114	**TOTAL PERSONNEL EXPENSE:**	566,050	102,845	92,827	97,895	96,685	103,016	72,782
115								
116	OFFICE EXPENSE							
117	Office Supplies	6,355	1,500	952	1,000	1,200	750	953
118	Office Equipment/ Rental/Maintenance Agreements	10,077	2,000	2,000	1,595	1,837	1,645	1,000
119	Postage & Freight	7,712	0	1,312	400	2,000	2,000	2,000
120	Taxes on Property	0	0	0	0	0	0	0
121	Telephone/Answering Service/Cell	10,800	1,800	1,800	1,800	1,800	1,800	1,800
122	Dues & Subscriptions (ACWA/CSDA)	2,654	350	124	239	1,449	347	145
123	Printing, Publications & Notices	1,149	111	400	138	200	100	200
124	Uniforms	3,435	570	570	570	570	570	585
125	OSHA Requirements/Emergency preparedness	2,616	436	436	436	436	436	436
126	**TOTAL OFFICE EXPENSE:**	44,796	6,767	7,594	6,178	9,492	7,648	7,119
127								
128	UTILITIES EXPENSE							
129	Pumping-Electricity	134,970	22,243	20,518	21,488	23,000	23,721	24,000
130	Office/Shop Utilities	600	100	100	100	100	100	100
132	**TOTAL UTILITIES EXPENSE:**	137,762	22,343	20,618	23,780	23,100	23,821	24,100
133								
134	GROUNDWATER MANAGEMENT EXPENSE							
135	SGMA GSP Costs	155,000	25,500	25,500	26,000	26,000	26,000	26,000
136	Prop 1 Grant Expense	30,000	5,000	5,000	5,000	5,000	5,000	5,000
138	**TOTAL GWM EXPENSE:**	177,645	30,500	30,500	23,645	31,000	31,000	31,000
139								
140	**TOTAL EXPENSES:**	1,616,220	299,820	211,144	485,958	208,885	217,647	192,766
141	CASH BASIS ADJUSTMENTS							
142	Decrease (Increase) in Accounts Payable							
143	Increase (Decrease) in Inventory							
144	Other Cash Basis Adjustments-CSD refunds							
145	**TOTAL CASH BASIS ADJUSTMENTS:**							
146								
147	**TOTAL OPERATING EXPENSES PAID:**	1,616,220	299,820	211,144	485,958	208,885	217,647	192,766
148								

	C	AE	AF	AG	AH	AI
1	**BWD**	6/19/2018				
2	**BUDGET CASH FLOW**	ADOPTED	Actual	Projected		Actual
3	**2018-2019**	BUDGET	December	December	Difference	YTD
4		2018-2019	2018	2018	Explanations	2018-2019
156	UNEXPENDED DEBT PROCEEDS:	4,698,000	5,532,160	5,532,160		5,532,160
158	TOTAL EXPENSES AND UNEXPENDED DEBT PROCEEDS:	8,585,489	5,880,431	5,768,134		8,231,834
160	NET OPERATING INCOME:	822,296	93,456	141,815		(363,182)
169	CIP PROJECTS					
170	Water					
172	Operating Cash Funded	342,000				138,535
173	Debt Funded	602,000				-
174	Grant Funded	265,000	0	265,000		-
175	TOTAL WATER CIP:	1,209,000	-	265,000		138,535
176	Sewer					
177	Operating Cash Funded		0			-
178	Debt Funded	150,000	0			-
179	Grant Funded	0	0			-
180	TOTAL SEWER CIP:	150,000	0	-		-
182	TOTAL CIP EXPENSES:	1,359,000	0	265,000		138,535
184	CASH RECAP					
185	Cash beginning of period	4,570,637	4,194,609	4,331,673		4,789,783
186	Operating Income	822,296	93,456	141,815		(363,182)
187	Total Non O&M Cash Funded Expenses	-342,000	0	0		(138,535)
188	CASH RESERVES AT END OF PERIOD	5,050,933	4,288,065	4,473,488		4,288,065
189	FY Reserves Target	5,380,000	5,380,000	5,380,000		5,380,000
190	Reserves Surplus/(Shortfall)	-329,067	(1,091,936)	(906,512)		(1,091,935)

	C	AK	AM	AN	AO	AP	AQ	AR
1	**BWD**							
2	**BUDGET CASH FLOW**	Projected	Projected	Projected	Projected	Projected	Projected	Projected
3	**2018-2019**		January	February	March	April	May	June
4		2018-2019	2019	2019	2019	2019	2019	2019
150								
151								
152								
153								
154								
155								
156	UNEXPENDED DEBT PROCEEDS:	5,532,160	5,532,160	5,332,160	5,332,160	5,130,160	5,130,160	4,930,160
157								
158	TOTAL EXPENSES AND UNEXPENDED DEBT PROCEEDS:	7,148,380	5,831,980	5,543,304	5,818,118	5,339,045	5,347,806	5,122,926
159								
160	NET OPERATING INCOME:	776,362	320,130	127,838	(180,634)	137,373	205,740	166,915
161								
162								
163								
164								
165								
166								
167								
168								
169	CIP PROJECTS							
170	Water							
172	Operating Cash Funded	203,465	50,000		40,000	34,194	40,000	39,271
173	Debt Funded	602,000		200,000		202,000		200,000
174	Grant Funded	0						
175	TOTAL WATER CIP:	805,465	50,000	200,000	40,000	236,194	40,000	239,271
176	Sewer							
177	Operating Cash Funded	0						
178	Debt Funded	150,000		150,000				
179	Grant Funded	0						
180	TOTAL SEWER CIP:	150,000	-	150,000	-	-	-	-
181								
182	TOTAL CIP EXPENSES:	955,465	50,000	350,000	40,000	236,194	40,000	239,271
183								
184	CASH RECAP							
185	Cash beginning of period	4,288,065	4,288,065	4,558,195	4,686,033	4,465,399	4,568,578	4,734,318
186	Operating Income	776,362	320,130	127,838	(180,634)	137,373	205,740	166,915
187	Total Non O&M Cash Funded Expenses	(203,465)	(50,000)	0	(40,000)	(34,194)	(40,000)	(39,271)
188	CASH RESERVES AT END OF PERIOD	4,860,962	4,558,195	4,686,033	4,465,399	4,568,578	4,734,318	4,860,962
189	FY Reserves Target	5,380,000	5,380,000	5,380,000	5,380,000	5,380,000	5,380,000	5,380,000
190	Reserves Surplus/(Shortfall)	(519,038)	(821,805)	(693,967)	(914,601)	(811,422)	(645,682)	(519,038)
191								
192								
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BORREGO WATER DISTRICT
Income Budget to Actual Comparisons
FY 2019

	B	C	D	E	F	G
1						
2						
3		Current	Beginning	Monthly	Actual	Actual vs
4	Description	Budget	Balance	Activity	as of	Budget
5		FYE 2019	12/1/18	December	12/31/18	FYE 2019
6						
7	**WATER REVENUE**					
8						
9	Residential Water Sales	950,994	456,223	52,186	508,408	53.46%
10	Commercial Water Sales	417,885	223,515	34,166	257,680	61.66%
11	Irrigation Water Sales	237,061	109,208	12,826	122,034	51.48%
12	RHGC surplus water sale	200,000	-	-	-	0.00%
13	GWM Surcharge	181,749	87,626	11,036	98,662	54.28%
14	Water Sales Power Portion	514,706	227,299	30,249	257,548	50.04%
15	Readiness Charges Water	1,154,976	481,136	96,070	577,207	49.98%
16	Reconnect Fees/Meter Install/Fire Hydrant	20,680	690	-	690	3.34%
17	Backflow Testing	5,100	300	-	300	5.88%
18	Water Bulk/pfmp	1,200	7,317	360	7,677	639.74%
19	Penalty&Interest Water Collection	40,000	23,066	-	23,066	57.66%
20	**Total Water Revenue:**	3,724,351	1,616,380	236,892	1,853,272	49.76%
21						
22	**AVAILABILTY CHARGES**					
23						
24	641500 1% Property Assessments	62,300	4,835	19,749	24,584	39.46%
25	SA 1 Water/Sewer/Flood control 641502	106,212	2,248	8,493	10,741	10.11%
26	Water Availability Standby-Admin 641501	82,376	9,039	27,183	36,222	43.97%
27	SA 3 Water Standby Fee- 641504	33,647	1,094	4,790	5,884	17.49%
28	Pest Control Standby fees-641503	17,870	486	3,631	4,117	23.04%
29	**Total Availability Charges:**	302,405	17,702	63,845	81,547	26.97%
30						
31	**SEWER SERVICE CHARGES**					
32						
33	TCS Holders Fees	234,593	96,424	19,442	115,867	49.39%
34	TCS User Fees	88,695	36,674	7,546	44,220	49.86%
35	Sewer User Fees	278,304	117,006	23,177	140,183	50.37%
36	Sewer Penalty & Interest Charges	1,248	-	-	-	0.00%
37	Capacity Fees	-	10,650	3,810	14,460	
38	**Total Sewer Service Charges:**	602,840	260,754	53,975	314,729	52.21%
39						
40	**OTHER INCOME**					
41						
42	Water Credits/ Administration Fee	22,000	-	-	-	0.00%
43	WTF Solar Rebate	50,000	-	-	-	0.00%
44	Interest Income	6,000	23,501	8,125	31,626	527.11%
45	**Total Other Income:**	78,000	23,501	8,125	31,626	40.55%
46						
47	**TOTAL REVENUE**	4,707,596	1,918,337	362,837	2,281,175	48.46%

BORREGO WATER DISTRICT

Expense Budget to Actual Comparison

DESCRIPTION FYE 2019	Current Budget FYE 2019	Beginning Balance 12/1/18	Monthly Activity December	Actual as of 12/31/18	Actual vs Budget FYE 2019
MAINTENANCE EXPENSE					
Maintenance & Repairs Buildings & Equipment	180,000	93,553	4,470	98,022	54.46%
Maintenance & Repairs WTF	180,000	47,068	13,135	60,203	33.45%
Telemetry Services	10,000	3,085	1,473	4,558	45.58%
Trash Removal	4,200	2,527	418	2,945	70.12%
Vehicle Expense	18,000	9,584	328	9,912	55.07%
Fuel & Oil	30,000	10,855	199	11,053	36.84%
Total Maintenance Expense:	422,200	166,670	20,023	186,693	44.22%
PROFESSIONAL SERVICES EXPENSE					
Tax Accounting (Taussig)	3,000	2,251	-	2,251	75.03%
Administrative Services (ADP/Bank fees)	3,000	1,273	239	1,512	50.39%
Audit Fees	16,995	16,994	-	16,994	99.99%
Computer Billing (Accela/Parker)	25,000	6,743	481	7,224	28.90%
Financial/Technical Consulting (Raftelis/Municipal advisor)	130,000	78,527	-	78,527	60.41%
Engineering	60,000	(0)	1,484	1,483	2.47%
Legal Services	100,000	13,187	1,735	14,922	14.92%
Testing/Labwork	12,000	5,656	2,127	7,783	64.86%
Regulatory Permit Fees	25,000	19,637	11,815	31,452	125.81%
Total Professional Services Expense:	374,995	144,268	17,879	162,147	43.24%
INSURANCE EXPENSE					
JPIA Insurance	57,000	23,857	-	23,857	41.85%
Workmens Comp	17,600	4,120	4,356	8,476	48.16%
Total Insurance Expense:	74,600	27,977	4,356	32,333	43.34%
DEBT EXPENSE					
COMPASS BANK NOTE 2018A	254,500	8,160	-	8,160	3.21%
COMPASS BANK NOTE 2018B	143,000	17,291	-	17,291	12.09%
PACIFIC WESTERN BANK 2018 IPA	500,000	49,268	-	49,268	9.85%
	897,500	74,719	-	74,719	8.33%
PERSONNEL EXPENSE					
Board Meeting Expense	25,000	5,079	873	5,952	23.81%
Salaries & Wages	890,000	370,374	73,288	443,663	49.85%
Salaries & Wages off set account	(60,000)	(21,925)	(7,223)	(29,148)	48.58%
Consulting services/Contract labor	15,000	2,693	-	2,693	17.95%
Taxes on Payroll	22,300	5,497	1,691	7,188	32.23%
Medical Insurance Benefits	229,000	108,307	16,332	124,638	54.43%
Calpers Retirement Benefits	170,170	125,230	7,029	132,260	77.72%
Conference/Conventions/Training/Seminars	17,000	4,129	-	4,129	24.29%
Total Personnel Expense:	1,308,470	599,384	91,991	691,375	52.84%
OFFICE EXPENSE					
Office Supplies	20,000	10,881	2,764	13,645	68.22%
Office Equipment/Rental/Maintenance Agreements	35,000	15,191	9,732	24,923	71.21%
Postage & Freight	15,000	6,288	-	6,288	41.92%
Taxes on Property	2,334	2,383	-	2,383	102.08%
Telephone/Answering Service/Cell	24,000	7,846	1,553	9,398	39.16%
Dues & Subscriptions	21,000	2,315	7,219	9,534	45.40%
Printing,Publications & Notices	2,500	301	-	301	12.03%
Uniforms	6,500	2,495	447	2,942	45.26%
Safety Requirements	4,000	952	-	952	23.81%
Total Office Expense:	130,334	47,698	21,715	69,413	53.26%
UTILITIES EXPENSE					
Pumping-Electricity	308,000	146,284	24,648	170,933	55.50%
Office/Shop Utilities	1,200	2,736	111	2,848	237.31%
Total Utilities Expense	309,200	149,020	24,760	173,780	56.20%
GWM EXPENSE					
SGMA GSP COSTS	308,000	107,365.68	36,056.84	143,422.52	46.57%
PROP 1 GRANT EXPENSE	60,000	185,497.00	2,795.00	188,292.00	313.82%
Total GWM Expense:	368,000	292,863	38,852	331,715	90.14%
Total Expenses:	3,885,297	1,602,597	219,574	1,722,173	44.33%

To: BWD Board of Directors

From: Kim Pitman

Subject: Consideration of the Disbursements and Claims Paid
Month Ending December, 2018

Vendor disbursements paid during this period: **$ 150,239.15**

Significant items:

San Diego Gas & Electric	$	24,759.84
Medical Health Benefits	$	17,543.23
Workers Comp insurance	$	4,355.89
CalPERS	$	5,760.08
California Special Districts Association-Annual membership	$	6,740.00
SWRCB-Water System fees	$	9,650.50
Xylem Water Solutions-Chlorine (pay quarterly)	$	10,377.90

Capital Projects/Fixed Asset Outlays:

Total Professional Services for this Period:

Best Best & Krieger	Legal-general	$	1,734.50
	GWM	$	23,690.43
Jerome C. Rolwing-One Eleven	Consulting	$	3,696.02

Payroll for this Period:

Gross Payroll	$	73,288.39
Employer Payroll Taxes and ADP Fee	$	1,891.00
Total	**$**	**75,179.39**

Board Report
December 2018

Check	Vendor	Vendor Name	Check Date	Check Amount
32908	1109	ABILITY ANSWERING/PAGING SER	12/18/2018	282.91
32955	3035	ACWA / JPIA PROGRAM INSURANCE	01/16/2019	4,355.89
32909	1266	AFLAC	12/18/2018	1,551.62
32931	9524	AIR POLLUTION CONTROL DISTRICT, SAN DIEGO COUNTY	01/08/2019	901.00
32932	1001	AMERICAN LINEN INC.	01/08/2019	447.19
32933	61	AT&T MOBILITY	01/08/2019	721.33
32914	9529	AT&T-CALNET 3	12/31/2018	388.93
32915	9255	BABCOCK LABRATORIES	12/31/2018	1,089.00
32977	9255	BABCOCK LABRATORIES	01/23/2019	2,501.00
32956	10884	BEST BEST & KRIEGER ATTORNEYS AT LAW	01/16/2019	13,045.94
32978	10884	BEST BEST & KRIEGER ATTORNEYS AT LAW	01/23/2019	12,378.99
32934	10900	BORREGO AUTO PARTS & SUPPLY CO	01/08/2019	180.33
32935	1003	BORREGO SPRINGS BOTTLED WATER	01/08/2019	8.00
32910	31	BORREGO SPRINGS CHAMBER	12/18/2018	200.00
32936	1037	BORREGO SUN	01/08/2019	140.00
32937	11036	CALIFORNIA CHAMBER OF COMMERCE	01/08/2019	203.68
32957	10858	CALIFORNIA SPECIAL DISTRICTS ASSOCIATION	01/16/2019	6,740.00
32916	9054	COUNTY OF SAN DIEGO DEPT ENVIRONMENTAL HEALTH	12/31/2018	1,263.00
32913	1222	DEBBIE MORETTI	12/18/2018	122.00
32979	96	DISH	01/23/2019	75.72
32918	1094	EMPIRE SOUTHWEST	12/31/2018	54.88
32939	9579	GREEN DESERT LANDSCAPE	01/08/2019	4,770.00
32940	1136	HOME DEPOT CREDIT SERVICES	01/08/2019	335.37
32911	9177	IN-SITU,INC.	12/18/2018	520.65
32938	1022	JAMES HORMUTH DE ANZA TRUE VALUE	01/08/2019	42.55
32943	11037	JAROSLAV MEDEK	01/08/2019	466.22
32941	65	JC LABS & MONITORING SERVICE	01/08/2019	1,500.00
32923	10852	JEROME C. ROLWING	12/31/2018	3,696.02
32942	9385	JOHNSON CONTROLS SECURITY SOLUTIONS	01/08/2019	5.09
32912	10873	KESSLINGS KITCHEN	12/18/2018	353.53
32919	10873	KESSLINGS KITCHEN	12/31/2018	357.09
32927	10899	LOUIS ALEXANDER THE RICK ALEXANDER COMPANY	12/31/2018	2,795.00
32917	1066	MANUEL RODRIGUEZ DE ANZA READY MI	12/31/2018	239.60
32925	11034	Martina Sanchez	12/31/2018	398.65
32907	1000	MEDICAL ACWA-JPIA	12/18/2018	17,543.23
32958	11038	MUNICIPAL DIVING SERVICES INC.	01/16/2019	2,900.00
32944	10891	NEOFUNDS	01/08/2019	287.68
32945	11017	NEOPOST USA INC	01/08/2019	405.75
32952	1208	PACIFIC PIPELINE SUPPLY INC	01/08/2019	4,113.17
32920	11035	Patricia Oakes	12/31/2018	269.93
32922	9546	RAFTELIS FINANCIAL CONSULTANTS, INC.	12/31/2018	913.75
32947	9633	RAMONA DISPOSAL SERVICE	01/08/2019	3,604.51
32953	9481	RS INSTRUMENTS & SERVICES	01/08/2019	695.00
32924	1065	SAN DIEGO GAS & ELECTRIC	12/31/2018	24,759.84
32948	1059	STAPLES CREDIT PLAN	01/08/2019	1,422.14
32959	9166	SWRCB	01/16/2019	9,650.50
32926	9106	T.S. INDUSTRIAL SUPPLY	12/31/2018	28.45
32928	10885	THE SOCO GROUP, INC.	12/31/2018	198.87
32954	9581	TRAVIS PARKER	01/08/2019	480.50
32960	3000	U.S.BANK CORPORATE PAYMENT SYS	01/16/2019	7,029.42
32961	1023	UNDERGROUND SERVICE ALERT	01/16/2019	21.55
32949	10847	USA COMMUNICATIONS	01/08/2019	240.94
32929	9439	USABLUEBOOK	12/31/2018	459.10
32962	1100	VERIZON WIRELESS	01/16/2019	159.60
32951	1027	VICTOR VALENTI CONTRON SCADA SYSTEMS	01/08/2019	1,473.28
32921	1623	WENDY QUINN	12/31/2018	475.00
32946	1623	WENDY QUINN	01/08/2019	162.50
32950	92	XEROX FINANCIAL SERVICES	01/08/2019	435.36
32930	9602	XYLEM WATER SOLUTIONS USA,INC	12/31/2018	10,377.90
		Report Total (59 checks):		150,239.15

ASSETS

	BALANCE SHEET December 31, 2018 (unaudited)	BALANCE SHEET November 30, 2018 (unaudited)	MONTHLY CHANGE (unaudited)
CURRENT ASSETS			
Cash and cash equivalents	$ 4,279,717.76	$ 4,194,685.23	$ 85,032.53
Accounts receivable from water sales and sewer charges	$ 452,859.51	$ 532,675.54	$ (79,816.03)
Inventory	$ 121,404.02	$ 121,088.27	$ 315.75
Prepaid expenses	$ 31,826.98	$ 31,826.98	$ -
TOTAL CURRENT ASSETS	**$ 4,885,808.27**	**$ 4,880,200.05**	$ 5,608.22
RESTRICTED ASSETS			
Debt Service:			
Deferred amount of COP Refunding	$ 92,538.01	$ 92,538.01	$ -
Deferred Outflow of Resources-CalPERS	$ 356,748.00	$ 356,748.00	$ -
Total Debt service	$ 449,286.01	$ 449,286.01	$ -
Trust/Bond funds:			
Investments with fiscal agent -CFD 2017-1	$ 24,410.15	$ 24,410.15	$ -
2018 Certficates of Participation to fund CIP Projects	$ 5,540,222.88	$ 5,532,159.80	$ 8,063.08
Total Trust/Bond funds	$ 5,564,633.03	$ 5,556,569.95	$ 8,063.08
TOTAL RESTRICTED ASSETS	**$ 6,013,919.04**	**$ 6,005,855.96**	
UTILITY PLANT IN SERVICE			
Land	$ 2,251,663.65	$ 2,251,663.65	$ -
Flood Control Facilities	$ 4,287,340.00	$ 4,287,340.00	$ -
Capital Improvement Projects	$ 309,166.50	$ 306,371.50	$ 2,795.00
Sewer Facilities	$ 6,175,596.99	$ 6,175,596.99	$ -
Water facilities	$ 11,621,513.88	$ 11,621,513.88	$ -
General facilities	$ 974,152.43	$ 974,152.43	$ -
Equipment and furniture	$ 585,522.57	$ 585,522.57	$ -
Vehicles	$ 748,049.87	$ 748,049.87	$ -
Accumulated depreciation	$ (13,250,787.98)	$ (13,250,787.98)	$ -
			$ -
NET UTILITY PLANT IN SERVICE	**$ 13,702,217.91**	**$ 13,699,422.91**	$ 2,795.00
OTHER ASSETS			
Water rights -ID4	$ 185,000.00	$ 185,000.00	$ -
TOTAL OTHER ASSETS	**$ 185,000.00**	**$ 185,000.00**	
TOTAL ASSETS	**$ 24,786,945.22**	**$ 24,770,478.92**	$ 16,466.30

Balance sheet continued

	BALANCE SHEET December 31, 2018 (unaudited)	BALANCE SHEET November 30, 2018 (unaudited)	MONTHLY CHANGE (unaudited)
LIABILITIES			
CURRENT LIABILITIES PAYABLE FROM CURRENT ASSETS			
Accounts Payable	$ 81,900.20	$ 205,541.40	$ (123,641.20)
Accrued expenses	$ 147,386.12	$ 147,386.12	$ -
CSD Refund Payable	$ 41,739.19	$ 46,619.99	$ (4,880.80)
Bond funded CIP Expenses	$ -	$ -	$ -
Deposits	$ 17,225.00	$ 17,303.26	$ (78.26)
TOTAL CURRENT LIABILITIES PAYABLE FROM CURRENT ASSETS	**$ 288,250.51**	**$ 416,850.77**	$ (128,600.26)
CURRENT LIABILITIES PAYABLE FOM RESTRICTED ASSETS			
Debt Service:			
Accounts Payable to CFD 2017-1	$ 24,410.15	$ 24,410.15	$ -
TOTAL CURRENT LIABILITIES PAYABLE FROM RESTRICTED ASSETS	**$ 24,410.15**	**$ 24,410.15**	$ -
LONG TERM LIABILITIES			
2008 Certificates of Participation-ID 4 infrastructure	$ 1,982,000.00	$ 1,982,000.00	$ -
2018 Certficates of Participation to fund CIP Projects	$ 5,235,000.00	$ 5,235,000.00	$ -
BBVA Compass Bank Loan	$ 727,590.17	$ 727,590.17	$ -
Net Pension Liability-CalPERS	$ 819,059.00	$ 819,059.00	$ -
Deferred Inflow of Resources-CalPERS	$ 163,076.00	$ 163,076.00	
TOTAL LONG TERM LIABILITIES	**$ 8,926,725.17**	**$ 8,926,725.17**	$ -
TOTAL LIABILITIES	**$ 9,239,385.83**	**$ 9,367,986.09**	$ (128,600.26)
FUND EQUITY			
Contributed equity	$ 9,611,814.35	$ 9,611,814.35	$ -
Retained Earnings:			
Unrestricted Reserves/Retained Earnings	$ 5,935,745.04	$ 5,790,678.48	$ 145,066.56
Total retained earnings	$ 5,935,745.04	$ 5,790,678.48	$ 145,066.56
TOTAL FUND EQUITY	**$ 15,547,559.39**	**$ 15,402,492.83**	$ 145,066.56
TOTAL LIABILITIES AND FUND EQUITY	**$ 24,786,945.22**	**$ 24,770,478.92**	$ 16,466.30

GROUNDWATER MANAGEMENT
ACCOUNTING
FY 2019
Acct #10154800

Month	BBK	DUDEK	Wendy Quinn Minutes	Town Hall/ Advertising/Postage	One Eleven Water Services	Staff Allocation	Conf/Classes Misc.	Water Advisory Committee-Lunches	Brian Brady	Babcock	Monthly Total	FYE 2019 Total
Jul-18			250.00			5,000.00		798.36			6,048.36	6,048.36
Aug-18	8,862.29	15,079.83	112.50			7,417.44	632.49	175.00		720.00	32,999.55	39,047.91
Sep-18	19,643.70		112.50	1,741.35		7,343.32		385.57			29,226.44	68,274.35
Oct-18	8,088.20		200.00	140.00	462.00	7,876.27		352.23	5,187.50		22,306.20	90,580.55
Nov-18		8,622.78		210.00		7,613.04		339.31			16,785.13	107,365.68
Dec-18	23,690.43		425.00	140.00	2,995.00	6,562.80		720.61		1,523.00	36,056.84	143,422.52
Total	60,284.62	23,702.61	1,100.00	2,231.35	3,457.00	41,812.87	632.49	2,771.08	5,187.50	2,243.00	143,422.52	143,422.52

	A	B	C	D	E	F	G	H	I	J	K
4						PROP 1 GRANT					
5						ACCOUNTING					
6						FY 2019					
7						Acct #10117170					
8											
9											
10											
11											
12											
13			North Gardens					Spindrift	Dynamic	Environmental Navigation	
14	Month		Management	DUDEK	COUNTY	LE SAR	TRAC	Archaeological	Engineering	Service	Total
15											
16	09/15/15	Justification Grant Projects	1,552.50								1,552.50
17	09/30/15	Jane Gray-Grant Application		95.00							95.00
18	10/31/15	Notice of Exemption			50.00						50.00
19	12/16/15	Jane Gray-Grant Application		760.00							760.00
20	12/16/15	Jane Gray-Grant Application		380.00							380.00
21	12/29/15	Jane Gray-Grant Application		2,438.75							2,438.75
22	03/01/16	Notice of Exemption			200.00						200.00
23	03/31/16	Jane Gray-Grant Application		53.75							53.75
24	04/29/16	William Kubran-WTF funding review		2,980.00							2,980.00
25	05/27/16	William Kubran-WTF funding review		1,260.00							1,260.00
26	12/30/16	William Kubran-WTF funding review		1,330.00							1,330.00
27	06/24/17	William Kubran-WTF funding coordination		385.00							385.00
28	09/27/17	SDAC Engagement				20,000.00					20,000.00
29	10/31/17	SDAC Engagement				17,269.80					17,269.80
30	12/31/17	SDAC Engagement				7,730.20					7,730.20
31	05/31/18	SDAC Engagement				14,500.00					14,500.00
32	05/31/18	SDAC Engagement				13,000.00					13,000.00
33	05/31/18	Prepare TMF					3,575.75				3,575.75
34	06/30/18	Grant Task 5 1 & 5 2		7,063.75							7,063.75
35	06/30/18	SDAC engagement				3,250.00					3,250.00
36	06/30/18	Technical support								13,500.00	13,500.00
37	06/30/18	Technical support								9,500.00	9,500.00
38	07/31/18	BWD Diesel Engine & Tank Rehab							41,670.00		41,670.00
39	07/31/18	Technical support								16,950.00	16,950.00
40	07/31/18	Review Grant Information					1,487.50				1,487.50
41	07/31/18	SDAC engagement				6,500.00					6,500.00
42	09/30/18	Water model updateWwell ranking system		17,267.50							17,267.50
43	09/30/18	SDAC Engagement				31,650.00					31,650.00
44	09/30/18	Grant review					4,171.25				4,171.25
45	10/31/18	Prop 1 Grant Task 2								39,547.50	39,547.50
46	10/31/18	SDAC Engagement				3,900.00					3,900.00
47	11/30/18	SDAC Engagement				11,250.00					11,250.00
48	11/30/18	Prop 1-Extraction Wells		6,385.00							6,385.00
49	11/30/2018	Prop 1 Grant-Paleontologist						4,718.25			4,718.25
50	12/31/2018	Coordination with Spindrift/Rocks					2,795.00				2,795.00
51											
52	Total		1,552.50	40,398.75	250.00	129,050.00	12,029.50	4,718.25	41,670.00	79,497.50	309,166.50

IV.B

WATER & WASTE WATER OPERATIONS REPORT

SEPTEMBER 2018

OCTOBER 2018

NOVEMBER 2018

DECEMBER 2018

September 2018

WATER OPERATIONS REPORT

WELL	TYPE	FLOW RATE	STATUS	COMMENT
ID1-8	Production	350	In Use	
ID1-10	Production	300	In Use	
ID1-12	Production	900	In Use	
ID1-16	Production	750	In Use	
Wilcox	Production	80	In Use	Diesel backup well for ID-4
ID4-4	Production	400	In Use	
ID4-11	Production	900	In Use	Diesel engine drive exercised monthly
ID4-18	Production	150	In Use	
ID5-5	Production	850	In Use	

System Problems: All production wells are in service. All reservoirs are in operating condition.

WASTEWATER OPERATIONS REPORT

Rams Hill Wastewater Treatment Facility serving ID-1, ID-2 and ID-5 Total Cap. 0.25 MGD (million gallons per day):

Average flow: 57,487 (gallons per day)

Peak flow: 97,200 gpd Friday, September 7, 2018

October 2018

WATER OPERATIONS REPORT

WELL	TYPE	FLOW RATE	STATUS	COMMENT
ID1-8	Production	350	In Use	
ID1-10	Production	300	In Use	
ID1-12	Production	900	In Use	
ID1-16	Production	750	In Use	
Wilcox	Production	80	In Use	Diesel backup well for ID-4
ID4-4	Production	400	In Use	
ID4-11	Production	900	In Use	Diesel engine drive exercised monthly
ID4-18	Production	150	In Use	
ID5-5	Production	850	In Use	

System Problems: All production wells are in service. All reservoirs are in operating condition.

WASTEWATER OPERATIONS REPORT

Rams Hill Wastewater Treatment Facility serving ID-1, ID-2 and ID-5 Total Cap. 0.25 MGD (million gallons per day):

Average flow: 60,974 (gallons per day)

Peak flow: 100,400 gpd Saturday, October 20, 2018

November 2018

WATER OPERATIONS REPORT

WELL	TYPE	FLOW RATE	STATUS	COMMENT
ID1-8	Production	350	In Use	
ID1-10	Production	300	In Use	
ID1-12	Production	900	In Use	
ID1-16	Production	750	In Use	
Wilcox	Production	80	In Use	Diesel backup well for ID-4
ID4-4	Production	400	In Use	
ID4-11	Production	900	In Use	Diesel engine drive exercised monthly
ID4-18	Production	150	In Use	
ID5-5	Production	850	In Use	

System Problems: All production wells are in service. All reservoirs are in operating condition.

WASTEWATER OPERATIONS REPORT

Rams Hill Wastewater Treatment Facility serving ID-1, ID-2 and ID-5 Total Cap. 0.25 MGD (million gallons per day):

Average flow: 60,974 (gallons per day)

Peak flow: 171,300 gpd Friday, November 23, 2018

December 2018

WATER OPERATIONS REPORT

WELL	TYPE	FLOW RATE	STATUS	COMMENT
ID1-8	Production	350	In Use	
ID1-10	Production	300	In Use	
ID1-12	Production	900	In Use	
ID1-16	Production	750	In Use	
Wilcox	Production	80	In Use	Diesel backup well for ID-4
ID4-4	Production	400	In Use	
ID4-11	Production	900	In Use	Diesel engine drive exercised monthly
ID4-18	Production	150	In Use	
ID5-5	Production	850	In Use	

System Problems: All production wells are in service. All reservoirs are in operating condition.

WASTEWATER OPERATIONS REPORT

Rams Hill Wastewater Treatment Facility serving ID-1, ID-2 and ID-5 Total Cap. 0.25 MGD (million gallons per day):

Average flow: 106,684 (gallons per day)

Peak flow: 152,400 gpd Sunday, December 2, 2018

IV.C

WATER PRODUCTION/ USE RECORDS

SEPTEMBER 2018

OCTOBER 2018

NOVEMBER 2018

DECEMBER 2018

BORREGO WATER DISTRICT

WATER PRODUCTION SUMMARY

SEPTEMBER 2018

DATE	WATER USE	WATER PROD	WATER %NRW	ID4 USE	ID4 PROD	ID4 %NRW	TOTAL USE	TOTAL PROD
Sep-16	43.67	46.58	6.25	119.76	118.50	-1.06	163.43	165.09
Oct-16	34.51	37.64	8.31	102.51	122.73	16.48	137.02	160.37
Nov-16	31.55	31.58	0.10	102.59	112.11	8.50	134.14	143.70
Dec-16	27.15	27.95	2.87	73.25	82.85	11.59	100.40	110.81
Jan-17	17.49	16.18	-8.10	51.59	59.32	13.02	69.08	75.50
Feb-17	11.72	14.64	19.93	63.23	73.40	13.85	74.95	88.04
Mar-17	17.15	18.48	7.17	63.65	68.34	6.86	80.81	86.82
Apr-17	25.02	26.02	3.83	90.17	99.02	8.94	115.18	125.03
May-17	28.18	29.45	4.30	98.06	113.48	13.58	126.25	142.93
Jun-17	29.25	33.42	12.48	96.28	106.02	9.19	125.52	139.44
Jul-17	32.84	34.17	3.90	107.37	122.38	12.26	140.21	156.55
Aug-17	35.64	40.65	12.32	127.56	141.43	9.81	163.19	182.07
Sep-17	40.98	43.11	4.93	102.46	114.72	10.69	143.44	157.83
Oct-17	29.35	31.05	5.48	108.42	119.22	9.06	137.77	150.28
Nov-17	26.03	27.67	5.92	107.09	120.15	10.87	133.12	147.82
Dec-17	23.23	26.28	11.60	80.91	89.46	9.55	104.14	115.73
Jan-18	19.40	19.95	2.74	86.60	95.01	8.85	106.01	114.96
Feb-18	19.77	21.14	6.49	78.55	87.58	10.31	98.32	108.72
Mar-18	19.90	20.26	1.77	73.56	80.32	8.42	93.46	100.58
Apr-18	22.01	22.72	3.11	88.49	99.08	10.69	110.50	121.80
May-18	25.10	25.46	1.40	98.95	108.29	8.62	124.05	133.75
Jun-18	29.06	29.87	2.72	100.42	108.40	7.36	129.48	138.28
Jul-18	30.87	31.47	1.89	96.80	111.42	13.12	127.67	142.89
Aug-18	36.34	38.25	4.99	124.77	142.84	12.65	161.11	181.09
Sep-18	34.31	37.40	8.26	105.93	117.15	9.58	140.24	154.55
12 Mo. TOTAL	315.39	331.52	4.70	1150.48	1278.92	9.92	1465.87	1610.45

Totals reflect Water (ID1 & ID3) and ID4 (ID4 & ID5) . Interties to SA3 are no longer needed to be separated. ID4 and SA5 are combined because all water production is pumped from ID4.
All figures are in Acre Feet of water pumped.

NON-REVENUE WATER SUMMARY (%)

DATE	WATER	ID-4	ID-5	DISTRICT-WIDE AVERAGE
Sep-18	8.26	9.58	N/A	8.92
12 Mo. Average	4.70	9.92	N/A	7.31

BORREGO WATER DISTRICT

WATER PRODUCTION SUMMARY

OCTOBER 2018

DATE	WATER USE	WATER PROD	WATER %NRW	ID4 USE	ID4 PROD	ID4 %NRW	TOTAL USE	TOTAL PROD
Oct-16	34.51	37.64	8.31	102.51	122.73	16.48	137.02	160.37
Nov-16	31.55	31.58	0.10	102.59	112.11	8.50	134.14	143.70
Dec-16	27.15	27.95	2.87	73.25	82.85	11.59	100.40	110.81
Jan-17	17.49	16.18	-8.10	51.59	59.32	13.02	69.08	75.50
Feb-17	11.72	14.64	19.93	63.23	73.40	13.85	74.95	88.04
Mar-17	17.15	18.48	7.17	63.65	68.34	6.86	80.81	86.82
Apr-17	25.02	26.02	3.83	90.17	99.02	8.94	115.18	125.03
May-17	28.18	29.45	4.30	98.06	113.48	13.58	126.25	142.93
Jun-17	29.25	33.42	12.48	96.28	106.02	9.19	125.52	139.44
Jul-17	32.84	34.17	3.90	107.37	122.38	12.26	140.21	156.55
Aug-17	35.64	40.65	12.32	127.56	141.43	9.81	163.19	182.07
Sep-17	40.98	43.11	4.93	102.46	114.72	10.69	143.44	157.83
Oct-17	29.35	31.05	5.48	108.42	119.22	9.06	137.77	150.28
Nov-17	26.03	27.67	5.92	107.09	120.15	10.87	133.12	147.82
Dec-17	23.23	26.28	11.60	80.91	89.46	9.55	104.14	115.73
Jan-18	19.40	19.95	2.74	86.60	95.01	8.85	106.01	114.96
Feb-18	19.77	21.14	6.49	78.55	87.58	10.31	98.32	108.72
Mar-18	19.90	20.26	1.77	73.56	80.32	8.42	93.46	100.58
Apr-18	22.01	22.72	3.11	88.49	99.08	10.69	110.50	121.80
May-18	25.10	25.46	1.40	98.95	108.29	8.62	124.05	133.75
Jun-18	29.06	29.87	2.72	100.42	108.40	7.36	129.48	138.28
Jul-18	30.87	31.47	1.89	96.80	111.42	13.12	127.67	142.89
Aug-18	36.34	38.25	4.99	124.77	142.84	12.65	161.11	181.09
Sep-18	34.31	37.40	8.26	105.93	117.15	9.58	140.24	154.55
Oct-18	29.96	30.42	1.49	118.14	129.33	8.65	148.10	159.74
12 Mo. TOTAL	316.00	330.89	4.37	1160.20	1289.03	9.89	1476.20	1619.91

Totals reflect Water (ID1 & ID3) and ID4 (ID4 & ID5) . Interties to SA3 are no longer needed to be separated. ID4 and SA5 are combined because all water production is pumped from ID4.
All figures are in Acre Feet of water pumped.

NON-REVENUE WATER SUMMARY (%)

DATE	WATER	ID-4	ID-5	DISTRICT-WIDE AVERAGE
Oct-18	1.49	8.65	N/A	5.07
12 Mo. Average	4.37	9.89	N/A	7.13

BORREGO WATER DISTRICT

WATER PRODUCTION SUMMARY

NOVEMBER 2018

DATE	WATER USE	WATER PROD	WATER %NRW	ID4 USE	ID4 PROD	ID4 %NRW	TOTAL USE	TOTAL PROD
Nov-16	31.55	31.58	0.10	102.59	112.11	8.50	134.14	143.70
Dec-16	27.15	27.95	2.87	73.25	82.85	11.59	100.40	110.81
Jan-17	17.49	16.18	-8.10	51.59	59.32	13.02	69.08	75.50
Feb-17	11.72	14.64	19.93	63.23	73.40	13.85	74.95	88.04
Mar-17	17.15	18.48	7.17	63.65	68.34	6.86	80.81	86.82
Apr-17	25.02	26.02	3.83	90.17	99.02	8.94	115.18	125.03
May-17	28.18	29.45	4.30	98.06	113.48	13.58	126.25	142.93
Jun-17	29.25	33.42	12.48	96.28	106.02	9.19	125.52	139.44
Jul-17	32.84	34.17	3.90	107.37	122.38	12.26	140.21	156.55
Aug-17	35.64	40.65	12.32	127.56	141.43	9.81	163.19	182.07
Sep-17	40.98	43.11	4.93	102.46	114.72	10.69	143.44	157.83
Oct-17	29.35	31.05	5.48	108.42	119.22	9.06	137.77	150.28
Nov-17	26.03	27.67	5.92	107.09	120.15	10.87	133.12	147.82
Dec-17	23.23	26.28	11.60	80.91	89.46	9.55	104.14	115.73
Jan-18	19.40	19.95	2.74	86.60	95.01	8.85	106.01	114.96
Feb-18	19.77	21.14	6.49	78.55	87.58	10.31	98.32	108.72
Mar-18	19.90	20.26	1.77	73.56	80.32	8.42	93.46	100.58
Apr-18	22.01	22.72	3.11	88.49	99.08	10.69	110.50	121.80
May-18	25.10	25.46	1.40	98.95	108.29	8.62	124.05	133.75
Jun-18	29.06	29.87	2.72	100.42	108.40	7.36	129.48	138.28
Jul-18	30.87	31.47	1.89	96.80	111.42	13.12	127.67	142.89
Aug-18	36.34	38.25	4.99	124.77	142.84	12.65	161.11	181.09
Sep-18	34.31	37.40	8.26	105.93	117.15	9.58	140.24	154.55
Oct-18	29.96	30.42	1.49	118.14	129.33	8.65	148.10	159.74
Nov-18	24.75	25.62	3.41	100.65	109.27	7.89	125.39	134.89
12 Mo. TOTAL	314.71	328.84	4.16	1153.76	1278.14	9.64	1468.47	1606.98

Totals reflect Water (ID1 & ID3) and ID4 (ID4 & ID5) . Interties to SA3 are no longer needed to be separated. ID4 and SA5 are combined because all water production is pumped from ID4.
All figures are in Acre Feet of water pumped.

NON-REVENUE WATER SUMMARY (%)

DATE	WATER	ID-4	ID-5	DISTRICT-WIDE AVERAGE
Nov-18	3.41	7.89	N/A	5.65
12 Mo. Average	4.16	9.64	N/A	6.90

BORREGO WATER DISTRICT

WATER PRODUCTION SUMMARY

DECEMBER 2018

DATE	WATER USE	WATER PROD	WATER %NRW	ID4 USE	ID4 PROD	ID4 %NRW	TOTAL USE	TOTAL PROD
Dec-16	27.15	27.95	2.87	73.25	82.85	11.59	100.40	110.81
Jan-17	17.49	16.18	-8.10	51.59	59.32	13.02	69.08	75.50
Feb-17	11.72	14.64	19.93	63.23	73.40	13.85	74.95	88.04
Mar-17	17.15	18.48	7.17	63.65	68.34	6.86	80.81	86.82
Apr-17	25.02	26.02	3.83	90.17	99.02	8.94	115.18	125.03
May-17	28.18	29.45	4.30	98.06	113.48	13.58	126.25	142.93
Jun-17	29.25	33.42	12.48	96.28	106.02	9.19	125.52	139.44
Jul-17	32.84	34.17	3.90	107.37	122.38	12.26	140.21	156.55
Aug-17	35.64	40.65	12.32	127.56	141.43	9.81	163.19	182.07
Sep-17	40.98	43.11	4.93	102.46	114.72	10.69	143.44	157.83
Oct-17	29.35	31.05	5.48	108.42	119.22	9.06	137.77	150.28
Nov-17	26.03	27.67	5.92	107.09	120.15	10.87	133.12	147.82
Dec-17	23.23	26.28	11.60	80.91	89.46	9.55	104.14	115.73
Jan-18	19.40	19.95	2.74	86.60	95.01	8.85	106.01	114.96
Feb-18	19.77	21.14	6.49	78.55	87.58	10.31	98.32	108.72
Mar-18	19.90	20.26	1.77	73.56	80.32	8.42	93.46	100.58
Apr-18	22.01	22.72	3.11	88.49	99.08	10.69	110.50	121.80
May-18	25.10	25.46	1.40	98.95	108.29	8.62	124.05	133.75
Jun-18	29.06	29.87	2.72	100.42	108.40	7.36	129.48	138.28
Jul-18	30.87	31.47	1.89	96.80	111.42	13.12	127.67	142.89
Aug-18	36.34	38.25	4.99	124.77	142.84	12.65	161.11	181.09
Sep-18	34.31	37.40	8.26	105.93	117.15	9.58	140.24	154.55
Oct-18	29.96	30.42	1.49	118.14	129.33	8.65	148.10	159.74
Nov-18	24.75	25.62	3.41	100.65	109.27	7.89	125.39	134.89
Dec-18	16.14	22.36	27.80	71.19	80.13	11.16	87.33	102.49
12 Mo. TOTAL	307.63	324.92	5.51	1144.04	1268.82	9.78	1451.67	1593.74

Totals reflect Water (ID1 & ID3) and ID4 (ID4 & ID5) . Interties to SA3 are no longer needed to be separated. ID4 and SA5 are combined because all water production is pumped from ID4.
All figures are in Acre Feet of water pumped.
NOTE: ID1 Fire flow line break at La Casa not metered.

NON-REVENUE WATER SUMMARY (%)

DATE	WATER	ID-4	ID-5	DISTRICT-WIDE AVERAGE
Dec-18	27.80	11.16	N/A	19.48
12 Mo. Average	5.51	9.78	N/A	7.64

IV.D

GENERAL MANAGER REPORT

Borrego Water District

General Managers Organizational Goals and Objectives

Fiscal Year 2018-19: January, 2019

1. **GROUNDWATER SUSTAINABILITY PLAN:** Work in conjunction with the County of San Diego, State of California, Borrego Basin GSP Advisory Committee and other stakeholder groups to prepare an implementable GSP within the proposed timeline.
   A. Organize/Participate in Core Team and Advisory Committee activities: Jul. 2018 – Jun. 2019
      a. Support AC Constituent Groups and outside organizations, as needed

Current Status: During December/January, Staff and the CT plus Brady and Anderson completed review of the Draft GSP. BWD is awaiting the comments from the County on our suggested revisions. Once completed, the GSP is tentatively scheduled to be released in Feb/Mar for a 60-day review period.
Next Steps: The Core Team and Legal Counsel is providing its final comments into the Draft Plan on Chapters 1, 3 and 4. Follow up meetings will be held with the County to review each Agency's comments and create the Final Draft that will be released for public review in late 2018 or early 2019.
Schedule: Ongoing through Jan 2020
Additional Resources Used: BWD and County Core Teams, Dudek
Additional Resources Needed: Water Quality Monitoring Network, GSP Compliance - Land/Water Acquisition Strategy,
BWD Economic Risk: $16 M (NPV): GSP Implementation creates a significant future risk to BWD ratepayers and Staff's primary goal is to find alternative funding sources and other methods to reduce the impact to ratepayers.

      b. Expand Water Quality Monitoring Network
         i. Identify data gaps, and expand network in areas needed, contact well owners and request participation

Current Status: Staff will provide an update on WQ sampling and the results in Feb. In addition, Staff will provide recommendations on the entire program going forward with input from John Petersen and Jay Jones.
Next Steps: Evaluate program and make recommendation at Feb Board Meeting
Schedule: Ongoing thru GSP Implementation
Additional Resources Used: Petersen/Ehrlich/Jones
Additional Resources Needed: Outside assistance to expand the network, possibly Jay Jones
BWD Economic Risk: Up to $20 M. Obtaining consistent, reliable WQ data is critical to understand basin charachteristics and its impact upon BWD operations and the need for possible future water treatment facilities.

      c. Provide input into GSP Fallowing Plan
         i. Viking Ranch Assessment

Current Status: A comprehensive report was made on the September 18th Agenda, and the issue of Fallowing Standards was also provided in the packet for the October 24th Agenda. Representatives from Dudek recently informed BWD there may be an opportunity to use Viking Ranch as an offsite mitigation location, which could provide a funding source to remove the barriers and allow for natural drainage to occur and possibly other improvements to the property. Staff has met with Dudek and representatives from the developer and BWD will soon be receiving a written proposal.
Next Steps: Staff will continue to investigate the mitigation concept
Schedule: Ongoing thru CEQA process

Additional Resources Used: Engelke, Rolwing, BWD Board/Staff
Additional Resources Needed: Dudek
BWD Economic Risk: TBD – Developing and maintaining adequate fallowing standards is essential to the future air quality and other issues in Borrego Springs

d. Determine most beneficial GSP EIR approval strategy and support County in the effort

Current Status: GSP is being reviewed to eliminate any "CEQA Triggers" and CEQA review will begin soon after GSP approval by GSA Board. This logic has been part of the BWD review of the Draft GSP language.
Next Steps: Continue to work with BWD Legal Counsel, County and Dudek on EIR development strategy and continue to review Draft GSP Chapters now to avoid CEQA triggers in the document.
Schedule: Language changes in the GSP have been made and BWD is waiting for County comments.
Additional Resources Used: BWD Legal Counsel, County Staff, Dudek
Additional Resources Needed: None
BWD Economic Risk: TBD: If the appropriate path is not selected = possible litigation. The cost to the GSP process could be significant in terms of economic impact and the time needed to defend the lawsuit.

e. Discounted Cash Flow Model – Land Valuation Tool

Current Status: Dudek has completed the DFC model
Next Steps: Use on possible future land acquisitions for GSP Compliance.
Schedule: Coincide with future land acquisition activities
Additional Resources Used: Dudek, Raftellis
Additional Resources Needed: None
BWD Economic Risk: TBD - Land valuation is one of the most significant future economic risks for BWD ratepayers.

2. GRANTS/BONDS/PUBLIC INITIAVES: Maximize the use of alternative funding sources as an alternative to BWD Ratepayer revenues.

A. Grants Tentatively Approved: SDAC outreach grant from DWR - Manage Contracts: Jun. 2018 – Jul. 2019
   a. Le Sar Development Consultants: Public Outreach
      i. Develop Materials, Participate in Outreach Events, Assist in Acquiring Survey/Data, Business Survey Distribution and Data Collection

Current Status: An outreach meeting was held in Nov with over 100 participants to discuss the Community's concerns with the GSP. This is the last of the initial phase of identifying the Community's concerns and the future meetings will focus on the content of the GSP and related issues. Another meeting is being planned during the GSP public review process.
Next Steps: Support Le Sar in contacting local business owners. The next Public Meeting is being planned for early 2019 following release of the Draft GSP.
Schedule: Thru GSP Approval in 2020.
Additional Resources Used: Le Sar, Ad Hoc Committee (Falk, Johnson), Deichler, Jones, BWD Staff
Additional Resources Needed: None
BWD Economic Risk: N/A

b. Dr Jay Jones: Socioeconomic Modeling and Impact of GSP on BWD infrastructure
   i. Submit info from surveys, provide data and other advice/input into model design, evaluate results

Current Status: BWD and Le Sar are providing data on socioeconomics and Jones is continuing work on BWD infrastructure impacts. Jones has completed to major studies in the past month on GSP impacts which will be discussed at the 1-29-19 Board Meeting.

Next Steps: Continue to support Le Sar and Jones and provide input to socioeconomic and BWD infrastructure questionnaire and solicit responses from local businesses.
Schedule: Outreach thru GSP Approval = 2020. Socioeconomic = April 2019
Additional Resources Used: Le Sar, Ad Hoc Committee (Falk, Johnson), Deichler, Jones, BWD Staff
Additional Resources Needed: None
BWD Economic Risk: Up to $20 M for water treatment systems

c. Dudek: Investigative Well Drilling for Replacement Well #2
    i. Site evaluation for Well #2 is underway.

Current Status: A parcel has been identified in an area likely to produce a well with adequate quantity and quality. BWD has begun negotiations with property owner. Hydraulic Model runs are being being performed by Dudek to determine the impact of adding a well in this area.
Next Steps: Run hydrologic model to determine impact of new well on BWD operations.
Schedule: Site selection is planned to occur in Dec 2018.
Additional Resources Used: Dudek, BWD Staff, O and I Committee
Additional Resources Needed: Well driller, Construction Manager (Dudek)
BWD Economic Risk: If the project is not completed by July 2021, the tax exempt status of the recent BWD bond issue is at risk. The project is currently on schedule.

d. Dudek: Meter Installation Financial Assistance: DWR Prop One Grant
    i. Assist consultant in working with local participants in the program

Current Status: Participants have been identified
Next Steps: Estimate cost for installation of meters
Schedule: Meter to be installed in mid 2019
Additional Resources Used: Dudek,
Additional Resources Needed: None
BWD Economic Risk: N/A

e. Receive approvals from BWD Board on Reimbursement Agreement with County of SD for SDAC Grant proceeds – Aug. 2018

Current Status/Next Steps: The Draft Agreement has been received from The County and Staff/Legal Counsel is currently reviewing the document.
Schedule: The Agreement is planned to be presented to the BWD Board in February
Additional Resources Used: County Staff, BWD Legal Counsel, Core Team
Additional Resources Needed: None
BWD Economic Risk: The SDAC Grant provides $500,000 for various GSP implementation related activities. If not funded by the Grant, BWD ratepayer resources would likely be used.

f. Assist Staff at Center for Collaborative Policy (CCP) with GSP AC and CT Facilitation Activities
    i. Liaison with Facilitator (Meagan Wylie) for meeting preparation, organization and other related activities

Current Status/Next Steps: In December 2018, the BWD Board approved extension of the CCP agreement thru late 2019.
Schedule: Continue thru GSP Approval process (Jan 2020)
Additional Resources Used: Meagan Wylie, County, BWD Core Team, Dudek
Additional Resources Needed: None
BWD Economic Risk: N/A

B. Manage Grant Applications for DWR water and SWRCB wastewater Grants
   a. Applications for two DWR Grants have been submitted for DWR/SWRCB Processing

Current Status: Grant applications for both the Wastewater and Water projects were submitted to State staff. Staff and Rick Alexander are working on responding to questions as soon as possible. The Board recently approved hiring two consultants to perform Biological and Archeological assessments, which has been completed.
Next Steps: Promptly answer any additional questions on the WWTP Application
Schedule: Ongoing
Additional Resources Used: Rick Alexander, BWD Staff and O & I Committee
Additional Resources Needed: Continue services of Rick Alexander
BWD Economic Risk: $2.1 M - The proposed Grant provides funding various water and wastewater improvements. If not funded by the Grant, BWD ratepayer resources would likely be used.

C. Pursue other Grant Opportunities
   a. USDA, DWR Monitoring Well, EPA, Others

Current Status: Without losing focus on the existing Grant Applications, future grant opportunities are under review by staff and Rick Alexander. Funding land acquisition, water treatment and wastewater collection/treatment is a focus of this effort. A BWD Board Committee has been formed to look at grant opportunities, especially Prop 68.
Next Steps: The Committee, Staff and Rick Alexander will be evaluating opportunities for various grants/loans and will update the Board in February.
Schedule: Ongoing
Additional Resources Used: Rick Alexander, BWD Staff and O & I Committee
Additional Resources Needed: Continue services of Rick Alexander
BWD Economic Risk: $2.1 M - The proposed Grant provides funding various water and wastewater improvements. If not funded by the Grant, BWD ratepayer resources would likely be used.

D. BWD Bond - Capital Improvement Plan: BWD issues $5.3 M in bonds in July 2017 for the construction of two replacement wells and a series of pipeline projects.

Current Status: Bid Documents for Replacement Well #1 and #2 (bid alternate) are on the streets. Phase One of the BWD Pipeline projects have been awarded. Staff will be developing a new project list/phasing based on what was learned during the recent bid process for the water and waste water pipeline projects (low response) and work with O and I and eventually the full Board.
Next Steps: Support Dudek during Replacement Well bidding process. Evaluate future projects and phasing
Schedule: Updated projects and phasing will be presented in February and all projects must be completed by July 2021.
Additional Resources Used: Dynamic Engineering, Dudek, BWD Staff
Additional Resources Needed: None
BWD Economic Risk: If the project is not completed by July 2021, the tax exempt status of the recent BWD bond issue is at risk. The project is currently on schedule.

3. OPERATIONS: Provide the oversight, as needed, and support management of the water and wastewater systems to meet or exceed all State and Federal standards in a safe environment for BWD employees.
   A. Create structure for BWD Operations staff to be coordinated with CIP projects. Aug 2018

Current Status: Operations Staff is fully engaged in the design of Phase One of the BWD Pipeline Projects and Well Replacement Projects

Next Steps: Continue with planning of the well replacement and pipeline projects
Schedule: Projects must be completed by July 2021
Additional Resources Used: BWD Staff
Additional Resources Needed: None
BWD Economic Risk: TBD

B. Develop new Budget and CIP Review Process
    a. Evaluate existing Budget Format/Process – Revise as needed: Jan - Jun 2019

Current Status/Next Steps: Staff and Budget Committee will begin this process later in early 2019 following completion of audit and other finance related projects. Staff has received a proposal from John Rossi (referral from Brian Brady) for assistance with the budget format development and budget approval process set up.
Schedule: April, to be ready for 2018-19 Budget Cycle
Additional Resources Used: Budget Committee
Additional Resources Needed: None
BWD Economic Risk: The manner in which BWD presents its finances (audits and budgets etc…) is vital for public transparency and maintaining the BWD financial status.

C. Test Emergency Preparedness Plan with local groups (school, fire, businesses, County etc…)

Next Steps: Staff will develop a schedule for review of the Plan and update the Board at a future meeting.
Schedule: During first half of 2019
Additional Resources Used: BWD Staff
Additional Resources Needed: None
BWD Economic Risk: Poor Emergency Planning/response could have significant impacts (financial and other).

D. Provide improved security for BWD computers, facilities including physical improvements and video cameras

Next Steps: Staff and Director Ehrlich have been discussing a proposal received for a Cyber evaluation and will return in February with a recommendation.
Schedule: During first half of 2019 so needs can be included in FY 2019-20 Budget
Additional Resources Used: BWD Staff, JPIA Consultants
Additional Resources Needed: Consultant
BWD Economic Risk: TBD – Maintaining computer security if vital

E. Repair Flood Control Facility

Next Steps: Repairs Underway by BWD staff. Alan Aasche has extensive experience in this area and has taken the lead on the repairs.
Schedule: December 2018
Additional Resources Used: BWD Staff
Additional Resources Needed: None
BWD Economic Risk: TBD

F. Receive State Water Resources Control Board Discharge Permit for WasteWater Treatment Plant

Current Status/Next Steps: Staff, JC Labs and SWRCB staff met at the WWTP in Jan for an inspection and discussion of new Discharge Permit. A letter is on the way from SWRCB staff with the new permit requirements.
Schedule: February BWD Board Update. SWRCB action planned for March 2019.
Additional Resources Used: BWD Staff, JC Labs Consulting
Additional Resources Needed: None
BWD Economic Risk: TBD – Maintaining a valid discharge permit is required for WWTP operation.

G. Resolve Wastewater Treatment Plant odors in collection system

Current Status: With the repairs of the Town Center Sewer manholes, cleanout of the force main, re-installation of the weir and new operating procedures, significant progress has been made in improving system operations and controlling the odor issues. However, there are still times when odors are present.
Next Steps: Continue to monitor the situation and work with La Casa del Zorro on their grease handling systems.
Schedule: Ongoing
Additional Resources Used: BWD Staff, Dudek, JC Labs
Additional Resources Needed: None
BWD Economic Risk: TBD

H. Implement BWDs new Fats Oils and Grease (FOG) Policy

Current Status: Roy Martinez has been doing an excellent job implementing the new FOG program and grease collection barrels are now at all Food Service Establishments.
Next Steps: Following a few more months of implementation, staff may be recommending some changes to the FOG policy in early 2019. Staff is researching ways in which to enhance the enforcement powers for Roy, if needed.
Schedule: Ongoing
Additional Resources Used: BWD Staff, Dudek, JC Labs, County Health Dept.
Additional Resources Needed: None
BWD Economic Risk: TBD

I. Evaluate feasibility of well field solar power conversion

Current Status/Next Steps: Staff has received a proposal for well field conversion and it will be presented to O and I Committee in February
Schedule: First half of 2019 so any necessary budget expenses can be included
Additional Resources Used: BWD Staff, Solar Contractor on BWD offices, Lane Sharman
Additional Resources Needed: Independent Electrical Consultant
BWD Economic Risk: TBD

J. Miscellaneous Projects: Lorch easement, Sunset sewer acceptance and future extension, time card review, monthly staff meetings

Lorch Current Status/Next Steps: BWD has received an appraisal on the Lorch property and will present it to the BWD Board in Jan with completion before March 2019.

Sunset Sewer Status/Next Steps: Bill Wright will appear in January to explain his request to extend the sewer system near the new library
Time Cards and Staff Meeting Status/Next Steps: BWD employees time cards now reflect the activity undertaken and staff meetings are regularly scheduled.
Evaluate Cyber Security at BWD Status/Next Steps: Staff has received a proposal from a JPIA vendor to perform various cyber related services. BWD staff is waiting for another proposal for comparative purposes.

4. BUDGET/FINANCE: Manage the financial assets of the District to provide the funds necessary for BWD Operations, Capital, Reserve Funds and Debt Service needs in a transparent manner.
    A. 2017-18 Audit – Interface with auditor, present documents to Board of Directors: Jul - Nov 2018

Current Status: Directors Brecht and Ehrlich recently participated in a call with BWD Auditors
Next Steps: Respond to Auditor inquiries and support Financial Statement development
Schedule: Audit information expected in December
Additional Resources Used: Audit Committee, Squar Miller Accounting
Additional Resources Needed: None

Miscellaneous:

Club Circle/Santiago Estates Reimbursements are continuing.

Mesquite Ranch fee waiver request: Letter was sent to Doug Wilson and no response

SB 272: Various computer related information will be added to the BWD website

COMPLETED GOALS/OBJECTIVES

a. Monitor County of SD PSR Process - DONE

Current Status: Issue resolved at B of Supervisor meeting on 9-12.
Next Steps: Discuss various development related issues with the County Planners/Managers.

b. Acquire Air Quality Monitoring System – ORDERED AND SHIPMENT SCHEDULED

Current Status: The equipment has been purchased and set for delivery to UCI in approx. 60 days
Next Steps: Ensure the equipment is sent to UCI as soon as it is received and installed.
Schedule: Equipment scheduled to be delivered by end of January
Additional Resources Used: Dr. Zender, Dave Garmon, UCI
Additional Resources Needed: None

c. Participate in Baseline Pumping Allocation meetings – MEETING HELD AND CONCLUDED. FUTURE COMMENTS, IF ANY, TO BE RECEIVED IN PUBLIC REVIEW PROCESS OF GSP

Current Status: GM participated in BPA meeting for Road Runner Farms, Rams Hill and AAWARE with County and Dudek in Nov and individual meetings on the topic of BPA with De Anza, La Casa Del Zorro and Roadrunner/Springs.
Next Steps: All future comments on BPA will occur in the Public Comment period of the GSP review, currently planned for Jan/Feb 2019.
Schedule: All meetings have been held and future comment will occur via Public Comment on Draft GSP
Additional Resources Used: County Staff, Dudek
Additional Resources Needed: None

d. Miscellaneous Projects Complete: GSA Expense Description – Done and forwarded to County Staff. – LIST OF REIMBURSEABLES SENT. CORE TEAMS TO MEET AND DICSUSS ON 12-18-18.

e. Public Initiative: Scenario Planning for 2018 California Water Bond – Develop planning scenarios for both positive & negative election results – PROP FAILED. EVALUARE ALTERNAIVES

f. 2018 BWD Bond Financing – Work with Consultants on finalizing $5.5 M Bond Issue: Jul 2019. Next Steps: Implement Project Accounting System – DONE

g. Club Circle Trash: The request to change trash service has been rescinded. - DONE

h. Rams Hill LTCA: A proposal is being made to the BWD Board in Closed Session on 12-11 – PRESENTED TO BWD BOARD ON 12-11

i. Employee training on new Purchasing Policy and Computer/Cyber Policy conducted - DONE