

## RECORD OF PROCEEDINGS

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### MINUTES OF A REGULAR MEETING OF THE BOARD OF DIRECTORS OF THE GREATROCK NORTH WATER AND SANITATION DISTRICT HELD MARCH 1, 2016

A regular meeting of the Board of Directors (referred to hereafter as "Board") of the Greatrock North Water and Sanitation District (referred to hereafter as "District") was convened on Tuesday, March 1, 2016 at 5:30 P.M., at United Power, 500 Cooperative Way, Brighton, Colorado. The meeting was open to the public.

#### ATTENDANCE

#### Directors In Attendance Were:

Robert W. Fleck  
John D. Wyckoff  
Jeffrey Polliard (for a portion of the meeting)  
Brian K. Rogers  
Dave Lozano

#### Also In Attendance Were:

Lisa A. Johnson; Special District Management Services, Inc.

Jennifer Gruber Tanaka, Esq.; White Bear Ankele Tanaka & Waldron, P.C.

Brad Simons; TZA Water Engineers

Layne Johnson; Resident at 16380 Queensview Street (for a portion of the meeting)

Don Adamski; Resident at 16685 Stroilaway Street

Ron Gerrans; GeoLens (for a portion of the meeting)

Shane Bergman; Tamarack Consulting, LLC (for a portion of the meeting)

#### DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST

Disclosures of Potential Conflicts of Interest: Ms. Johnson advised the Board that, pursuant to Colorado law, certain disclosures may be required prior to taking official action at the meeting. Ms. Johnson confirmed that disclosures of conflicts of interest were filed with the Secretary of State's Office and the Board at least 72 hours prior to the meeting for those Directors with potential conflicts of interest. The Board reviewed the Agenda for the meeting, following which, Directors Fleck, Polliard, Lozano, Rogers and Wyckoff each confirmed that they had no additional conflicts of interest in connection with any of the matters listed on the

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Agenda.

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### COMMUNITY COMMENTS

**Public Comment:** Layne Johnson addressed the Board. He was interested in obtaining additional information regarding the planned improvements at the Box Elder Creek Ranch Facility. Mr. Simons had spoken with Mr. Johnson prior to the meeting regarding the Altela improvements. Ms. Johnson informed Mr. Johnson that the District's plans to make improvements are on hold at the current time due to a dispute between Altela and Arizona State University regarding an intellectual property issue. Mr. Johnson then discussed his plans to make improvements on his property which borders the District's facility in Box Elder Creek Ranch.

Don Adamski addressed the Board regarding questions related to the current mill levy and recent increase in water service charges. Attorney Tanaka explained the financial structure of the District and the process the Board completes each year to set the water service charges and rates for the next year.

Director Polliard left the meeting at this time.

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### ADMINISTRATIVE MATTERS

**Agenda:** Ms. Johnson distributed for the Board's review and approval a proposed Agenda for the District's regular meeting.

Following discussion, upon motion duly made by Director Wyckoff, seconded by Director Rogers and, upon vote, unanimously carried, the Agenda was approved.

**Board of Directors' Report:** Director Wyckoff reported that the culverts at the Box Elder Creek Ranch facility are in the process of being cleaned out. Redman Pothole Services is conducting this work.

Director Wyckoff also mentioned that Mr. Redman would like to purchase hydrant water from the District for use with his personal business. Ms. Johnson will work with Mr. Redman to collect the deposit and issue a hydrant meter.

**Manager's Report:** Ms. Johnson presented and the Board reviewed the March Manager's Report. A copy of the report is attached hereto and incorporated herein by this reference.

**Request from Mr. and Mrs. Vogel Regarding Waiver of Water Fees:** The Board considered the request from Mr. and Mrs. Vogel regarding a waiver of water fees. Ms. Johnson reported that the meter at the property was removed and taken to National Meter and Automation to conduct a meter bench test and the meter passed the test, no issues with the measuring device was detected.

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The Board discussed the request and information and determined to charge the customer for the water used at the lowest tiered rate of \$4.50 per thousand gallons of water and directed Ms. Johnson to communicate this decision to Mr. and Mrs. Vogel.

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**CONSENT AGENDA**    **Consent Agenda:** The Board considered the following actions:

- Approve Minutes of the December 1, 2015 regular meeting.
- Ratify approval of payment of claims through the period ending December 8, 2015, as follows:

General Fund	\$ 80,996.45
Debt Service Fund	\$ -0-
<u>Capital Projects Fund</u>	<u>\$ -0-</u>
<b>Total Claims:</b>	<b><u>\$ 80,996.45</u></b>

- Ratify approval of payment of claims through the period ending January 15, 2016, as follows:

General Fund	\$ 29,755.47
Debt Service Fund	\$ 150.00
<u>Capital Projects Fund</u>	<u>\$ -0-</u>
<b>Total Claims:</b>	<b><u>\$ 29,905.47</u></b>

- Ratify approval of payment of claims through the period ending February 17, 2016, as follows:

General Fund	\$ 26,328.71
Debt Service Fund	\$ 200.00
<u>Capital Projects Fund</u>	<u>\$ -0-</u>
<b>Total Claims:</b>	<b><u>\$ 26,528.71</u></b>

- Review operations and maintenance update and monthly work orders for the period January through March
- Review monthly water quality report for the period January through March
- Monthly water meter installations for the period January through March
- Approval of Resolution 2016-03-01 Designating 24-Hour Posting Location

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- Approval of an Independent Contractor Agreement with Ramey Environmental Compliance for 2016 Operator in Responsible Charge Services
- Approval of the First Addendum to Independent Contractor Agreement for Renewable Water Supply Acquisition Services with Bishop-Brogden Associates, Inc. related to hourly rate changes
- Approval of the First Addendum to Independent Contractor Agreement for Water Rights Engineering Services with Bishop-Brogden Associates, Inc. related to hourly rate changes

Following discussion, upon motion duly made by Director Wyckoff, seconded by Director Rogers and, upon vote, unanimously carried, the Board approved the consent agenda items.

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### FINANCIAL MATTERS

**December 31, 2015 Revised Unaudited Financial Statements:** Ms. Johnson presented and the Board reviewed the December 31, 2015 Revised unaudited financial statements and schedule of cash position.

Following discussion, upon motion duly made by Director Wyckoff, seconded by Director Lozano and, upon vote, unanimously carried, the Board accepted the cash position schedule and Revised unaudited financial statements through the period ending December 31, 2015.

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### WATER MATTERS

**Pending Water Court Cases:** Ms. Johnson gave a brief update on the District's pending water court cases.

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### ENGINEER'S REPORT

**Engineer's Report:** Mr. Simons presented the Engineer's Report to the Board. A copy of the report is attached hereto and is incorporated herein by this reference.

**Status of Greatrock North Pump Station Project:** Mr. Simons updated the Board on the status of the design of the pump station. He plans to advertise for bids early in March and the Board will consider award of a contract at the April meeting.

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### OPERATIONS/ MAINTENANCE MATTERS

**GIS Mapping:** Mr. Simons reported that two consultants will present GIS technology to the Board.

Mr. Ron Gerrans with GeoLens gave a PowerPoint presentation on the GIS Services provided by his firm. The Board reviewed the presentation and asked

## RECORD OF PROCEEDINGS

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questions.

Mr. Gerrans then left the meeting.

Mr. Shane Bergman with Tamarack Consulting, LLC gave a PowerPoint presentation on the GIS services provided by his firm. The Board reviewed the presentation and asked questions.

The Board directed staff to schedule a meeting with Director Wyckoff, Mr. Bergman, Mr. Simons, and Ms. Johnson to discuss in more detail the GIS needs of the District. Mr. Bergman will then submit an estimate of cost to create and maintain a GIS database for the District.

**Independent Contractor Agreement with Worth Hydrochem of Oklahoma, Inc.:** The Board reviewed a proposal and Independent Contractor Agreement with Worth Hydrochem of Oklahoma, Inc. for annual onsite analysis, service and check of reverse osmosis system and related equipment in the amount of \$1,270.

Following discussion, upon motion duly made by Director Rogers, seconded by Director Wyckoff and, upon vote, unanimously carried, the Board approved an Independent Contractor Agreement with Worth Hydrochem of Oklahoma, Inc. for annual onsite analysis, service and check of reverse osmosis system and related equipment in the amount of \$1,270.

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### **LEGAL MATTERS**

**Status of May 3, 2016 Election:** The District received two self-nomination and acceptance forms, one from Rob Fleck and one from Brian Rogers. The election has been cancelled and Director Fleck and Director Rogers have been deemed elected by acclamation and will take their oaths of office shortly after May 3, 2016 and will each serve 4 year terms.

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### **OTHER BUSINESS**

**Other Business:** There was no other business.

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### **ADJOURNMENT**

There being no further business to come before the Board at this time, upon motion duly made, seconded and, upon vote, unanimously carried, the meeting was adjourned.

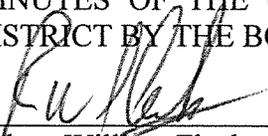
Respectfully submitted,

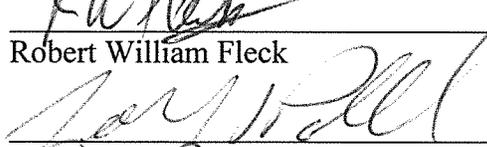
By  \_\_\_\_\_  
Secretary for the Meeting

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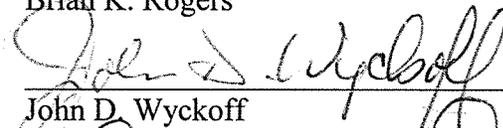
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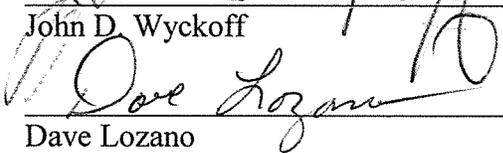
THESE MINUTES APPROVED AS THE OFFICIAL MARCH 1, 2016  
MINUTES OF THE GREATROCK NORTH WATER AND SANITATION  
DISTRICT BY THE BOARD OF DIRECTORS SIGNING BELOW:

  
\_\_\_\_\_  
Robert William Fleck

  
\_\_\_\_\_  
Jeffrey L. Polliard

\_\_\_\_\_  
Brian K. Rogers

  
\_\_\_\_\_  
John D. Wyckoff

  
\_\_\_\_\_  
Dave Lozano



Date: February 23, 2016  
To: Greatrock North Water and Sanitation District, Board of Directors  
From: Lisa A. Johnson, District Manager  
Re: March 1, 2016 Manager's Report

**Agenda Action Items**

**II.A. Consent Agenda**

1. Review and approve the Minutes of the December 1, 2015 regular meeting.
2. Consider ratifying approval of payment of claims through the period ending December 8, 2015, January 15, 2016 and February \_\_\_\_, 2016.
3. Operations and Maintenance update and monthly work orders for the period January through March 2016.
4. Review monthly water quality report for the period January through March 2016.
5. Review monthly water meter installations for the period January through March 2016.
6. Consider adoption of Resolution No. 2016-03-01 Designating Posting Locations.
7. Approval of ICA with REC for Operator in Responsible Charge Services.
8. Approval of First Addendum to ICA with Bishop-Brodgen & Associates, Inc. for Renewable Water Supply Acquisition Services related to hourly rate changes.
9. Approval of First Addendum to ICA with Bishop-Brodgen & Associates, Inc. for Water Rights Engineering Services related to hourly rate changes.

**I recommend approval of the consent agenda items.**

**III.A. December 31, 2015 Revised Financial Statements**

I will present the December 31, 2015 Revised unaudited financial statements to the Board at the meeting.

**I recommend acceptance of the December 31, 2015 Revised unaudited financial statements.**

**VI.B. Proposal from Worth Hydrochem of Oklahoma, Inc.**

Mr. Rabas has solicited a proposal from Worth Hydrochem of Oklahoma, Inc. for annual onsite analysis, service and check of reverse osmosis system and related equipment. Proposal amount is \$1,250.00 including travel to Denver.

**I recommend approval of the proposal from Worth Hydrochem of Oklahoma, Inc. in the amount of \$1,250.00.**

**Review of monthly Water Resumes and Other Water Related Matters**

Attorney Poznanovic reviewed the December resume, and did not find any cases that he thinks the District would have an interest in opposing.

**Summary of Mid-Month Meeting**

Directors Fleck and Wyckoff, Mr. Simons and I did not meet for a mid-month meeting in February.



**Ramey Environmental Compliance, Inc.**  
Management and Operation Solutions for  
Water and Wastewater Treatment  
**303-833-5505**

PO Box 99, Firestone, Colorado 80520  
email: [contact.us@RECinc.net](mailto:contact.us@RECinc.net)  
[www.RECinc.net](http://www.RECinc.net)

**Greatrock North W & S District  
Monthly Activities  
November 16<sup>th</sup> – December 11<sup>th</sup>**

**11/16/15:** Regular checks and readings. Concentrate tank conductivity = 4446; pH = 8.19.

**11/17/15:** Responded several times to alarms and power issues from the snow storm.

**11/18/15:** Regular checks and readings. Concentrate tank conductivity = 4437; pH = 8.24. Completed locates at: 29750 E 167<sup>th</sup> Ave, 31425 E 162<sup>nd</sup> Ave and 16655 Stroilway St.

**11/20/15:** Regular checks and readings. Checked the oil and fuel levels in all of the generators. Completed locates at: 28285 E 160<sup>th</sup> Ave and 166<sup>th</sup> Ave & Hudson Rd.

**11/21/15:** Operator responded to power issues at RHF's pump station. Power issue had solved itself and pumps were running normal.

**11/23/15:** Regular checks and readings.

**11/25/15:** Regular checks and readings. Completed a locate at 16530 Umpire Ct.

**11/27/15:** Regular checks and readings.

**11/30/15:** Regular checks and readings. Replaced a leaking chlorine fitting at 16480 Umpire St.

**12/2/15:** Regular checks and readings. Completed locates at: 29500 E 160<sup>th</sup> Ct and 28660 E 163<sup>rd</sup> Pl. Changed the valving to send RO concentrate to the south pond.

**12/3/15:** Mike and Randy onsite to install valve covers at pump stations. Completed all of Greatrock North. Rocky Horse Farms is complete other than unable to locate the bypass or insulation valve upstream of the treated water meter vault. All of Boxelder complete other than the 8 valves behind the RO building. Assume 6 of the valves may be abandoned.

**12/7/15:** Regular checks and readings.

**12/9/15:** Regular checks and readings. Collected and delivered samples from Alluvial wells #1 and #2. Provided pictures of the screen and process control to Brad and Earl, with Worth Hydro.

**12/11/15:** Regular checks and readings. Completed a locate at 16380 Queensview.

**Status of valve box inserts and markers project – *Completed***

**November 13<sup>th</sup> – December 11<sup>th</sup>**

RO Run Time Hrs	113.30 hrs
RO Concentrate Flow – 1 pond (North)	197,142 gallons

**11/9/15**

Monthly Testing	TDS(mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Total Hardness(mg/L)
BE	275	19.8	3.4	63.5
RHF	346	32.0	5.7	103.3
GRN	320	25.5	4.4	82.0



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**Greatrock North W & S District  
Monthly Activities  
December 14<sup>th</sup> – January 22<sup>nd</sup>**

**12/14/15: (1.35hrs)** Regular checks and readings. Collected and delivered monthly samples.

**12/16/15: (1.07hrs)** Regular checks and readings.

**12/18/15: (2.05hrs)** Regular checks and readings.

**12/21/15: (1.53hrs)** Regular checks and readings. Completed a locate at: 30355 E 166<sup>th</sup> Ave.

**12/23/15: (2.20hrs)** Regular checks and readings. Checked fuel level on all generators = 75% plus. Collected and delivered samples for TDS and Hardness from each pump station.

**12/25/15: (1.07hrs)** Regular checks and readings.

**12/28/15: (1.80hrs)** Regular checks and readings.

**12/30/15: (3.18hrs)** Regular checks and readings. Completed locates at: 31645 162<sup>nd</sup> Ave and 31380 162<sup>nd</sup> Ave.

**12/31/15: (1.72hrs)** Regular checks and readings.

**1/4/16: (2.12hrs)** Regular checks and readings. Collected and delivered monthly samples.

**1/6/16: (1.32hrs)** Regular checks and readings. RO run timer is set to 240 minutes.

**1/8/16: (2.83hrs)** Regular checks and readings.

**1/11/16: (2.15hrs)** Regular checks and readings. Collected and delivered TDS and Hardness samples from each pump station.

**1/13/16: (1.80hrs)** Regular checks and readings. Collected and delivered annual samples. Checked the level of the north pond.

**1/15/16: (2.12hrs)** Regular checks and readings. Checked the fuel and oil levels in all of the generators.

**1/18/16: (1.27hrs)** Regular checks and readings.

**1/20/16: (1.95hrs)** Regular checks and readings. Completed a locate at: 28285 E 160<sup>th</sup> Ave.

1/22/16: (3.63hrs) Regular checks and readings. Flushed the fire hydrant on Kenuil Ct.

**Dec 11<sup>th</sup> – January 22<sup>nd</sup>**

RO Run Time Hrs	198.40 hrs
RO Concentrate Flow – 1 pond (North)	345,216 gallons

**12/23/15**

Monthly Testing	TDS(mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Total Hardness(mg/L)
BE	247	14.4	2.4	45.9
RHF	290	19.8	3.4	63.3
GRN	276	16.4	2.7	52.0

**1/11/16**

Monthly Testing	TDS(mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Total Hardness(mg/L)
BE	278	15.7	2.6	49.7
RHF	266	17.3	3.0	55.4
GRN	243	20.7	3.7	67.0

**Completed Work Order List Report**

12/14/2015

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<b>Completed</b>	<b>Equipment Number</b>	<b>Task</b>	<b>Priority</b>	<b>WO#</b>	<b>Type</b>
12/9/2015	ALV-1 Well	EDOP Sampling	1	553.01	Scheduled
12/9/2015	ALV-2 Well	EDOP Sampling	1	554.01	Scheduled
12/4/2015	BOX Generator	Ck Fuel Check Fuel Level	5	586.01	Scheduled
12/4/2015	GN Generator	Ck Fuel Check Fuel Level	5	587.01	Scheduled
12/4/2015	RHF Generator	Ck Fuel Check Fuel Level	5	589.01	Scheduled
12/2/2015	BOX Generator	Ck Fuel Check Fuel Level	5	571.01	Scheduled
11/30/2015	BOX BP1 VFD	Clean Eqp Clean Equipment	5	568.01	Scheduled
11/30/2015	BOX BP2 VFD	Clean Eqp Clean Equipment	5	569.01	Scheduled
11/30/2015	BOX BP3 VFD	Clean Eqp Clean Equipment	5	570.01	Scheduled
11/20/2015	BOX Generator	Ck Oil Check Oil Level(069)	5	572.01	Scheduled
11/20/2015	GN Generator	Ck Oil Check Oil Level(069)	5	574.01	Scheduled
11/20/2015	GN Generator	Ck Fuel Check Fuel Level	5	573.01	Scheduled
11/20/2015	RHF Generator	Ck Oil Check Oil Level(069)	5	576.01	Scheduled
11/20/2015	RHF Generator	Ck Fuel Check Fuel Level	5	575.01	Scheduled



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**Greatrock North W & S District  
 Monthly Activities  
 January 25<sup>th</sup> – February 19<sup>th</sup>**

**1/25/16: (1.20hrs)** Regular checks and readings.

**1/27/16: (2.17hrs)** Regular checks and readings.

**1/29/16: (1.82hrs)** Regular checks and readings.

**2/1/16: (1.42hrs)** Regular checks and readings.

**2/3/16: (2.20hrs)** Regular checks and readings. Power was off at Boxelder, upon arrival. The power was back on and generator off before departure.

**2/5/16: (2.20hrs)** Regular checks and readings.

**2/8/16: (2.37hrs)** Regular checks and readings. Collected and delivered monthly samples.

**2/10/16: (3.03hrs)** Regular checks and readings. Collected and delivered Total hardness and TDS samples.

**2/12/16: (3.43hrs)** Regular checks and readings. Completed a water line inspection at 16380 Queensview St. Checked the fluid levels in all generators. Swept the floor at Boxelder Well House.

**2/15/16: (1.22hrs)** Regular checks and readings.

**2/17/16: (1.67hrs for regular checks)** Regular checks and readings. Randy Meyer onsite with Cummins Rocky Mtn for generator annual maintenance.

**2/19/16: (2.72hrs)** Regular checks and readings. Completed a locate at 31355 166<sup>th</sup> Ave.

**January 22<sup>nd</sup> – February 19<sup>th</sup>**

RO Run Time Hrs	90.90 hrs
RO Concentrate Flow – 1 pond (North)	158,166 gallons

**2/10/16**

Monthly Testing	TDS(mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Total Hardness(mg/L)
BE	422	42.4	7.1	134.8
RHF	324	27.7	4.8	88.9
GRN	337	30.6	5.0	97.1

**Completed Work Order List Report**

1/25/2016

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<b>Completed</b>	<b>Equipment Number</b>	<b>Task</b>	<b>Priority</b>	<b>WO#</b>	<b>Type</b>
1/13/2016	Water Sampling 011	Nitrate Nitrate Sampling(069)	1	605.01	Scheduled
1/13/2016	Water Sampling 011	VOC's VOC's	1	597.01	Scheduled
1/11/2016	Boxelder Pump Buildi	TDS and Hardness	1	598.01	Scheduled
1/11/2016	GRN Pump Building	TDS and Hardness	1	598.03	Scheduled
1/11/2016	RHF Building	TDS and Hardness	1	598.02	Scheduled
1/4/2016	Water Sampling	Bacti Bacti Sampling(069)	1	606.01	Scheduled
12/23/2015	Boxelder Pump Buildi	TDS and Hardness	1	582.01	Scheduled
12/23/2015	GRN Pump Building	TDS and Hardness	1	582.03	Scheduled
12/23/2015	RHF Building	TDS and Hardness	1	582.02	Scheduled
12/15/2015	GN Dist Valves	Exercise Exercise Valves	3	591.01	Scheduled
12/14/2015	Water Sampling	Bacti Bacti Sampling(069)	1	590.01	Scheduled

**GREATROCK NORTH WATER AND SANITATION DISTRICT  
ENGINEER'S REPORT  
FEBRUARY 23, 2016**

**Concentrate Management**

On December 2, 2015, Ramey Environmental Compliance closed the valve to the north concentrate pond and opened the valve to the south concentrate pond. The valve between the two ponds remains closed. At the time the valves were changed, the north pond had approximately six inches to eight inches of freeboard and the south pond had a pond level recording of 2.23 feet. Since the valves were changed, the south pond has risen to a level recording of 3.32 feet as of February 23, 2016. From December 15 to January 6, the RO unit was programmed to run a maximum of 8 hours each day and the pond level raised an average of 0.020 feet per day. On January 6, Jeff Rabas reduced the maximum run time to 4 hours per day and since the pond level raised an average of 0.010 feet per day. We have worked with Ramey Environmental Compliance to implement a predictive model that will help to manage the South pond level while targeting our water quality goals for total dissolved solids and hardness. Below is information from the first month of data collection.

Date	Location	TDS (lab)	Hardness (lab)	Conductivity (field)
02/10/16	RHF Tank	324 mg/l	88.9 mg/l	541 micromho/cm
02/10/16	GN Tank	337 mg/l	97.1 mg/l	567 micromho/cm
02/10/16	BEER Tanks	422 mg/l	134.8 mg/l	578 micromho/cm

**Greatrock North Pump Station Improvements**

Our electrical subconsultant has initiated their subconsultant services and is finalizing the power distribution plan for the new pump station. We will also be developing the instrumentation and control logic in conjunction with Ramey Environmental Compliance and Timber Line Electric and Control Corporation. We are planning to publish a notice and invitation to bid in early March and will receive bids in advance of the April Board meeting. We will bring a recommendation of award to the Board meeting in April and anticipate conducting the pre-construction meeting in May. Substantial completion of the construction is scheduled for September, with a final completion target of October of 2016.

**LAMP RYNEARSON COMPANIES**

**Engineer's Report**  
**February 23, 2016**

**Reverse Osmosis Water Treatment Plant Monitoring**

TZA is monitoring the performance of the Osmonics reverse osmosis unit following Worth Hydrochem's service call in October of 2015. The new membranes were installed on October 28, 2015.

Date	Rejection (%)	Diff. Pressure (psi)	Feed Water Temp. (F)	Recovery (%)	RO Pump Hours
10/29/2015	99.4	31	58.9	79.3	1293.1
12/09/2015	99.3	32	53.6	78.6	1506.8
01/15/2016	99.2	31	54.4	79	1689.1
February 2016	Data Pending				

**Other Activities**

Altela, Inc. – No update.

Water Quality and Hardness – Below are tables summarizing the water production data, water quality results, and water treatment plant observations.

Month	RO Permeate	Unfiltered UKA Water	Unfiltered ALV Wells
February (02/22/16)	37%	38%	25%
January (01/20/16)	42%	38%	20%
December (12/14/15)	51%	38%	11%
November (11/21/15)	52%	38%	10%
October (10/25/15)	25%	36%	39%
September (09/20/15)	17%	34%	49%
August (08/24/15)	10%	33%	57%
July (07/19/15)	17%	35%	48%
June (06/28/15)	23%	37%	40%
May (05/25/15)	39%	42%	19%
April (04/27/15)	37%	39%	24%
March (03/22/15)	41%	40%	19%

**Engineer's Report**  
**February 23, 2016**

<b>Total Dissolved Solids (TDS)</b>			
<b>Date</b>	<b>BECR Tanks</b>	<b>RHF Tank</b>	<b>GN Tank</b>
02/10/16	422 mg/l	324 mg/l	337 mg/l
01/11/16	278 mg/l	266 mg/l	243 mg/l
12/14/15	247 mg/l	290 mg/l	276 mg/l
11/09/15	275 mg/l	346 mg/l	320 mg/l
10/14/15	414 mg/l	406 mg/l	385 mg/l
09/09/15	470 mg/l	471 mg/l	495 mg/l
08/19/15	469 mg/l	500 mg/l	482 mg/l
07/10/15	417 mg/l	449 mg/l	468 mg/l
06/11/15	369 mg/l	350 mg/l	341 mg/l
05/11/15	401 mg/l	347 mg/l	366 mg/l
04/13/15	386 mg/l	326 mg/l	322 mg/l
March 2015	274 mg/l	324 mg/l	302 mg/l
02/02/15	350 mg/l	394 mg/l	383 mg/l
01/14/15	350 mg/l	394 mg/l	417 mg/l
12/03/14	417 mg/l	552 mg/l	511 mg/l
10/01/14	538 mg/l	603 mg/l	594 mg/l
07/11/14	565 mg/l	597 mg/l	599 mg/l
03/05/14	586 mg/l	543 mg/l	566 mg/l
01/08/14	553 mg/l	559 mg/l	575 mg/l
10/28/13	677 mg/l	643 mg/l	594 mg/l

The total hardness results tabulated below generally reflect a moderately hard water as of February of 2016:

<b>Total Hardness (as CaCO3)</b>			
<b>Date</b>	<b>BECR Tanks</b>	<b>RHF Tank</b>	<b>GN Tank</b>
02/10/16	134.8 mg/l	88.9 mg/l	97.1 mg/l
01/11/16	49.7 mg/l	55.4 mg/l	67.0 mg/l
12/14/15	45.9 mg/l	63.3 mg/l	52.0 mg/l
11/09/15	63.5 mg/l	103.3 mg/l	82.0 mg/l
10/14/15	134.1 mg/l	117.2 mg/l	118.7 mg/l
09/09/15	152.6 mg/l	164.3 mg/l	158.4 mg/l
08/19/15	159.1 mg/l	175.6 mg/l	173.1 mg/l
07/10/15	136.2 mg/l	158.8 mg/l	156.5 mg/l
06/11/15	92.0 mg/l	78.0 mg/l	80.1 mg/l
05/11/15	84.8 mg/l	72.6 mg/l	73.9 mg/l
04/13/15	99.6 mg/l	67.7 mg/l	68.6 mg/l
March 2015	53.7 mg/l	68.3 mg/l	59.1 mg/l
02/02/15	83.4 mg/l	113.8 mg/l	104.6 mg/l
01/14/15	105.2 mg/l	123.0 mg/l	111.7 mg/l
12/03/14	115.3 mg/l	194.5 mg/l	169.8 mg/l
10/01/14	188.8 mg/l	231.7 mg/l	225.6 mg/l
07/11/14	221.5 mg/l	222.7 mg/l	220.4 mg/l
05/16/14	165.2 mg/l	209.6 mg/l	198.1 mg/l

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For comparison, hardness values are generally classified as:

Classification	Mg/l
Soft	0 – 60
Moderately hard	61 – 120
Hard	121 – 180
Very hard	GTE 181

Utility Billings and Energy Costs – TZA is tracking the United Power utility bills and associated water operations on a monthly basis. Below are the annual comparisons for each year. I will return to the monthly reporting format next month.

	2012	2013	2014	2015
Annual KWH	693,583	520,026	333,629	366,737
Annual Billings	\$74,040.05	\$43,316.56	\$28,204.49	\$31,044.16
Average \$/KWH	\$0.10675	\$0.08330	\$0.08454	\$0.08465

- The Rocking Horse Farms pumps were replaced on August 13, 2013
- The Box Elder Creek Ranch pumps were replaced on March 13, 2014

Well, Pump, and Motor Replacements – The District has initiated efforts to better understand its well infrastructure and the potential need for replacement of pumps and motors, as well as the well structures themselves. As a part of that effort, TZA Water Engineers will need to work with Bishop-Brogden Associates to compile the historical aspects of the wells constructed, the pumps installed, and any other improvements (i.e. water level measuring devices) integrated at each site. This information will be used to evaluate the benefits of a pump, motor, and well maintenance program to detect changes in well performance. Early detection of deterioration in well performance will allow less expensive repairs, rehabilitation, or treatment procedures in order to maximize production capacity. This preventative maintenance program will be discussed with the District's Manager, and a formal proposal will be brought to the Board if deemed appropriate.

Warranty Inspections – Here is a summary of recent independent contractor projects:

- Rocking Horse Farms Pump Station – The warranty inspection was conducted by Jeff Rabas on July 18, 2014.
- Box Elder Creek Ranch Pump Station – The warranty inspection was conducted by Brad Simons on January 26, 2015.
- Rocking Horse Farms Tank Repainting – The improvements were inspected and accepted on June 11, 2014. A preliminary warranty inspection was conducted by Ramey Environmental Compliance on April 24, 2015 and Coblaco addressed some minor surface rust and some isolated coating repairs on August 5, 2015.

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Control Valves Evaluation – During the 3<sup>rd</sup> Quarter Operational Review Meeting, conducted on August 17, 2015, it was determined the District should develop a control valve evaluation plan. As the Board may recall, the District contracted with iSiWest in 2014 (July 14-15 and September 19), to inspect and service five (5) control valves, including one (1) at the Box Elder Creek Ranch Pump Station, one (1) at Rocking Horse Farms Pump Station, and three (3) at the Greatrock North Pump Station. On March 6, 2015, the District contracted with Ramey Environmental Compliance’s Equipment Services Division to service one (1) pressure relief valve at the Box Elder Creek Ranch Water Treatment Plant. Since the District has an assortment of valves in a variety of locations throughout the District, REC will update the valve inventory in the Allmax software and work with Lisa Johnson, TZA, and the budget committee to prioritize the efforts for 2016 and beyond. A sample of the valves that could be addressed in the Box Elder Creek Ranch Pump Station are tabulated below. I will request a proposal from iSiWest for servicing these valves.

Valve Location	Valve Type	Valve Size
UKA-3 Check	Cla-Val Hytrol	2”
UKA-3 Air/Vacuum	Val-Matic	1/2”
UKA-3 CRL	Cla-Val Pressure Relief	1/2”
LFH-3 Check	Cla-Val Hytrol	3”
LFH-3 Pressure Relief	Cla-Val Series 50	1-1/2”
LFH-3 CRL	Cla-Val Pressure Relief	1/2”
LFH-3 Air/Vacuum	Cla-Val Series 35	1/2”
Alluvial Wells Air/Vacuum	Cla-Val Series 35	2”