RECORD OF PROCEEDINGS

MINUTES OF A REGULAR MEETING OF THE BOARD OF DIRECTORS OF THE GREATROCK NORTH WATER AND SANITATION DISTRICT HELD JULY 7, 2015

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, July 7, 2015 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
Dave Lozano

Following discussion, upon motion duly made by Director Wyckoff, seconded by Director Polliard and, upon vote, unanimously carried, the absence of Brian K. Rogers was excused.

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

Dawn Schilling; Schilling & Company, Inc.

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. Attorney Tanaka 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 Lozano, Polliard, Fleck, and Wyckoff each confirmed that they had no additional conflicts of interest in connection with any of the matters listed on the Agenda.

RECORD OF PROCEEDINGS

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 Polliard and, upon vote, unanimously carried, the Agenda was approved, as amended.

Board of Directors' Report: There was nothing new to report.

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

CONSENT AGENDA

Consent Agenda: The Board considered the following actions:

- Approve Minutes of the June 2, 2015 regular meeting.
- Ratify approval of payment of claims through the period ending June 10, 2015, as follows:

General Fund	$ 39,328.82
Debt Service Fund	$ 122,485.00
Capital Projects Fund	$ 4,154.40
Total Claims:	**$ 165,968.22**

- Accept cash position schedule and unaudited financial statements through the period ending May 31, 2015.
- Review operations and maintenance update and monthly work orders.
- Review monthly water quality report.

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

Independent Contractor Agreement with Generator Source LLLP: Ms. Johnson presented an independent contractor agreement with Generator Source LLLP for repair of the radiator in the generator at the Rocking Horse Farms Facility. She advised the Board that the contractor has been asked to revise the scope of work to include the electrical work needed to install a temporary generator.

Following discussion, upon motion duly made by Director Polliard, seconded by Director Wyckoff and, upon vote, unanimously carried, the Board approved an Independent Contractor Agreement with Generator Source LLLP subject to the revisions to the scope of work discussed above and not to exceed $7,000.

FINANCIAL MATTERS

2014 Audit: Ms. Schilling reviewed the 2014 draft Audited Financial Statements with the Board.

Following review and discussion, upon motion duly made by Director Polliard, seconded by Director Lozano and, upon vote, unanimously carried, the Board accepted the 2014 Audited Financial Statements and authorized execution of the Representations Letter.

Ms. Schilling left the meeting.

WATER MATTERS

Amended and Restated Water Lease Option Agreement between Box Elder Creek Ranch Water Company ("BECRWC") and the District: Ms. Johnson summarized a memo from Attorney Poznanovic highlighting the modifications to the Amended and Restated Water Lease Option Agreement. The agreement is in final form and the Box Elder Creek Ranch Water Company has agreed to the terms.

Following discussion, upon motion duly made by Director Wyckoff, seconded by Director Polliard and, upon vote, unanimously carried, the Board approved the agreement, subject to cleaning up on the formatting, and directed Ms. Johnson to transmit the agreement to BECRWC.

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.

Concentrate Management:

Status of Pure Water Solutions, Inc. Inspection Report of Reverse Osmosis Unit and Components: Mr. Simons reported that he has received the written report from Pure Water Solutions, Inc. on the results of the inspection of the reverse osmosis unit and components. Mr. Simons is working with Pure Water Solutions, Inc. to better understand the report and recommendations and will present his recommendations to the Board at a future meeting.

Altela System: The Board met in a work session prior to the Board meeting to attend a presentation on the Altela system. Altela Inc. is a reverse osmosis concentrate treatment system that mitigates concentrate disposal and recovers

water for beneficial use. Mr. Simons presented an analysis of the operational costs associated with the use of this technology.

Director Wyckoff informed the Board that after the presentation he asked the Altela representative if they would be interested in entering into a relationship with the district as a flagship entity and if so, what amount of overall capital costs could be reduced with this partnership.

Director Wyckoff and Mr. Simons will meet with Altela representatives to tour the District's facility on July 10, 2015 and they will request a formal proposal from Altela to be presented a future board meeting.

Acquisition of property to expand District facilities: Director Wyckoff presented information he acquired from Meadow Homes regarding the cost to purchase one or two lots should additional space be necessary to construct the Altela system or to expand District operations in the future. Meadow Homes has suggested two lots for potential acquisition by the District. Director Wyckoff will discuss payment options with Meadow Homes to potentially acquire one of the lots.

Greatrock North Pump Station Project: Mr. Simons has contracted with a new structural engineer for this project. He will work with this consultant to address the perimeter drain issues related to this project.

OPERATONS/ MAINTENANCE MATTERS

Status of Curb Stop Project in Rocking Horse Farms, Box Elder Creek Ranch and Greatrock North: Director Wyckoff reported that all of the curb stops have been located and exercised in Rocking Horse Farms and Box Elder Creek Ranch. Redman Pothole Services, LLC was able to complete the entire project and therefore the services from Dan's Custom Construction for this project will no longer be necessary.

The Board then discussed inspecting and exercising the curb stops in Greatrock North. The Board directed operations staff to confirm location of all curb stops within Greatrock North and exercise curb stops if they are located outside of the meter pit. In addition, operations staff is to work with Director Fleck before starting to have GPS coordinates taken at the time of inspection.

Locating of Curb Stop and Meter Pit at 16467 Indian Hills Street: Ms. Johnson reported that Mr. Redman was able to locate the meter pit and exercise the curb stop at 16467 Indian Hills Street just prior to the Board meeting.

Independent Contractor Agreement with Redman Pothole Services, LLC for Utility Locating Services: The Board discussed an agreement with Redman Pothole Services, LLC for locating of District water main and service lines. Director Wyckoff will work with Mr. Redman to obtain a scope of work and fee

schedule for the work.

Field Maintenance Job Description: The Board discussed the job description. They Board committed to review the job description in detail and provide suggestions for revisions to Ms. Johnson prior to the August Board meeting.

LEGAL MATTERS

Legal Matters: There were no legal matters to present.

OTHER BUSINESS

Attendance at the Annual SDA Conference: The Board confirmed the attendance of Directors Wyckoff, Rogers, Polliard and Lozano to attend the 2015 SDA conference to be held September 23 – 25, 2015.

COMMUNITY COMMENTS

Community Comments: Ms. Johnson informed the Board that she recently spoke with a resident who expressed a concern regarding the District's delinquent notice policy. He suggested the Board consider changing the policy to analyze the monthly delinquent accounts to determine first time offenders and to not send notices to those account holders.

The Board reviewed the current policy and determined not to make any changes at this time.

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

RECORD OF PROCEEDINGS

THESE MINUTES APPROVED AS THE OFFICIAL JULY 7, 2015 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

GREATROCK NORTH
WATER & SANITATION DISTRICT

Date: June 29, 2015

To: Greatrock North Water and Sanitation District, Board of Directors

From: Lisa A. Johnson, District Manager

Re: July 7, 2015 Manager's Report

Agenda Action Items

II.A. Consent Agenda

1. June 2, 2015 regular meeting minutes
2. June 10, 2015 Payment of Claims
3. May 31, 2015 Unaudited Financial Statements
4. Operations and Maintenance Update and monthly work orders
5. Water quality Report
6. ICA with Generator Source LLLP for RHF Generator Repair

I recommend approval of the consent agenda items.

III.A. 2014 Audit

Ms. Schilling will attend the July meeting and present the 2014 audited financial statements.

I recommend acceptance of the 2014 audit and recommend execution of the representations Letter.

IV.B. Amended and Restated Water Lease Option Agreement

Attorney Poznanovic, Attorney Tanaka, Mr. Sanchez and I have worked closely with the attorneys for the Box Elder Creek Ranch Water Company ("BECRWC") on the Amended and Restated Water Lease Option Agreement. Directors Wyckoff and Polliard reviewed, provided comments and approved the draft agreement prior to transmitting it to the BECRWC. The attorneys continue to

work through the issues and the goal is to have a final draft document for review and approval at the July meeting.

VI.A. Curb Stop Project

Director Wyckoff worked with Redman Pothole Services and REC daily on the curb stop project. Redman finished their work on Wednesday, June 24th and the project was a success. Director Wyckoff and staff will meet to de-brief regarding the project as soon as possible and to discuss the last remaining curb stops to be exercised by Dan's Custom Construction.

VI.B. Locating Curb Stop and Meter Pit at 16467 Indian Hills Street

There is one remaining curb stop and meter pit in the District (RHF) that has not been located. Efforts to date to locate the curb stop and meter pit have been unsuccessful. Director Wyckoff has made contact with the homeowner and asked them to contact me to schedule a time when District contractors can access the home to aide in locating the facilities. I also drafted and mailed a letter requesting the same access. I initially received a phone call from the homeowner but have not had any success in scheduling a meet. I would like to discuss next steps with the Board and Attorney Tanaka at the meeting.

VI. C. Field Maintenance Technician Job Description

At the last board meeting, the Board directed me to draft a job description for a part-time field maintenance technician. I gathered information regarding this job description from other governmental entities providing water service and tailored it to the District's potential needs. I would like to solicit comments and revisions from the Board at the meeting.

VIII.A. SDA Conference

The annual SDA conference with be held in Keystone, Colorado on September 23, 24 and 25, 2015. Directors Wyckoff, Polliard and Lozano have indicated they would like to attend. Director Fleck will attend with his employer. Director Rogers is checking his availability to attend.

Review of monthly Water Resumes and Other Water Related Matters

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

Summary of mid-month meeting with Directors Fleck and Wyckoff

Director Fleck and Wyckoff, Mr. Simons and I met on June 18, 2015. Topics discussed were as follows:

- Continued discussions on concentrate management efforts.
- Altela system
- Reviewed Pure Water Solutions report and recommendations.

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
www.RECinc.net

Greatrock North W & S District
Monthly Activities
May 25th – June 29th

5/25/15: Regular checks and readings.

5/27/15: Regular checks and readings.

5/29/15: Regular checks and readings. Placed markers beside the concentrate pond isolation. Responded to 16420 Umpire St to check on smell complaint – resident was not home. The North concentration pond level = 17" below the top of the staff gauge.

6/1/15: Regular checks and readings. Exercised valves at Greatrock North well house.

6/3/15: Regular checks and readings.

6/5/15: Regular checks and readings. Repaired a chlorine leak. Mixed RO antiscalent. Check the fuel and oil levels on all generators.

6/8/15: Regular checks and readings. Collected and delivered monthly samples.

6/9/15: Regular checks and readings. Measured the antiscalent feed rate.

6/12/15: Regular checks and readings. Calibrated the conductivity meter. Cleaned off Boxelder Well House shelving.

6/15/15: Regular checks and readings. Temporarily plugged SCADA into extensions cords due to dead batteries on UPS.

6/17/15: Regular checks and readings. Installed new batteries in UPS for SCADA computer.

6/19/15: Regular checks and readings. Exercised valves at Rocking Horse Farms. Installed new RO prefilters.

6/22/15: Regular checks and readings. Completed water service line inspection at 31455 E 162nd Ave.

6/24/15: Regular checks and readings.

6/26/15: Regular checks and readings.

6/11/15 to 6/24/15: *Scott Chambers onsite for curb stop locating and exercising with Cary Redman.*

Operations Maintenance issues:

- **Status of valve box inserts and markers project –** *still in progress*
- **RHF leaking radiator –** *looking for additional direction from Lisa.*

May 22nd to June 29th

RO Run Time Hrs	269.40 hrs
RO Concentrate Flow – 1 pond	533,412 gallons

6/10/15

Monthly Testing	TDS(mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Total Hardness(mg/L)
BE	369	28.6	5.0	92.0
RHF	350	24.4	4.1	78.0
GRN	341	25.2	4.2	80.1

Completed Work Order List Report

Completed	Equipment Number	Task	Priority	WO#	Type
6/17/2015	Boxelder Outside Val	Exercise Exercise Valves	2	503.01	Scheduled
6/10/2015	BOX BP1 VFD	Clean Eqp Clean Equipment	5	499.01	Scheduled
6/10/2015	BOX BP2 VFD	Clean Eqp Clean Equipment	5	500.01	Scheduled
6/10/2015	BOX BP3 VFD	Clean Eqp Clean Equipment	5	501.01	Scheduled
6/10/2015	Boxelder Pump Buildi	TDS and Hardness	1	511.01	Scheduled
6/10/2015	GRN Pump Building	TDS and Hardness	1	511.03	Scheduled
6/10/2015	RHF Building	TDS and Hardness	1	511.02	Scheduled
6/8/2015	Water Sampling	Bacti Bacti Sampling(069)	1	510.01	Scheduled
6/5/2015	BOX Generator	Ck Fuel Check Fuel Level	5	502.01	Scheduled
6/5/2015	GN Generator	Ck Fuel Check Fuel Level	5	506.01	Scheduled
6/5/2015	Pond Aerator	Clean Clean	4	507.01	Scheduled
6/5/2015	RHF Generator	Ck Fuel Check Fuel Level	5	509.01	Scheduled
6/1/2015	GRN Pump Building	Exercise Exercise Valves	2	485.01	Scheduled
6/1/2015	GRN Tank Valves	Exercise Exercise Valves	2	486.01	Scheduled
6/1/2015	Pond Aerator	Clean Clean	4	487.01	Scheduled

TZA Water Engineers
a Lamp Rynearson Company

12596 W. Bayaud Ave., Ste. 330
Lakewood, Colorado 80228
303-971-0030
tza4water.com

GREATROCK NORTH WATER AND SANITATION DISTRICT
ENGINEER'S REPORT
JUNE 30, 2015

Concentrate Management Options

As noted at the April Board meeting, we have shifted our attention from concentrate disposal to concentrate management and are looking at several options. The GridBee mixing equipment to enhance evaporation has been tabled due to questionable case history and additional cost considerations. The beneficial reuse applications by Industrial Water Permitting and Recycling have been placed on hold in light of limited use of any State approvals. Director Wyckoff and I recently reviewed the Altela technology being piloted at the East Cherry Creek Valley water treatment plant. This is the technology that the Directors will review before the next Board meeting on July 7.

Attached (Attachment No. 1) are slides from a PowerPoint presentation Altela provided to the District in July of 2014.

As for the evaporation ponds, the south pond elevation was at 4.66 feet on May 11, 2015 – an estimated 6 inches from overtopping the pond. The valve between the ponds was opened on May 12 to transfer water from south pond to north pond. The south pond was isolated on May 20 with water elevation of 3.86 feet and the concentrate flows were directed to the north pond. The elevation in the south pond on May 25 was 3.83 feet and on June 29 was 3.48 feet. Jeff Rabas is providing the north pond elevations from visual observations of a temporary staff gauge:

Date	Measurement (from top of gauge)
May 20, 2015	18"(+)
June 3, 2015	17"
June 8, 2015	16.5"
June 15, 2015	14"

Attached (Attachment No. 2) is a graph of the recorded south pond levels (2014 and 2015) and the north pond measurements (2015).

Greatrock North Pump Station Improvements

I am working through the structural design issues, including addressing a perimeter drain to address perceived groundwater issues, and have received information from Wayne Cass on the proposed distribution pumps, motors, and drives.

Engineer's Report
June 30, 2015
Page Two

Reverse Osmosis Condition Assessment

Pure Water Solutions conducted a condition assessment on May 27, 2015 and presented its findings and recommendations on June 12. I have reviewed their findings and recommendations with Director Fleck, Director Wyckoff, and Manager Johnson. I will review the information with Jeff Rabas on June 30 and follow-up with a memo summarizing the discussions and presenting my recommendations.

Other Activities

Water Quality and Hardness – Below are tables of water quality data from a series of sampling events:

The total dissolved solids tabulated below show the effects of increased irrigation. The production ratios for the month of June as of June 28, 2015 were approximately:

- 23% reverse osmosis permeate (39% on May 25, 2015)
- 37% unfiltered Upper Arapahoe well water (42% on May 25, 2015)
- 40% unfiltered alluvial (Alluvial Well No. 1) well water (19% on May 25, 2015)

Total Dissolved Solids (TDS)			
Date	BECR Tanks	RHF Tank	GN Tank
June 2015	RESULTS PENDING		
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

Engineer's Report
June 30, 2015
Page Three

The total hardness results tabulated below also reflect improved water quality:

Total Hardness (as CaCO3)			
Date	BECR Tanks	RHF Tank	GN Tank
June 2015	RESULTS PENDING		
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

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

Draft Storage Tank Rule – The Water Quality Control Division has drafted a Storage Tank Rule (https://docs.google.com/file/d/0B0tmPQ67k3NVUzAyd2dEekt5Tnc/edit) are now expected to become effective in April of 2016. In addition to quarterly periodic (visual) inspections, this rule will require comprehensive inspections to be scheduled at least every five years.

Warranty Inspections – Ramey Environmental Compliance is tracking the 11-month warranty inspections for the following 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 I have met with Coblaco to address some minor surface rust. Coblaco has a new Manager of Coating Projects (Greg Smith – 801-707-8572) who is in the process of scheduling the work.

Engineer's Report
June 30, 2015
Page Four

Utility Billings and Energy Costs – TZA is tracking the United Power utility bills and associated water operations on a monthly basis. Below are monthly comparisons, as well as a summary of the four-month periods for 2014 and 2015.

	May 2014 Billings				May 2015 Billings			
	On Peak	Off Peak	KWH	Billing	On Peak	Off Peak	KWH	Billing
Alluvial	2750		2750	$323.45	2809		2809	$330.05
BECR	1520	8800	10320	$777.33	2440	10240	12680	$1,008.06
GN	1120	4880	6000	$495.23	1040	4400	5440	$453.46
RHF	4960	11880	16840	$1,505.07	640	1680	2320	$220.23
		Totals	35910	$3,101.08		Totals	23249	$2,011.80

The 2015 billings for May are 65% of the 2014 billings for the similar period. The difference can be attributed to the use of an augmentation well in May of 2014 at the Rocking Horse Farms facility.

	YTD 2014 Billings (5 months)				YTD 2015 Billings (5 months)			
	On Peak	Off Peak	KWH	Billing	On Peak	Off Peak	KWH	Billing
Alluvial	12009		12009	$1,422.60	11231		11231	$1,335.63
BECR	11360	49920	61280	$4,544.78	12480	56120	68600	$5,373.08
GN	5280	20240	25520	$2,096.60	5600	22840	28440	$2.382.93
RHF	7520	17920	25440	$2,331.35	3240	8160	11400	$1,093.48
		Totals	124249	$10,395.33		Totals	119671	$10185.12

The 2015 year-to-date billings are 98% of the 2014 billings for the similar period and are influenced by the use of an augmentation well in May of 2014 at the Rocking Horse Farms facility and the increase in the CTD2 rate from $0.049 per KWH to $0.05858 per KWH (120% increase).

Curb Stop Box Specification – The recent issues with curb stop boxes witnessed by Director Wyckoff resulted in a review of the District's Rules and Regulations and the boxes specified. TZA's previous recommendations for a screw-style Buffalo-style box having an arch pattern base and an inside diameter of 2.5 inches has been further reinforced with the recommendation the pending revisions to the Rules and Regulations specify a 6500 Series Screw Type curb box, as manufactured by Castings, Inc. (970-243-3032), having a minimum internal diameter of 2.25 inches, or an approved equal. The part number is "C.I. 95-E" and includes a 30" top section and a 39" bottom section allowing for a bury depth of 41 inches to 64 inches. For deeper installations, Castings Inc. offers extensions in 9" (Item 151), 16" (Item 152), 28" (Item 153), and 30" (Item 154) heights.

Engineer's Report
June 30, 2015
Page Five

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.

GREAT ROCK NORTH WATER AND SANITATION DISTRICT

ALTELA, INC.

RO CONCENTRATE TREATMENT:
MITIGATING CONCENTRATE DISPOSAL AND RECOVERING MORE WATER FOR BENEFICIAL USE

July 25, 2014

Great Rock North Water and Sanitation District Assumptions

ALTELA
Treating water naturally.

• Hours per day operational	16
• RO Plant Raw Feed Water gallons per day (gpd)	126,720
• RO Plant Concentrate %	25%
• Concentrate Volume (gpd)	31,680

CONFIDENTIAL

AltelaRain750 Capital Cost and O&M Summary

GREAT ROCK NORTH: RO PLANT CONCENTRATE MANAGEMENT

Capital Expenses

• **Capital Cost AltelaRain750**	**$500,000**
• Est. 150BHP Boiler Cost (not containerized)	$125,000
– (OR est. 150BHP Boiler Cost (containerized)	$150,000)

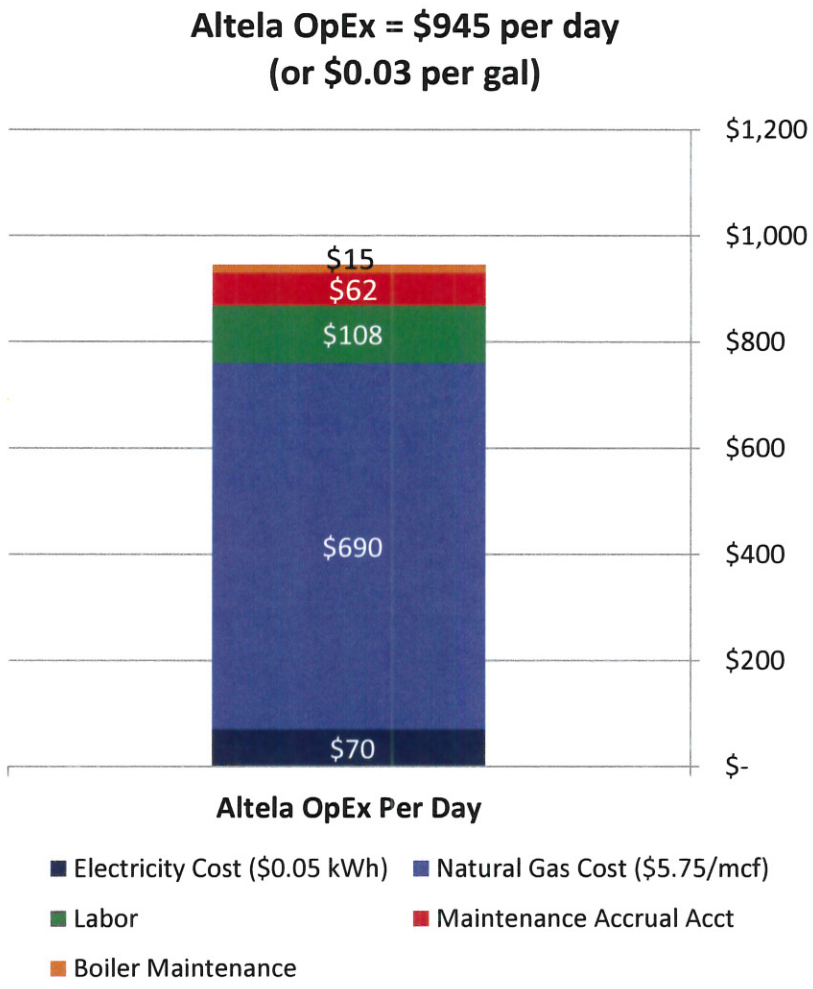
Operating Expenses (Bar Chart at right) **$0.03/gal**

Treatment and Recovery Rates

• Treatment Rate per day (gallons)	31,500
• Estimated permeate recovery % from Great Rock average 4000 tds concentrate	80%
• Estimated permeate recovery gpd	25,200

O&M Info

• Installation duration	7 days
• Boiler size	150 BHP
• Module uptime	98%
• Time required for operator training	40 hours
• Maintenance requirements	
– Monthly preventative, not requiring shutdown	10 hours
– Monthly, requiring shut down (clean sensors, etc)	10 hours

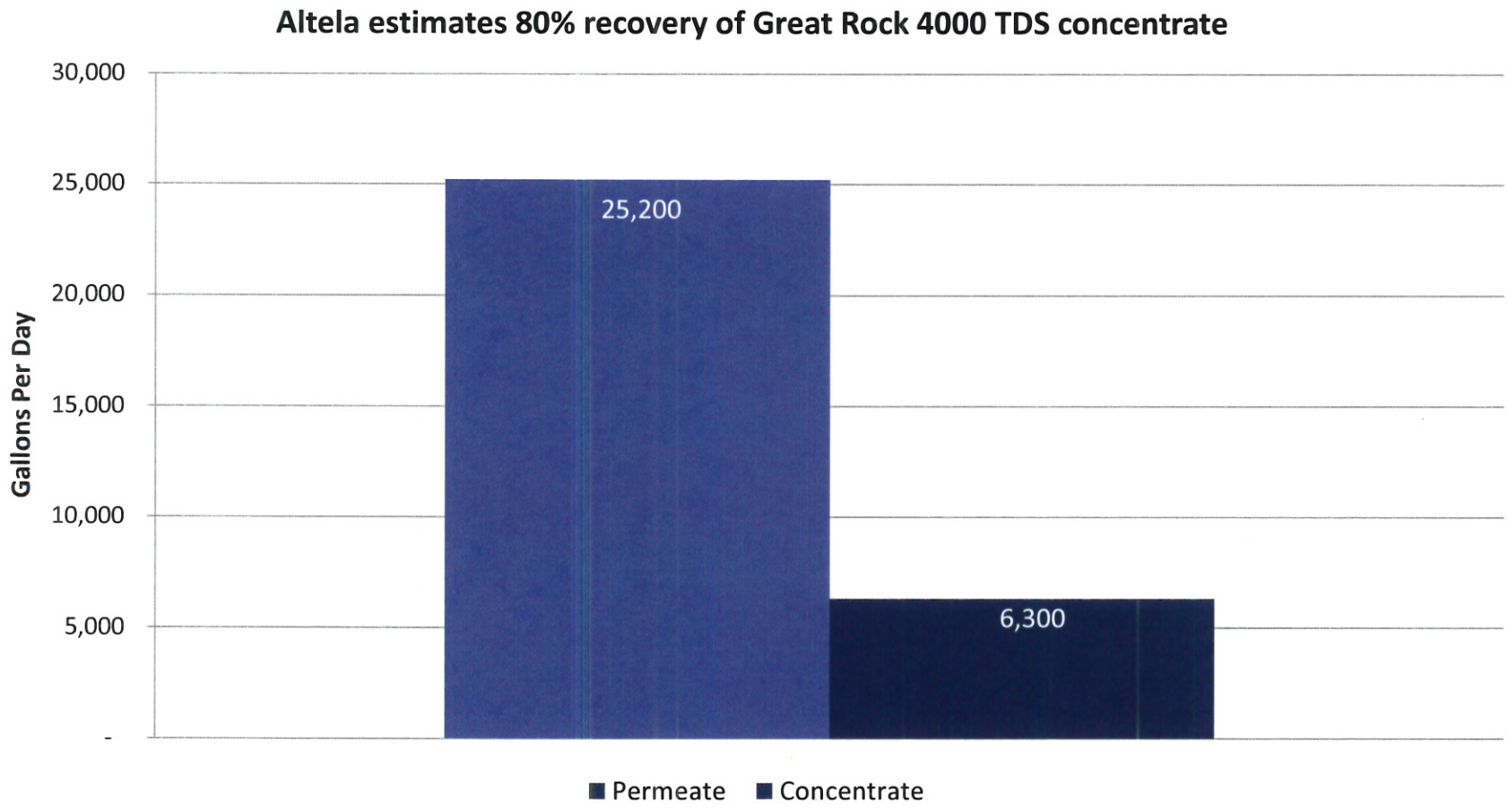


CONFIDENTIAL

Altela recovers more water from concentrate for beneficial use and mitigates disposal volumes and costs

ONE ALTELARAIN750 MODULE TREATS 750 BARRELS OR 31,500 GALLONS PER DAY WITH ESTIMATED RECOVERY RATE OF 80% OF GREAT ROCK NORTH 4000 TDS CONCENTRATE

ALTELA
Treating water naturally



CONFIDENTIAL

ALTELA CONTACT

ALTELA®

Treating water naturally.

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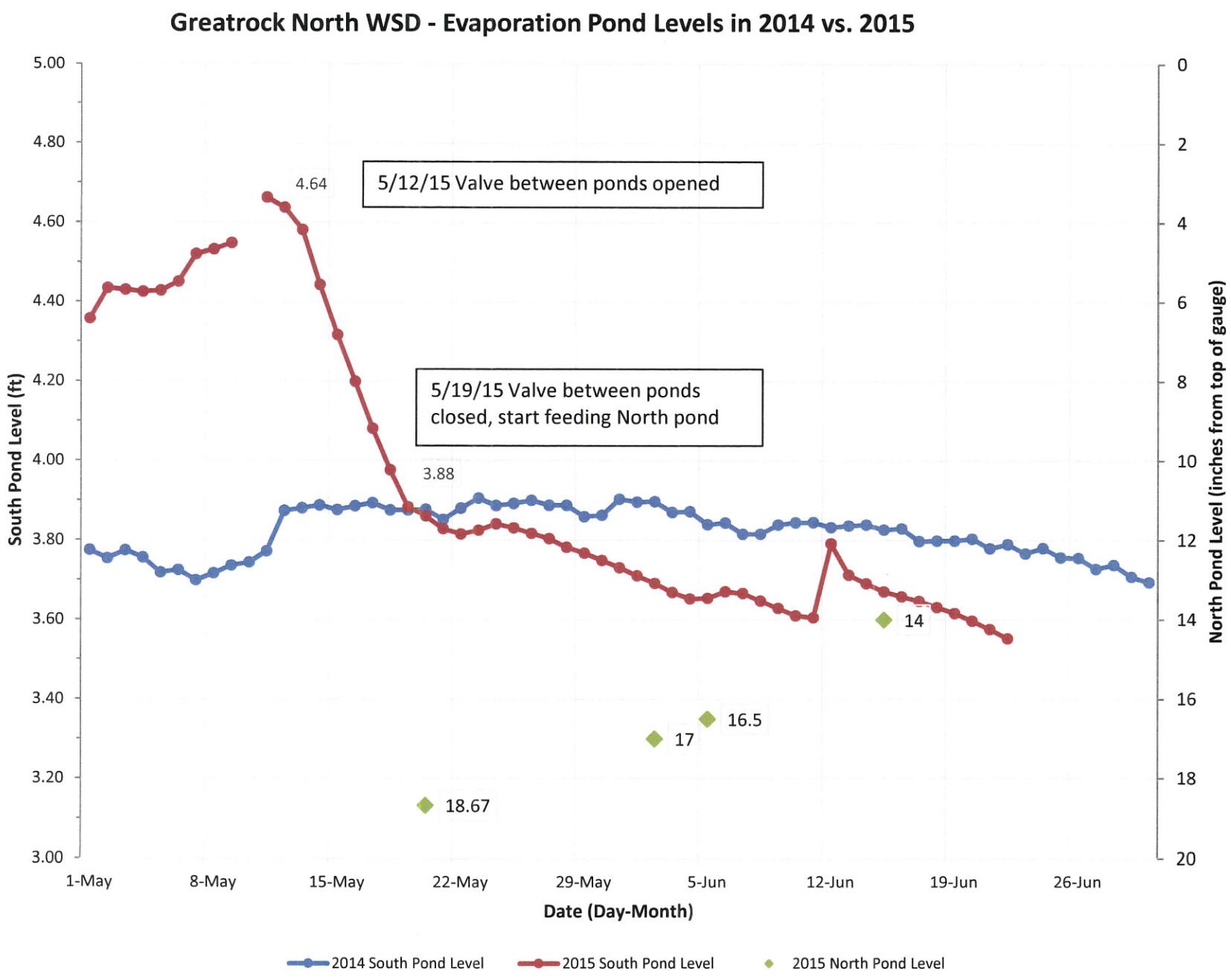
Greatrock North WSD - Evaporation Pond Levels in 2014 vs. 2015
5/12/15 Valve between ponds opened
5/19/15 Valve between ponds closed, start feeding North pond
4.64
3.88
18.67
17
16.5
14
South Pond Level (ft)
North Pond Level (inches from top of gauge)
5.00
4.80
4.60
4.40
4.20
4.00
3.80
3.60
3.40
3.20
3.00
0
2
4
6
8
10
12
14
16
18
20
1-May
8-May
15-May
22-May
29-May
5-Jun
12-Jun
19-Jun
26-Jun
Date (Day-Month)
2014 South Pond Level
2015 South Pond Level
2015 North Pond Level