

# 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 JUNE 4, 2013

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, June 4, 2013 at 5:30 P.M., at United Power, 500 Cooperative Way, Brighton, Colorado. The meeting was open to the public.

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### ATTENDANCE

#### Directors In Attendance Were:

Robert William Fleck  
Jeffrey Polliard  
John D. Wyckoff

Following discussion, upon motion duly made by Director Wyckoff, seconded by Director Polliard and, upon vote, unanimously carried, the absences of Terry Krayenhagen and Brian Rogers were excused.

#### Also In Attendance Were:

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

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

Andrea Bollinger and Josh Cook; Olsson Associates, Inc.

Brad Simons, P.E.; TST Inc. of Denver

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### DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST

Disclosures of Potential Conflicts of Interest: Attorney Tanaka advised the Board that, pursuant to Colorado law, certain disclosures may be required prior to taking official action at the meeting. The Board reviewed the Agenda for the meeting, following which Directors Fleck, Polliard and Wyckoff each confirmed that they had no conflicts of interest in connection with any of the matters listed on the Agenda.

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

**Board of Directors' Report:** Director Wyckoff reported to the Board that Premier Industries ("Premier") has mowed and pulled weeds at the Rocking Horse Farms Facility, the Box Elder Creek Ranch Facility and the Greatrock North Facility. He further reported that Premier notified him that they had experienced a problem with the irrigation pipes at the Box Elder Creek Ranch Facility; someone has turned on the water to the system which caused the pipe to freeze and break. Director Wyckoff noted for the Board that Premier will send him pictures of the broken pipe. Ms. Johnson reported that she will then transmit the information to Ramey Environmental Compliance ("REC") for review.

**Manager's Report:** Ms. Johnson presented and the Board reviewed the June Manager's Report. Following discussion, upon motion duly made by Director Wyckoff, seconded by Director Polliard and, upon vote, unanimously carried, the Board approved the Manager recommendations in the June Manager's Report. A copy of the Manager's Report is attached hereto and is incorporated herein by this reference.

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### CONSENT AGENDA

The Board considered the following actions:

- Approval of the Minutes from the May 7, 2013 regular meeting.
- Ratify acceptance of cash position schedule and unaudited financial statements through the period ending April 30, 2013.

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

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### FINANCIAL MATTERS

**2012 Audit:** It was noted that the 2012 Audit will be presented for Board acceptance at the July meeting.

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### ENGINEER'S REPORT

**Engineer's Report:** Ms. Bollinger presented the May 28, 2013 Engineer's Report to the Board. A copy of the Report is attached hereto and is incorporated herein by this reference.

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The Board gave support for Olsson Associates, Inc. (“Olsson”) to work with the State to determine the blending parameters necessary to blend Reverse Osmosis (“RO”) Concentrate with LFH water and discharge to the stream. It was noted that Olsson will provide a cost estimate for sampling once the parameters have been identified. The Board also gave support to Olsson to attend a meeting in June with the Colorado Department of Public Health and Environment to explore funding opportunities.

Ms. Bollinger reported that she will meet with Mr. Rabas with REC tomorrow and direct him to isolate the RO concentrate to one pond to allow the other pond to evaporate and she will also follow-up with him on reducing the run time of the RO to run as little as possible without having to condition the membranes, etc.

### **Evaporation Ponds:**

Location and Costs to Acquire Land for Third Evaporation Pond: The discussion on the topic is included above.

Reserve Study: Ms. Bollinger presented to the Board the reserve study and provided summarized spreadsheets. Ms. Bollinger reported that she will provide the detailed spreadsheet used to complete the analysis to the Board for review.

### **CAPITAL IMPROVEMENT PROJECTS OPERATIONS AND MAINTENANCE MATTERS**

Capital Improvement Projects: There was nothing new to report.

Operations and Maintenance Update: The Board reviewed the Monthly Activities Report and operations and maintenance update. A copy of the report is attached hereto and incorporated herein by this reference.

It was noted that the fire pumps in the Rocking Horse Farms Facility are not working properly. Ms. Bollinger reported that she is meeting with REC and a representative from Water Technologies on Wednesday to evaluate the issue.

Monthly Flow Report: The Board reviewed the monthly flow report covering April 6, 2013 through May 5, 2013.

Water Quality Issues in Box Elder Creek Ranch and Rocking Horse Farms: The Board reviewed the monthly water quality report.

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### LEGAL MATTERS

**First Addendum to Independent Contractor Agreement between the District and Olsson for Engineering Design and Operations Plan – RO Concentrate Ponds (“First Addendum”)**: The Board discussed the First Addendum.

Following discussion, upon motion duly made by Director Wyckoff, seconded by Director Polliard and, upon vote, unanimously carried, the Board approved the First Addendum.

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### EXECUTIVE SESSION MATTERS

**Engineering Services: EXECUTIVE SESSION:** Pursuant to Section 24-6-402(e), C.R.S., upon motion duly made by Director Wyckoff, seconded by Director Polliard and, upon an affirmative vote of at least two-thirds of the quorum present, the Board convened in executive session at 7:07 p.m. for the purpose of discussions relating to negotiations with third parties, as authorized by Section 24-6-402(4)(e), C.R.S.

Furthermore, pursuant to Section 24-6-402(2)(d.5) (II)(B), C.R.S., no record will be kept of those portions of the executive session that, in the opinion of the District’s attorney, constitute privileged attorney-client communication pursuant to Section 24-6-402(4)(b), C.R.S.

The Board reconvened in regular session at 8:27 p.m.

Following discussion, upon motion duly made by Director Wyckoff, seconded by Director Fleck and, upon vote, carried with Directors Wyckoff and Fleck voting “Yes” and Director Polliard voting no, the Board approved an Agreement with TST Inc. of Denver for General Engineering Services, approved to terminate the General Engineering Services Agreement with Olsson, approved to continue with Olsson to complete the SDF analysis, completion of reserve analysis and finalization of the Engineering Design and Operations Plan.

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### WATER MATTERS

**Water Matters:** There was nothing new to report.

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### OTHER BUSINESS

**District Website:** It was noted that the District’s website creation is in process. Due to a conflict with the training process, SIPA will be providing District staff with a training video once the website platform is complete.

**Grant Funding Research:** It was noted that District staff will continue to monitor grant funding opportunities.

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**2013 SDA Conference:** Ms. Johnson discussed having Board members attend the 2013 SDA Conference.

Following discussion, the Board authorized all interested Board members to attend the 2013 SDA Conference.

**COMMUNITY  
COMMENTS**

**Community Comments:** There were no community comments.

**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.

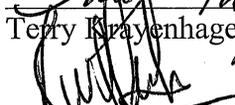
Respectfully submitted,

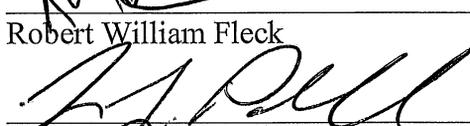
By

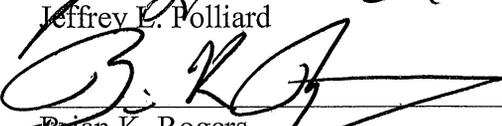
  
Secretary for the Meeting

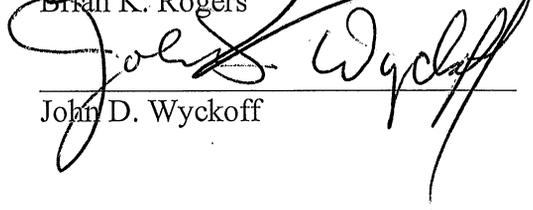
THESE MINUTES APPROVED AS THE OFFICIAL JUNE 4, 2013 MINUTES OF THE GREATROCK NORTH WATER AND SANITATION DISTRICT BY THE BOARD OF DIRECTORS SIGNING BELOW:

  
Terry Krayenhagen

  
Robert William Fleck

  
Jeffrey E. Polliard

  
Brian K. Rogers

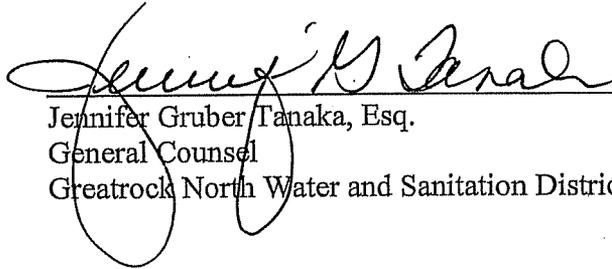
  
John D. Wyckoff

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### ATTORNEY STATEMENT

Pursuant to §24-6-402(2)(d.5)(II)(B), C.R.S., I attest that, in my capacity as the attorney representing the Greatrock North Water and Sanitation District, I attended the executive session convened on June 4, 2013 for the sole purpose of discussing matters subject to negotiation with third parties and matters seeking legal advice, as authorized by §§24-6-402(4)(b) and (e), C.R.S. I further attest that it is my opinion that a portion of the executive session discussion constituted attorney-client privileged communication as provided by §24-6-402(4)(b), C.R.S., and, based on that opinion, no further record, written or electronic, was kept or required by be kept pursuant to §24-6-402(2)(d.5)(II)(B), C.R.S.



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Jennifer Gruber Tanaka, Esq.  
General Counsel  
Greatrock North Water and Sanitation District



Date: May 28, 2013  
To: Greatrock North Water and Sanitation District, Board of Directors  
From: Lisa A. Johnson, District Manager  
Re: June 4, 2013 Manager's Report

**Agenda Action Items**

**II. A. Consent Agenda**

1. May 7, 2013 Regular Meeting Minutes.
2. Financial statements ending April 30, 2013.

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

**VII.A. First Addendum to Independent Contractor Agreement between the District and Olsson Associates, Inc. for Engineering, Design and Operations Plan – Reverse Osmosis Concentrate Ponds.**

CDPHE is requiring the District to prepare and submit an Annual Report for concentrate produced as well as a response to the Final Determination Letter of Approval with Conditions. Olsson Associates has submitted a proposal in the amount of \$3,100 to complete these tasks. There is a positive balance on the original contract of \$1,000, therefore the increase in cost will be \$2,100.

**I recommend approval of the First Addendum to Independent Contractor Agreement between the District and Olsson Associates, Inc. for Engineering, Design and Operations Plan – Reverse Osmosis Concentrate Ponds.**

## Updates on Other District Related Items

**Summary of Discussions from mid-month meeting with Directors Fleck and Wyckoff – Ms. Bollinger and I met with Directors Fleck and Wyckoff on May 14, 2013. Discussions continued on concentrate management efforts and the need for a 3<sup>rd</sup> evaporation pond.**

**Valve Exercising at BECR and RHF – REC has provided a proposal to exercise the valves in BECR and RFH for a not to exceed amount of \$6,960. The District has budgeted \$8,300 for distribution system maintenance in 2013. The proposed amount is within the budget and therefore I have given Jeff the approval to proceed.**

Total Water Production from April 6, 2013 through May 5, 2013 = to be distributed at meeting

Total Usage billed from April 6, 2013 through May 5, 2013 = to be distributed at meeting.



## MEMO

TO: Lisa Johnson, District Manager

FROM: Andrea Bollinger

RE: June 4, 2013 Meeting Agenda Items

DATE: May 28, 2013

PROJECT: 013-0055

### Item IV.A. – Evaporation Ponds:

1. Section 9 Regulations:
  - a. EDOP report has been revised and resubmitted to CDPHE. Copies were provided to SDMS and REC.
  - b. Financial Assurance is underway.
    - i. Information has been provided to SDMS on 5/24/2013. Letters from the CPA and the independent auditor will be necessary.
  - c. 2012 Annual Reporting
    - i. Olsson has begun compiling information for submittal to CDPHE Solid Waste Division.
2. Operation flexibility research:
  - a. In order to have operation flexibility with the evaporation ponds, Olsson has researched various ways to eliminate or reduce the concentrate. Attached is the list outlining the options Olsson evaluated as well as the challenges associated with those options. A large print-out of the treatment and process options will be available at the Board meeting.

Based on the research, Olsson recommends moving forward with the steps for designing and constructing a third evaporation pond while also collecting samples to determine viability of blending RO concentrate with LFH wells for augmentation.
3. Evaporation Pond Rehabilitation Action Plan
  - a. Since the existing evaporation ponds have had little to no maintenance performed, Olsson recommends an assessment of their conditions including the

following action items. The attached technical memo outlines the process in more detail.

- i. Minimize RO
- ii. Evaporate
- iii. Survey and Solids Assessment
- iv. Liner Inspection

Item IV.B. – Reserve Analysis:

The Reserve Analysis has been completed. The technical memo, attached, outlines the findings. The cost and projections developed for the Reserve Analysis will be used for the System Development Fee project which provides a basis for the fees charged to new development.

Olsson also recommends performing a Rate Study since the majority of the information for a Rate Study has already been collected. A Rate Study evaluates the District's user rates and finances to insure funds are available for future requirements.

I will attend the June 4, 2013 Board Meeting and will be prepared to address any of these items, as well as any additional items that may arise.

**Attachments:**

1. Operation Flexibility Research List
2. 2013-05-24\_Evap Pond Rehabilitation Assessment
3. 2013-05-23\_Memo\_Reserve Analysis\_rev2

**File Location:**

G:\Office\Teams\Water\Wastewater\Denver Team Folder\Greatrock North Water and Sanitation District\_Board Meetings\2013\06-2013\2013-05-28\_Engineering Report.docx

Viable Option	Option	Implemented	Challenges		
			1	2	3
Yes	Reduce Concentrate through Source Water Reclassification	Source water reclassified to groundwater on 01/11/10			
Yes	Reduce Concentrate through Blending Modifications	71:29 blend ratio on 07/17/12			
Yes	Waste Management		Costly to implement (\$65/gallon @ 5.8MG = \$3.2M)		
Yes	Enhanced Evaporation - Surface Aeration		Questionable on present increase of evaporation to cost benefit	Scaling Issues: O&M	
Yes	Enhanced Evaporation - 3rd Pond		Costly in terms of capital	Limited property available	
Yes	Augmentation of concentrate with LFH wells		Required to met Regulation 41 and Regulation 38	Permit required by CDHPE	
Yes	Connect to another water District		Costly capital investment	Potentially higher monthly water cost	Legal issues
Yes	On-site Injection Well		Costly in terms of permitting, capital, and operations		
Yes	Cease RO and implement home treatment units (POE/POU)		Costly to implement	Maintenance on existing RO still required	Does not improve outdoor water quality
Yes	Reduce Concentrate through Flux Revisions		Lower Water Quality	Changes required to programming and anti-scalant dosing	Doesn't provide operation flexibility to rehab the ponds
Yes	Cease RO		Lower Water Quality	Programming change	Does not improve outdoor water quality
No	SVSD WWTF		At this time, it will not be accepted		
No	Hudson WWTF	IGA in place 05/05/11; Amended 10/04/11; Amended 01/03/12	Hauling on hold pending resolution of WWTP water quality issues		
No	Locate Haul Tanks at WTP		No viable disposal site	Aesthetic concerns to neighboring properties	Concerns for truck traffic through BECR subdivision, 20,000 gallon tank capacity
No	Beneficial Water Management Services		Permitting issues can be addressed by BWMS, but no users defined	Concerns for truck traffic through BECR subdivision	
No	Lochbuie WWTF		Policy is to not accept wastewater from outside service area		
No	Denver Metro WWTF		Policy is to not accept wastewater from outside service area		
No	Greeley WWTF		Policy is to not accept wastewater from outside service area		
No	South Adams County WWTF		Policy is to not accept wastewater from outside service area		
No	ECCV Deep Well Injection		Requires ECCV to change permit	Concerns for truck traffic through BECR subdivision	
No	Berthoud WWTF		Will not accept because of the sulfate and chloride levels in the concentrate		
No	High Sierra Water		Class 2 Well: Water is not associated with the oil and gas industry and their permits will not allow.		
No	Direct discharge to Box Elder Creek		Discharge permit denied by CDPHE-WQCD		
No	Blend w/ BECR Irrigation Supply		Rejected by GNWSD Board of Directors- 2012	See TM on Concentrate Management dated 4/26/2013	
No	Henrylyn Irrigation District		Water quality issue	CDPHE permitting and legal issue with water rights	Costsly to implement
No	PDC Energy/Fracking		Water quality not conducive to PDC use	Limited quantity to make beneficial	Concerns for truck traffic through BECR subdivision
No	Concentrate the Concentrate through Reverse Osmosis		Costly in terms of capital and operations	Still results in a waste stream to manage	Doesn't provide operation flexibility to rehab the ponds
No	Enhanced Evaporation - Trickle Structure		CSM study demonstrates potential but questionable feasibility based upon density		
No	Concentrate the Concentrate through Mechanical Evaporation		High capital and operatign expense	Still results in a waste stream to manage	Doesn't provide operation flexibility to rehab the ponds
No	Dual Water System for all subdivisions		Costly to implement	Water source unknown	Doesn't solve operator flexibility issue with evaporation ponds
No	A & W Water		Water is not associated with the oil and gas industry and permits will not allow		

# TECHNICAL MEMO

<b>TO:</b>	GNWSD Board
<b>FROM:</b>	Andrea Bollinger
<b>RE:</b>	Evaporation Ponds Rehabilitation
<b>DATE:</b>	May 24, 2013
<b>PROJECT #:</b>	013-0056
<b>PHASE:</b>	100

Greatrock North Water and Sanitation District (District) uses two evaporation ponds to receive reverse osmosis (RO) concentrate. The evaporation ponds provide storage of the concentrate as well as an evaporative surface for disposal of concentrate volume. The condition and maintenance of these evaporation ponds is detailed in this technical memo. A discussion of suggested tasks is included below. These tasks include:

- Reduce concentrate
- Surveying
- Assessment of solids in both evaporation ponds
- Assessment of north evaporation pond liner

An Opinion of Probable Cost for these items has been prepared and is attached. The total cost, excluding the need for pumping and solids removal is \$16,700.

## ***Existing Infrastructure and Condition***

The north and south evaporation ponds are fed by gravity via a six inch PVC pipe from the RO unit. Records Drawings of the evaporation ponds are available, but accuracy of the Record Drawings is unknown. The Record Drawings have been included in the Engineering, Design, and Operation Plan (EDOP) Revision 1, dated May 2013. Records drawings indicate the existing 30 mil PVC pond liners were constructed by Colorado Lining between 2002 and 2003 with a foot of soil placed as cover over the liner.

The evaporation ponds have been in operation for approximately ten years. Historical records for the operations and maintenance of the evaporation ponds is unknown. Two key components which are unknown, but must be determined are:

- Condition of the liner in each pond,
- Quantity of solids in each pond,

### ***Recommendation***

Maintenance of the evaporation ponds is required for continued operation of the RO system. The exact volume of the evaporation ponds and the quantity of solids in each evaporation pond is unknown.

In order to evaluate the condition of the evaporation ponds they need to be taken out of service. However, it is not feasible to have both evaporation ponds out of service. Since records show both evaporation ponds were installed at approximately the same time, evaluating the liner on the north evaporation pond should be indicative of the condition of the south evaporation pond liner. Also, since the south evaporation pond is the only evaporation pond with a level sensor connected to the SCADA system, taking the north evaporation pond offline will allow the remaining active evaporation pond to continue water level monitoring remotely. The following action plan is recommended:

1. Minimize RO operations to reduce concentrate into the evaporation ponds. This includes continued operation at the minimum blending ratio of 70% blend and 30% treated.
2. Isolate: Close the interconnect valve between the evaporation ponds and only feed the south evaporation pond. To help evaluate the north evaporation pond levels, Olsson proposes installing a gage to manually document water levels during each site visit. The gage should be in one inch increments.
3. Evaporation: Allow evaporation to reduce the water levels in the north evaporation pond for 45 days starting in June 2013 through July 2013.
  - a. Based on the monthly evaporation from the Water Master Plan Phase I&II, the north evaporation pond levels should reduce by 1.2 feet between June and July. While this will not completely empty the north evaporation pond, it would allow for an assessment to take place.
  - b. The south evaporation pond, which is currently at 4.30 feet, as of May 23, 2013, will rise approximately 0.5 feet with the RO operated at the 70/30 ratio, including evaporation losses.
  - c. If evaporation alone is not sufficient after 35 days, a pump will be required to transfer concentrate from the north evaporation pond to the south evaporation pond. At that time, pond levels will need to be reassessed to determine how much concentrate can be transferred.
4. Survey and Solids Assessment: Survey the north and south evaporation ponds while also conducting a solids assessment using a sludge judge. The surveyed cross sections in conjunction with the solids assessment allows for a more accurate accounting of the evaporation ponds capacities.
  - a. Coordination between Ramey Environmental Compliance (REC) and Olsson will be necessary so both parties will be on site. REC can conduct

the solids assessment utilizing the sludge judge while Olsson simultaneously performs the survey.

- b. REC should collect samples of the solids while on site for testing. This data will be used in the assessment of the quantity of solids in the evaporation pond as well as facilitate in disposal options.

5. Lining Inspection: After Step 3 and the evaporation pond level has reduced, Colorado Lining can conduct an assessment, collecting samples of the liner and testing for material tensile properties. Testing will be performed by an independent third party laboratory.

The opinion of probable cost for performing the reducing concentrate, survey, assessing the solids, liner inspection, and testing totals \$16,700. Detailed opinion of probable cost is attached. In the event, concentrate must be pumped from the north evaporation pond to the south, additional cost will be incurred.

Solids removal may be necessary; however, at this time there are too many variables to develop a comprehensive action plan for removal. Olsson recommends performing the above mentioned tasks in order to better estimate the quantity of solids accumulation and viable removal and disposal options.

# Opinion of Probable Cost

Client: GNWSD
Project Title: Evaporation Pond Survey and Inspection
Project Number: 013-0056

ENR Construction Cost Index		
	Date	Index
Initial	May-13	7020.89
Current	May-13	7020.89

Item	Quantity	Unit	Unit Cost \$	Cost \$
<b>1 Survey and Sludge Assessment</b>				
2 Evaporation Pond Cross Sections	1	LS	2,500	2,500
3 Ramey Environmental Compliance	8	HRS	95	760
4 Colorado Analytical: testing solids	1	LS	2,000	2,000
<b>5 Pond Inspection</b>				
6 Colorado Lining: inspection of liner	1	LS	500	500
7 Colorado Lining: testing of liner	2	EA	600	1,200
8 Ramey Environmental Compliance	2	HRS	95	190
<b>9 Coordination and Administration</b>				
10 Olsson Associates	69	HRS	85	5,840
11 Olsson Associates: Expenses- 4 site visits	4	EA	41	170
12 Ramey Environmental Compliance	8	HRS	95	760
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

SUBTOTAL \$ 13,920

Contingency 20.0 % \$2,790

Total Project Cost \$ 16,710

**Design Status (Check One)**

- Conceptual Design
- Preliminary Design
- Final Design



Project Engineer: Andrea Bollinger Date: 5/24/13

The Engineer, using his or her professional judgment, has developed this stated Opinion of Probable Construction Cost based upon the design status identified above. Development of this Opinion has included consideration of design input level; however, the circumstances under which the work is expected to be undertaken, the cost and availability of materials, labor and services, probable bidder response and the economic conditions at the time of bid solicitation are beyond the control of the Engineer and will impact actual bid costs. Should bidding be delayed, these costs should be reviewed and, if necessary, adjusted to a more applicable *Engineering News Record* Construction Cost Index.

# TECHNICAL MEMO

<b>TO:</b>	GNWSD Board
<b>FROM:</b>	Andrea Bollinger
<b>RE:</b>	Reserve Analysis
<b>DATE:</b>	May 23, 2013
<b>PROJECT #:</b>	013-0057
<b>PHASE:</b>	100

Olsson Associates performed a reserve analysis which analyzed the life cycle replacement costs for Greatrock North Water and Sanitation District's (GNWSD) major water system's components. The major components included pumps, impellers, motors, flow meters, tanks, electrical control panels, unit heaters, chemical feed pumps, wells, etc. Olsson utilized Ramey Environmental Compliance (REC) and Special District Management Services to provide equipment age and maintenance records based upon a detailed inventory of the structures and equipment associated with:

- Two alluvial wells
- Three Upper Arapahoe Wells
- Three Laramie-Fox Hills Wells
- Reverse Osmosis water treatment facility, including chemical feed systems
- Four potable water storage tanks
- Box Elder Creek Ranch pump station
- Rocking Horse Farms pump station
- Greatrock North pump station
- Flow meter vaults
- Air/vacuum stations
- Instrumentation and control components
- Two concentrate ponds

REC provided Olsson a partial list of the GNWSD equipment from their Allmax database. Utilizing the database, Olsson conducted a site visit on January 29, 2013. After conducting a site visit, the equipment list was compiled and updated and then Olsson contacted the vendors and manufacturers of the equipment to assist with obtaining missing information and to determine replacement, operation, and maintenance costs. In the event the equipment listed did not have a manufacturer such

as the case for structures and the evaporation ponds, Olsson utilized past experience to determine replacement costs.

Figure 1 provides the 20 year cost projection in 2013 dollars. Figure 2 provides the 20 year cost projection taking into account inflation. The 20-year historical average for inflation is 2.86% based on information from Colorado Department of Local Affairs website<sup>(1)</sup>. However, 3% inflation was used as a conservative measure for future budgeting.

Overall, the yearly equipment replacement costs, shown in Figures 1 and 2, are consistent; indicating GNWSD should be planning for a large expense in 9-10 years. A closer analysis of those years, Figure 3, shows the increase in capital expenditures would primarily be the result of rehabilitating the north and south evaporation ponds. Proactive maintenance on the evaporation ponds could extend the timeframe for this expense by several years.

The cost and projections developed for the Reserve Analysis will be used for the System Development Fee project which provides a basis for the fees charged to new development. Olsson recommends performing additional work to perform a Rate Study. A Rate Study evaluates the District's rates and finances to insure sufficient funds are available when replacement of equipment is needed.

(1) Colorado Department of Local Affairs (2013). *Inflation / Denver-Boulder-Greeley Consumer Price Index*. Retrieved from <http://www.colorado.gov/cs/Satellite/DOLA-Main/CBON/1251594680280>.

### 20 Year Projection, Current Costs (2013)

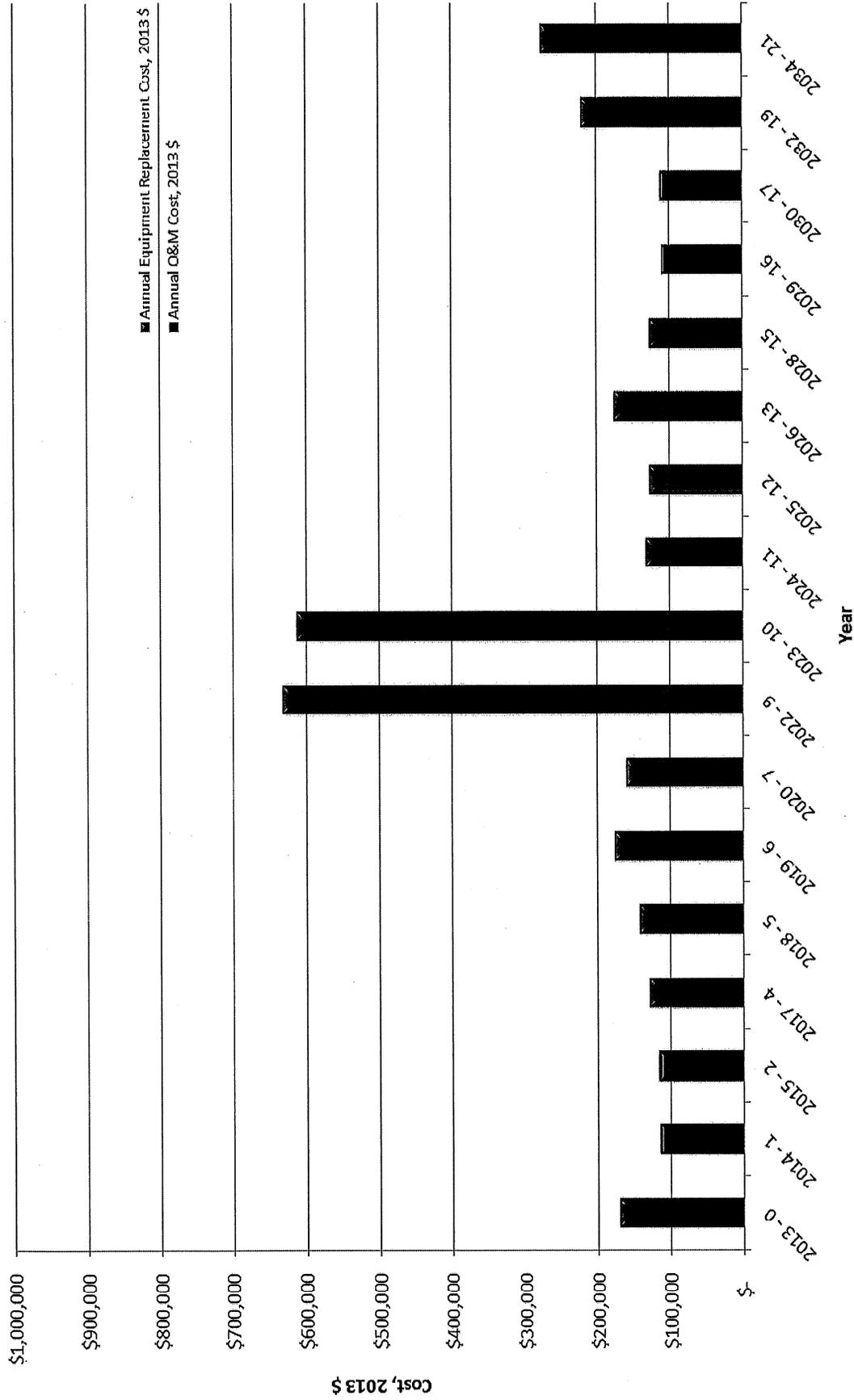


Figure 1: 20 Year Projection, Current Costs (2013)

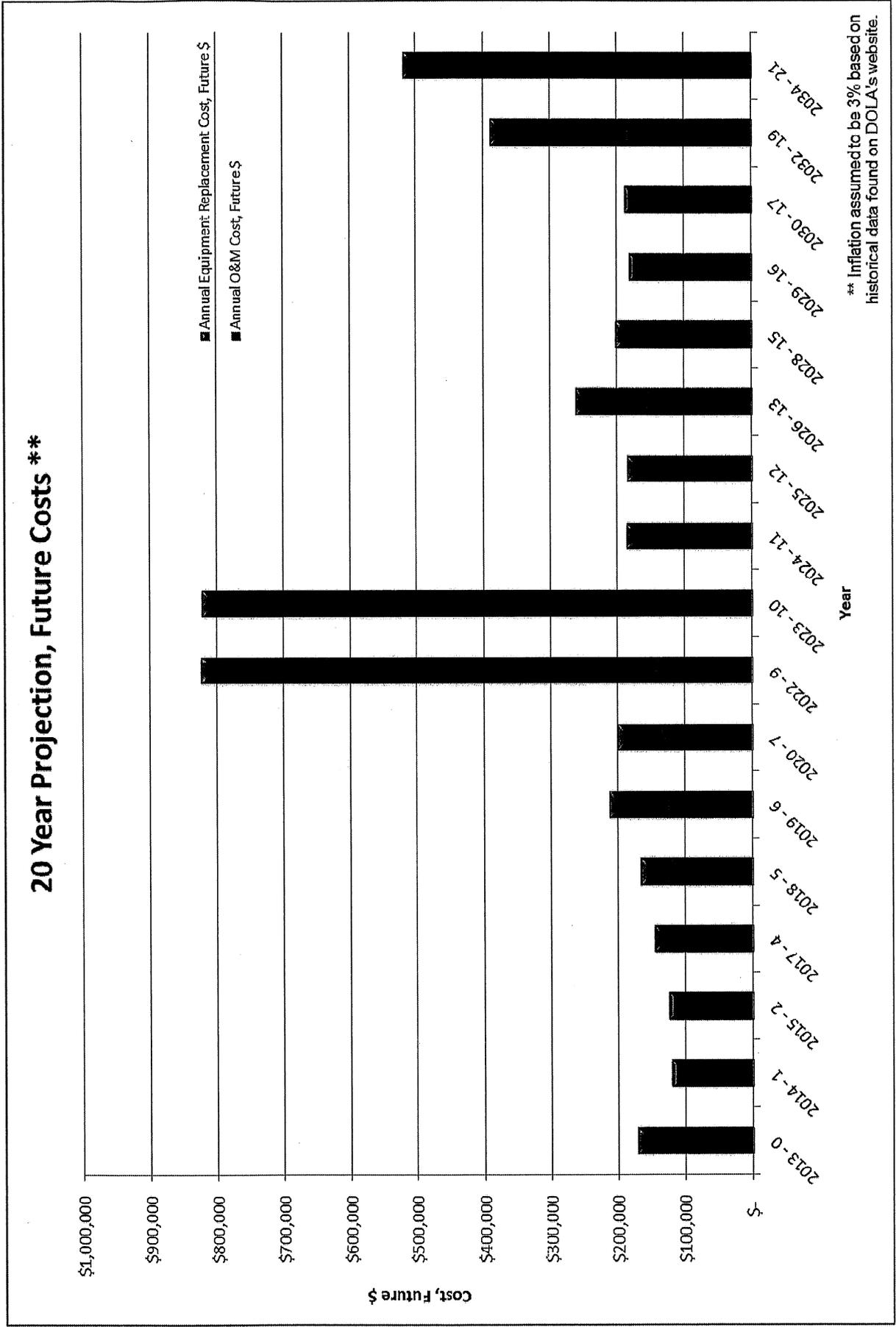


Figure 2: 20 Year Projection, Future Costs

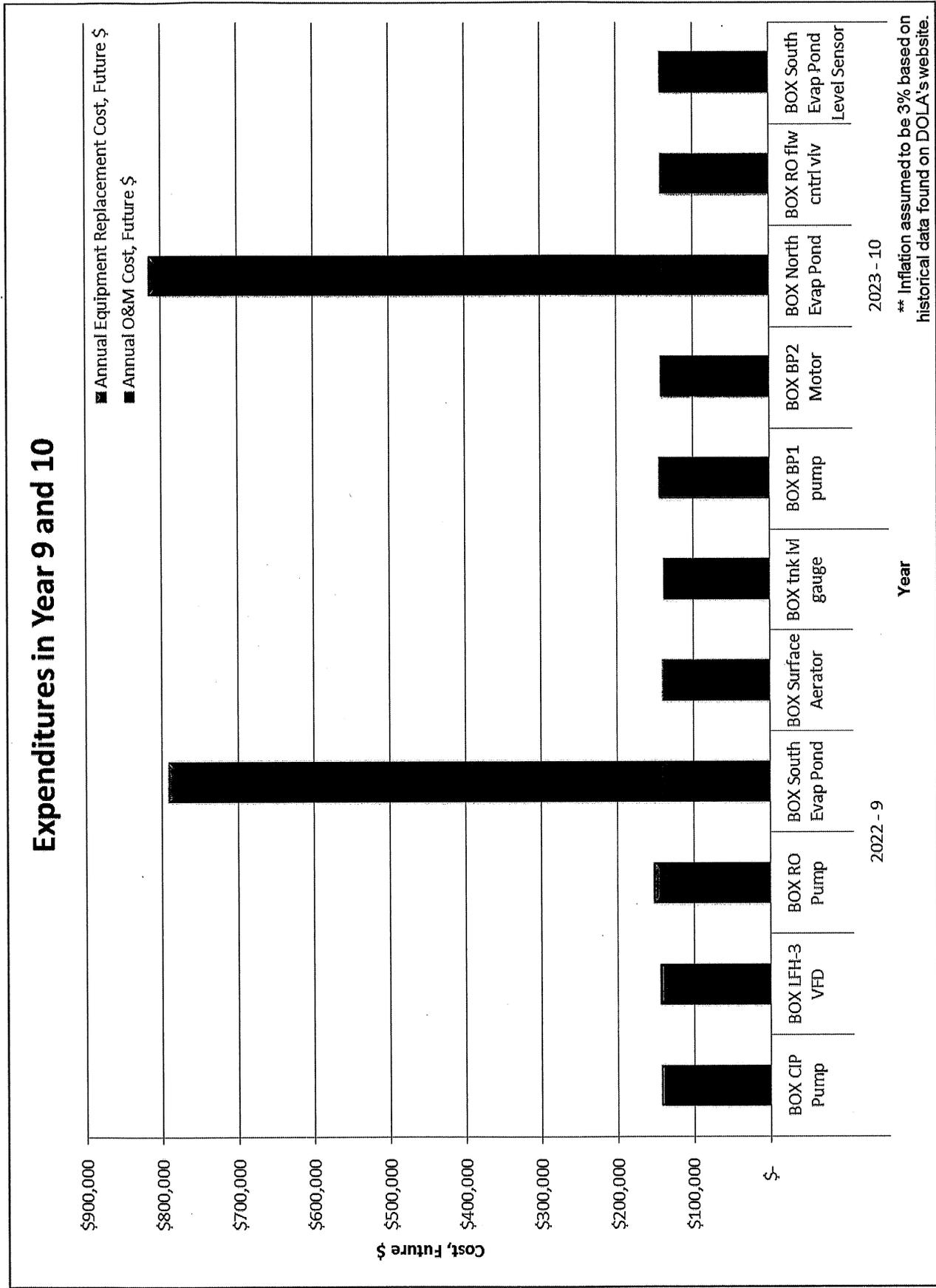


Figure 3: Expenditures in Year 9 and 10



**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  
April 24<sup>th</sup> - May 24<sup>th</sup>**

**4/24/13:** Regular checks and readings. Collected and delivered monthly samples.

**4/26/13:** Regular checks and readings. Pond levels = 7".

**4/29/13:** Regular checks and readings. Filled the chlorine day tank. Mixed the RO antiscalent.

**5/1/13:** Regular checks and readings.

**5/3/13:** Regular checks and readings. Greased and cleaned pump motors at Rocking Horse and Boxelder. Removed the dog kennels from Rocking Horse. Cleaned the pond aerator.

**5/6/13:** Regular checks and readings. Collected and delivered monthly samples.

**5/8/13:** Regular checks and readings. Greased the pump motors and cleaned the VFD filters. Organized facility maps.

**5/10/13:** Regular checks and readings.

**5/13/13:** Regular checks and readings. Changed the cartridge filters on the RO.

**5/15/13:** Regular checks and readings.

**5/16/13:** Additional visit to prep and prime pumps at Greatrock North.

**5/20/13:** Regular checks and readings.

**5/22/13:** Regular checks and readings. Exercised valves. Flushed hydrants at Kenuli Ct fire hydrant. Pond levels still = 7".

**5/24/13:** Regular checks and readings. Filled the chlorine day tank.

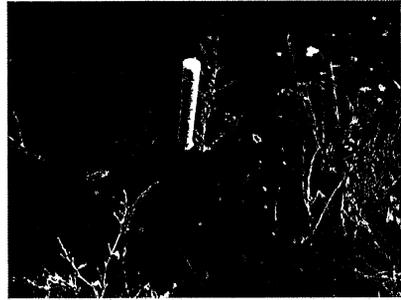
**April 24<sup>th</sup> to May 24<sup>th</sup>**

RO Run Time Hrs	152 hrs.
RO Concentrate Flow – 2 ponds	300,960 gallons

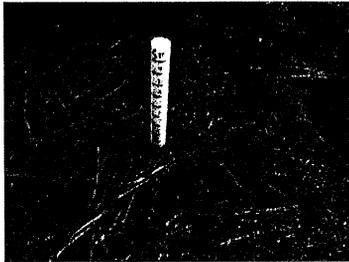
**CONCENTRATE PONDS:**



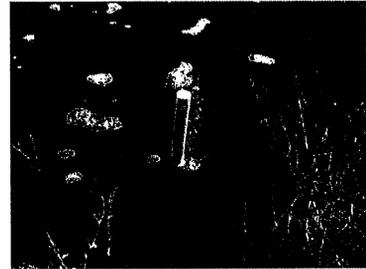
North Pond 5-3-13



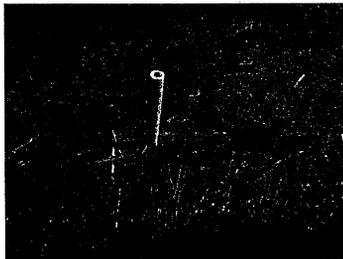
South Pond 5-3-13



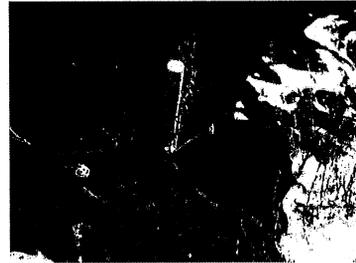
North Pond 5-8-13



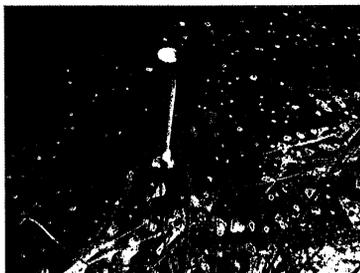
South Pond 5-8-13



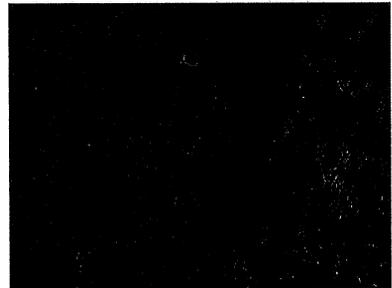
North Pond 5-15-13



South Pond 5-15-13



North Pond 5-24-13



South Pond 5-24-13

Ramey Environmental Compliance, Inc.

(303) 833-5505

**Cost to complete Valve Excecising**

<u>Boxelder</u>	<u>GRN</u>	<u>RH FARMS</u>	<u>Total</u>
93	54	85	232
\$2,790.00	\$1,620.00	\$2,550.00	\$6,960.00

Service Includes:

Report of findings during valve exercising if any

██████████ Completed in 2012