LOVELAND UTILITIES COMMISSION

May 17, 2017 – 4:00pm

Service Center Willow Room – 200 N. Wilson Ave.

REGULAR MEETING AGENDA

CALL TO ORDER

NEW EMPLOYEE INTRODUCTIONS

Chris Giesting, Water Treatment Plant Manager

APPROVAL OF MINUTES – 4/19/2017

CITIZENS REPORT (*See procedural instructions on the following page.)

CONSENT AGENDA

1. PVC Conduit and Accessories Contract Renewal – Steve Johnson
2. Right of First Refusal for Platte River Power Authority Sale of Windy Gap Units – Derek Turner
3. Wastewater Treatment Plant Biological Nutrient Removal – Contract Amendment for Engineering Services during Construction for Carollo Engineers – Brian Gandy

INFORMATIONAL ITEMS

4. Water Legislative Update – Derek Turner
5. Financial Report Update – Jim Lees
6. Water Supply Update – Kim Frick

REGULAR AGENDA

7. Award Construction Contract for the 2017 CIPP Sewer Rehabilitation Project – Craig Weinland
8. Algal Mitigation Assessment Results & Next Steps – Roger Berg, Tim Bohling & Lindsey Bashline

STAFF REPORTS

9. CAMU Legislative Update – Kim O'Field & Dan Hodges
10. Customized Resource Planning – Brad Decker, Platte River Power Authority

COMMISSION & COUNCIL REPORTS

DIRECTOR'S REPORT

ADJOURN

The password to the public access wireless network (colguest) is accesswifi

City of Loveland

* Citizens Report Procedures

Anyone in the audience may address the LUC on any topic relevant to the commission. If the topic is a Consent Agenda item, please ask for that item to be removed from the Consent Agenda; pulled items will be heard at the beginning of the Regular Agenda. If the topic is a Regular Agenda item, members of the public will be given an opportunity to speak to the item during the Regular Agenda portion of the meeting before the LUC acts upon it. If the topic is a Staff Report item, members of the public should address the LUC during this portion of the meeting; no public comment is accepted during the Staff Report portion of the meeting.

Anyone making comment during any portion of tonight's meeting should identify himself or herself and be recognized by the LUC chairman. Please do not interrupt other speakers. Side conversations should be moved outside the Service Center Board Room. Please limit comments to no more than three minutes.

Notice of Non-Discrimination

The City of Loveland is committed to providing an equal opportunity for services, programs and activities and does not discriminate on the basis of disability, race, age, color, national origin, religion, sexual orientation or gender. For more information on non-discrimination or for translation assistance, please contact the City's Title VI Coordinator at TitleSix@cityofloveland.org or 970-962-2372. The City will make reasonable accommodations for citizens in accordance with the Americans with Disabilities Act (ADA). For more information on ADA or accommodations, please contact the City's ADA Coordinator at adacoordinator@cityofloveland.org or 970-962-3319.

Notificación en Contra de la Discriminación

"La Ciudad de Loveland está comprometida a proporcionar igualdad de oportunidades para los servicios, programas y actividades y no discriminar en base a discapacidad, raza, edad, color, origen nacional, religión, orientación sexual o género. Para más información sobre la no discriminación o para asistencia en traducción, favor contacte al Coordinador Título VI de la Ciudad al TitleSix@cityofloveland.org o al 970-962-2372. La Ciudad realizará las acomodaciones razonables para los ciudadanos de acuerdo con la Ley de Discapacidades para americanos (ADA). Para más información sobre ADA o acomodaciones, favor contacte al Coordinador de ADA de la Ciudad en adacoordinator@cityofloveland.org o al 970-962-3319".

The password to the public access wireless network (colguest) is accesswifi

Commission Members Present: Dan Herlihey (Vice Chair), Dave Kavanagh, David Schneider, Gary Hausman (Chairman), Gene Packer (Left after Item 10 at 7:24 pm), Larry Roos (Left at 8:25 pm after item 14), John Butler, Randy Williams, Sean Cronin

Alternate Commission Members Present: Stephanie Fancher-English

Council Liaison Absent: Troy Krenning

City Staff Members Present: Bob Miller, Brian Gandy, Brieana Reed-Harmel, Christine Schraeder, Courtney Whittet, Daniel Daneshka, Garth Silvernale, Greg Dewey, Gretchen Stanford, Jim Lees, John Beckstrom, Kim Fentress, Kim Frick, Kim O'Field, Lindsey Bashline, Larry Howard, Michelle Erickson, Mike Margenau, Roger Berg, Cree Goodwin, Daniel Daneshka, Ned Sparks (arrived at 5:14 pm)

Guest Attendance: none

CALL TO ORDER: Gary Hausman called the meeting to order at 4:00 pm.

APPROVAL OF MINUTES: Hausman asked for a motion to approve the minutes of the March 8, 2017 meeting.
Motion: Dave Schneider made the motion.
Second: Dave Kavanagh seconded the motion. The minutes were approved unanimously.

CITIZEN REPORTS: none

CONSENT AGENDA

Dave Schneider pulled item 2, and John Butler pulled item 3 from the consent agenda.

Item #1: Quarterly Goal Updates – Gretchen Stanford
This is a quarterly review of our progress on our 2017 utility goals.

Recommendation: Review the presented information and approve the 2017 1st Quarter 2017 Goals Update Report.

Motion: Dan Herlihey made the motion to accept item 1 on the consent agenda as written.
Second: John Butler seconded the motion. The motion was approved unanimously.

INFORMATION ITEMS

Item #4: Water Supply Update – Greg Dewey
Raw water supply update.

Information item only. No action required.

Item #5: Electric Legislative Update – Kim O'Field
This item and the attachment are intended to give a brief update on electric-related legislation at both the state and federal level. Loveland Water and Power works closely with Platte River Power Authority (PRPA) and its sister cities but relies primarily on the Colorado Association of Municipal Utilities (CAMU) for information on electric-related legislation.

Information item only. No action required.

Item #6: Water Legislative Update – Michelle Erickson
This item and the attachment are intended to give a brief update on water-related legislation being contemplated by the Colorado General Assembly. Loveland Water and Power relies primarily on the Colorado Water Congress (CWC) for information on water-related legislation.

Information item only. No action required

REGULAR AGENDA

Dave Schneider pulled item 2 and John Butler pulled item 3 from the consent agenda, and they were moved to the regular agenda.

Item #2: Second Amendment to the Fifth Interim Agreement between the Municipal Subdistrict, Northern Colorado Water Conservancy District Windy Gap Firming Project Water Activity Enterprise, and the City of Loveland – Larry Howard
Windy Gap Firming Project participants desire to continue the Fifth Phase of the project working to complete the acquisition of all permits and approvals. This will open the way to move ahead into detailed engineering design. Approval of this proposed Second Amendment to the Fifth Interim Agreement between the Municipal Subdistrict, Northern Colorado Water Conservancy District Windy Gap Firming Project Water Activity Enterprise and the City of Loveland (Fifth Interim Agreement) allows this permitting and preliminary design work to proceed.

Recommendation: That City Council adopt the attached resolution authorizing the City Manager to sign and enter into the Second Amendment to the Fifth Interim Agreement between the Municipal Subdistrict, Northern Colorado Water Conservancy District Windy Gap Firming Project Water Activity Enterprise and the City of Loveland.

Motion: Dan Herlihey made the motion.
Second: Dave Kavanagh seconded the motion. The motion was approved unanimously.

Comments: Larry Howard responded to Dave Schneider's request for a summary of what was discussed during a WGFP participant meeting on February 7, 2017 reference on page 23 section B of the LUC packet. Howard discussed the items still outstanding on the WGFP including the 404 permit and EPA approval and specifically the changes that may need to be made for wetland mitigation. Dave Schneider expressed concerns at the slowness of this process.

Item #3: Wastewater Treatment Plant Biological Nutrient Removal & Digester Project – Contract Amendments for Engineering Services during Construction – Brian Gandy
Per the Municipal Code, if a Contract exceeds $500,000 or 20% of the original value through previously approved amendments, all subsequent amendments must be approved by the LUC. As such, the following contract amendments are being brought forward for LUC action.

Recommendation: Adopt a motion to approve the amendments and associated dollar amounts to the following contracts for Engineering Services during Construction:

- Ditesco Construction Services in the amount of $1,100,314 and increases the not-to-exceed amount to $1,234,905
- Brown and Caldwell in the amount of $437,605 and increases the not-to-exceed amount to $2,473,544

Motion: Dan Herlihey made the motion.
Second: John Butler seconded the motion. The motion was approved unanimously.

Comments: John Butler inquired what value is added by having 3 engineering firms on this project. Brian Gandy explained the roles of two of the firms designing different parts of the project and of Ditesco overseeing the project on-site. John Butler also inquired about an amendment to an agreement to Ditesco in November 2016 and staff responded that it was in regards to the work being done at the Water Treatment Plant, not the Wastewater Treatment Plant.

Item #7: Proposed Amendments to Title 19, Hydrozone Code – Kim Frick & Larry Howard
For entities desiring an irrigation water meter for a new development, the City of Loveland has two raw water payment options described in Loveland Municipal Code: (1) pay 3 acre-feet (AF) of water rights per acre of lands to be irrigated; or (2) pay a reduced amount of water rights based on a proposed hydrozone landscaping plan of low-water use plantings and commit to a future "water budget" based on a reasonable amount of water for the plan.

This second choice is called the Hydrozone program, and a user can elect to join the program if their landscaping plan demonstrates at least a 25% reduction in water use from the standard 3 AF per acre. Water users who elect to join the program become subject to staying under the annual water budget that was specifically calculated for their landscape plan. If they exceed that budget "annual surcharge" bills are sent to owners; if they exceed the budget for 3 consecutive years they are no longer eligible for the program, and must provide additional water rights (or cash-in-lieu) to the City in an amount based on the difference between the amount paid per the Hydrozone program and the amount due under the full, 3 AF-per acre calculation.

After several years of operation, approximately thirty customers have joined the program. The interest in the program grows as the price of water rights continues to increase, City Staff have identified a number of issues with implementation and operation of this program. The revisions to the Municipal Code proposed here are based on the City's experience in operating and enforcing the program, complaints and suggestions from existing participants, and discussions with other City departments.

Recommendation: Move to recommend City Council for the City of Loveland approve the proposed revisions to Section 19.06.050 of the Loveland Municipal Code, as shown in the attached proposed ordinance and as revised or adjusted to reflect the discussion in this meeting.

Motion: Dan Herlihey made the motion.
Second: Sean Cronin seconded the motion. The motion was approved unanimously.

Comments: Board provided input that it would be good to have the hydrozone show up as being recorded with the County as well as be part of the plat and/or final development plan. Discussion ensued about how the City could enforce the recovery of money such as through a separate district with taxing authority and the ability to do property leans, and that perhaps each property owner should have something in their covenants about being part of the hydrozone. The board encouraged staff to contact other utilities and see how they handle similar situations. The board specifically mentioned that section 1 paragraph C of the proposed redline revision to Section 19.06.050 of Loveland Municipal Code may need to be revised to include additional methods of disclosure per the discussion at this LUC meeting. Board also inquired if there would be some type of criteria or general standards for granting variance to the regular standards of the program and staff said that it would and that they may include a list of examples of when a variance might be granted to make it less arbitrary.

Item #8: Updates to the Requirements of Electric Service Book & Aggregated Metering Pilot Project – Kim Fentress
Overview of changes to the Requirements of Electric Service Book. These changes will be presented to Construction Advisory Board (CAB) on April 26, 2017 before we ask City Council for approval on first reading on May 16, 2017.

Recommendation: Adopt a motion recommending that the City Council approve a resolution adopting the amended standards as required currently by 16.24.012. Additionally, recommend that City Council amend

the Code by adopting an ordinance making the electric development standards adoption the same for power as for the water and wastewater development standards, found in Chapter 16.24.

Motion: Dan Herlihey made the motion.
Second: Dave Schneider seconded the motion. The motion was approved unanimously.

Item #9: Select 2 LUC Liaisons for 2018 Budget Process – Jim Lees
Selection of two Loveland Utilities Commissioner (LUC) Liaisons for the 2018 Water & Power Budget Process.

Recommendation: Larry Roos and Gary Hausman will be the liaisons from the LUC to participate in the 2018 budget review process for the Water & Power Department.

Item #10: Proposed 10-Year Capital Improvement Plan – Roger Berg, Brieana Reed-Harmel & Jim Lees
The purpose of this item is to present an overview of the 2018 to 2027 10-Year CIP for water, wastewater and power, as well as ask the Loveland Utilities Commission to adopt a motion recommending that City Council approve the proposed 10-Year CIP.

Recommendation: Adopt a motion recommending that City Council approve the proposed 2018 10-Year CIPs for the Raw Water, Water, Wastewater and Power Utilities.

Motion: Dan Herlihey made the motion.
Second: Dave Kavanagh seconded the motion. The motion was approved unanimously.

STAFF REPORTS

Item #11: Power Utility Level of Service – Daniel Daneshka
This presentation focuses on the Power Division's accomplishments in 2016 and demonstrates the utilities trends over the past several years.

Staff report only. No action required.

Item #12: Technology Roadmap – Mike Margenau
An overview of the Loveland Water & Power Information Technology Roadmap and an update on carrying out the plan it describes.

Staff report only. No action required.

Item #13: Quarterly Financial Report Update – Jim Lees
This item summarizes the monthly and year-to date Preliminary financials for March 2017.

Staff report only. No action required.

COMMISSION/COUNCIL REPORTS

Item #14: Commission/Council Reports
Activity board members attended since last meeting – March 8, 2017

- **Boards & Commissions Summit:** March 9, 2017
- **Northern Water's Spring Water Users Meeting:** April 11, 2017

Dan Herlihey: nothing
Dave Kavanagh: Mentioned a recent letter to the editor with a citizen's worries about the safety of AMR.
Dave Schneider: Inquired about whether people really only flush once with low flow toilets, and if we had performed a survey on this. He also discussed that he thought a good topic for Tri-City would be share the involvement of the board (citizens) in the budget and rate-setting process.
Gary Hausman: He mentioned that he liked the interaction and discussion that occurred with other City Boards at the Boards and Commissions Summit and that perhaps there should be more interaction between the boards. He mentioned that at the Spring Water Users meeting, they shared that the Dillie Tunnel repairs are finished and two new head gates have been installed. He commented on the national concern of a cyber attack on the power grid system and whether we are at risk. Staff ensured that we are physically separate from the national grid.
Gene Packer: (left before this item)
Larry Roos: Commented on the Spring Water Users meeting that it was the best one he'd been to yet. He shared that according to Dave Nettles, the water supply soil moisture Greeley and east is 73% of normal and how surprised and profitable one of the examples of an Alternative Transfer Method shared by John Stulp was for farmers who fallowed their fields.
John Butler: none
Randy Williams: Talked about due to the work that will be done on the Hansen Feeder Canal, there will be increased flows down the Big Thompson River and that they had a successful meeting following the Spring Water Users meeting that brought people together to discuss how to coordinate water deliveries and projects on the Big Thompson River during the next few months.
Sean Cronin: Mentioned that as we look at getting a new Customer Information System, we may want to include linking the billing and tracking with GIS to track things such as toilet replacements to be able to track the difference in water usage at locations where toilets are replaced.
Stephanie Fancher-English: none

Council Report: Gretchen Stanford gave on behalf of Troy Krenning

City Council Special Meeting – March 9

- Nothing of interest

City Council Special Meeting – March 28

- CDOT I-25 widening project
- Public comment for Supplemental appropriation for the Foundry Row Traffic Calming

City Council Regular Meeting – April 4

- Affordable housing Code Amendments were passed unanimously by both commissions
- Flood mitigation project – City was awarded $2.34 million Community Development Block grant – Disaster Recovery by the State of Colorado Department of Homeland Security and Emergency Management.
- Great Outdoor Colorado Connect Initiative Grant – 57th and Taft Recreation Trail

City Council Special Meeting – April 11

- City manager quarterly performance review
- Homelessness in Loveland

City Council Special Meeting – April 13

- City Attorney Interviews

City Council Regular Meeting – April 18

- Public Works has a flood mitigation project on second reading
- City Council gave verbal support of additional resources for the Community Partnership office.

DIRECTOR'S REPORT

Item #15: Director's Report – Gretchen Stanford

ADJOURN The meeting was adjourned at 8:27 pm. The next LUC Meeting will be May 17, 2017 at 4:00 pm.

Respectfully submitted,

Michelle Erickson
Recording Secretary
Loveland Utilities Commission

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 1
MEETING DATE: 2/21/2017
SUBMITTED BY: Steve Johnson
STAFF TITLE: Warehouse Buyer

ITEM TITLE:

PVC Conduit and Accessories Bid 2016-16 Contract Renewal

DESCRIPTION:

The purpose of this item is to renew a one-year contract (year 2) to Western United Electric Supply Corporation for PVC Conduit and Accessories, Bid 2016-16.

SUMMARY:

Polyvinyl chloride (PVC) pipe is used in Aid-To-Construction (ATC), meaning developer-driven and funded projects as well as in-house capital projects. This material is used to house our electrical underground cables. It is used in open trench applications as well as for directional bore applications. The following are examples of projects this contract will support: Foothills Extension, The Ridge, Mountain Business Park, Hach Feed, Area 206, Highway 287, Circuit 911, Taft & 10th, The Foundry Extension and Waterford. This contract will also be effective for projects that are being considered, however not released at this time.

On April 14, 2016, the City of Loveland received sealed bids for PVC Conduit and Accessories needs. The contract was awarded to Western United Electric Supply Corporation. Western United has agreed not to increase costs or change the terms of the original contract for all the products that would be purchased over the next year. The contract would be renewed in the same amount as the 2016 contract, $899,191.85. This dollar amount is an estimate based on past year(s) uses and was used to establish amounts on bid proposal document.

Per our original 2016 bid documents: *General Conditions 3.0 The term of the contract shall be one (1) year from date of execution. The Contract may be renewed for up to three (3) additional twelve (12) month periods upon written agreement of City and Supplier.* This would be the first renewal, making it year two. We are not going out to bid again this year primarily for two reasons: 1) in spite of a 10% increase in resin prices from the time of last year's bid to now, Western United is not increasing their pricing to the City; and 2) Western United has long been one of the outstanding vendors that the City does business with. They have demonstrated stellar reliability and customer service for many years.

Per Municipal Code 3.12.060A and 3.12.060B, the LUC must approve Water and Power contracts above $500,000 or any change order that causes a contract to equal or exceed $500,000 and which, when combined with all previous change orders, equals or exceeds 20% of the original contract amount.

RECOMMENDATION:

Award the renewal contract for PVC Conduit and Accessories to Western United Electric Supply Corporation in an amount not to exceed $899,191.85 and authorize the City Manager to execute the contract on behalf of the City.

ATTACHMENTS:

- Attachment A: 2016 Contract
- Attachment B: 2016 LUC Original Approval Document

1

Attachment A

CONTRACT

THIS CONTRACT is made and entered into this 24th day of May, 2016, by and between the CITY OF LOVELAND, COLORADO, a home rule municipality ("City"), and **Western United Electric Supply Corporation.** ("Supplier").

Supplier, in consideration of the sum to be paid to Supplier by City and of the covenants and agreements contained herein and in the Contract Documents, identified in paragraph 2 of the "Instructions to Bidders" and incorporated herein by reference, hereby agrees at Supplier's own proper cost and expense to supply all materials and/or equipment for **PVC Conduit and Accessories 2016-16.** To the extent of Supplier's bid dated **13 April 2016,** attached hereto and incorporated herein by reference ("Bid"), all in full compliance with the Contract Documents.

In consideration of Supplier's performance hereunder, City agrees to pay to Supplier an amount not to exceed **EIGHT HUNDRED NINETY NINE THOUSAND ONE HUNDRED NINETY ONE DOLLARS** $899,191.00 as adjusted in accordance with the Contract Documents, and to make such payments in the manner and at the times provided in the Contract Documents.

Time is the essence of this Contract. Supplier agrees to deliver the materials and/or equipment as set forth in the Contract Documents and accept as full payment hereunder the quantities computed as determined by the Contract Documents and based on the unit prices set forth in the Bid.

IN WITNESS WHEREOF, the parties have executed this Contract the day and year written above.

(SEAL)

SUPPLIER: Western United Electric Supply Corp.

By: Michael Prom

Title: CEO

Attest:

Corporate Secretary

(SEAL)

CITY OF LOVELAND, COLORADO

By:

Title: City Manager

Attest:

City Clerk Acting Deputy

Approve as to Form:

City Attorney

UNIT PRICE BID FORM

Item Description	City Stock #	Estimated Quantity	Unit Price	Manufacture and Catalog Number		Lead Time
2" PVC CONDUIT 20' W/ BELL SCHED 40 UL 651 / TC2/ 90C Compliant RMC 504020020U or equal	181-00110	44,000'	$ .47'	RMCP		2 weeks
4" PVC CONDUIT 20' W/ BELL SCHED 40 UL 651 / TC2/ 90C Compliant RMC 504040020U or equal	181-00040	92,000'	$ 1.25'	RMCP		2 weeks
5" PVC CONDUIT 20' W/ BELL SCHED 40 UL 651 / TC2/ 90C Compliant RMC 504050020U or equal	181-00050	2,000'	$ 1.77'	RMCP		2 weeks
6" PVC CONDUIT 20' W/ BELL SCHED 40 UL 651 / TC2/ 90C Compliant RMC 504060020U or equal	181-00120	210,000'	$ 2.31'	RMCP		2 weeks
4" BORING PVC CONDUIT 20' SCHED 40 Prime Bore-Gard BG440SP-20 only	181-00152	18,000'	$ 2.51'	Prime		2 weeks
5" BORING PVC CONDUIT 20' SCHED 40 Prime BG540SP-20 only	181-00155	540'	$ 3.42'	Prime		2-4 weeks
6" BORING PVC CONDUIT 20' SCHED 40 Prime BG640SP-20 only	181-00162	26,000'	$ 4.52'	Prime		2-4 weeks
4" ELBOW (belled end)90 DEG 48" RADIUS SCHED 40 Prime UA9HNB or equal	181-00069	140	$ 16.05			Stock-2wks
4" ELBOW (belled end) 90 DEG 36" RADIUS SCHED 40 Prime UA9FNB or equal	181-00045	110	$ 7.60			Stock-2wks
4" ELBOW (belled end) 45 DEG 48" RADIUS SCHED 40 Prime UA7HNB or equal	181-00041	130	$ 12.06			Stock-2wks
4" ELBOW 11.25 DEG 24" RADIUS SCHED 40 Prime UA3DNB or equal	181-00043	100	$ 8.80			2-4 wks
4"CONDUIT PLUG W/PULL TAB Prime P258NT or equal	181-00042	300	$ .85	PEPT400		2-4 wks
4" PVC EXPANSION COUPLING Prime E945N or equal	181-00042	45	$ 40.00	EC2PC400		2-4 wks
4" PVC COUPLING SLIP-SLIP Prime E940N or equal	181-00094	200	$ 1.32	CP400		2-4wks
2"- 4" U-GUARD VENTED BOOT Prime E939JN or equal	181-00076	30	$ 25.85			2-4 wks
5" ELBOW (belled end) 45 DEG 48"RADIUS SCHED 40 Prime UA7HPB OR equal	181-00047	30	$ 17.40			2-4 wks

5" ELBOW 11.25 DEG 36" RAD SCHED 40 Prime UA3FPB or equal	181-00054	30	$ 13.00			2-4 wks
5" ELBOW (belled end) 90 DEG 24"RADIUS SCHED 40 Prime UA9APB or equal	181-00058	10	$ 13.40			2-4 wks
5" ELBOW (belled end) 90 DEG 48"RADIUS SCHED 40 Prime UA9HPB or equal	181-00059	10	$ 31.70			2-4 wks
5" PVC COUPLING SLIP-SLIP Prime E940P or equal	181-00095	50	$ 3.32	CP500		2-4 wks
5" EXPANSION COUPLING Prime E945P or equal	181-00048	5	$ 72.30	EC2PC500		2-4 wks
4"-6" U-GUARD VENTED BOOT Prime E938NRR or equal	181-00075	25	$ 69.00			2-4 wks
6" ELBOW 11.25 DEG 36" RAD SCHED 40 Prime UA3FRB or equal	181-00121	160	$ 21.45			2-4 wks
6" ELBOW (belled end) 45 DEG 48"RADIUS SCHEDULE 40 Prime UA7HRB or equal	181-00122	90	$ 18.10			2-4 wks
6" ELBOW (belled end) 90 DEG 48" RADIUS SCHED 40 Prime UA9HRB or equal	181-00123	120	$34.10			stock-2 wks
6" SLIP/SLIP COUPLING SCHEDULE 40 Prime E940R or equal	181-00124	120	$ 4.25	CP600		2-4 wks
6"CONDUIT PLUG W/PULL TAB SCHEDULE 40 Prime P258RT or equal	181-00125	200	$ 1.47	PEPT600		2-4 wks
6" EXPANSION COUPLING Prime E945R or equal	181-00126	20	$ 78.55	EC2PC600		2-4 wks
2" HD U-GUARD MOLDING 10' SCHEDULE 80 Prime 59011N	181-00072	25	$ 9.08			2-4 wks
4" HD U-GUARD MOLDING 10' SCHEDULE 80 Prime 59015N	181-00070	25	$ 23.45			stock-2 wk
5" HD U-GUARD MOLDING 10' SCHEDULE 80 Prime 59016N	181-00074	20	$ 31.30			stock-2 wk
6" PVC BASE SPACERS SPB600x300 or equal	181-00142	9,000	$ 1.23			2-4 wks

6" INTERMEDIATE SPACERS P/N: SPL600x300 or equal	181-00143	9,000	$ 1.55			2-4 wks
PVC CONDUIT CEMENT QT	181-00005	600	$ 9.45	VC9982		Stock
2.5" ELBOW 45 DEGREES 24" RADIUS PRIME UA7DKB or equal	181-00115	300	$ 6.72			2-4 wks
2" ELBOW 90 DEG 24" RAD Prime UA9DJB	181-00113	30	$ 2.38			2-4 wks
ADAPTER 2" TO METER BOX Prime E954JXX or equal	181-00013	40	$ 7.53	MRS40200X6000		4wks
ADAPTER 2.5" TO METER BOX Prime E954KXX or equal	181-00014	40	$ 9.96	MRS40250X6000		4wks
6W30-1 Wunpeece Spacer	N/A	3000	$ 1.98	UGD		(40pcsctn)
6W30-2 Wunpeece Spacer	N/A	6000	$ 3.95	UGD		(2opcsctn)
H26-30-24 Hold down Bar w/ clip	N/A	5000	$ 4.40	UGD		2 wks PPA

Pricing for fittings and accessories will be fixed for the term of the contract (1 year). It shall be noted that it is the intent (but not a guarantee) that the City of Loveland will award to one bidder for all fittings and accessories items.

STICK PVC PRICES "MAY" BE ADJUSTED QUARTERLY BASED ON PVC RESINS CHANGES. PLEASE STATE AND PROVIDE A COPY OF THE CURRENT RESIN PRICE YOU ARE ESTABLISHING PRICING FROM AND THE PUBLICATION THAT THE CITY OF LOVELAND CAN VERIFY AND MONITOR FOR ESCALATION / DE-ESCALATION ADJUSTMENTS. (STICK PIPE ONLY) IN ADDITION, THE WINNING BIDDER SHALL PROVIDE TO THE CITY, DOCUMENTATION (FROM THE SAME STATED PUBLICATION) SUBSTANTIATING ALL CHANGES TO PRICES QUARTERLY, AND ONE WEEK IN ADVANCE OF ANY QUARTERLY ADJUSTMENTS.

Current Resin Price_____ Publication found Plastic News
(i.e. Plastic News)

*** Attached Plastic News detailed base report.

Wendy Pucket

From: Wendy Pucket
Sent: Thursday, April 14, 2016 10:23 AM
To: Wendy Pucket
Subject: RESIN PRICE AND CHANGES

Statement online:

Plastics News this week is showing downward non-market price corrections on several commodity resins for North America. The corrections are as follows :

- All grades of polyethylene — including HDPE, LDPE and LLDPE — down 25 cents per pound.
- All grades of polypropylene down 25 cents per pound.
- Suspension PVC grades down 40 cents per pound.
- Solid polystyrene grades down 15 cents per pound.
- Expandable polystyrene (EPS) grades down 50 cents per pound.

These corrections are designed to reflect more accurate selling prices for the North American market. They do not reflect any recent pricing activity.

The changes are being shown on this week's PN resin pricing chart. The chart is intended to show general market activity and is not designed to be used as a single-source index for price-setting.

Beginning 04/01/16, and for the remainder of the contract, RMCP reserves the right to escalate / de-escalate pricing at the beginning of each new quarter, based on changes in the published "Plastics News" resin pricing chart. We will use the mid-point of the PVC suspension resin pipe grade, (key 1) volume category, as the basis for escalation / de-escalation. The basis will be 70. The percentage of escalation / de-escalation is 2.50% per $.01/lb change in resin. This chart is published weekly in "Plastics News". Plasticsnews.com

Please explain formula for price Adjustments,

PVC price adjust quarterly only if per Plastic News Attached calculation and component list.

Please state your terms of payment and any discounts you might offer:

Net 30 days

Please state return policy (may attach manufacturer's policy):

All returns / credits per Vendor approval

Please note any exceptions you take to this bid, *e.g.*, minimum quantity requirements:

Material lists quoted freight allowed on truckload quantities. Fittings freight allowed and per Loveland specifications. Noted part # changes up

BIDDER'S INFORMATION

Company Name: Western United Electric Supply

Mailing Address: 100 Bromley Business Pkwy Brighton, CO 80603

Telephone Number: 720.880.7025 Fax Number: 303-659-3598

The bidder hereby acknowledges receipt of Addendum Nos. ___, ___, ___, ___, ___, ___, to these specifications. (Insert number of each addendum received.)

Name and Title of Authorized Company Representative:

Wendy Rucket
Name (Please print)

Account Representative
Title

Wendy Rucket
Signature

Dated this 13 day of April, 2016.

1

Attachment B

LOVELAND UTILITIES COMMISSION
REGULAR MEETING
May 18, 2016 - 4:00 p.m.
Service Center Board Room
200 North Wilson Avenue

AGENDA

4:00 pm - **CALL TO ORDER**
4:05 pm - **APPROVAL OF MINUTES - 4/20/2016**
NEW EMPLOYEE INTRODUCTION – Jeremy Horner, Eric Wilson

CITIZENS REPORTS

Anyone in the audience may address the LUC on any topic relevant to the commission. If the topic is an item on the Consent Agenda, please ask for that item to be removed from the Consent Agenda. Items pulled will be heard at the beginning of the Regular Agenda. Members of the public will be given an opportunity to speak to any item on the Regular Agenda during the Regular Agenda portion of the meeting before the LUC acts upon it. If the topic is an item on the Staff Report, members of the public should address the Commission during this portion of the meeting as no public comment is accepted during the Staff Report portion of the meeting.

Anyone making comment during any portion of tonight's meeting should identify himself or herself and be recognized by the LUC chairman. Please do not interrupt other speakers. Side conversations should be moved outside the Service Center Board Room. Please limit comments to no more than three minutes.

APPROVED BY THE LUC ON 5-18-2016 Stephen C. Adams

CONSENT AGENDA

1. PVC Conduit and Accessories Bid 2016 Contract Award – Steve Johnson
2. Change order for GE Construction Annual Substructure Projects for 2016 – Kent Aspinall
3. Change order for Colorado Boring Annual Directional Boring Projects for 2016 – Kent Aspinall

4:55 pm - **REGULAR AGENDA**

4. Opportunities for Revenue Through Long Term Water Right Leasing – Greg Dewey
5. Foothills Substation Transformer Contract Award for FEMA Alternate Project – Frank Lindauer
6. 2017 10 Year Capital Improvement Program – Roger Berg, Christine Schraeder and Jim Lees

5:15 pm - **STAFF REPORT**

7. CAMU Legislative Update – Dan Hodges
8. Redefining our Key Accounts Program – Gretchen Stanford and Tracey Hewson

Executive Session – to discuss confidential commercial and financial information protected under the Open Meetings Law and City Charter and/or the Colorado Open Records Act. The Executive Session will take place prior to the public consideration, discussion and any possible action.

5:45 pm - 9. **COMMISSION / COUNCIL REPORTS**
- Power Cost-of-Service Study Kickoff Meeting – April 29, 2016
- ISO Celebration Breakfast – May 6, 2016

6:00 pm - 10. **DIRECTOR'S REPORT** – Separate Document

6:15 pm - **INFORMATION ITEMS**

11. Electric Legislative Update – Kim O'Field
12. Water Legislative Update – Michelle Stalker
13. Water Supply Update – Larry Howard
14. Financial Report Update – Jim Lees

6:20 pm - **ADJOURN**

The City of Loveland is committed to providing an equal opportunity for services, programs and activities and does not discriminate on the basis of disability, race, age, color, national origin, religion, sexual orientation or gender. For more information on non-discrimination or for translation assistance, please contact the City's Title VI Coordinator at TitleSix@cityofloveland.org or 970-962-2372. The City will make reasonable accommodations for citizens in accordance with the Americans with Disabilities Act (ADA). For more information on ADA or accommodations, please contact the City's ADA Coordinator at bettie.greenberg@cityofloveland.org or 970-962-3319.

"La Ciudad de Loveland está comprometida a proporcionar igualdad de oportunidades para los servicios, programas y actividades y no discriminar en base a discapacidad, raza, edad, color, origen nacional, religión, orientación sexual o género. Para más información sobre la no discriminación o para asistencia en traducción, favor contacte al Coordinador Título VI de la Ciudad al TitleSix@cityofloveland.org o al 970-962-2372. La Ciudad realizará las acomodaciones razonables para los ciudadanos de acuerdo con la Ley de Discapacidades para americanos (ADA). Para más información sobre ADA o acomodaciones, favor contacte al Coordinador de ADA de la Ciudad en bettie.greenberg@cityofloveland.org o al 970-962-3319".

The password to the public access wireless network (colguest) is accesswifi.

City of Loveland

CITY OF LOVELAND
WATER & POWER DEPARTMENT
200 North Wilson • Loveland, Colorado 80537
(970) 962-3000 • FAX (970) 962-3400 • TDD (970) 962-2620

AGENDA ITEM: 1
MEETING DATE: 5/18/2016
SUBMITTED BY: Steve Johnson, Buyer

TITLE: PVC Conduit and Accessories Bid 2016-16 Contract Award

DESCRIPTION:
Award of a one year contract to Western United Electric Supply Corporation for PVC Conduit and Accessories, Bid 2016-16. Through the Municipal Code, City Council has previously authorized LUC the option of approving contracts exceeding $500,000. This authorization reduces the number of items that go to Council for consideration and increases the City's efficiency. Under these circumstances, the City Manager then signs the supply contract after LUC approval. This contract approval is being brought forward for LUC action.

SUMMARY:
On 14 April 2016 the City of Loveland received sealed bids for our PVC Conduit and Accessories needs. These materials are used for construction of the City of Loveland's electrical distribution system. Bidder(s) name and total amounts for estimated PVC quantities are as follows.

- Western United Electric Supply Corporation $899,191.85
- WESCO Distribution $ 982,111.75
- Stuart Irby $966,020.81
- Fort Collins Winlectric $ 284,983.75 (Stick conduit not included in bid)

After comprehensive evaluations, the City of Loveland Electrical Specification Committee has unanimously agreed that a contract should be awarded to Western United Electric Supply Corporation in the amount of $899,191.85. Justification for this recommendation for award to Western United Electric Supply Corporation is due to being the lowest responsive, responsible bidder.

RECOMMENDATION:
Award the contract for PVC Conduit and Accessories to Western United Electric Supply Corporation in an amount not to exceed $899,191.85 and authorize the City Manager to execute the contract on behalf of the City.

REVIEWED BY DIRECTOR:
JB for SA

ATTACHMENTS:

- **Attachment A:** Bid Tabulation

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 2
MEETING DATE: 5/17/2017
SUBMITTED BY: Derek Turner
STAFF TITLE: Assistant City Attorney

ITEM TITLE:

Right of First Refusal for Platte River Power Authority Sale of Windy Gap Units

DESCRIPTION:

Staff requests the LUC's recommendation on the City's course of action in response to a recent letter from the Platte River Power Authority (PRPA).

In 1974, the City of Loveland assigned to the PRPA the City's preferential right to contract with the Municipal Subdistrict (Subdistrict) of the Northern Colorado Water Conservancy District (NCWCD) for 40 units of Windy Gap contract water, representing one-half of the City's original allotment of Windy Gap units. As part of the assignment, PRPA agreed that if such units were ever offered to any other entity, PRPA shall first offer the use of the units to the City on substantially similar terms and conditions—effectively giving the City a right of first refusal if PRPA were to ever market the units. In early May 2017, PRPA formally provided notice to the City that it intended to sell 23 units of contract water in the Windy Gap project, and requested the City to formally exercise or decline its right of first refusal as a condition of the sale.

SUMMARY:

PRPA's originally-allocated units of Windy Gap Project water were assigned to PRPA by the cities of Fort Collins (80 units), Estes Park (40 units), and Loveland (40 units). PRPA recently determined that some of its Windy Gap units were not required for the reliable operation of its power generation facilities, and on October 19, 2016 issued a request for proposals for the purchase or transfer of such units. PRPA received offers by other entities or persons to purchase a total of 23 units. Although the terms of the offers are confidential and subject to ongoing negotiation, the City understands that the offers include cash, storage considerations in the Windy Gap Firming Project, and/or a guaranteed quantity of Colorado-Big Thompson (CBT) rental water in exchange for the units. According on the language of the 1974 Assignment, PRPA must offer the use of the Windy Gap units to the City "on substantially similar terms and conditions as those at which such right of use is offered to such other person or entity."

PRPA's sale of these Windy Gap units represent the first proposed transaction implicating the City's right of first refusal. The City originally transferred its right to 40 units of Windy Gap water; presumably, at least 17 units held by PRPA (and, likely, at least 34 units[1]) will continue to be encumbered by the City's right of first refusal, should PRPA decide to convey additional units in the future.

Under direction from the LUC and City Council, City Staff have for more than fifteen years invested City efforts and resources towards completion of the Windy Gap Firming Project, which provides acre-feet of storage for Windy Gap water and is projected to firm the City's annual yield of its Windy Gap Project water allocations. The City's pursuit of additional storage in the Windy Gap Firming Project is also partially motivated by the lack of firm annual yield from the City's existing Windy Gap Project units.

Therefore, based on (1) the significant unbudgeted compensation likely required to re-acquire the Windy Gap Project units from PRPA, (2) the City's current policy and direction from City Council to increase its storage participation in the Windy Gap Firming Project to a total of 10,000 acre-feet, rather than decrease

[1] The City Attorney's Office, in conjunction with staff of Fort Collins and Estes Park, intends to seek additional clarification from PRPA on how it intends to track the previous ownership of the remaining Windy Gap units.

its participation from its current level of 9,451 acre-feet, and (3) the current lack of a reliable annual yield from Windy Gap Project units, City Staff recommends that the City decline its right of first refusal on these units.

RECOMMENDATION:

Adopt a motion recommending that the City Manager decline to exercise the City's right of first refusal for these Windy Gap units from PRPA.

ATTACHMENTS:

- Attachment A: May 4, 2017 PRPA letter to City of Loveland
- Attachment B: 1974 Assignment to PRPA

Attachment A

Platte River Power Authority

Estes Park • Fort Collins • Longmont • Loveland

May 4, 2017

sent via email

City of Loveland
C/O Larry Howard
Senior Civil Engineer, Water Utilities
200 North Wilson Avenue
Loveland, CO 80537
Larry.Howard@cityofloveland.org

Re: Sale of Windy Gap Units

Larry,

As you know, Platte River Power Authority ("Platte River") has received offers to purchase a total of 23 units of Windy Gap Water in response to its October 19, 2016 request for proposals. Platte River has determined that these units are no longer required for the reliable operation of its generation facilities, and the Platte River Board of Directors has approved the sale of these units to facilitate necessary improvements. The terms of these offers are confidential and subject to ongoing negotiations, but the offers do reflect current market pricing for Windy Gap units. In addition to cash consideration, these offers also include the transfer of storage allocation in the Windy Gap Firming Project to Platte River and/or a guaranteed quantity of Colorado-Big Thompson rental water available to Platte River.

The units subject to these offers were originally assigned to Platte River by Fort Collins, Loveland and Estes Park under agreements which retained a right of first refusal should these units be offered for sale in the future (on substantially similar terms and conditions as offered to another entity). Based on our discussions with staff, we understand that Loveland is not interested in purchasing any Windy Gap units from Platte River at this time and does not object to this proposed sale.

Because a refusal or waiver of the member cities rights of first refusal, if any, is a condition precedent to the sale of these units, we wanted to document Loveland's position for our files, as we have done with the other Platte River member communities.

If you would please sign this letter to confirm that Loveland is not interested in the purchase of these units and return to me at your earliest convenience, I would greatly appreciate it.

Platte River Power Authority

Estes Park • Fort Collins • Longmont • Loveland

Thank you,

Heather Banks

Heather Banks
Fuels and Water Manager
Platte River Power Authority

Acknowledgement

I have reviewed the above correspondence, and hereby confirm that the City of Loveland does not desire to purchase any of the 23 units of Windy Gap water subject to the pending sale by Platte River (which would include providing Platte River with additional storage in the Windy Gap Firming Project and/or supplemental C-BT rental water), and does not object to Platte River's sale of those units.

City of Loveland

By:_____

Attachment B

Loveland S-3105

5086

A S S I G N M E N T

WHEREAS, Platte River Power Authority (hereafter, "Platte River"), is an agency and instrumentality of the City of Loveland, Colorado (hereafter, the "Municipality"),and supplies at wholesale electric power and energy requirements of the Municipality for resale by its municipal electric utility; and

WHEREAS, Platte River will require additional electric generating capacity when the limits of its existing and scheduled energy resources have been reached, presently anticipated for the year 1982, and Platte River anticipates that such additional capacity will be located in the Platte River drainage basin; and

WHEREAS, the limited availability of water sources in Eastern Colorado to meet the cooling requirements incident to any proposed thermal-electric generating facility makes the acquisition of adequate water supplies essential to Platte River's and the Municipality's future power supply; and

WHEREAS, the Municipality is a participant in the Municipal Subdistrict, Northern Colorado Water Conservancy District and entitled as such to a preferential right to contract for an allotment equal to one-sixth (1/6) of the waters developed by the said Subdistrict;

NOW, THEREFORE, the Municipality does by these presents assign, transfer and convey to Platte River one-half (1/2) of its preferential right to contract for said allotment, or any part thereof.

And Platte River, in consideration of said assignment, does agree with the Municipality:

(1). That within three (3) years from the execution of an allotment contract between the said Sub-district and Platte River for the use of the waters allotted to Platte River by virtue of this assignment, Platte River shall reimburse the Municipality for that portion of the assessments heretofore paid by the Municipality to the Sub-district and to the Six Cities Water Committee in connection with the investigation, protection and development of the so-called "Windy Gap Project", which is attributable to the preferential right herein assigned to Platte River, and

(2). Except for the use of the waters allotted to Platte River by virtue of this agreement in connection with the generation of electric energy in a thermal-electric project or projects in which Platte River participates, if Platte River shall ever offer the right to the use of any of such water, through development or reuse potential, transfer, lease or sale of any portion of the allotment, or otherwise, to any other person or entity, it shall first offer the use thereof to the Municipality on substantially similar terms and conditions as those at which such right of use is offered to such other person or entity.

This agreement shall inure to the benefit of and be binding upon the successors and assigns of the parties.

IN WITNESS WHEREOF, this agreement has been executed by the parties this 29 day of July, 1974.

PLATTE RIVER POWER AUTHORITY

By _____
President

ATTEST:

_____
Secretary

CITY OF LOVELAND, COLORADO

By _____
Mayor

ATTEST:

_____
City Clerk

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 3
MEETING DATE: 5/17/2017
SUBMITTED BY: Brian Gandy
STAFF TITLE: Special Projects Manager

ITEM TITLE:

Wastewater Treatment Plant Biological Nutrient Removal – Contract Amendment for Engineering Services during Construction for Carollo Engineers

DESCRIPTION:

The purpose of this item is to amend our engineering contract with Carollo Engineering to add "Services During Construction" to the contract.

Per the Municipal Code, if a Contract exceeds $500,000 or 20% of the original value through previously approved amendments, all subsequent amendments must be approved by the LUC. As such, this contract amendment is presented here for LUC consideration.

SUMMARY:

As the Wastewater Treatment Plant improvements project transitions from the design phase to the construction phase, so does the role of each of the engineering firms involved.

Carollo Engineers will transition from the design engineer role for the Biological Nutrient Removal improvements to a consulting engineering role during construction. Carollo's responsibilities during construction relative to their respective scope of work include the following:

- Maintain engineer of record status as it relates to the responsibility of the design and any design changes made during construction.
- Attend weekly progress meeting and be kept informed of the construction progress
- Review and respond to selected shop submittals and RFIs
- Conduct as-needed special inspections
- Provide start-up assistance and process optimization
- Provide training and technical assistance to Plant staff upon project completion

Funds are available for this professional service contract amendment in the current 2017 budget.

RECOMMENDATION:

Adopt a motion to approve the amendment to Carollo's contract for Engineering Services during Construction in the amount of **$287,623** and increase the not-to-exceed amount to $1,920,311.

ATTACHEMENTS:

- **ATTACHMENT A:** Scope and Fee for Carollo Engineers

Attachment A

EXHIBIT A

ENGINEERING AGREEMENT
SCOPE OF SERVICES
BIOLOGICAL NUTRIENT REMOVAL PROJECT

AMENDMENT No. 4

CITY OF LOVELAND (OWNER)
AND
CAROLLO ENGINEERS, INC. (CONSULTANT)

PURPOSE

The purpose of this Amendment No. 4 is to provide limited Engineering Services During Construction (ESDCs) as requested by the City of Loveland (City) as an amendment to the original contract dated July 2, 2015, in connection with the City's Wastewater Treatment Plant (WWTP) Biological Nutrient Removal Project (BNR Project, or Project).

It is assumed that the construction duration will be twenty-two (22) months and that OWNER will retain a third party Construction Manager (ENGINEER) for this Project.

ASSUMPTIONS

CONSULTANT shall be responsible only for those CONSULTANT'S services expressly required herein. With the exception of such expressly required services, CONSULTANT shall have no design, Shop Drawing review, or other obligations during construction and ENGINEER assumes the responsibility, if any, for the application and interpretation of the Contract Documents, review and response to Contractor claims, Construction Contract administration, processing Change Orders, revisions to the Contract Documents during construction, construction observation and review, review of payment applications, and all other Construction Phase engineering and professional services that are required of the ENGINEER in their Contract with OWNER. OWNER agrees that CONSULTANT'S liability is limited to claims related to those services expressly required from CONSULTANT, not those performed by ENGINEER. OWNER does not hereby waive any claims for design and engineering services performed by CONSULTANT.

In general, the ENGINEER will provide management of construction, hosting of meetings, resolution of field issues, coordination with CONSULTANT and OWNER, field inspection services, and all other Construction Management related duties. Response to Requests for Information (RFIs), engineering and documentation of Work Change Directives, Shop Drawing submittal reviews, and all other CONSULTANT work products and communications will be provided to the Contractor through the ENGINEER. The CONSULTANT shall not be responsible for the impacts of unauthorized deviations from the Contract Documents, Drawings, and Specifications. Authorized deviation will be provided in writing by the CONSULTANT as part of written RFIs, Shop Drawing submittal review, Change Order documentation, or on other written forms as provided by the ENGINEER to signify CONSULTANT'S consensus with field-directed changes. The CONSULTANT shall not be responsible for identifying deviations from the Contract Documents.

It is the CONSULTANT'S expectation that submittals provided by the ENGINEER are complete and adequately comprehensive to demonstrate compliance with Contract Documents prior to

transmittal to the CONSULTANT. It is the CONSULTANT'S expectation that the ENGINEER will log, review for completeness, and deliver submittals in a timely manner allowing review time as stipulated in the CONSULTANT'S services scope.

When the budgeted limit for each individual task item authorized under this Amendment No. 4 is fully utilized, the CONSULTANT will discontinue work on that item and notify the OWNER. The OWNER will evaluate and authorize by Amendment appropriate extensions to the work, or direct use of remaining funds under a separate task, to allow continued reasonable performance of Engineering Services During Construction.

CONSULTANT'S scope of services as described herein is based upon the assumption that the ENGINEER will have the following general duties and responsibilities during the Project:

- Document Control and Management System Configuration.
- Develop and manage Daily Logs, Reports, RFIs, Submittals, Change Orders, and Project Documentation.
- Coordinate and Conduct Pre-Construction Conference and Construction Meetings.
- Receive, Review, and Accept Contractor's Baseline and Progress Schedules.
- Receive, Review, and Process Contractor's Pay Applications.
- Daily Quality Assurance (CM, Field Inspection, Photographs, and Independent Laboratory and Field Testing).
- Regulatory, Environmental, Safety, Traffic, and Security Compliance Monitoring.
- Monthly Construction Progress Reports and Presentations to OWNER.
- Coordination with Building Department and other Inter-governmental Departments in Responsible Charge.
- Coordinate and manage OWNER'S contracts with Geotechnical, Surveyor, and Special Inspection Services.
- Unit Price Work, Schedule of Values, Final Payment, and Contract Closeout
- Claims Review, Cost Estimating, and Analysis and Dispute Management.
- Equipment Testing and Start-up Oversight, unless requested of CONSULTANT.
- Substantial and Final Completion Inspection and Punch List.
- Coordination, Review, and Quality Assurance of Contractor's Record Drawings prior to utilization of CONSULTANT'S base CAD files delivered under Task 700 for development and delivery of final record drawings to OWNER.
- Warranty Management (Following Each Substantial and Final Completion).

CONSULTANT'S SERVICES

TASK 100 – PROJECT MANAGEMENT

Task 101 - ESDC Services Management - CONSULTANT shall coordinate the activities of the CONSULTANT'S technical staff, administer the ESDC contract, monitor ESDC task progress and spending, and prepare monthly progress reports and invoices for OWNER. CONSULTANT will receive Shop Drawing submittals, RFIs, work change directives, and correspondence from the ENGINEER.

CONSULTANT shall prepare a total of twenty-two (22) monthly progress reports corresponding to the assumed construction duration, delivered via email. Each progress report shall include a

summary of ESDC work completed during the period, a projection of ESDC work anticipated during the next period, a task by task accounting of the work elements completed as compared to the task budget, a summary table of expenditures and percent work complete by task, and identification of outstanding issues that may impact the cost of the ESDC contract.

Task 102 - Progress Meetings - The CONSULTANT'S Project Manager or designee shall attend weekly construction progress meetings throughout the 22 month construction period. Progress Meetings will be coordinated and conducted by the ENGINEER. It is generally assumed that an average of 1 meeting per month shall be attended in person and an average of 3 meetings per month shall be via teleconference, for a total of up to eighty-eight (88) meetings. CONSULTANT shall participate in discussion of engineering issues during the progress meetings and respond to engineering questions in writing, as necessary. For the purposes of establishing the budget limits, it is assumed that in-person meetings shall require a total of four (4) hours per meeting including travel time to and from the jobsite, and teleconference meetings are assumed to require a total of two (2) hours per meeting. CONSULTANT shall review meeting minutes prepared by the ENGINEER, and respond to action items for CONSULTANT as requested.

Task 103 - Coordination Meetings - CONSULTANT shall, at the request of the ENGINEER, attend up to five (5) coordination meetings. Coordination Meetings will be coordinated and conducted by the ENGINEER. Where requested by the ENGINEER, CONSULTANT shall provide a discipline engineer (e.g., process, structural, electrical, or I&C) to attend, as needed. For the purposes of establishing the budget limits, it is assumed that coordination meetings shall require a total of six (6) hours per meeting including travel time to and from jobsite. CONSULTANT shall review meeting minutes prepared by the ENGINEER. CONSULTANT shall provide comments, as necessary.

TASK 200 – RFIs

Task 201 - Response to Request for Information - CONSULTANT shall, at the request of the ENGINEER, review RFIs provided by the ENGINEER and prepare written responses transmitted through the ENGINEER'S document management system (assumed to be SharePoint). The number, complexity, and level of effort required to review RFIs is uncertain. For the purposes of establishing the budget limits, it is assumed that the CONSULTANT shall respond to up to twenty (20) RFIs at an average effort of six (6) hours per RFI. CONSULTANT shall review and return RFIs within reasonable promptness, but shall be no longer than seven (7) calendar days from receipt from the ENGINEER.

Task 202 - Work Change Directives - CONSULTANT shall, at the request of the ENGINEER, evaluate and provide recommendations regarding Work Change Directive proposals. CONSULTANT shall provide drawings and specifications as necessary to describe the Work Change Directive. ENGINEER will prepare, manage, and process all change order forms incorporating CONSULTANT'S drawing and specification changes. ENGINEER will review and negotiate all pricing for Work Change Directives. ENGINEER will provide field construction management services associated with the execution of all Change Orders. The number, complexity, and level of effort required to prepare Work Change Directives is uncertain. For the purposes of establishing budget limits, it is assumed that the CONSULTANT shall prepare engineering documentation for up to two (2) work change directives at twenty (20) hours each.

TASK 300 – SUBMITTALS

Task 301 - Shop Drawing Submittals and Resubmittals - The CONSULTANT shall review and provide written comments on submittals (i.e. shop drawings, test results, and product data) provided by the ENGINEER in conformance with the requirements of the Contract Documents, transmitted through the ENGINEER'S document management system (assumed to be SharePoint). CONSULTANT'S review is for general conformance with the design intent of the Project and for specific conformance with the requirements of the materials and equipment indicated in the Contract Documents.

The returned submittals shall indicate results of CONSULTANT'S review. Such review shall determine the suitability of the Contractor's proposed details for conformance with the design information and product specifications provided in the Contract Documents and consistency with the design intent represented in the specifications and drawings. Such review and approval shall not extend to means, methods, sequences, techniques, or procedures of construction selected by Contractor, or to associated safety precautions and programs. CONSULTANT shall review and return submittals within fourteen (14) calendar days from receipt from the ENGINEER.

The number, complexity, and level of effort required to review submittals is uncertain. For the purposes of establishing budget limits, it is assumed that CONSULTANT shall review up to twenty-four (24) submittals at ten (10) hours per submittal and fifteen (15) resubmittals at four (4) hours per resubmittal.

TASK 400 – FIELD INQUIRIES

Task 401 - Field Inquiries - The CONSULTANT shall, at the request of the ENGINEER, respond to field inquiries by the ENGINEER, OWNER, or Contractor. Field inquiries are requests for information or direction not deemed as an RFI, to assist in interpreting the Contract Documents. The number, complexity, and level of effort required to respond to field inquiries is uncertain. For the purposes of establishing budget limits, it is assumed that the CONSULTANT shall respond to two (2) field inquiries at one (1) hour per field inquiry per month for the twenty-two (22) month project duration.

TASK 500 – STARTUP AND TRAINING

Task 501 - Equipment Startup - The CONSULTANT shall, at the request of the ENGINEER, assist with equipment startup. Where requested, and if equipment is not functioning as specified, CONSULTANT shall work with the ENGINEER to make site visits for troubleshooting or assistance in equipment startup and adjustments. The number, complexity, and level of effort required to review equipment startup is uncertain. For the purposes of establishing budget limits, it is assumed that the CONSULTANT shall assist with up to five (5) equipment startup activities at eight (8) hours each including travel time to and from the jobsite if necessary.

Task 502 - Process Startup and Optimization - The CONSULTANT shall, at the request of the ENGINEER, assist with process startup. CONSULTANT shall work with the ENGINEER and make site visits to witness process startup and assist in process startup adjustments and optimization. Process startup may include evaluating process conditions, reviewing process data, and making recommendations for process operation. The number, complexity, and level of effort required to assist with process startup is uncertain. For the purposes of establishing budget limits, it is assumed that the CONSULTANT shall assist with up to ten (10) process

startup activities at sixteen (16) hours each including travel time to and from the jobsite if necessary.

Task 503 - Training - The CONSULTANT shall, at the request of the ENGINEER, provide training on operations of new facilities prior to the first modified aeration basin being placed back in service. For purposes of establishing budget limits, it is assumed that training includes three (3) classes offered two (2) times each on the same day. Training classes shall be two (2) hours long plus a one (1) hour site walkthrough. Training class topics to include operation of modified Aeration Basins, RAS pumping and Secondary Clarifiers, RAS Anoxic Zone, ALPS Flow Split, Headworks screening, and UV disinfection.

TASK 600 – ADDITIONAL DESIGN ELEMENTS

Task 601 - MCC-6 Replacement Design - Provide design of replacement of MCC-6 that powers the Aeration Lift Pump Station in MCC-6/PLC-4 Building (previously referred to as the Old Blower Building). Modifications shall include repowering and controlling existing equipment, including ALPS pumps and ALPS overflow pump, powered from this MCC. Work shall not include replacing existing PLC-4. CONSULTANT shall conduct two site visits to coordinate with OWNER and Contractor regarding approach, sequence, and arrangement.

Deliverables shall include an intermediate design deliverable (approximately 60%) and a final 100% deliverable for construction. Assumption is that this work will be handled as a change order to the existing CMAR Contract so that Contract Documents including general requirements, typical details, and specifications will reference the existing Contract Documents and not be included in the MCC-6 design package.

OWNER will provide best available existing information on existing building and MCC layout.

TASK 700 – RECORD DRAWING SUPPORT

Task 701 - CAD File Delivery for Record Drawings - CONSULTANT shall provide electronic CAD file drawings of all 100% Contract Drawings in MicroStation format to ENGINEER. CONSULTANT shall remove signatures and electronic stamps from drawing files. ENGINEER will be responsible for monitoring record drawing status during construction, creating and maintaining construction record drawings, and providing completed electronic construction record drawings to OWNER and CONSULTANT.

DELIVERABLES

The CONSULTANT'S additional deliverables for the Project will include:

ESDCs:

- Monthly Progress Reports and Invoices
- Comments to Coordination Meeting Minutes prepared by ENGINEER
- Submittal review comments
- Responses to RFIs
- Work Change Directives

- Additional drawings as part of Task 600 Additional Design Elements as follows, with deliverables as indicated below:

Drawing No.	Drawing Name
Task 701	
01G01	COVER SHEET/DRAWING LIST
05E50	MCC-6 ONE-LINE DIAGRAM
05E51	MCC-6 ELEVATION DIAGRAM
05E52	MCC-6 BUILDING PANELBOARD SCHEDULES
05E53	MCC-6 BUILDING POWER AND CONTROL PLAN
05I01	ELECTRICAL CONTROL SCHEMATICS I
05I02	ELECTRICAL CONTROL SCHEMATICS II
05I05	NETWORK BLOCK DIAGRAM
50I05	ALPS PUMPS P&ID 1
50I06	ALPS PUMPS P&ID 2
50I07	ALPS OVERFLOW PUMP P&ID

TIME OF PERFORMANCE

It is anticipated that all services identified in this Amendment shall be completed by December 31, 2019.

- 60% Intermediate Design Deliverable - MCC-6 September 15, 2017
- 100% Issued For Construction - MCC-6 30 Days after comments received

This schedule assumes written authorization to proceed by May 17, 2017; schedule dates will be adjusted accordingly if authorization is issued after this date. Exact dates for meetings and site visits will be identified and adjusted in consultation with the ENGINEER and OWNER as the project progresses.

PAYMENT

CONSULTANT will perform the additional services described herein in Tasks 100 through 700 for a not-to-exceed amount of $287,623 inclusive of all labor, expenses, and subcontract work on the project. The cost associated with each Task is summarized in the attached table and will be billed monthly per the Fee Schedule in the Agreement. Actual expenditures may vary from the task-level budgets, but in no case will the total fee for the project exceed the total not-to-exceed amount for all tasks unless specifically authorized in writing by the OWNER. The total amount for the project will be increased from the previous $1,632,688 to a revised total of $1,920,311.

CAROLLO ENGINEERS, INC.
FEE SCHEDULE

CITY OF LOVELAND, COLORADO

As of January 1, 2017

	Hourly Rate
Engineers/Scientists	
Engineering Intern	$62.00
Assistant Professional I	128.00
Assistant Professional II	149.00
Professional	172.00
Project Professional	195.00
Lead Project Professional	225.00
Senior Professional	245.00
Technicians	
Technicians	113.00
Senior Technicians	165.00
Support Staff	
Document Processing / Clerical	98.00
Project Equipment Communication Expense (PECE) Per DL Hour	**11.70**
Other Direct Expenses	
Travel and Subsistence	at cost
Mileage at IRS Reimbursement Rate Effective January 1, 2017	$.535 per mile
Subconsultant	cost + 10%
Other Direct Cost	at cost
Expert Witness	Rate x 2.0

This fee schedule is subject to annual revisions due to labor adjustments.

City of Loveland 05/11/17
Wastewater Treatment Plant
Biological Nutrient Removal Project - Engineering Services During Construction

	Team Member	Senior Professional	Lead Project Professional	Project Professional - Project Manager	Professional - Project Engineer	Project Professional - Process Engineer	Professional - Discipline Engineer	Assistant Professional II	Assistant Professional I	Senior Technician - CAD	Technician - CAD	Document Processing/ Clerical	Carollo Hours	Carollo Labor Cost	Project Equipment and Communication Expense (PECE)	Subconsultants	Carollo ODCs	Total Engineering Cost
Task	**Description**	$ 245	$ 225	$ 195	$ 172	$ 195	$ 172	$ 149	$ 128	$ 165	$ 113	$ 98			$ 11.70			
100	**PROJECT MANAGEMENT**																	
101	ESDC Services Management	0	0	104	0	0	0	0	0	0	0	8	112	$ 21,064	$ 1,310	$ -	$ -	**$ 22,374**
102	Progress Meetings	0	0	220	0	0	0	0	0	0	0	0	220	$ 42,900	$ 2,574	$ -	$ 990	**$ 46,464**
103	Coordination Meetings	0	0	30	12	0	18	0	0	0	0	0	60	$ 11,010	$ 702	$ -	$ 450	**$ 12,162**
	Subtotal Task 100 Hours	**0**	**0**	**354**	**12**	**0**	**18**	**0**	**0**	**0**	**0**	**8**	**392**					
	Subtotal Task 100 Costs	**$ -**	**$ -**	**$ 69,030**	**$ 2,064**	**$ -**	**$ 3,096**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 784**		**$ 74,974**	**$ 4,586**	**$ -**	**$ 1,440**	**$ 81,000**
200	**RFIs**																	
201	Responses to RFIs	0	0	60	24	0	18	18	0	0	0	0	120	$ 21,606	$ 1,404	$ -	$ 90	**$ 23,100**
202	Work Change Directives	0	0	20	0	0	10	0	0	10	0	0	40	$ 7,270	$ 468	$ -	$ 90	**$ 7,828**
	Subtotal Task 200 Hours	**0**	**0**	**80**	**24**	**0**	**28**	**18**	**0**	**10**	**0**	**0**	**160**					
	Subtotal Task 200 Costs	**$ -**	**$ -**	**$ 15,600**	**$ 4,128**	**$ -**	**$ 4,816**	**$ 2,682**	**$ -**	**$ 1,650**	**$ -**	**$ -**		**$ 28,876**	**$ 1,872**	**$ -**	**$ 180**	**$ 30,928**
300	**SUBMITTAL REVIEW**																	
301	Shop Drawing Review	0	0	120	60	0	60	60	0	0	0	0	300	$ 52,980	$ 3,510	$ -	$ -	**$ 56,490**
	Subtotal Task 300 Hours	**0**	**0**	**120**	**60**	**0**	**60**	**60**	**0**	**0**	**0**	**0**	**300**					
	Subtotal Task 300 Costs	**$ -**	**$ -**	**$ 23,400**	**$ 10,320**	**$ -**	**$ 10,320**	**$ 8,940**	**$ -**	**$ -**	**$ -**	**$ -**		**$ 52,980**	**$ 3,510**	**$ -**	**$ -**	**$ 56,490**
400	**FIELD INQUIRIES**																	
401	Field Inquiries	0	0	44	0	0	0	0	0	0	0	0	44	$ 8,580	$ 515	$ -	$ 90	**$ 9,185**
	Subtotal Task 400 Hours	**0**	**0**	**44**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**44**					
	Subtotal Task 400 Costs	**$ -**	**$ -**	**$ 8,580**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**		**$ 8,580**	**$ 515**	**$ -**	**$ 90**	**$ 9,185**
500	**STARTUP AND TRAINING**																	
501	Equipment Startup	0	0	40	0	0	0	0	0	0	0	0	40	$ 7,800	$ 468	$ -	$ 225	**$ 8,493**
502	Process Startup and Optimization	0	0	40	40	40	0	40	0	0	0	0	160	$ 28,440	$ 1,872	$ -	$ 450	**$ 30,762**
503	Training	0	0	25	13	13	0	25	0	0	8	0	84	$ 14,242	$ 983	$ -	$ 135	**$ 15,360**
	Subtotal Task 500 Hours	**0**	**0**	**105**	**53**	**53**	**0**	**65**	**0**	**0**	**8**	**0**	**284**					
	Subtotal Task 500 Costs	**$ -**	**$ -**	**$ 20,514**	**$ 9,047**	**$ 10,257**	**$ -**	**$ 9,715**	**$ -**	**$ -**	**$ 949**	**$ -**		**$ 50,482**	**$ 3,323**	**$ -**	**$ 810**	**$ 54,615**
600	**ADDITIONAL DESIGN ELEMENTS**																	
601	MCC-6 Replacement Design	8	8	12	0	0	40	80	0	60	60	8	276	$ 42,364	$ 3,229	$ -	$ 90	**$ 45,683**
	Subtotal Task 600 Hours	**8**	**8**	**12**	**0**	**0**	**40**	**80**	**0**	**60**	**60**	**8**	**276**					
	Subtotal Task 600 Costs	**$ 1,960**	**$ 1,800**	**$ 2,340**	**$ -**	**$ -**	**$ 6,880**	**$ 11,920**	**$ -**	**$ 9,900**	**$ 6,780**	**$ 784**		**$ 42,364**	**$ 3,229**	**$ -**	**$ 90**	**$ 45,683**
700	**RECORD DRAWING SUPPORT**																	
701	CAD File Delivery for Record Drawings	0	0	6	0	0	0	0	0	48	0	0	54	$ 9,090	$ 632	$ -	$ -	**$ 9,722**
	Subtotal Task 700 Hours	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**48**	**0**	**0**	**54**					
	Subtotal Task 700 Costs	**$ -**	**$ -**	**$ 1,170**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 7,920**	**$ -**	**$ -**		**$ 9,090**	**$ 632**	**$0**	**$ -**	**$ 9,722**
	Total Hours	**8**	**8**	**721**	**149**	**53**	**146**	**223**	**0**	**118**	**68**	**16**	**1,510**					**$287,623**
	Total Dollars	**$ 1,960**	**$ 1,800**	**$ 140,634**	**$ 25,559**	**$ 10,257**	**$ 25,112**	**$ 33,257**	**$ -**	**$ 19,470**	**$ 7,729**	**$ 1,568**		**$ 267,346**	**$ 17,667**	**$ -**	**$ 2,610**	**$ 287,623**

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LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 4
MEETING DATE: 5/17/2017
SUBMITTED BY: Derek Turner
STAFF TITLE: Assistant City Attorney

ITEM TITLE:

Water Legislative Update

DESCRIPTION:

This item and the attachment are intended to give a brief update on water-related legislation being contemplated by the Colorado General Assembly. Loveland Water and Power relies primarily on the Colorado Water Congress (CWC) for information on water-related legislation.

SUMMARY:

The Second Regular Session of the Seventieth Colorado General Assembly convened on January 11, 2017 and will run through May 10, 2017. The Colorado Water Congress, through its State Affairs Committee, tracks Colorado state house and senate bills related to water. This committee meets each Monday morning during the legislative session. After a bill is first introduced, they cover that bill at the next committee meeting to learn about it. Usually, this committee votes on whether to take a position on the bill at the following State Affairs Committee meeting. The voting may be delayed another week if more time is needed on a bill. For CWC to take a position on a bill, the bill must have at least a 2/3 vote from the State Affairs Committee. Once CWC takes a position, they then advocate on behalf of their members to policy makers. Of the state bills that CWC takes a position, their success rate in either killing bills that they oppose or passing bills that they support is eight-five percent.

While the state legislature is in session, each month in the LUC packet there will be a Bill Summary Sheet (See Attachment A) which gives a brief summary of each bill being tracked by CWC and a Bill Status Sheet (See attachment B) that will show how far along each bill is that CWC has taken a position to support, oppose or monitor (as of May 9, 2017, this Bill Status Sheet appears to not have been updated by CWC Staff in several weeks). For additional information on a particular bill, please click on the hyperlinks in the Bill Summary Sheet. Once a bill is killed in a committee or lost in a floor vote, it will be removed from this list.

The following bills are worthy of note. Where marked "Passed" – the bill has been approved by both chambers of the General Assembly, and await the Governor's signature:

> **Passed – HB17-1291 – Store Quantified Changed Water Rights in Alternate Places of Storage** – This bill allows a water right for which the historical consumptive use was previously quantified to be stored in any reservoir located on the same ditch or diversion system, so long as the water will be diverted from a decree point of diversion for that water right, notice is provided, transit/ditch losses are calculated, and accounting is approved. As amended, this bill excludes such flexibility to imported water (i.e., transbasin water). Any water right owner has the right to a hearing in water court on an allegation that such flexibility will cause injury. The City of Loveland may be in position to exercise the flexibility authorized by this bill, although the previous water court applications already sought to decree flexibility on the places of storage for the City's changed and quantified water rights.

Passed - HB17-1289 State Engineer Rules Historical Consumptive Use – This bill, as amended and passed by the state senate, directs the state Water Resources Review Committee to study the issue of whether the state engineer should be given the authority to promulgate rules and regulations to adopt a nonbinding, streamlined methodology for determining factors and using other assumptions for calculating the historical consumptive use of a water right. Such calculations often require a study of historical diversions, crops, irrigation practices, irrigation efficiencies, crop consumption, precipitation that the crop may have consumed, evaporation and evapotranspiration, irrigation return flow runoff patterns, soil types and field slopes, winter soil moisture, and other highly technical variables. These analyses, and the resulting arguments and objections by the engineers for opposers, are very expensive and contribute to the high transaction costs of water court proceedings to change water rights.

Passed - HB17-1190: Concerning the Applicability of Colorado Supreme Court Decision in St. Jude's case – The Colorado Supreme Court, in a 2015 case that centered around a golf resort's water right for direct flow aesthetic, piscatorial, and recreational purposes (i.e., fishing in a "ditch" that appeared more like a branch of the Roaring Fork River), declared that such beneficial uses were not authorized by law or the constitution. Several water courts had previously issued decrees for such beneficial uses, and the decision created uncertainty as to those other rights – especially conditional rights or augmented diversions for such uses. This bill provides that the decision does not apply to previously decreed absolute and conditional water rights or claims pending as of July 15, 2015 – the date the St. Jude's opinion became a mandate.

Postponed Indefinitely - SB 17-282 –Dedicate Reservoir Release Environmental Purposes - This bill was postponed indefinitely by the state senate committee on Agriculture, Natural Resources, and Energy. It was promoted by Northern Colorado Water Conservancy District and other environmental organizations and water users to clarify the legal authority to make reservoir releases of stored water for certain in-stream uses (i.e, protect or improve natural environmental, improve water quality, recreation). Those uses are, and have been for decades, in a bit of a legal limbo.

Postponed Indefinitely - HB17-1273 Real Estate Development Demonstrate Water Conservation: This bill was postponed indefinitely by state senate committee. Prior to its demise, it proposed to amend existing law to prohibit a local government from approving a permit for a new real estate development unless the applicant for the permit demonstrates that appropriate water conservation and demand management measures are included in the water supply plan for the new development. The bill strengthens language of the existing law by requiring water conservation measures to reduce indoor and outdoor demand be implemented for new developments. As a municipal government with a raw water master plan and other water conservation tools, the impact to the City of Loveland is unclear, but likely minimal. Its impact to other regional governments, special districts, and water users is likely more significant.

The Colorado Water Congress, through its Federal Affairs Committee, provides the principal voice of Colorado's water community on federal issues that may affect Colorado or that are important to its members. The Federal Affairs Committee works closing with the National Water Resource Association (NWRA), a federation of state water organizations concerned with appropriate management, conservation and use of water resources. In the Federal Affairs section of the CWC website it lists a brief description of some key federal legislative items they are tracking such as watershed protection, endangered species, ski

area water rights and waters of the U.S. The Colorado Municipal League provides a voice to Colorado's cities and towns.

Please visit www.cowatercongress.org if you would like additional information regarding federal or state bills related to water and www.cml.org for state and federal bills related to municipal cities and towns.

RECOMMENDATION:

Information item only. No action required.

ATTACHMENTS:

- Attachment A: Colorado Water Bill Summary
- Attachment B: CWC, State Affairs Committee, Water Bill Status Sheet

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Attachment A

2017 Colorado Water Bill Summary

HOUSE BILL 17-1008 Graywater Regulation Exemption for Scientific Research - CONCERNING AN EXEMPTION FROM THE WATER QUALITY CONTROL COMMISSION'S GRAYWATER CONTROL REGULATIONS FOR GRAYWATER USED FOR THE PURPOSE OF SCIENTIFIC RESEARCH INVOLVING HUMAN EXPOSURE.

CWC Position: Support

Bill Summary: Water Resources Review Committee. The water quality control commission in the department of public health and environment (commission) is responsible for developing requirements, prohibitions, and standards that protect public health and water quality for the use of graywater for nondrinking purposes. Scientific research on graywater that might involve graywater uses and systems that do not strictly comply with the requirements, prohibitions, and standards developed by the commission would not be permitted under the control regulations.

To facilitate scientific research related to graywater uses and systems, the bill creates an exemption from the commission's graywater control regulations for scientific research involving human subjects whereby a person may collect and use graywater for purposes of scientific research involving human subjects if the person:

- Seeks to conduct the scientific research on behalf of an institution of higher education;
- Utilizes a graywater treatment works system that incorporates a secondary water supply to provide an alternative source of water if any portion of the system does not function properly; and
- Collects and uses graywater in accordance with the terms and conditions of the decrees, contracts, and well permits applicable to the use of the source water rights or source water and any return flows.

The person is required to report to the water resources review committee on an annual basis the results of periodic monitoring conducted to assess the continued functioning of the graywater treatment works system used in the project and the project's compliance with federal rules concerning the protection of human research subjects.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1008_01.pdf

HOUSE BILL 17-1029 Open Records Subject to Inspection Denial - CONCERNING PUBLIC RECORDS THAT ARE SUBJECT TO DENIAL OF INSPECTION.

CWC Position: Monitor

Bill Summary: The bill allows a custodian to deny access to confidential personal information records and employee personal e-mail addresses. The provisions of the "Colorado Open Records Act" that relate to civil or administrative investigations and trade secrets and other privileged and confidential information apply to the judicial branch.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1029_01.pdf

HOUSE BILL 17-1030 Update 1921 Irrigation District Law - CONCERNING PUBLIC RECORDS THAT ARE SUBJECT TO DENIAL OF INSPECTION.

CWC Position: Support

Bill Summary: Water Resources Review Committee. This bill amends the 1921 irrigation district law to:

- Remove inconsistencies and update antiquated provisions;
- Clarify the definition of landowners entitled to receive water, vote in district elections, and serve on the board of directors;
- Update dollar figures and, in subsequent years, adjust for inflation;
- Define "agricultural land";
- Update election procedures;
- Clarify how irrigation district assessments are collected and held; and
- Modernize procedures for selling surplus property.

The bill also clarifies that water acquired in excess of an irrigation district's own needs can be leased for all beneficial purposes, rather than only for domestic, agricultural, and power and mechanical purposes, and that the provisions of the 1921 irrigation district law are in addition to powers conferred on irrigation districts in other statutes.

http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1030_enr.pdf

HOUSE BILL 17-1033 CWCB Grants Loans Dredge South Platte Basin Reservoirs - CONCERNING AN AUTHORIZATION FOR THE COLORADO WATER CONSERVATION BOARD TO FINANCE SOUTH PLATTE RIVER BASIN RESERVOIR DREDGING PROJECTS.

CWC Position: Oppose

Bill Summary: Water Resources Review Committee. The bill appropriates $5 million from the Colorado Water Conservation Board construction fund to the Colorado water conservation board to make loans and grants to enable the recipients to dredge existing reservoirs located in the South Platte river basin to restore the reservoirs' full decreed storage capacity.

http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1033_01.pdf

HOUSE BILL 17-1076 Artificial Recharge Nontributary Aquifer Rules - CONCERNING RULE-MAKING BY THE STATE ENGINEER REGARDING PERMITS FOR THE USE OF WATER ARTIFICIALLY RECHARGED INTO NONTRIBUTARY GROUNDWATER AQUIFERS.

CWC Position: Support

Bill Summary: Currently, the state engineer must promulgate rules for the permitting and use of waters artificially recharged into 4 named aquifers. The bill adds the requirement that the state engineer also promulgate rules for the permitting and use of waters artificially recharged into nontributary groundwater aquifers. The rules must be promulgated on or before July 1, 2018.

http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1076_ren.pdf

HOUSE BILL 17-1177 Mediation for Disputes Arising Under CORA - CONCERNING THE 101 USE OF ALTERNATIVE METHODS OF RESOLVING DISPUTES THAT ARISE UNDER THE "COLORADO OPEN RECORDS ACT".
CWC Position: Oppose
Bill Summary: Commencing on the effective date of the bill, any person denied the right to inspect documents under the "Colorado Open Records Act" (CORA) or who alleges other CORA violations may apply to the state district court in which the record is located for an appropriate order. The bill also permits the parties in good faith to participate in mediation to resolve their dispute. The bill provides immunity for the disclosure of privileged or confidential information to the mediator. The bill specifies requirements and procedures governing the mediation, including situations where:

- The party disputing the custodian's decision has chosen not to participate in the mediation before seeking a district court order;
- The parties participated in mediation but were unable to resolve their dispute without filing a court order; and
- The parties did not participate in mediation.

http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1177_01.pdf

HOUSE BILL 17-1190 Concerning Limited Applicability of St. Jude's - CONCERNING THE LIMITED APPLICABILITY OF THE COLORADO SUPREME COURT'S DECISION IN ST.JUDE'S CO. V.ROARING FORK CLUB, LLC, 351 P.3d 442 (COLO. 2015).
CWC Position: Support
Bill Summary: In the case of St. Jude's Co. v. Roaring Fork Club, LLC, 351 P.3d442 (Colo. 2015) (St. Jude's Co.), the Colorado supreme court held that direct diversions of water from a river to a private ditch for aesthetic, recreational, and piscatorial purposes on private property, without impoundment, are not beneficial uses of water under Colorado water law.

The bill provides that the decision in the St. Jude's Co. case interpreting section 37-92-103 (4) does not apply to previously decreed absolute and conditional water rights or claims pending as of July 15, 2015. The interpretation of section 37-92-103 (4) in St. Jude's Co. applies only to direct flow appropriations, without storage, made after July 15, 2015, for water diverted from a surface stream to a private ditch on private property for aesthetic, recreational, and piscatorial purposes.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1190_01.pdf

HB17-1219 Extend CWCB Ag Water Leasing Pilot Program - CONCERNING AN EXTENSION OF THE AGRICULTURAL WATER LEASING PILOT PROGRAM ADMINISTERED BY THE COLORADO WATER CONSERVATION BOARD.
CWC Position: Support
Bill Summary: The Colorado water conservation board (board) administers a pilot program to demonstrate the practice of fallowing agricultural irrigation land and leasing the associated water rights for temporary municipal, agricultural, environmental, industrial, or recreational use. Under the current pilot program, the board, in consultation with the state engineer, may authorize up to 10 pilot projects, each of a duration up to 10 years. Of the 10 pilot projects that the board may authorize, no more than 3 pilot projects may be located in any one of the

following major river basins: The South Platte river basin; the Arkansas river basin; the Rio Grande river basin; and the Colorado river basin. An applicant must apply on or before December 31, 2018, to sponsor a pilot project. The pilot program is scheduled to be completed in 2029, at which time the board, in consultation with the state engineer, is required to provide a final report to the water resources review committee, or its successor committee, on the results of the pilot projects authorized.

The bill extends the pilot program as follows:

- The board, in consultation with the state engineer, may authorize up to 15 pilot projects;
- No more than 5 pilot projects may be located in any one of the 4 major river basins listed above;
- An applicant must apply on or before December 31, 2023, to sponsor a pilot project; and
- The pilot program would be completed in 2034, at which time the board, in consultation with the state engineer, would provide a final report to the water resources review committee or its successor committee.

http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1219_01.pdf

HB17-1233 Protect Water Historical Consumptive Use Analysis - CONCERNING PROTECTION OF THE HISTORICAL CONSUMPTIVE USE ANALYSIS OF A WATER RIGHT INVOLVED IN A WATER CONSERVATION PROGRAM.
CWC Position: Support
Bill Summary: When a water right owner wishes to change a water right, the amount of water that can be changed is limited to the historical consumptive use of the water right. Current law provides that the reduced water usage that results from participation in a government-sponsored water conservation program will not be considered in analyzing the historical consumptive use of the water right, but only in water divisions 4, 5, or 6. The bill applies this rule statewide, includes water conservation pilot programs, and limits state agencies that can approve a water conservation program to only those that have explicit statutory jurisdiction over water conservation or water rights.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1233_eng.pdf

HB17-1248 CWCB Projects Bill - CONCERNING THE FUNDING OF COLORADO WATER CONSERVATION BOARD PROJECTS, AND, IN CONNECTION THEREWITH, MAKING APPROPRIATIONS.
CWC Position: Support
Bill Summary: The bill appropriates the following amounts from the Colorado water conservation board (CWCB) construction fund (fund) to the CWCB or the division of water resources for the following projects:

- $380,000 for continuation of the satellite monitoring system maintenance (section 1);
- $500,000 for continuation of the Colorado floodplain map modernization program (section 2);
- $200,000 for continuation of the Colorado decision support system operation and maintenance (section 3);
- $175,000 for continuation of the weather modification program (section 4);

- $154,000 for the support of the Colorado Mesonet, a spatially coherent network of weather stations reporting in near real-time via major data portals (section 5);
- $800,000 for continuation of the water forecasting partnership project (section 6);
- $1,000,000 for continuation of the alternative agricultural transfer methods grant program (section 7);
- $500,000 for continuation of technical assistance for the federal irrigation improvement cost-sharing program (section 8);
- $1,100,000 for implementation of the Colorado water loss control initiative (section 9);
- $10,000,000 for continuation of the Rio Grande cooperative project (section 12);
- $5,000,000 for continuation of the watershed restoration program (section 13); and
- $10,000,000 for implementation of the Colorado water plan (section 14).

Section 10 appropriates $260,000 from the public and private utilities sector fund to the water quality control division in the Colorado department of public health and environment for updating regulations related to nonpotable water reuse and graywater usage.

Section 11 authorizes the CWCB to make loans in the amount of up to $90,000,000 from the fund for the Windy Gap firming project.

The bill directs the state treasurer to transfer the following amounts from the fund:

- Up to $500,000 to the flood and drought response fund (section 15);
- $1,300,000 to the litigation fund (section 16);
- $300,000 to the feasibility study small grant fund (section 17);
- $1,500,000 to the fish and wildlife resources fund (section 18);
- $260,000 to the public and private utilities sector fund (section 19).

Section 21 transfers the following amounts from the severance tax perpetual base fund to the fund:

- On July 1, 2017, $10,000,000 for the Rio Grande cooperative project;
- On July 1, 2017, $5,000,000 for the watershed restoration program;
- On July 1, 2017, and each July 1 thereafter, $10,000,000 for implementation of the state water plan; and
- On July 1, 2017, $10,000,000 to supplement the water supply reserve fund.

Section 21 also transfers, on July 1, 2017, $30,000,000 from the severance tax perpetual base fund to the loan guarantee fund, which fund is created in section 20 for use by the CWCB for the purpose of guaranteeing the repayment of loans for water projects with multiple participants; except that, if, on or before June 30, 2017, the CWCB informs the state treasurer that an amount less than $30,000,000 should be transferred from the severance tax perpetual base fund to the loan guarantee fund, the state treasurer is required to transfer that lesser amount on July 1, 2017.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1248_01.pdf

HB17-1254 Noneconomic Damages Cap Wrongful Death of Child - CONCERNING THE ELIMINATION OF THE CAP ON NONECONOMIC DAMAGES FOR THE WRONGFUL DEATH OF A MINOR CHILD.
CWC Position: Oppose
Bill Summary: The bill eliminates the cap on noneconomic damages for the wrongful death of a minor child. The bill clarifies that, for purposes of the wrongful death statutes, "minor child" is

defined using the general statutory definition of "minor", which is "any person who has not attained the age of twenty-one years".
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017a_1254_01.pdf

HB17-1273 Real Estate Development Demonstrate Water Conservation - CONCERNING A REQUIREMENT THAT AN APPLICANT FOR A REAL ESTATE DEVELOPMENT PERMIT DEMONSTRATE WATER CONSERVATION MEASURES THAT WILL BE IMPLEMENTED IN THE DEVELOPMENT.
CWC Position: TBD
Bill Summary: Current law's definition of a water supply that is "adequate" for purposes of a local government's approval of a real estate development permit merely allows the inclusion of reasonable conservation measures and water demand management measures to account for hydrologic variability. The bill amends the definition to include reasonable conservation measures and water demand management measures to reduce water needs and account for hydrologic variability (section 2 of the bill) and prohibits the local government from approving the permit application unless the applicant demonstrates that appropriate water conservation and demand management measures have been included in the water supply plan (section 3).

Current law also requires an applicant for a real estate development permit to demonstrate to the local government issuing the permit:

- The water conservation measures, if any, that may be implemented within the development; and
- The water demand management measures, if any, that may be implemented to account for hydrologic variability.

Section 4 requires the applicant to demonstrate:

- The water conservation measures that will be implemented within the development to reduce indoor and outdoor demand; and
- The water demand management measures that will be implemented to account for hydrologic variability.

http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1273_01.pdf

HB17-1285 Water Quality Fee Bill - CONCERNING THE FINANCING OF THE WATER POLLUTION CONTROL PROGRAM, AND, IN CONNECTION THEREWITH, MAKING APPROPRIATIONS.
CWC Position: Support
Bill Summary: Current law finances the state's water quality program with a mix of general fund money and fees that are paid by sources that discharge pollutants into the state's waters. Section 2 of the bill raises the fees and establishes goals for future adjustments of the ratio of revenue from fees and the general fund as follows:

- Commerce and industry sector: 50% general fund and 50% cash funds;
- Construction sector: 20% general fund and 80% cash funds;
- Municipal separate storm sewer: 50% general fund and 50% cash funds;
- Pesticides sector: 94% general fund and 6% cash funds;
- Public and private utilities sector: 50% general fund and 50% cash funds; and
- Water quality certifications sector: 5% general fund and 95% cash funds.

Section 4 appropriates $433,042 from the general fund to the department of public health and environment for use by the water quality control division, and section 5 appropriates $774,965 to the department for use by the division from the 6 water quality sector funds.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_1285_01.pdf

HB17-1289 State Engineer Rules Historical Consumptive Use - CONCERNING A REQUIREMENT THAT THE STATE ENGINEER PROMULGATE RULES THAT ESTABLISH AN OPTIONAL STREAMLINED APPROACH TO CALCULATE THE HISTORICAL CONSUMPTIVE USE OF A WATER RIGHT.
CWC Position: Support
Bill Summary: When a water right owner wishes to change a water right–whether a temporary loan or change approved by the state engineer or a permanent change approved by a water judge–the determination of the amount of water that can be loaned or changed relies on a calculation of the historical consumptive use of the water right. The bill directs the state engineer to promulgate rules that take into account local conditions that an applicant can use to calculate historical consumptive use. The results of the calculation carry no presumptive weight before the state engineer, water referee, or water judge.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017a_1289_01.pdf

HB17-1291 Alternate Storage Not Change If Already Qualified - CONCERNING THE 101 ABILITY TO STORE WATER AT AN ALTERNATE PLACE OF STORAGE IF THE HISTORICAL CONSUMPTIVE USE OF THE WATER RIGHT HAS ALREADY BEEN QUANTIFIED IN A PREVIOUS CHANGE OF THE WATER RIGHT.
CWC Position: TBD
Bill Summary: Current law allows water to be stored only at a location that has been specifically identified in a decree. The bill allows a water right for which the historical consumptive use was previously quantified to be stored in any reservoir, without the necessity of adjudicating an additional change of water right, if:

- The water will be diverted from a point of diversion that has already been decreed for that water right;
- Previous notice is given to the division engineer;
- Transit and ditch losses are assessed from the decreed point of diversion to the alternate place of storage; and
- The division engineer approves the proposed accounting of the storage.

http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017a_1291_01.pdf

HJR17-1003 Water Projects Eligibility Lists - CONCERNING APPROVAL OF WATER PROJECT REVOLVING FUND ELIGIBILITY LISTS ADMINISTERED BY THE COLORADO WATER RESOURCES AND POWER DEVELOPMENT AUTHORITY.
CWC Position: Support
Bill Summary: Not available.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_HJR1003_signed.pdf

HJR17-1004 Funding for Prevention of Aquatic Nuisance Species - CONCERNING FUNDING FOR THE PREVENTION OF AQUATIC NUISANCE SPECIES IN COLORADO.

CWC Position: Support

Bill Summary: Not Available
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_HJR1004_enr.pdf

SENATE BILL 17-002 Compulsory Review of Rules by Each Principal Department - CONCERNING THE COMPULSORY REVIEW OF RULES BY EACH PRINCIPAL DEPARTMENT, AND, IN CONNECTION THEREWITH, ESTABLISHING A TRIENNIAL BASIS FOR EACH REVIEW TO BE CONDUCTED.
CWC Position: Monitor

Bill Summary: Current law requires each principal department to review all of its rules, in accordance with a schedule established by the department of regulatory agencies (DORA), to assess, among other things, the continuing need and cost-effectiveness of each rule. The bill repeals the DORA schedule-setting and instead requires a review and supplemental update to be completed every 3 years, commencing in 2017. Thereafter, the bill imposes a triennial schedule for reviews to be conducted. The bill further specifies that the public and certain state agencies must be accorded no fewer than 14 business days to provide input regarding an agency's rules during its review, and that any input received must be attached to the report setting forth the results of the rule reviews included in each agency's departmental regulatory agenda.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_002_01.pdf

SENATE BILL 17-026 State Engineer Statutes Cleanup - CONCERNING REQUIREMENTS GOVERNING IMPLEMENTATION OF THE STATE ENGINEER'S FUNCTIONS, AND, IN CONNECTION THEREWITH, RESTRUCTURING THE FEE THAT THE STATE ENGINEER MAY CHARGE FOR RATING CERTAIN TYPES OF WATER INFRASTRUCTURE, REPEALING CERTAIN REQUIREMENTS, AND UPDATING LANGUAGE IN THE STATUTES REGARDING THE DIVISION OF WATER RESOURCES.
CWC Position: Support

Bill Summary: Water Resources Review Committee. Section 8 of the bill restructures the fee that the state engineer may charge for rating certain types of water infrastructure from $25 per day for expenses incurred in determining the rating to a flat fee of $75.

Section 1 specifies the location of the state engineer's office as within the capitol complex.

Section 2 permits the state engineer to use new technology that can accomplish the same functions as satellite or telemetry-based monitoring systems and is more cost effective.

The bill repeals certain requirements as follows:

- In sections 1, 4, and 11, the requirement that certain officials take an oath and post bond;
- In section 8, certain fee requirements; and
- In section 14, the requirement that the state engineer survey, lay out, and locate a ditch or canal along the Arkansas river.

Section 16 increases the amount of time for filing comments on a substitute water supply plan from 30 days after the state engineer mails the notice to 35 days after mailing the notice.

The bill updates language within the statutes related to the state engineer and the division of water resources.

http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_026_ren.pdf

SENATE BILL 17-036 Appellate Process Concerning Groundwater Decisions - CONCERNING THE APPELLATE PROCESS GOVERNING A DISTRICT COURT'S REVIEW OF FINAL AGENCY ACTIONS CONCERNING GROUNDWATER.
CWC Position: Monitor
Bill Summary: Under current law, the decisions or actions of the ground water commission (commission) or the state engineer regarding groundwater are appealed to a district court, and the evidence that the district court may consider is not limited to the evidence that was presented to the commission or state engineer. Therefore, unlike appeals from other state agencies' decisions or actions under the "State Administrative Procedure Act", a party appealing a decision or action of the commission or state engineer may present new evidence on appeal that was never considered by the commission or state engineer.

The bill limits the evidence that a district court may consider, when reviewing a decision or action of the commission or state engineer on appeal, to the evidence presented to the commission or state engineer.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017a_036_ren.pdf

SENATE BILL 17-040 Public Access to Government Files - CONCERNING PUBLIC ACCESS TO FILES MAINTAINED BY GOVERNMENTAL BODIES.
CWC Position: Oppose
Bill Summary: Section 2 of the bill modifies the "Colorado Open Records Act" (CORA) by creating new procedures governing the inspection of public records that are stored as structured data. Section 1 defines key terms including "structured data", which the bill defines as digital data that is stored in a fixed field within a record or file that is capable of being automatically read, processed, or manipulated by a computer.

If public records are stored as structured data, section 2 requires the custodian of the public records to provide an accurate copy of the public records in a structured data format when requested. If public records are not stored as structured data but are stored in an electronic or digital form and are searchable in their native format, the custodian is required to provide a copy of the public records in a format that is searchable when requested.

Section 2 specifies the circumstances that exempt the custodian from having to produce records in a searchable or structured data format.

If a custodian is not able to comply with a request to produce public records in a requested format, the custodian is required to produce the records in an alternate format and to provide a written declaration attesting to the reasons the custodian is not able to produce the records in the requested format. If a court subsequently rules the custodian should have provided the data in the requested format but that the custodian reasonably believed, based upon the reasons stated in the written declaration, that the data could not be produced in the requested format, attorney fees may be awarded only if the custodian's action was arbitrary or capricious.

Nothing in the bill requires a custodian to produce records in their native format.

Section 3 expands the grounds permitting the filing of a civil action seeking inspection of a public record to include an allegation of a violation of the digital format provisions in the bill or a violation of record transmission provisions specified in CORA. This section also specifies that altering an existing record, or excising fields of information, to remove information that the custodian is required or allowed to withhold does not constitute the creation of a new public record. Such alteration or excision may be subject to a research and retrieval fee or a fee for the programming of data as allowed under existing provisions of CORA.

Section 4 modifies CORA provisions governing the copy, printout, or photograph of a public record and the imposition of a research and retrieval fee. Among these modifications:

- The bill deletes existing statutory language permitting the custodian to charge the same fee for services rendered in supervising the copying, printing out, or photographing of a public record as the custodian may charge for furnishing a copy, printout, or photograph;
- The bill replaces a reference in the statute to the phrase "manipulation of data" with the phrase "programming, coding, or custom search queries so as to convert a record into a structured data or searchable format";
- In connection with determining the amount of the fee for a paper or electronic copy of a public record, the bill specifies that, if a custodian performs programming, coding, or custom search queries to create a public record, the fee for a paper or electronic copy of that record may be based on recovery of the actual or incremental costs of performing the programming, coding, or custom search queries, together with a reasonable portion of the costs associated with building and maintaining the information systems; and
- When a person makes a request to inspect or make copies or images of original public records, the bill permits the custodian to charge a fee for the time required for the custodian to supervise the handling of the records, when such supervision is necessary to protect the integrity or security of the original records.

Section 5 repeals the existing criminal misdemeanor offense and penalty for a willful and knowing violation of CORA.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_040_01.pdf

SENATE BILL 17-049 Exempt Drains Designated Groundwater Requirement - CONCERNING EXEMPTIONS FROM DESIGNATED GROUNDWATER REQUIREMENTS FOR CERTAIN DRAINS.
CWC Position: No Position

Bill Summary: To withdraw groundwater within a designated basin, current law requires a permit issued by the ground water commission, and typically a portion of the groundwater must be replaced. The bill exempts a drain from the permit and replacement obligations if the drain is for residential, commercial, or industrial development or utility lines installed to serve such development; the drain does not penetrate a confining layer; the removed groundwater is not put to any use other than collecting and removing groundwater from soils; and the removed groundwater is discharged essentially where the drain is located.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_049_01.pdf

SENATE BILL 17-079 Limit Amendments to Initiated Statutory Laws - CONCERNING THE GENERAL ASSEMBLY'S INTENT TO LIMIT AMENDMENTS TO INITIATED STATUTORY LAWS.
CWC Position: Monitor

Bill Summary: The state constitution does not limit the general assembly's ability to amend, repeal, or otherwise supersede a statutory law initiated by the voters and specifies that bills will not become law unless approved by a majority vote of all members elected to each house. The bill states that it is the intent of the general assembly that it will not amend, repeal, or otherwise supersede an initiated law in the Colorado revised statutes that was approved at an election after the 2016 general election for a period of 3 years from the date the law takes effect unless such amendment, repeal, or supersession is approved by a vote of two-thirds of all the members elected to each house.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_079_01.pdf

SENATE BILL 17-117 Recognize Industrial Hemp as Ag Product for Ag Water Right - CONCERNING CONFIRMATION THAT INDUSTRIAL HEMP IS A RECOGNIZED AGRICULTURAL PRODUCT FOR WHICH A PERSON WITH A WATER RIGHT DECREED FOR AGRICULTURAL USE MAY USE THE WATER SUBJECT TO THE WATER RIGHT FOR INDUSTRIAL HEMP CULTIVATION.
CWC Position: Oppose

Bill Summary: In Colorado, water subject to a water right may be used for the purpose for which the water is decreed. The bill confirms that a person with an absolute or conditional water right decreed for agricultural use may use the water subject to the water right for the growth or cultivation of industrial hemp if the person is registered by the department of agriculture to grow industrial hemp for commercial or research and development purposes.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_117_01.pdf

SENATE BILL 17-152 Implement Changes Made By Amendment 71 - CONCERNING THE IMPLEMENTATION OF VOTER-APPROVED CHANGES TO THE COLORADO CONSTITUTION THAT MAKE IT MORE DIFFICULT TO AMEND THE STATE CONSTITUTION, AND, IN CONNECTION THEREWITH, PROHIBITING A PETITION FOR AN INITIATED AMENDMENT TO THE STATE CONSTITUTION FROM BEING SUBMITTED TO VOTERS UNLESS THE PETITION IS SIGNED BY THE CONSTITUTIONALLY REQUIRED NUMBER OF REGISTERED ELECTORS WHO RESIDE IN EACH STATE SENATE DISTRICT AND TOTAL NUMBER OF REGISTERED ELECTORS, AND REQUIRING AT LEAST FIFTY-FIVE PERCENT OF THE VOTES CAST ON ANY AMENDMENT TO THE STATE CONSTITUTION TO ADOPT THE AMENDMENT UNLESS THE AMENDMENT ONLY REPEALS IN WHOLE OR IN PART A PROVISION OF THE STATE CONSTITUTION, IN WHICH CASE REQUIRING A MAJORITY OF THE VOTES CAST ON THE AMENDMENT TO ADOPT THE AMENDMENT.
CWC Position: Support

Bill Summary: The bill implements changes to the Colorado constitution approved by voters at the 2016 general election that make it more difficult to amend the state constitution by:

- Prohibiting a petition for an initiated state constitutional amendment to be submitted to voters for approval or rejection unless the petition is signed by the constitutionally specified number of registered electors who reside in each state senate district and total number of registered electors; and

- Requiring at least 55% of the votes cast on any state constitutional amendment to adopt the amendment; except that only a simple majority of the votes cast is necessary to adopt a state constitutional amendment that only repeals in whole or in part a provision of the state constitution.

When a draft of a ballot issue that proposes a state constitutional amendment is filed with the title board, the title board must decide if the proposed constitutional amendment only repeals in whole or in part a provision of the state constitution for purposes of determining the required percentage of votes cast to adopt the amendment. The designated representatives of the proponents or any registered elector who is not satisfied with the title board's decision may appeal the decision by filing a motion for rehearing to the title board. Decisions of the title board at the rehearing on this issue may be directly appealed to the Colorado supreme court in the same manner as ballot title and fiscal impact abstract appeals.

The bill requires the secretary of state to notify proponents of a petition for an initiated state constitutional amendment of the number and boundaries of the state senate districts in existence and the number of registered electors in each state senate district at the time the petition format is approved. The secretary of state must validate signatures on a petition for an initiated state constitutional amendment by random sampling. If the random sample establishes that the number of valid signatures is 90% or less of the total number of registered electors needed to declare the petition sufficient, the secretary of state is required to deem the petition to be not sufficient. If the random sample establishes that the number of valid signatures is more than 90% of the total number of registered electors needed to declare the petition sufficient, the secretary of state is required to order the examination of each signature filed.

After the examination of a petition for an initiated constitutional amendment, the secretary of state is required to issue a statement as to whether a sufficient number of valid signatures from each state senate district and a sufficient total number of valid signatures appear to have been submitted to certify the petition to the ballot. If the secretary of state declares that the petition appears not to have either a sufficient number of valid signatures from each state senate district, a sufficient total number of valid signatures, or both, the secretary of state's statement shall specify the number of sufficient and insufficient signatures from each state senate district, the total number of sufficient or insufficient signatures, or both, as applicable. The bill allows the proponents of the petition to cure an insufficiency of signatures in one or more state senate districts, the total valid signatures, or both, as applicable.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_152_01.pdf

SB17-002 Compulsory Review of Rules by Each Principal Department - CONCERNING THE COMPULSORY 101 REVIEW OF RULES BY EACH PRINCIPAL DEPARTMENT, AND, IN CONNECTION THEREWITH, ESTABLISHING A TRIENNIAL BASIS FOR EACH REVIEW TO BE CONDUCTED.
CWC Position: Monitor
Bill Summary: Current law requires each principal department to review all of its rules, in accordance with a schedule established by the department of regulatory agencies (DORA), to assess, among other things, the continuing need and cost-effectiveness of each rule. The bill repeals the DORA schedule-setting and instead requires a review and supplemental update to be

completed every 3 years, commencing in 2017. Thereafter, the bill imposes a triennial schedule for reviews to be conducted.

The bill further specifies that the public and certain state agencies must be accorded no fewer than 14 business days to provide input regarding an agency's rules during its review, and that any input received must be attached to the report setting forth the results of the rule reviews included in each agency's departmental regulatory agenda.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_002_01.pdf

SB17-235 Pilot Program Seaplanes in State Parks - CONCERNING AN AUTHORIZATION OF A PILOT PROGRAM TO ALLOW AMPHIBIOUS SEAPLANES TO OPERATE IN DESIGNATED STATE PARKS.
CWC Position: Oppose
Bill Summary: Current state park law excludes seaplanes from the definition of a "vessel", and applicable park rules essentially prohibit seaplanes from landing in or taking off from state park water bodies. The bill creates a pilot project to allow amphibious seaplanes to land in at least 2 state parks after the seaplanes have been inspected for and decontaminated of aquatic nuisance species. The parks and wildlife commission may adopt rules to implement the pilot program.
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_235_01.pdf

SJM17-001 Memorialize Congress to Fund Wildfire Response - CONCERNING THE NEED FOR CONGRESS TO FUND CATASTROPHIC WILDFIRE RESPONSE COSTS OUTSIDE OF FEDERAL FOREST MANAGEMENT AGENCIES' NORMAL BUDGETS.
CWC Position: Monitor
Bill Summary: None available
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_SJM001_rev.pdf

SJR17-013 Public Input & General Assembly Review Before New Nutrient Requirements - CONCERNING THE ENCOURAGEMENT OF STAKEHOLDER INPUT WITH SUBSEQUENT LEGISLATIVE REVIEW PRIOR TO THE IMPLEMENTATION OF ADDITIONAL NUTRIENT DISCHARGE CONTROLS.
CWC Position: Support
Bill Summary: None available
http://leg.colorado.gov/sites/default/files/documents/2017A/bills/2017A_SJR013_01.pdf

Attachment B

CWC 2017 Bill Status Sheet

			First House					Second House							
Bill No.	Short Title	CWC Position	Introduced	1st Committee	2nd Committee	2nd Reading	3rd Reading	Introduced	1st Committee	2nd Committee	2nd Reading	3rd Reading	First House Repass	Conference Committee	Governor
HB17-1008	Graywater Regulation Exemption For Scientific Research	Support	Ag 1/11	3/15 Ag @ UA		3/20	3/21	3/23	Ag 4/6						
HB17-1029	Open Records Subject to Inspection Denial	Monitor	SVMA 1/11	2/2 SVMA PI											
HB17-1030	Update 1921 Irrigation District Law	Support	Ag 1/11	1/23 Ag @ 1:30		1/26	1/31	1/31	2/9		2/13	2/14			
HB17-1033	CWCB Grants Loans Dredge South Platte Basin Reservoirs	Oppose	Ag 1/11	3/13 Ag @ 1:30 PI											
HB17-1076	Artificial Recharge Nontributary Aquifer Rules	Support	Ag 1/17	1/30 Ag @ 1:30		2/2	2/6	2/6	3/9 Ag		3/14	3/15			3/30
HB17-1177	Mediation for Disputes Arising Under CORA	Support	SVMA 2/6	3/16 SVMA @ 1:30		3/20	3/22	3/23	SVMA 4/5		4/7	4/10			
HB17-1190	Concerning Limited Applicability of St. Jude's	Support	Ag 2/17	3/13 Ag @ 1:30		4/4	4/5	4/7							
HB17-1219	Extend CWCB Ag Water Leasing Pilot Program	Support	Ag 3/2	3/20 Ag @ 1:30		3/28	3/29	3/29	Ag 4/6						
HB17-1233	Protect Water Historical Consumptive Use Analysis	Support	Ag 3/7	3/20 Ag @ 1:30		3/23	3/24	3/29	Ag 4/6						
HB17-1248	CWCB Projects Bill	Support	Ag 3/9	3/20 Ag @ 1:30	Ap										
HB17-1254	Noneconomic Damages Cap Wrongful Death of Child	Oppose	SVMA 3/10												
HB17-1273	Real Estate Development Demonstrate Water Conservation	No Position	Ag 3/17	4/3 Ag @ 1:30		4/7	4/10								
HB17-1285	Water Quality Fee Bill	Support	HIE 3/21	3/28 @ 1:30 HIE	4/3 F	Ap									
HB17-1289	State Engineer Rules Historical Consumptive Use	No Position	Ag 3/23	Ag 4/10											

CWC 2017 Bill Status Sheet

			First House					Second House							
Bill No.	Short Title	CWC Position	Introduced	1st Committee	2nd Committee	2nd Reading	3rd Reading	Introduced	1st Committee	2nd Committee	2nd Reading	3rd Reading	First House Repass	Conference Committee	Governor
HB17-1291	Alternate Storage Not Change If Already Qualified		Ag 3/24	Ag 4/17											
HB17-1306	Test Lead in School Drinking Water	Support	Edu 3/29	Edu 4/17											
HJR17-1003	Water Projects Eligibility Lists	Support	Ag 1/17	1/30 Ag @ 1:30		2/2		2/3	2/9			2/14			
HJR17-1004	Funding for Prevention of Aquatic Nuisance Species	Support	Ag 1/17	1/23 Ag @ 1:30			1/25	1/30				2/1			
SB17-002	Compulsory Review of Rules by Each Principal Department	Monitor	BLT 1/11	2/14 BLT @ 2:00	Ap 4/6										
SB17-026	State Engineer Statutes Cleanup	Support	Ag 1/11	1/19 Ag @ 1:30		1/24	1/25	1/26	1/30 Ag	2/24 Ap	2/28	3/1			
SB17-036	Appellate Process Concerning Groundwater Decisions	Monitor	Ag 1/11	2/9 Ag		2/13	2/14	2/21	3/21 J		3/24	3/27			
SB17-040	Public Access to Government Files	Oppose	SVMA 1/11	3/1 @ 1:30 SVMA	3/14 Ap	3/20	3/22	3/23							
SB17-049	Exempt Drains Designated Groundwater Requirement	No Position	Ag 1/11	2/2 Ag @ 1:30 PI											
SB17-079	Limit Amendments to Initiated Statutory Laws	Monitor	SVMA 1/13	2/1 SVMA PI											
SB17-117	Recognize Industrial Hemp as Ag Product for Ag Water Right	Oppose	Ag 1/27	Ag 3/15 @ 1:30		3/21	3/22	3/23	Ag						
SB17-152	Implement Changes Made By Amendment 71	Support	SVMA 1/31	2/15 SVMA @ 1:30	2/28 Ap @ 8:40	3/2	3/3	3/6	3/16 SVMA @ UA	Ap					
SB17-202	Species Conservation Trust Fund	Support	AG 2/28	Ag 3/9 @ 1:30	Ap 4/6										
SB17-235	Pilot Program Seaplanes in State Parks	Oppose	Ag	4/6 Ag		4/10 PI									

CWC 2017 Bill Status Sheet

			First House					Second House							
Bill No.	Short Title	CWC Position	Introduced	1st Committee	2nd Committee	2nd Reading	3rd Reading	Introduced	1st Committee	2nd Committee	2nd Reading	3rd Reading	First House Repass	Conference Committee	Governor
SJM17-001	Memorialize Congress to Fund Wildfire Response	Support	Ag 1/11	1/19 Ag @ 1:30			1/24	1/27	2/8 Ag			2/10			
SJR17-013	Public Input & General Assembly Review Before New Nutrient Requirements	Support	Ag 2/14	3/16 Ag @ 1:30			3/22	3/23	Ag 4/10						

BILL STATUS
Bill scheduled for action at next SA meeting (yellow)
Bill not calendared (no fill)
Bill Passed, date of action (green)
Bill no longer active (gray)
Bill Postponed Indefinitely, Lost or Laid Over to end of session, date of action (orange)
Bill did not go to second committee or no action required (black)

CWC POSITION	
Bill scheduled for activity in CWC State Affairs (yellow)	
Support (green)	
Oppose (orange)	
Amend (blue)	
Monitor, Neutral, No Position	

ABBREVIATIONS
Ag = Agriculture and Natural Resources Committee
Ap = Appropriations Committee
BLEW = Business, Labor, Economic and Workforce Development Committee
CC = Conference Committee
F = Finance Committee
HIE= Health, Insurance, and Environment
J = Judiciary
LG = Local Governement Committee
SVMA = State, Veterans, and Military Affairs Committee
TE = Transportation and Energy Committee
UA = Upon Adjournment
UR = Upon Recess

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 5
MEETING DATE: 5/17/2017
SUBMITTED BY: Jim Lees
STAFF TITLE: Utility Accounting Manager

ITEM TITLE:

Financial Report Update

DESCRIPTION:

This item summarizes the monthly and year-to date Preliminary financials for April 2017.

SUMMARY:

The April 2017 financial reports are submitted for Commission review. The following table summarizes the sales and expense results for the month of April, and the April Year-To-Date results in comparison to the same periods from 2016. The summarized and detailed monthly financial statements that compare April Year-To-Date actuals to the 2017 budgeted figures are attached.

	April				April Year-To-Date			
	2017	2016	$ Ovr/(Und) vs. 2017	% Ovr/(Und) vs. 2017	2017	2016	$ Ovr/(Und) vs. 2017	% Ovr/(Und) vs. 2017
WATER								
Sales	$858,238	$736,341	$121,897	16.6%	$3,211,868	$2,851,989	$359,879	12.6%
Operating Expenses	$1,747,933	$784,489	$963,444	122.8%	$4,555,468	$3,820,003	$735,465	19.3%
Capital (Unrestricted)	$258,973	$441,533	($182,560)	-41.3%	$307,546	$1,252,351	($944,805)	-75.4%
WASTEWATER								
Sales	$881,356	$775,922	$105,435	13.6%	$3,565,125	$3,174,420	$390,705	12.3%
Operating Expenses	$527,991	$615,295	($87,304)	-14.2%	$2,160,251	$1,951,635	$208,616	10.7%
Capital (Unrestricted)	$277,012	$143,213	$133,799	93.4%	$529,268	$509,597	$19,671	3.9%
POWER								
Sales	$4,538,959	$4,347,881	$191,078	4.4%	$18,890,995	$18,150,966	$740,030	4.1%
Operating Expenses	$4,033,686	$3,721,519	$312,167	8.4%	$16,699,020	$15,679,373	$1,019,647	6.5%
Capital (Unrestricted)	$583,409	$922,178	($338,769)	-36.7%	$2,746,065	$2,257,864	$488,201	21.6%

RECOMMENDATION:

Staff item only. No action required.

ATTACHMENTS:

- Attachment A: City of Loveland Financial Statement-Raw Water
- Attachment B: City of Loveland Financial Statement-Water
- Attachment C: City of Loveland Financial Statement-Wastewater
- Attachment D: City of Loveland Financial Statement-Power

Attachment A

City of Loveland
Financial Statement-Raw Water
For Period Ending 04/30/2017
Preliminary as of 5/4/2017

		TOTAL BUDGET FYE 12/31/2017	YTD ACTUAL	YTD BUDGET	OVER <UNDER>	VARIANCE
1	**REVENUES & SOURCES**					
2	High Use Surcharge	52,500	30,021	17,520	12,501	71.4%
3	Raw Water Development Fees/Cap Rec Surcharge	411,446	112,059	142,836	(30,777)	-21.5%
4	Cash-In-Lieu of Water Rights	250,000	58,381	83,320	(24,939)	-29.9%
5	Native Raw Water Storage Fees	5,000	46,412	1,670	44,742	2679.2%
6	Loan Payback from Water	4,050,375	45,271	0	45,271	0.0%
7	Raw Water 1% Transfer In	434,340	96,356	89,020	7,336	8.2%
8	Interest on Investments	374,120	60,118	124,720	(64,602)	-51.8%
9	**TOTAL REVENUES & SOURCES**	**5,577,781**	**448,618**	**459,086**	**(10,468)**	**-2.3%**
10	**OPERATING EXPENSES**					
11	Loan to Water	0	0	0	0	0.0%
12	Windy Gap Payments	7,100	7,044	2,368	4,676	197.5%
13	**TOTAL OPERATING EXPENSES**	**7,100**	**7,044**	**2,368**	**4,676**	**197.5%**
14	NET OPERATING REVENUE/(LOSS) (excl depr)	5,570,681	441,575	456,718	(15,143)	-3.3%
15	RAW WATER CAPITAL EXPENDITURES	2,051,794	0	1,153,104	(1,153,104)	-100.0%
16	**ENDING CASH BALANCES**					
17	Total Available Funds		25,504,536			
18	Reserve - Windy Gap Cash		0			
19	Reserve - 1% Transfer From Rates		111,206			
20	Reserve - Native Raw Water Storage Interest		4,259			
21	**TOTAL RAW WATER CASH**		**25,620,001**			
22	MINIMUM BALANCE (15% OF OPER EXP)		1,065			
23	OVER/(UNDER) MINIMUM BALANCE		25,618,936			

NOTE: YTD ACTUAL DOES NOT INCLUDE ENCUMBRANCES TOTALING: 6883.6

Attachment B

City of Loveland
Financial Statement-Water
For Period Ending 04/30/2017
Preliminary as of 5/4/2017

		TOTAL BUDGET FYE 12/31/2017	YTD ACTUAL	YTD BUDGET	OVER <UNDER>	VARIANCE
1	****UNRESTRICTED FUNDS****					
2	**REVENUES & SOURCES**					
3	Water Sales	14,477,980	3,211,868	2,940,486	271,382	9.2%
4	Raw Water Transfer Out	(434,340)	(96,356)	(89,020)	(7,336)	8.2%
5	Wholesale Sales	138,790	6,721	8,020	(1,299)	-16.2%
6	Meter Sales	54,710	24,262	9,210	15,052	163.4%
7	Interest on Investments	152,410	20,111	50,800	(30,689)	-60.4%
8	Other Revenue	950,250	120,025	682,590	(562,565)	-82.4%
9	Federal and State Grants	0	75,804	0	75,804	0.0%
10	Internal Loan Monies Received	751,356	750,000	751,356	(1,356)	-0.2%
11	External Loan Monies Received	0	0	0	0	0.0%
12	**TOTAL REVENUES & SOURCES**	**16,091,156**	**4,112,434**	**4,353,442**	**(241,008)**	**-5.5%**
13	**OPERATING EXPENSES**					
14	Source of Supply	3,204,390	659,286	1,811,376	(1,152,090)	-63.6%
15	Treatment	3,466,452	814,780	1,189,499	(374,719)	-31.5%
16	Distribution Operation & Maintenance	3,674,830	986,721	1,330,925	(344,204)	-25.9%
17	Administration	764,857	127,352	285,599	(158,247)	-55.4%
18	Customer Relations	384,899	87,866	107,047	(19,181)	-17.9%
19	PILT	983,050	218,086	223,152	(5,067)	-2.3%
20	1% for Arts Transfer	101,551	2,070	63,691	(61,621)	-96.7%
21	Services Rendered-Other Departments	1,309,058	437,156	437,156	0	0.0%
22	Internal Loan Debt Expense	4,856,625	791,700	806,250	(14,550)	-1.8%
23	External Loan Debt Expense	1,013,988	430,450	337,996	92,454	27.4%
24	**TOTAL OPERATING EXPENSES**	**19,759,700**	**4,555,468**	**6,592,691**	**(2,037,223)**	**-30.9%**
25	NET OPERATING REVENUE/(LOSS)(excl depr)	(3,668,544)	(443,034)	(2,239,249)	1,796,216	-80.2%
26	CAPITAL EXPENDITURES	3,102,038	307,546	1,568,809	(1,261,263)	-80.4%
27	ENDING CASH BALANCE		**4,118,081**			100
28	WATER DEBT FUNDS ENDING CASH BALANCE		**0**			100
29	MINIMUM BALANCE (15% OF OPER EXP)		2,963,955			
30	**OVER/(UNDER) MINIMUM BALANCE**		**1,154,126**			
31	****RESTRICTED FUNDS****					
32	**REVENUES & SOURCES**					
33	SIF Collections	2,755,460	689,068	633,590	55,478	8.8%
34	SIF Interest Income	33,180	12,339	9,770	2,569	26.3%
35	SIF Federal and State Grants	0	75,804	0	75,804	0.0%
36	Internal Loan Monies Received	0	0	0	0	0.0%
37	**TOTAL SIF REVENUES & SOURCES**	**2,788,640**	**777,210**	**643,360**	**133,850**	**20.8%**
38	SIF Capital Expenditures	828,787	52,435	413,506	(361,071)	-87.3%
39	1% for Arts Transfer	1,049	508	260	248	95.5%
40	Legal Agreements & Settlements	53,700	17,885	53,700	(35,815)	-66.7%
41	**SIF ENDING CASH BALANCE**		**2,062,211**			**100**
42	**TOTAL ENDING CASH BALANCE**		**6,180,293**			
	NOTE: YTD ACTUAL DOES NOT INCLUDE ENCUMBRANCES TOTALING:		2,544,507			
43	Water Treated at WTP (in million gallons)		862			
44	Water Sold To Customers (in million gallons, includes Ranch Water & Hydrant Sales)	3,561	613	621	(8)	-1.3%

Cell: G32
Comment: Laura Homiak:
Took out the Raw Water $4,050,375 to match Raw Water.

Attachment C

City of Loveland-LIVE
Financial Statement-Wastewater
For Period Ending 04/30/2017
Preliminary as of 5/4/2017

			TOTAL BUDGET FYE 12/31/2017		YTD ACTUAL	YTD BUDGET	OVER <UNDER>	VARIANCE
1	****UNRESTRICTED FUNDS****							
2	**REVENUES & SOURCES**							
3	Sanitary Sewer Charges		11,325,240		3,565,125	3,337,440	227,685	6.8%
4	High Strength Surcharge		360,690		120,220	109,790	10,430	9.5%
5	Interest on Investments		164,020		38,450	54,680	(16,230)	-29.7%
6	Other Revenue		12,920		2,088	4,140	(2,052)	-49.6%
7	Bond Proceeds		16,000,000		0	16,000,000	(16,000,000)	-100.0%
8	Federal Grants		0		0	0	0	0.0%
9	State Grants		0		0	0	0	0.0%
10	**TOTAL REVENUES & SOURCES**		**27,862,870**		**3,725,882**	**19,506,050**	**(15,780,168)**	**-80.9%**
11	**OPERATING EXPENSES**							
							0	0.0%
12	Treatment		3,998,641		989,941	1,356,706	(366,765)	-27.0%
13	Collection System Maintenance		2,907,659		565,337	993,775	(428,438)	-43.1%
14	Administration		422,986		79,063	168,120	(89,057)	-53.0%
15	Customer Relations		45,509		12,912	15,898	(2,986)	-18.8%
16	PILT		818,020		257,974	272,672	(14,698)	-5.4%
17	1% for Arts Transfer		234,793		1,781	177,083	(175,302)	-99.0%
18	Services Rendered-Other Departments		633,529		211,773	211,773	0	0.0%
19	Debt Service		1,051,432		41,471	350,480	(309,009)	-88.2%
20	**TOTAL OPERATING EXPENSES**		**10,112,569**		**2,160,251**	**3,546,507**	**(1,386,256)**	**-39.1%**
21	NET OPERATING REVENUE/(LOSS)(excl depr)		17,750,301		1,565,631	15,959,543	(14,393,912)	-90.2%
22	CAPITAL EXPENDITURES		26,021,469		529,268	18,982,952	(18,453,684)	-97.2%
23	ENDING CASH BALANCE				**12,242,314**			100
24	MINIMUM BALANCE (15% OF OPER EXP)				1,516,885			
25	OVER/(UNDER) MINIMUM BALANCE				10,725,429			
26	****RESTRICTED FUNDS****							
27	**REVENUES & SOURCES**							
28	SIF Collections		2,039,750		317,029	591,790	(274,761)	-46.4%
29	SIF Interest Income		134,730		24,384	44,920	(20,536)	-45.7%
30	SIF Bond Proceeds		8,900,000		0	8,900,000	(8,900,000)	-100.0%
31	**TOTAL SIF REVENUES & SOURCES**		**11,074,480**		**341,413**	**9,536,710**	**(9,195,297)**	**-96.4%**
32	SIF Capital Expenditures		14,052,210		187,210	9,958,727	(9,771,517)	-98.1%
33	1% for Arts Transfer		125,668		3	100,258	(100,255)	-100.0%
34	Debt Service		584,859		25,418	194,952	(169,534)	-87.0%
	SIF ENDING CASH BALANCE				**8,669,076**			100
	TOTAL ENDING CASH BALANCE				**20,911,390**			
	NOTE: YTD ACTUAL DOES NOT INCLUDE ENCUMBRANCES TOTALING				5,905,380			
35	Wastewater Treated at WWTP (in million gallons)		N/A		686	N/A		
36	Wastewater Billed To Customers (in million gallons)		1,767		539	556	(16)	-2.9%

Cell: F29
Comment: Laura Homiak:
Tsf to WW Debt Service 41,471.05 (object 47317)

Cell: F53
Comment: Laura Homiak:
Tsf to WW Debt Service 25,417.74 (object 47317)

Attachment D

City of Loveland
Financial Statement-Power
For Period Ending 4/30/2017
Preliminary as of 5/9/17

		*	TOTAL BUDGET	*	YTD ACTUAL	YTD BUDGET	OVER <UNDER>	VARIANCE
	****UNRESTRICTED FUNDS****	*		*				
		*		*				
1	REVENUES & SOURCES:	*		*				
2	Electric revenues	*	$62,342,360	*	$18,890,995	$19,480,600	($589,605)	-3.0%
3	Wheeling charges	*	$244,650	*	$71,579	$81,550	($9,971)	-12.2%
4	Interest on investments	*	$229,810	*	$48,162	$76,603	($28,442)	-37.1%
5	Aid-to-construction deposits	*	$1,830,000	*	$744,539	$610,000	$134,539	22.1%
6	Customer deposit-services	*	$310,000	*	$73,097	$103,333	($30,236)	-29.3%
7	Late Payment Penalty Fees	*	$415,000	*	$159,405	$138,333	$21,072	15.2%
8	Connect Fees	*	$160,000	*	$49,210	$53,333	($4,123)	-7.7%
9	Services rendered to other depts.	*	$0	*	$0	$0	$0	0.0%
10	Other revenues	*	$333,100	*	$96,077	$111,033	($14,956)	-13.5%
11	Federal Grants	*	$0	*	$0	$0	$0	0.0%
12	State Grants	*	$0	*	$0	$0	$0	0.0%
13	Year-end cash adjustments	*	$0	*	$0	$0	$0	0.0%
14	**TOTAL REVENUES & SOURCES**	*	**$65,864,920**	*	**$20,133,064**	**$20,654,787**	**($521,723)**	**-2.5%**
		*		*				
15	OPERATING EXPENSES:	*		*				
16	Hydro oper. & maint.	*	$6,407,916	*	$530,330	$2,218,125	($1,687,794)	-76.1%
17	Solar oper.& maint.		$90,000		$0	$31,154	($31,154)	-100.0%
18	Purchased power	*	$43,452,943	*	$12,407,366	$12,949,945	($542,579)	-4.2%
19	Distribution oper. & maint.	*	$4,926,787	*	$1,310,658	$1,705,426	($394,769)	-23.1%
21	Customer Relations	*	$1,270,771	*	$132,390	$439,882	($307,492)	-69.9%
22	Administration	*	$824,162	*	$187,539	$285,287	($97,748)	-34.3%
23	Payment in-lieu-of taxes	*	$4,328,980	*	$1,307,852	$1,398,261	($90,408)	-6.5%
24	1% for Arts Transfer	*	$147,470	*	$15,992	$47,633	($31,641)	-66.4%
25	Services rendered-other depts.	*	$2,376,665	*	$806,893	$792,222	$14,671	1.9%
26	**TOTAL OPERATING EXPENSES (excl depn)**	*	**$63,825,694**	*	**$16,699,020**	**$19,867,934**	**($3,168,914)**	**-15.9%**
		*		*				
27	NET OPERATING REVENUE/(LOSS) (excl depn)	*	$2,039,226	*	$3,434,044	$786,853	$2,647,191	$0
		*		*				
28	CAPITAL EXPENDITURES:	*		*				
29	General Plant/Other Generation & Distribution	*	$15,667,513	*	$2,014,795	$5,409,788	($3,394,994)	-62.8%
30	Aid-to-construction	*	$1,830,000	*	$610,353	$633,462	($23,109)	-3.6%
31	Service installations	*	$310,000	*	$120,918	$107,308	$13,610	12.7%
32	**TOTAL CAPITAL EXPENDITURES**	*	**$17,807,513**	*	**$2,746,065**	**$6,150,558**	**($3,404,493)**	**-55.4%**
		*		*				
33	**ENDING CASH BALANCE**	*		*	**$17,500,701**			
		*		*				
34	MINIMUM BAL. (23% of OPER EXP excl depn/chg 201	*		*	$14,679,910			
35	OVER/(UNDER) MINIMUM BALANCE	*		*	$2,820,791			
		*		*				
36	****RESTRICTED FUNDS****	*		*				
		*		*				
37	PIF Collections	*	$2,747,630	*	$810,034	$915,877	($105,843)	-11.6%
38	PIF Interest Income	*	$25,030	*	$7,757	$8,343	($586)	-7.0%
39	Water Loan Payback	*	$806,250	*	$791,700	$806,250	($14,550)	-1.8%
40	Federal Grants		$0		$0	$0	$0	0.0%
41	State Grants		$0		$0	$0	$0	0.0%
42	**TOTAL REVENUES**	*	**$3,578,910**	*	**$1,609,491**	**$1,730,470**	**($120,979)**	**-7.0%**
		*		*				
43	PIF Feeders	*	$2,470,000	*	$774,140	$855,000	($80,860)	-9.5%
44	PIF Substations & Solar	*	$2,715,000	*	$120,108	$905,000	($784,892)	-86.7%
45	**TOTAL EXPENDITURES**	*	**$5,185,000**	*	**$894,248**	**$1,760,000**	**($865,752)**	**-49.2%**
		*		*				
46	**ENDING PIF CASH BALANCE**	*		*	**$2,233,774**			
		*		*				
47	**TOTAL ENDING CASH BALANCE**	*		*	**$19,734,475**			

NOTE: YTD ACTUAL does NOT include encumbrances totalling $7,111,926

48	Energy Purchased (in million kWh) from PRPA	*	737	*	224	236	(11)	-3.7%
49	Energy Sold to Customers (in million kWh)	*	715	*	223	233	(10)	-4.3%

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 6
MEETING DATE: 5/17/2017
SUBMITTED BY: Kim Frick
STAFF TITLE: Staff Engineer

ITEM TITLE:

Water Supply Update

DESCRIPTION:

Raw water supply update.

SUMMARY:

Attachment A is the snow–water equivalent chart for Bear Lake station as of May 9, 2017. Water Resources Staff generated this chart to show a range of low, median, and high years as well as the current year-to-date snow accumulation for the Bear Lake SNOTEL station in the Big Thompson Watershed.

Snowpack for the Bear Lake station is above average. Run off began in April, but unexpectedly was hit by another snowstorm in May that bolstered the snowpack once again. This snowpack trend is shown on Attachment A the Snow Water Equivalent for Bear Lake.

Attachment B is the snowpack and streamflow comparison. The snowpack for Colorado on a statewide basis is 98%. The snowpack for the Big Thompson River is 100% on average as compared to 80% for the Poudre River and 75% for the St Vrain. The streamflow forecast is 102% on average for the Big Thompson River.

Northern Water's Board increased the Colorado-Big Thompson Project quota allocation to 80 percent at its April 13 Board meeting. The Board chose to make available an additional 30 percent as supplemental quota for 2017. The approval increased available C-BT water supplies by 93,000 acre-feet.

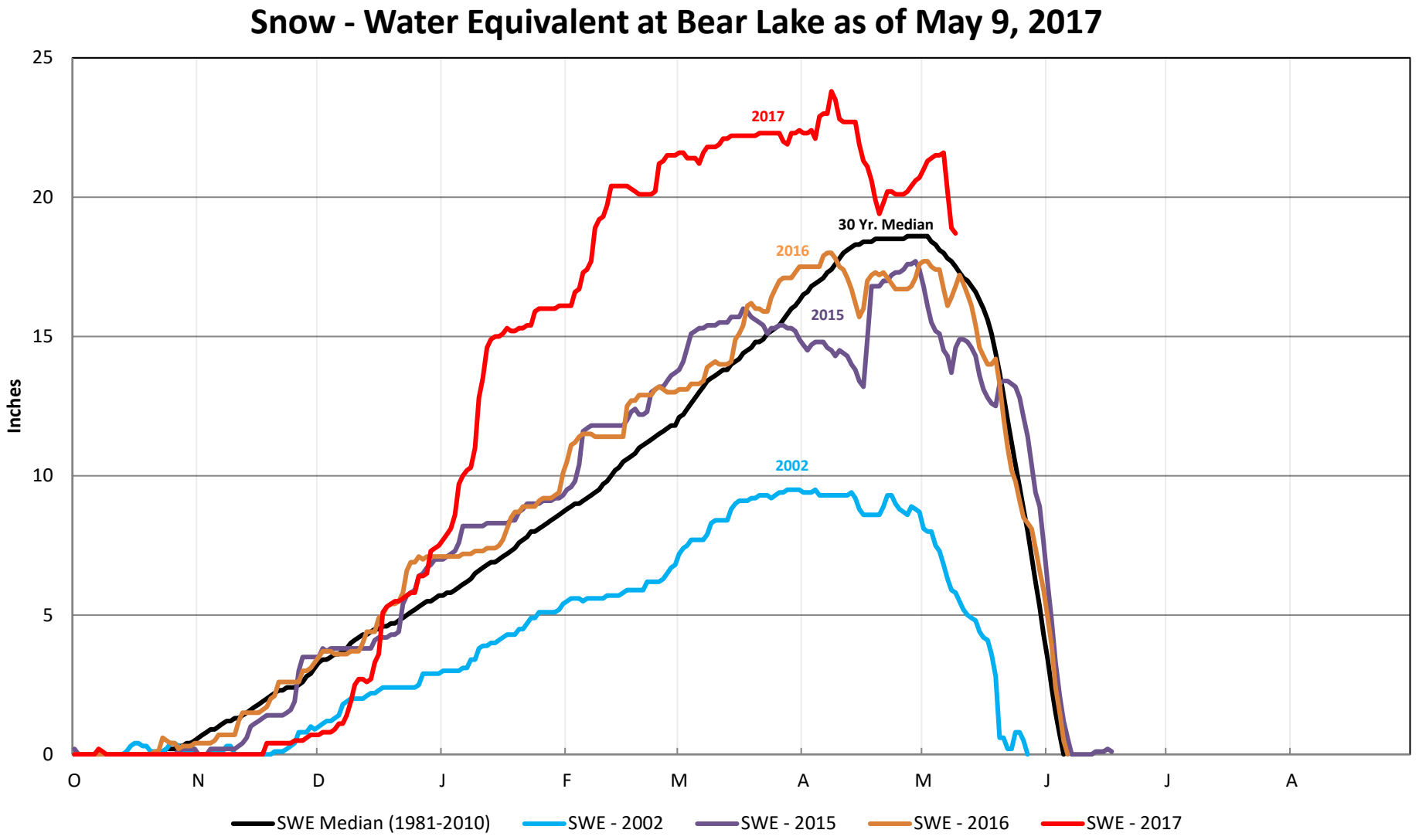
RECOMMENDATION:

Information item only. No action required.

ATTACHMENTS:

- Attachment A: Snow–Water Equivalent Chart for Bear Lake SNOTEL Station
- Attachment B: Snowpack and Streamflow comparison

6


Snow - Water Equivalent at Bear Lake as of May 9, 2017
Inches
25
20
15
10
5
0
O
N
D
J
F
M
A
M
J
J
A
2017
30 Yr. Median
2016
2015
2002
SWE Median (1981-2010)
SWE - 2002
SWE - 2015
SWE - 2016
SWE - 2017

Attachment B

Snowpack and Streamflow Comparisons
May 1, 2017

Northern Water

Snow Water Content — **% of Average**

Colorado's Statewide Snowpack	95%
Upper Colorado River [1]	96%
South Platte Tributaries [2]	86%

Snow-Water Content Comparisons (inches)

	May 1, 2017 Snow-Water Content			May 1 Comparative Snow-Water Content			
Watershed	**2017**	**Average**	**% Avg**	**2016**	**2015**	**2014**	**2002**
Blue River	14.7	14.1	104%	113%	99%	137%	32%
Upper Colorado River	14.8	15.5	95%	103%	81%	134%	35%
Willow Creek	8.8	8.9	99%	126%	63%	112%	36%
Fraser River	13.2	15.4	85%	114%	77%	124%	32%
Poudre River	11.4	14.2	80%	101%	77%	126%	46%
Big Thompson River	15.3	15.3	100%	97%	91%	123%	37%
St. Vrain River	8.3	11.0	75%	114%	102%	132%	11%
Boulder Creek	9.8	10.9	90%	131%	103%	144%	14%

Apr-Jul Maximum, Minimum and Most Probable Streamflow Forecasts (1000 af)

Watershed	Forecast Minimum	Most Probable	Forecast Maximum	Apr-Jul Avg [3]	Most Prob % Average
Blue River	237	302	376	275	110%
Upper Colorado River	192	238	290	220	108%
Willow Creek	46	64	84	47	136%
Fraser River	90	116	145	117	99%
Poudre River	149	220	290	225	98%
Big Thompson River	66	92	128	90	102%
St. Vrain River	69	97	129	88	110%
Boulder Creek	44	57	73	54	106%
South Platte Tributaries		466		457	102%

Precipitation within District Boundaries [4]

	Totals	Average	% Average
April	2.13	1.73	123%
Nov-Apr	4.46	4.65	96%

(1) Includes the Colorado, Willow Creek, Fraser and Blue River Watersheds
(2) Includes the Poudre, Big Thompson, Saint Vrain and Boulder Creek Watersheds
(3) Average for the period 1981-2010
(4) Computed using CoCoRaHS and Northern Water Stations

5/8/2017 - 10:46 AM

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 7
MEETING DATE: 5/17/2017
SUBMITTED BY: Craig Weinland
STAFF TITLE: Construction Project Mgr.

ITEM TITLE:

Award Construction Contract for the 2017 CIPP Sewer Rehabilitation Project

DESCRIPTION:

The purpose of this item is to award a construction contract to the lowest qualified bidder for the 2017 CIPP Sewer Rehabilitation Project.

SUMMARY:

The purpose of this project is to rehabilitate aging sanitary sewer collection lines by lining the existing pipes with a cured in place pipe liner (CIPP). The liner will fix immediate deficiencies and extend the life of the existing pipe. Additionally, the CIPP method reduces disturbance to residences by allowing repairs to be made through existing sanitary sewer manholes, which allows a trenchless rehabilitation method.

The project includes lining 24,196' of small diameter clay lines (6", 8", 10" and 12") and other related work. Bids opened Tuesday, May 16, 2017; therefore, a bid summary could not be included in this packet. The handout provided during the meeting will include a detailed tabulation of each bid and a breakdown of costs.

Per Municipal Code 3.12.060A and 3.12.060B, the LUC must approve Water and Power contracts above $500,000 or any change order that causes a contract to equal or exceed $500,000 and which, when combined with all previous change orders, equals or exceeds 20% of the original contract amount.

RECOMMENDATION:

Adopt a motion to award the 2017 CIPP Sewer Rehabilitation Project construction contract to *(contractor to be determined prior to start of meeting)* in the amount of *(to be determined prior to start of meeting)* and authorize the City Manager to execute the construction contract on behalf of the City.

ATTACHMENTS:

- Attachment A: Tabulation of Bid Tabs (to be distributed at meeting)

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 8
MEETING DATE: 5/17/2017
SUBMITTED BY: Tim Bohling
STAFF TITLE: Water Quality Analyst

ITEM TITLE:

Algal Mitigation Assessment Results & Next Steps

DESCRIPTION:

Loveland Water and Power's (LWP) goal is to provide the best water quality possible to our customers. LWP experienced the largest algal blooms and taste and odor issues in its history in 2015 and 2016. These events prompted the need for better algal management practices to improve water quality. An algal mitigation assessment was conducted to identify potential solutions. This presentation focuses on the results of this assessment and the next steps LWP will be taking for algal management and taste and odor reduction.

SUMMARY:

In 2015 and 2016, Green Ridge Glade Reservoir (GRGR) experienced the largest algal blooms and taste and odor events in Loveland's history. These events led to a comprehensive assessment completed by Corona Environmental LLC for algal mitigation and taste and odor reduction.

Goals of the Algal Mitigation Assessment were:

- Examine reservoir water quality pre and post flood
- Identify taste and odor algal species in GRGR
- Identify reservoir management solutions including algaecides and other technologies
- Water Treatment Plant process improvements
- Form a communication plan for internal staff and for customer outreach

Key Findings and Technology Implementation:

The assessment confirmed that the major taste and odor causing species of algae in the reservoir is a cyanobacteria called Anabaena. Copper sulfate and PAK-27, algaecide applications, have been used in the past to reduce algal blooms in order to minimalize taste and odor complaints. In 2015, Colorado Department of Public Health and Environment (CDPHE) added new copper regulations to the WTP discharge permit, which led to the discontinuance of using copper sulfate in the reservoir. Numerous applications of PAK-27 used in the reservoir since 2015 have showed little impact on algal growth, which resulted in significant taste and odor problems last fall and the need for new algae mitigation solutions.

Physical reservoir mitigation strategies were the main focus within this assessment due to the inability to continue copper sulfate as the primary algal management option. The following table identifies solutions that were researched with a requirement of proven algal mitigation in a comparable water body. These options included; reservoir mixing, reservoir oxygenation, ultrasonic waves, and an emerging technology using biochar to remove nutrients.

Reservoir Mitigation Evaluation

Evaluation Criteria	Medora Solar Bee (mixing)	LG Sonic (Ultrasonic)	ECO2 (Oxygenation)	Emerging Technology (Biochar Now)

Effective for algae control in Green Ridge Glade Reservoir	**Yes** Numerous installations in comparable waterbodies with proven success	**Maybe** Similar products have had a low success rate in comparable applications	**Maybe** Could cause an increase in algae	**No** Nutrients were not identified as the leading cause for algal growth
Minimal Aesthetic impact	Yes	**Yes**	**No**	**Maybe**
Technical Maturity and Proof of Concept	**Yes**	**Maybe** Only 5 years on the market	**Maybe**	**No**
Operational Complexity	**Low**	**Low**	**High**	**Low**
Local Service Reps	**Yes** Representative located in Denver	**No** Company located in the Netherlands	**No** Located in Indiana	Yes Representative located in Berthoud
Calibration Requirements	**No**	**Yes** Must take system offline and ship out of country	**Yes** Must call service technicians	**NA** Must be replaced at an unknown frequency
Year-round Operation	**Yes**	**No**	**Yes**	**Yes**
Complete Proposal Provided to City	**Yes**	**Yes**	**Yes**	**No**
Equipment Cost	**$202,210**	**$189,500**	**$294,000**	**Unknown**

With recommendations from Corona Environmental, internal considerations of operation and calibration and weighing the pros and cons of using proven technologies, Medora SolarBee in-reservoir mixers were selected as the reservoir algae mitigation option.

In addition to reservoir mitigation strategies, treatment process improvements were also evaluated for taste and odor removal including; granular activated carbon filter caps, pre-oxidation, advanced oxidation, powdered activated carbon (PAC) efficiency upgrades, and tower gate level selection, which are highlighted in the table below.

Water Treatment Plant Alternatives Evaluation

Evaluation Criteria	Intake Gate Optimization	Powdered Activated Carbon Optimization	Pre Oxidation	Granular Activated Carbon Filter Caps	Advanced Oxidation
Effective for algae cell Removal	**Yes**	**No**	**No**	**Yes**	**No**
Effective for Taste and Odor Removal	Yes	**Yes**	**Maybe**	**Yes**	**Yes**
Maintains Algal Cell Structure	**Yes**	Yes	**No**	**Yes**	**No**

Ability to Retrofit Existing Structure	Not Needed	Yes	Yes	Maybe	No
Intermittent Use Possible	Yes	Yes	Yes	No	Yes
Cost to Implement	None	None	None	$280,000 each year	Major Capital

This selection process identified two major improvements that were recommended and will be implemented in the near future. The first improvement is to optimize reservoir intake level selection based on Water Quality Lab taste and odor results and to select a better performing PAC to increase taste and odor removal within the WTP.

For More information on the Algal Mitigation Assessment, April 14th 2017, Please Visit:

cityofloveland.org/LWPReports - 2017 Algal Mitigation Assessment

Next Steps

- LWP will be installing four SolarBee SB10000 mixers in Green Ridge Glade Reservoir mid-May.
    - Total cost for the mixers and installation is $202,210. Funds are available in the 2017 Source of Supply Professional Services budget due to a delayed water court project.
    - A 1-year "Beekeeper" service plan will also be purchased for an additional $4,289. Funds are available for this in the 2017 Water Treatment Plant Maintenance budget.
- Water Quality staff will begin a PAC optimization study to improve taste and odor removal in the treatment process. This study will be completed by August 2017.
- Water Quality staff will increase taste and odor monitoring at the intake structure and provide guidance for better gate utilization to select the highest water quality entering the plant.
- LWP is planning to contract with a lake management company (Lake SOLitude) on an on-call basis to apply algaecide to the reservoir in the event of an unforeseen algae bloom.

In addition to the mitigation strategies above, LWP Water Quality and Customer Relations staffs will collaborate through this water season to communicate to the public regarding measures that will be undertaken and awareness of any emerging issues. Changes have been made to LWP's website to increase public awareness of water quality issues and the steps the utility is taking to improve water quality. The mitigation assessment is publicly available and posted to the website (cityofloveland.org/LWPReports - 2017 Algal Mitigation Assessment). Customer service representatives, staff and utility representatives will be updated regularly and provided key talking points for addressing water quality concerns. Additionally, a summer water campaign communicating the "value" of water service will specifically discuss algae including what is algae, its effect on the system and what LWP is doing to help prevent taste and odor issues as a result of algae.

RECOMMENDATION:

Adopt a motion approving the results of the Algal Mitigation Assessment Technical Memorandum dating April 14, 2017.

ATTACHMENTS:.

- Attachment A: PowerPoint Presentation
- Attachment B: Algal Mitigation Assessment

LOVELAND UTILITIES COMMISSION

Algal Mitigation Study Results & Next Steps

Roger Berg, Water Utilities Manager, Tim Bohling, Water Quality Analyst
Lindsey Bashline, Acting Customer Relations Manager

May 17, 2017

Agenda

- Mitigation Assessment Process and Results
- Potential Mitigation Strategies
- SolarBee Reservoir Mixing Overview
- Internal Process Improvements and Strategies
- Communications Plan
- Funding
- LUC Direction

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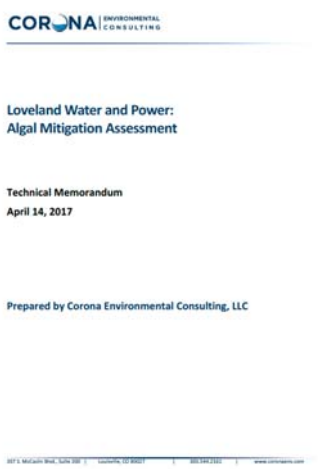
LOVELAND UTILITIES COMMISSION

Algal Mitigation Assessment

Corona Environmental Consulting, LLC was contracted to assess algal mitigation options for the City of Loveland.

- The comprehensive study focused on:
  - Water quality, historical and current
  - Current and historical algaecide use and effectiveness
  - Potential solutions to mitigate algal blooms in Green Ridge Glade Reservoir
  - Potential solutions to improve taste and odor removal within the treatment process


CORONA ENVIRONMENTAL CONSULTING

Loveland Water and Power:
Algal Mitigation Assessment

Technical Memorandum
April 14, 2017

Prepared by Corona Environmental Consulting, LLC

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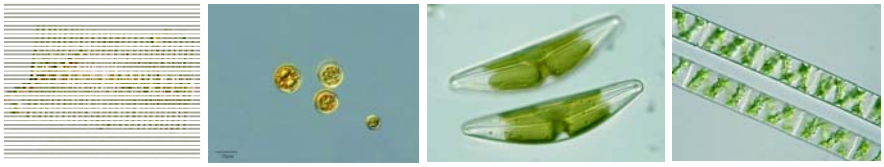
LOVELAND UTILITIES COMMISSION

Mitigation Assessment: Key Findings

Green Ridge Glade has hundreds of species of algae most of which are harmless and healthy for the ecosystem.



Green Ridge Glade also has numerous species that can cause taste and odor but are not an issue for Loveland

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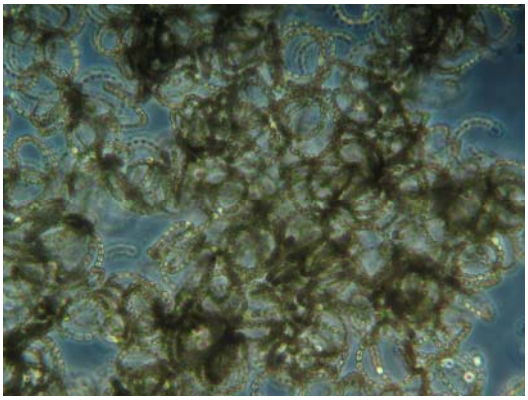
Mitigation Assessment: Background

What causes the Taste and Odor?

The species that causes the major taste and odor in Green Ridge Glade Reservoir is Anabaena



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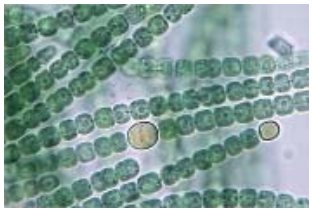
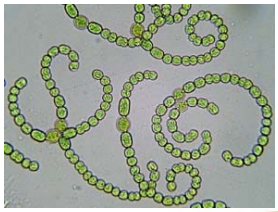
LOVELAND UTILITIES COMMISSION

Mitigation Assessment: Background

What causes the Taste and Odor?

- Anabaena is classified as a cyanobacteria and is one of the few algae that can control its depth in the reservoir in order to be in its optimal growth zone.
- Anabaena can fix its own nitrogen from the atmosphere enabling it to survive low nutrient conditions.
- Anabaena is an extreme taste and odor producer and releases a compound called Geosmin which is what causes the unpleasant taste and odor in Loveland's water.
- In rare cases Anabaena can release cyanotoxins:
  - Loveland Water and Power has never experienced a positive cyanotoxin result





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Mitigation Assessment: Background

What has been done to prevent this growth in the past

- Historically, LWP has applied an algaecide called Copper Sulfate with great success
- In 2015, the water treatment plant had Copper added to its discharge permit due to the Big Thompson River being listed impaired for Copper under the 303 D list (EPA's list of impaired water bodies and rivers)
- Due to the new regulations LWP began using PAK-27 algaecide (non copper based) but was found to be much less effective on Anabaena than Copper Sulfate thus leading to the increased bloom severity

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Potential Reservoir Mitigation Options

- Dissolved Oxygen Augmentation (ECO2)
- Ultrasonic Treatment (LG Sonic)
- Reservoir Mixing (Medora SolarBee)
- Emerging Technology for Phosphorus Removal (Biochar Now)

ECO$_2$

LG SONIC
Leading in ultrasonic algae control

Biochar Now

Medora Corporation

GridBee® SolarBee®

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Reservoir Mitigation Evaluation

Evaluation Criteria	Medora Solar Bee (mixing)	LG Sonic (Ultrasonic)	ECO2 (Oxygenation)	Emerging Technology (Biochar Now)
Effective for algae control in Green Ridge Glade Reservoir	Yes Numerous installations in comparable waterbodies with proven success	Maybe Similar products have had a low success rate in comparable applications	Maybe Could cause an increase in algae	No Nutrients were not identified as the leading cause for algal growth
Minimal Aesthetic impact	Yes	Yes	No	Maybe
Technical Maturity and Proof of Concept	Yes	Maybe Only 5 years on the market	Maybe	No
Operational Complexity	Low	Low	High	Low
Local Service Reps	Yes Representative located in Denver	No Company located in the Netherlands	No Located in Indiana	Yes Representative located in Berthoud
Calibration Requirements	No	Yes Must take system offline and ship out of country	Yes Must call service technicians	NA Must be replaced at an unknown frequency
Year-round Operation	Yes	No	Yes	Yes
Complete Proposal Provided to City	Yes	Yes	Yes	No
Equipment Cost	$202,210	$189,500	$294,000	Unknown

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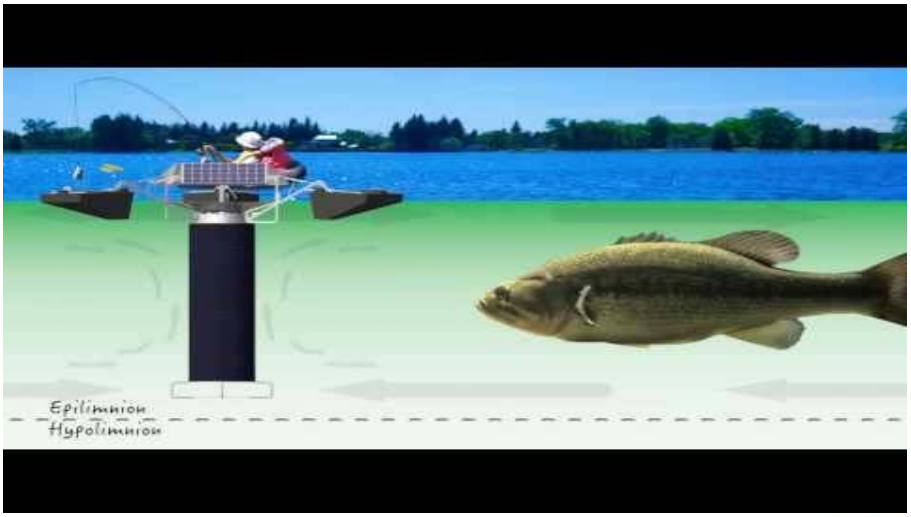
Medora SolarBee Video



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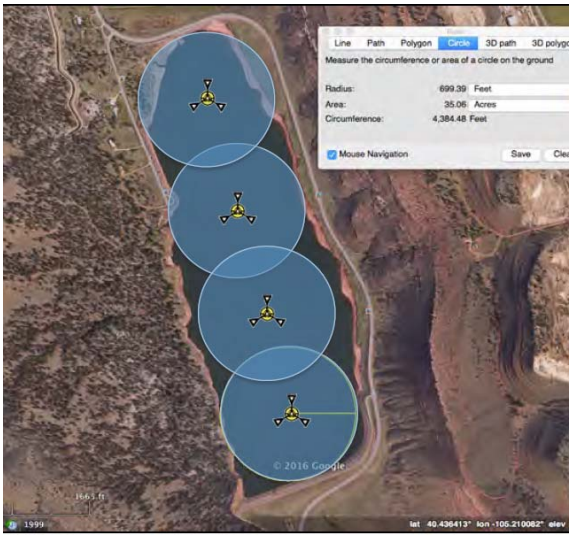
LOVELAND UTILITIES COMMISSION

Project Implementation



- Four epilimnetic mixers are required for Green Ridge Glade Reservoir
- Installation date anticipated Mid May
- Medora will provide all support and damage coverage under their "Beekeeper" plan
- Remote status monitoring through WTP SCADA system
- Entirely powered by solar energy

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LOVELAND UTILITIES COMMISSION

Water Treatment Plant Alternatives

Water Treatment Plant Alternatives Evaluation

Evaluation Criteria	Intake Gate Optimization	Powdered Activated Carbon Optimization	Pre Oxidation	Granular Activated Carbon Filter Caps	Advanced Oxidation
Effective for algae cell Removal	Yes	No	No	Yes	No
Effective for Taste and Odor Removal	Yes	Yes	Maybe	Yes	Yes
Maintains Algal Cell Structure	Yes	Yes	No	Yes	No
Ability to Retrofit Existing Structure	Not Needed	Yes	Yes	Maybe	No
Intermittent Use Possible	Yes	Yes	Yes	No	Yes
Cost to Implement	None	None	None	$280,000 each year	Major Capital

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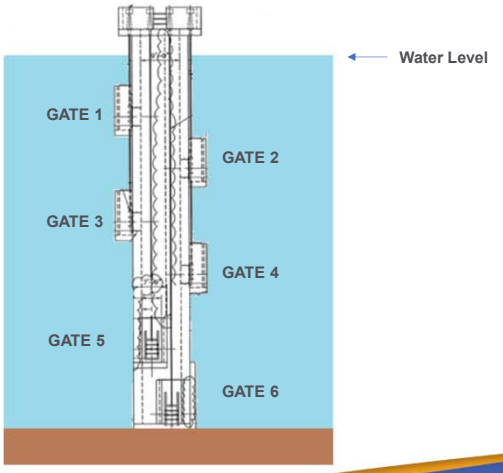
LOVELAND UTILITIES COMMISSION

Project Implementation

- Powdered Activated Carbon (PAC)
- Intake Structure Gate Selection Optimization



Actual Gate in GRGR

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Additional Process Improvements and Strategies

- Increased Water Quality Monitoring
- Backup Algaecide Use
- Chemical Dosing Plan
- Internal Communications Plan

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LOVELAND UTILITIES COMMISSION

Community Outreach

- Regular updates
  - Provide talking points and key messages to those that may be faced with customer questions
- Updated website
  - Ensure information is readily available
  - Mitigation Assessment posted publicly
  - Additional FAQs
- 2017 Water Quality Campaign
  - Discuss the "value" of water service to the health, vitality and future economy of the City
  - May through July
  - Public events, social media, newsletters, videos, blogs etc.

Funding

- SolarBee Equipment Purchase (4 units) - $202,210
  - Funds Available in 2017 Source of Supply Budget
- 1-Year "Beekeeper" Service Plan - $4,289
  - Funds Available in 2017 Water Treatment Plant Budget

LUC Direction

- This presentation is for information only but any comments from LUC are welcome

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LOVELAND UTILITIES COMMISSION

LOVELAND UTILITIES COMMISSION

QUESTIONS?

CORONA | ENVIRONMENTAL CONSULTING

Loveland Water and Power:
Algal Mitigation Assessment

Technical Memorandum

April 14, 2017

Prepared by Corona Environmental Consulting, LLC

CORONA ENVIRONMENTAL CONSULTING

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Executive Summary

Loveland Water and Power (LWP) uses two surface water sources for the production of drinking water – the Green Ridge Glade Reservoir (Reservoir) and the Big Thompson River (River). Colorado River water is fed to the GRGR via the Charles Hansen Feeder Canal. Since the 2013 flood events, LWP has experienced more severe seasonal algae blooms in the Reservoir and consequent water quality issues including discolored, musty water for extended periods of time. The taste and odor (T&O) issues in the Reservoir have progressively worsened and the highest concentrations of T&O causing compound, Geosmin, was observed in 2016.

In addition to T&O causing compounds, there are other water quality challenges in the Reservoir including seasonal release of manganese from sediments, stratification and depletion of dissolved oxygen from the hypolimnion, and increasing phosphorus loading to the Reservoir water. Historically, LWP had utilized two different chemical treatments (copper sulfate and sodium carbonate peroxyhydrate (PAK27))to manage T&O events in the Reservoir with limited success. Currently LWP uses press releases and outreach on social media to address customer concerns. However, in the long term, future T&O events need to be limited by developing a multiple barrier approach to mitigate algal blooms and reducing the level of T&O causing compounds entering the distribution system.

In October 2016, LWP contracted Corona Environmental Consulting, LLC. (Corona) to perform a feasibility study to investigate management of algal blooms and T&O causing compounds in the Reservoir and at the water treatment plant (WTP). The specific objectives of the algal mitigation study were to:

- Review historical water quality and operational data and identify the causes and extent of the T&O challenges
- Evaluate control strategies for T&O reduction with the Reservoir
- Evaluate control strategies for T&O reduction within the water treatment plant (WTP)

The algal mitigation study consisted of review of historical water quality and water treatment operations, evaluation of multiple strategies for algae and T&O compounds control, and development of recommendations for full-scale implementation. This technical memorandum (memo) summarizes the outcomes of this evaluation, and outlines the multiple barrier approach that will be necessary for algae and T&O mitigation, including: (1) chemical treatment in the Reservoir; (2) physical treatment in the Reservoir to prevent algal growth, and (3) physical or chemical treatment approach within the water treatment facility.

Alternatives Analysis

The feasibility analysis included consideration of both Reservoir and WTP algal mitigation alternatives, which are listed below:

- Reservoir Alternatives
    - Chemical Treatment
        - Copper sulfate
        - PAK27

        - Other algae control chemicals (alum, nutrient control, etc.)
    - Physical Treatment
        - Ultrasonic treatment
        - Mixing
        - Dissolved oxygen augmentation
        - Emerging technology for phosphorus removal
- WTP Alternatives
    - Exercising various gates within the intake tower
    - Pre-oxidation
    - Powdered Activated Carbon (PAC)
    - Granular Activated Carbon (GAC) filter caps
    - Advanced Oxidation Processes

Each of the alternatives were evaluated in detail as part of this project. This memo includes description of the technology, method of algal control, benefits, and drawbacks. Where applicable, equipment suppliers were solicited for design and cost proposals to facilitate comparison of the technologies.

Recommendations

Based on review of water quality and operations data, and evaluation of treatment alternatives, the following are recommended for algae and T&O control at the LWP Reservoir and WTP. While outside the scope of this project, an effective communications plan is key to addressing T&O events, and as such recommendations for implementation of a communications plan are included:

Reservoir

- ***Continue T&O monitoring program*** in the Reservoir and source waters year-round, with increased frequencies during algal presence in the Reservoir.
- ***Select a more effective chemical for algae treatment*** than those previously used (copper sulfate and PAK27).
- ***Install ultrasonic treatment equipment*** supplied by LG Sonic in the Reservoir.

WTP

- ***Exercise various gates within the WTP intake tower*** throughout the year to withdraw the best quality water from the Reservoir. The WTP intake tower has six gates.
- ***Determine the most appropriate PAC treatment strategy*** for T&O control within the WTP.

Communications

- ***Develop plans and templates for both internal and external communications*** prior to, during and after T&O events
- ***Include details within the communications*** to explain cause(s) of the T&O issue, whether the water is still safe to drink or use, and actions taken by LWP to address the issue. Provide clear guidance on steps that can be taken by customers to mitigate T&O in their premises

- ***Tailor communications for different audiences***, e.g. customers, board members, regulatory agencies, etc.

Next Steps

In order to implement the recommendations for algal and T&O mitigation as outlined above, the following next steps are suggested. Corona can assist LWP with all of these items, as needed:

- ***Select appropriate supplier and chemical for Reservoir chemical treatment***. Additionally, LWP should establish a service contract with the chemical supplier, whereby the supplier is responsible for obtaining permits, applying chemicals, and monitoring water quality before and after chemical application
- ***Implement LG Sonic ultrasonic treatment equipment within the Reservoir***. Prior to implementing this technology, additional equipment design details, ancillary equipment, operational considerations, and maintenance program details will need to be developed
- ***Develop an optimal PAC treatment strategy for T&O control within the WTP***. This includes determination of PAC type, dose, contact time, as well as the WTP improvements necessary to facilitate additional storage and feed requirements.

Introduction

Loveland Water and Power (LWP) uses two surface water sources for the production of drinking water – the Green Ridge Glade Reservoir (Reservoir) and the Big Thompson River (River). Colorado River water is fed to the Reservoir via the Charles Hansen Feeder Canal. Since the 2013 flooding across Colorado's Front Range, LWP has experienced more severe seasonal algae blooms in the Reservoir and consequent water quality issues including discolored, musty water for extended periods of time. The taste and odor (T&O) issues in the Reservoir have progressively worsened and the highest concentrations of T&O causing compound, Geosmin, was observed in 2016. While T&O causing compounds do not pose a health risk, numerous customer complaints were received during the late summer and early fall of 2016. LWP water quality analysts and operational staff were proactive in responding to the T&O issues by closely monitoring water quality at the water treatment plant, as well as at the homes and businesses throughout the distribution system, withdrawing water from deeper levels of the Reservoir, and blending Reservoir water with more water from the River.

In addition to T&O causing compounds, there are other water quality challenges in the Reservoir including seasonal release of manganese from sediments, stratification and depletion of dissolved oxygen from the hypolimnion, and increasing phosphorus loading to the Reservoir water. Until 2016, LWP had tested two different chemical treatments (copper sulfate and sodium carbonate peroxyhydrate (PAK27)) to the Reservoir with limited success. Currently LWP uses press releases and outreach on social media to address customer concerns. However, in the long term, future T&O events need to be limited by developing a multiple barrier approach to mitigate algal blooms and to reduce concentrations of T&O causing compounds entering into the distribution system.

Algal blooms do not consistently produce T&O, and conversely, T&O causing compounds may still be present in the water in the absence of an algal bloom. Typical odor threshold concentrations for the dominant T&O compounds, 2-methylisoborneol (MIB) and Geosmin, are 10 ng/L and 15 ng/L, respectively. A small fraction of people are highly sensitive to T&O compounds and can detect them at lower levels. Given that Geosmin is the primary T&O causing constituent in the Reservoir water, LWP has established an odor threshold for Geosmin leaving the water treatment plant (WTP) of 10 ng/L.

In October 2016, LWP contracted Corona Environmental Consulting, LLC. (Corona) to perform a feasibility study to investigate management of algal blooms and T&O causing compounds in the Reservoir and in the treated water at the WTP. The specific objectives of the algal mitigation study were to:

- Review historical water quality and operational data and identify the causes and extent of the T&O challenges
- Evaluate control strategies for T&O reduction with the Reservoir
- Evaluate control strategies for T&O reduction within the WTP

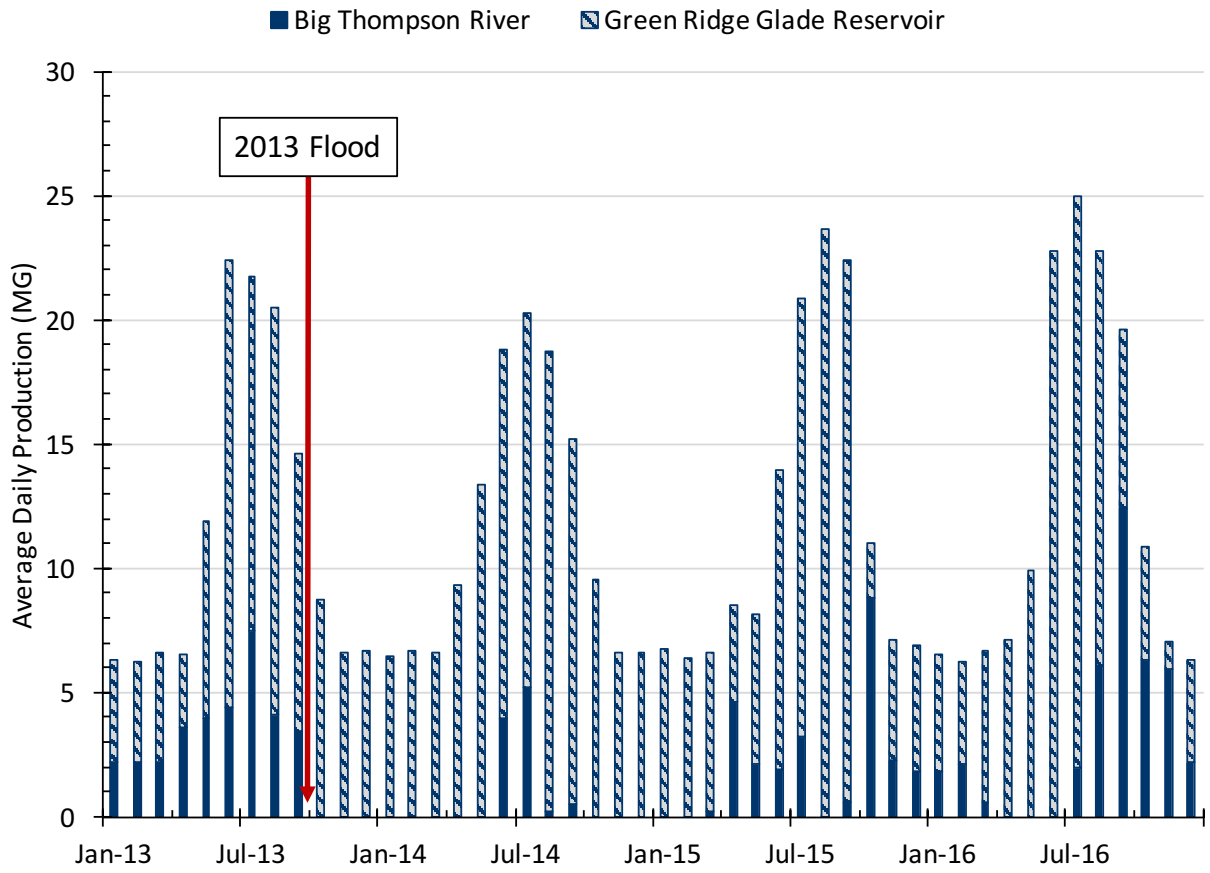
The algal mitigation study consisted of review of historical water quality, source water management, water treatment operations, evaluation of multiple strategies for algae and T&O

control, and development of recommendations for full-scale implementation. This technical memorandum (memo) summarizes the outcomes of this evaluation, and outlines the recommended multiple barrier approach for algae and T&O mitigation, including: (1) chemical treatment in the Reservoir; (2) physical treatment in the Reservoir to prevent algal growth, and (3) physical or chemical treatment approach within the water treatment facility.

Treatment Process Overview

As noted previously, LWP has two water sources that feed their treatment facility. Typically, the Reservoir is used year round and the River is used to the maximum of its allocation. LWP has senior water rights on the River and must use their allocation each year or lose a portion of their allocated supply. However, in recent years, LWP has been limited in what they can withdraw from the River due to: stabilizing in wake of the 2013 flood (2014), a pollutant spill in the River resulting in fish kill (2015), and extensive construction above the intake location (2016). Figure 1 shows the daily average production by month from each source from 2013 to 2016. The average daily production ranges between 20 and 25 MGD during the summer months, and between 6 and 8 MGD during winter months.

Figure 1 Average monthly production from the Big Thompson River and the Green Ridge Glade Reservoir



Due to high turbidity following the 2013 flood event, the River source was not used for 9 months. When turbidity subsided, the River intake was again used in 2014 and 2015 to blend with

Reservoir water for water production. Historically, the River is used in the winter months, however, during the T&O events occurring in the Reservoir from September 2016 to October 2016, LWP relied on the River to provide more than 50% of the supply in an effort reduce the T&O concentrations through blending.

Green Ridge Glade Reservoir

Figure 2 shows an aerial photograph of the Green Ridge Glade Reservoir. The surface area of the Reservoir is approximately 180 acres, and the Reservoir capacity is approximately 6,800 acre-ft when full. The average depth of the Reservoir ranges from 35 to 45 feet with some locations having depths of 79 feet. The Hansen Feeder canal delivers water to the northern portion of the Reservoir. The LWP WTP intake tower is located in the southern portion of the Reservoir.

Operational nuances and costs associated with the preventative technology to be installed in the Reservoir will be driven primarily by the depth and residence time in the Reservoir. For example, if the residence time is short and mixing were to be installed, lower mixing energies and costs would be required because less reaction time is available. Conversely, if there were a low Reservoir flow and a longer residence time, higher mixing costs would be incurred to maintain an adequately mixed water profile.

Figure 2 Aerial photo of the Green Ridge Glade Reservoir

Water Treatment Plant Process Overview

The treatment plant consists of the following unit processes:

- PAC addition
- Aluminum sulfate and chlorine dioxide with rapid mix
- Multi-stage flocculation with polymer addition (Stage 1)
- High-rate clarification
- Dual media filtration
- Chlorine disinfection and storage prior to distribution

The current treatment process is limited for T&O removal by it's PAC storage and feed system. PAC is well known to remove T&O compounds and is implemented by many utilities as their primary treatment strategy for T&O related customer complaints. LWP's current PAC dosing system has a maximum capacity of 3,600 lbs. per day, corresponding to a dose of 17 mg/L, assuming the average service flow from July 2016 of 25 MGD. ***A higher PAC dose capacity may be necessary at the LWP WTP for effective control of T&O causing compounds.***

Historical Water Quality

LWP routinely monitors water quality parameters in the source waters. Water quality data are collected at six locations within the Reservoir as illustrated in Figure 3. At each of these locations, depth sampling is performed at three depths:

- Surface (S) sample: collected at 1m (3.3 ft) below the water surface
- Middle (M) sample: collected at twice the Secchi depth, typically 8m (26.2 ft) below the water surface
- Bottom (B) sample: collected at 1m (3.3 ft) above the bottom of the Reservoir.

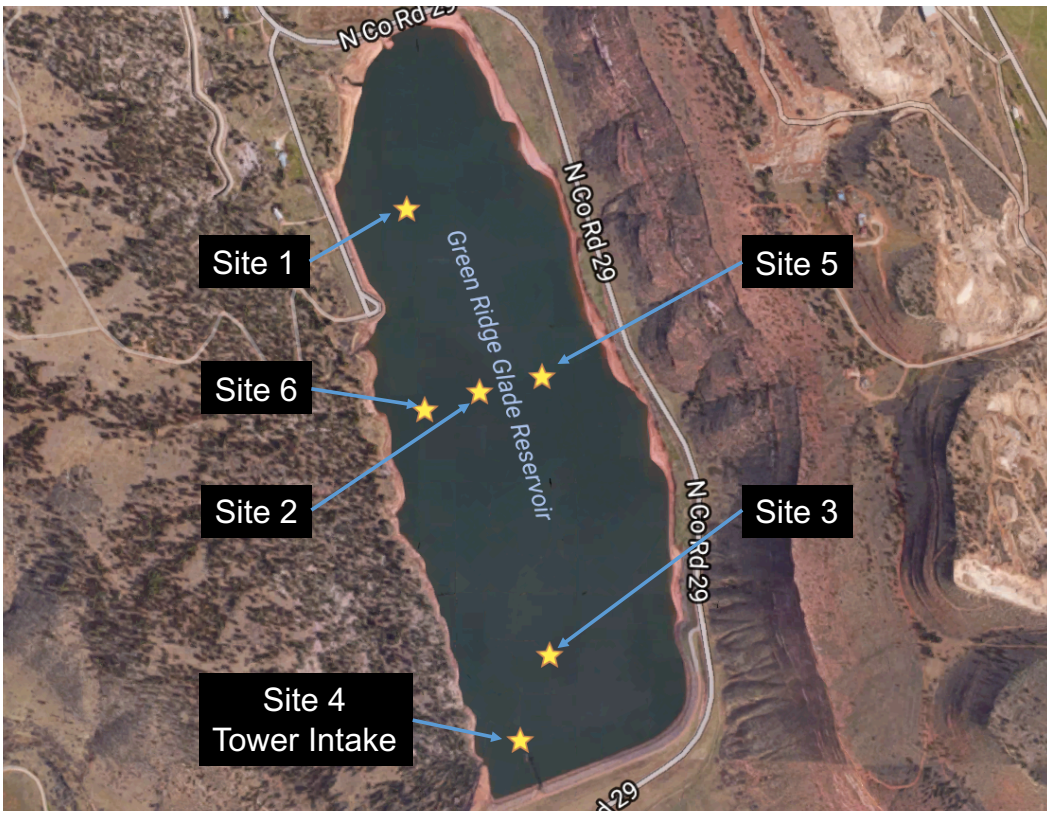
In addition to these depth samples from the six locations on the Reservoir, the following locations are monitored routinely:

- Sample line from River to the Laboratory
- Sample line from Reservoir to the Laboratory
- Grab samples from the Canal
- WTP effluent

Monitoring Site 4 shown on Figure 3 is located close to the WTP's intake tower and is assumed to be representative of the water quality entering the treatment facility. At a minimum, samples from each of the sampling locations listed above are collected every other week during Spring, Summer, and Fall, and once a month during Winter.

LWP has a substantial amount of historical water quality data. The entire historical water quality dataset between May 2011 and December 2016 was reviewed and analyzed as part of this study. This section provides a summary of the general water quality. The focus of this study were water quality parameters that contribute to T&O causing compounds, and as such, select water quality data relevant to T&O, and that influence the treatment technologies considered, are discussed in this section. If the future water quality is different than the historical data analyzed, the algal management strategy will need to adopt and reflect the changes.

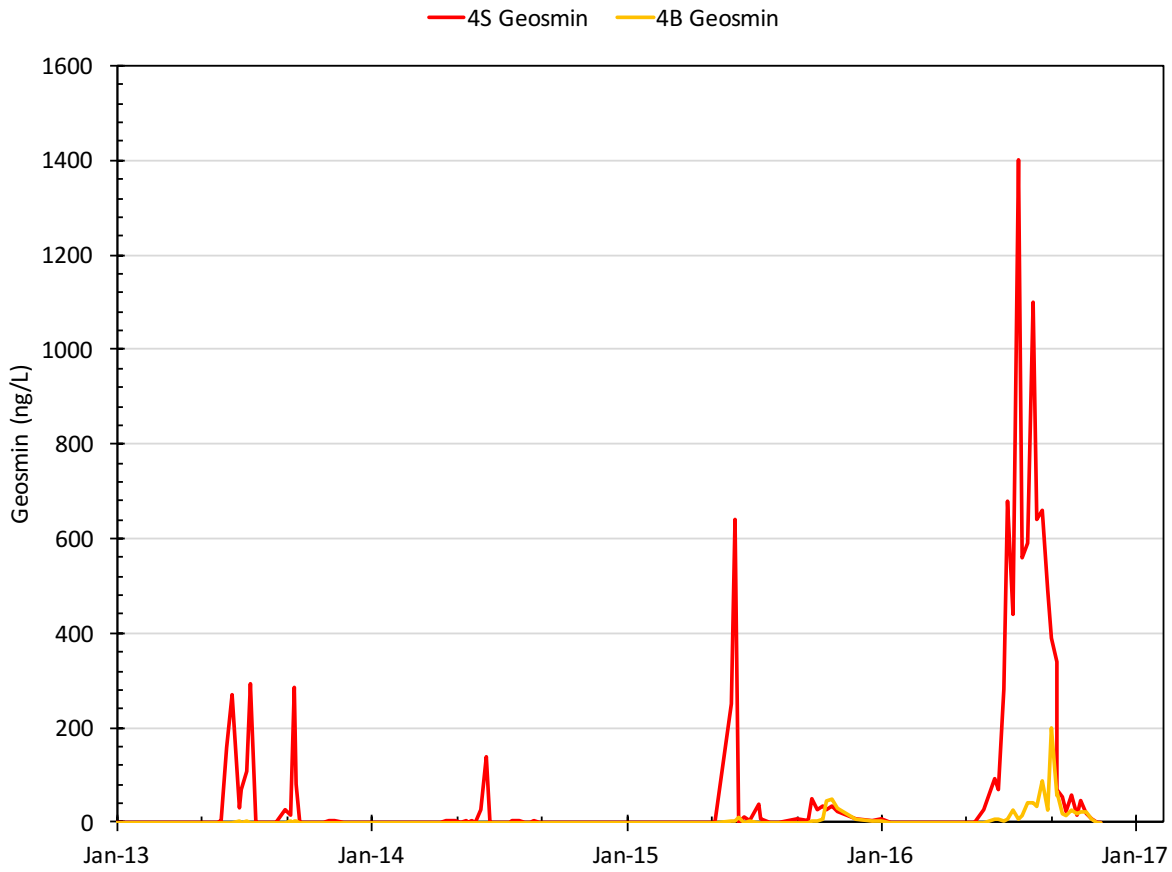
Figure 3 Routine sampling locations in the Green Ridge Glade Reservoir



Geosmin

Geosmin is the primary T&O causing compound in the Reservoir. Geosmin is a naturally occurring organic compound with a distinct earthy taste and aroma produced by bacteria in soil and algae found in surface water. Figure 4 shows the Geosmin concentrations at the surface and bottom of the Reservoir between 2013 and 2016. The highest Geosmin concentrations occur near the surface and peak concentrations have increased steadily from 292 ng/L in 2013 to 640 ng/L in 2015 to 1,400 ng/L in 2016. These concentrations are two orders of magnitude higher than the odor threshold of 10 ng/L. Typically, Geosmin concentrations in the bottom of the Reservoir are lower than at the surface. As such, during periods of high T&O, LWP can consider withdrawing water from the bottom of the Reservoir, which would likely have lower Geosmin concentrations. However, as can be seen from Figure 4, in 2016, Geosmin concentrations even at the bottom of the Reservoir peaked at 200 ng/L. MIB concentrations in the Reservoir were also reviewed for the period 2013 to 2016, and MIB concentrations are consistently lower than 10 ng/L at all depths of the Reservoir. As such, MIB is not a significant T&O contributor in the LWP water.

Figure 4 Geosmin concentrations at the surface and bottom of the Reservoir between 2013 and 2016



Algal Cell Counts

Anabaena is the most frequently occurring cyanobacteria causing T&O in the Reservoir. Historically, LWP has detected three different species of Anabaena in the Reservoir. Other algae frequently detected in the Reservoir include Asterionella, Fragilaria, Mallomonas, Cyclotella, and Synedra. Oscillatoria was detected for the first time in 2016. Oscilitoria is of concern because it contributes to T&O and is a benthic organism making it more difficult to control. Table 1 summarizes the frequently detected algal species in the Reservoir, and the T&O causing metabolites they are known to produce.

Table 1 Algal species and T&O causing metabolites observed in the Reservoir

Algal Species	Class	T&O Causing Metabolite
Anabaena	Cyanobacterium	2-MIB, Geosmin
Asterionella	Diatom	2-MIB, Geosmin
Fragilaria	Diatom	-
Mallomonas	Ochrophyta	-
Cyclotella	Diatom	2-MIB, Geosmin
Synedra	Diatom	2-MIB
Oscillatoria	Cyanobacterium	2-MIB, Geosmin

Figure 5 shows the total algal cell counts (#/mL) as well as the Anabaena counts at the surface and bottom of sampling Site 4 in the Reservoir which is close to the WTP intake tower. LWP does not quantify individual algal species, but total algae cells and Anabaena cells are counted. As can be seen from the Figure, prior to 2016, the total algae cell counts at all depths were typically less than 10,000 cells/ mL, even though occasional spikes were observed. However, in 2016, there was a significant increase in algal cell counts at all depths in the Reservoir. The total algae cell counts on the surface of the Reservoir exceeded 60,000 cells/mL. The other key observation from Figure 5 is that T&O causing algae often make up more than 80 to 90 percent of the total algal population. This is very significant in the assessment and development of algal control strategies in the Reservoir.

Figure 5 Total algae and Anabaena cell counts at surface and bottom of the Reservoir between 2011 and 2016

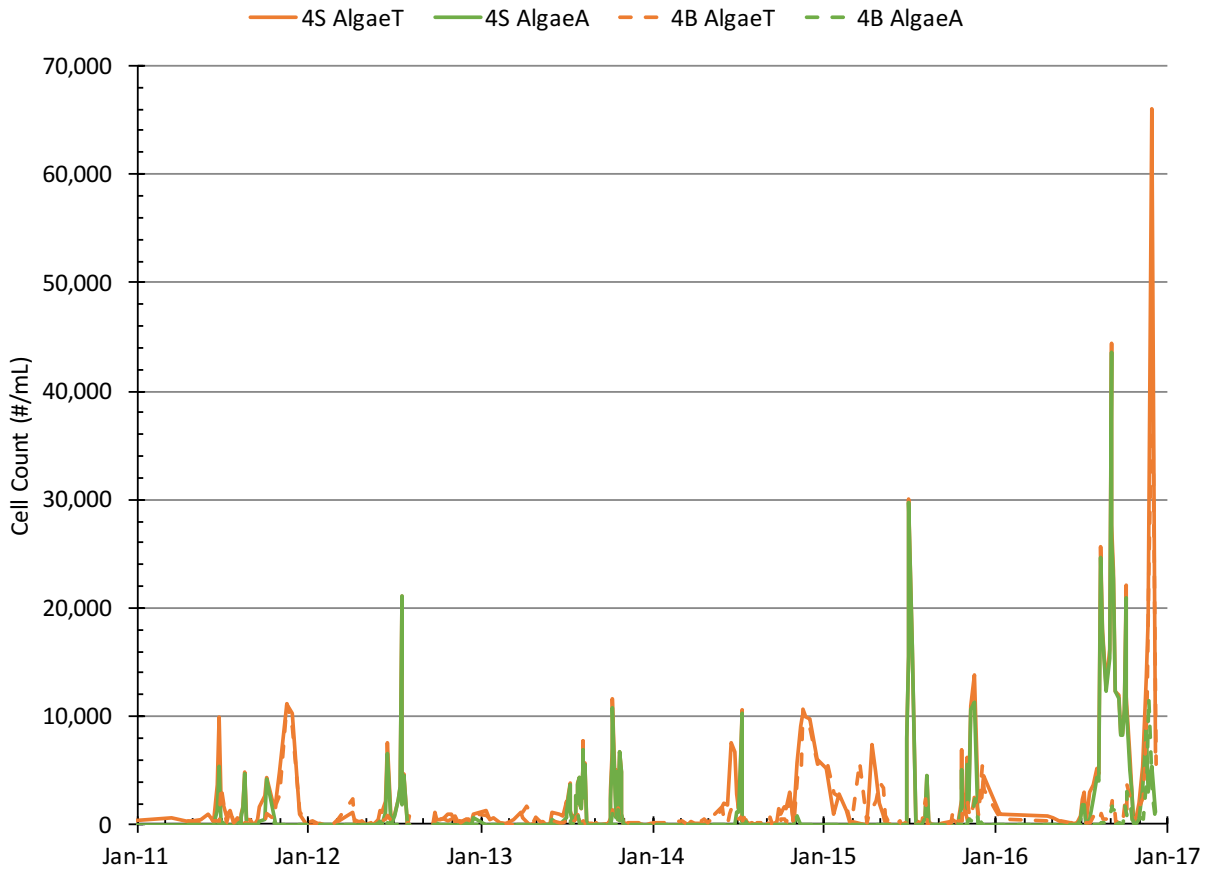


Table 2 shows summary water quality data, from June 2010 to December 2016 for the top and bottom of Site 4 and the River intake line. For each water quality parameter, the number of samples (count), minimum, 95th percentile, and maximum concentrations are shown. The 95th percentile is shown to eliminate the impact of outliers on the dataset.

Table 2 Summary water quality data from June 2010 to December 2016 for the Reservoir intake monitoring location and the River intake

Analyte		Site 4 Surface	Site 4 Bottom	River Intake
Alkalinity (mg/L)	Average	24	27	22
	95th percentile	30	34	36
	Min	16	18	6
	Max	35	38	44
	Count	120	119	97
Nitrate as N (mg/L)	Average	0.08	0.13	0.33
	95th percentile	0.23	0.29	0.72
	Min	0	0	0
	Max	0.31	0.35	2.65
	Count	120	117	109
Orthophosphate as P (mg/L)	Average	0.01	0.04	0.10
	95th percentile	0.05	0.14	0.29
	Min	0	0	0
	Max	0.34	0.36	0.52
	Count	106	105	81
TOC (mg/L)	Average	4.3	4.2	4.4
	95th percentile	6.0	5.5	8.2
	Min	3.3	2.3	2.6
	Max	6.7	5.8	16.2
	Count	103	101	84
Manganese (mg/L)	Average	0.019	0.071	0.042
	95th percentile	0.037	0.325	0.268
	Min	0.000	0.005	0.003
	Max	0.096	0.495	0.348
	Count	122	121	101

Alkalinity

Alkalinity can impact the effectiveness of algal control treatment within LWP's WTP. The proposed alternatives should not result in alkalinity changes in the reservoir, and if they do, treatment effectiveness may be impacted. The alkalinity concentrations are similar in all three locations.

Nitrate, Phosphorous and TOC

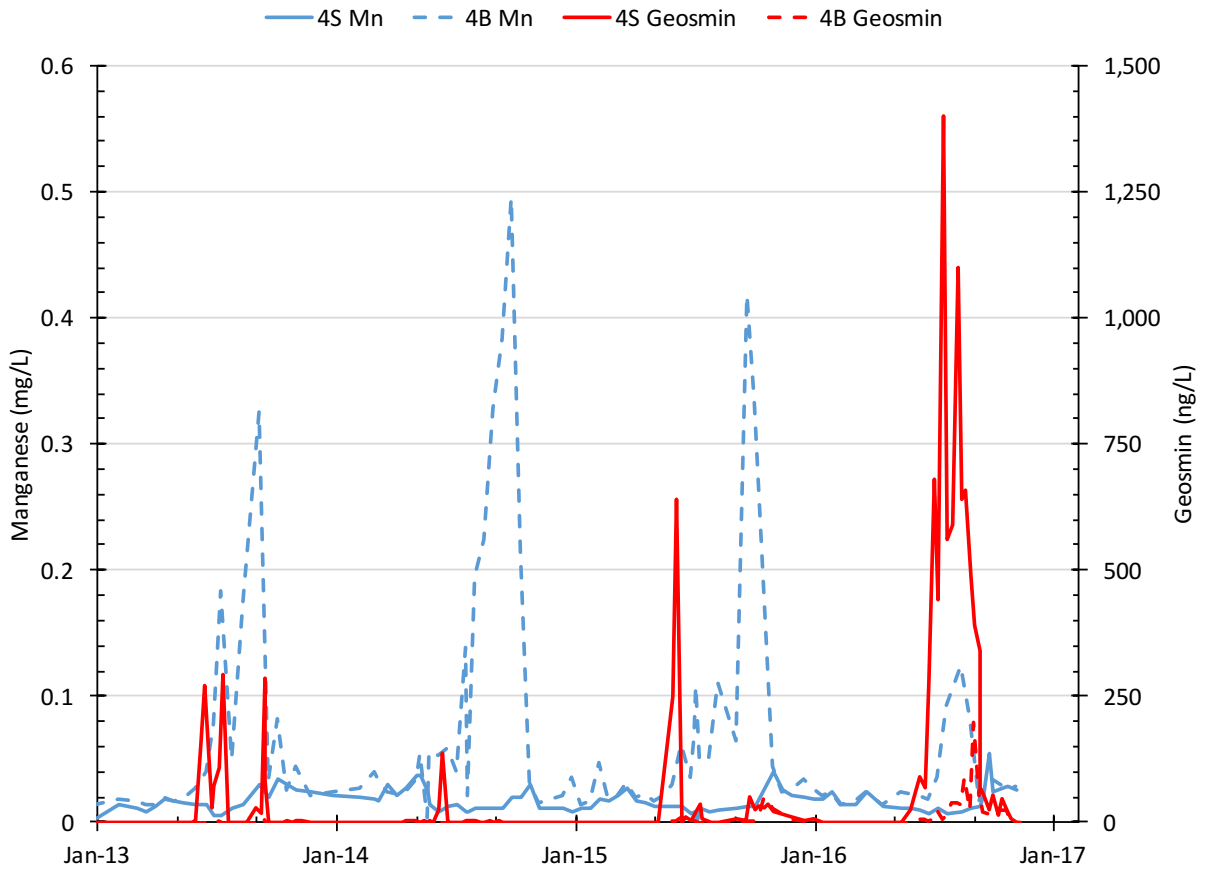
Nitrogen, phosphorus, and total organic carbon (TOC) are the nutrients required for biological growth. One of the primary control strategies for mitigating algal activity is to limit available nutrients. Nitrate concentrations are not of very high concern in the two source waters. The 95th percentile nitrate concentrations are 0.29 and 0.72 mg/L (as N) in the Reservoir and the River

respectively. Orthophosphate as P concentrations in the Reservoir are relatively low on the surface, with a 95th percentile concentration of 0.04 mg/L and the maximum observed concentrations on the surface and on the reservoir bottom are above 0.20 mg/L. Typically, algae are phosphorus limited. When total phosphorus concentrations rise above 0.20 mg/L algae are more likely to proliferate. TOC reacts with the disinfectant chlorine to form regulated disinfection by-products (DBPs) which are divided into two classes, five haloacetic acids (HAA5) and total trihalomethanes (TTHM). TOC concentrations in the Reservoir are not of concern and LWP routinely achieves the TOC reduction regulatory requirement. LWP also have not had any challenges in complying with the locational running annual average (LRAA) MCL levels of TTHMs and HAA5s in the distribution system in recent years.

Manganese

Manganese is regulated as a secondary contaminant that does not pose health impacts but does present aesthetic issues with discolored water, typically with a pink hue. Manganese is regulated with the secondary maximum contaminant level (SMCL) of 0.050 mg/L. Manganese is below the SMCL on the surface of the Reservoir with a 95th percentile concentration of 0.037 mg/L and above the SMCL on the bottom of the Reservoir with a 95th percentile of 0.325 mg/L. These elevated concentrations at the bottom of the Reservoir occur seasonally and are short lived. This phenomenon is likely due to reservoir turnover and particulate manganese release from deposited sediments. Figure 6 shows the seasonal variation of manganese concentrations and its temporal correlation with Geosmin occurrence. As seen in Figure 6, manganese peaks typically occur around end of September or October when the Reservoir turns over. In contrast, Geosmin peaks are observed between June and August. The manganese concentrations are also much higher at the bottom of the Reservoir, while the Geosmin concentrations are higher near the surface. As such, it may be possible to withdraw water from different depths of the Reservoir during these water quality events, and avoid the highest concentrations of these contaminants.

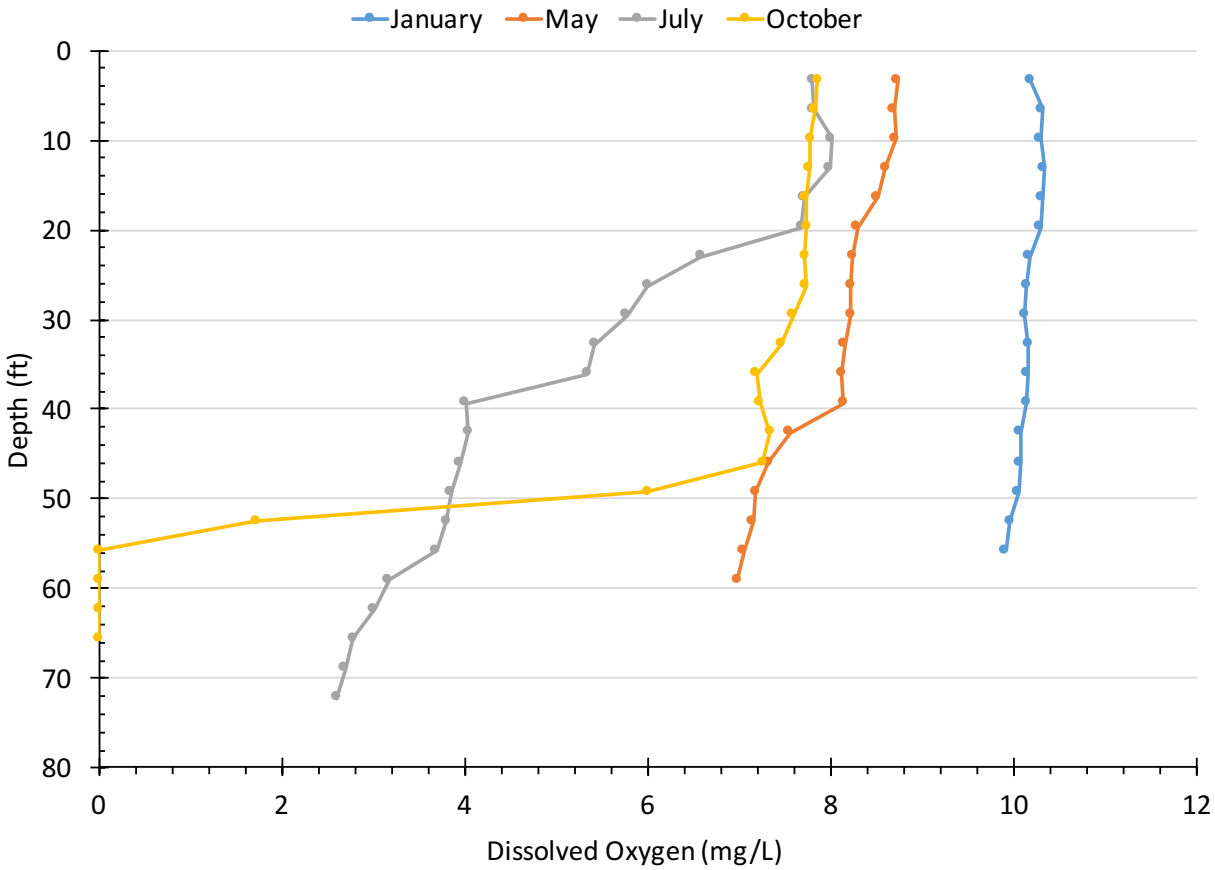
Figure 6 Seasonal manganese and Geosmin concentrations at the surface and bottom of the Reservoir



Stratification

In addition to algal growth, T&O, and manganese, the Reservoir also stratifies during summer, and there is a turnover in late fall or early winter. Figure 7 shows the depth profile of dissolved oxygen in the reservoir in July and October of 2015. Reservoir stratification typically starts around May, and as can be seen from Figure 7, by July, the Reservoir is very well stratified below a depth of 20 ft. Dissolved oxygen concentrations are close to 8 mg/L at the surface of the Reservoir, but drops to approximately 4 mg/L at a depth of 40 ft, and are less than 3 mg/L at the bottom of the Reservoir. This stratification in October when dissolved oxygen concentrations below a depth of 50 ft are close to 0 mg/L.

Figure 7 Dissolved oxygen profile in the Reservoir in January, April, July, and October of 2015



Sampling and Monitoring Challenges

LWP maintains a source water T&O monitoring program. The program is aimed at assessing likelihood of occurrence of T&O events, providing information to inform operational changes at the WTP, and alerting customers when T&O events are being experienced. LWP's current T&O monitoring plan includes analyses of MIB, Geosmin, dissolved oxygen, chlorophyll-a (depth analysis), algal count, nitrate, and phosphorus every-other-week throughout the year. When visual signs of algal bloom are observed in the Reservoir, typically in April, monitoring frequency is increased to weekly. During periods of an algae bloom, the sampling frequency is increased to every other day.

In the future, the collected T&O monitoring data should be catalogued in a database that can be used to predict water quality parameters during future T&O events. A T&O monitoring database will help illustrate if T&O events are recurring at the same time each year and if they can be predicted through the monitoring of surrogate water quality parameters. The T&O monitoring plan should be expanded to include phycocyanin. Phycocyanin is blue-green algae pigment and can be indicative of early growth phases of T&O producing bacteria.

Alternatives Analysis

In recent years including 2016, warmer summer temperatures combined with high nutrient loads into the Reservoir caused a large seasonal algae bloom that resulted in T&O issues experienced by LWP customers. However, it should be noted that a large algal bloom does not necessarily cause T&O issues, and on the contrary, often small blooms can cause extremely high T&O concentrations. Also, T&O compounds do not pose health impacts and are not regulated, but create a negative perception among customers about water quality. T&O thresholds for different individuals vary widely, and some sensitive individuals may be able to detect T&O causing compounds in water at very low levels. All of these considerations need to factor into the assessment and development of algal mitigation and management strategies.

Based on the above factors, one technology may be optimal in one location while a completely different strategy could be viable elsewhere. Additionally, any physical or chemical algal control strategy will have their own benefits and drawbacks. For example, some strategies may result in formation of unacceptable residuals or byproducts, while other strategies have high capital costs, or may require a high level of attention or be onerous to operate. ***A comprehensive analysis of algae mitigation alternatives requires consideration of both benefits and drawbacks of each management strategy.***

The review of the historical water quality data, described above, indicates that there is a significant potential for algal growth and consequent generation of T&O in LWP's source waters. Knowing that there is typically not a singular solution for T&O control, a comprehensive, multiple barrier approach will be necessary to achieve the desired T&O targets in the treated water. This feasibility analyses included consideration of both Reservoir and WTP algal mitigation alternatives, which are listed below:

- Reservoir Alternatives
    - Chemical Treatment
        - Copper sulfate
        - PAK27
        - Alum or other nutrient control chemicals
    - Physical Treatment
        - Ultrasonic treatment
        - Mixing
        - Dissolved oxygen augmentation
        - Emerging technology for phosphorus removal
- WTP Alternatives
    - Exercising various gates within the intake tower
    - Pre-oxidation
    - Powdered Activated Carbon (PAC)
    - Granular Activated Carbon (GAC) filter caps
    - Advanced Oxidation Processes

Each of the above alternatives are described in this section, including a technology description, method of algal control, benefits, and drawbacks. Where applicable, the equipment suppliers were solicited for design and cost proposals to facilitate comparison of the technologies. The original proposals received from the equipment suppliers are included in Appendix A – Proposals from Vendors.

Reservoir Alternatives

R1. Chemical Treatment

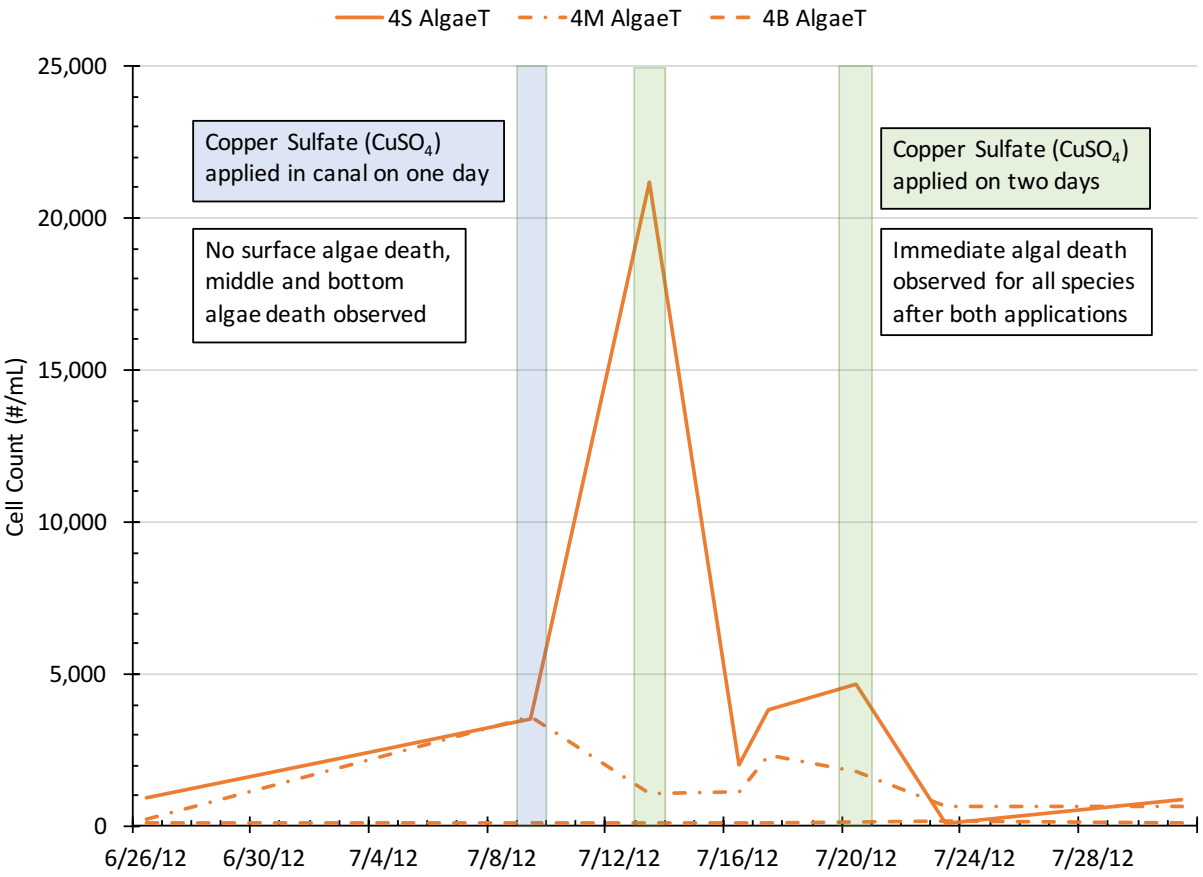
Historically, chemical treatment has been the only algal mitigation strategy used by LWP in the Reservoir. LWP has tested both copper sulfate and PAK-27 for algal control in the Reservoir. In addition to these two, there are other algal control chemicals available, including chemical oxidants, nutrient control chemicals, etc.

R1A. Copper Sulfate

LWP effectively used copper sulfate ($CuSO_4$), from Chem One Ltd., in the Reservoir until 2015. Copper sulfate has been commonly used as an algaecide, despite risks such as the lysing of algal cells resulting in the Geosmin and increase in dissolved copper concentrations. Figure 8 shows the copper application response in the Reservoir from June 26, 2012 to July 31, 2012, where AlgaeT represents the total algae count.

On July 9th, LWP applied copper sulfate in the Hansen Feeder Canal with nominal impact for surface algae, but there was a noticeable decrease algal communities at the middle depth. Sampling was less frequent at the bottom depths due to the consistently low algal counts observed. On July 13th and July 20th, copper sulfate was applied on the Reservoir surface resulting in immediate algal death and overall reduction in total algal count. Other chemical application dates were evaluated in a similar fashion and all copper sulfate application dates show a decrease similar to that shown in Figure 8.

Figure 8 Algal response from copper sulfate application in July 2012



LWP opted to discontinue the use of copper sulfate due to the risk of violating the Colorado Discharge Permit System (CDPS) permit issued by the Colorado Department of Public Health and Environment (CDPHE). The section of the Big Thompson River surrounding LWP's intake is included on the 303(d) list for impaired river supplies in the Western United States for copper contamination. On February 3, 2016, the copper discharge levels for this section of the Big Thompson River were revised to not exceed 11 µg/L for a single day or 7.5 µg/L as a 30-day average, limiting LWP's ability to apply copper sulfate in the Reservoir. Although copper sulfate is no longer being used, elevated copper concentrations are still observed in the discharge.

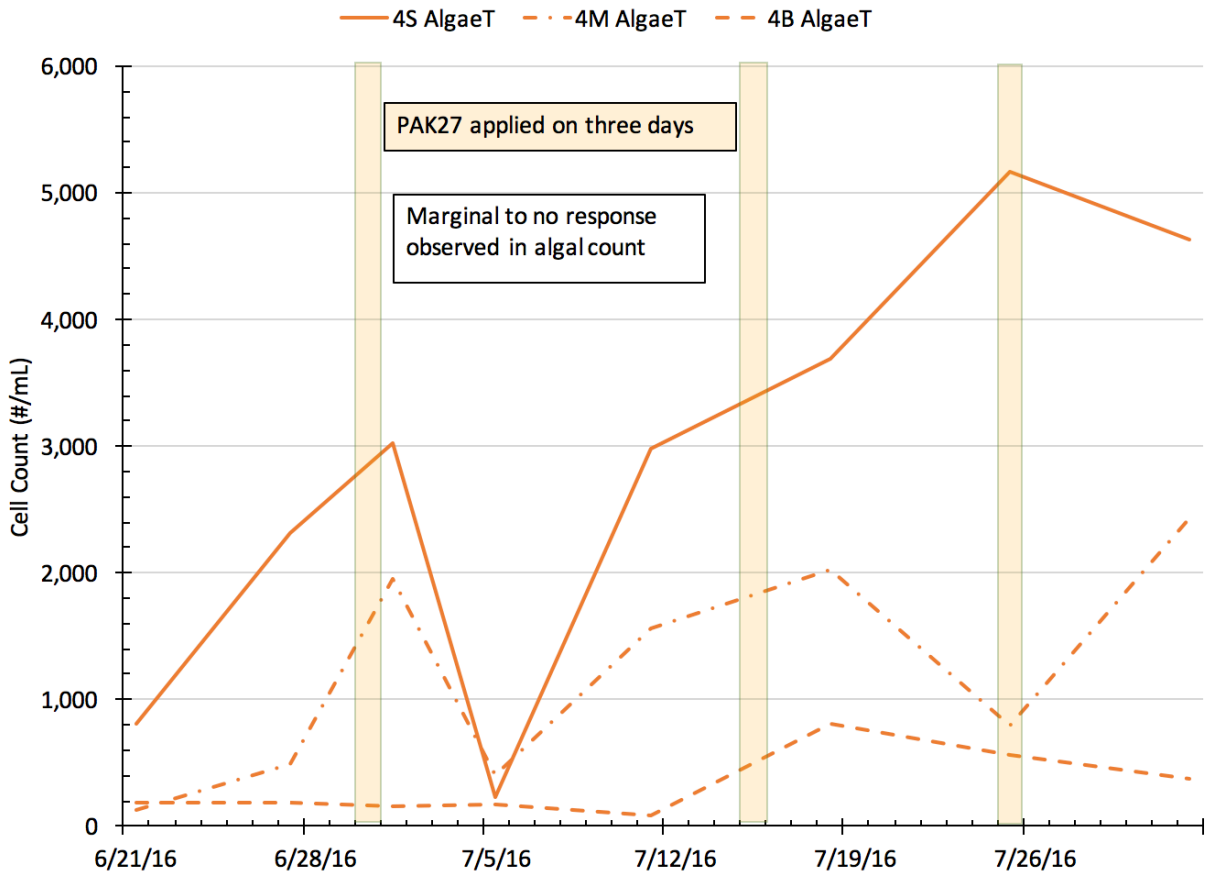
Recent discussions with CDPHE indicated that it is possible for LWP to seek a Discharge Variance Permit, by citing financial, water quality, or treatment process challenges resulting from compliance with the CDPS permit. CDPHE did however note that seeking a variance is a lengthy process and there is no guarantee of success. With this in mind, alternate chemical application strategies or products for algal mitigation should be explored.

R1B. PAK27

PAK27 Algaecide is manufactured by SePRO Corporation as a sodium carbonate peroxyhydrate based oxidant for algae control. LWP converted to PAK27 after discontinuing the use of copper sulfate.

Figure 9 shows the algal response from PAK27 application in June and July 2016. It is difficult to discern if the first application date shown (June 30th) resulted in reduced algal counts. The second date shown on July 15th did not reduce the algal population. The third application, on July 25th, had marginal effect at the surface and algal counts increased at the middle depth. Algal counts were relatively low at the bottom depth during each application.

Figure 9 Algal response from PAK27 in June and July 2016



Copper sulfate appears to be more appropriate and effective for algal mitigation in the Reservoir when compared to PAK27. Given the ineffectiveness of PAK27, alternative chemical treatment options are described below.

R1C. Other Chemical Treatment Options

Numerous other chemical treatment options and chemical suppliers are available for algal control. As part of this project, LWP has made contact with two chemical suppliers, Lonza and

SOLitude Lake Management. Both of these chemical suppliers offer a number of algae control products for surface reservoir applications, in both crystalline and liquid form. The products can be copper based, peroxide or other oxidant based, or nutrient control chemicals. All of the products discussed below are approved for use in source waters intended for drinking water production.

Some of the proprietary chemicals supplied by Lonza include:

- Algimycin
- Phycomycin
- Cutrine-Plus (liquid)
- Cutrine-Plus (granular)

The SOLitude supplied chemicals include:

- Phoslock
- GreenClean Liquid 5.0
- Alum

Several of these products have the potential to be effective in controlling algal growth in the Reservoir. While some of these products will be more effective in reducing live algal blooms (e.g. copper or peroxide based algaecides), others may be more beneficial in the long term because they reduce phosphorus which is a necessary nutrient for algal growth (e.g. alum based chemicals). A combination of two different chemicals, applied at different times and different frequencies may provide further benefits. While additional details and supporting information on each of the products listed above are not included in this report, technical specifications and other details were obtained on these products as part of this project, and shared with LWP staff.

However, these products need to be tested first, when there is algal growth in the Reservoir, prior to selection. Also, the appropriate doses and application methods need to be determined. In addition to surface application, depth application with trailing hoses from the boat spreader should also be considered. Lonza and SOLitude each offer service contracts. The service contracts include permitting support, third party application, and water quality monitoring.

Given the copper discharge limits and the limited effectiveness observed with PAK27, it is recommended that LWP proceed with evaluating of an alternate chemical from either Lonza, SOLitude or similar chemical or service provider. Additionally, it is recommended that LWP also consider establishing a service contract with the chemical supplier, whereby they will be responsible for determining the appropriate chemical and dose, and applying it in the Reservoir at necessary frequencies. The following are the critical next steps related to chemical treatment in the Reservoir:

- Engage chemical supplier(s) to determine the appropriate chemical, recommended doses, frequency, and costs for chemical application. In order to do this, limited testing may be necessary with water when algal growth is observed in the Reservoir. Lonza, for example, has developed a standardized “Algal Challenge Test” that can be performed using water from the Reservoir at bench-scale.

- Once the recommendations are received from the supplier, LWP perform in-house testing with the selected chemical in order to determine effects on other water quality. Any effects of the chemical on other non-target species (vertebrates, invertebrates, etc.) need also be determined
- LWP should execute a service contract with the chemical supplier outlining the roles and responsibilities of each party, along with costs. Due to year to year variability in algae growth, the service contract should be flexible in terms of the fixed number of applications, as well as "as-needed" applications
- The supplier contracting and chemical selection process should be completed prior to Summer 2017 such that when algal blooms are experienced in the Reservoir, the response strategy is already in place.

Physical Treatment

R2. Ultrasonic Treatment

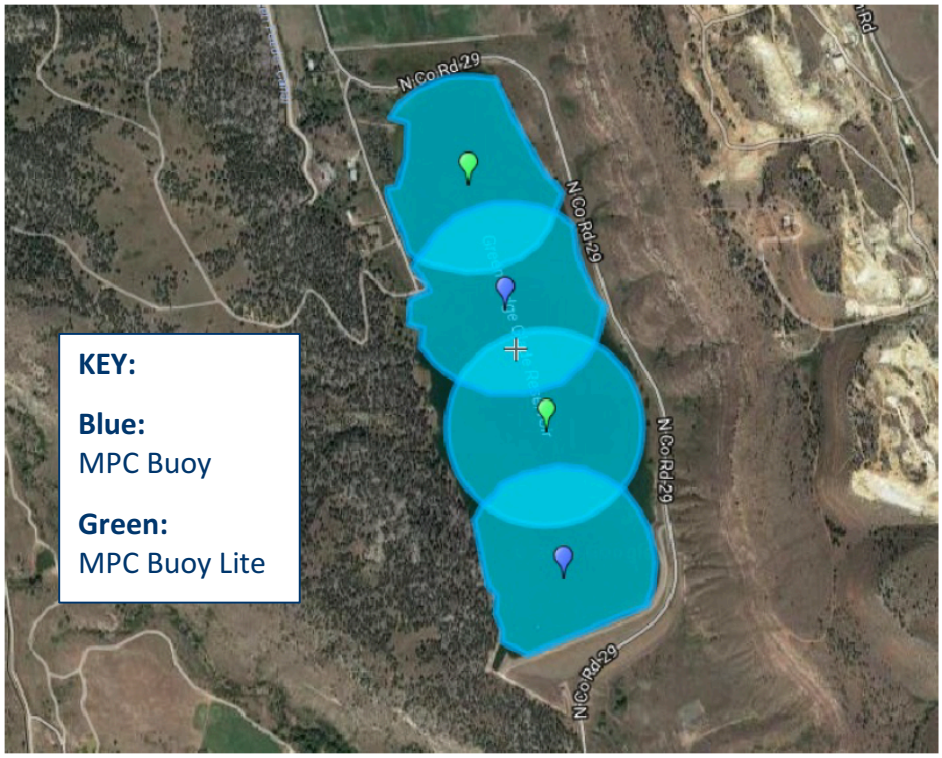
Description of Technology

Ultrasonic approaches control algae by emitting ultrasonic waves that impact the buoyancy of the algae, preventing them from rising to the surface which limits photosynthesis. Without photosynthesis, algae cells do not proliferate and effectively die off. While multiple suppliers provide ultrasonic equipment, the evaluation herein focuses on the LG Sonic MPC and MPC Buoy Lite equipment as a result of our project team's experience and familiarity with the product.

For the Reservoir, LG Sonic proposed two pairs of MPC Buoy and MPC Buoy Lite equipment. Figure 10 shows the proposed installation locations. The LG Sonic equipment relies on tuning of ultrasonic frequencies based on real time water quality results for reliable algal mitigation. Both the MPC Buoy and the MPC Buoy Lite are solar powered ultrasonic wave emitters. The MPC Buoy is equipped with water quality monitoring, specifically chlorophyll-a, phycocyanin, and dissolved oxygen and data are uploaded continuously to LG Sonic servers, to inform the appropriate treatment frequency. The data from the MPC Buoy is then used to control the corresponding MCP Buoy Lite

LG Sonic anticipates that the proposed installation would provide 60-90% algal bloom reduction. The effectiveness may increase over time as more water quality information is gathered and the buoys are effectively tuned. LG Sonic utilizes a specific frequency to target inhibition of the dominant algae present. Eliminating algae from the photic zone can promote growth of benthic algae living lower in the reservoir. However, because the frequency is targeted to a specific algae type, once one algae species has been managed, the frequency could be changed to target another. The real time water quality monitoring that the LG Sonic technology utilizes informs how the frequency should be changed.

Figure 10 Proposed locations for MPC Buoy and MPC Buoy Lite in the Green Ridge Glade Reservoir



Benefits and Drawbacks

The benefits and drawbacks of the LG Sonic technology are shown in Table 3. There are few drawbacks of this technology and very few unforeseen impacts on water quality or the environment. In addition to the equipment purchase, LG Sonic recommends an annual service contract of $11,500/year for calibrating the water quality sensors and fine tuning the ultrasonic frequency for more targeted algal mitigation.

Table 3 Benefits and drawbacks of the LG Sonic ultrasound technology

Benefits	Drawbacks
• No byproducts • Environmentally friendly • No impact on fish species, plants, or insects • 60-90% bloom reduction expected • Reduces chemical application • Provides water quality monitoring	• Service contract for tuning and calibration ($11,500/year) • Does not address Mn or other water quality challenges • May promote growth of benthic algae • 3 to 5-year guarantee

Capital Costs

The capital costs for the LG Sonic ultrasound technology are $176,000, inclusive of installation, initial training, and a spare parts package and are shown in Table 4. Operational costs are low because the MPC Buoy and MPC Buoy Lite are equipped with solar panels run by solar energy.

The annual service contract cost is the main operational cost associated with the LG Sonic ultrasound technology.

Table 4 Installed capital cost for the LG Sonic MPC Buoy technology

Equipment	List Price	Quantity	Subtotal
MPC Buoy	$45,000	2	$90,000
MPC Buoy Lite	$32,500	2	$65,000
Spare Part Package	$14,500	1	$14,500
Supervision of Installation and Setup	$ 6,500	1	$ 6,500
		Total	**$176,000**

The design and configuration of the MPC Buoy and MPC Buoy Lite equipment can be optimized further. A MPC Buoy Lite can be converted to a MPC Buoy at a later date by retroactively installing the water quality analyzer sensors.

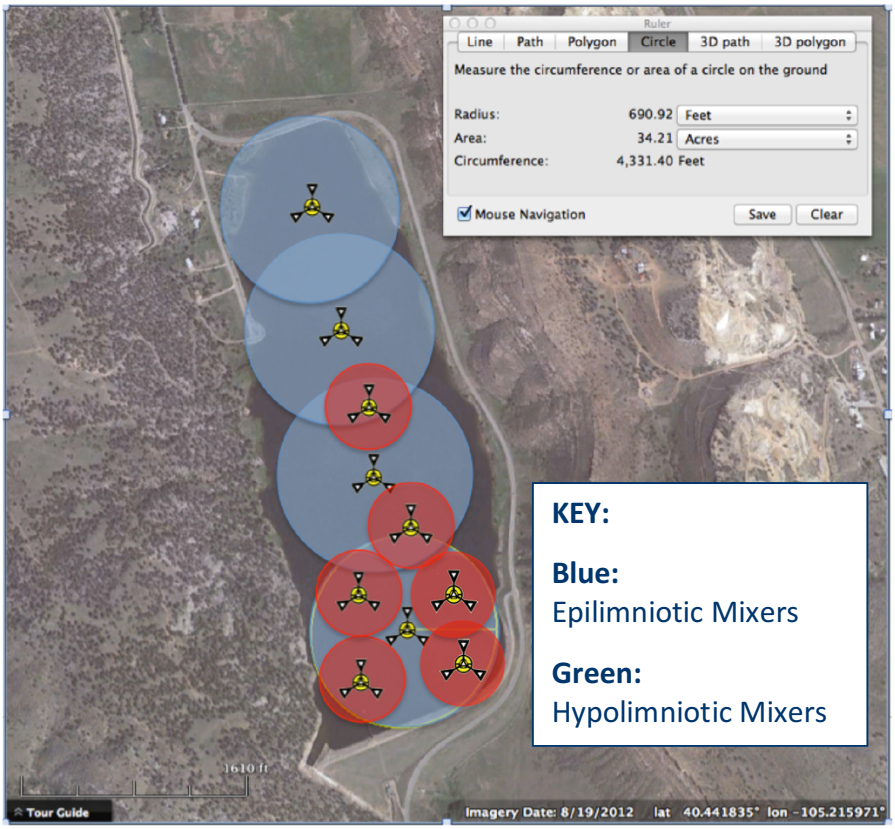
R3. Reservoir Mixing

Description of Technology

Mixing can be an effective means for algal mitigation by preventing stratification, and thus seasonal turnover. The mixing system works by withdrawing water and pumping it to different levels within the water column, thus preventing both seasonal nutrient release, and maintaining minimal biological growth. As with the ultrasonic approaches, there are multiple vendors that offer reservoir mixing products. For the purpose of this assessment, Medora Solarbee was solicited to cost and installation details.

Medora offers systems capable of mixing both the upper (epilimnion) and lower (hypolimnion) portions of the Reservoir. Mixing in the hypolimnion will prevent manganese release during reservoir turnover. That said, manganese can be managed either by managing which intake gate in use and through the use of chlorine dioxide in the plant. The required mixing energy is dependent on the hydraulic residence time within the reservoir. When there is a longer hydraulic residence time, less mixing is required. LWP occasionally withdraws up to 28 MGD from the reservoir, but has an average withdraw rate of 9.8 MGD. The system must be sized for the lower withdraw rate corresponding to a higher residence time. Medora provided proposals assuming average day withdrawal of 9.8 MGD from the Reservoir. For a 9.8 MGD withdraw rate, 4 epilimniotic mixers and 6 hypolimniotic mixers will be necessary. The installation locations of the epilimniotic and hypolimniotic mixers are shown in Figure 11. When LWP withdraws a greater volume than average from the reservoir, fewer mixers are required to be in service at a time.

Figure 11 Proposed installation locations for Medora's SolarBee technology



Benefits and Drawbacks

Benefits and drawbacks for Reservoir mixing are shown in Table 5.

Table 5 Benefits and drawbacks of mixing with Medora SolarBee technology

Benefits	Drawbacks
• Minimal environmental impact including effects on fish species, plants, and insects • No chemical additive or chemical byproduct • Rental agreement and short timeline possible • Prevents stratification	• Potential water quality challenges from homogenizing the water column with use of hypolimniotic mixers • Highest capital cost among active reservoir strategies if both epilimniotic and hypolimniotic mixers are used

Capital Costs

The capital costs for Medora's SolarBee technology are shown in Table 6. If selected, Medora offers an additional option for equipment procurement in the form of a 12-month rental. Annual rental rates for the equipment are also shown in Table 6. Following a successful 12-month rental, the units can be purchased with zero additional installation cost (included in capital) and with

50% discounted equipment costs. Medora also offers refurbished units with a 15% discount and provide an "as new" warranty.

Table 6 Medora SolarBee cost outcomes for 9.8 MGD withdraw rates from the reservoir

Flow	9.8 MGD
No. in Hypolimnion	6
No. in Epilimnion	4
Cost Hypolimnion ($)	$335,000
Cost Epilimnion ($)	$197,000
12 Mo. Rental ($)	$205,000
Purchase Cost ($)	$532,000

R4. Dissolved Oxygen Augmentation

Description of Technology

Eco2 offers the Speece Cone, dubbed as a "super oxygenation system" designed to increase dissolved oxygen in the Reservoir. Effectively, the Speece Cone uses a liquid oxygen feed system, coupled with fluid dynamics, to promote the dissolution and delivery of oxygen rich water to the lower portions of the Reservoir. Higher dissolved oxygen at lower levels of the Reservoir creates an aerobic cap above sediments, preventing nutrient and manganese release. Recently, Denver Water installed a Speece Cone in their Marston Reservoir. In one season, dissolved oxygen concentrations in Marston Reservoir have increased from anoxic (<0.5 mg/L as O_2) to above 7 mg/L as O_2.

The proposed location of the Speece Cone is shown in Figure 12 by the yellow marker on the southwest side of the Reservoir.

Figure 12 Proposed installation location for the Eco2 Speece Cone at the Green Ridge Glade Reservoir

Eco2 provided preliminary system sizing information. Table 7 shows the sizing information provided by Eco2. The target oxygen dissolution rate is 1,800 lbs./day of O_2, with a design capacity of 1,950 lbs./day.

Table 7 Design details for the Eco2 Speece Cone

Eco2 System Design	On-Shore Installation
System Size (dia., ft)	6
System Height (ft)	15
Sidestream Flow (gpm)	2,800
Sidestream HP	54 HP
Discharge D.O. (mg/L)	63
O_2 Dissolution Capacity (lbs./day)	1,950

Benefits and Drawbacks

The benefits and drawbacks of this technology are summarized in Table 8.

Table 8 Benefits and Drawbacks for the Eco2 Speece Cone

Benefits	Drawbacks
• Targeted dissolved oxygen augmentation at certain depths • Increases dissolved oxygen in the reservoir • Consumables (liquid oxygen) are available locally and relatively inexpensive • Assists in manganese control	• May cause increase in T&O producing algae • Requires onsite liquid oxygen or direct oxygen line

Capital Costs

The Eco2 Speece Cone capital costs are shown in Table 9. For the purposes of this cost estimate, it was assumed that the Speece Cone will be installed on the Reservoir shore. Alternatively, the Speece Cone can be installed with weights on the Reservoir floor. There is a substantial increase in cost if Reservoir bottom installation is required, and an extensive soil evaluation of deposited sediment in the Reservoir will also be necessary. With the on-shore installation, the total capital cost of the Eco2 Speece Cone is $294,000.

Table 9 Eco2 Speece Cone capital costs

Component	On-shore Installation
Eco2 System	$230,000
Oxygen Flow Control	Included
Sidestream Pump	$60,000
Shipping	$4,000
Total Capital Cost	$294,000

O&M Costs

A liquid oxygen supply is required for the Eco2 Speece Cone oxygenation system. Praxair is local gaseous chemical supplier with an existing distribution center in Loveland, CO and has developed preliminary cost estimates for a liquid oxygen tank, service contract, and bulk chemical delivery. Table 10 shows the liquid oxygen supply costs for the Eco2 Speece Cone technology. The estimated monthly rate is $3,200, inclusive of electrical, storage tank rental, and chemical delivery.

Table 10 Liquid oxygen supply costs for the Eco2 Speece Cone

Component	Praxair System
Liquid O_2 Cost (58,500 lbs/month)	$0.03/lb
Monthly Tank Rental ($/month)	$900
Compliance Charge ($/delivery)	$60
Monthly Cost ($/month)	$3,200

R5. Emerging Technology for Phosphorus Removal (Biochar Now)

Biochar Now supplies specially manufactured biochar from biological sources for adsorption of nutrients, particularly phosphorus, from the Reservoir, thus limiting algal growth. In concept, the biochar packed in a sock-like cloth and sunk to various depths in the Reservoir where it can passively adsorb nutrients. LWP staff performed a series of jar-tests with varying Biochar Now doses to assess the phosphorus removal capacity. The preliminary results showed no phosphorous removal. At this time Biochar Now is not considered for application in the Reservoir and further research and testing should be conducted to determine if utilizing Biochar Now would be beneficial for LWP.

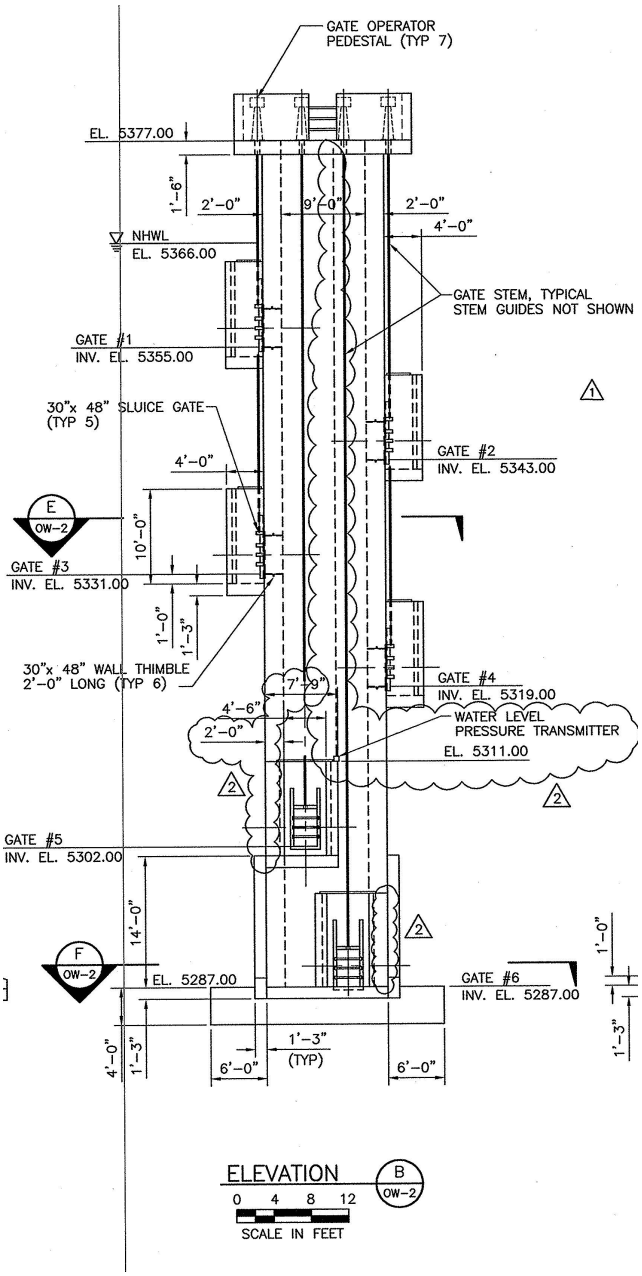
WTP Alternatives

W1. Exercising Various Gates within the Intake Tower

As discussed previously, the water quality in various depths in the Reservoir vary significantly. While algae cell counts and T&O causing compounds occur at higher concentrations near the surface, manganese spikes occur closer to the bottom of the Reservoir (see Figure 6). The intake tower for the LWP WTP has six gates at various levels, as shown in Figure 13. Historically, LWP has used gates 4 and 5 for withdrawing water.

The water quality data from Site 4, should be used to inform which gate is operated. Given that the Geosmin concentrations are typically lowest at the bottom of the Reservoir (Figure 6), exercising gate 6, the lowest gate could alleviate Geosmin entering the WTP during T&O events. However, during periods of manganese release it a higher gate may be preferred to prevent high levels from entering the WTP. Knowing there is preparation required before changing gates, this operational strategy will require close communication between operations and the water quality staff.

Figure 13 Gates along the WTP intake tower in the Green Ridge Glade Reservoir



W2. Pre-oxidation (Chlorine Dioxide)

The LWP currently uses chlorine dioxide as a pre-oxidant to control manganese and may also assist with T&O mitigation. If chlorine dioxide were used for T&O mitigation it is likely that significantly higher doses would be required. However, higher chlorine dioxide doses will result in cell lysis, potentially releasing higher concentrations of T&O compounds. Additionally, cyanotoxins are currently on the regulatory horizon and cyanotoxin concentrations can also increase with cell lysis. As such, use of chlorine dioxide for management of T&O causing compounds is not recommended at the LWP WTP.

W3. Powdered Activated Carbon (PAC)

PAC is often used as T&O control strategy as it has the capability to remove Geosmin through adsorption. The WTP currently has the capability to feed PAC. LWP currently uses Hydrodarco B from Cabot Norit which is typically applied at a dose of less than 10 mg/L, however as a result of operational changes LWP was able to feed a maximum PAC dose of 16 mg/L. LWP could see a greater return from their PAC feed through an optimization study.

The optimization study would involve: (1) Screening of LWP's currently used PAC with other products to compare relative performance, and (2) Determining the appropriate PAC doses that will be necessary to achieve treated water T&O target concentrations.

LWP staff have expressed interest in optimizing their PAC treatment strategy. Recently, Corona has performed a similar analysis for a drinking water utility in Louisiana. This utility used Hydrodarco C, a coarser mesh size of the product used by LWP. Through this study, it was found that alternative products yielded 45% more T&O removal at a given dose. It is recommended that LWP perform a similar study to evaluate the effect of alternate PAC types on T&O removal. Once the appropriate PAC dose is identified, the results will inform if the existing feed and storage system is adequate or if capital improvements are required.

W4. Granular Activated Carbon (GAC) Filter Caps

GAC is frequently used by surface water utilities as an adsorbent media for organic contaminant removal, such as T&O. GAC is also used to reduce disinfection by-product (DBP) formation by removing the precursor compounds. Given the existing infrastructure at the WTP, GAC filter caps could be considered by added approximately 11.5 inches of GAC to the existing filter boxes. GAC filter caps need to be replaced after the adsorption capacity is exhausted, requiring routine maintenance. GAC filter cap details and costs have been developed based on Geosmin removal and are shown in Table 11.

Table 11 Design and cost details for filter cap installation

Component	GAC System Cost
GAC per Vessel (lbs.)	8,000
GAC Depth (in)	11.5
Initial GAC Cost ($/lb.)	$1.65
Initial GAC Cost ($)	$264,000
GAC Bedlife (yr)	2
Future Virgin GAC Cost ($/lb)	$1.75
Future Virgin GAC Cost ($)	$280,000

The initial GAC cost is $264,000, inclusive of installation by Calgon Carbon. Numerous other local utilities utilize GAC for T&O removal. Calgon's initial estimate is that GAC replacement will occur once annually. However, recent success with the GAC system in Arvada suggests that it is reasonable to expect a 2 year GAC replacement frequency. It is estimated that the cost for each GAC replacement event is is $280,000.

W5. Advanced Oxidation Processes (AOP)

Advanced oxidation processes (AOP) rely on the formation of highly reactive hydroxyl radicals which can then oxidize organics and inorganics in water. AOPs require a combination of ultraviolet (UV) light with either ozone or hydrogen peroxide to generate hydroxyl radicals. These systems require significant capital expenditures and also have high operations and maintenance cost. Additionally, AOPs will require extensive pilot testing and design prior to implementation. As such, AOPs are not the most effective strategy for T&O control at the WTP, and were not considered in detail as part of this project.

Alternatives Selection Decision Matrix

As described above, each of the potential algae mitigation strategies have associated benefits and drawbacks. To facilitate the selection of the LWP's most appropriate mitigation strategy, an in-person workshop was conducted on January 24th, 2017 with various stakeholders to discuss each alternative, solicit input and develop consensus for on the selected alternatives for implementation.

Summary of Alternative Analysis

The recommended approach for algal and T&O management is a multiple barrier approach that will include both Reservoir and WTP control strategies. To facilitate the decision making process, comparative summaries were developed for Reservoir chemical treatment, Reservoir physical treatment, and WTP treatment alternatives. Table 12 shows the summary for the Reservoir chemical treatment options evaluated.

Table 12 Comparative summary for the Reservoir chemical treatment options evaluated

Evaluation Criteria	Copper Sulfate	PAK 27	Lonza Chemicals	SOLitude Chemicals
Effective for algae control	Yes	No	Maybe	Maybe
Copper-based product	Yes	No	Both	No
Effects on "non-target" species	Yes	Yes	Maybe	Maybe
Third party application	No	No	Yes	Yes

Given the ineffectiveness of PAK27 application (Figure 8) and the CDPS copper limits, LWP should pursue the use of alternative chemicals for algae control. Based on this analysis, products from either Lonza or SOLitude may prove to be effective. As discussed earlier, once algae growth is observed in the Reservoir in 2017, the chemical suppliers should test and recommend appropriate chemicals and recommended doses for application. The service contracts with the chemical suppliers for Reservoir treatment need also be reviewed and negotiated. The chemical supplier and appropriate algae control chemical should be finalized prior to Summer 2017.

Chemical treatment alone will not be sufficient to manage the algal challenge; physical treatment will also need to be installed in the Reservoir for algal mitigation. Table 13 shows the comparative summary for the physical treatment alternatives evaluated.

Table 13 Comparative summary for the physical installations in the reservoir

Evaluation Criteria	Reservoir Mixing (Medora SolarBee)	Dissolved Oxygen Augmentation (ECO2 Speece Cone)	Ultrasonic Treatment (LG Sonic)	Emerging Technology for Phosphorus Removal (Biochar Now)
Effective for algae control	Maybe	Maybe	Yes	Maybe
Minimal aesthetic impact	Yes	No	Yes	Yes
Technical maturity	Yes	Maybe	Maybe	No
Operational complexity	Low	High	Low	Unknown

Based on the outcomes shown in Table 13, Eco2 Speece Cone and Biochar Now are not suitable options for LWP's reservoir. Eco2 Speece Cone will augment the dissolved oxygen within the Reservoir and while it may reduce anoxic activity, it may facilitate growth of algae species that

were previously dissolved oxygen limited. LWP has evaluated Biochar Now in a limited capacity and preliminary results do not show a significant benefit in phosphorus removal.

The Medora SolarBee mixing technology and the LG Sonic ultrasound technology are both viable alternatives for the LWP Reservoir. However, the Medora SolarBee mixing technology has uncertainty over the specific effect on algae species, whereas the LG Sonic ultrasound technology is specifically designed for algal mitigation.

LG Sonic is based out of the Netherlands, and is relatively new to the United States market. However, LG Sonic has a number of installations in Europe in similar climates to Colorado's Front Range that have been successfully operating for years. In the limited applications in the United States where the technology has been deployed (i.e. New Jersey American Water and Consolidated Mutual Water Company), the results have been encouraging and consistent with those overseas. As such, it is recommended that LWP proceed with implementation of the LG Sonic ultrasonic equipment for algal mitigation in the Green Ridge Glade Reservoir.

The final barrier in the multiple barrier approach is to utilize the processes within the WTP for algae and T&O control. Table 14 shows the comparative summary for the WTP treatment alternatives.

Table 14 Comparative summary of the WTP alternatives

Evaluation Criteria	Intake location	Pre-oxidation	PAC	GAC filter caps	Advanced oxidation processes
Effective for T&O control	Yes	Maybe	Yes	Yes	Yes
Effective for algal cell removal	No	No	No	Yes	No
Maintains algal cell structure	Yes	No	Yes	Yes	No
Easy to retrofit within existing WTP processes	Not Applicable	Yes	Maybe	Maybe	No
Intermittent use possible	Yes	Yes	Yes	No	Yes

Closely monitoring and managing the intake location is a non-cost approach and could be implemented immediately. By informing the operation of the intake structure based on water quality results, it is likely the T&O compounds and algae entering the plant could be minimized during much of the year.

LWP currently uses chlorine dioxide for pre-oxidation. Given the potential for algal cell lysis, it is uncertain if chlorine dioxide will be effective for control of T&O compounds. As such, pre-

oxidation with chlorine dioxide is not recommended for primary T&O control at the WTP, but the dose could be further optimized for effective preoxidation.

PAC is commonly used to remove T&O compounds. Based on the benefits shown in Table 14, optimizing the current PAC feed system is the recommended treatment strategy for T&O control. A PAC optimization study should be conducted to determine the most effective product and dose conditions. With the limited capacity of the PAC feed and storage system, upgrades may be required to effectively use PAC to mitigate T&O events. As described in the following section, bench-scale testing is necessary to determine the most appropriate PAC product, effective dose, and to develop the design criteria for any required modifications to the storage and feed systems.

GAC filter caps are also a viable option for T&O mitigation. However, GAC filter cap costs are high and will require periodic media replacement, which is estimated to cost $280,000 for each replacement. The replacement frequency could range from 6 months to 2 years. Due to the uncertainty in replacement frequency and relatively high replacement costs, it is recommended that LWP optimize their current PAC application strategy prior to considering GAC filter caps further.

Advanced oxidation processes (AOPs) provide additional water quality benefits beyond T&O control, but they also require substantial capital improvements and have high operational and maintenance costs. As such, AOPs are not recommended for T&O control.

Recommendations

Based on the above analysis and input from the in-person workshop, the following is the recommended strategy for algae and T&O control at the LWP Reservoir and WTP. While outside the scope of this project, an effective communications plan is key to addressing T&O events, and as such recommendations for implementation of a communications plan are included:

Reservoir

- ***Continue T&O monitoring program*** in the Reservoir and source waters year-round, with increased frequencies during algal presence in the Reservoir. LWP already has a robust monitoring program. To better inform the mitigation strategies, additional water quality parameters such as phycocyanin and UV-254, should be included in the routine monitoring.
- ***Select a new chemical for algae treatment*** different from the previously used copper sulfate and PAK27. Chemicals provided by either Lonza or SOLitude can be effective for algae control in the Reservoir. See Next Steps section below for selection process for the appropriate chemical and supplier
- ***Install ultrasonic treatment equipment supplied by LG Sonic*** in the Reservoir. A number of design parameters and operational considerations still need to be addressed for optimal performance. See Next Steps section below that outlines the implementation roadmap for the ultrasonic equipment.

WTP

- ***Exercise various gates within the WTP intake tower*** to withdraw water with the best quality from the Reservoir. WTP operational staff should be familiar with the Reservoir Monitoring Site 4 water quality in order to make informed decisions regarding the use of the most appropriate intake gates. The WTP intake tower has six gates.
- ***Determine the most appropriate PAC treatment strategy*** for T&O control within the WTP. This includes determination of the appropriate PAC product, dose, and understanding of the necessary upgrades to the PAC storage and feed system. See Next Steps section below for development of the optimal PAC treatment strategy for T&O control.

Communications

- ***Develop plans and templates for both internal and external communications*** prior to, during and after T&O events
- ***Include details within the communications*** to explain cause(s) of the T&O issue, whether the water is still safe to drink or use, and actions taken by LWP to address the issue. Provide clear guidance on any steps that can be taken by customers to mitigate T&O in their premises
- ***Tailor communications for different audiences***, e.g. customers, board members, regulatory agencies, etc.

Next Steps

In order to implement the recommendations for algal and T&O mitigation as outlined above, the following next steps are suggested. Corona can assist LWP with all of these items, as needed:

- ***Selection of appropriate supplier and chemical(s) for Reservoir chemical treatment***: When algae growth starts occurring in the Reservoir in 2017, LWP should request the chemical suppliers (Lonza and/or SOLitude) identify the appropriate treatment chemical(s). The steps related to chemical treatment in the Reservoir are for the suppliers to determine the appropriate chemical(s), recommended doses, application frequency, and provide costs estimates. Chemical suppliers may choose to perform limited testing to determine appropriate chemical(s). Once the recommendations are received from the suppliers, in-house testing with the selected chemical should be performed in order to determine effects, if any, on other water quality parameters in the Reservoir. Effects of the chemical on other non-target species (vertebrates, invertebrates, etc.) need to be determined as well. Additionally, a service contract should be established that outlines roles and responsibilities of each party, along with costs of services. The service contract should be flexible in terms of the number of fixed frequency chemical applications, as well as, “as needed” applications.
- ***Implementation of LG Sonic ultrasonic treatment equipment within the Reservoir***: This is a major capital investment for LWP, and as such, the following items are critical prior to equipment installation:

  - Finalize design, and develop specifications for ultrasonic equipment, water quality analyzers, solar panels, anchoring or mooring systems, etc.
  - Obtain final cost proposals for both capital and annual maintenance costs from LG Sonic. Clarify warranties on different pieces of equipment
  - Obtain feedback from other water utilities in the U.S. that have implemented LG Sonic ultrasonic equipment
  - Determine additional equipment and/ or supplies that may not be included within the LG Sonic scope of supply, and will need to be provided by LWP (anchoring reinforcements, protection of solar panels, etc.)
  - Develop installation plan including schedule, manpower, support equipment or tools that may be necessary during equipment installation
  - Discuss data acquisition and storage for LWP's use and optimization of equipment performance that may be necessary
  - Establish maintenance contract for ultrasonic transmitters, batteries, and water quality sensors
- ***Development of an optimal PAC treatment strategy for T&O control within the WTP***: A number of PAC products, including LWP's currently used PAC, should be screened to determine the T&O removal capacity. In addition to T&O removal, it is highly recommended that cyanotoxins are considered as part of the PAC screening process. Cyanotoxins are in the regulatory horizon, and are included for monitoring as part of the Unregulated Contaminant Monitoring Rule 4 (UCMR 4). PAC screening can be performed through bench-scale testing. The entire process train should be simulated in bench-scale testing, including chlorine dioxide. The effects of chlorine dioxide on algal cell lysis, T&O control and cyanotoxins should be evaluated. Through the PAC screening process, the most effective product, dose, and injection point will be determined. As part of the same effort, design criteria for full-scale improvements identified including; necessary storage capacity, feed system pumping and conveyance, and slurry tank sizing will be determined.

Appendix A –Vendor Proposals

LG SONIC
Leading in ultrasonic algae control

Algae Control Proposal

Corona Environmental Consulting

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19-12-2016

Executive summary

In this proposal you will find an installation advice for monitoring and controlling algae in theGreen Ridge Glade Reservoir.

Benefits for ultrasonic algae control

- Reduce algal blooms by up to 70-90%
- Prevent growth of algae
- Reduce chemical use
- Payback period of ±1.8 years

Ultrasound technology

In all water bodies, a basic level of algae is present. These algal concentrations belong to the normal lake ecology and are also important for the ecological balance within the water. However, when a specific algal type starts growing exponentially, it can suffocate other organisms within the water that are important for a balanced lake ecology. The ultrasonic algae control devices from LG Sonic emit specific ultrasonic parameters to control algae in lakes, reservoirs, and industrial applications. Ultrasound waves create a sound layer in the top layer of the water, which has a direct impact on the buoyancy of the algae. The algae cells will sink to the deeper and darker layers of the water column and are unable to photosynthesise, thus will eventually die due to a lack of light.

The advantages of ultrasound technology

- No release of toxins
- Environmentally friendly
- Safe for fish, plants, zooplankton and insects

Project proposal

Based on the dimensions of the reservoir, we advise to install a total of4 MPC-Buoy systems. The MPC-Buoy is a floating, solar powered, platform that combines continuous online water quality monitoring, web-based software, and ultrasonic technology to effectively control harmful algal blooms in large water surfaces, such as lakes and larger ponds.

Similar projects

Total project costs

Table 1: Total project costs

Product details	List price	Quantity	Subtotal
MPC-Buoy	$45,000.00	2	$90,000.00
MPC-Buoy Lite	$32,500.00	2	$65,000.00
Spare part package MPC-Buoy	$14,500.00	1	$14,500.00
Supervision of Installation and Setup	$6,500.00	1	$6,500.00
		Grand total	**$176,000.00**

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1. Treatment proposal

The Green Ridge Glade Reservoir is a relatively deep reservoir that in the past has suffered from seasonal algae blooms and associated problems with taste and odour molecules produced by cyanobacteria. Algae analysed in the reservoir have mainly been Anabaena, a blue-green algae that is known for producing the MIB molecule, and in some occasions geosmin, which are both known for causing problems with taste and odour of the finished drinking water. The algae control systems developed by LG Sonic offer an environmentally friendly solution to control algae by making use of ultrasound waves.

1.1. Proposed solution

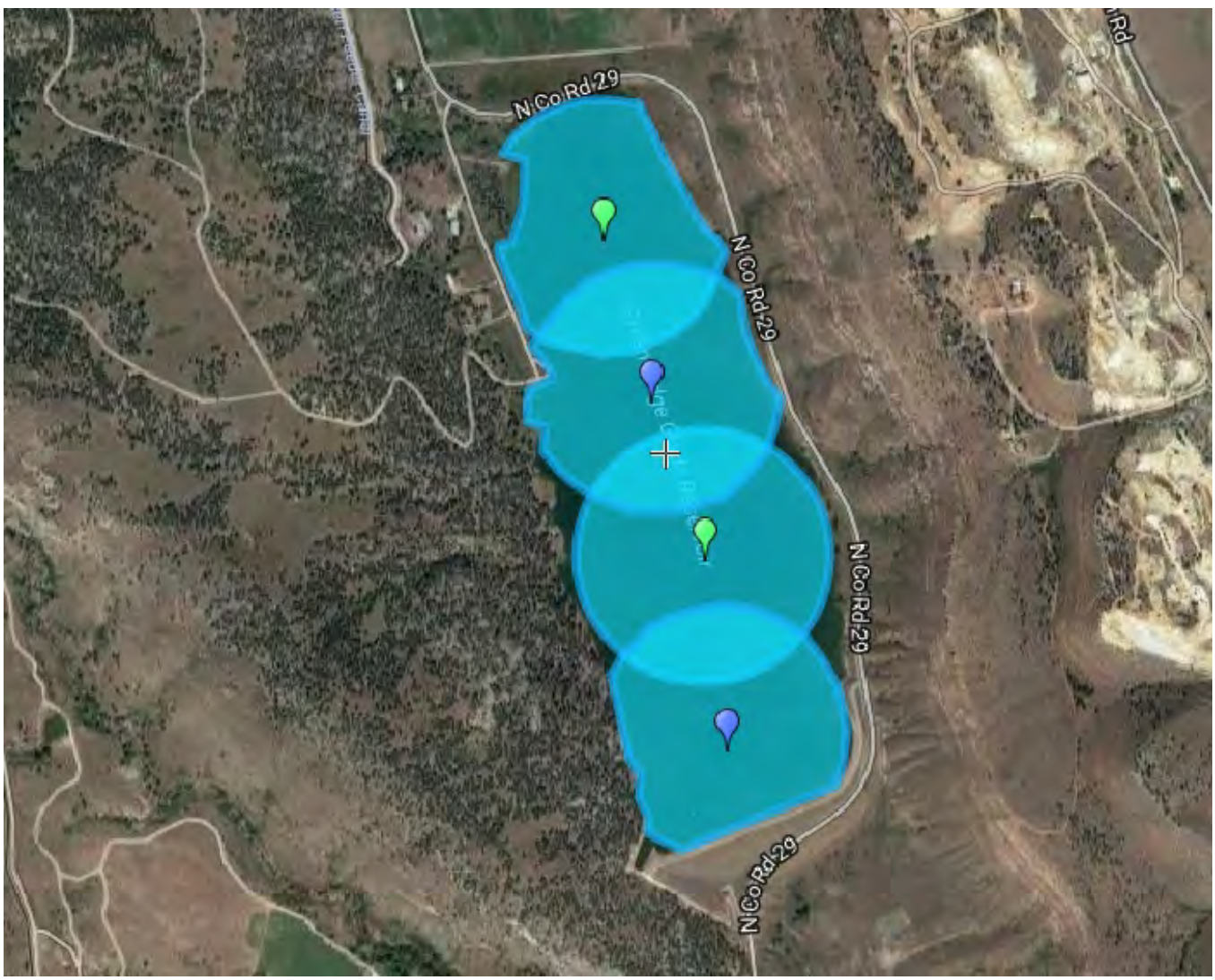
Based on the dimensions of the reservoir, we advise installing a total of4 MPC-Buoy systems.

The MPC-Buoy is a floating, solar-powered platform that combines continuous online water quality monitoring, web-based software, and ultrasonic technology to effectively control harmful algal blooms in large water surfaces, such as lakes and larger ponds. The MPC-Buoy eliminates up to 90% of the exiting algae and prevents the growth of new algae.

One MPC-Buoy system can treat large surface areas up to 500-meter (1600 ft) diameter coverage. The MPC-Buoy is anchored in the centre of the lake, ensuring correct coverage of the ultrasound waves.

1.2. Proposed installation

Below you will find an installation plan for Green Ridge Glade Reservoir. A total of 4 MPC-Buoy systems will be anchored in the reservoir. The blue icons are MPC-Buoy systems and the yellow icons MPC-Buoy Lite systems. The MPC-Buoy Lite systems do not contain water quality sensors since it is not necessary to measure the water quality every 500 meters; this way, we can offer our customers a more cost-effective solution. Each buoy system has a treatment range of 500-meter diameter coverage, so when you install 4 MPC-Buoy systems the entire pond is covered with ultrasound.



FAQ

Is ultrasound harmful for fish, plants, zooplankton, or insects?

No. The effects of LG Sonic products have been tested by various universities and are proven to be safe for fish, plants, zooplankton, and insects.

What happens to the algae after the ultrasonic treatment?

The ultrasound creates a sound layer in the top layer of the water. This ultrasonic sound barrier prevents the algae from rising to the surface and absorbing light for photosynthesis. Therefore, algae are no longer capable of growing further. The algae will die while the cell wall remains intact, preventing the release of toxins from the algae into the water. The algae will sink to the bottom of the water reservoir and are degraded by the bacteria present.

Does the algae release toxins in the water?

Algae control by ultrasound is based on the interference with their buoyancy and hence preventing their photosynthetic activity. Ultrasound does not break or lyse the cells, and as such toxins are not released into the water. As the ultrasound process is generally a longer process (3-4 weeks) and growth of new algae is being prevented, you can see a gradual reduction in toxin concentration once ultrasound is introduced.

How is the system installed?

The MPC-Buoy is anchored in the water reservoir. Each system has 4 ultrasonic transmitters ensuring complete 360-degree sound coverage.

Do you want to receive more information or have any other questions? Please contact your account manager.

1.3. Initial costs

Table 2: Total project costs

Product details	List price	Quantity	Subtotal
MPC-Buoy	$45,000.00	2	$90,000.00
MPC-Buoy Lite	$32,500.00	2	$65,000.00
Spare part package MPC-Buoy	$14,500.00	1	$14,500.00
Supervision of Installation and Setup	$6,500.00	1	$6,500.00

Grand total **$176,000.00**

Table 3: Product/service description

Product/Service	Amount	Included
MPC-Buoy	2	• Ultrasonic treatment • Water quality sensor package • Solar panels • 1-year of interactive algae control services • Web-based software package • Floating buoy construction
MPC-Buoy Lite	2	• Ultrasonic treatment • Solar panels • 1-year of interactive algae control services Web-based software package • Floating buoy construction The MPC-Buoy lite receives ultrasonic program updates from the MPC-Buoy in lakes where more than one buoy is required
Installation	1	Installation supervision and start-up of the software

Recommended by LG Sonic

Table 4: Recommended product/service description

Product/Service	Amount	Included
Spare parts package	1	• 1 Transmitter + aquawiper • 1 Regulator • 1 Ultrasonic box • 1 Datalogger box • 1 USB cable • 1 Antenna • 1 cable regulator/datalogger box • 1 cable datalogger box / Ultrasonic box • 4 solar extension cables • 1 transmitter arm left • 1 transmitter arm right • Bolts + nuts

1.4. Maintenance and annual service costs

The sensors and ultrasonic transmitters on the MPC-Buoy are all equipped with wipers to ensure they stay clean. This keeps the efficiency and specificity of the MPC-Buoy optimal and makes frequent maintenance to the system redundant.

Besides that, the technical status of the system can also be monitored through the MPC-View software, minimizing visits to the MPC-Buoy itself. What is left for maintenance is the calibration of the sensors. LG Sonic can do this for you simply by you sending the sensor package to us once a year.

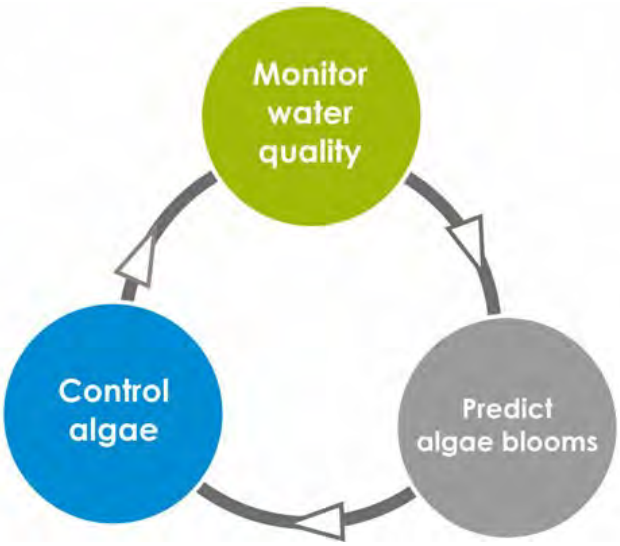
We recommend performing an on-site physical inspection bi-monthly to check the state of all the parts comprising the MPC–Buoy.

Table 5: Maintenance and annual service costs

Type	Included	Costs
Interactive algae control services	• Interactive algae control services • Data management • Web hosting • Setup of server • Software licensing	The first 12 months are included in the price. After 12 months, use can be paid for on a yearly basis: • First MPC-Buoy: $7.500/year • First MPC-Buoy lite: $1.250/year • Additional MPC-Buoy: $1.125/year • Additional MPC-Buoy lite: MPC-Buoy: $375/year
Calibration of the water quality sensors	• Fluorobrobe (phycocyanin, turbidity, Chlorophyll a) • DO sensor • Replacement of pH cartridge • Revision of sensor wiper engine	$1.250/ year

2. Specifications

2.1. Concept: monitor, predict and control algae



The MPC-Buoy is specially designed for large water surfaces and combines online water quality monitoring, web-based software and ultrasound technology to provide complete and cost-effective treatment against algae in lakes, ponds and drinking water reservoirs.

1. Monitor water quality

The MPC-Buoy provides a complete overview of the water quality by collecting the following parameters every 10 minutes: Chlorophyll α (green algae), Phycocyanin (blue-green algae), pH, Turbidity, Dissolved Oxygen, and Temperature.

2. Predict algal blooms

The collected data is delivered in real time via radio, GPRS, or 3G to web-based software. Based on our developed algorithm we are able to modify the ultrasonic program to the specific water conditions and predict algal blooms a few days ahead.

3. Control algae

Based on the received information, the ultrasonic program can be activated according to the water conditions and type of algae present. In this way, it is possible to eliminate existing algae and prevent the growth of new algae.

2.2. Key system elements

1. Ultrasonic treatment
2. Water quality sensor package
3. Solar panels
4. Floating construction anchored at the bottom of a lake
5. Data communication for remote control
6. Water quality software package

1. Ultrasonic treatment for algae control

The MPC-Buoy is equipped with 4 ultrasonic transmitters for 360-degree algae control. Each transmitter has an ultrasonic treatment range of 500m/1600ft in diameter. Based on the measured water quality data, the system can remotely activate the right ultrasonic program. Web-based software (MPC-View) allows users to visually track the water quality and the progress of the ultrasonic treatment.

The transmitters send ultrasonic sound waves of several specific frequencies, amplitudes, waveforms and durations into the water. The specific ultrasonic waves create a sound layer in the top layer of the water, which has a direct impact on the buoyancy of the algae. The algae cells will sink to the deeper and darker layers of the water column and are not able to photosynthesize and will eventually die due to a lack of light. However, for the efficiency of the technology it is important that specific frequency programs are used, based on the algae that require a control strategy.

Affected algae cells will sink to the bottom of the water reservoir, where they will be degraded by the bacteria present in the soil. After 3 to 4 weeks, the LG Sonic® devices control the growth of new algae from 70% to 90%.

The LG Sonic products are not based on cavitation; the LG Sonic technology uses low-power ultrasound to control algae growth. This prevents the release of algal toxins into the water.

4 ultrasonic transmitters for complete 360-degree algae control

- Treatment range of 500m/1600ft in diameter
- Integrated Aquawiper™, an automatic cleansing system for the ultrasonic transmitters
- Chameleon Technology™, adjusts the ultrasonic program to the specific water conditions

2. Water quality sensors for effective algae control

The MPC-Buoy is equipped with a set of sensors that monitor important parameters of your water quality in real time. The basic set of sensors are:

- Chlorophyll a (Algae)
- Phycocyanin (Blue-green algae)
- Dissolved Oxygen
- Turbidity
- Temperature
- pH
- Redox

*Optional sensors are available based your needs and preferences.

These sensors can be used to provide a good overview of the concentration and type of algae present in your water reservoir. Besides that, levels of pH, temperature and turbidity can be used to predict the formation of new algal blooms and anticipate them before any problems arise. Levels of Dissolved oxygen provides you with vital information about the health of your water and condition of fish and plants within the lake.

In-situ water quality sensors to provide real-time water quality data

- **Monitors chlorophyll α, phycocyanin, DO, turbidity, temperature pH, and redox**
- **Automatic antifouling wiper ensures optimal readings**
- **Optional sensors are available according to your needs and preferences**

3. Solar panels for power supply

The MPC-Buoy is equipped with 3 solar panels of 195 Wp and 40-amp lithium batteries for autonomous power supply. The device has a power consumption of 5-20 Watts. The MPC-Buoy can provide power all year round anywhere around the world. During low battery charge, the device automatically powers off the ultrasonic transmitters. Furthermore, the device automatically switches to an energy-saving program during periods of low sun radiation.

Solar panels for autonomous power supply

- 3x 195 Wp high-quality solar panels that provide power, all year round in any country
- 1x 24 Volt, 40 AMP lithium battery
- Switches to energy-saving program during periods of low sun radiation
- Solar regulator

4. UV- resistant buoy construction

The MPC-Buoy system consists of three unsinkable floats that carry the weight of the system. The aluminium powder coated frame is both UV and corrosion resistant. Because the construction is relatively light (250 kg), you only need a small boat to drag the device to the required installation spot, where the unit can be installed and moored.

Floating construction anchored to the bottom of a lake

- Aluminium powder-coated frame
- UV and corrosion resistant construction
- Unsinkable floats

5. Data communication for remote control

The LG Sonic data logger is designed specifically for its application in a watery environment, where monitored data needs to be continuously delivered.

The LG Sonic data logger can communicate with your office PC and is especially suitable for delivering real-time data via the internet, radio, GSM/GPRS telemetry.

Smart communication system for remote control

- GSM/GPRS Telemetry Quadband (CDMA, Radio, GPS and Iridium Satellite optional)
- Real-time water quality data with the MPC-View software
- Integrated alarm functions

6. Water quality software package: MPC-View

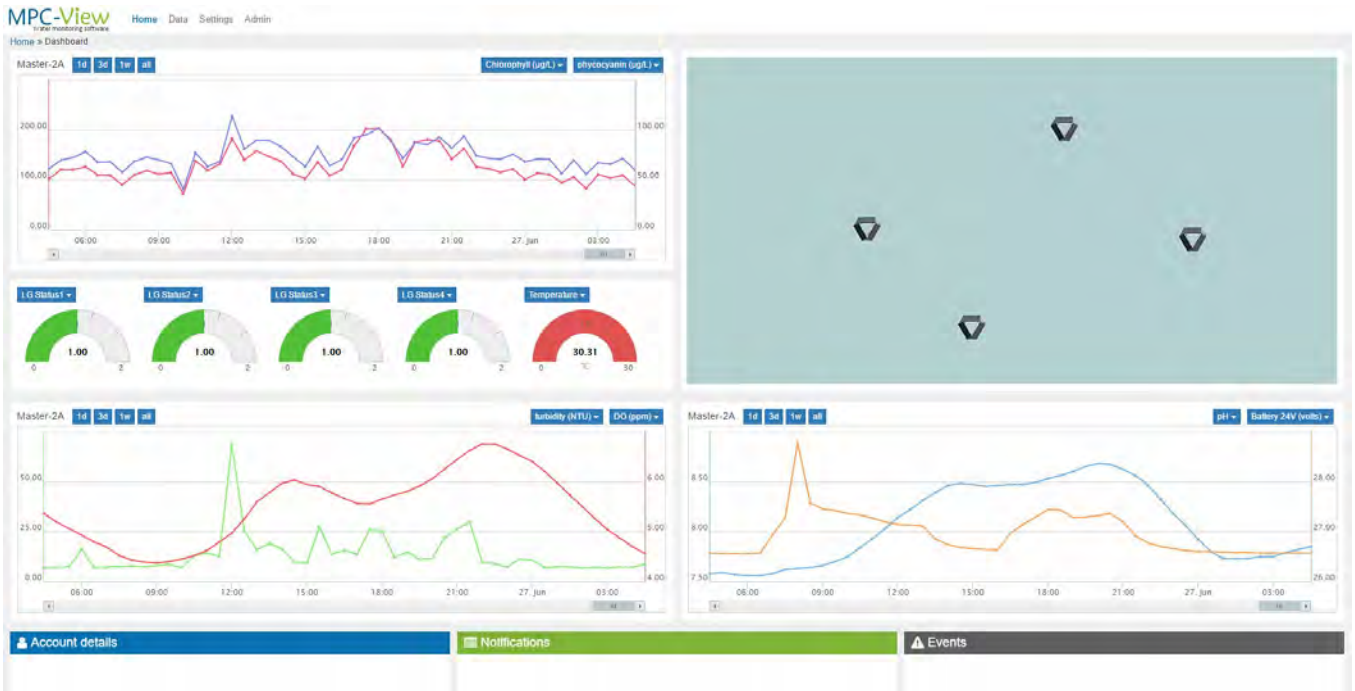
The MPC-View software allows you to visually track the water quality in your lake or reservoir. The software receives its data from advanced water quality sensors that are integrated into the MPC-Buoy.

You can log in to the software where you will find a personal dashboard displaying an overview of your algae control projects. The software provides insight into the water quality, algae trends, and the progress of the ultrasonic treatment. Furthermore, the software displays technical parameters, such as the status of the ultrasonic transmitters, signal strength, and battery strength. This way, customers and employees of LG Sonic can remotely monitor to see whether the devices are working properly. Generated reports can be exported to Excel or converted to PDF, and from there they can be shared or published.

MPC-View

- Dashboard with an overview of the water quality
- Set up alarms for changing water conditions and maintenance activities
- Visual insight into various parameters at a specific moment in time

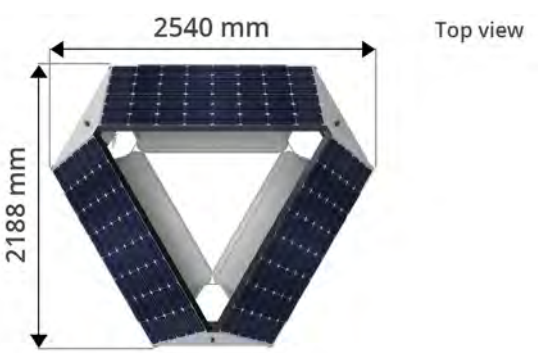
Dashboard with an overview of the algae control project



Visual insight into various parameters at a specific moment in time

2.3. Technical specifications

Frame	• Aluminum framed polyethylene buoy • Material: Rotationally-moulded UV-stabilized HDPE polyethylene • Filling: Closed-cell polyurethane foam • Buoy frame: Anodized aluminum • Weight: 15 kg • Size: 1200x600x200mm • Buoyancy capacity 95 kg
Solar panels (3x)	• Solar cell: Monocrystalline cell • Rated Power (Pmax): 195Wp • Weight: 16 kg • Connectors IP67 • Size: 1580x808x35mm
Battery	• 1 x 24 volt lithium lifepo4 • Capacity: 40 Ah • Weight: 15kg
Data acquisition system	• 4 x analog channel (user-configurable for either 4-20mA) • 1 x RS485 port for instruments • 1 x high frequency pulse counting channel • 1 SDI-12 input • 3X RS232
Telemetry	• GPRS Telemetry • Quadband (850/ 900 / • 1800 / 1900 MHz) • CDMA optional • Radio (UHF/VHF)
Solar Charge Controller	• Overcharge and Deep discharge protection • Ip68 Protection



Water quality sensor package	
Fluorescence, including anti-fouling Wiper: chlorophyll a, phycocyanin, turbidity • 470nm – Chlorophyll a • 610nm – Phycocyanin • 685nm Turbidity	**Redox** • Combined electrode • (Redox/reference): • Platinum tip, Ag/AgCI • AgAgCl. • Gelled reference (KCI) • Range - 1000 to + 1000 mV • Resolution 0,1 mV • Accuracy ± 2 mV
pH • Combined electrode • (pH/ref): • special glass, Ag/AgCI ref. • Gelled electrolyte (KCI) • Range 0 – 14 pH • Resolution 0,01 pH • Accuracy +/- 0,1 pH	**Temperature** • Technology CTN • Range 0.00 °C à + 50.00°C • Resolution 0,01 °C • Accuracy ± 0,5 °C • Response time < 5 s
Dissolved Oxygen • Optical measure by • luminescence • Measure ranges: • 0.00 to 20.00 mg/L • 0.00 to 20.00 ppm • 0-200%	

3. Delivery and guarantee

3.1. Delivery method

Sea cargo/airfreight/road

Method of shipment: Delivery at Place (DAP)

Delivery time

The products will be shipped within 6 weeks after receiving payment. Shipping time depends on shipping method: 1 and 3 weeks

3.2. Guarantee

LG Sonic BV, the producer, has great confidence in its products and guarantees the quality of assembly and materials used. The warranty is limited to materials and faulty construction and covers terms of ONE, TWO, THREE or FIVE YEARS after purchase date for different parts of the MPC-Buoy.

The system specifications and the assigned years of guarantee coverage are listed in the table below:

System element	Includes	Years of guarantee
Ultrasonic system	• Up to 4 LG Sonic e-line XXL transmitters connected to one control box • Treatment range of 500 meter in diameter • Ultrasonic treatment coverage of 360°	3
Water quality sensor package	Water quality sensors: pH, dissolved oxygen,temperature, redox, turbidity, chlorophyll a, phycocyanin.	1
Solar system	• 3x 195 WP solar panels • 2x 12 Volt, 40 AMP lithium batteries • Solar regulator	5 1 2
Buoy construction	• Aluminum-framed polyethylene buoy • Stainless steel construction for solar panel mount • HDPE enclosure for electronic box and batteries	3

4. LG Sonic company profile

Algae control solutions

LG Sonic is a Dutch, privately owned company with the mission to eliminate harmful chemicals in the environment. Therefore, the company developed a chemical-free technology that controls algae without disturbing the natural balance within water ecosystems. LG Sonic works together with different European Universities and Research institutes, many of which are European funded research and development projects.

Value proposition

Algae cause problems when blooming in lakes and water reservoirs such as damage to filters/ pumps and losses in recreation use. Solutions such as copper-sulfate are besides costly, labor intensive also harmful for the ecosystem. In order to provide an environmentally friendly and cost-effective solution to these problems, LG Sonic developed the MPC-Buoy, a floating, solar powered, platform that combines continuous online water quality monitoring, web-based software, and ultrasonic technology to effectively control harmful algal blooms in large water surfaces, such as lakes and water reservoirs. The MPC-Buoy eliminates up to 90% of the exiting algae and prevents the growth of new algae. Furthermore, the MPC-Buoy allows to reduce TSS, BOD and chemical consumption.

Track record

- Coordinator of several European FP7 projects: ClearWater PMPC and Dronic (€3.2 million)
- Official Innovation Partner of American Water, U.S. largest water and waste water utility
- Winner of several innovation award such as the Aquatech Innovation Award (2015)
- Winner of several entrepreneur awards such as the Shell LiveWIRE Award (2014)

Main Office & Service Center
1-866-437-8076 | medoraco.com
3225 Highway 22, Dickinson, ND 58601

Medora Corporation

GridBee® SolarBee®

Budget Estimate: Reservoir Circulation Equipment for the Green Ridge Glade Reservoir

Date: December 12, 2016

Project #: 6176

To: Eli B. Townsend
Corona Environmental Consulting, LLC
Cell: (248) 804-0264
etownsend@coronaenv.com

From: Dave Summerfield, Medora Corporation Regional Manager, Denver, CO
dave.s@medoraco.com • 951-265-2321

Harvey Hibl, Medora Corporation West U.S. Manager, Westminster, CO
harvey.hibl@medoraco.com • 303-469-4001

Darren Tessier, Medora Corporation Sales Engineering Dept., Dickinson, ND
darren.t@medoraco.com • 866-437-8076

Mr. Townsend,

Thank you for requesting this reservoir evaluation and budget estimate. We are very pleased to work with Corona Environmental Consulting and the City of Loveland Water and Power to provide high-quality raw water circulation equipment for the Green Ridge Glade Reservoir (GRGR). This project fits our capabilities well, and we will do everything possible to ensure your project flows smoothly and meets Loveland's goals and expectations. Please contact us with any questions.

Best regards,

Darren Tessier
Medora Corporation

PROJECT DESCRIPTION

1. Name and Location of Reservoir

Green Ridge Glade Reservoir - Loveland, CO (GPS Coordinates 40.441986º, -105.216012º)

2. Description of Reservoir:

GRGR is a 150-acre drinking water reservoir with an average depth of 42 feet and a maximum depth of 78 feet. There is one source of inflow to the reservoir, the Charles Hansen Feeder Canal. Every year, GRGR is plagued by taste and odor problems, ranging from minor in the spring to severe in the fall, due to cyanobacteria, specifically the Anabaena strain of blue-green algae.

GRGR has a manganese issue as well (Mn levels up to 500 ug/L). Flows to the WTP are shown below:
- The maximum daily draw from the reservoir is 28 MG.
- The average daily draw from the reservoir is 9.8 MG.
- The minimum daily flow from the reservoir is 0.02 MG.

The City currently uses an intake gate that is 59.1 feet below the surface. Another gate that is 42 feet below the surface was used in the past, and may again in the future.

3. Customer Objectives

To provide long-distance solar-powered circulation in order to control harmful cyanobacteria (blue-green algae) blooms, to reduce taste and odor issues, and to improve overall water quality.

In addition, to provide deeper circulation in order to improve dissolved oxygen levels to reduce manganese (Mn) levels.

4. Medora Corporation Recommendation/System Design for this Project

To meet the above objectives, we recommend the installation of between 10 (ten) SolarBee model SB10000LS v20 reservoir circulators, four set for epilimnetic circulation to combat cyanobacteria, spaced evenly in the reservoir (see aerial placement photo in Section 5 below), and six set for hypolimnetic circulation for Mn.

Pricing Note: Pricing difference between epilimnetic and hypolimnetic machines shown below reflects the added equipment needed in the deeper water hypolimnetic application. (Reconditioned units are available at a lower cost for both applications, and come with an as-new warranty.)

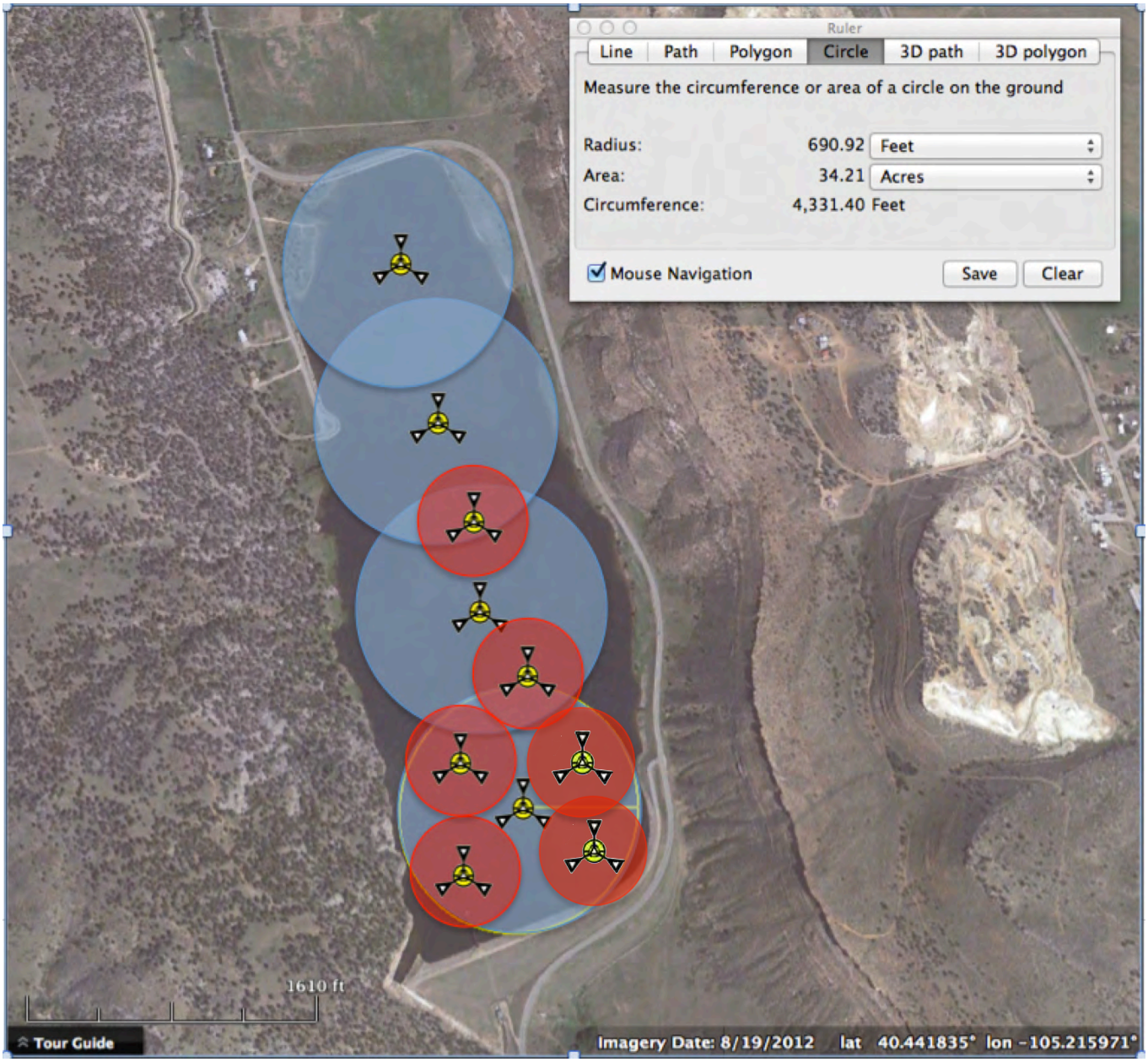
Epilimnetic Circulation will prevent surface water stagnation and associated harmful blue-green algae blooms, and in turn reduce the amount of algal biomass (and biochemical oxygen demand) going to the bottom. By controlling algal blooms and enhancing the distribution of dissolved oxygen in the water column, the lake will be healthier with improved water clarity and significantly reduced odors.

Hypolimnetic Circulation will provide an oxygenated water column above the SolarBee fluid intake setting depth, which is below the lowest intake gate to the treatment plant being used, in order to prevent soluble manganese (Mn) and iron (Fe) released from the sediments from accumulating in this water column.

Cyanobacteria Management Plan (CMP): The US EPA produced a paper in June 2015 to help cities and other organizations develop a CMP for lakes. This paper states that surface mechanical mixing equipment (such as SolarBee lake circulators), has been used in U.S. water bodies for controlling cyanobacteria (i.e., blue-green algae). "This mixing of the water column disrupts the cyanobacteria migration and limits availability of nutrients." (U.S. EPA, 2014d)

To read the full paper, it can be downloaded at this link:
http://www2.epa.gov/nutrient-policy-data/recommendations-public-water-systems-manage-cyanotoxins-drinking-water

5. Proposed Machine Locations:



The SolarBees are not drawn to scale; final placement will be determined prior to machine deployment; the blue area circles represent epilimnetic circulation and are scaled to approximately 35 acres. The red are area circles represent hypolimentic circulation; for contrast only, not too scale.

6. Equipment Cost - For Equipment Details, See Attached Documents

Pricing for Epilimnetic Machines:

Quantity	Equipment Description	Cost Each	Equipment Total
4	SB10000LS v20 SolarBee Circulators (epilimnetic):	$44,815	$179,260
		Equipment Subtotal:	$179,260
		Applicable Taxes:	- to be determined -
4	Factory Delivery, Placement, and Startup:	$5,500	$22,000
		Discount for 4 machines delivered and placed in one trip:	$4,400
		Discounted Factory Delivery, Placement, and Startup:	$17,600
		Equipment, Factory Delivery, Placement, and Startup*:	**$196,860**

*** For Reconditioned Machines, Total Cost = $165,150**

12-Month Rental (See General Provisions for Details)	
Monthly cost for recommended machine(s) per above:	$4,125
Monthly Beekeeper cost during the term of the rental:	$560
*Factory Delivery, Placement, and Startup:	$17,600
Total 12-Month Rental Cost:	**$73,820**

*When the rental period is over, if the City does not wish to purchase or continue the rental and has paid the placement cost, then Medora pays the retrieval cost.

Pricing for Hypolimnetic Machines at Flow to WTP of 28 MGD:

Quantity	Equipment Description	Cost Each	Equipment Total
3	SB10000LS v20 SolarBee Circulators (hypolimnetic):	$52,015	$156,045
		Equipment Subtotal:	$156,045
		Applicable Taxes:	- to be determined -
3	Factory Delivery, Placement, and Startup:	$5,500	$16,500
		Discount for 3 machines delivered and placed in one trip:	$2,475
		Discounted Factory Delivery, Placement, and Startup:	$14,025
		Equipment, Factory Delivery, Placement, and Startup*:	**$170,070**

*** For Reconditioned Machines, Total Cost = $146,370**

12-Month Rental (See General Provisions for Details)	
Monthly cost for recommended machine(s) per above:	$3,590
Monthly Beekeeper cost during the term of the rental:	$420
*Factory Delivery, Placement, and Startup:	$14,025
Total 12-Month Rental Cost:	**$62,145**

*When the rental period is over, if the City does not wish to purchase or continue the rental and has paid the placement cost, then Medora pays the retrieval cost.

Pricing for Hypolimnetic Machines at Average Daily Flow to WTP of 9.8 MGD:

Quantity	Equipment Description	Cost Each	Equipment Total
6	SB10000LS v20 SolarBee Circulators (hypolimnetic):	$52,015	$312,090
		Equipment Subtotal:	$312,090
		Applicable Taxes:	- to be determined -
6	Factory Delivery, Placement, and Startup:	$5,500	$33,000
		Discount for 6 machines delivered and placed in one trip:	$9,900
		Discounted Factory Delivery, Placement, and Startup:	$23,100
		Equipment, Factory Delivery, Placement, and Startup:	**$335,190**

*** For Reconditioned Machines, Total Cost = $287,700**

12-Month Rental (See General Provisions for Details)	
Monthly cost for recommended machine(s) per above:	$8,175
Monthly Beekeeper cost during the term of the rental:	$840
*Factory Delivery, Placement, and Startup:	$23,100
Total 12-Month Rental Cost:	**$131,280**

*When the rental period is over, if the City does not wish to purchase or continue the rental and has paid the placement cost, then Medora pays the retrieval cost.

Options for Solar Models		
SB Series SCADA	*All SB v20 and reconditioned v18 models come standard with a SCADA brain-board with six outputs. (For on-site communication options, please contact our SCADA Engineering Department.)*	Please request option list

Beekeeper Service Program	The details of the Beekeeper Service Program are available at: https://www.medoraco.com/beekeeper.	Call for pricing

TERMS

7. General Provisions

A. Material Supplier only. This budget estimate is to supply materials only. No contracting or construction work of any type is being offered or will be performed by Medora Corporation (Medora) at the jobsite or at any Medora location or factory.

1) To order the materials in this quotation, the purchaser should use the same type of purchase order as would be used to order other materials; for example, a desk or a forklift. Please do not attempt to order the equipment quoted here with a "contractor" or "subcontractor" agreement of any sort, because Medora is strictly a material supplier, not a contractor, and would have to reject that type of agreement.

2) The US Department of Labor clearly defines a Material Supplier, such as Medora, and its allowable activities. All activities by Medora factory personnel to transport, place and start up the Medora equipment are incidental to Medora being a Material Supplier, and Medora will not perform contracting or construction work of any type for any project. Also, no local, state, or federal laws regarding contractors or construction projects, or Davis Bacon or similar reporting requirements, are applicable to this quotation because Medora is not a contractor and does not perform any construction activities.

3) It is the responsibility of the purchaser of Medora's equipment to determine in advance whether there are any contracting or construction activities required in order for Medora's equipment to be made operational. Usually there aren't any such activities; but if there are, it is the purchaser's sole responsibility, at its sole cost, to perform all of those activities in advance of Medora's equipment arriving at the jobsite.

B. Assumptions: This budget estimate may be based on worksheets, calculations or other information that has been provided by the City. The City should bring to Medora's attention any discrepancies, errors in data, or false assumption that Medora may have made while preparing this quotation.

C. Expiration: This budget estimate expires in 90 days, or on the date of any new quotation for this project, whichever is sooner.

D. Delivery Time: Delivery, Placement, and Startup is scheduled at time of order, and is usually between 4 and 8

E. Payment Terms: For a federal, state, or local government purchaser with a good credit rating, full payment is due in US dollars 30 days after invoice date, which is generally the date when the goods leave the Medora factory. For a non-government purchaser, full payment must be made by credit card or cashier's check before the goods leave the Medora factory though, in some cases, based on availability of a payment bonding or a bank Letter of Credit, 30 day credit terms may be extended upon special request by the purchaser. If there are any issues with these payment terms, please do not rely on this quotation until the issues have been resolved with Medora.

F. Add for Taxes and Any Governmental Fees: Except as indicated above, no taxes, tariffs or other governmental fees are included in the quote shown above, nor are there any costs added for special insurance coverage the customer may require. It is the customer's responsibility to pay all local, state, and federal taxes, including, sales and use taxes, business privilege taxes, and fees of all types relating to this sale, whether they are imposed on either Medora or the customer, or whether these taxes and fees are learned about after the customer orders the equipment. The customer's purchase order should indicate any taxes or fees due on equipment and/or services, and whether the customer will pay them directly to the governing body or include the tax payment with the purchase for Medora to submit them to the governing body.

G. Add for Special Insurance Requirements: Medora Corporation maintains adequate liability and workman's compensation insurance to generally comply with its requirements for doing business in all fifty U.S. states, and will provide at no charge certificates of insurance when requested. However, if additional insurance or endorsements beyond the company's standard policy are required by the customer, then the costs of those additional provisions and/or endorsements will be invoiced to the customer after the costs become known.

H. Add for Special Training, Safety, Signage, or Other Requirements: Medora has a very strong safety training program for its employees. If any special training classes for Medora personnel are required by the customer, please notify Medora well in advance. The cost of this training will be added to this quotation or invoiced to the customer separately. The same applies to any other special requirements the customer may have, including providing of project signage or any other requirement.

I. Safe and Accessible Working Conditions Required. This quotation is based on the best information made available to us by the above date. If this equipment is ordered, Medora's engineering and installation team will need detailed information and photographs to plan the installation. If the detail information changes the installation scope significantly, Medora reserves the right to withdraw or alter this quotation, even if the equipment has already been ordered. To avoid surprises, the City should supply detailed information and photos as soon as possible to ensure the safety of Medora's installation crews.

J. Customer to Follow Medora's Maintenance and Safety Guidelines: The customer agrees to follow proper maintenance, operating, and safety instructions regarding the equipment as contained in the safety manual that accompanies the equipment or is sent to the customer's address.

K. Regulatory Compliance. The customer must comply with all applicable Federal and State governmental regulations. It is the customer's sole responsibility to inquire about governmental regulations and ensure that GridBee and SolarBee equipment is deployed and maintained so as to remain in compliance with these regulations and guidelines, and to hold Medora harmless from any liability caused by non-compliance with these regulations and guidelines.

L. Warranty. Medora Corporation has the best parts and labor warranties that we are aware of in the industry. The details of the Warranty which applies to this project are either attached to this document or are available at:

https://www.medoraco.com/resources/warranty-information.

Hypolimnetic Oxygenation System

For Water Quality Improvements at

Green Ridge Glade Reservoir

City of Loveland, CO

December 13, 2016

3939 Priority Way South Drive Suite 200 Indianapolis, IN 46240 317.706.6484 www.eco2tech.com

December 13, 2016

Eli B. Townsend
Corona Environmental Consulting, LLC
etownsend@coronaenv.com
303.544.2161

Re: ECO_2 Green Ridge Glade Hypolimnetic Oxygenation System

Dear Eli,

Thank you for your interest in an ECO_2 SuperOxygenation System to oxygenate the hypolimnetic layer of Loch Lomond. Raising the D.O. in the hypolimnion of the reservoir to maintain aerobic conditions above the sediment minimizes the internal nutrient load in a lake, which has a direct effect on eutrophication and water quality.

The ECO_2 SuperOxygenation System is a very effective oxygen transfer device with a proven average oxygen transfer efficiency of 95%. A high oxygen transfer efficiency translates directly into savings in oxygen supply costs. With an ECO_2 SuperOxygenation System dissolved oxygen is delivered in a liquid stream horizontally above the sediment where oxygen is needed most.

ECO_2 has several successful installations across the country adding dissolved oxygen to the hypolimnion of lakes and reservoirs to prevent sulfide formation and improve water quality by minimizing iron, manganese and phosphorous release. The high oxygen transfer efficiency and low maintenance and operating costs make the ECO_2 System the technology of choice for efficient oxygen addition to lakes and reservoirs.

Based on the oxygen requirements of 1,800lbs/day, ECO_2 has designed a Hypolimnetic Oxygenation System for the Green Ridge Glade Reservoir. The system can be either installed on shore or submerged at the bottom of the lake. An on-shore installation is easier, but the system has to be pressurized to add the required amount of oxygen, increasing the HP on the sidestream pump. The system will have to be installed by a local contractor. ECO_2 will be available to provide support for the design team completing the on-site design.

Please find a description of the proposed system below and let us know if you have any questions. We look forward to working with you on this project.

Best regards,

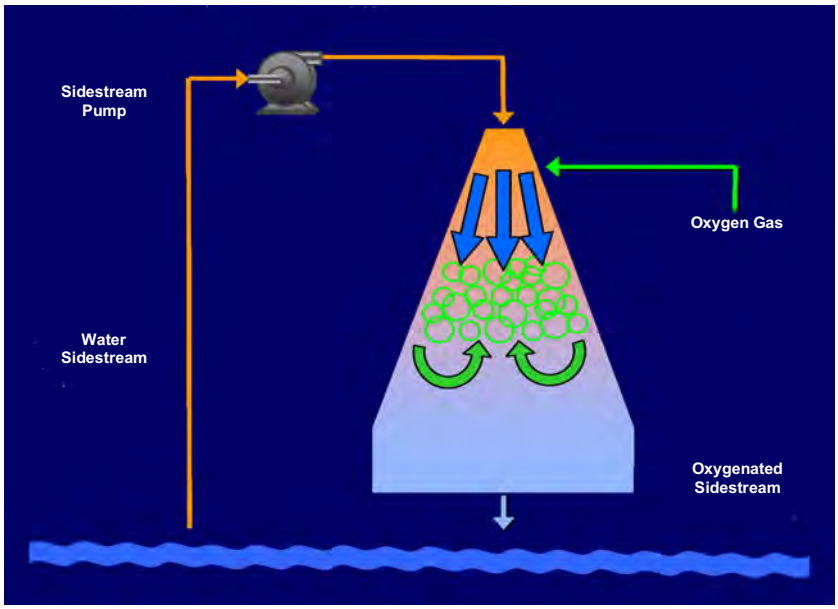
Inken Mello

Inken Mello
Director of Sales & Marketing
Eco Oxygen Technologies, LLC
Phone: 858-272-7102
e-mail: imello@eco2tech.com

I. ECO_2 SYSTEM DESCRIPTION

The ECO_2 SuperOxygenation Technology is based on Henry's Law and works by trapping pure oxygen bubbles inside the ECO_2 cone until they are dissolved. The system operates by pumping a side stream of water through a conical shaped oxygen transfer reactor, also known as the Speece Cone. Gaseous oxygen is fed into the cone and broken up into an intense bubble swarm by the velocity of the wastewater. This action creates an exceptionally large oxygen / water interface. The cone shape design provides sufficient contact time for the oxygen to fully dissolve in the water. The cone achieves an oxygen transfer efficiency of >90%.

The ECO_2 SuperOxygenation system can be installed in a small footprint on shore or can be submerged in the reservoir.



Each ECO_2 System consists of a pressure-rated, hollow, stainless steel cone with no internal mixers, baffles or moving parts. The influent and effluent pipes employ wide openings to prevent clogging. The dish-shaped bottom with the discharge pipe at the low point provides for a self-cleaning device with no need for maintenance.

The ECO_2 System has a life expectancy of 20+ years. The oxygen feed is fully automated. The only moving part is the side stream pump that requires standard maintenance.

II. ECO_2 BASIS OF DESIGN

The system is designed around an assumed hypolimnetic oxygen uptake rate of 0.25mg/L/day in a 860MG hypolimnion for a total required oxygen uptake of 1,793 lbs/day.

The system will be installed on land near the dam and draw water from the deepest area of the reservoir into the cone, oxygenate it and send the oxygenated water back into the reservoir horizontally across the sediment. The system will be pressurized to raise the DO to the required level.

III. ECO_2 SYSTEM DESIGN

To add 1,800 lbs/day of oxygen to the Green Ridge Glade Reservoir with an on-shore installation, the following ECO_2 System is required:

ECO_2 System Design	**On-Shore Installation**
System Size (dia.)	6 ft
System Height (ft)	15 ft
Sidestream Flow (gpm)	2,800 gpm
Sidestream HP	54 HP
Discharge D.O. (mg/L)	63 mg/L
O_2 Dissolution Capacity (lbs/day)	1,950 lbs/day

IV. ECO_2 PROPOSAL

The proposed system is equipped with simple oxygen flow controls that can be dialed in to add a manually set amount of oxygen to the lake. A sidestream pump is required to run a continuous sidestream through the system. Oxygen can be delivered to the site by Praxair.

	On-Shore Installation
ECO_2 System	$230,000
Simple Oxygen Flow Controls	Incl.
Sidestream Pump (Estimate)	$60,000
Shipping	$4,000
Total Capital Cost	**$294,000**

Prices do not include sales taxes.
Payment Terms are 30% upon approval of submittals, 60% upon delivery and 10% upon start-up.

V. ECO_2 GUARANTEE

Experience

ECO_2 SuperOxygenation Systems (aka Speece Cone) for water and wastewater treatment are designed and produced by ECO Oxygen Technologies, LLC (ECO_2), an independent company founded in 2001 and headquartered in Indianapolis, Indiana. The technology is the pioneering effort of Dr. Richard Speece, Centennial Professor Emeritus of Civil and Environmental Engineering at Vanderbilt University, who invented the "Speece Cone". ECO_2 has teamed with Dr. Speece to develop the next generation of oxygen dissolving technology and holds several patents around the Speece Cone. ECO_2 is the end supplier of these systems and is wholly responsible for the design, fabrication, installation oversight, and startup and training. ECO_2 Speece Cone systems have been developed using specific engineering know-how, trade secrets and project experience and operating history.

ECO_2 has over 10 years of experience in the design, assembly, start-up and operation of SuperOxygenation systems. The oldest ECO_2 SuperOxygenation Systems have been installed in lakes in the 1990s and are still in operation to date.

ECO_2 has over 50 systems installed throughout the US. All systems run continuously and reliably with a minimum amount of maintenance required. ECO_2 stands behind superior quality and guarantees each system to perform at a minimum of 90% oxygen transfer efficiency.

The ECO_2 Approach to Successful Installations

ECO_2 working in partnership with Dr. Speece has spent over a decade developing, perfecting and implementing Speece Cones throughout the United States and internationally.
Teaming with Dr. Speece, ECO_2 has gained invaluable firsthand experience and engineering know how to understand and master the interworking nuances required to be able to successfully design, fabricate and implement Speece Cone systems.
In addition to being proficient in Speece Cone design, ECO_2 has gained significant experience and knowledge in ancillary equipment necessary for a fully functional Speece Cone system. This

includes expertise in correctly specifying and sizing the side stream pump, oxygen supply, piping arrangements, civil and electrical works. ECO_2 knows how to operate and service the Speece Cone in multiple applications and system configurations.

ECO_2 Performance Guarantee

ECO_2 will guarantee an oxygen transfer efficiency (OTE) of a minimum of 90% in the cone. ECO_2 Systems have a proven track record of an average oxygen transfer efficiency of 95%. These transfer efficiencies have been measured on multiple systems in various applications ranging from clean water to raw wastewater.

CalgonCarbon
Pure Water. Clean Air.
Better World.

January 05, 2017 Quote: MMP010517886

Amlan Ghosh
Corona Environmental
Project: Loveland, CO

Amlan,

Thank you for your interest in Calgon Carbon Corporation to complete your upcoming GAC installation. We are pleased to offer our services to assist you in this endeavor.

The budgetary price for performing the GAC installation of 160,000 pounds of Filtrasorb 820 virgin activated carbon is $264,000 or $1.65 / lb. This price is all inclusive for capping 11.5" on the 20 gravity filters at the Loveland, CO WTP, and is subject to Calgon Carbon Corporation's standard terms and conditions, a copy of which is attached. Calgon Carbon Corporation is proposing to perform the GAC installation using slurry via eduction techniques.

As a reminder for slurry service, the following conditions should be met -- Compressed air (100 cfm min.), water (60 psig and 150 gpm min.), drainage, 110V, 20 A power, lighting, and restrooms readily available.; Additional cost over-runs will be invoiced for wait time, poor equipment access, difficult to remove or install media, excessive trailer drain times, or other variances from the standard scope of supply.

This quote does not include any applicable taxes. Standard lead time is 15 – 20 business days after receipt of a purchase order.

Quote is strictly budgetary and valid for 120 days.
Pricing beyond the terms stated above is subject to change.

Subject to Calgon Carbon Corporation Terms and Conditions.

Please feel free to contact me with any additional questions.

Sincerely,

Mark W. Peet
Senior Technical Sales Representative
Calgon Carbon Corporation

Proposal Validity and Scope

Proposal Validity
Quotation is strictly budgetary and valid for 120 days. Sales/Use Taxes ARE NOT included. Payment terms are net 30 days from date of invoice. Unless otherwise noted in Calgon Carbon's Sales Proposal or Customer's Purchase Order, the services to be provided by Calgon Carbon and the requirements of the customer are defined in the following sections. Additional service costs will be invoiced for wait time, poor equipment access, difficult to remove or install media, excessive trailer drain times, or other variances from the standard scope of supply.

Standard Scope of Supply
Our quoted service price includes slurry placement of 11.5" of F820 on 20 existing gravity filters. Service is performed during normal operating hours of Monday to Friday. Weekend and holiday work can be performed at special rates. Bulk exchange pricing assumes adequate access to the vessel, customer supplies air and water for the exchanges, and vessel is equipped with media discharge and media fill lines terminated with male Camlock-type fittings. Two (2) hours are allotted for water to drain from trailers. Vacuum vessel change-out pricing assumes vertical cylindrical vessels with top entry that can be filled pneumatically by pulling a vacuum on the vessel or by drop loading from super sacks directly over the top man-way. To avoid additional invoiced costs, conditions defined in the Site Criteria, Additional Criteria for Vacuum Service, and Spent Media Disposal sections below must also be met.

Site Criteria:
1. Compressed air (100 cfm min.), water (60 psig and 150 gpm min.), drainage, 110V, 20 A power, lighting, and restrooms readily available.
2. Suitable access and staging areas for materials and service equipment within 100 feet of equipment to be serviced.
3. Spent media must be free flowing and of a nature (e.g. not gummy or attrited) that does not blind water separation nozzles or screens.
4. Customer is to open all man ways for inspections, vacuum service and dry fills. Failure to allow Calgon Carbon to internally inspect the vessel for damage to under-drains that might result in a carbon release and for a spent carbon heel in the vessel that may cause premature contaminate break-through will make these failures solely the responsibility of the customer.
5. At sites where spent media is classified as a RCRA hazardous waste, customer is responsible for the disposal of contaminated PPE, equipment (e.g., filters) and decontamination rinse water.
6. Inclement weather provisions:
   - For extreme weather conditions (temp < 30 F or > 90 F; wind > 15 mph; heavy rain or snow, etc.), work may be postponed for safety reasons. However, in emergency situations, exceptional provisions (e.g. portable heaters, tarps, etc.) may be used to complete the work. Costs of such provisions are the responsibility of the customer.
   - Impassable roadways at a site will be considered a safety hazard and will result in delay or cancellation charges.

Cost Over-Runs

Pricing is based on indicated quantities of media. If removed or replaced quantity is greater, the invoice will reflect actual quantity and additional costs for transportation, field service crew and material. If repairs to a vessel are required, labor and charges for additional materials and equipment will be invoiced as cost over-runs. Additional cost over-runs will be invoiced for wait time, poor equipment access, difficult to remove or install media, excessive trailer drain times, or other variances from the standard scope of supply. If media is solidified and customer requests Calgon Carbon to remove media, Calgon Carbon will not assume responsibility for any damage to vessel interior.

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 9
MEETING DATE: 5/17/2017
SUBMITTED BY: Kim O'Field
STAFF TITLE: Technical Specialist

ITEM TITLE:

CAMU Legislative Update

DESCRIPTION:

Loveland staff relies primarily on the Colorado Association of Municipal Utilities (CAMU) for information on electric-related legislation. This item is intended to give a brief overview of CAMU and an update on electric-related legislation.

SUMMARY:

Dan Hodges, Executive Director of CAMU will be giving a presentation to the Commission.

State Update:
Please see Attachment A for the legislative tracking sheet of current state bills from CAMU.

Federal Update:
The ability of public power utilities to bring affordable and reliable electricity to their communities is heavily shaped by policies debated and established in our nation's capital. The American Public Power Association (APPA) is the national organization representing the collective interests of public power in Washington D.C.

Utility-Scale Solar Installations Grew Dramatically over Past Five Years: EIA – Please see Attachment B for a copy of an APPA article regarding utility-scale solar.

Budget Bill Pact Includes Funding for LIHEAP, DOE Programs – Please see Attachment C for a copy of an APPA article regarding the budget impacts to programs within the Department of Energy for fiscal year 2017.

RECOMMENDATION:

Staff item only. No action required.

ATTACHMENTS:

- Attachment A: CAMU Legislative Tracking Sheet
- Attachment B: APPA Article – *Utility-Scale Solar Installations Grew Dramatically Over Past Five Years: EIA*
- Attachment C: APPA Article – *Budget Bill Pact Includes Funding for LIHEAP, DOE Programs*

Attachment A

Colorado Association of Municipal Utilities
2017 State Legislative Tracking Sheet

HB17-1029	Open Records Subject To Inspection Denial
Comment:	
Position:	**Monitor**
Short Title:	Open Records Subject To Inspection Denial
Summary:	Applies to judicial branch only
Status:	1/11/2017 Introduced In House - Assigned to State, Veterans, & Military Affairs 2/2/2017 House Committee on State, Veterans, & Military Affairs Postpone Indefinitely

HB17-1069	Subcommittee On Data Privacy
Comment:	
Position:	**Monitor**
Short Title:	Subcommittee On Data Privacy
Summary:	Bill sponsor intends scope to be limited to state government.
Status:	1/17/2017 Introduced In House - Assigned to State, Veterans, & Military Affairs 2/9/2017 House Committee on State, Veterans, & Military Affairs Postpone Indefinitely

HB17-1116	Continue Low-income Household Energy Assistance
Comment:	
Position:	**Support**
Short Title:	Continue Low-income Household Energy Assistance
Summary:	Current law provides that the department of human services low-income energy assistance fund, the energy outreach Colorado low-income energy assistance fund, and

the Colorado energy office low-income energy assistance fund receive conditional funding from the severance tax operational fund through the state fiscal year commencing July 1, 2018. The bill extends the conditional funding through the state fiscal year commencing July 1, 2023.

(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status:

1/20/2017 Introduced In House - Assigned to Transportation & Energy
2/16/2017 House Committee on Transportation & Energy Refer Amended to Appropriations
3/3/2017 House Committee on Appropriations Refer Unamended to House Committee of the Whole
3/7/2017 House Second Reading Passed with Amendments - Committee
3/8/2017 House Third Reading Laid Over Daily - No Amendments
3/9/2017 House Third Reading Passed - No Amendments
3/10/2017 Introduced In Senate - Assigned to Agriculture, Natural Resources, & Energy
3/23/2017 Senate Committee on Agriculture, Natural Resources, & Energy Refer Unamended to Appropriations
5/5/2017 Senate Committee on Appropriations Refer Unamended to Senate Committee of the Whole
5/9/2017 Senate Second Reading Passed - No Amendments

HB17-1177 Mediation For Disputes Arising Under CORA Colorado Open Records Act

Comment:

Position: **Monitor**

Short Title: Mediation For Disputes Arising Under CORA Colorado Open Records Act

Summary:

Under current law, any person denied the right to inspect any record covered by the 'Colorado Open Records Act' (CORA) may apply to the district court of the district wherein the record is found for an order directing the custodian of such record to show cause why the custodian should not permit the inspection of such record; except that, at least 3 business days prior to filing an application with the district court, the person who has been denied the right to inspect the record is required to file a written notice with the custodian who has denied the right to inspect the record informing the custodian that the person intends to file an application with the district court. The bill changes this deadline from 3 days to 14 days.

During the 14-day period before the person may file an application with the district court, the bill requires the custodian who has denied the right to inspect the record to either meet in person or communicate on the telephone with the person who has been denied access to the record to determine if the dispute may be resolved without filing an application with the district court. The meeting may include recourse to any method of dispute resolution that is agreeable to both parties. The bill requires any common expense necessary to resolve the dispute to be apportioned equally between or among the parties unless the parties have agreed to a different method of allocating the costs between or among them. If the person who has been denied access

to inspect a record states in the required written notice to the custodian that the person needs to pursue access to the record on an expedited basis, the bill requires the person to provide such written notice, including a factual basis of the expedited need for the record, to the custodian at least 3 business days prior to the date on which the person files the application with the district court. In such circumstances, no meeting to determine if the dispute may be resolved without filing an application with the district court is required.

(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status:

2/6/2017 Introduced In House - Assigned to State, Veterans, & Military Affairs
3/16/2017 House Committee on State, Veterans, & Military Affairs Refer Amended to House Committee of the Whole
3/21/2017 House Second Reading Passed with Amendments - Committee
3/22/2017 House Third Reading Passed - No Amendments
3/23/2017 Introduced In Senate - Assigned to State, Veterans, & Military Affairs
4/5/2017 Senate Committee on State, Veterans, & Military Affairs Refer Unamended - Consent Calendar to Senate Committee of the Whole
4/7/2017 Senate Second Reading Special Order - Passed - No Amendments
4/10/2017 Senate Third Reading Passed - No Amendments
4/26/2017 Signed by the Speaker of the House
4/27/2017 Sent to the Governor
4/27/2017 Signed by the President of the Senate
5/4/2017 Governor Signed

HB17-1193 Small Cell Facilities Permitting And Installation

Comment:

Position: **Monitor**

Short Title: Small Cell Facilities Permitting And Installation

Summary: Amendments added in House Committee make this bill problematic for municipal electric systems. Working to amend these changes.

Status:

2/21/2017 Introduced In House - Assigned to Business Affairs and Labor
2/28/2017 House Committee on Business Affairs and Labor Refer Amended to House Committee of the Whole
3/3/2017 House Second Reading Passed with Amendments - Committee, Floor
3/6/2017 House Third Reading Laid Over Daily - No Amendments
3/7/2017 House Third Reading Passed - No Amendments
3/10/2017 Introduced In Senate - Assigned to Local Government
3/21/2017 Senate Committee on Local Government Refer Amended to Senate Committee of the Whole
3/24/2017 Senate Second Reading Laid Over Daily - No Amendments
3/24/2017 Senate Second Reading Laid Over to 03/27/2017 - No Amendments
3/28/2017 Senate Second Reading Passed with Amendments - Committee
3/29/2017 Senate Third Reading Passed - No Amendments
3/30/2017 House Considered Senate Amendments - Result was to Laid Over Daily
3/31/2017 House Considered Senate Amendments - Result was to Concur - Repass
4/11/2017 Signed by the Speaker of the House

4/12/2017 Signed by the President of the Senate
4/13/2017 Sent to the Governor
4/18/2017 Governor Signed

HB17-1225 Electric Regional Transmission Organization Hearing

Comment:

Position: **Monitor**

Short Title: Electric Regional Transmission Organization Hearing

Summary: A regional transmission organization is an independent electric transmission operator that provides wholesale transmission services to more than one provider of retail or wholesale electric service within a defined geographic region by pooling together a number of transmission assets into a single electricity transmission market from which participating retail electric service providers may purchase wholesale transmission services.

The bill directs the transportation legislation review committee to conduct a hearing during the 2017 interim on the effects that participation by retail electric service providers in a regional transmission organization would have on retail or wholesale electric service providers, their ratepayers, and Colorado's market for renewable energy. The hearing must take place on or before December 1, 2017.

(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status: 3/6/2017 Introduced In House - Assigned to Transportation & Energy
4/5/2017 House Committee on Transportation & Energy Refer Amended to House Committee of the Whole
4/11/2017 House Second Reading Passed with Amendments - Committee
4/17/2017 House Third Reading Passed - No Amendments
4/19/2017 Introduced In Senate - Assigned to Transportation
4/25/2017 Senate Committee on Transportation Refer Amended to Legislative Council
4/28/2017 Senate Committee on Legislative Council Postpone Indefinitely

HB17-1227 Electric Demand-side Management Program Extension

Comment:

Position: **Monitor**

Short Title: Electric Demand-side Management Program Extension

Summary: Applies to IOUs only

Status: 3/6/2017 Introduced In House - Assigned to Transportation & Energy
3/29/2017 House Committee on Transportation & Energy Refer Unamended to House Committee of the Whole
4/3/2017 House Second Reading Passed - No Amendments
4/4/2017 House Third Reading Passed - No Amendments
4/5/2017 Introduced In Senate - Assigned to Agriculture, Natural Resources, & Energy

4/20/2017 Senate Committee on Agriculture, Natural Resources, & Energy Witness Testimony and/or Committee Discussion Only
4/26/2017 Senate Committee on Agriculture, Natural Resources, & Energy Refer Unamended to Finance
5/4/2017 Senate Committee on Finance Refer Amended to Senate Committee of the Whole
5/8/2017 Senate Second Reading Passed - No Amendments

HB17-1232 Public Utilities Alternative Fuel Motor Vehicles

Comment:

Position: **Monitor**

Short Title: Public Utilities Alternative Fuel Motor Vehicles

Summary: In an existing provision that authorizes resellers of electricity and natural gas to provide motor vehicle charging or fueling stations as unregulated services, the bill authorizes public utilities to provide these services as regulated or unregulated services and allows cost recovery.

The bill allows a utility to apply to build facilities to support alternative fuel vehicles. Standards are set for approval. When a facility is built, the rate and charges for the services:

- May allow a return on any investment made by an electric public utility at the weighted average cost of capital at the electric public utility's most recent rate of return on equity approved by the public utilities commission (commission);
- May allow a return on any investment made by a natural gas public utility at the utility's weighted average cost of capital at the public utility's most recent rate of return on equity approved by the commission; and
- Must be recovered from all customers of an electric or natural gas public utility in a manner that is similar to the recovery of distribution system investments.

(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status: 3/7/2017 Introduced In House - Assigned to Transportation & Energy
3/29/2017 House Committee on Transportation & Energy Refer Amended to House Committee of the Whole
4/3/2017 House Second Reading Laid Over to 04/10/2017 - No Amendments
4/10/2017 House Second Reading Laid Over Daily - No Amendments
4/13/2017 House Second Reading Special Order - Passed with Amendments - Committee, Floor
4/17/2017 House Third Reading Passed - No Amendments
4/19/2017 Introduced In Senate - Assigned to State, Veterans, & Military Affairs
4/26/2017 Senate Committee on State, Veterans, & Military Affairs Postpone Indefinitely

HB17-1299 Transportation Legislation Review Committee Interim Hearing Electric Utility Energy Storage

Comment: **Bill has jurisdictional problems as introduced. CAMU has won approval from bill sponsor to amend muni's out of definitions.**

Position: **Monitor**

Short Title: Transportation Legislation Review Committee Interim Hearing Electric Utility Energy Storage

Summary: The bill directs the transportation legislation review committee (TLRC) to conduct a hearing during the 2017 interim on the potential economic benefits and costs of energy storage systems (e.g., batteries, heat sinks, pumped storage hydroelectric systems) that an electric utility may incorporate into its electric resource acquisition plans.

The hearing must take place on or before December 1, 2017.

(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status: 3/27/2017 Introduced In House - Assigned to Transportation & Energy
4/5/2017 House Committee on Transportation & Energy Refer Amended to House Committee of the Whole
4/11/2017 House Second Reading Passed with Amendments - Committee
4/17/2017 House Third Reading Passed - No Amendments
4/19/2017 Introduced In Senate - Assigned to State, Veterans, & Military Affairs
4/26/2017 Senate Committee on State, Veterans, & Military Affairs Postpone Indefinitely

HB17-1323 PUC Ethics Add Consumer Protection

Comment:

Position: **Monitor**

Short Title: PUC Ethics Add Consumer Protection

Summary: **Section 2** of the bill prohibits a person from serving on the public utilities commission if he or she:

- Has, within the immediately preceding 4 years, served as an officer or director of a regulated utility; or
- Has or acquires any official relation to, or financial interest in, a regulated utility. 'Financial interest' does not include passive ownership of stocks through a mutual fund or similar vehicle.

Section 3 encourages the director of the commission to assign employees to temporary training and development sessions with other state agencies, particularly those with which the commission has frequent interaction, to improve the employees' substantive expertise and familiarity with the operations of those agencies. Section 3 also requires the director to keep audio records of the commission's proceedings and make them publicly available online.

In addition, section 3 expressly authorizes the executive director of the department of regulatory agencies (of which the commission is a part) to request that the state auditor conduct performance audits of the commission and its staff and operations.

Section 5 directs the commission to adopt rules concerning conflicts of interest, incompatible activities, and ex parte communications to govern the conduct of commission members, staff, and administrative law judges.

Sections 1 and 4 make conforming amendments.

Section 6 appropriates $22,812 to the department of regulatory agencies for legal services.
(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status:
4/7/2017 Introduced In House - Assigned to Transportation & Energy + Appropriations
4/19/2017 House Committee on Transportation & Energy Refer Amended to Finance
4/24/2017 House Committee on Finance Refer Unamended to Appropriations
4/28/2017 House Committee on Appropriations Refer Amended to House Committee of the Whole
4/28/2017 House Second Reading Special Order - Passed with Amendments - Committee
5/1/2017 House Third Reading Passed - No Amendments
5/1/2017 Introduced In Senate - Assigned to State, Veterans, & Military Affairs
5/4/2017 Senate Committee on State, Veterans, & Military Affairs Postpone Indefinitely

HB17-1339 Colorado Energy Impact Assistance Act

Comment:

Position: **Monitor**

Short Title: Colorado Energy Impact Assistance Act

Summary: Directly applies to IOUs. CAMU is examining for indirect impacts.

Status:
4/13/2017 Introduced In House - Assigned to Transportation & Energy
4/26/2017 House Committee on Transportation & Energy Refer Amended to House Committee of the Whole
4/27/2017 House Second Reading Special Order - Passed with Amendments - Committee
4/28/2017 House Third Reading Laid Over to 05/01/2017 - No Amendments
5/1/2017 House Third Reading Passed - No Amendments
5/1/2017 Introduced In Senate - Assigned to State, Veterans, & Military Affairs
5/3/2017 Senate Committee on State, Veterans, & Military Affairs Postpone Indefinitely

HB17-1366 Measurable Goals Deadlines Colorado Climate Action Plan

Comment:

Position: **Monitor**

Short Title: Measurable Goals Deadlines Colorado Climate Action Plan

Summary: The bill requires:

- The state climate action plan to include specific, measurable goals, the achievement of which will both reduce Colorado's greenhouse gas emissions and increase Colorado's adaptive capability to respond to climate change, along with associated near-term, mid-term, and long-term deadlines to achieve the goals; and
- The annual climate report to the general assembly to include an analysis of the progress made in meeting the measurable goals and deadlines specified in the plan.

(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status: 4/27/2017 Introduced In House - Assigned to Health, Insurance, & Environment
5/4/2017 House Committee on Health, Insurance, & Environment Refer Unamended to House Committee of the Whole
5/5/2017 House Second Reading Special Order - Passed - No Amendments
5/8/2017 Introduced In Senate - Assigned to State, Veterans, & Military Affairs
5/8/2017 House Third Reading Passed - No Amendments
5/8/2017 Senate Committee on State, Veterans, & Military Affairs Postpone Indefinitely

HB17-1373 General Fund Transfers For CO Colorado Energy Office Cash Funds

Comment:

Position: **Monitor**

Short Title: General Fund Transfers For CO Colorado Energy Office Cash Funds

Summary: **Section 1** of the bill continues the general fund transfer to the clean and renewable energy fund for one year.

Section 2 adds one year of funding for the innovative energy fund from the general fund.
(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status: 5/5/2017 House Committee on State, Veterans, & Military Affairs Refer Unamended to Appropriations
5/5/2017 Introduced In House - Assigned to State, Veterans, & Military Affairs
5/8/2017 House Committee on Appropriations Refer Unamended to House Committee of the Whole
5/8/2017 House Second Reading Special Order - Passed - No Amendments
5/9/2017 House Third Reading Passed - No Amendments
5/9/2017 Senate Committee on State, Veterans, & Military Affairs Postpone Indefinitely
5/9/2017 Introduced In Senate - Assigned to State, Veterans, & Military Affairs

SB17-040 Public Access To Government Files

Comment:

Position: **Support**

Short Title: Public Access To Government Files

Summary: CAMU worked with Water Congress to add language to exempt critical infrastructure data from CORA requirements in the bill.

Status: 1/11/2017 Introduced In Senate - Assigned to State, Veterans, & Military Affairs
3/1/2017 Senate Committee on State, Veterans, & Military Affairs Refer Amended to Appropriations
3/14/2017 Senate Committee on Appropriations Refer Amended to Senate Committee of the Whole
3/17/2017 Senate Second Reading Laid Over to 03/21/2017 - No Amendments
3/21/2017 Senate Second Reading Passed with Amendments - Committee, Floor
3/22/2017 Senate Third Reading Passed - No Amendments
3/23/2017 Introduced In House - Assigned to Finance
4/24/2017 House Committee on Finance Refer Amended to Appropriations

SB17-042 Repeal Local Government Internet Service Voter Approval

Comment:

Position: **Monitor**

Short Title: Repeal Local Government Internet Service Voter Approval

Summary: Cities, counties, special districts, and other local governments (local government) are currently prohibited, with certain limited exceptions, from providing cable television, telecommunications service, or high-speed internet access without first seeking voter approval. A local government that does provide any of these services is further required to comply with all state and federal laws and regulations governing the service and prohibited from granting certain preferences or discriminating in connection with providing the service.

The bill repeals these restrictions on the provision of cable television, telecommunications service, or high-speed internet access by a local government.

(Note: This summary applies to this bill as introduced.)

Status: 1/11/2017 Introduced In Senate - Assigned to Business, Labor, & Technology
2/13/2017 Senate Committee on Business, Labor, & Technology Postpone Indefinitely

SB17-081 Rural Broadband Deployment

Comment:

Position: **Monitor**

Short Title: Rural Broadband Deployment

Summary:

Section 1 of the bill updates the definition of a broadband network for purposes of telecommunications regulation and deregulation.

Section 2 updates how the public utilities commission (commission) makes an

effective competition determination for high cost support mechanism (HCSM) funding, which is financial assistance provided to telecommunications companies that provide basic telephone service or broadband service in areas that lack effective competition.

Section 3 establishes that HCSM funding cannot be used to support more than one wireline and one wireless line per individual household or individual business.

(Note: This summary applies to this bill as introduced.)

Status: 1/13/2017 Introduced In Senate - Assigned to Business, Labor, & Technology
2/22/2017 Senate Committee on Business, Labor, & Technology Postpone Indefinitely

SB17-089 Allow Electric Utility Customers Install Energy Storage Equipment

Comment:

Position: **Monitor**

Short Title: Allow Electric Utility Customers Install Energy Storage Equipment

Summary: Introduced bill included requirements for munis. Bill sponsor agreed to amend munis out of the bill.

Status: 1/18/2017 Introduced In Senate - Assigned to Business, Labor, & Technology
2/8/2017 Senate Committee on Business, Labor, & Technology Postpone Indefinitely

SB17-105 Consumer Right To Know Electric Utility Charges

Comment:

Position: **Monitor**

Short Title: Consumer Right To Know Electric Utility Charges

Summary: Applies to IOUs only

Status: 1/27/2017 Introduced In Senate - Assigned to Agriculture, Natural Resources, & Energy
2/16/2017 Senate Committee on Agriculture, Natural Resources, & Energy Refer Amended to Senate Committee of the Whole
2/22/2017 Senate Second Reading Passed with Amendments - Committee
2/23/2017 Senate Third Reading Passed - No Amendments
2/27/2017 Introduced In House - Assigned to Transportation & Energy
4/12/2017 House Committee on Transportation & Energy Refer Amended to House Committee of the Whole
4/17/2017 House Second Reading Laid Over Daily - No Amendments
4/18/2017 House Second Reading Passed with Amendments - Committee, Floor
4/19/2017 House Third Reading Passed with Amendments - Floor
4/20/2017 Senate Considered House Amendments - Result was to Laid Over Daily
4/21/2017 Senate Considered House Amendments - Result was to Concur - Repass
4/27/2017 Signed by the President of the Senate
5/1/2017 Sent to the Governor
5/1/2017 Signed by the Speaker of the House

SB17-145	Electric Utility Distribution Grid Resource Acquisition Plan
Comment:	**Exempts municipal utilities**
Position:	**Monitor**
Short Title:	Electric Utility Distribution Grid Resource Acquisition Plan
Summary:	The bill directs specified electric utilities to prepare, and the Colorado public utilities commission to review, proposals to integrate distributed energy resources into their plans to acquire new infrastructure. 'Distributed energy resources' is defined to include renewable distributed generation facilities, such as rooftop solar, energy storage facilities, electric vehicles, and other features of an improved and diversified electrical grid architecture. The commission may approve the plans as submitted or modify them in ways that improve system reliability, reduce costs, or increase the benefits to ratepayers. *(Note: This summary applies to this bill as introduced.)*
Status:	1/31/2017 Introduced In Senate - Assigned to Agriculture, Natural Resources, & Energy 2/15/2017 Senate Committee on Agriculture, Natural Resources, & Energy Postpone Indefinitely

SB17-179	Fee Limits For Solar Energy Device Installations
Comment:	
Position:	**Monitor**
Short Title:	Fee Limits For Solar Energy Device Installations
Summary:	The bill extends the repeal date of existing laws that limit the amount of permit, plan review, or other fees that counties, municipalities, or the state may charge for installing solar energy devices or systems. The bill also clarifies that the statutory limitations on the amount of fees applies to any related or associated fees, not just to permit or plan review fees. *(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)*
Status:	2/14/2017 Introduced In Senate - Assigned to Finance 2/23/2017 Senate Committee on Finance Refer Unamended - Consent Calendar to Senate Committee of the Whole 2/28/2017 Senate Second Reading Passed - No Amendments 3/1/2017 Senate Third Reading Passed - No Amendments 3/2/2017 Introduced In House - Assigned to Transportation & Energy 3/23/2017 House Committee on Transportation & Energy Refer Unamended to House Committee of the Whole 3/28/2017 House Second Reading Laid Over Daily - No Amendments

3/31/2017 House Second Reading Special Order - Passed - No Amendments
4/3/2017 House Third Reading Passed - No Amendments
4/19/2017 Signed by the President of the Senate
4/20/2017 Sent to the Governor
4/20/2017 Signed by the Speaker of the House
4/28/2017 Governor Signed

SB17-247 Electricians Inspectors Licensing Qualifications

Comment:

Position: **Monitor**

Short Title: Electricians Inspectors Licensing Qualifications

Summary: Beginning January 1, 2019, **section 1** of the bill waives the continuing education requirement, otherwise applicable upon every renewal or reinstatement of an electrician's license, for the first renewal or reinstatement of the license of an electrician who passed the appropriate written examination in connection with his or her initial license application.

Section 2 phases out an existing provision allowing the hiring of inspectors of 1- to 4-family dwellings who have specified certifications and experience but may not have passed Colorado's written residential wireman's examination. The provision is repealed as of January 1, 2019, except for inspectors hired on or before that date by a city, town, county, or city and county who meet the existing requirements. Those individuals have until January 1, 2023, to meet the new requirements.
(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status: 3/16/2017 Introduced In Senate - Assigned to Business, Labor, & Technology
3/27/2017 Senate Committee on Business, Labor, & Technology Refer Amended to Senate Committee of the Whole
3/30/2017 Senate Second Reading Laid Over Daily - No Amendments
4/3/2017 Senate Second Reading Passed with Amendments - Committee, Floor
4/4/2017 Senate Third Reading Laid Over Daily - No Amendments
4/5/2017 Senate Third Reading Passed - No Amendments
4/5/2017 Introduced In House - Assigned to Business Affairs and Labor
4/13/2017 House Committee on Business Affairs and Labor Refer Unamended to House Committee of the Whole
4/18/2017 House Second Reading Passed - No Amendments
4/19/2017 House Third Reading Passed - No Amendments
4/26/2017 Sent to the Governor
4/26/2017 Signed by the Speaker of the House
4/26/2017 Signed by the President of the Senate
5/3/2017 Governor Signed

SB17-252 Utility Cost-saving Contract For Local Governments

Comment:

Position: **Monitor**

Short Title: Utility Cost-saving Contract For Local Governments

Summary: Current law allows boards of political subdivisions to enter into energy cost-savings contracts for utility cost savings. Utility cost savings are defined in law to include an installation, modification, or service that is designed to reduce energy consumption and related operating costs in buildings and other facilities.

The bill specifies that the boards may also enter into energy cost-savings contracts for increasing meter accuracy, which is defined as a utility cost-savings measure.

The bill also changes the definition of 'operation and maintenance cost savings' to clarify that the calculation must be made on a net basis.

(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status: 3/16/2017 Introduced In Senate - Assigned to Local Government
3/23/2017 Senate Committee on Local Government Refer Unamended to Senate Committee of the Whole
3/27/2017 Senate Second Reading Laid Over Daily - No Amendments
3/28/2017 Senate Second Reading Passed with Amendments - Floor
3/29/2017 Senate Third Reading Laid Over to 03/31/2017 - No Amendments
3/31/2017 Senate Third Reading Passed - No Amendments
3/31/2017 Introduced In House - Assigned to Local Government
4/26/2017 House Committee on Local Government Refer Unamended to House Committee of the Whole
4/27/2017 House Second Reading Special Order - Passed - No Amendments
4/28/2017 House Third Reading Passed - No Amendments

SB17-271 Investor-owned Utility Cost Recovery Transparency

Comment:

Position: **Monitor**

Short Title: Investor-owned Utility Cost Recovery Transparency

Summary: The bill requires the public utilities commission (commission) to open a nonadjudicatory proceeding to evaluate investor-owned gas or electric utilities' policies and procedures for load extension of service,including allocation of costs and identification of variables that affect construction and implementation time lines for extension of service. Gas-only investor-owned utilities are not subject to the commission's nonadjudicatory proceeding.

Upon completion of its evaluation, the commission shall issue a decision containing recommendations for investor-owned utilities' implementation of service extension. Within 90 days after the conclusion of the commission's nonadjudicatory proceeding, the commission may promulgate rules consistent with its findings.

(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status: 3/29/2017 Introduced In Senate - Assigned to Agriculture, Natural Resources, & Energy
4/6/2017 Senate Committee on Agriculture, Natural Resources, & Energy Witness Testimony and/or Committee Discussion Only
4/20/2017 Senate Committee on Agriculture, Natural Resources, & Energy Refer Amended - Consent Calendar to Senate Committee of the Whole
4/25/2017 Senate Second Reading Passed with Amendments - Committee
4/26/2017 Senate Third Reading Passed - No Amendments
4/26/2017 Introduced In House - Assigned to Agriculture, Livestock, & Natural Resources
5/1/2017 House Committee on Agriculture, Livestock, & Natural Resources Refer Unamended to House Committee of the Whole
5/2/2017 House Second Reading Special Order - Passed - No Amendments
5/3/2017 House Third Reading Passed - No Amendments

SB17-290 Engineer Excavator Stamp Plan Underground Facility

Comment:

Position: **Oppose**

Short Title: Engineer Excavator Stamp Plan Underground Facility

Summary: Current law requires engineering plans involving excavation to include only general information about the location of underground facilities, and the excavator is the party with the duty to seek specific information about these facilities' locations. The bill requires:

- Engineering plans involving excavation to include specific information about the location of underground facilities;
- Engineers to use their official stamps on the plans; and
- The stamped plans to be given to the person who will conduct the excavation.

(Note: This summary applies to this bill as introduced.)

Status: 4/17/2017 Introduced In Senate - Assigned to Agriculture, Natural Resources, & Energy
4/19/2017 Introduced In Senate - Assigned to Transportation
5/2/2017 Senate Committee on Transportation Postpone Indefinitely

SB17-301 Energy-related Statutes

Comment:

Position: **Monitor**

Short Title: Energy-related Statutes

Summary: **Section 1** of the bill provides a nonstatutory legislative declaration about the changes in law set forth in section 2 of the bill.

Section 2 directs the public utilities commission to adopt rules by which it will evaluate applications filed by Colorado's investor-owned natural gas utilities to acquire interests in natural gas reserves, which at a minimum must establish criteria for asset

evaluation and application review and administration; except that an investor-owned utility's costs associated with any approved application may not be recovered through base rates.

Section 3 adds a legislative declaration about the Colorado oil and gas commission's notice to operators to require operators in the state to identify and inspect flowlines within one thousand feet of a building unit to ensure and document integrity of flowlines statewide and to verify that any existing flowline that is not in active use be properly abandoned. This section also requires the commission to regularly report progress to the general assembly.

Section 4 requires, as part of the electric resource planning process, each qualifying retail utility in Colorado to submit to the public utilities commission a proposal for a distribution resource plan. The section also requires the commission to review the proposal and either approve, modify and approve, or reject the plan for the qualifying retail utility.

Section 5 repeals the wind for schools grant program.

Section 6 repeals the renewable energy and energy efficiency for schools loan program.

Section 7 removes the Colorado energy office's (office) involvement with the forest service and the air quality control commission to support the increased use of woody biomass in bio-heating.

Section 8 removes the office's involvement in grants with the Colorado energy research institute for the development of a central resource for building trade professionals.

Section 9 :

- Specifies nuclear and hydroelectric power as a cleaner energy source that the office should promote;
- Amends the office's requirement to develop and encourage increased utilization of energy curricula, and expands the collaborative groups to include the energy industry and executive departments;
- Repeals certain programs for which the office is responsible; and
- Requires the director of the office and the executive director of the department of natural resources, or their designees, to convene stakeholders for one or more meetings before November 1, 2017, to identify voluntary methods to address funding shortfalls associated with the long-term management of abandoned oil and gas facilities.

Section 10 renames the clean and renewable energy fund as the energy fund and continues the general fund transfer to the energy fund for 4 years and adds the authority to spend the money in the fund for educating the general public on energy issues and opportunities.

Section 11 adds 4 years of funding for the innovative energy fund from the general fund and removes the requirement that the funds used in the innovative energy fund for grants or loans shall be limited to innovative energy efficiency projects and policy development.

Section 12 clarifies that the electric vehicle grant fund may be used to offset costs associated with charging stations for electric vehicles.

Section 13 repeals the office's authority to submit a proposal for credentialing photovoltaic installers.

Section 14 repeals the green building incentive pilot program.

Section 15 repeals the 'Colorado Clean Energy Finance Program Act'.

Section 16 removes the office's responsibility to maintain a list of solar installers, the requirement for a builder to offer that list to customers, and the requirement for the office to offer training on solar installations.

Section 17 removes a requirement for a 2018 study by the office on alternative fuel truck emissions.

Section 18 removes an obsolete section of law pertaining to a computer system for tracking the movement of gasoline or special fuel in the state.

Section 19 removes the office as the administrator of the Colorado carbon fund special license plate.

Section 20 increases the registration fee on electric motor vehicles and the portion of the fee that is earmarked for the highway users tax fund to offset the reduced gas tax collected as a result of the vehicle's increased efficiency.

Current law authorizes a homeowner to finance certain energy efficiency improvements to the home through a loan pursuant to the property assessed clean energy program (PACE). PACE requires an applicant to file a title commitment on the home and a hearing must be held in order to seek a voluntary subordination of existing liens to PACE's junior lien. **Sections 21 through 24** exempt a homeowner from the title commitment and hearing requirements if the owner is not seeking to subordinate the priority of existing liens and clarifies that housing authorities can use PACE as a completely voluntary assessment.

Sections 25 and 26 make conforming amendments.
(Note: This summary applies to the reengrossed version of this bill as introduced in the second house.)

Status:

4/26/2017 Introduced In Senate - Assigned to Agriculture, Natural Resources, & Energy
5/3/2017 Senate Committee on Agriculture, Natural Resources, & Energy Refer Amended to Finance
5/4/2017 Senate Committee on Finance Refer Amended to Appropriations
5/5/2017 Senate Committee on Appropriations Refer Amended to Senate Committee of the Whole
5/8/2017 Senate Second Reading Special Order - Passed with Amendments - Committee, Floor
5/9/2017 Senate Third Reading Passed with Amendments - Floor
5/9/2017 Senate Third Reading Reconsidered - No Amendments
5/9/2017 Introduced In House - Assigned to Judiciary

SJM17-005 **Reduce Energy Subsidies**

Comment:

Position: **Monitor**

Short Title:	Reduce Energy Subsidies
Summary:	*** No bill summary available ***
Status:	4/7/2017 Introduced In Senate - Assigned to Agriculture, Natural Resources, & Energy 4/20/2017 Senate Committee on Agriculture, Natural Resources, & Energy Witness Testimony and/or Committee Discussion Only 4/26/2017 Senate Committee on Agriculture, Natural Resources, & Energy Postpone Indefinitely

SJR17-025 100th Anniversary Of Estes Park

Comment:	**Congratulations to Estes Park!**
Position:	**Strongly Support**
Short Title:	100th Anniversary Of Estes Park
Summary:	*** No bill summary available ***
Status:	3/23/2017 Senate Third Reading Laid Over Daily - No Amendments 3/23/2017 Introduced In Senate - Assigned to 3/24/2017 House Third Reading Passed - No Amendments 3/24/2017 Introduced In House - Assigned to 3/24/2017 Senate Third Reading Passed - No Amendments 3/27/2017 Signed by the President of the Senate

AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities

PublicPowerDaily

Utility-scale solar installations grew dramatically over past five years: EIA

From the May 5, 2017 issue of *Public Power Daily*
Originally published May 4, 2017

By Paul Ciampoli
News Director

Utility-scale solar installations grew at an average rate of 72% per year between 2010 and 2016, faster than any other generating technologies, the Energy Information Administration reported on May 4.

Utility-scale solar installations include both photovoltaic and thermal technologies, EIA noted in its latest "Today in Energy" report.

The agency said that utility-scale solar generation now makes up about 2% of all utility-scale electric generation. "The first utility-scale solar plants were installed in the mid-1980s, but more than half of the currently operating utility-scale solar capacity came online in the past two years," it said.

As of December 2016, more than 21.5 gigawatts of utility-scale solar generating capacity was in operation across the U.S., with more than 7.6 GW of that capacity coming online in 2016.

Although California has the highest total installed capacity of any state, a number of states have deployed significant utility-scale solar capacity in recent years, the EIA noted.

Several states have policies such as renewable portfolio standards or state renewable tax credits to encourage solar deployment and starting in 2005, the federal government has provided a 30% investment tax credit, which is scheduled to phase down or expire by 2022.

The EIA said that utility-scale solar generation has been increasing as a result of the rapid growth in capacity. But solar's share of utility-scale electricity generation overall is 0.9%, roughly half of its share

of capacity.

“Most solar generators are considered an intermittent or non-dispatchable resource because their availability depends on ambient insolation (exposure to the sun),” the report noted.

Some systems are paired with an energy storage system, which allows greater operational flexibility. As monthly capacity factors indicate, solar generation is strongly seasonal, with more sunlight available in the summer (about 30% capacity factor on average) than in the winter months (near 15%), the EIA said.

Small-scale solar capacity has also grown

In addition to utility-scale solar, electric generating capacity from small-scale solar systems, such as rooftop and other customer-sited PV systems, has also grown. In 2016, EIA estimates that the U.S. added 3.4 GW of small-scale solar generating capacity across all three end-use sectors (residential, commercial, and industrial), ending the year with more than 13.1 GW of installed capacity. The EIA noted that it reports capacity values in GW of alternating current output.

According to EIA estimates, California, New Jersey, and Massachusetts had the most small-scale solar capacity with 5.4 GW, 1.3 GW, and 1.0 GW, respectively.

Monthly generation from small-scale solar capacity is estimated to have been 1.6 million megawatt-hours on average in 2016, or about two-thirds of the amount generated by utility-scale solar generators, the agency said.

Public Power Daily

Budget bill pact includes funding for LIHEAP, DOE programs

From the May 3, 2017 issue of *Public Power Daily*
Originally published May 2, 2017

By Jeannine Anderson
News Editor

House and Senate leaders have reached agreement on an appropriations bill for fiscal year 2017 that is to be considered by the House and Senate this week. The agreement includes $11.28 billion for non-defense energy programs within the Department of Energy, a $257 million increase over fiscal year 2016 enacted levels.

The bill would keep funding level for the Low-Income Heating and Energy Assistance Program, or LIHEAP, compared to fiscal year 2016; would fund the major offices within DOE at roughly the same levels as in fiscal year 2016; and would cut funds for the Environmental Protection Agency, compared to FY 2016.

The agreement follows passage on April 28 of a one-week stop-gap spending bill to keep the government's doors open through Friday, May 5 — enough time to complete and pass the big spending bill.

LIHEAP

The bill includes level funding of $3.39 billion for LIHEAP. The National Energy and Utility Affordability Coalition, of which the American Public Power Association is a member, called the appropriation "a total victory."

The Trump administration had considered capping FY 2017 LIHEAP funding at $3 billion which has already been spent and eliminating the program entirely in FY 2018.

EPA

The bill funds the EPA at $8.06 billion, a reduction of $81.4 million below the amount enacted by Congress in fiscal year 2016 (and $209 million below President Obama's budget request for FY 2016).

The EPA's research and regulatory programs are reduced by $52 million below the current level and by more than $300 million below the previous administration's request.

The legislation rejects the previous administration's proposed increase in staffing, holding the EPA to the current capacity of 15,000 positions, the lowest since 1989.

The bill provides an additional $7.5 million to accelerate the cleanup of Superfund sites.

ARPA-E

Within DOE, the budget for Advanced Research Projects Agency-Energy, or ARPA-E, would increase from $0.291 billion in FY 2016 to $0.360 billion. Like the LIHEAP program, the Trump administration had said earlier that it wanted to eliminate the ARPA-E program.

Cyber security funding for consumer-owned utilities

An explanation accompanying the budget bill agreement indicates that the measure provides at least $5 million to "develop cyber and cyber-physical solutions for advanced control concepts for distribution and municipal utility companies." This is identical to a provision in the FY 2016 appropriations bill that cleared the way for a cooperative agreement of up to three years between DOE and the American Public Power Association. A comparable agreement was also reached between DOE and rural electric cooperatives, meaning that up to $7.5 million could be available over a three-year period ($5 million split evenly over three years).

The budget agreement provides $95,000,000 for the Small Modular Reactor Licensing Technical Support Program.

The full text of the bill is here and an explanation of Division D, which includes funding for DOE and the Interior Department (including funding for water projects), can be found here.

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 10
MEETING DATE: 5/17/2017
SUBMITTED BY: Brad Decker
STAFF TITLE: Resource Planning Manager with Platte River

ITEM TITLE:

Customized Resource Planning

DESCRIPTION:

This presentation will cover the project deliverables and progress on Platte River Power Authority's (PRPA) Customized Resource Plan (CRP).

SUMMARY:

Platte River will deliver a slide presentation covering the CRP—a project that will develop optional generation resource paths for PRPA's four owner communities. The presentation will discuss:

- Schedule and goals
- Modeling methods
- Project deployment
- Project administration

PRPA staff presenting will include Jason Frisbie (General Manager/CEO), Andy Butcher (COO), Brad Decker (Resource Planning), Mike Jones (Resource Planning), and Paul Davis (Customer Services)

RECOMMENDATION:

Staff item only. No action required.

ATTACHMENTS:

- Attachment A: Presentation slides

Platte River Power Authority

Customized Resource Plan

Loveland Utilities Commission
5/17/2017

The Energy We Live By™

Customized Resource Plan for Four Munis

- Individual cities have expressed interest in having specific types of generation serving their customers
- Each city has distinct long-term goals
- Board-approved project
- Charter was formed, signed May 2016

Platte River Power Authority

Project Goals

1. **Identify ways to meet long-term strategic needs of each of PR's four municipalities**
2. Develop ***range*** of alternatives
3. Determine costs associated with altering portfolio mix
4. Establish portfolio decision paths for each municipality

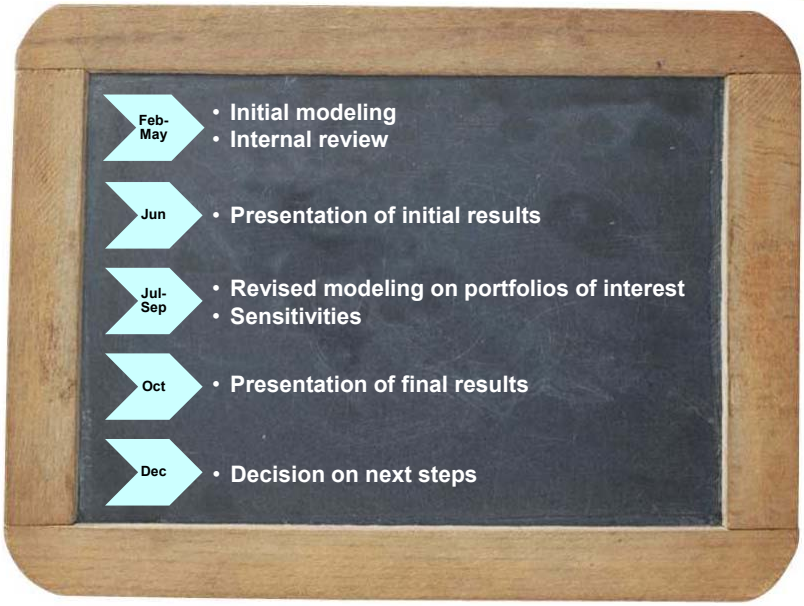
Platte River Power Authority
The Energy We Live By™

Overview of Customized Resource Plan Process

2017	2018+
Phase 1	**Phase 2**
■ Initial modeling establishes cost landscape of potential customized resource plans ■ A subset of the most effective plans are chosen for further analysis	■ If customized resource plans look attractive, new programs and business structures to facilitate CRP implementation will be developed and deployed

Platte River Power Authority
The Energy We Live By™

Phase 1 – Schedule



Phase 1 – Analytics

- Platte River will begin with a Base Case derived from the current Budget model
- Given the uncertainty for the future of carbon legislation, scenarios will be constructed ***with and without*** carbon assumptions
- Platte River currently assumes some limits on the volume of energy exports. Selected scenarios will test the impact of that assumption on the modeling
- All incremental costs (system costs above the Base Case) will be assigned to the specific municipal sponsor

High-level assumptions	
Craig 1 retirement	2025
Craig 2 retirement (w/carbon)	2029
Craig 2 retirement (w/o carbon)	2041
Rawhide retirement	2046
Wind additions for RPS compliance	50 MW in 2030 85 MW in 2040

Platte River Power Authority
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Phase 1 - Models

- Platte River will develop cost estimates for a wide range of renewable energy portfolios

Portfolio	Additional Wind	Additional Solar
Base	-	-
Wind25	+25MW	-
Wind50	+50MW	-
Wind100	+100MW	-
Wind200	+200MW	-
Solar25	-	+25MW
Solar50	-	+50MW
Solar100	-	+100MW
Solar200	-	+200MW
Wind100Solar200	+100MW	+200MW

Platte River Power Authority
The Energy We Live By™

Phase 2 – *Conceptual* program design

- Significant program design and administration
- Custom programs treated through rate allocations (directly assigned charges)
- Transfer payments evaluated through system planning model simulations
- Requires periodic rate true-ups, compensatory adjustments (riders)

Base Rates
+
Direct Assignments
+
True-ups

Base resources—designed to meet EPA CPP

Elective incremental measures

Transfer payments for stranded costs and system impacts

Platte River Power Authority
The Energy We Live By™

Next Steps

- Platte River is exploring joining an organized market
- Negotiations are underway with the Southwest Power Pool
- Participants are expected to realize overall cost savings in an organized market (aggregate $53 million in 2016)
- Participation in an organized market presents operational opportunities and planning uncertainties
- Platte River will evaluate RTO membership under the CRP

Platte River Power Authority
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LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 11
MEETING DATE: 5/17/2017
SUBMITTED BY: Gretchen Stanford
STAFF TITLE: Acting Director

ITEM TITLE:

Commission & Council Report

SUMMARY:

Discuss events that the Loveland Utility Commission Board members attended, special topics and any City Council items related to the Water and Power Department from the past month.

- City Council Report
- PRPA Markets 101 Training
- Jared Polis Visit to Foothills Solar Facility – April 20, 2017

RECOMMENDATION:

Commission/Council report only.

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 12
MEETING DATE: 5/17/2017
SUBMITTED BY: Gretchen Stanford
STAFF TITLE: Acting Director

ITEM TITLE:
Director's Report

GENERAL & PREVIOUS LUC MEETING FOLLOW UP ITEMS:
Upcoming LUC Commission Expirations: The following board members commissions are scheduled to expire on June 30, 2017. Renewal applications must be received by Thursday, May 25, 2017 at 5 pm. Application Link: http://www.cityofloveland.org/government/boards-and-commissions-application

Board Members with a Commission Expiration Date of June 30, 2017	Renewal Application Status
Larry Roos	Received
Sean Cronin	Received
Stephanie Fancher-English	Received
Gene Packer	Received

River Commissioner: We will schedule the river commission to join us for one of the meetings in the Fall to introduce herself and give a brief overview of what she does.

Municipal Code Revision for Pole Attachments: On April 18, 2017 the State of Colorado signed into law House Bill 17-1193 changing the requirements for attachment of small cell facilities on utility poles and streetlights. Previously, the FCC requirements allowed utilities to deny attachments of communication facilities to a streetlight pole as long as the utility treated all communications facilities, including utility owned equipment, equally. The Power Division had taken the stance that no communications infrastructure could be attached to streetlights. Communications attachments of all types, including small cell wireless, had to be placed within the communications space on utility poles. The communications space is located below energized electrical lines and this requirement prevents possible contact with high voltage equipment by non-qualified personnel. HB 17-1193 removes the ability for cities to deny attachments to streetlights. It also limits a city's ability to impose fees, require permitting, review attachments for pole structural capacity, and charge for "make-ready work" if the process is not part of the municipal code prior to the law taking effect on July 1, 2017. Depending on the type of small cell equipment being attached, some of this infrastructure is very large and can cause structural instability of the pole. This would put the public and the electrical system at risk if an attachment was made without notification and structural review of the pole. The city would also not be compensated for the use of the pole or the upgrades required to carry the additional loads.

The Water and Power Department has many utility poles and streetlights throughout the City that have been used to joint locate communications infrastructure. The Power Division has had in place an application and permitting process that allows for other utilities to request co-location on city owned utility poles. The applicants are responsible for submitting a permit request identifying the poles for co-location, submitting information on the attachment type and engineering calculations for the impact to utility infrastructure. The applicants are also responsible for all expenses related to engineering and upgrades to the utility infrastructure, called "make-ready" work. The Power Division charges a yearly attachment fee that is calculated based on formulas specified by the Federal Communications Commission (FCC). The Water and Power Department's permit process, pole attachment agreement and requirements are consistent and in compliance with the rules set forth in the FCC regulation 47 U.S.C Section 224 and adopted by the State of Colorado. However, these requirements are not contained within the Title 13 of the City of Loveland Municipal Code. An Ordinance will be presented to City Council on first-reading on May 16,

2017 to add a new section to Chapter 13.12 of the Municipal Code regarding requirements for attachments to electrical poles. This will add clarity and transparency to the process that is already in place.

EVENTS:

The following events are coming up in the near future that we would like you to be aware of and attend if you find the time in your schedules.

Tri-City Event 2017: The following people were registered to attend the 2017 Tri-City Event.

The Lincoln Center
417 W. Magnolia St., Fort Collins, CO 80521
Thursday, May 25, 2017 5:30 pm – 8:30 pm

Tri-City Attendees List			
Board Members		Staff	
• Dan Herlihey • Dave Kavanagh • Dave Schneider • Gary Hausman • John Butler	• Larry Roos • Randy Williams • Sean Cronin • Gene Packer	• Cecil Guiterrez • Chris Geisting • Courtney Whittet • Derek Turner • Greg Dewey • Gretchen Stanford	• Kim Frick • Larry Howard • Roger Berg • Steve Adams

South Platte Forum: Save the date for the 2017 South Platte Forum on October 25th & 26th at the Loveland Embassy Suites. For more information visit www.southplatteforum.org.

OPERATIONS:

Wastewater Treatment Plant Improvements: The Wastewater Treatment Plant Improvements Project has moved into the construction phase.

Garney Construction officially started construction on the BNR/Digester project. This picture is of the SC3 dewatering. Construction will continue until Fall of 2019 and will cost between $33M and $35M, a new City of Loveland record for largest capital project.

Design work for the long awaited Water Quality Lab will be starting this summer. We have selected HDR Engineering to design the facility. Construction will likely start sometime next summer. It will be located on the WWTP site, exact location will be determined during preliminary design.

Fire Hydrant Flushing: Our Water Operations crews have been busy performing hydrant flushing throughout the water distribution system. This work started April 10, 2017, and finished early this year during the week of May 12, 2017. Annual fire hydrant flushing is a routine part of fire hydrant and water line maintenance. Flushing keeps the interior of pipes clean, ensures hydrants are working properly and helps to maintain excellent water quality.

Shubert Drive: The operations crew spent 2 days at the beginning of May fixing 4 leaks on Shubert Drive. This is not the first time problems have appeared in that neighborhood. About $250,000 in this year's budget will be reallocated to replace approximately 900 feet of pipe in that portion of Shubert Drive. The Reporter Herald covered this story, you can find a link below in the Media section.

Garfield Avenue Waterline Replacement: The waterline from Marmac Drive to Lake Drive along Garfield Avenue has experienced leaks and required an increased amount of repairs and maintenance over the past few years. The Water and Power Department is coordinating the replacement of the waterline in conjunction with the Public Works Department road replacement project. Colorado Civil Group has been hired to complete the waterline design and plans are in the process of being completed. Bid opening is currently anticipated for early June with the completion of the project in October of 2017.

South Side Lift Station: Hydro Construction will begin renovations on the South Side Lift Station in July (new pumps, controls, etc.). It is located on Boise Ave just south of the WWTP. The project is expected to be completed by the Fall and will result in more consistent flows to the wastewater treatment plant. Additionally the lift station will require reduced repair and maintenance time and costs upon completion of the project.

Idylwilde: Staff organized and facilitated a meeting to discuss construction projects, river restoration and timelines which will affect the Big Thompson River during 2017. The meeting was held on Tuesday, April 11, 2017 at The Ranch. In attendance were representatives from the U.S. Bureau of Reclamation, U.S. Forest Service, Northern Water, Big Thompson Watershed Coalition, City of Loveland, City of Greeley, Greeley – Loveland Irrigation Company, CDOT Hwy 34 Highway Reconstruction Team and the Colorado Water Conservation Board.

The purpose of the meeting was to discuss the impact of 2017 Colorado-Big Thompson Project (CBT) operations on various projects located in the Big Thompson Canyon. The U.S. Bureau of Reclamation and Northern Water will be working on the Maitland Siphon, which is located along the Charles Hansen Feeder Canal, and upstream in the canal of the Dille Tunnel inflow. This work will start August 1, 2017, and prevent the use of Olympus Tunnel, Flatiron Reservoir, and the Wasteway to make deliveries of water to the Big Thompson River. This means that any CBT water ordered downstream of the Wasteway will necessarily be released from Lake Estes and flow through the Big Thompson canyon. And although some water can be diverted into the Charles Hansen Feeder Canal from the Big Thompson River, through Dille Tunnel into the canal, this water also has to be released from Lake Estes and flow through the Big Thompson canyon.

The impact of the work and operational change is that the U.S. Bureau of Reclamation and Northern Water will be delivering more water down the Big Thompson River this summer/fall than typical, which coincides with the prime construction period for at least 15 flood recovery projects and river restoration work. These 15 flood recovery projects include U.S. Hwy 34 Highway Reconstruction and river resiliency, emergency watershed protection work by the Big Thompson Watershed Coalition, and various bridge and low water crossing repairs to be done by Larimer County and private landowners.

The Maitland Siphon construction work cannot be delayed. The Maitland Siphon has been deformed due to weight of overburden. But this repair project could not be started until the Dille Tunnel was back in service. And the various flood recovery and river restoration projects have federal funding deadlines which necessitate the work to be completed before December 2017.

Estimated flows could be as high as: July 250 cfs, Aug 400 cfs, Sep 300 cfs, and Oct 250 cfs. These are high-end, average flows based on historic CBT demands. These flows could be exacerbated by higher demand and rainstorms/runoff. High flows could negatively impact or prevent flood recovery projects and river work.

The only apparent influence over reducing these high flows rests with the CBT users who typically call for deliveries on the Big Thompson River. These users include: City of Greeley, City of Loveland, Greeley – Loveland Irrigation Company, Handy Ditch Company, and Home Supply Ditch Company.

Here's an example of how the City of Loveland could alter typical operations to reduce the impact to flows during July through October. Green Ridge Glade Reservoir could be topped off early, maybe prior to July 1, 2017. And any requests for CBT could be limited to smaller flows, instead of a higher flowrate (like 75 cfs) to fill the reservoir quickly. Or if there are days the river projects will not be in the river, the City could schedule deliveries during those times.

The results of the meeting included three outcomes:

1. Northern Water would contact Colorado's congressional delegation to request an extension of the construction completion deadlines for the federally funded projects.
2. Representatives from the federal agencies in attendance would communicate in their respective agencies to ask the federal agencies who are funding the projects for an extension of the construction completion deadlines for the federally funded projects.
3. Water users and Northern Water and the U.S. Bureau of Reclamation will participate in a weekly phone call to discuss water operations and consider ways to reduce the impact of water operations on the river reconstruction projects.

The City's river reconstruction work at the former Idylwilde Reservoir location will not be affected as the additional river work will not take place until 2018.

City staff also had an internal meeting on April 4, 2017 with its consultant, OTAK, to discuss options for the final disposition of the remaining Idylwilde Project features, including about 7,000 feet of penstock located on City, U.S. Forest Service and private properties.

Power Operations:

Outage at Foothills Solar Field: On Saturday, April 8th, a contractor was digging and had punctured all three phases of our primary cable causing a fault and widespread outage. This cable happened to be part of the primary feed from our new Foothills Solar Field. The primary metering cabinet that measures the output of the solar field was affected. It was damage from a phase-to-phase and phase-to-ground fault that require some of the components inside to be replaced. New equipment is ordered for replacement and rebuild by the Electric Metering Division. In the meantime, the primary meter cabinet is being bypassed and solar output is being generated onto our system.

Foundry Bore under First Street: The bore extending power under 1st Street at Cleveland has been completed. The Power Division installed nine 6" conduits for future tie-in of the electric system from the Foundry project south. The conduits were placed in a 36" steel casing pipe to cross under the ditch north of 1st Street.

Foothills Substation: Installation of the 2 new power transformers and switchgear building is complete. Site construction is ongoing with an anticipated completion date of June 9th. Work on the transmission lines west of the substation is underway and will continue into mid-June.

New connection to Xcel: A new primary metered connection point was added near the Valley Substation to provide Xcel with an alternate power feed for the substation that serves the town of Berthoud. This permanent connection will be used intermittently during upcoming construction and maintenance activities planned by Platte River Power Authority.

Canyon Circuit Reconstruction: Power Contracting started construction on the first phase of the project May 1st and is currently running ahead of schedule. Construction will continue through the end of 2017 and finish at the Water Treatment Plant.

GENERATION, TRANMISSION & NORTHERN COLORADO UTILITY REPORTS:

Northern Water Conservancy District: The next board meeting will be held on Thursday, June 8, 2017 at 9 am at Northern Water headquarters located at 220 Water Ave., Berthoud, CO 80513.

Conservation Garden Fair: Northern Water will host their annual Conservation Gardens Fair on Saturday, May 20, from 9:30 a.m. - 2 p.m. at Northern Water's Berthoud headquarters. The fair provides an excellent opportunity for the public to learn about new technologies in water conservation. This family friendly event is free to attend.

Northern Water summer tour season approaches: Northern Water conducts two full-day East Slope facility tours, and two full-day West Slope facility tours, each summer. The two East Slope tours highlight the Conservation Gardens, water operations and proposed storage projects. The two West Slope tours travel through Rocky Mountain National Park to the collection facilities for the C-BT and Windy Gap projects.

The dates and approximate times for the 2017 tours are:

East Slope *(7:30 a.m. - 4 p.m.)*	West Slope *(7 a.m. – 6 p.m.)*
Tuesday, June 13, 2017	Thursday, July 18, 2017
Wednesday, Sept. 6, 2017	Tuesday, Aug. 1, 2017

C-BT Project quota set at 80 percent: The Northern Water Board of Directors declared an 80 percent Colorado-Big Thompson Project quota during its April 13 meeting. The Board considered snowpack totals, streamflow runoff projections and input from agricultural, municipal and industrial water providers in setting the quota for the remainder of the 2017 water year. "It's dry, it really is," said Board President Mike Applegate at the April 13 quota-setting meeting. "The C-BT Project was created to provide a supplemental supply and we have the reserves to do that."

Lake Estes releases during runoff: Beginning May 1, releases from Lake Estes into the Big Thompson River will increase from 50 cubic feet per second to nearly 100 cfs. The exact rate of flow released will depend on inflows into the lake, but will range between 50 and 100 cfs. The U.S. Bureau of Reclamation announced that it will use its Lake Estes/Olympus Dam Facebook page to announce releases to the Big Thompson River.

Annual Report now available: Northern Water's 2016 Annual Report is now available. This edition profiles six employees and the major projects they are involved with, as well as an interview with Northern Water Vice President Kenton Brunner.

Along with these employee and director profiles, the Annual Report includes:

- Northern Water's mission, values and principles
- General Manager Eric Wilkinson's annual message
- Board of Director reappointments and a new appointment
- A brief introduction to seven new employees hired in 2016
- 2016 Northern Water and Municipal Subdistrict financial highlights

Platte River Power Authority (PRPA): The minutes from the April 27, 2017 meeting have not been posted yet. The next board meeting will be held on Thursday, May 25, 2017 at 9 am at PRPA headquarters located at 2000 E. Horsetooth Rd, Fort Collins, CO 80525.

Fort Collins Energy Board: The board met on April 13, 2017 and heard presentations on the following: Customer Satisfaction Survey, Solar Application Processing, Efficiency Portfolio Evaluation, Community Organics Recycling Project, and Platte River Efficiency Programs Update. The minutes from this meeting have not yet been posted. The board also met on May 11, 2017 and the minutes and agenda have not yet been posted. The next board meeting will be held on Thursday, June 8, 2017 at 5:30 pm at the Colorado River Community Room, 222 LaPorte Avenue, Fort Collins, CO.

UTILITY APPLICATION SERVICES

GIS Summit: The City held the first ever GIS Summit on May 2nd. All GIS personnel in the city were present along with department heads and other key staff. The purpose of the summit was to discuss department responsibilities and where GIS, as a whole, is within the City. Key topics included increased communication and project coordination between departments. The get together came out as a success with many positive reviews.

Work Order System Replacement & Optimization: The LWP Technology Steering Committee is currently reviewing three proposals for the project to replace the HTE work order system along with the possible expansion and optimization of our Cityworks work order system.

Cross-Track Software Improvements: The project to make several key improvements to our water meter group's cross-contamination tracking system is complete and has moved to a maintenance status. Long-term, the plan is to move this software's functionality to the new CIS.

Project & Request Tracking: One of the Technology Roadmap recommendations was to establish a tracking system for our team's work. Since the beginning of the year we have configured Cityworks for this purpose. The big projects, tracked as work orders, are reported to, approved and prioritized by our LWP Technology Steering Committee. There are currently 32 approved projects in our queue. The smaller, maintenance-type jobs are tracked as service requests. So far this year we have completed 82 requests within an average of 3.54 days. Here they are broken down by type:

- Application Requests - 1.8 days
- Application Support - 3.85 days
- Data Requests - 2.71 days
- Hardware Support - 5 days
- Map Requests - 4.24 days
- Report Requests - 1.75 days

UTILITY ACCOUNTING:

10-Year CIPs Submitted: The 10-year CIPs for Water, Raw Water, Wastewater and Power have been submitted to the City's Budget Office. These CIPs will be presented to City Council at a study session on June 13. A big challenge that was faced as a part of this year's process is accommodating the impact of the cost of a new Customer Information System (CIS), which is currently estimated at $8.0 million. Under the current cost allocation scenario, Power would pay $5.2 million of the total, Water $1.0 million and Wastewater $700,000. To accommodate these costs, Water would be able to maintain the rate track that was adopted by City Council in August of 2015 by delaying repayment of a portion of an internal loan. Wastewater also has an internal loan scheduled for 2020 due to an increase in growth-related capital expenditures in 2018-2020, but is also able to stay on the current rate track. Power is proposed to modify the rate track that was presented to City Council last August by adding 1% more in 2018-2020 to help handle the CIS cost impact. $16.0 million of borrowing is proposed in Raw Water in 2019 to help finance the Utility's increased participation in the construction of the Chimney Hollow Reservoir and the purchase of a site for downstream storage.

Wastewater Winter Quarter Average: The figures are in, and they look good with regard to a substantial piece of our wastewater revenues. Our total wastewater projected sales for 2017 are $11.3 million. Our single family residential revenues are projected to be $7.0 million for the year, and are based on the Winter Quarter Average (WQA) consumption. Our WQA consumption is based on the window of December 2016 – February of 2017, and the actual WQA came in higher (4.2%) than the budgeted projection. This is projected to lead to a surplus in single family residential revenues of about $160,000 compared to budget. WQA for multi- family residential also came in above budgeted projections, and should lead to revenues coming in about $72,000 above budget for that class. What this means is that the revenue we receive from our single family residential and multi-family residential WQA customers for 2017 should come in about $232,000 above budgeted figures. When you total the revenues from these WQA customers with the revenue from our flat rate customers, it makes up 82% of our total Wastewater sales. So, the components that make up 82% of our Wastewater revenues should come in above budgeted projections for the year.

CUSTOMER RELATIONS:

Community Outreach:

Customer Relations will be participating in the following events:

1. Children's Water Festival – May 4, 2017
2. Community Stewardship Lecture Series – Native Pollinators - May 9, 2017
3. Drinking Water Week May 7-13, 2017
4. Garden In A Box May 11, 2017
5. Grand Opening and Native Plant Sale at High Plains Environment Center May 13, 2017
6. ASCE Infrastructure Week May 15-19, 2017
7. Northern Water's Conservation Garden's Fair on May 20, 2017
8. Build a Better World – Block Party on June 2, 2017
9. Farmers Market June 10, 2017
10. Loveland Youth Gardeners Garden Tour and Art Show on June 17, 2017
11. Community Stewardship Lecture Series – Smart Homes July 11, 2017

Facebook Insights (April - 2017):

Reach (unique users) – 7091 people
Engagement (unique users) – 493 people
Impressions (total count) – 26414 people

Water Quality Campaign: A summer water campaign, communicating the "value" of water service began May 1st. Each month, the campaign focus on the *Colorado Water - Live Like You Love It* themes of care commit and conserve. Learn more at www.cityofloveland.org/LWP.

Customer Experience Team: CR staff is working with mid-managers on the Development Review Team (DRT) to gather information about the customer experience as it applies to the review process. We have made personal visits to commercial and key accounts customers to interview customers. The data will be useful moving forward with design review.

Media:

Reporter Herald – April 20, 2017: Rep. Jared Polis tours Loveland solar facility, talks federal regulations.
Reporter Herald – April 23, 2017: Waterwater Plant Expansion work starts Monday.
Reporter Herald – May 3, 2017: City officials continue to battle leaking water pipeline in north Loveland neighborhood.
Reporter Herald – May 7, 2017: Loveland moves ahead on mitigation of drinking water concerns.

Energy Efficiency: From May 1 – June 30, customers can receive a double rebate ($70) for recycling an old refrigerator and/or freezer.

Energy Education Assistance Program: Mountain View High School and Thompson Valley High School are both doing water conservation projects through the Energy Education Assistance Program. MVHS Special Education Department is creating a sustainable agriculture system that will provide natural foods for students and the community. Teachers and special ed students will develop curriculum around sustainable agriculture and water conservation. TVHS will landscape the entrance of the school and the area surrounding the baseball field with xeric plants to not only beautify their campus, but allow the agriculture students and the TVHS Green Team a chance to learn about xeric planting. It brings several groups in the school together to work on one project.

Larimer County Conservation Corp's Water and Energy Assessment: The program wrapped-up on May 5th. As part of corps member development and to celebrate the end of the season, corps members presented results to LWP staff. 308 home assessments were completed in Loveland this season.

Water Conservation: The Garden in a Box program wrapped-up on May 11th with the garden pick-up event. The program promoted 80 low water use gardens with a $25 discount from the utility. Gardens sold out for the fifth year in a row.

ATTACHMENTS:

- Attachment A: 2016 W&P Fact Sheet

Attachment A

Loveland Water and Power

POWER 2016 FACT SHEET

American Public Power Association

Awarded as a Platinum Reliable Public Power Provider

(970) 663-1043 EMERGENCY 24HRS/7 DAYS

(970) 962-3000 PRIMARY NUMBER

200 N. Wilson Avenue, Loveland, CO 80537

ACTING WATER AND POWER DIRECTOR ..... GRETCHEN STANFORD
POWER DIVISION MANGER..... BOB MILLER
ACTING CUSTOMER RELATIONS MANAGER .. LINDSEY BASHLINE
UTILITY ACCOUNTING MANAGER..... JIM LEES

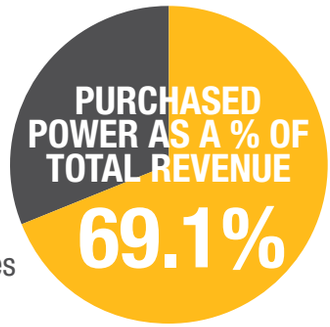
FINANCIAL DATA

ELECTRIC REVENUES

$58,397,909

Purchased Power Expenses
$41,600,100

Power System Expenses
$11,812,677



CUSTOMER & EMPLOYEE DATA

TOTAL ELECTRIC CUSTOMERS
36,074

Residential Inside / Outside
30,837 / 622

Commercial Inside / Outside
4,018 / 247

Industrial Inside / Outside
341 / 9

Average Residential Electric Rate.....9.7¢/kWh
Average Per Person Daily Electric Use.....9 kWh
Average Daily Household Electric Use .....22 kWh
Average Monthly Residential Electric Bill.....$64.97
Average Monthly Residential Electric Usage .....669 kWh
Year Power Department was Created 1925

Key Accounts
36

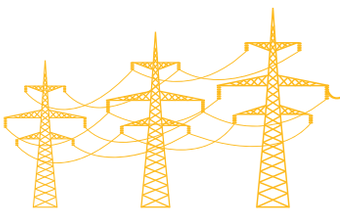
Electric Employees
49.5

Efficiency Works™
Renewable Energy Purchase Program
5,500 kWh Annually

Energy Savings Residential & Commercial
9,378 MWh

GENERATING UNITS

Net Metering Agreements 76
Total of Net Metering Generation..... 2797 kW DC
Foothills Solar Generating Capacity ... 3.5 MW DC



SYSTEM DATA

CURRENT SERVICE AREA
74 SQ. MILES

ANNUAL PURCHASED POWER
731,596 MWh

Summer Peak.....150,441 kW
(July - September)

Winter Peak .....101,294 kW
(January - March, December)

Substations

Substations.....6
Substation Transformers 15

Distribution Lines

Overhead Distribution Lines
Pole Miles.....110
Pole Miles (Canyon) 33
Underground Distribution Lines
Circuit Miles 532
COMBINED TOTAL MILES 675

Street Lights

LED Lights 123
non-LED Lights.....6,065
TOTAL STREET LIGHTS 6,188

Distribution Voltage

In City Limits..... 12.47kV

Big Thompson Canyon .....22.9, 4.16 & 2.4 kV

Public EV Charging Stations

Owned by the City.....4

WATER & WASTEWATER 2016 FACT SHEET

Loveland Water and Power

proud members of…

American Water Works Association

wef Water Environment Federation®

(970) 962-3720 EMERGENCY BUSINESS HOURS

(970) 962-3456 EMERGENCY AFTER HOURS & HOLIDAYS

(970) 962-3000 PRIMARY NUMBER

200 N. Wilson Avenue, Loveland, CO 80537

ACTING WATER AND POWER DIRECTOR ..... GRETCHEN STANFORD

WATER DIVISION MANGER..... ROGER BERG

ACTING CUSTOMER RELATIONS MANAGER .. LINDSEY BASHLINE

UTILITY ACCOUNTING MANAGER..... JIM LEES

FINANCIAL DATA

WATER REVENUES $14,165,477

Water Expenses.....$11,605,575

WASTEWATER REVENUES $10,500,774

Wastewater Expenses...$6,640,659

WATER CUSTOMER AND EMPLOYEE DATA

TOTAL WATER CUSTOMERS **25,986**

Residential Inside / Outside **23,529 / 913**

Commercial Inside / Outside **1,161 / 85**

Irrigation Inside / Outside **293 / 5**

Average Residential Water Rate .....$4.04 Per 1000 GALLONS

Average Per Person / Household Daily Water Use .....96 GAL / 291 GAL

Average Monthly Residential Water Bill $35.95

Average Monthly Residential Water Usage .....8,888 GALLONS

Year Water Department was Created..... 1887

Water & Wastewater Employees **82.8**

Key Accounts **36**

Xeriscape Demonstration Gardens **2**

Water Savings 1,261,850 GALLONS

WASTEWATER CUSTOMER DATA

TOTAL WASTEWATER CUSTOMERS **33,951**

Residential Inside / Outside **30,416 / 964**

Commercial Inside / Outside **1,122 / 42**

High Strength Surcharge..... 295

Flat Rate..... 1,407

Year Wastewater Department was Created 1902

Average Residential Wastewater Rate ..... $5.97 / 1000 GALLONS

WATER SYSTEM DATA

CURRENT SERVICE AREA **32 SQ. MILES**

Treated Water Storage .....20.3 MG

Miles of Lines 456

Number of Hydrants..... 3,103

Number of Pump Stations 7

WATER TREATMENT PLANT

Capacity ..... 38 MGD

Peak Day .....27 MG

Summer Average ..... 20.11 MGD

(May - August)

Winter Average ..... 6.32 MGD

(January - March & December)

WASTEWATER SYSTEM DATA

CURRENT SERVICE AREA **29 SQ. MILES**

WASTEWATER TREATMENT PLANT

Peak Day ..... 8.5 MGD

Hydraulic Capacity..... 10 MGD

Organic Capacity ..... 20,236 lbs/day

Summer Average ..... 7.0 MGD

(April - September)

Winter Average ..... 6.0 MGD

(Jan. - March & Oct. - Dec.)

Miles of Lines 348

Number of Manholes 8,745

Number of Lift Stations..... 16

(13 Public & 3 Private)