

# Big Lagoon Community Services District

PO Box 847 Trinidad, CA 95570 [biglagooncsd@gmail.com](mailto:biglagooncsd@gmail.com)

## REGULAR MONTHLY BOARD MEETING AGENDA

The regular meeting of the Board of Directors of the Big Lagoon Community Services District will be held in person on Saturday, July 24 at 6:00 P.M., in the Big Lagoon School's Community Room. Signs will direct you to the Community Room.

The public may submit written comments or questions on any agenda item to the Board at: [biglagooncsd@gmail.com](mailto:biglagooncsd@gmail.com) up until 5:00 PM on Friday, July 23, 2021, or raise a hand to address any item on the agenda as each agenda item is reached. The Information Packet [P] for this meeting is attached to the emailed Agenda. You can also request the Packet by emailing [biglagooncsd@gmail.com](mailto:biglagooncsd@gmail.com).

1. Chair's Call to Order (Bill)
2. Agenda for July 24, 2021 (Bill) Amend / Approval
3. June 15, 2021 Unapproved Meeting Minutes [P] (Bill) Amend / Approval
4. Vice-Chair's Report (Gus)
  - 4.1 Meter research and recommendation(s)
5. Water Operator's Report (Val)
6. Meter Reader's Report (Dana)

### Items up for Vote:

7. Leak Adjustment Policy (Chuck & Joey) Discuss / Approval

8. Volunteer Waiver (Gus) Discuss / Approval

9. School Portables (Gus) Discuss / Approval

10. Public Comment –

Any member of the public may address the Board on any item that is not on the agenda.

By law, the Board cannot take action on items that are not on the agenda.

11. Future Agenda Items from Board Members

12. Adjourn

**Meeting Packet Documents:**

Agenda Item 3: Unapproved Meeting Minutes June 15, 2021

Agenda Item 4.1: Meter options

Community Correspondence

**BIG LAGOON COMMUNITY SERVICES DISTRICT**  
**APPROVED MINUTES of the Regular Monthly Board Meeting**  
**Tuesday June 15, 2021 - 6:00 PM**  
**Teleconference Via Zoom**

**OPEN SESSION**

**1. Chair's Call to Order (Bill)**

The open/regular meeting of the Big Lagoon Community Services District convened at 6PM.

Board members in attendance: Bill Wenger, Chair; Gus Satein, Vice Chair;

Dick Maier, Treasurer; Chuck King, Director; Joey Blaine, Director

Staff in attendance: Mara Friedman, Board Secretary; Val Castellano, Water Operator; Dana Hope, Meter Reader

Community members in attendance: Greg Sideroff, John Donohoe, Margie Adler,

Louise Minor, Larry Davis, Rob Wilson, Cindy Maier

Guest speakers in attendance: Rod Wilburn, VP Engineering, LACO, Jordon Blough, LACO

**2. Invite Public to Address Item(s) on the Agenda (Bill)**

Louise wants to address items 7/9; Dana wants to address item 4; Greg wants to address items 7/8/9; Rob wants to address item 9.

**3. Agenda for June 15, 2021 (Bill) Amend / Approval**

Dick would like to include in the agenda an item pertaining to Val's retirement and starting the process of finding a new water operator. It was decided that this item would be added to the July agenda. There were no changes to the agenda. Agenda is approved as distributed by Bill.

**4. May 18, 2021 Unapproved Meeting Minutes (Bill) Amend / Approval**

Dana made the following correction to the May 18, 2021 Minutes - Item 10 Meter Readers Report: add that it takes Dana an additional hour every other month to input water meter data for Dick's billing. Minutes are approved as amended.

**5. LACO Report (Rod Wilburn, VP of Engineering)**

Bill invited Rod Wilburn, VP Engineering, from LACO to present his assessment of our water system. Jordon Blough (LACO Project Manager/Grant Specialist) was also present. Rod had walked our district with Bill and John D., and thinks that while our current storage of 10K gallons is adequate for drinking water, it is not adequate for fire flow. Bill asked Rod to estimate the cost to replace the pipe running to the school, and to give a separate assessment of our water system based on needs versus wants.

**5.1 New pipe to school:** The preliminary estimate to replace the existing 2 1/2 " PVC pipe that runs from our well site to the school with a properly trenched 6" pipe is \$215K (\$180K plus 20% contingency). The contingency includes costs for permits and construction management. This estimate would include, in addition to the 6" pipe, digging the trench, installation of the pipe and a new fire hydrant at the school. This project would take about one month to complete and would likely take place in 2022. LACO would act as the design engineer and another company would do the work. Our water may need to be shut off for one day during the project. Rod shared a spreadsheet of itemized, estimated costs for this project. Connecting the new pipe to the three neighboring residences was also discussed. Although there would be a \$45K savings if the original pipe were replaced with a 2 1/2" pipe rather than a 6" pipe, a 6" pipe is required for meeting fire flow needs. Rod estimated that the school would have about 6-7 minutes of fire flow based on our current water storage.

Val (Water Operator) added the following comments: He thinks that we may receive a Notice of Abatement for the existing PVC pipe that crosses the creek. He noted that it was not previously known that a pipe was present, and that CAL Fish and Game / CAL EPA may require that the pipe be removed. They may want the creek to be rehabilitated and the school might be asked to get water from the Park Company. He added that the system is working and we should not be in a hurry to change anything.

**5.2 Assessment of our current water system and proposed modifications based on needs, rather than wants:** Increased storage is a priority. The challenge with increased storage is how to keep the water from stagnating. A mixer in the tank would solve this issue. Another solution to increase water storage is adding a tank dedicated solely to fire flow. This would involve creating a separate fire flow system.

The issue of water pressure was discussed. Downhill residents at the north end of Oceanview are at 80 PSI pressure, while uphill residents at the south end of Roundhouse average around 30 PSI. Because of this, the southernmost hydrant will not function as well. One idea would be to place a smaller tank at the south end of Roundhouse, which would increase pressure, as well as provide the benefit of more storage. Because of California drought conditions, Rod suggested that it would be prudent for our water district to make adjustments and be prepared for a potential fire or other natural disaster. While our treatment system works fine, Rod recommended that we bring our system up-to-date with a dual set of pumps, which would provide backup if one pump were to fail.

Community discussion: Val mentioned that the state has the power to merge our water district with a neighboring district. The question of the necessity of having fire flow was raised, and it was suggested that the likelihood of a wildfire fire in our area is not high.

A more likely issue would be a house fire. If we decide to place a storage tank uphill (south end of Roundhouse) for fire suppression, we might consider the possibility of connecting to the existing private well on the southernmost, eastern side of Roundhouse.

In answer to Louise's question about the pipe to the school being disallowed because it runs through the creek, Bill stated that the new pipe to the school would not go through the creek, but the road only. The possibility of putting in a new well at the school was raised, which Val supports.

Dana focused on two main issues: 1. The existing pipe that serves the school, as well as three additional residents, is fragile and has been repaired about 5 times in 20 years. This has been a significant expense to the district. 2. Determine it is viable to install a new water storage tank at the school that would serve both the school, and the three residences across the road.

Bill noted that the existing pipe to the school runs through a sensitive riparian zone and was never permitted. BLCSD has a fixed boundary that does not include the school and the three nearby residences, which are all long-term customers. He added that the school can choose to obtain its own water system. Dana replied that the school is not concerned about the water issue and has always received a passing grade from Cal Fire, to which Bill replied that Cal Fire is now concerned given the focus on fire flow. Rod mentioned that regardless of project size, a Preliminary Engineering Report for USDA would cost about \$30K.

5.3 Jordan Blough (LACO) talked about funding opportunities, which include grants, as well as low interest loans from USDA. Grant eligibility is based on many factors. One factor is median income, and ours is too high to qualify. He feels the best path forward for us in terms of funding would be the North Coast Resource Partnership (NCRP), one of the quicker programs as far as allocation of funding. Also NCRP does not have matching requirements. They are about to open up a 9 million dollar grant program. It would be highly beneficial if we were able to tap into NCRP's technical assistance when preparing an application form. FEMA is another possible program, but it is very slow and has a 25% matching requirement. Jordan mentioned that our funding application would be more attractive to a lender were we to partner with the Big Lagoon Rancheria.

Dana mentioned that when the school researched possibilities to acquire funding for fire flow, they found that it is not available because they do not have an existing fire flow system in place. It is more likely that the state would fund the existing water district that is serving the school. Jordan added that the state is pushing to have fewer small water districts and concurred that it is not likely that they would fund a new small system for the school.

Chuck noted there should be great concern that the school does not meet state fire protection requirements. Dana replied that now that the issue has been raised, Cal Fire would no longer look the other way.

Joey noted that it does not matter who is deemed responsible, the issue needs to be addressed. Val mentioned that we need to let our primacy agency lead the way, to which Margie replied that our water district is governed by the board, and we need to lead.

Bill thanked Rod and Jordan for their presentation and he looks forward to continued communications with LACO.

#### **6. Announcing logo poll results (Joey)**

In the community vote for our new logo, there were 21 votes total and 41% of the votes went to option #2, the WINNER! Joey will update the website featuring our new logo. We will receive digital files on a thumb drive of the logo, for future use on letterheads, etc. Joey will file the paperwork needed to trademark our logo. In the meantime, he will put a copyright symbol (©) next to the logo for immediate protection. Thanks to Joey for all his good work.

#### **7. School Pipeline Project update (Bill)**

Following is a summary of the discussion between the board and community members:

In regards to the question of continuing or ending our relationship with the school, several community members stated that our connection with the school is of long-term benefit to our community.

Dana clarified that the school has never made any requests from our water district to repair the pipe or to provide fire protection. Now that the issue has been raised, it is up to the water district to decide how to proceed. Because the state is now aware of the unpermitted pipeline in a riparian zone, we will most likely have to do something to solve this issue.

Even though the school did not officially request an upgrade to their broken pipe, Chuck, Joey and others stated that, as the stewards of the water system, we are obligated to repair the pipe.

Val noted that the state has suggested getting water from the Park Corporation. Because of their close proximity, some feel it would be wise for the school to consolidate with BL Park Company, who seem to have an excellent well and more storage than we have. There was a question as to what incentive the Park Company would have to take this project on.

Joey described the demise of the once valuable sub-division of Brook Trails (near Willits) due to lack of water. He feels it is very important to protect our property value. This will require a significant investment, which may mean taking on a loan. Margie agrees with this view. Rob also agreed with this view and suggested that we start building funds as soon as possible through raising our water rates (it's been 5 years), and possibly through a special assessment.

Dick noted that in light of our long-term needs, a rate increase is feasible and needs to be discussed. Louise favors a special assessment on our property taxes over a monthly rate increase. Dick noted that a property assessment would require a county election. Joey and Bill both mentioned that we would be looking at a Prop 218 process instead of a special tax assessment because BLCSD is a special district. It was suggested that funding a special assessment could be voluntary. Others favor equal distribution of the financial burden.

In response to Greg's comments that we first need to determine our specific needs and the associated costs before we talk about how to fund, Chuck noted that we have a committee dedicated to this issue. Dana clarified that the committee is working on fire suppression issues and not specifically the pipe issue. She also added that once the water district gains clarity as to how we are going to address the pipe repair, we can share this information with the school, who will then see how they might help us source funding.

Dana suggested it would be very beneficial for Val to share his communications/information from the State Water Boards with the BLCSD board. This would help solve any disconnect we are having with communication. Val replied that he tries to be forthcoming with information and once again encouraged us to look to Barry Sutter and Scott Gilbreath for guidance. Dana also requested that if Val has specific information pertaining to opportunities for reviving the school well, the school board would welcome that information.

Bill noted that he was successful in receiving technical assistance from the State Water Boards pertaining to water security at the school and the three nearby residences. He added that SWB might be willing to fund \$180K toward the pipe repair project. He was about to have a preliminary kick-off meeting with Barry Sutter and Scott Gilbreath, when he received an email that the meeting was postponed indefinitely because the community was not in support of the project. Bill did not understand the reasoning for the postponement. Val replied that he felt there was a problem because Bill had applied for an amendment to our water license. Bill replied that he did not apply for an amendment to our license. Val also stated that something in writing from the entire board, not just from the chairman, was required. Because of these reasons, and also because he felt everything was moving too fast, Val issued a letter of rescission to the SWB. Val noted that he is the state's representative on the ground and that he would support this effort were he convinced that the community was behind the project.

Bill stated that he also heard from SWB, and he emphasized that the community is not ready to commit until it knows more about the project, the options, and what it may cost. That was the purpose of the SWB Kick-Off meeting. Bill, Chuck and Margie all feel this project is under the board's jurisdiction. Val said he did what he felt was right.

Dana added it is essential that communications among our selves and with all outside entities be aligned and respectful. It is important that the relationship between the water operator and the BLCSD board be mended.

Greg stated that we need community buy-in on whatever we decide to do. He feels that the confusion surrounding a previously called, then cancelled, special meeting contributed to a negative perception by some community members.

Gus emphasized the need to seek guidance from the California Water Boards. We need to look into the reality of future consolidation with other water districts. We need a strategic plan. We stand stronger as a community working together and being mutually supportive. He also noted that we are a new board on a learning curve and that we are learning from our mistakes. He feels that tonight's discussion, although contentious at times, has been healthy because thorny issues came to the surface. He urged us to reduce blame going forward and instead operate with the assumption that we are all trying our best to achieve positive results for our community.

Val mentioned that to conserve water, we should keep our eyes out for water leaks and hoses left on unintentionally.

#### **11. Public Comment**

Dana wants to make sure these two items from the previous agenda be placed on July's agenda and do not get overlooked: Future Meter Options and Water Operator Replacement.

Louise requested that a discussion regarding accounts receivable and our policy regarding placing liens be on our July's agenda. Bill agreed.

#### **12. Future Agenda Items from Board Members**

Because of the late time, Bill suggested that the rest of the agenda items be tabled until the July meeting. The board approved this motion.

#### **13. Adjourn**

With no other business, the Chair adjourned the meeting at 8 PM.

The next regular meeting will be Saturday July 24, 2021 at 6PM.

Submitted by Mara Friedman, Board Secretary



Public Correspondence  
July 24, 2021

**Valen Castellano**

Thu, Jul 22, 9:29 PM (19 hours ago)

to Craig, me, Charles, Dick, Joey, loubob155@gmail.com

I ask the BLCSD Board Table the BLCSD Volunteer Liability/ Hold Harmless Agreement form indefinitely. **I will not sign the proposed form, nor will I promote its use.** A larger , more corporate future BLCSD may indeed find a need for this agreement. I have a hard enough time getting the help I need as it is, without further complications. I am grateful for the help of all our BLCSD Staff, Board, and occasional volunteers. Thanks.  
val

**Greg Sidoroff**

Jul 22, 2021, 1:28 PM (1 day ago)

to Charles, rmcpa1, Joey, Dana, Craig, Valen, Friedman, me

Hello,

We will not be attending the meeting on July 24th. Please accept this as public comment/feedback on the following items. We would appreciate it if the comments were read into the minutes at the time each item is discussed. Thank you.

Item #4- (Meters) is there a spec sheet on the software capabilities of the meters? Can this program update the billing software that Dick previously described as " extremely antiquated?".. What are the warranties on the various purchase options?

Item #8- ( Volunteer agreement)- We have no issue with Hold Harmless Agreements in General but this agreement is not something we could ever sign. We agree 100% with NOT holding Board Members as

INDIVIDUALS liable for injuries but could never release BLCSD as an entity, it's contractors and Agents from liability of an injury or negligence. A very simple but real scenario would be that as a volunteer meter reader Greg was to be bit by a spider and it got infected. If he sought medical attention from a doctor where he had insurance, he would be asked "how did this happen and is anyone else's insurance responsible". If he had waived BLCSD, it's contractors and agents from liability then he would have two choices: 1) lie about how it happened 2) pay for the visit as uninsured. Neither option is acceptable to us. BLCSD carries liability insurance and the above scenario would be a valid reason to potentially place a claim. California already has many laws in place that protect individual volunteer board members from personal liability. If the Volunteer agreement is put in place as is currently proposed, that would unfortunately preclude ourselves from ever being able to volunteer for the district.

Best regards, Greg & Franya Sidoroff

## **Big Lagoon CSD Water Meter Replacement Options**

Last May 2021, I (Gus) made contact with Badger Meter Company located in Santa Rosa, CA, and spoke with their sales representative Kathy Richards. We discussed our community's interest in replacing the 43 existing fifty+ year old water meters with new ones that have advanced meter reading capability. She followed up with several documents (attached) explaining equipment function as well as a table showing quotes for various component options and their BEACON AMA Mobile meter reading system.

**Equipment Price Table:** Options 1-4, include an encoder and ORION ME transmitter which broadcast a "radio" signal to a handheld (YUMA 7) Tablet device that picks up the meter reading. This data is then uploaded to the BEACON software and provides the basis for billing customers. The software integrates with an EXCEL spreadsheet platform and provides consumption history, graphs, etc.

**System Software, Training, Licensing:** Items I,II,IV are "one time" fixed costs to initially setup the BEACON AMA operating system. Item V is a recurring annual license fee.

**Water Meter Summary Table:** This table shows the "estimated" labor and material price totals for 5 options. Note: Option A is an alternative for comparison to the options provided by Kathy. Option A does not include any advanced technology but provides a cost estimate for comparison.

**Product Data Sheets:** Additional technical information for the BEACON advance metering analytics, ORION transmitter, and handheld YUMA 7 Tablet Computer is also provided.

**BEACON Systems in our area:** The McKinleyville CSD and the city of Eureka are both using the ORION mobile system. I visited McKinleyville and spoke with David Baldhauser, water department supervisor. He likes the system and hasn't had any problems except gophers chewing on the wiring to the transmitters.



**Badger Meter Getting Started with BEACON AMA Mobile meter reading system  
Meter options - pricing workbook**

**Big Lagoon CSD  
prepared 5/17/21  
Subject to review 9/30/21**

**I. 5/8"x3/4" Recordall PD Meters with Encoder registers**

Qty	Option 1	\$ ea.	Total
43	Model 25, Bronze with Bronze bottom w/HR-E encoder register, 5' Twist Tight Connector	142.50	6,127.50
43	ORION ME mobile endpoint w/8" Twist Tight connector, under lid pipe install kit	112.50	4,837.50
	<b>subtotal</b>	<b>255.00</b>	<b>10,965.00</b>

**Option 2**

43	Model 25, engineered polymer w/HR-E encoder register, 5' Twist Tight Connector	116.00	4,988.00
43	ORION ME mobile endpoint w/8" Twist Tight connector, under lid pipe install kit	102.50	4,407.50
	<b>subtotal</b>	<b>218.50</b>	<b>9,395.50</b>

**II. 5/8"x3/4" E-Series Ultrasonic Meters with Encoder registers**

**Option 3**

43	E-Series Ultrasonic, Stainless Steel housing w/HR-E LCD encoder register, 5' Twist Tight Connector	181.00	7,783.00
43	ORION ME mobile endpoint w/8" Twist Tight connector, under lid pipe install kit	102.50	4,407.50
	<b>subtotal</b>	<b>283.50</b>	<b>12,190.50</b>

**Option 4**

43	E-Series, engineered polymer w/HR-E LCD encoder register, 5' Twist Tight Connector	135.00	5,805.00
43	ORION ME mobile endpoint w/8" Twist Tight connector, under lid pipe install kit	102.50	4,407.50
	<b>subtotal</b>	<b>237.50</b>	<b>10,212.50</b>



**Badger Meter Getting Started with BEACON AMA Mobile meter reading system**

**Big Lagoon CSD**

**prepared 5/17/21**

**Subject to review 9/30/21**

**I. Meter reading equipment**

1	Trimble YUMA 7 Tablet with ME transceiver module	4,856.00	4,856.00
---	--	----------	----------

**II. One-time setup and training**

1	Engagement Fee This fee includes the setup and activation of the customer's BEACON AMA portfolio Training-BEACON AMA for Mobile Solutions	1,172.50	1,172.50
1	#69328-301 This course covers the full functionality of the mobile meter reading process	1,175.00	1,175.00
	<b>setup and training subtotal</b>		<b>2,347.50</b>

**IV Annual license and hosting - year 1**

1	Mobile Read module license 68886-501	105.00	105.00
1	User login license #68886-502	105.00	105.00
516	Mobile Hosting Service Units #68886-301 43 meters x 12 months = 516 units	0.04	19.87
	<b>year 1 license and hosting subtotal</b>		<b>229.87</b>

	<b>System Sub-Total</b>		<b>7,433.37</b>
	<b>tax</b>		<b>add</b>
	<b>Total</b>		<b>7,433.37</b>

**V. Annual license and hosting - year 2+**

1	Mobile Read module license 68886-501	300.00	300.00
1	User login license #68886-502	300.00	300.00
516	Mobile Hosting Service Units #68886-301 43 meters x 12 months = 516 units	0.11	56.76
	<b>*subtotal</b>		<b>656.76</b>

\*billed annually after the first year

prepared by Kathy Richards  
krichards@badgermeter.com  
707-481-1684 cell



### BLCSD Water Meter Replacement Summary Table

	Labor Est.	Materials	System Y1	License Y2+	Total
Option A	\$ 8,500	\$ 5,310			\$ 13,810
Option 1	\$ 9,500	\$ 10,965	\$ 7,433	\$ 657	\$ 28,555
Option 2	\$ 9,500	\$ 9,396	\$ 7,433	\$ 657	\$ 26,986
Option 3	\$ 9,500	\$ 12,191	\$ 7,433	\$ 657	\$ 29,781
Option 4	\$ 9,500	\$ 10,213	\$ 7,433	\$ 657	\$ 27,803

**Note: Option A (alternative), to install new Badger meters only without remote meter reading capability. Thus, no system or license costs**

**Labor costs are estimates only based upon national averages. All other costs are quotes as provided by Kathy Richards of Badger Meter Company.**





**Badger Meter**

# BEACON® Advanced Metering Analytics

With ORION® Network as a Service (NaaS)

## OVERVIEW

The BEACON® Advanced Metering Analytics (AMA) Solution with ORION® Network as a Service (NaaS) presents a simple, yet powerful solution to bring a new level of utility optimizing information to light.

The solution combines our intuitive BEACON AMA Software as a Service (SaaS) with a NaaS approach using proven ORION Cellular endpoints to deliver greater visibility and control over utility management.

Built-in infrastructure management services and a system design that keeps you in step with technology advancements, allows you to do what you do best—manage your water utility. Plus, built-in consumer engagement tools help enhance customer service, increase satisfaction and reduce costs.

## SOFTWARE APPLICATIONS

### BEACON Advanced Metering Analytics (AMA)

With tools beyond meter reading and network management, BEACON AMA software offers targeted Advanced Metering Analytics. BEACON AMA software puts interval meter data to work to increase efficiency in day-to-day utility operations and address demands for actionable intelligence.

- **Problem solver** – User intuitive data tools place the power of water consumption data at your fingertips, allowing you to rapidly respond to customer inquiries and quickly resolve—and even eliminate—many billing issues.
- **Customized design** – A customizable dashboard delivers information configured to user security access level in a format matched to the utility's individual requirements, providing data management integrity, security and control.
- **Works with you** – Integration with utility systems—billing, work order, inventory, Customer Relationship Management (CRM) and Geographic Information Systems (GIS)—streamlines and improves utility operations without disrupting the current utility billing interface file transfer process.
- **Find out fast** – Alert conditions can be set to monitor and notify users of system exceptions, including continuous flow, for faster leak detection.
- **Innovation at your service** – Secure, hosted platform with automatic software upgrades ensures the latest technology and features are always available.

### EyeOnWater®

The BEACON AMA software suite includes informative consumer outreach tools to improve customer service consisting of the EyeOnWater consumer engagement website, smartphone mobile apps, and email or SMS text alerts, providing easy access to personal consumption data and alerts to potential leaks. With these tools, water consumers are able to view their usage activity, and gain greater understanding and control of what they use and the value you provide.



## HARDWARE

ORION NaaS is powered by the proven ORION system for interval data capture and two-way communication. The solution employs cellular endpoints which, as they leverage the public cellular network and require no proprietary gateways to operate, dramatically reduce infrastructure requirements compared to a traditional fixed network. This speeds installations and simplifies expansion as a system evolves.

- **High resolution data** – ORION Cellular endpoints are programmed to automatically broadcast 15-minute meter reading and event data to the BEACON software up to four (4) times per day. The high resolution data helps identify potential customer-side leaks and other anomalies in water use, and provides the utility with a potent tool to enhance its customer service.
- **Two-way communication** – BEACON AMA software communicates with ORION Cellular endpoints to accomplish a number of system tasks, including requesting additional information from the endpoint and synchronizing the internal endpoint clock. If needed, the ORION two-way system architecture sends upgrades to the endpoint firmware over the air via the network, utilizing the powerful BEACON AMA software suite.
- **Data integrity** – Each message from the ORION Cellular endpoint is securely transported to the BEACON AMA software only via private network and never over the public internet.

## SECURITY

BEACON AMA is ISO 27001 certified and SOC 2 examined for security, availability and confidentiality.



## TECHNICAL SUPPORT AND TRAINING

Configured for the utility, safe and secure BEACON AMA SaaS provides utilities with regular software updates, long-term support and maintenance. Comprehensive BEACON AMA training courses are available for online or on-site delivery at the time of system deployment. To maintain best practices, a library of online resources and options for group web-based training and support are also available. Once deployed, our technical support specialists can be contacted by phone, email and web to provide ongoing, customer-friendly support. Customized one-on-one training is available (fee applies) to further enhance user expertise.

Additionally, Badger Meter offers extended customized training to further enhance user expertise.

## TECHNICAL REQUIREMENTS

### BEACON AMA

Developed as a hosted software platform, BEACON AMA is a cloud-based application accessed through a standard web browser. Internet access is required. User logins provide secure access.

BEACON AMA supported web browsers include the latest and next previous major releases of Google® Chrome, Microsoft® Edge, Mozilla® Firefox®, Microsoft® Internet Explorer® (IE 11 only); and Apple® Safari®.

### EyeOnWater Consumer Engagement

The EyeOnWater consumer engagement website is a cloud-based application accessed through a standard web browser. Internet access is required. Water consumer user logins provide secure access to their information.

Supported web browsers include the latest and next previous major releases of Google® Chrome, Microsoft® Edge, Mozilla® Firefox®, Microsoft® Internet Explorer® (IE 11 only); and Apple® Safari®.

EyeOnWater smartphone applications require Android 6.0 or iOS 9.1 or later, and can be downloaded from Google Play or the Apple Store.

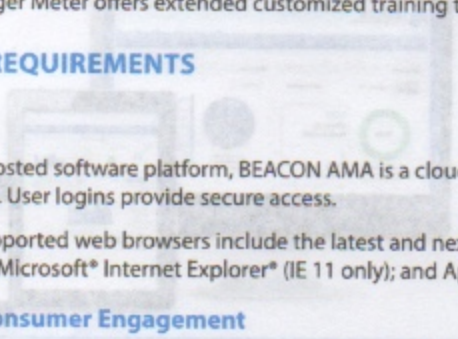
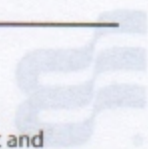
BEACON AMA is ISO 27001 certified and SOC 2 examined for security, availability and confidentiality.

- High resolution data – ORION Cellular endpoints are programmed to automatically broadcast 15-minute meter readings and event data to the BEACON software up to four (4) times per day. The high resolution data helps identify potential customer-side leaks and other anomalies in water use and provides the utility with a potent tool to enhance its customer service.
- Two-way communication – BEACON AMA software communicates with ORION Cellular endpoints to accomplish a number of system tasks, including requesting additional information from the endpoint and synchronizing the internal endpoint clock. If needed, the ORION two-way system architecture sends updates to the endpoint firmware over the air at the network, utilizing the powerful BEACON AMA software suite.
- Data integrity – Call messages from the ORION Cellular endpoint is securely transported to the BEACON AMA software only via private network and never over the public internet.

## SECURITY

## SMART WATER IS BADGER METER

BEACON and ORION are registered trademarks of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2020 Badger Meter, Inc. All rights reserved.



- Problem solver – User intuitive data tools place the power of water consumption data at your fingertips, allowing you to rapidly respond to customer inquiries and quickly resolve—and even eliminate—many billing issues.
- Customized design – A customizable dashboard delivers information configured to user security access level in a format matched to the utility's individual requirements, providing data management integrity, security and control.
- Works with you – Integration with utility systems—billing, work order inventory, Customer Relationship Management (CRM) and geographic information systems (GIS)—streamlines and improves utility operations without disrupting the current utility billing interface or backend process.
- Find out fast – Alert conditions can be set to monitor and notify users of system exceptions including continuous flow for faster leak detection.
- Innovation at your service – Secure, hosted system with automatic software updates ensures the latest technology and features are always available.

EyeOnWater®  
The BEACON AMA software suite includes informative consumer outreach tools to improve customer service consisting of the EyeOnWater consumer engagement website, smartphone mobile apps and email or SMS text alerts, providing easy access to personal consumption data and alerts to potential leaks. With these tools, water consumers are able to view their usage activity and gain greater understanding and control of what they use and the value you provide.





Badger Meter

# ORION® Water Endpoints

## Migratable Endpoint

### DESCRIPTION

The ORION® Migratable endpoint (ME) is a two-way water endpoint for mobile applications with the capability of migrating to fixed network mode to support future utility capabilities.

In addition to providing the current and snapped daily reading, the endpoint two-way functionality allows users to capture data profile information wirelessly, without having to directly access the endpoint, during the normal reading process. An ORION Migratable endpoint is easily upgraded to an ORION Fixed Network endpoint (SE) through a software license.

The ORION Migratable endpoint is a member of the time-tested ORION family of products from Badger Meter, designed for maximum flexibility. Since 2002, the ORION product family has been providing comprehensive Advanced Metering Analytics (AMA) for interval meter reading and data capture using both one-way and two-way communications.

### FUNCTIONALITY

**Operation:** The endpoint continuously monitors the encoder circuit. At predetermined intervals, the endpoint broadcasts the totalized reading value along with other meter data to the mobile collection devices.

**Activation:** The endpoints offer a Smart Activation feature. All ORION endpoints are shipped in an inactive, non-transmitting state. After the endpoint is installed, it begins broadcasting data when the encoder senses the first usage of water. No field programming or tools are required to activate the endpoint.

**Broadcast Mode:** Once activated, the endpoints begin transmitting in mobile priority mode. After installation, using the endpoint two-way communication, an endpoint transmits its meter data every six seconds.

**Data Profiling:** The endpoints store up to 90 days of hourly historical interval meter data within nonvolatile memory.

**Output Message:** The endpoint broadcasts its unique serial number, current meter reading, daily snapped meter reading and applicable status indicators for mobile reading collection.



### APPLICATION

**Configurations:** Available in integral, remote or endpoint-only configurations, the endpoint can be deployed in indoor, outdoor and pit applications. The endpoint electronics and battery assembly are fully encapsulated in epoxy for environmental integrity.

**Meter Compatibility:** When attached to a Badger Meter encoder, the endpoint is compatible with all current Badger Meter Recordall® Disc, Turbo Series, Compound Series, Combo Series and Fire Service meters and assemblies, and with E-Series® Ultrasonic and M-Series® Electromagnetic flow meters.

**Encoder Compatibility:** The endpoint is suitable for use with all Badger Meter encoders as well as the following Badger Meter approved three-wire encoder registers that have a manufacture date of 2000 or newer, are programmed into the AMR/AMI three-wire output mode and have three-wires connected: Elster C700 Digital, INVISION and ScanCoder® encoders and evoQ4 meter (encoder output); Hersey® Translator; Master Meter® Octave® Ultrasonic meter encoder output; Metron-Farnier Hawkeye; Mueller Systems 420 Solid State Register (SSR) LCD; Neptune® ProRead, E-Coder® and ARB-V®; and Sensus® Electronic Register encoder (ECR) and ICE.



**SPECIFICATIONS**

<b>Dimensions</b>	5.125 in. (H); 1.75 in. (W) at top; 2.125 in. (W) at bottom
<b>Broadcast Frequency MHz Band</b>	FCC regulated 902...928 MHz frequency hopping modulation
<b>Operating Temperature Range</b>	-40...60° C (-40...140° F) based on storage and meter reading. RF output may be reduced by extremely low temperatures. The water meter should not be subjected to temperatures below freezing.
<b>Storage and Meter Reading</b>	
<b>Humidity</b>	0...100% condensing
<b>Battery</b>	One (1) lithium thionyl chloride C cell (nonreplaceable)
<b>Battery Life</b>	20 years (calculated)

**Construction:** All ORION Migratable endpoints are housed in an engineered polymer enclosure with an ORION RF board, battery and antenna. To assure long-term performance, the enclosure is fully potted to withstand harsh environments and to protect the electronics in flooded or submerged pit applications.

**Wire Connections:** ORION Migratable endpoints are available with in-line connectors (Twist Tight or Nicor®) for easy installation and connection to compatible encoders/meters. The endpoints are also available with flying leads for field splice connections. Other wire connection configurations may be available upon request.

**Range:** Transmission reception depends on a number of factors: topographical features, a building's construction materials and obstacles such as buildings, trees, vegetation and fences. Temporary conditions, such as a vehicle parked near the endpoint or heavy rain or snow, could also affect reception. These factors need to be considered when installing and communicating with the endpoint using a handheld or mobile reading system. For a more in-depth discussion, see the white paper, *Understanding RF Propagation of AMR/AMI Systems*, available at [www.badgermeter.com](http://www.badgermeter.com).

**FEATURES**

<b>Communication Type</b>	Two-Way
<b>Application Type</b>	Control/Monitor
<b>Reading Interval Type</b>	Midnight/Now
<b>Encoder Compatibility</b>	Absolute/Incremental
<b>Mobile Reading</b>	✓
<b>Migratable to Fixed Network</b>	*
<b>Premise Leak Detection</b>	✓
<b>Cut-Wire Indication</b>	✓
<b>Reverse Flow Indication (Absolute Encoder)</b>	✓
<b>No Usage Indication</b>	✓
<b>Encoder Error (Absolute Encoder)</b>	✓
<b>Low Battery Indication</b>	✓
<b>Remote Programming</b>	✓
<b>Remote Clock Synchronization</b>	✓
<b>Firmware Upgrades</b>	✓

\* Can be upgraded with migration license.

**License Requirements:** ORION Migratable endpoints comply with Part 15 of the FCC Rules. No license is required by the utility to operate an ORION meter reading system.

**Transportation:** The Federal Aviation Administration prohibits operating transmitters and receivers on all commercial aircraft. The ORION endpoint is considered an operating transmitter and cannot be shipped by air.

**Caution:** Changes or modifications to the equipment that are not expressly approved by Badger Meter could void the user's authority to operate the equipment.

**Making Water Visible®**

E-Series, M-Series, Making Water Visible, ORION and Recordall are registered trademarks of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2016 Badger Meter, Inc. All rights reserved.

[www.badgermeter.com](http://www.badgermeter.com)

The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0460  
 México | Badger Meter de las Américas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882  
 Europe, Middle East and Africa | Badger Meter Europa GmbH | Nürtinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0  
 Europe, Middle East Branch Office | Badger Meter Europe | PO Box 341442 | Dubai Silicon Oasis, Head Quarter Building, Wing C, Office #C209 | Dubai / UAE | +971-4-571 2503  
 Czech Republic | Badger Meter Czech Republic s.r.o. | Maláčkova 2082/26 | 621 00 Brno, Czech Republic | +420-5-41420411  
 Slovakia | Badger Meter Slovakia s.r.o. | Račianska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01  
 Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-06 Parkway Parade | Singapore 449269 | +65-63464836  
 China | Badger Meter | 7-1202 | 99 Hangzhong Road | Minhang District | Shanghai | China 201101 | +86-21-5763 5412  
 Switzerland | Badger Meter Swiss AG | Mittelholzerstrasse 8 | 3006 Bern | Switzerland | +41-31-932 01 11



# Trimble Yuma 7

## TABLET COMPUTER

### EVERYTHING YOU HAVE EVER NEEDED IN A RUGGED TABLET

The Trimble® Yuma® 7 tablet is a 7-inch, fully-rugged field tablet for professional organizations that know they can't afford to take shortcuts. Bringing together the scalable flexibility of the Trimble EMPOWER Platform, a bold 7-inch tablet form-factor, and the industry-leading Windows® 10 Pro OS, the Yuma 7 delivers a perfect combination of strength, smarts, and flexibility, making it perfectly suited to large scale field data capture in nearly any industry and application.

#### Customization comes standard

Introducing the Trimble EMPOWER Platform: a modular expansion system that gives you the power to customize your mobile computing solution to your workflow, and the confidence of knowing that your investment is scalable for future needs.

With Trimble EMPOWER-enabled modules, you can add specialist features such as high-accuracy GNSS, or RFID Asset tracking to your devices, or bring your own solution to life through the EMPOWER platform developer program. The developer program is accessible to both hardware and software developers, empowering anyone to create solutions that transform the way the world works.

#### Built to handle the big jobs

At 7 inches, the Yuma 7's high-resolution Gorilla Glass display provides the perfect combination of size and robustness to survive the rigors of real-world use. The Yuma 7 delivers powerful and dependable system capabilities, including 4G mobile data connectivity, wireless communications and broad peripheral support, all aimed at getting more work done faster, and in more places than ever before. Yuma 7 is completely rugged, MIL STD-810G and IP68 tested, and purpose built to perform in almost any environment, hot or cold, wet or dry.

#### Windows 10 Professional means business

The Yuma 7 is powered by Windows 10 Pro, the industry leading professional operating system for businesses. Using Windows 10 Pro you can move seamlessly from field to office by running both field applications and office applications on a single device. With the enterprise-grade security capabilities built right into Windows 10 Pro, the Yuma 7 can be integrated seamlessly with your IT infrastructure, no matter how large (or small) your organization is.

#### Maintenance and service plans that you can depend upon

Investing in equipment that is destined for years of outdoor operation demands quality that you can trust, comprehensive technical support when it is needed, and professional service and maintenance coverage should something go wrong. Trimble stands by the quality of our products with a full 2-year factory warranty with options to extend that coverage up to a total of five years. Trimble also provides access to professionally trained service technicians and comprehensive technical support, anywhere in the world.

### Key Features

- ▶ **Trimble EMPOWER Platform:** Delivering a flexible, versatile, field solution that is scalable for future needs.
- ▶ **High definition 7-inch sunlight readable touchscreen:** The perfect display for big jobs.
- ▶ **4G LTE mobile data, 802.11 a/b/g/n and Bluetooth 4:** Reliable high-speed wireless connectivity on the go, when and where you need it.
- ▶ **Windows 10 Pro:** Compatibility with existing workflows and infrastructure, and enterprise level security functionality that you can trust.
- ▶ **Trust Trimble:** Professional maintenance and service plans that you can depend upon





**PLATFORM**

- CPU: Intel Pentium N4200
- Graphics: Intel® HD Graphics 505

**OS & SOFTWARE**

- Operating System: Microsoft Windows 10 Professional
- Pre-loaded software package includes: Trimble® EMPOWER™ Hub, Trimble GNSS Status, Universal Windows Platform Apps

**MEMORY/STORAGE**

- 8 GB RAM
- 128 GB SSD (EMMC)
- Storage expansion: via microSD card slot (SDXC up to 256 GB)
- SanDisk® or Kingston® recommended

**DISPLAY & TOUCH PANEL**

- Display: LED backlit, Gorilla® Glass
- 10 point capacitive multi-touch with rain mode
- Size: 7 inches (16:10 aspect ratio)
- Resolution: 1280 x 800 pixels
- Brightness: Daylight Readable, 800 cd/m<sup>2</sup>

**CAMERAS**

- Rear: 8 MP AF with LED Flash
- Front: 2 MP

**WIRELESS**

- 802.11 a/b/g/ac/n (2.4 GHz/5 GHz ISM radio band)
- Bluetooth 4.2 (including BTLE) wireless technology

**MOBILE DATA 3G, 4G/LTE (OPTIONAL)**

- Americas/EMEA region
  - WWAN Module: Sierra Wireless EM7455
  - 3G - HSPA+, UMTS Bands: B1, B2, B3, B4, B5, B8
  - 4G - LTE Bands: B1, B2, B3, B4, B5, B7, B12, B13, B20, B25, B26, B29, B30, B41
- APAC region
  - WWAN Module: Sierra Wireless EM7430
  - 3G - HSPA+, UMTS Bands: B1, B5, B6, B8, B9, B19
  - 3G - TD-SCDMA Band B39
  - 4G - LTE: Bands: B1, B3, B5, B7, B8, B18, B19, B21, B28, B38, B39, B40, B41
- SIM Type: micro

**GNSS**

- Chipset: Ublox NEO-M8T
- Horizontal accuracy<sup>1</sup>: 2-4 m (RMS)
- Constellations: L1 GPS, GLONASS, BeiDou, SBAS
- Supports raw-data output (post-processing) and RTCM 2.3

**SOUND**

- Integrated Speaker & Microphone

**SENSORS**

- 3-axis accelerometer
- Magnetic sensor
- Gyroscope
- Ambient light sensor

**I/O**

- Keypad:
  - User programmable, 4-way Directional pad, with non-programmable Enter key.
  - 4x user programmable function keys.
  - Windows Home key.
  - Power
  - Volume +/- keys
- External GNSS antenna jack - MMCX connector
- Replaceable I/O Boot
  - DC power input (19 V)
  - 2x USB 3.0 host (type A)
  - 3.5 mm Audio/headset jack

**BATTERY AND POWER<sup>1</sup>**

- Dual, Li-Ion hot-swappable battery packs, field replaceable.
- Capacity: 7.2 V, 3150 mAh, 22.9 Wh nominal (each battery)
- Charging time: Full-charge 3.5 hours, 2 hours to 80 % capacity
- LED Battery charge level indication built into each battery
- Battery Life: Typically 7 hours. (depending on display setting, connectivity, data processing etc)

**TRIMBLE EMPOWER PLATFORM READY**

- Trimble EMPOWER module slots: 2
- Compatible with "Trimble EMPOWER Enabled" modules

**ENVIRONMENTAL SPECIFICATIONS****IEC ratings:**

- Water/Dust ingress: IP65 and IP68. (IEC 60529)

**MIL-STD-810G test ratings**

- Operating temperature: -20 °C to +60 °C (-4 °F to +140 °F)
- Storage temperature: -40 °C to +70 °C (-22 °F to +158 °F)
- Free drop: 1.2 m on concrete (Method 516.5 Procedure IV)
- Heavy vibration (Method 514.5 Procedure I Category 24)
- Humidity: 95% RH Non-condensing (MIL-STD-810G Method 507.6, Procedure II)
- High altitude operation: 30,000 ft (MIL-STD-810G Method 500.5)
- High altitude transport: 40,000 ft (MIL-STD-810G Method 500.5)
- Solar exposure (MIL-STD-810G, Method 505.5, Procedure II)

**PHYSICAL DIMENSIONS**

- Size (L x W x H): 165 mm x 245 mm x 50 mm (6.5" x 9.65" x 2")
- Weight: 1.2 kg (2.6 lbs) with batteries

**COMPLIANCE**

- FCC part 15 (Class B device), CE Mark, RoHS.

**IN THE BOX**

- Trimble Yuma 7 tablet computer with Windows 10 Pro
- One Battery pair
- AC Power adapter/charger
- Stylus and tether
- Screen Protector
- Accessory screwdriver
- Documentation

**OPTIONAL ACCESSORIES**

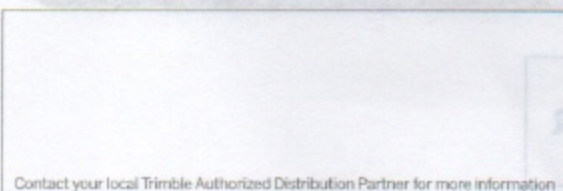
- Battery Charger
- Shoulder Sling
- External GNSS Antenna
- Tempered Glass Screen Protector
- USB desktop hub
- Survey Pole Bracket
- Vehicle Hard Mount Bracket
- Fabric Carry Pouch
- DC Vehicle Charger for 12 V/24 V systems. (9 Vdc-32 Vdc)
- USB to RS232 adaptor

**DEVELOPER RESOURCES**

EMPOWER Platform Developer Program: Including access to generic Windows 10 SDK assets and resources, a hardware MDK for customized EMPOWER Module developers and specific SDKs for software developers seeking to create custom apps leveraging Trimble EMPOWER Modules. For more information go to:

<https://empower.trimble.com/developer/>

- 1 Battery operating and recharge times will vary based on a wide range of operating conditions and user preferences, such as screen brightness, battery conditioning, temperature, operating system settings, data connectivity and software applications.
- 2 GNSS accuracy may be affected by environmental conditions including multipath, obstructions, satellite geometry and atmospheric conditions. Specified accuracy assumes open-sky conditions, horizontal antenna mounting, and SBAS corrections are used. Ionospheric conditions, multipath signals or obstruction of the sky by buildings or heavy tree canopy may degrade accuracy.



Contact your local Trimble Authorized Distribution Partner for more information

TRIMBLE INC  
P.O. Box 947  
Corvallis, OR 97339  
USA  
541-750-9200 Phone  
[empower.trimble.com](http://empower.trimble.com)