

KPU



Your Community, Your Utility

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TRANSMITTAL MEMORANDUM

TO: The Honorable Mayor and City Council

FROM: Lacey G. Simpson, Acting General Manager

DATE: September 7, 2022

RE: **Project Status Reports of the KPU Division Managers – August 2022**

Attached for City Council review are the project status reports of the KPU division managers for the month of August 2022. Should the City Council have questions regarding the division managers' reports, staff can respond accordingly.

MANAGER'S REPORT
SALES, MARKETING & CUSTOMER SERVICE DIVISION
August 2022

KPU's net Internet accounts for August were flat to July internet accounts, and were 5% higher than August 2021. Standalone, no phone-line internet accounts increased by a few percentage points from last year, as people cut phone lines in order to save money; approximately 33% of customers have standalone internet. Between free unlimited internet which comes with TV, and add-on unlimited internet, 62% of KPU internet customers have unlimited internet service.

The KPUtv Crew filmed the Blueberry Festival, including the children's parade, and the human powered boat race. Two artists were featured in the Artists of Ketchikan Exhibit at KAAHC, Debbie McLavey and Gabriele Beyer. Older footage filmed in Juneau was edited to produce a new show on the Taste of Southeast: Juneau nights featuring former producer and host Alex Vrabec. Work began on a sports sizzle reel of Kayhi Sports. This short segment will be used at the start of Kayhi sports. KPUTV crew also were invited to film KIC's culture camp visit to the Unuk River. Stories, drumming, and dancing were filmed, and separate interviews with other individuals were conducted after the trip. A future release of the video in partnership with KIC is planned in the future.

KPU Marketing assisted other City departments with design and promotion of social media, including design work for the Fire Department on the 9/11 event, construction information for public works and water, the Community Ketch-Up meeting for KPD, NOAA Alerts, Employment posts for the City, Homeless meeting information and public meeting notices for the City as well as Nixle alerts as requested.

KPU social media for August consisted of notice of new and dangerous fraud alerts, electric outages, sneak peeks of KPUtv newest video releases, Local KPUTV new video channel and air time schedule, Sneak Peeks of local video content. Marketing staff also shared the Wellness Coalition's social media posts on the City of Ketchikan pages, as requested.

MANAGER'S REPORT

ELECTRIC DIVISION

August 2022

Electric Shop and Meters

- Meters. During the month, there were thirty-nine (39) meter exchanges/installs.
- Operations. Investigated, performed troubleshooting, made repairs, performed maintenance and/or installed equipment at KPU facilities:
 - No. 1 Intake adit valve position indication/SCADA
 - No. 1 Intake level transducers.
 - No. 1 Intake trash rack pump.
 - High Mountain inspection and PMs.
 - Beaver Falls Powerhouse smoke detectors.
 - Beaver Falls Powerhouse Unit No. 3 speed switches.
 - Beaver Falls Powerhouse radio battery charger.
 - Beaver Falls Powerhouse Unit No. 4 governor oil alarm.
 - Ketchikan Unit No. 3 brushes.
 - Ketchikan Powerhouse Gen No. 4 rotor reinstallation.
 - Upper Silvis lake level transducer.
 - Silvis main valve and fill valve.
 - Silvis substation upgrade.
 - Silvis powerhouse ventilation fans.
 - Whitman dam deep water intake transducer.
 - Whitman Unit No. 2 sheer pins.

Continued the metering upgrade for the Yukon system with Eaton/Cooper. Service disconnects and reconnects, system print updates, and station readings.

- SCADA Operations. Coordinated ongoing projects, investigated, performed troubleshooting, made repairs and/or installed equipment at KPU facilities:
 - Silvis PLC Analog card replacement.
 - Beaver Falls Generator No. 3 & 4 Gate position rescaling.
 - OSI Lite Client upgrades.
 - Silvis PLC Logic added to properly clear alarms.
 - New RTU configured for Silvis Substation
 - New SCADA Network – All equipment is staged and being tested.

SCADA file server maintenance, system password verifications, and NTP server configurations. Supported SCADA upgrade meetings. Coordinated and worked with the electric shop on SCADA networks. Continuing training in the SCADA system and PLC's (Programmable Logic Controllers). Records management activities and SCADA upgrade planning.

- Water Department. Installed, investigated, and performed troubleshooting for Water Department Baranof zone pump station soft starts, Confidence zone pump station, and confidence pump station flow meter.

- Harbors. Conducted work on harbor pedestals and cleared eight (8) harbor trouble tickets.
- Telecommunications. No new activities.

Outages and Events

- On Wednesday August 3, 2022, at 6:53 AM, an outage affected all electric services north of Ketchikan and parts of Gravina Island. This outage was caused by a suspected avian contact with the 34.5kV system at or near Lewis Reef Substation. Initially 1,884 customers were affected by the outage. Within one hour twenty-one minutes, power was restored to all customers.
- On Saturday, August 6, 2021, at 6:07 AM, an outage affected three (3) substations and electric services in Ketchikan. An avian contact with the 34.5kV system within the Ketchikan substation caused the outage. Initially, the outage affected 5,007 customers. Within one hour thirty-six minutes, power was restored to all customers.

Powerhouse & Fleet Maintenance

- Continued season maintenance projects with the hydro projects, including within the powerhouses, dams, and access roads
- Cleared debris at Upper Silvis Lake
- Performed maintenance on Bailey Generator Unit No. 3 (BAG3)
- Conducted maintenance at Silvis powerhouse in anticipation of winter
- Installed the No. 1 Intake trash rack
- Completed maintenance routines on Ketchikan Generator No. 4

Regulatory and Dam Safety

- Received comments on Beaver Falls Draft License Application; preparing Final License Application for October filing.
- Finalized and filed Beaver Falls Historic Properties Management Plan with the State Historic Preservation Office.
- Ongoing work to mitigate fish stranding in the Whitman powerhouse tailrace.

SEAPA

- The next regular board meeting is scheduled for September 23, 2022, in-person in Petersburg, Alaska.
- For additional information please visit SEAPA's web site at:
<https://www.seapahydro.org/>

Transmission & Distribution Work

- In-house tree trimming efforts on North Tongass Highway continued due to no bids being received for contracts No. 22-04 or No. 22-07.
- Continued discussions with ADOT re: the Herring Cove Bridge project
- Began review of airport terminal expansion project and impacts on existing utilities

Division Staffing

- There are no changes in staffing, the Electric Division continues to be short staffed; the Division is currently staffed at 33.4 Full Time Equivalent (FTE) of the authorized 43.4 FTE, or seventy-seven percent (77%).
- Staffing by Department/Section:

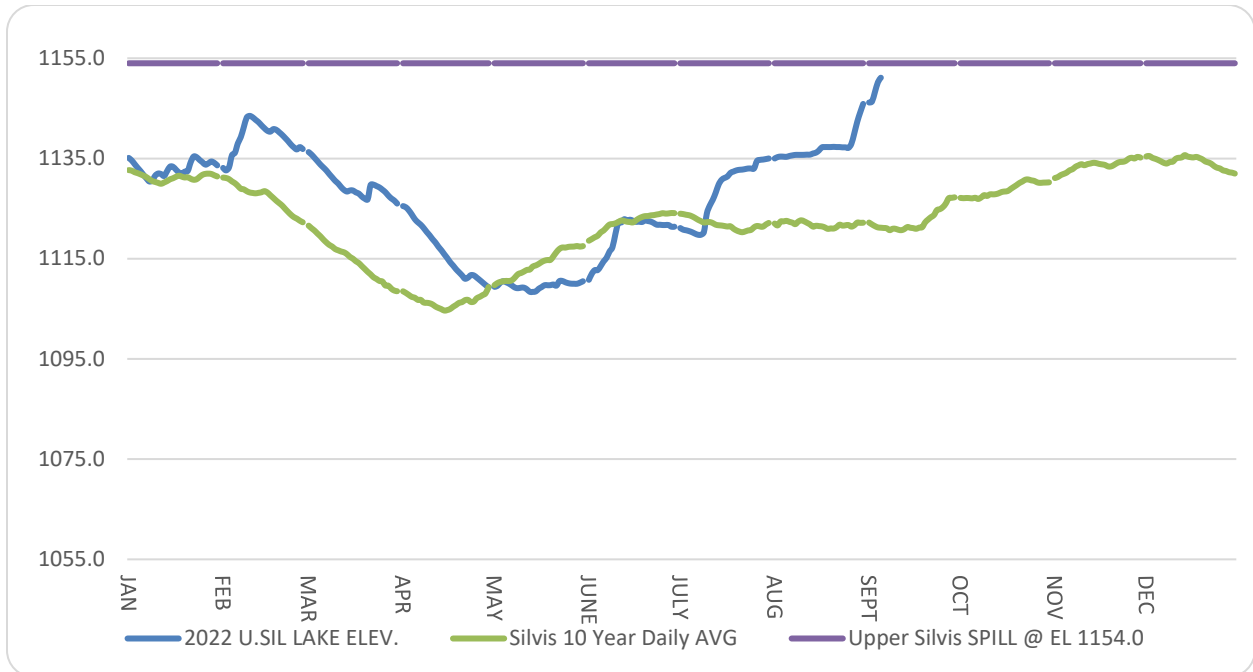
FTE	Authorized	Current	
Management, Front Office, and			
Regulatory	6	5	83.3%
Operations	8	5	62.5%
Metering and Generation	7.5	5.5	73.3%
Service and Line	8	6	75.0%
Maintenance	9	7	77.8%
GIS/CADD	1.4	1.4	100.0%
Warehouse	1.5	1.5	100.0%
SCADA	2	2	100.0%
	43.4	33.4	77.0%

- For the month, with scheduled vacations and sick leave, the Division operated with an effective capacity of sixty-two percent (62%) of the authorized FTE.
- The Division continues to work with the City Human Resources (HR) Department for employee recruitments.

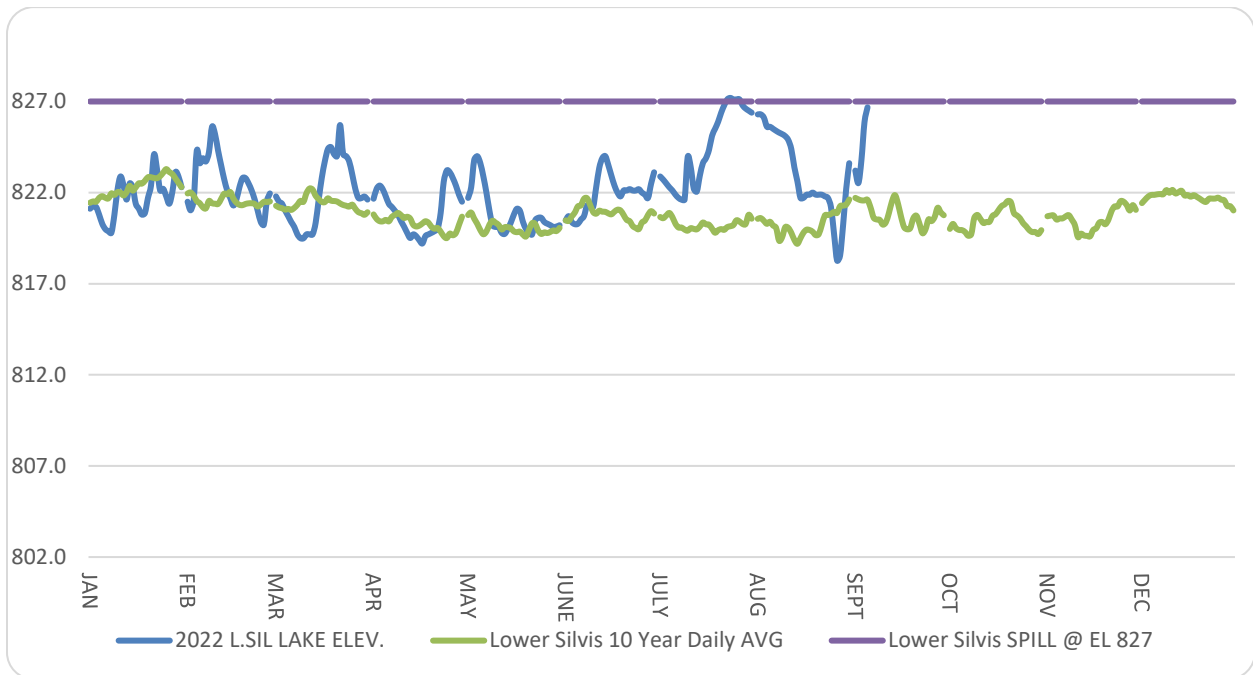
System Loads and Weather

- KPU loads for the month were above the 10-year average. The 10-year average total system load is 13.46 GWh; this month was 12.96 GWh, 3.71% below the 10-year average.
- The diesel generation total was 0.01 GWh, this was required for outage support.
- The normal monthly precipitation is 11.30 inches; this month was 7.99, 29.29% below the normal value.
- The normal monthly degree days heating is 192 (a measure of how cold the temperature is in a given month); this month was 102, 46.9% below the normal value. This indicates a warmer month than normal or less heating required.
- Values are from NOAA Climate Observed Weather.

August 2022 KPU Lake Graphs

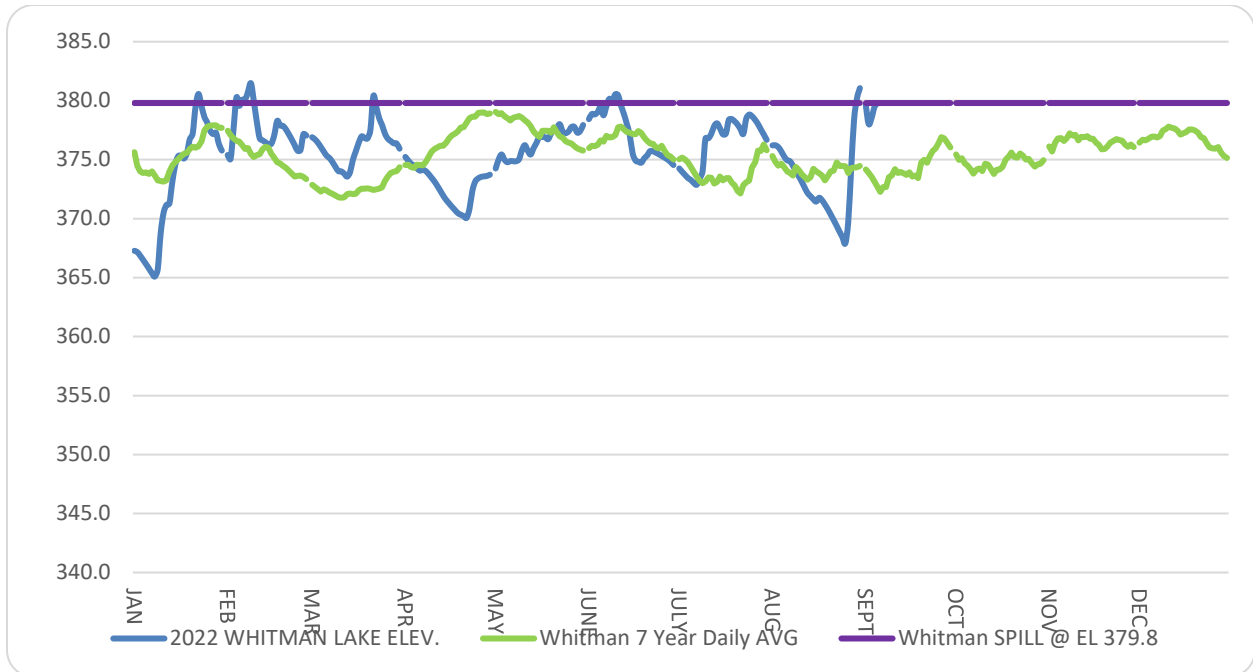


Upper Silvis Lake

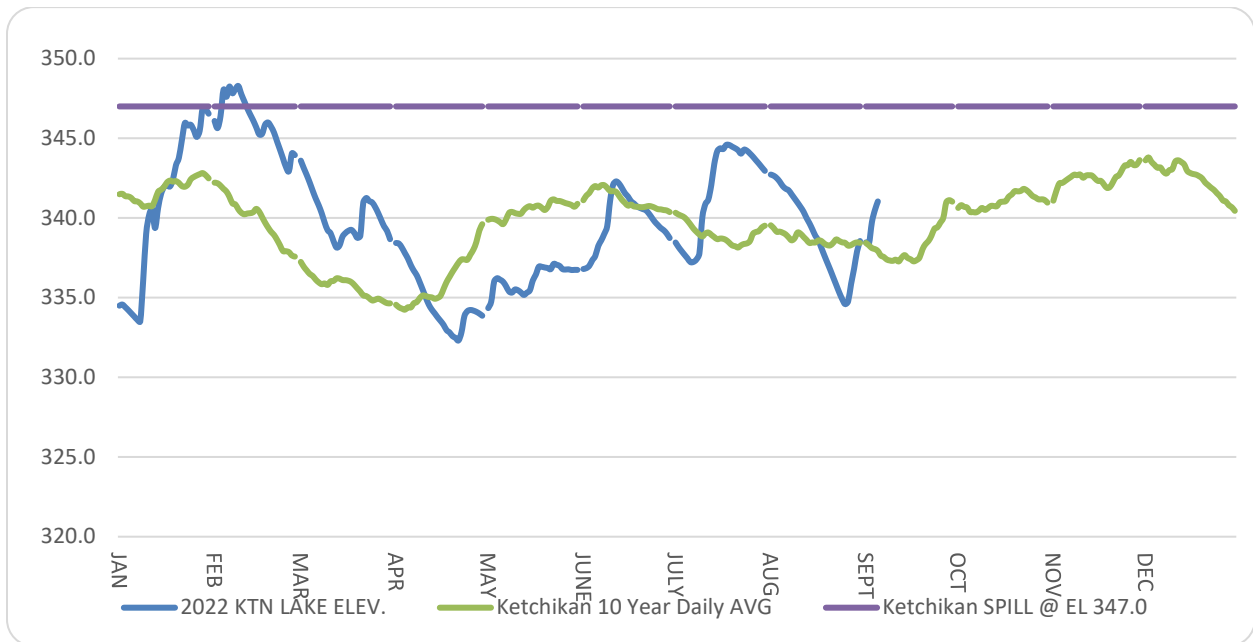


Lower Silvis Lake

August 2022 KPU Lake Graphs



Whitman Lake



Ketchikan Lake

MANAGER'S REPORT
TELECOMMUNICATIONS DIVISION
August 2022
Operational Issues

TELECOMMUNICATIONS DIVISION MANAGER
Summary

As the Acting KPU Telecommunications Division Manager, I am excited and eager to continue the excellent work of the Telecommunications Division in providing exceptional communications services to the community. The Division is in good shape both operationally and financially. It will be key to continue the legislative efforts outlined below in order to continue the long term success of the Division.

KetchCan1:

Subsequent to repair of various terrestrial fiber optic cables in southern British Columbia (in late December, 2021), KetchCan1 continues to perform flawlessly.

Auction 108:

Auction 108: FCC Auction 108 for 2.5GHz wireless spectrum started on July 29th, 2022. There are 82 authorized bidders in the auction. On August 29, 2022, bidding concluded in FCC Auction 108, the auction of new flexible-use geographic overlay licenses in the 2.5 GHz band. Auction 108 raised a total of \$419,133,261 in net bids and \$427,789,670 in gross bids, with 63 bidders winning a total of 7,872 licenses. KPU Telecommunications Division won the licenses it bid on for \$81,000 gross, and \$68,850 net after applying the 15% rural bidding credit.

Personnel:

I continue to be impressed with the Telecommunications Division's employee work ethic and dedication.

At present, the following positions remain vacant:

- Plant Manager (on 'permanent' hold through the end of 2022).
- KPU Telecommunications Division Manager
- Administrative Assistant – we now have a candidate for this position

Legislative:

I continue to be engaged on legislative and regulatory issues working with the Alaska Telecom Association - participating in video meetings in Juneau and DC (with Alaska's Congressional Delegation and staff) - regarding Alaska telecommunications / broadband funding issues which may affect KPUTel indirectly or directly. Approximately 29% of KPUTel's annual revenue is derived from USF (Federal) and AUSF (State) - and the 'ground' under these programs is always shifting, and requires constant attention - particularly now that proposed federal infrastructure legislation has billions of dollars targeted toward broadband - it is critical to ensure that the Alaska Plan is not altered or threatened via the legislative process.

REGULATORY UPDATE

Summary

On August 29, 2022, bidding concluded in FCC Auction 108, the auction of new flexible-use geographic overlay licenses in the 2.5 GHz band. Auction 108 raised a total of \$419,133,261 in net bids and \$427,789,670 in gross bids, with 63 bidders winning a total of 7,872 licenses. KPU Telecommunications Division won the licenses it bid on for \$81,000 gross, and \$68,850 net after applying the 15% rural bidding credit.

Other regulatory issues of interest are as follows:

The FCC is in the process of updating its current broadband maps with more detailed and precise information on the availability of fixed and mobile broadband services. The Broadband Data Collection (BDC) program will give the FCC, industry, state, local and Tribal government entities, and consumers the tools they need to improve the accuracy of existing maps.

Reports and filing:

Biannual FCC Form 477

KPU filed the FCC Form 477 on August 18, 2022. This information is used to measure broadband deployment and telephone competition by census tract. Those who must file include: facilities based providers of broadband connections to end user locations, providers of wired or fixed wireless local exchange telephone service, providers of Voice over Internet Protocol (VoIP) Service, and facilities-based providers of mobile telephony service. The FCC Form 477 is filed directly with the FCC.

Biannual SA 1-2 Short Form

KPU filed the statement of account and submitted royalty fees for the license to provide secondary transmissions of copyrighted works through the KPUTV cable system. The SA 1-2 Short form is completed semiannually and submitted to the Licensing Division of the Copyright office. Royalties are paid via wire transfer directly to the U.S. Treasury.

Initial Filing for the FCC Broadband Data Collection

The FCC a Public notice that facilities-based service providers who have one or more user connections are required to file data in the Broadband Data Collection (BDC) system on where they make mass market internet access service available as of June 30, 2022. KPU Tel was required to make this filing and has filed its data.

TELECOMMUNICATIONS PLANT DEPARTMENT

Summary

Outside Plant Construction and Splicing:

Projects Completed in August 2022

- 1x MDU project completed.
- 1x MDU project physical layer complete.
- 2x MDU projects in-progress.
- 3x fiber job orders completed.
- Audited 2 fiber cables in ESRI.
- Weekly Herring Cove DOT meetings.
- Filed for 66 new poles on Gravina with the FAA.
- FCC Broadband Data Collection filing assistance.

- Vault 11 pump and air compressor alarms.
- Placed cable, spliced, and conduits for two new businesses.

Installation and Repair:

- The installation and repair crews completed:
 - 62 service orders
 - 90 trouble tickets
 - 7 fiber drops

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SO	64	64	74	64	68	83	63	62				
TT	86	78	94	97	101	94	81	90				
FD	21	16	25	17	21	17	15	7				
Total	171	158	193	178	190	194	159	159				

OSP Installation & Repair Scorecard: August 2022	SO	TT	FD
Employee			
Brad C.		1	
Ryan J.			
Ryan C.	26		1
Alan M.	1	76	1
Nate L.			
Jared A.	1	2	
Zach S.	7	5	
David F.	16	3	
Jeremy M		1	
Brad/Jared/Ryan C.			
Brad / Ryan J		2	
Ryan C./Mike/Jay/Paul			
Ryan C./Zach			
David/Zach	2		
David/Ryan C.	6		1
Ryan J / Ryan C	3		
Alan/Zach			
Alan/David			
Alan/Ryan C			4
Total	62	90	7

Safety:

KPU Telecommunications did not hold a Safety Meeting in August due to scheduling conflicts.

TELECOMMUNICATIONS ENGINEERING DEPARTMENT

Summary

Engineering:

- 4G/LTE
 - Verizon KPI's good for the month of August.
 - Cranberry Rd cell site parts ordered.
 - Budget planning for 2023 to improve coverage and reduce congestion.
- IP Engineering
 - CO network redesign project testing of new vlan design started.
 - Capital Budget goals and objective planning 2023.
 - KPU Electric SCADA redesign expected implementation Sept 2022.
 - Extrahop healthcheck completed and refresh training started.
- Video Engineering
 - Satellite G15 outage and subsequent migration of 56 channels to Vubiquity.
 - Additional channels regroomed for 5G realignment.
- Voice Engineering
 - Webex for Broadworks deployment project in-progress.
 - SIP registration optimization project still in-progress.
 - Broadworks Security Vulnerability updates and reboots.
 - ClearIP training for COtechs.
 - Session Border Controller and Acme Packet replacement study with Webex integration.
- Systems Engineering
 - 0365 G3 MFA project in-progress.
 - 13 servers patched and upgraded.
 - Mail relay servers for Broadworks complete. Awaiting final acceptance testing.
 - Cisco UCS rebuild with SCN ongoing.
 - VSAN vmWare upgrade to 7 to be completed Sept 15th.
- Facilities
 - Stairs to rooftop AC unit completed to Main CO.
 - Mountain Point generator installation scheduled Sept 6-7.

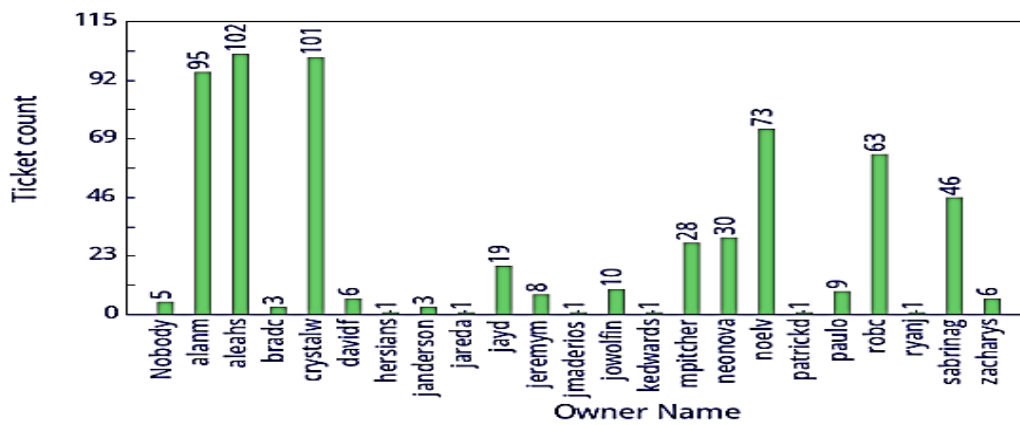
Service Delivery & Network Operations:

- 73 Resolved PBX tickets.
- 17 service orders.

CSS Overview:

Total CSS Calls:

- Calls to Customer Support (August, 2022)
 - Total Calls to 225-2111 = 310
 - Calls forwarded to NeoNova 984-244-5721 = 111
 - Calls Answered by Customer Support = 199

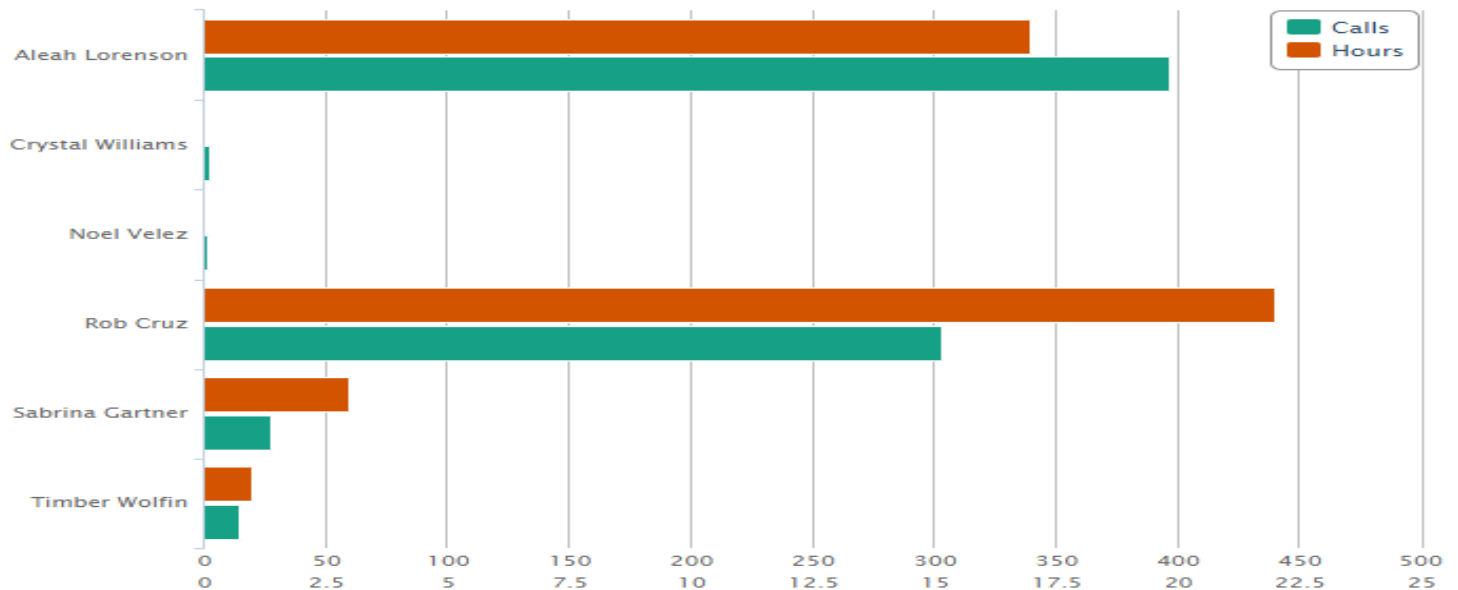


Owner Name	Ticket count
Nobody	5
alanm	95
aleahs	102
bradc	3
crystalw	101
davidf	6
hersians	1
janderson	3
jareda	1
jayd	19
jeremym	8
jmaderios	1
jowolfin	10
kedwards	1
mpitcher	28
neonova	30
noelv	73
patrickd	1
paulo	9
robc	63
ryanj	1
sabrinag	46
zacharys	6
Total	613

Query: Status != 'SPAM' AND Status != 'rejected' AND Queue != 'OPS' AND Queue != 'CompHQ' AND Queue != 'Customerservice' AND Queue != 'MSM' AND Queue != 'Maintenance' AND Queue != 'BattRepl' AND Queue != 'Support_Level3' AND Queue != 'Billing' AND Queue != 'CustAtRisk' AND Queue != 'Test2' AND Queue != 'Support_Level2' AND Resolved < '2022-08-31' AND Resolved > '2022-08-01'



2022/08/01 - 2022/08/31



USER	RECORDED CALLS	DURATION (HOURS)
Aleah Lorenson	397	17
Crystal Williams	3	0
Noel Velez	2	0
Rob Cruz	303	22
Sabrina Gartner	28	3
Timber Wolfen	15	1

MANAGER'S REPORT
WATER DIVISION
August 2022

FILTRATION AVOIDANCE

At their meeting of May 20, 2021 the City Council approved the draft Compliance Order by Consent (COBC) prepared by the Alaska Department of Environmental Conservation (ADEC). It contains provisions that KPU must demonstrate in order to qualify for a Limited Alternative to Filtration (LAF). They are:

- a. The system has “uninhabited, undeveloped watersheds in consolidated ownership.”
- b. The system has control over both “access to, and activities in, those watersheds.”
- c. The system’s source water quality and the alternative treatment requirements established by the state must ensure greater removal or inactivation efficiencies of pathogens than would otherwise result from the treatment requirements stipulated by regulations.

Each of the five Action Items that are listed in ADEC’s COBC are as follows:

Items A - Watershed Control Plan, and Item B – Consolidated Ownership Report, have been combined into a single report by Jacobs Engineering. It has been completed and transmitted to ADEC on February 4, 2022.

Item C – Source Water Quality Study and Item D – Water Treatment Report, were both completed and delivered to ADEC. Item C on March 17, 2022 and Item D on March 11, 2022.

Item E – Provisions for Public Involvement, has already been completed and transmitted to ADEC on November 23, 2021.

ADEC personnel have completed their reviews of each of these Action Items and updates incorporating their comments have been made to Item D, the Water Treatment Report. ADEC’s review of Item D, the revised Water Treatment Report, was completed on August 30th and their comments are now being addressed by Jacobs Engineering. ADEC noted “Overall, the report looks good and we have no issues with the technical aspects provided to support your arguments/justification.” Updates to the now combined Items A & B, the Watershed Control Plan, are still in progress. When both are resubmitted to ADEC for their final review and approval, the next step will be ADEC’s transmittal of the each of the final documents to the EPA Region 10 Administrator for the EPA’s review.

The EPA will undoubtedly have further questions during their individual reviews or requests for supplementary information about these Action Item submittals. This will likely occur over an extended amount of time, perhaps another year or more. Additional funding is needed for this subsequent work and on March 17th, the City Council adopted a motion authorizing Amendment No. 4 in the not to exceed amount of \$130,000 to Contract 19-44, Professional Services Agreement for Negotiation of a Compliance Order by Consent for Water Filtration.

Final LAF approval still depends upon the EPA’s approval of ADEC’s acknowledgement that each of KPU’s five submitted Action Item studies have fully met the provisions listed in Ketchikan’s

COBC, the EPA makes an affirmative decision that Ketchikan is to receive a LAF, and ADEC must adopt LAF provisions which do not exist today into the Alaska Drinking Water Regulations.

OPERATIONAL ISSUES

Contract 21-01 - Ketchikan Raw Water Transmission Main Replacement

Contract 21-01, awarded to BAM LLC for the replacement for the failing portion of the 36-inch raw water transmission main in Schoenbar Road, will be a single, permanent 42-inch HDPE pipeline being constructed between the southwesterly edge of Norman Walker Field (adjacent to the Park Avenue parking area), and the Ketchikan Charter School. Beginning at the westerly edge of Norman Walker Field, it will cross above Schoenbar Creek adjacent to where Schoenbar Creek's 96-inch multi-plate culvert begins, and then remain buried under Schoenbar Middle School's driveway, passing beneath the School District's Maintenance Shop parking area and the Ketchikan Charter School's playground before reconnecting to the remainder of the existing raw water transmission main.

BAM's work this August began connecting at the 42-inch HDPE pipe segment already completed in the Charter School's parking lot, extending across the Charter Schools recreation field and extending



it towards the final tie-in point where last May, the 42-inch wye joined with the 36-inch ductile iron raw water main adjacent to the Ketchikan Charter School. The joint as assembled with the 36-inch main to the left is shown in the photograph below.



The orange butterfly valve viewed at the end of this connection has been installed as a precautionary measure. It provides a ready solution should future major failures occur to the remainder of the existing 36-inch ductile iron water main which extends to the UV Facility. If extensive replacement is required, this new valve will become the independent connection point that allows for a completely new segment of parallel 42-inch HDPE water main to be constructed and avoid any significant interference to the continuous water supply that is necessary for the UV Facility operation. This butterfly valve will be buried with the remainder of this tie-in assembly after a bolted protective cover and gasket are installed and seal this valve from any harm or debris.

Pavement restoration is complete at Schoenbar Middle School as is the parking lot. The sidewalks are incomplete. Temporary protective sidewalk fencing has been installed and will be replaced once the permanent fencing arrives.





Further complicating this difficult project, in July 2021, our former Utilities Inspector tendered his resignation and thus far, we have been unable to hire a qualified replacement for this position. Consequently, as BAM continues construction of the new 42-inch HDPE pipeline and until a replacement Utility Inspector is hired, it will be necessary for other members of the Water Division staff to provide the critical daily construction inspection services in addition to their usual customary operating and maintenance duties.

DISINFECTION BYPRODUCTS SAMPLING

When the EPA's Stage 2 Disinfection Byproducts Rule (Stage 2 DBP Rule) went into effect in October 2013, the required DBP sample points changed. The month that the samples must be collected is now specified and KPU can no longer average the results over the entire distribution system. Instead each sample point (identified as Sites 5 and 8 on the attached Table I) must stand on its own merits and when averaged over the mandatory February, May, August, & November samples, these become the official results that are measured for compliance and must unequivocally be below a 60 parts per billion (ppb) average for haloacetic acids (HAA5) and 80 ppb for total trihalomethanes (TTHM). Compliance with the Stage 2 DBP Rule is determined by the locational running annual average (LRAA) of the previous four quarterly samples from each site.

Beginning June 2016, by reducing the amount of chlorine at the Chlorination Plant, then adding just enough chlorine at the Two-Point Facility to form monochloramine after adding ammonia has had the effect of almost completely quenching further formation of haloacetic acids within the distribution system. In addition, after the higher than expected HAA5 results occurred in August 2020, KPU has continued to take extra care to ensure the effect of a reduced initial chlorine residual set point was thoroughly distributed throughout the water system before collecting August's samples for HAA5 analysis. As a result, for the past 5 years Ketchikan has remained in compliance with the Stage 2 DBP Rule for both haloacetic acids and total trihalomethanes.

By keeping the chlorine residual set point as low as practical along with the month of August which generally has the warmest water temperature with the most amount of dissolved organics present, the result was August's quarterly haloacetic acids (HAA5s) results for both Sites 5 & 8 are amongst the lesser amounts measured for this month. As illustrated in Table I, the analytical results were 56.4 ppb and 35.6 ppb, respectively. The present LRAA for haloacetic acids at Site 5 is 41.2 ppb and for Site 8, 36.7 ppb and continues to maintain the LRAA within the same allowable range that it has been since May 2017. While not part of the EPA regulatory requirements, KPU also samples the disinfected water leaving the Bear Valley Reservoir before it enters the municipal distribution system for our own information. It too was quite low at 39.5 ppb.

Contract 20-25 – Continuation of Water Meter Design / Build – Business & Commercial Customers

Ketchikan Mechanical Inc. (KMI) was awarded Contract 20-25, the installation of another 50 water meters using the same design-build contract method as before, by the City Council on February 4th. KMI's first task is to conduct individual audits of each of the businesses that were identified in the Bid Documents and from these audits, then prepares a simplified design for each individual meter installation for review and approval by KPU. After KPU's approval is issued, the contractor begins installation of the new meter. Since its inception in 2019, this step-by-step method of installing water meters has proven to be entirely satisfactory for everyone involved.

Like so many other manufactured items affected by the coronavirus pandemic, this inadvertent delay required an extension to KMI's Contract 20-25's completion date to October 9, 2021 and was approved by the City Council at their meeting of July 1, 2021. As before, this contract was completed on-time and under budget. With a total of 183 meters now installed, it is apparent that using the design/ build concept for meter installation has been both cost-efficient and successful, with minimal difficulties encountered.

However, KPU's present supply of Cooper Power nodes remaining in inventory is exhausted. Complicating the matter, the 80 additional nodes that were ordered back in October 2020, continues to experience further delays in their estimated delivery date. Cooper Power's March 22, 2022 email stated that 50 of our backordered nodes should be shipped the second week of June, another 80 nodes shipped by the end of June, and the last 160 backordered nodes will be shipped by the end of July. Although Cooper Power has assured KPU that it has priority to receive the nodes that are on order once the manufacturing production problems at their factory in Mexico are resolved, another recent email stated that our node deliveries will now not begin until December 2022.

Until these new nodes ordered in 2020 finally arrive and are installed by KPU employees, most of the 50 new water meters that KMI has installed in Contract 20-25 aren't fully functional and can't begin reporting. The reporting procedure itself consists of each node interrogating its associated water meter hourly and then reporting the results to one of KPU's nearby Cooper Power "smart" electric meters which in turn transmits the water flow measurements to the Electric Division. Ultimately, this water consumption information will be transmitted to Finance's New World Financial Management System for the purpose of preparing monthly billings to our ratepayers.

The next water meter installation contract cannot be issued until an adequate supply of nodes have already arrived and installed to confirm each new water meter is fully operational. As it stands now, achieving the original goal of having all of the remaining approximately 225 unmetered businesses, commercial buildings, and large residential apartment complexes fully metered before the end of 2022 is simply no longer feasible and as a result, completion of this project is now very likely delayed into late 2023. Progress has been at a standstill during 2022 as the continuing coronavirus pandemic has severely affected material deliveries for both water meters as well as the radio-frequency nodes that allow them to electronically communicate and transmit information to KPU's electric meters. The promised delivery date of KPU's October 2020 order of additional nodes continues to slip drastically with the vendor's latest estimate for shipment is now December 2022. Consequently, the next water meter installation contract cannot be issued until an adequate supply of nodes has finally arrived and installed to confirm that each new water meter is fully functional.

However, despite the delay caused by lack of these critical nodes, KPU's draft 2023 Budget will still propose carryover of Drinking Water and Wastewater Loan Funds for the installation of the remainder of the water meters, an update to the 2016 Water/ Wastewater Rate Study, with provisions for amendments made to the Ketchikan Municipal Code.

Contract No. 21-10 – Programmable Logic Controller Upgrade – Phase II - UV Disinfection Facility

Although Jacobs Engineering has completed earlier Contracts which made the initial upgrades to our SCADA server and program software, there still remain a number of outstanding automation and cybersecurity risks existing within the disinfection system that also need to be addressed. The recently completed Contract 21-03 – Water Cyber Security Evaluation identified areas in urgent need of cybersecurity improvements including the planned multi-year project to replace all three of our present Allen-Bradley Programmable Logic Controllers (PLCs) which have reached the end of their useful service life. Collectively, KPU has three Allen-Bradley Programmable Logic Controllers (PLCs) installed at the UV Facility, the Chlorination Plant, and the Ammonia Addition Facility. They are each providing continuous supervisory control over specific critical components within KPU's complex, computer-controlled, disinfection process.

Although this project had been approved for construction in the division's 2020 CIP program, by that March everyone suddenly found themselves in the midst of the worldwide coronavirus pandemic and all that entailed. Accordingly, to minimize the Utilities' annual operating expenditures during 2020, KPU elected to defer any planned PLC upgrading until 2021. Included in Water's 2021 CIP Budget, Contract 21-10 is the first phase of this project and approved by the City Council at their meeting of July 15, 2021. These PLC replacements will be the new Allen-Bradley ControlLogix PLCs which have long-term manufacturer and industry support. They use a modern control system infrastructure that offers several improvements for communications, stability, ease of maintenance, and reliability. This is the reason, when the Two-Point Chlorination Facility was being designed in 2015, the latest ControlLogix PLC's were chosen instead to operate the two new ClorTec sodium hypochlorite generators.

Continued delays of critical material deliveries that will likely continue through the summer months are affecting completion of this project at the UV Facility (CP-100). Several project meetings have been held with Jacobs Engineering's staff, most recently on April 7, 2022, to discuss the preparatory work progress that is necessary before the equipment installation phase can begin. The final testing of the control system, the PLC and HMI programming, and the implementation planning must all be completed before shipping the components to Ketchikan and physically beginning the installation.

Rather than having any potential impact on 2022's fish processing season, the installation, commissioning, and cutover of the new CP-100 equipment in the UV Facility was planned to occur this fall. However, due to the world-wide effect of the coronavirus pandemic on material deliveries, the upgrade to the Water Treatment UV Facility's (CP-100) PLC has been further delayed and may not be completed before the end of 2022. In addition, there have also been significant material cost increases during 2022 which are now reflected in the increased estimated costs to upgrade the two remaining PLCs that are located in the Old Chlorination Building (CP-300) in 2023, and upgrade the third and final PLC in the Ammonia Building (CP-400) in 2024. This will allow all of these critical PLC's to migrate to the modern Allen-Bradley ControlLogix PLC platform.

Baranof Zone Pump Station Switchgear Improvements

Approved in the 2022 CIP Budget, this project is making necessary improvements to the switchgear in the Baranof Zone Pump Station. The oldest of KPU's pump stations, it has been in service for 35 years and is well overdue for an upgrade; particularly to the motor starters themselves. Mechanical motor starters depend on moving contactors to supply electricity to the pump motor and the sudden in-rush of electricity causes some heat. Over time, starting pumps to refill the reservoir has slowly but continuously degraded the individual contactor mechanisms.

With direct replacement mechanical starter contactors now becoming very difficult to find, each of KPU's pump station are proposed to have their motor starters replaced with modern solid-state soft starters beginning with the Baranof Pump Station. Not only do solid-state soft motor starters have a smooth acceleration, they have no moving components and cost about half as much as a mechanical motor starter.

The two Allen-Bradley soft starters that were ordered earlier this year were shipped to RMC Engineering Services in Juneau who have fabricated the necessary metal enclosures. Now complete, they were returned to Ketchikan and were installed by KPU's Electric and Water personnel this month in the pump station. The installation went well and has performed exactly as expected. Similar replacements are proposed in the draft 2023 CIP Budget for the Confidence Zone Pump Station.

TABLE I

HALOACETIC ACID & TOTAL TRIHALOMETHANE ANALYSIS
STAGE 2 DISINFECTION & DISINFECTION BYPRODUCTS RULE

DATE	No. 2 Fire Station 3352 Tongass Ave. (Site 8 - High TTHM)		Buren & Bailey Boulevard (Site 5 - High HAA5)		Bear Valley Reservoir Special Purpose Samples	
	HAA5 formation, ppb	TTHM formation, ppb	HAA5 formation, ppb	TTHM formation, ppb	HAA5 formation, ppb	TTHM formation, ppb
8 April 2014	Chloramination Disinfection Begins Two-Point Chlorination Begins Chlorine Residual Setpoint Reduced from 0.7 to 0.4 mg/L					
14 June 2016						
January 2020						
1 Nov. 2021	46.6	37.2	41.2	34.2	45.5	37.2
2 Feb. 2022	30.00	18.84	29.40	19.79	28.00	17.87
2 May. 2022	34.70	24.95	37.60	22.91	28.60	18.88
1 Aug. 2022	35.60	45.20	56.40	41.00	55.80	47.20
Four Quarter Running Annual Average at Individual Sites	36.7	31.5	41.2	29.5	39.5	30.3

Fourth Quarter Sample

First Quarter Sample

Second Quarter Sample

Third Quarter Sample