KPU
Your Community, Your Utility

General Manager
334 Front Street
Ketchikan, AK. 99901

(907) 228-5603 phone
(907) 225-5075 fax

TRANSMITTAL MEMORANDUM

TO: The Honorable Mayor and City Council

FROM: Lacey G. Simpson, Acting General Manager

DATE: August 9, 2022

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

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

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

KPU's net Internet accounts for July were higher than June internet accounts, and were 6% higher than July 2021. The number of TV accounts remained flat to June 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 31% 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 and live streamed the 4th of July parade, including the children's parade. The TV crew invited performers to dance in front of City Hall prior to the parade as entertainment. The duck race was also filmed, although it was not live-streamed. A Coast Guard retirement ceremony was covered as was a new version of Basic with Jason Cooking segment on salmon, and the Main Street art exhibit. Further work was done on the Ketchikan Evergreens video. KPUTV also began work on a Diaz video, and accompanied KIC on a trip with Native students to their historical village for a future piece.

In July, the Media and Communications manager position was filled by local Zoe Sobel, who has worked with KPUTV as a temp. Zoe has a journalism background and has worked in Alaska for many years.

Two KPU Customer Solutions Specialists were promoted to Senior Solutions Specialists focusing on business sales in July. One position will specialize in small business, and will assist other CSS in determining the best solutions for those customers. The other position will focus more on larger businesses with hosted products and business services. The two staff who were selected were Luis Ochoa and Yelena Rikova, two long-term KPU employees.

KPU Marketing assisted other City departments with design and promotion of social media, including auction posts for public works, construction information for public works, the Community Ketch-Up meeting for KPD, as well as Nixle alerts as requested.

KPU social media for July 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, notification of KPU's 4th of July Live-stream. Marketing staff also shared the Wellness Coalitions social media posts on the City of Ketchikan pages, as requested.

New TV advertising on symmetric internet was relaunched in July. Digital advertising on the web was also launched in July, featuring 15 second, 30 second and 60 second ads. The majority of the ads are on symmetric KPU internet, with the rest consisting of KPU local content ads.

MANAGER'S REPORT

ELECTRIC DIVISION

July 2022

Electric Shop and Meters

- Meters. During the month, there were forty-eight (48) 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.
    - Carlanna Lake level transducer.
    - Beaver Falls Powerhouse Unit No. 1 brushes.
    - Beaver Falls Powerhouse SCADA/ PLC points.
    - Beaver Falls Powerhouse Unit No. 3 start permit.
    - Beaver Falls Powerhouse Unit No. 3 rheostat.
    - Beaver Falls Powerhouse Unit No. 4 bearing oil heater.
    - Bailey Bag No. 4 day tank alarm.
    - Silvis Lake level transducer.
    - Ketchikan powerhouse Gen No. 5 brushes.
    - Silvis main valve and fill valve.
    - Silvis substation Form 4D controller.
    - Silvis generator main valve.
    - Silvis powerhouse SCADA alarms.
    - Silvis powerhouse creep detection/SCADA.
    - Whitman lake level transducer.

    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:
    - Network equipment upgrades.
    - SCADA (OSI) upgrade and network, final stages.
    - Password Audit – Ongoing.
    - Silvis PLC AI Slot 7 Point 6 failure, feplaced with spare card.
    - Ketchikan Lakes Ladder Logic Update/Configure – Howell Bunger Valve Ladder Logic.
    - Whitman Plant - Add point to SCADA system.
    - DC to AC 208 Converter Alarm.
    - Silvis PLC Alarm / Auto Start Troubleshooting.
    - Beaver Falls PLC Point Mapping correction.
    - New Network Equipment install.
    - OS Engineering Silvis Plant.
    - OSI Performance Data reports.

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, performed troubleshooting for Water Department ammonia building ammonia detection, confidence pump station flow meter.
- Harbors. Conducted work on harbor pedestals at Thomas Basin float 5 for re-decking & cleared nine (9) harbor trouble tickets.
- Telecommunications. No new activates.

Outages and Events

- On Sunday, July 17, 2022, at 12:18 PM, an outage affected all electric services north of Ketchikan and parts of Gravina Island. This outage was caused by an avian contact with the 34.5kV system at or near Lewis Reef Substation. KPU operators and crews identified the issue and immediately began power restoration. The power restoration process took additional time due to the nature of the outage location. Initially 1,884 customers were affected by the outage. Within one hour and thirty-six minutes, power was restored to all customers.

Powerhouse & Fleet Maintenance

- Completed maintenance tasks on Ketchikan Generator No. 4 while the unit was out for rewind
- Continued season maintenance projects with the hydro projects, including within the powerhouses, dams, and access roads

Regulatory and Dam Safety

- Continuing work on FERC permitting.
- 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

- Contract No. 22-15 Distribution Transformers: No bids received.
- Issued contracts No. 22-17 Padmount Transformers and No. 22-18 Polemount Transformers
- Began in-house tree trimming efforts on North Tongass Highway, in response to no bids being received no bids for contract No. 22-04 or No. 22-07.

- Replaced a primary dead-end pole on Knudson Cove Road
- Continued discussions with ADOT re: the Herring Cove Bridge project

Division 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:

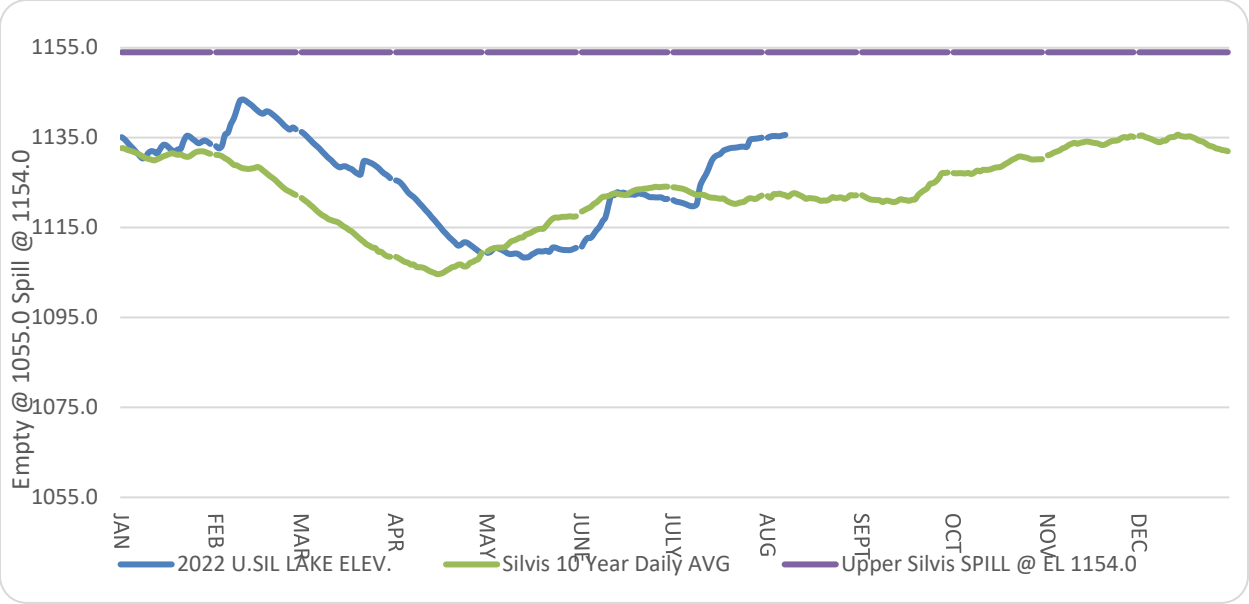
FTE	Authorized	Current	
Management, Front Office, and Regulatory	6	5	83.3%
Operations	8	5	62.5%
Metering and Generation	7.5	5.5	73.3%
Service and Line	8	6	75.0%
Maintenance	9	7	77.8%
GIS/CADD	1.4	1.4	100.0%
Warehouse	1.5	1.5	100.0%
SCADA	2	2	100.0%
	43.4	33.4	77.0%

- For the month with scheduled vacations and sick leave, the Division operated with an effective capacity of fifty-six percent (56%) of the authorized FTE.
- The Division continues to work with the City Human Resources (HR) Department for employee recruitments.

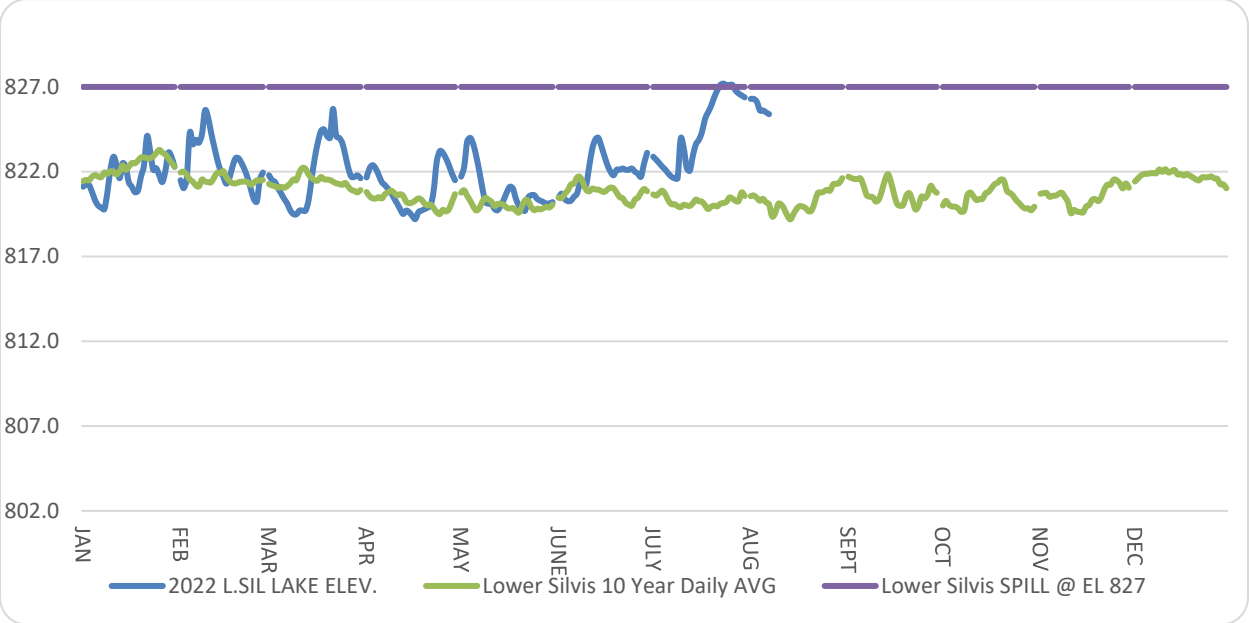
System Loads and Weather

- KPU loads for the month were above the 10-year average. The 10-year average total system load is 13.30 GWh; this month was 12.94 GWh, 2.7% below the 10-year average.
- The diesel generation total was 0.01 GWh, this was requred for outage support.
- The normal monthly precipitation is 7.33 inches; this month was 10.08, 37.51% above the normal value.
- The normal monthly degree days heating is 198 (a measure of how cold the temperature is in a given month); this month was 169, 14.6% below the normal value. This indicates a warmer month than normal or less heating required.

June 2022 KPU Lake Graphs

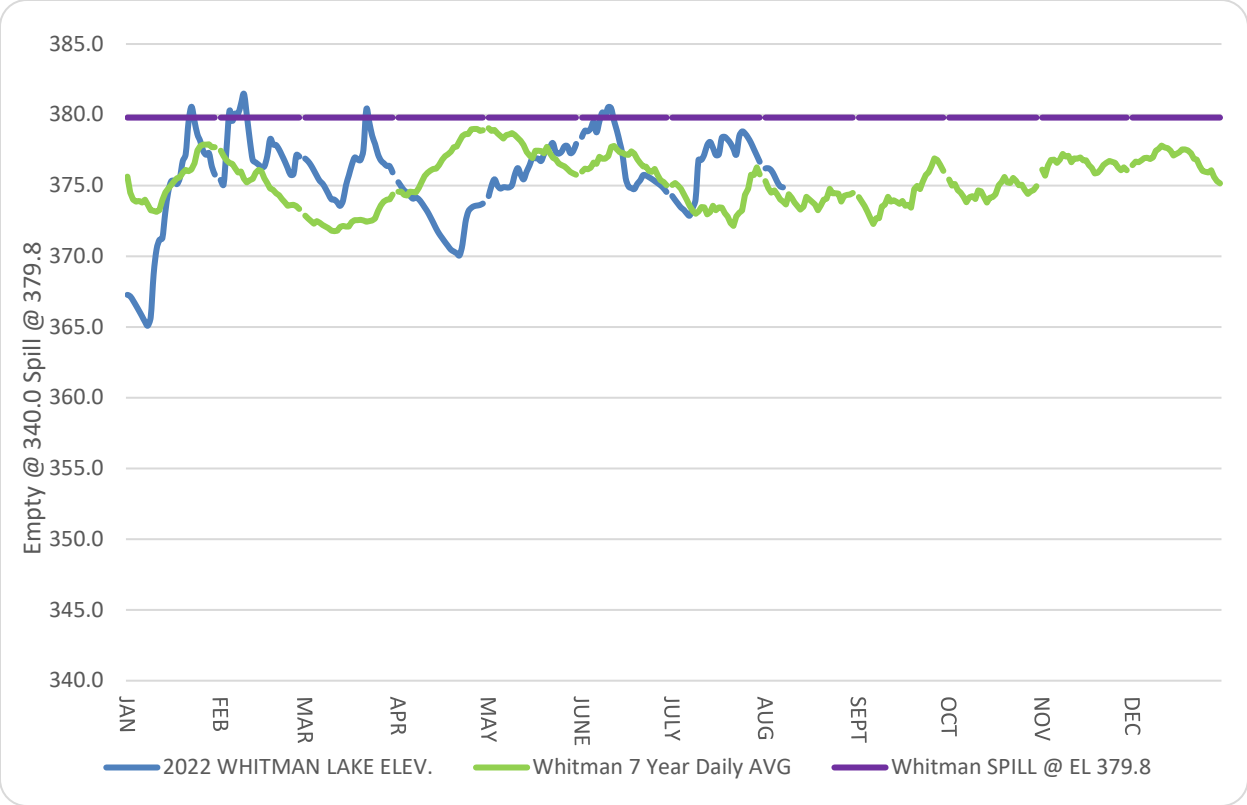


Upper Silvis Lake

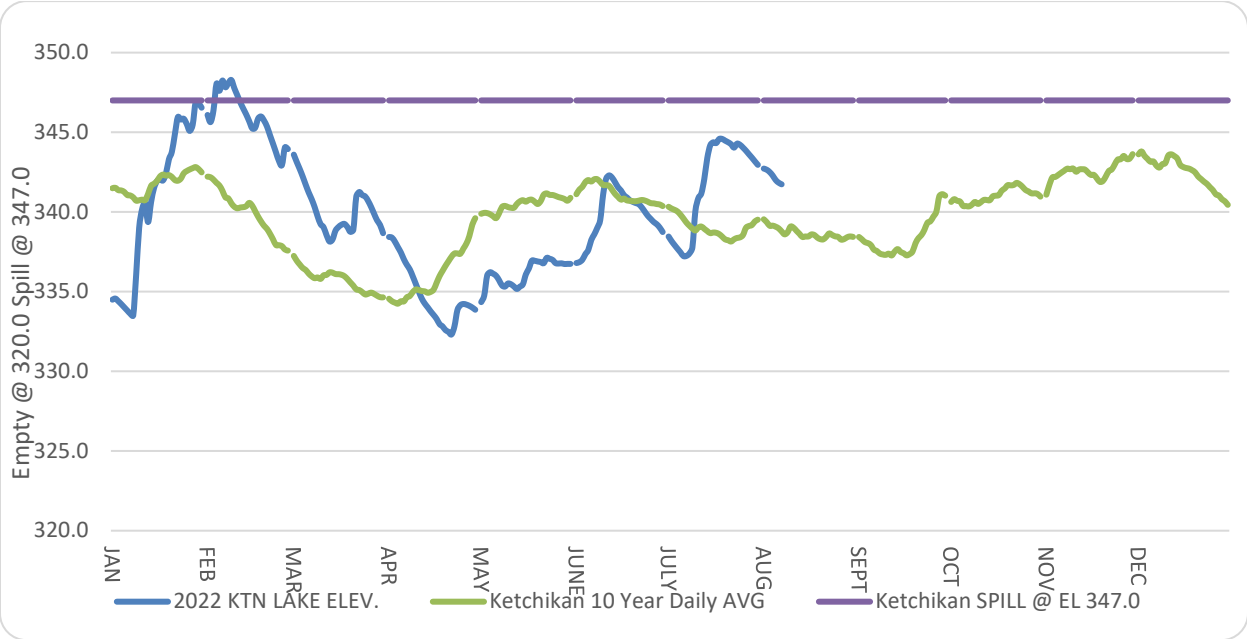


Lower Silvis Lake

June 2022 KPU Lake Graphs



Whitman Lake



Ketchikan Lake

MANAGER'S REPORT
TELECOMMUNICATIONS DIVISION
July 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. The total gross auction proceeds through round 12 on August 8th was $155,142,170.

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

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

The Alaska Broadband Summit workshop is being held in Anchorage on August 9th, 2022. Both Alaska Senator's Sullivan and Murkowski will be in attendance as well as Governor Dunleavey and Alan Davidson of NTIA among other dignitaries. The summit will be outlining the various funding sources for building broadband infrastructure to unserved and underserved locations.

Other regulatory issues of interest are as follows:

KPU notified NANPA (North American Numbering Plan) of its successful transition to mandatory 10-digit dialing on July 15, 2022. This nationwide effort enabled the 988 Suicide & Crisis Lifeline to become available. 988 includes a Veterans Crisis Line for Veterans in need.

Reports and filings:

Annual FCC Form 481 Filed

KPU Telecommunications filed their 481 High Cost Low Income report with the Universal Service Administration Company (USAC), the FCC (Federal Communications Commission) and the RCA (Regulatory Commission of Alaska) on July 29, 2022. The 481 is an annual federal report that contains revenue information from the previous year and includes certifications for the Federal Lifeline Program, Service Quality, and Functionality in Emergency situations.

Biannual FCC Form 502 Filed

KPU filed the FCC Form 502 Numbering Resource Utilization/Forecast (NRUF) with NANPA on July 19, 2022. This is a requirement for ILECS, CLECS, wireless telephony carriers, satellite service providers, and resellers of these services.

Biannual CIC access and usage report Submitted

KPU filed the Carrier Identification Code access and usage report with NANPA. This report provides NANPA with the information needed to verify CIC assignments in use.

Quarterly RCC

KPU has filed its quarterly filing to the Regulatory Commissions of Alaska (RCA). The Regulatory Cost Charge is a surcharge applied to all regulated in-state retail customer billings to pay the local and long distance phone companies' share of the budget of the Regulatory Commission of Alaska.

KPU responded to a request by the FCC International Bureau regarding its previously filed '43.82 International Circuit Capacity' report confirming KPU did not report data on behalf of any other licensees or affiliated entity or entities.

TELECOMMUNICATIONS PLANT DEPARTMENT

Summary

Outside Plant Construction and Splicing:

Projects Completed in July 2022

- Evergreen fiber placement and splicing.
- 4 Tower Rigging certifications completed.
- Several Cell site repairs conducted.
- Pennock ReConnect project with updated design, labor estimates, and environmental surveys.

- Site surveys for Water Street Trestle DOT project.
- ESRI map published for field use.
- Fiber audits for Knudson Cove and NPH offices completed.
- Marine vessel tracking and methods to map data for subsea fiber cut contingency.
- Proof of Concept Sea Level Condos completed.
- 1st floor conduit path Harbormaster complete.

Installation and Repair:

- The installation and repair crews completed:
  - 63 service orders
  - 81 trouble tickets
  - 15 fiber drops

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

OSP Installation & Repair Scorecard: July 2022	SO	TT	FD
Employee			
Brad C.		1	
Ryan J.		1	
Ryan C.	19	1	5
Alan M.	1	34	1
Nate L.			
Jared A.			
Zach S.	15	18	1
David F.	23	21	1
Brad/Jared/Ryan C.			
Ryan C./Mike/Jay/Paul			
Ryan C./Zach			
David/Ryan C./Zach	3	1	
David/Ryan C.	1		6
Alan/Zach		4	1
Alan/David			
Alan/Ryan C	1		
Total	**63**	**81**	**15**

Safety:

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

TELECOMMUNICATIONS ENGINEERING DEPARTMENT
Summary

Engineering:

- 4G/LTE
  - Verizon KPI's good for the month of July.
  - Cranberry Rd cell site project in-progress with an eta in the Fall.
  - High Mtn tuning of the microwave.
  - Eichner Cell Site battery replacement.

- IP Engineering
  - CO network redesign project ongoing.
  - KPU Electric Scada redesign 90% complete.
  - Subsea Fiber Damage SOP draft complete.
  - Residential FTTH standardization initial proof of concept built.
  - Extrahop upgrade completed to 8.9.
  - ThousandEyes monitoring product training started.

- Video Engineering
  - Installed 2x new Root Sports receivers.
  - Several channels regroomed for 5G realignment.

- Voice Engineering
  - Webex for Broadworks deployment project in-progress.
  - SIP registration optimization project still in-progress.
  - ClearIP alarm trigger configurations for fraud alerts.

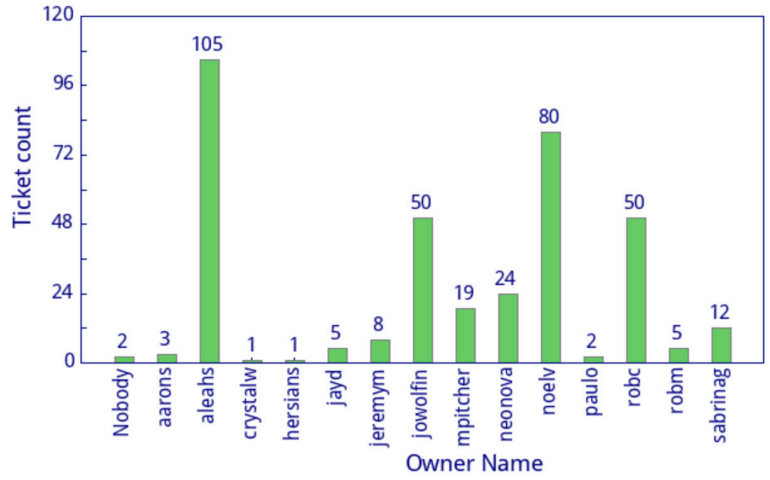
- Systems Engineering
  - Windows AD domain migration project in-progress for MFA.
  - DNS re-architecture with SCN research design complete.
  - 10 additional servers patched and upgraded.
  - Deployed new Ookla Speedtest server.
  - Mail relay servers for Broadworks 90% complete. Issues discovered in acceptance testing.

- Facilities
  - Beaver Fall AFC shelf removal.
  - F041 cross connect expansion for Sunset Dr.

Service Delivery & Network Operations:
- 58 Resolved PBX tickets.
- 14 service orders.

CSS Overview:

Total CSS Calls:
- Calls to Customer Support in July 2022
  - Total Calls to 225-2111 = 859
  - Calls forwarded to NeoNova 984-244-5721 = 269
  - Calls Answered by Customer Support = 590



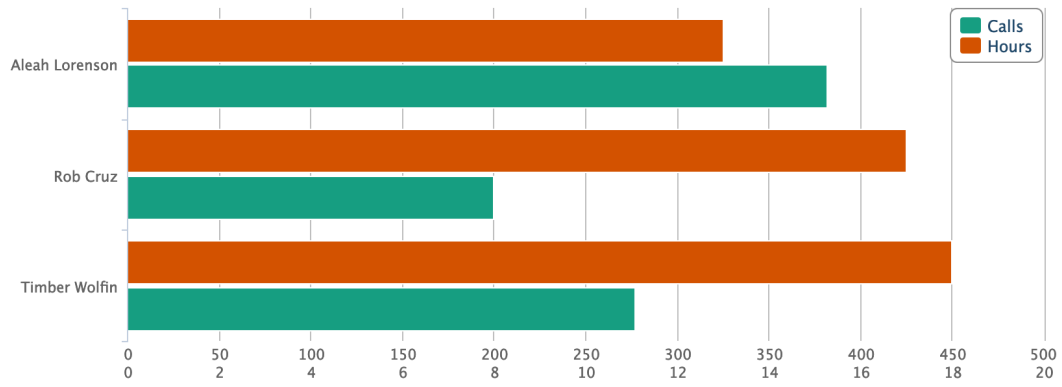
Owner Name	Ticket count
Nobody	2
aarons	3
aleahs	105
crystalw	1
hersians	1
jayd	5
jeremym	8
jowolfin	50
mpitcher	19
neonova	24
noelv	80
paulo	2
robc	50
robm	5
sabrinag	12
Total	367

Query: Status != 'SPAM' AND Status != 'rejected' AND Queue != 'OSP' 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 != 'TESTT2' AND Queue != 'Support_Level2' AND Resolved < '2022-07-31' AND Resolved > '2022-07-01'

Users

CSS Users

2022/07/01 - 2022/07/31



USER	RECORDED CALLS	DURATION (HOURS)
Aleah Lorenson	382	13
Rob Cruz	200	17
Timber Wolfin	277	18

MANAGER'S REPORT
WATER DIVISION
July 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 are being made to Item A, the Watershed Control Plan and Item D, the Water Treatment Report. The revised and final Watershed Control Plan was submitted to ADEC on June 28th and the revised Water Treatment Report will follow in July. The next step will be ADEC's transmittal of these 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

DOWL Engineers, who have already completed the earlier design work for the replacement for Schoenbar Road's distribution water and wastewater mains have designed a replacement for the failing portion of the 36-inch raw water transmission main in Schoenbar Road. It will be a single, permanent 42-inch HDPE pipeline to be located between the southwesterly edge of Norman Walker Field (adjacent to 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.

Following BAM's completion in May of the two massive tie-ins at each end of the construction project which consist of the installation of new 42-inch wyes cut into the existing 36-inch ductile iron pipe in the vicinity of the Valley Park field and Ketchikan Charter School, their work began on June 7th with excavation through the Charter School's parking lot and extending eastward adjacent to the School District's Maintenance Shop. Due to the necessity of routing the 42-inch HDPE raw water main beneath a large existing storm drain located to east of the access road, the pipe trench had to be excavated about 10-feet deep and also stepped to be much wider on both sides due to the unstable organic soils encountered. Although the design for this area anticipated substantial groundwater being present in the excavated trench, it wasn't present. As a result, instead of using geofoam blocks needed to provide additional pipe support in a wet environment, they were omitted and the trench was backfilled with a sufficient base layer of crushed rock to support the HDPE pipe.

After the July 4th holiday, the TracStar HDPE fusing machine began joining the individual 50-foot HDPE lengths into a longer segment. Unlike the first 240-foot segment installed in June using multiple excavators to lower it into the trench, a different method is now being used. The TracStar remained in the trench much of this month while it repeatedly fused individual 50-foot segments into a continuous length. As each 50-segment was pulled further along the trench to prepare space for making the next fusion joint, a series of steel rollers supported the pipe above the foundation gravel to avoid any damage to new HDPE pipe. By the time the entire 650-foot length was prepared, additional protective supports were also provided by installing multiple 6-foot lengths of 6-inch HDPE pipe laid perpendicularly across the bottom of the trench along with temporary vertical HDPE rollers that maintained 42-inch HDPE pipe's deflection as it remained centered in the ditch.

Once it is installed in the new trench and connected to the existing 240-foot segment of HDPE pipe with an electrofusion coupling, the entire exposed length will be backfilled. It is first completely bedded with fine gravel all-around to provide uniform support and then backfilled with larger material to finish grade, and finally compacted.

Work has also started at the other end of the School's parking lot where galvanized steel pilings and concrete pile caps are being installed that will support the next segment of this water main as it crosses over Schoenbar Creek. This water main crossing assembly requires the combination of both buried HDPE and exposed ductile iron pipe in order to ensure the top of this insulated iron pipe doesn't obstruct a driver's view of any oncoming Schoenbar Road east-bound traffic while they safely turn left and leave the School's parking lot.

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.

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 mid to late 2023.

However, despite the delay caused by lack of these critical nodes, KPU's draft 2023 Budget will still propose completion of this project in 2023. It will 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 is now planned to occur this fall.

The next PLC to be replaced will be at the Old Chlorination Building (CP-300) in 2023 followed by the third and final PLC at the Ammonia Building (CP-400) in 2025. This will allow all of these critical PLC's to migrate to the modern Allen-Bradley ControlLogix PLC platform while also spreading the capital expenditure over several years.

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 contractor mechanisms.

With direct replacement mechanical starter contactors are 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.

Two Allen-Bradley soft starters that were ordered earlier this year have been shipped to RMC Engineering Services in Juneau who are fabricating their metal enclosures. Once assembled they will be returned to Ketchikan for installation in the pump station this summer.