Alaska Remote Maintenance Worker Program
Department of Environmental Conservation, Division of Water

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ANNUAL REPORT

Federal Fiscal Year 2022

RMWs and RMW Supervisors at the 2022 Annual RMW Meeting.

Prepared by the

Alaska Department of Environmental Conservation
Division of Water
Technical Assistance Program

December 2022

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YKHC RMW Shane McIntyre assisting with an axle repair in Hooper Bay

EXECUTIVE SUMMARY

- The Remote Maintenance Worker Program provides technical assistance and training to operators of rural water and wastewater systems in nearly 200 Alaskan communities.
- Eleven full-time and one-half-time RMWs are employed by regional health corporations and funded through grants administered by the Alaska Department of Environmental Conservation's (ADEC) Technical Assistance and Financing Program. ADEC employs three additional RMWs and an RMW Program Coordinator.
- In FFY22, the RMW program was funded by two 25/75 state/federal matching grants; the Environmental Protection Agency contributed $2,131,532, and the US Department of Agriculture, Rural Development provided $360,000. The State of Alaska contributed $830,510 in matching funds, for a total of $3.32 million.
- In FFY22, 14.5 RMWs accomplished the following:
  - Provided over 2,126 hours of hands-on training and technical assistance to 96 communities.
  - Completed 135 routine village trips to 84 communities.
  - Completed 48 emergency trips.
  - Fielded 7,190 phone calls from communities requesting assistance.
- Eighty-two RMW-supported communities had properly certified primary operators at the close of FFY22, and 29 villages also had backup operators certified at the correct level.
- No communities supported by the RMW program experienced a catastrophic failure of their water or wastewater system.

YKHC RMWs assisting with installing arctic piping from the river in Tuluksak

THE REMOTE MAINTENANCE WORKER PROGRAM

The Remote Maintenance Worker (RMW) Program was initiated in 1981 to provide onsite training and technical assistance to operators of water and wastewater utilities in rural Alaskan communities. State and federal agencies had been expending considerable funds to design and construct safe sanitation facilities in rural Alaska, only to have systems fall into disrepair or fail due to insufficient local technical skills, lack of preventative maintenance, and improper operations. By employing skilled and knowledgeable RMWs to provide training and assistance to community operators, the RMW Program strives to build local operational capacity and avert the catastrophic failure of utility systems.

The State of Alaska, Environmental Protection Agency (EPA), US Department of Agriculture - Rural Development (USDA-RD), and the Indian Health Service (IHS) have invested over two billion dollars in rural Alaskan villages to provide safe drinking water and sanitary sewage disposal. Since its inception, the RMW Program has worked diligently to protect this investment. Today, the Program includes 14.5 RMWs serving nearly 200 communities throughout the state. Five regional health corporations provide RMW service through grants administered by the State, and three additional RMWs are employed directly by the Alaska Department of Environmental Conservation (ADEC).

The Mission of the RMW Program is: *To develop the capacity of rural Alaskans to operate and maintain their local sanitation facilities in a manner that protects the health of rural residents and the village environment, while safeguarding state, federal, and community investments in water and sewer infrastructure.*

In support of this mission, RMWs offer relevant on-the-job and classroom training; provide routine onsite preventive maintenance assistance to local operators to ensure that sanitation facilities and system components do not fail prematurely; and respond to water and sewer emergencies to maintain service and prevent catastrophic infrastructure failures. Further, RMWs promote the importance of the utility operator's role in protecting public health in an effort to elevate the status of the position to one deserving merit within the community. In coordination with the Rural Utility Business Advisor Program (RUBA), housed in the Alaska Department of Commerce, Community, and Economic Development (DCCED), RMWs strive to bring operators, administrators, and community leaders together to address the overall capacity of the utilities including technical, managerial, and financial aspects.

Among the many accomplishments of the RMW Program are improved record-keeping by utility operators, increased operator certification rates, increased hours of on-the-job training, and an overall increase in capacity for communities to address the needs of their utilities, both on a daily basis and in emergency situations.

FEDERAL FISCAL YEAR 2022 ACCOMPLISHMENTS

The RMW Program is funded by grants from the EPA and USDA-RD, each of which requires a 25% State match. As a whole, the program received $3.322 million in Federal Fiscal Year 2022 (FFY22); $2,131,532 in EPA funds, $360,000 in USDA-RD funds, and $830,511 in State matching funds.

A total of $2,249,680 in RMW grants were awarded to the following regional non-profit health corporations: Bristol Bay Area Health Corporation (BBAHC), Maniilaq Association (MA), Norton Sound Health Corporation (NSHC), Tanana Chiefs Conference (TCC), and the Yukon Kuskokwim Health Corporation (YKHC). Additionally, the State continued to provide RMW service to the Aleutian, Pribilof, and Kodiak Islands, Kenai Peninsula area, Southcentral, and Southeast Alaska.

A historical perspective of RMW grant funding to regional non-profit health corporations is presented in Appendix A. For RMW services provided through grants to regional non-profit health corporations, the cost for the 92 primary communities served in FFY22 was approximately $24,453 per community. For RMW services provided through DEC, the cost for the 57 primary communities served in FFY22 was approximately $11,655 per community.

Reporting Period

The outcomes within this report will show data for the FFY 2022, ending September 30, 2022.

Technical Assistance Outputs

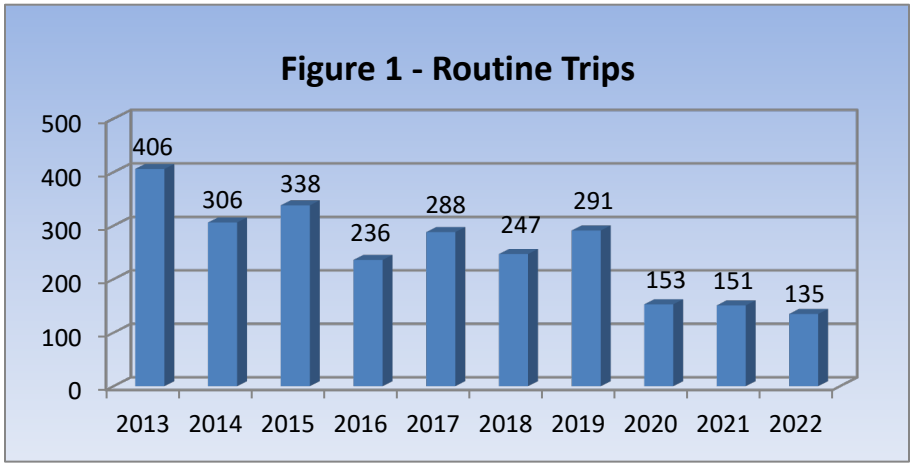
RMW sub-grants require RMWs to provide a basic level of service that emphasizes routine training trips, preventive maintenance, emergency response, and other capacity building technical assistance activities. Grant requirements aimed at building local capacity include developing, revising, and implementing preventive maintenance plans; providing classroom instruction to village operators that will prepare them for certification exams; providing hands-on, on-the-job training; and participating in community-level meetings that target overall utility management capacity improvements.

The following measurable outputs related to onsite and technical assistance that were completed in FFY22:

Routine Trips

Within each region, RMWs are assigned to provide support to specific communities. The majority of the communities served are considered "primary," meaning that they receive regular and routine RMW assistance. Additionally, each region has a small number of "advisory" communities to which RMWs provide support. Advisory communities are generally those that do not have community water or wastewater systems, utilize individual drinking water wells and onsite wastewater systems, and/or have very few residents. Other advisory communities may have the capacity to successfully operate their utilities without regular RMW assistance. RMWs are expected to visit each of their assigned primary communities based on the needs of the community. This allows flexibility for the RMWs to make trips to communities where their services are most needed. Unexpected emergencies, weather delays, and scheduling conflicts are all common obstacles to completing routine trips.

In FFY22, the RMW Program expected to make between 350 and 400 routine trips. In total, the RMWs made 135 routine trips during this reporting cycle. The reduced number of trips is attributable to the COVID-19 pandemic and the loss of RMW staff in the YKHC and TCC regions.



Routine Trips

Projected: 350-400
Achieved: FFY22 135
5 Year Average: 196

***Throughout the report, 2013-2019 reflect State Fiscal Years. 2020-2022 reflect Federal Fiscal Years.**

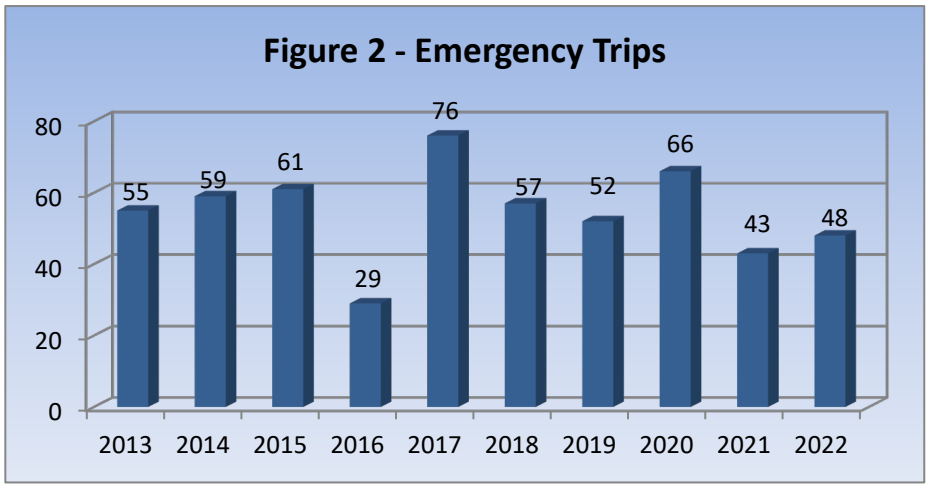
Emergency Trips

Emergency trips are made to address situations which would otherwise result in the failure of some or all of a community sanitation system. By focusing on proper operations and maintenance, RMWs strive to reduce the need for emergency trips. However, turnover of both operators and system managers, as well as high operational costs coupled with a lack of local economy, often hinder the best RMW efforts. Further, emergencies are often precipitated by extreme natural conditions; common circumstances which warrant RMW emergency trips are spring flooding and winter freeze-ups.

It is difficult to project the number of emergency trips that will be required during any given year; however, the five-year average between SFY18 and FFY22 is 53.2 per year. During this reporting period, RMWs made 48 emergency trips.

Emergency Trips

Projected: <30
Necessary: 48
5 Year Average: 53.2

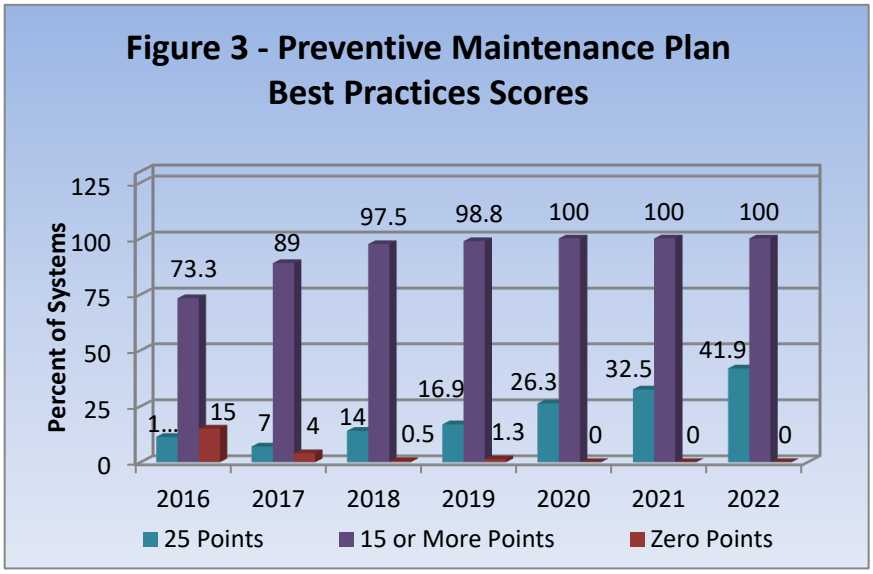


Preventive Maintenance Plans

Preventive maintenance (PM) plans are critical tools for ensuring proper maintenance of water and wastewater systems. In turn, PM plans help protect public health, improve system reliability, and prolong the lifespan of aging systems. Additionally, PM plans serve as an important management tool for community administrators when determining staffing requirements, as well as actual operation and maintenance costs. Historically, RMWs have assisted operators in developing and revising PM plans, particularly following system modifications.

With the implementation of the Operations and Maintenance Best Practices (Best Practices), RMWs have been tasked with assisting communities in the development of adequate and appropriate PM plans, as well as confirming that the required PM is completed. Communities that have a written PM plan, perform PM on schedule, and submit completed records to the RMW quarterly for verification receive 25 Best Practices points. Utilities that have a written PM plan, but PM performance and record keeping are not consistent receive 15 points. Utilities that either have no PM plan, or do not perform PM, receive no points.

During this reporting period, 95% of RMW supported communities were expected to achieve PM scores of at least 15, with 10% expected to achieve scores of 25. At the end of the reporting period, 167 of 167 communities (100%) scored 15 PM points or more and 70 (41.9%) scored 25 points. No communities received zero points.



PM Plans

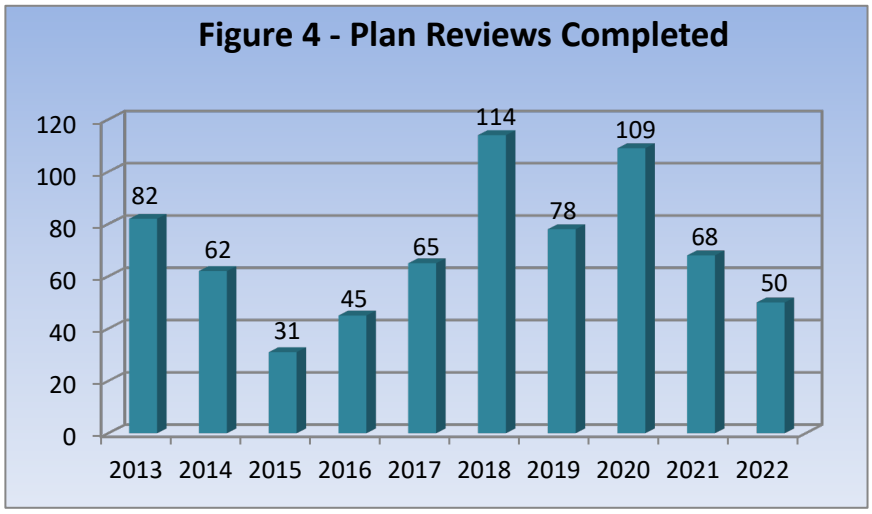
Projected: 90% score of 15+
Achieved: 100% scored 15+

Projected: 10% score 25
Achieved: 41.9% scored 25

Plan Review

RMWs offer a unique perspective to the plan review process for utility system construction projects, combining their understanding of the communities and their hands-on experience with water and wastewater treatment in rural Alaska. Whenever possible, RMWs participate in plan reviews, primarily providing comments from the operations and maintenance perspective.

The RMW Program anticipated participating in 15 plan reviews but actually completed 50.



Plan Reviews

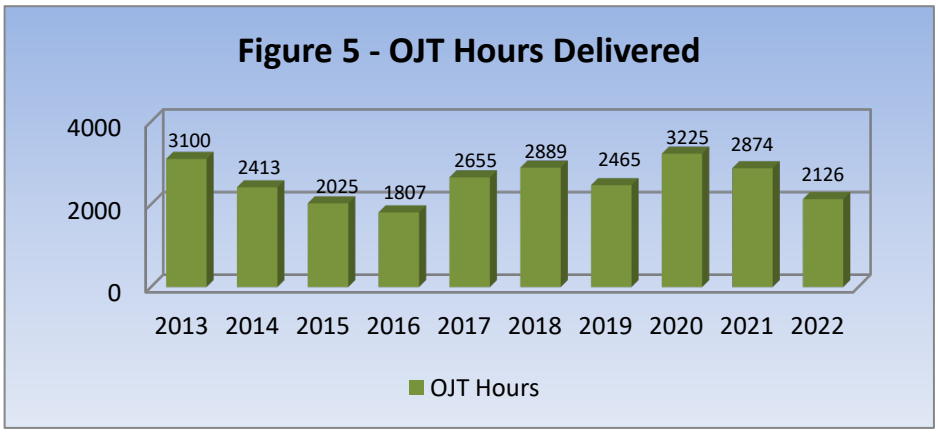
Projected: 15
Achieved: 50
5 Year Average: 83.8

Operator Training and Certification Outputs

Grantees are obligated to work directly with local operators and utility managers to address operator certification requirements. The following are measurable outputs completed by the RMWs during FFY22 related to operator training and certification:

On-the-Job Training (OJT)

During both routine and emergency visits, RMWs work directly with operators to impart the knowledge necessary for the proper operation and maintenance of their utilities. This one-on-one guidance within the context of the operator's own plant is one of the most valuable aspects of the RMW Program. The RMW Program projected to deliver 1,200 hours of OJT to operators. The RMWs exceeded this projection by administering a total of 2,126 hours of OJT during the reporting period.



OJT Hours

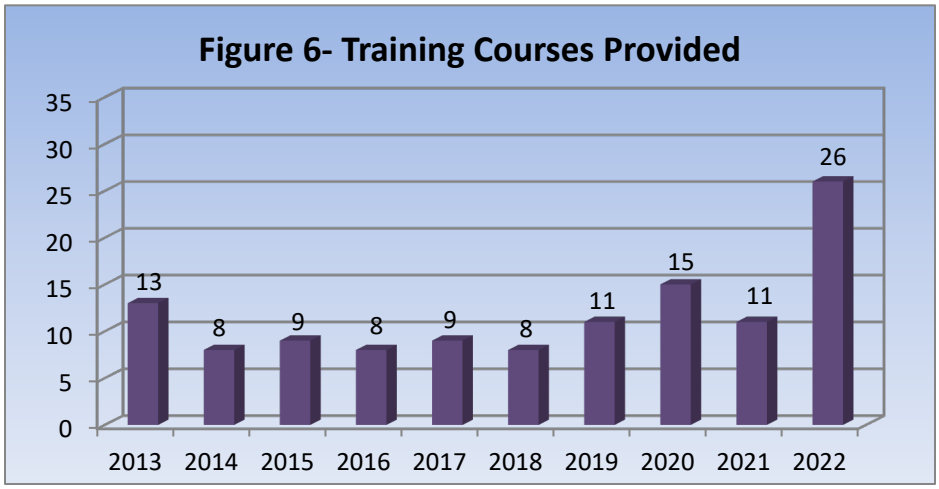
Projected: 1,200
Achieved: 2,126
5 Year Average: 2,716

Training Courses

RMWs are required to coordinate and deliver entry-level training courses within their region to help operators prepare for taking certification exams. The RMWs anticipated providing 10 training courses but offered 26 courses. In FFY22, RMW offered the following trainings.

- Online Continuing Education Unit course material usage
- Onsite Streaming Current Detector
- Lift Station Safety & Pump Removal
- Turbidimeter Calibration
- Introduction to Water Systems course
- Basic Water Treatment Plant Operation training
- Introduction to Water Systems course
- Water, Compliance, Reporting & Sampling (x3)
- Chlorine Pump & Turbidimeter Operations
- Online Pump & Motor Troubleshooting
- Distribution balancing valve adjustment
- Raw Water Intake Pump Removal & Cleaning (x2)
- Turbidimeter Calibration
- Small Water Treatment
- Small Untreated Water Systems
- Water Treatment Level 1 (WT-1)
- Basic Water Treatment Plant Operation, Regulations, & Compliance
- Electrical Control Training (4/20ma simulation)
- Online Treated Lagoons
- Online Small Water Treatment
- Financial Management for Rural Utilities
- Twice during the FFY, DEC and YKHC RMWs, in collaboration with the Alaska Native Tribal Health Consortium (ANTHC), instructed the following online training course series:
    - WT-1 Surface Water
    - WT-1 Coagulation and Filtration
    - WT-1 Basic Electrical
    - WT-1 Pumps/Controls
    - WT-1 Treatment Plant Safety
    - WT-1 Water Treatment Plant Wells

FFY 22 Baseline and Program Outcomes



Trainings

Projected: 10
Achieved: 26
5 Year Average: 14.2

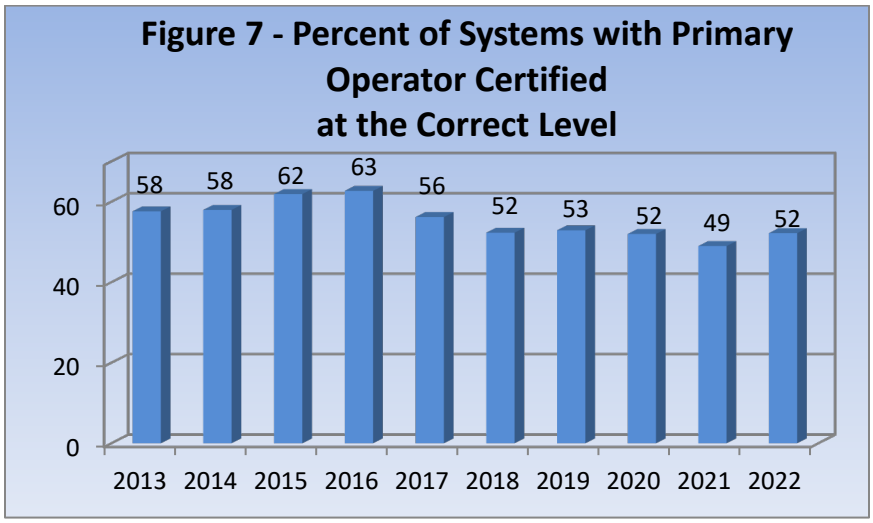
Building upon the baseline data established at the end of FFY21 (see Appendix B), the FFY22 RMW Grant Work Plan defined anticipated outcomes for the year. End-of-year data for FFY22 was summarized (see Appendix C), and the following is a comparison between the projected and the end-of-year outcomes.

System Failures

The RMW Program experienced no catastrophic system failures in the RMW-supported villages as a result of operations and maintenance (O&M) deficiencies. The lack of catastrophic system failures is largely the result of operator preventive maintenance training by RMWs, constant communication between the RMWs and operators, and timely response by RMWs when assistance was requested.

Operator Certification

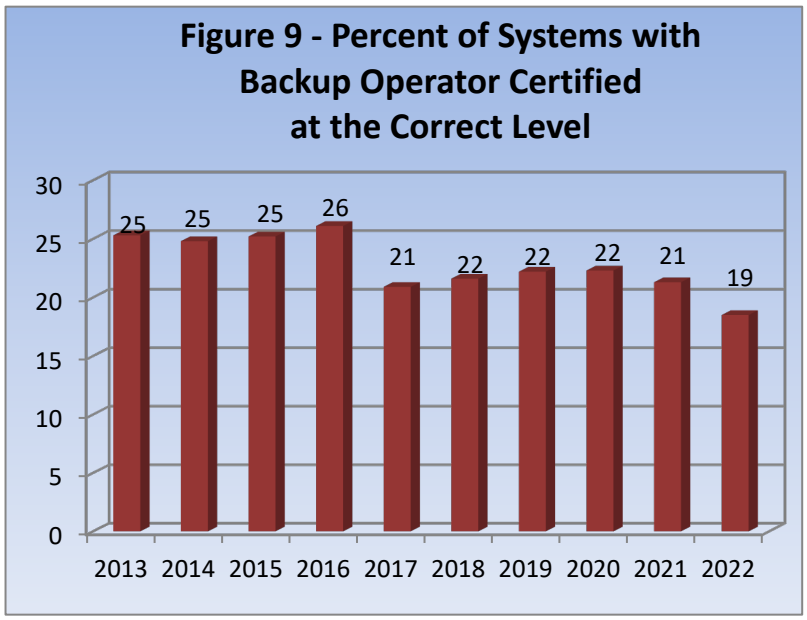
The RMW Program aimed to ensure that a minimum of 60% of RMW supported communities have a primary operator certified at the required water treatment level. At the end of the reporting period, 52% of the communities had properly certified primary operators. Eighty-two village systems have operators certified at the correct level of their plant as of the end of the reporting period; an additional 45 systems have primary operators certified at some level.



Primary Operator Certification

Baseline: 49% (76 of 155)
End-of-year Target: 60%
Outcome: 52.2% (82 of 157)

The RMW Program also aimed to increase the number of RMW-served communities with a backup operator certified at the required water treatment level by 3%. At the end of the reporting period, 29 systems had backup operators certified at the correct level of the plant, and another 42 systems had backup operators certified at some level.



Backup Operator Certification

Baseline: 21.3% (33 of 155)
End-of-year Target: 25.0%
Outcome: 18.5% (29 of 157)

Operator certification requirements are directly related to the complexity of the water system. Many rural Alaskan communities rely on water sources that require complex treatment and, therefore, an operator with a high level of certification. More than half of the communities served by the RMW Program have water treatment systems that require an operator at a Level 1 or higher. In addition to successfully completing the required certification exams, operators must have some amount of post-secondary education to attain these certification levels. *Figure 13* demonstrates that as system classification increases, so does non-compliance with operator certification requirements.

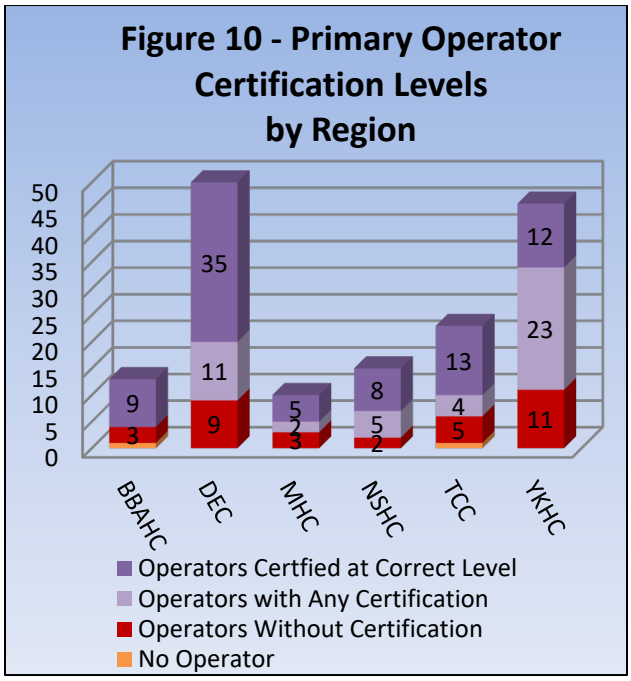


Figure 10 - Primary Operator Certification Levels by Region
50
45
40
35
30
25
20
15
10
5
0
9
3
35
11
9
5
2
3
8
5
2
13
4
5
12
23
11
BBAHC
DEC
MHC
NSHC
TCC
YKHC
Operators Certfied at Correct Level
Operators with Any Certification
Operators Without Certification
No Operator

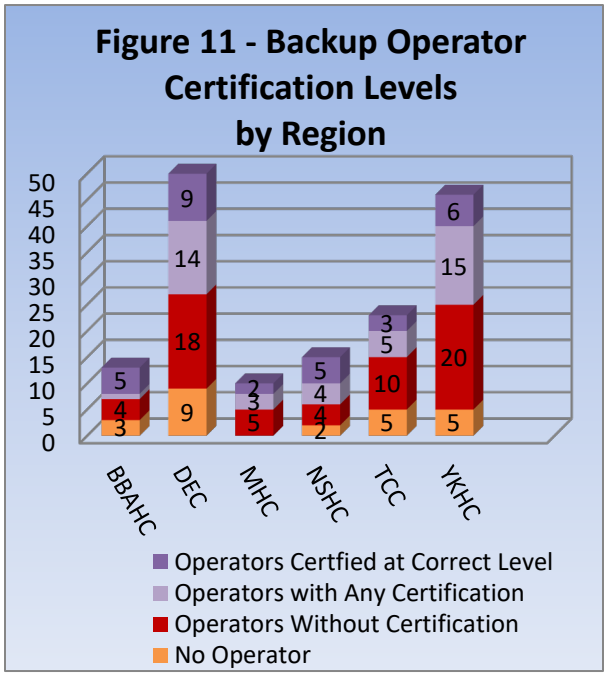


Figure 11 - Backup Operator Certification Levels by Region
50
45
40
35
30
25
20
15
10
5
0
5
4
3
9
18
9
2
3
5
5
4
4
2
3
5
10
5
6
15
20
5
BBAHC
DEC
MHC
NSHC
TCC
YKHC
Operators Certfied at Correct Level
Operators with Any Certification
Operators Without Certification
No Operator

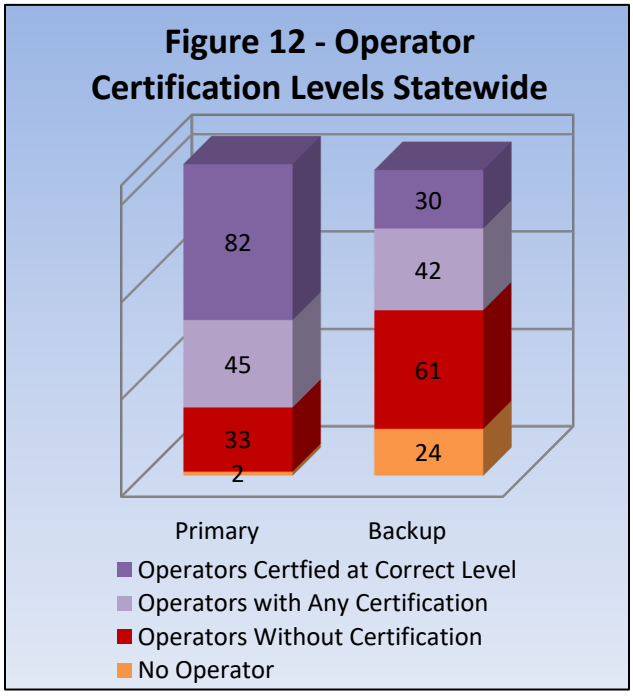


Figure 12 - Operator Certification Levels Statewide
82
45
33
2
30
42
61
24
Primary
Backup
Operators Certfied at Correct Level
Operators with Any Certification
Operators Without Certification
No Operator

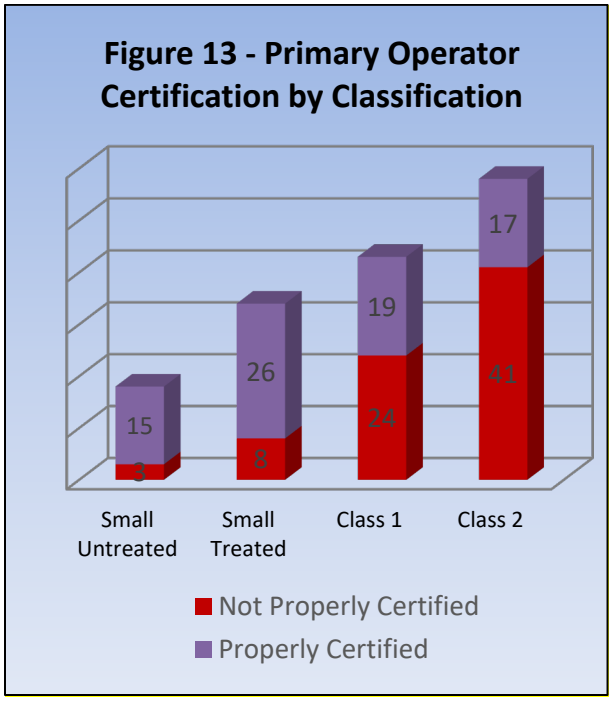
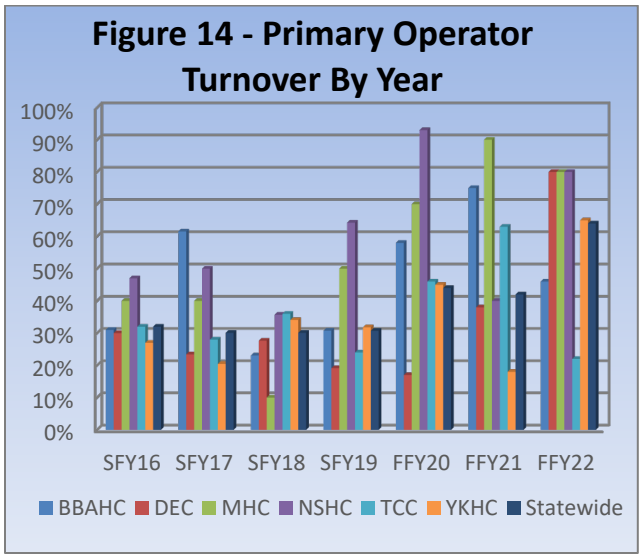
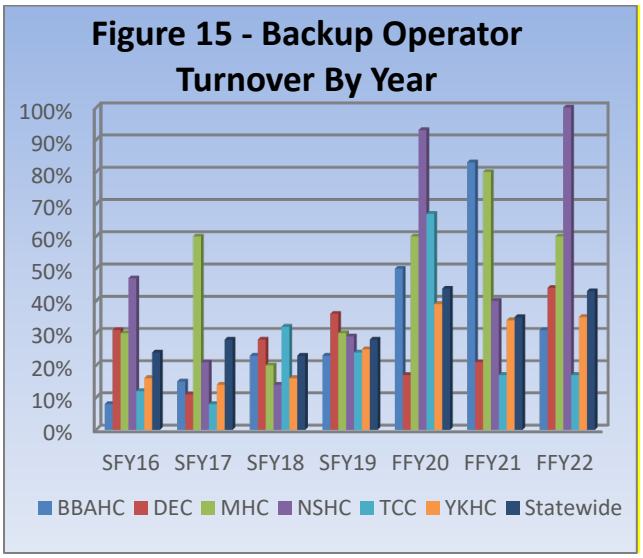
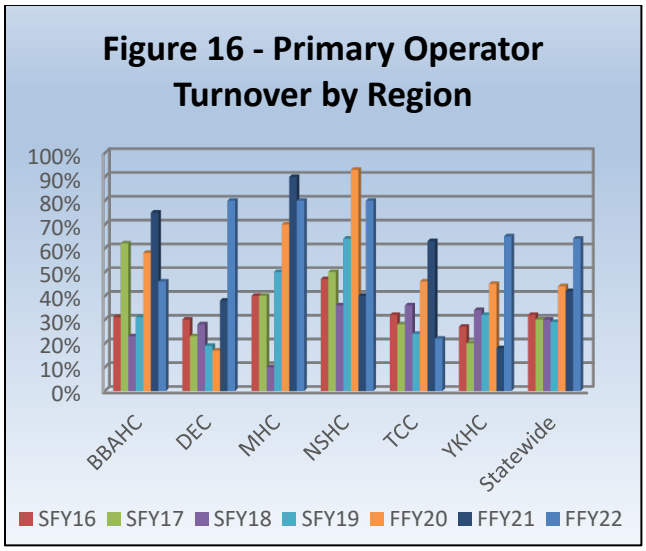


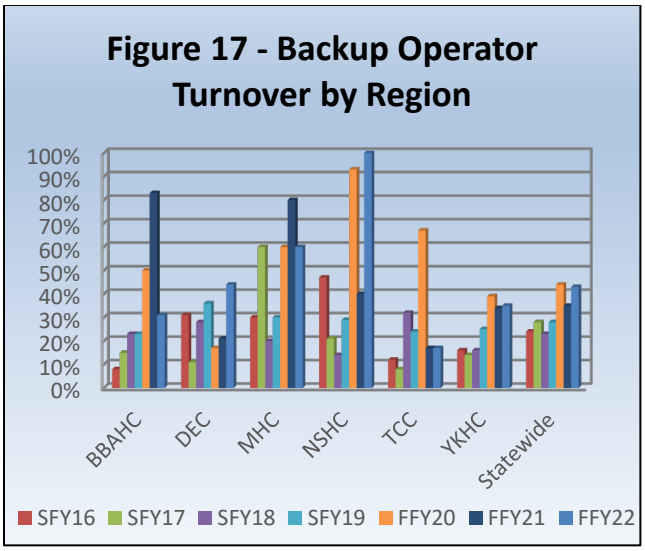
Figure 13 - Primary Operator Certification by Classification
15
3
26
8
19
24
17
41
Small Untreated
Small Treated
Class 1
Class 2
Not Properly Certified
Properly Certified

Operator turnover has been and continues to be a significant obstacle in the effort to increase the operational capacity of rural utilities. During FFY22, 64% of RMW supported communities experienced at least one change in primary operator; 43% also experienced a change in backup operator. In many cases, these communities had several instances of turnover in both the primary and backup operator positions. Turnover varied from region to region, with some experiencing as much as 80% turnover in primary operators and 100% in backup operators. Statewide, communities experiencing turnover of primary operators increased from 42% in FFY21 to 64% in FFY22; turnover of backup operators also increased from 34% to 43%.







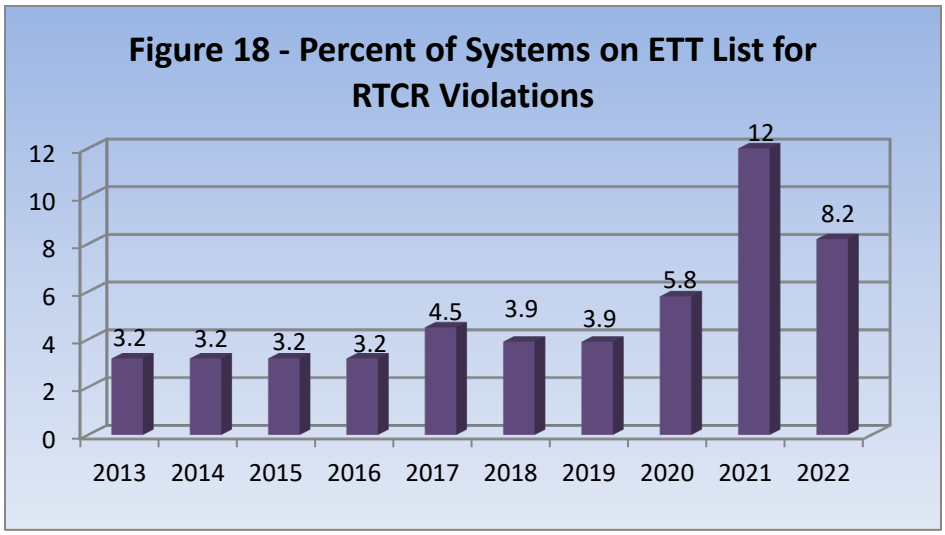


For certificates that expired on December 31, 2021, four primary drinking water operators from RMW-supported communities lost their certifications due to a lack of required Continuing Education Units (CEUs); one primary operator obtained the required CEUs, but has not yet paid the renewal fees. In these cases, both the RMWs and the Operator Certification and Training Program had been in contact with the operators to encourage them to take appropriate measures for retaining certification. Other factors that impact operator certification may be beyond the control of the RMW Program.

Compliance

Remote Maintenance Workers spend considerable time working directly with operators to ensure that they possess the knowledge and skills required to safely operate and maintain their systems. In addition, RMWs dedicate significant time and effort to assisting water system personnel, from operators to administrators, in meeting regulatory monitoring and reporting requirements.

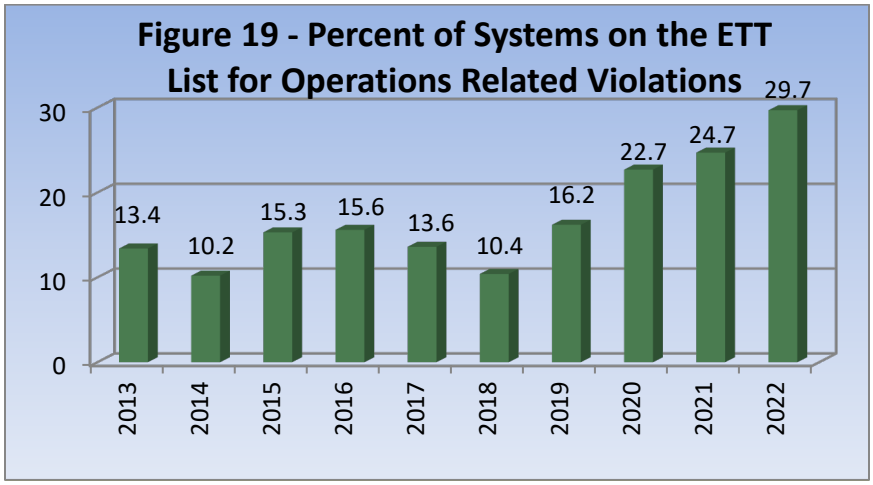
The RMW Program projected that less than one percent (1%) of RMW-supported villages would be on the Enforcement Targeting Tool (ETT) list for violation of the Revised Total Coliform Rule (RTCR) at the end of FFY22. At the close of the year, Akutan, Alakanuk, Anvik, Chignik Lake, Crooked Creek, Grayling, Nondalton, Nunam Iqua, Kasigluk, Platinum, Port Protection, St. George, and Tuluksak were on the ETT List for failure to monitor and report as required by the RTCR. This represents 8.2% of RMW served communities.



TCR ETTs

Baseline: 12% (19 of 158)
End-of-year Target: < 1%
Outcome: 8.2% (13 of 158)

The RMW Program projected that less than ten percent (10%) of RMW-supported villages would be on the ETT list for any operation-related violations not related to the RTCR. Fourty-six systems, or 29.1% of RMW-supported systems, were on the ETT List for violations, including failure to conduct quarterly or annual chemical monitoring, maintain adequate chlorine residual, or report daily chlorine and turbidity monitoring results. The reported communities included Akhiok, Akutan, Alakanuk, Angoon, Anvik, Arctic Village, Chefornak, Chignik Lake, Chalkyitsik, Clark's Point, Coffman Cove, Crooked Creek, Galena, Grayling, Hydaburg, Hooper Bay, Kasigluk, Kwethluk, Kwigillingok, Lower Kalskag, Manokotak, Nanwalek, Nelson Lagoon, Newtok, Nightmute, Nondalton, Nunam Iqua, Nunapitchuk, Old Harbor, Oscarville, Pilot Station, Platinum, Port Alexander, Port Protection, Scammon Bay, Shishmaref, Sleetmute, St. George, Tatitlek, Teller, Tuluksak, Tuntutuliak, Twin Hills, Unalakleet, Venetie, and Wales.



Operation-Related ETTs

Baseline: 24.7% (39 of 158)
End-of-year Target: < 10%
Outcome: 29.7% (46 of 158)

Many factors that affect a community's capacity to deliver water and wastewater services in rural Alaska are beyond the control of the RMW program. These factors often create situations that make progress difficult to quantify. Often, maintaining the ground that has been gained since program inception or from one year to the next is considered a success. Turnover of community leaders and operators, poor economic health of rural communities, competing forms of village government, and local institutional deficiencies, along with socioeconomic factors, can be formidable roadblocks to progress. Another factor that directly impacts the success of sanitation systems and the RMW Program is the necessity for many systems to become increasingly more complex in response to new regulatory requirements. This often results in operators having significant technical capacity deficits. In addition, increasing energy costs often diminish the amount of local funds available for adequate operations and maintenance.

The RMW Program has established goals that are realistic yet challenging to meet. While not all of the targets were met in FFY22, no significant deterioration in previous progress occurred. As the dynamic nature of the work continues to be strongly impacted by the remnants of the COVID-19 pandemic, these results should be considered successful.

FEDERAL FISCAL YEAR 2022 PROGRAM HIGHLIGHTS

Although travel restrictions and isolation practices accompanied COVID-19 at the beginning of FFY22, the RMWs continued to adapt and were proactive in providing quality service to their communities.

In September 2020, Bristol Bay Area Health Corporation RMW Supervisor Rex Spofford submitted his resignation, with his last day on the job in October 2020. The position remained vacant throughout FFY21. However, in October 2021, the vacant BBAHC RMW supervisor was filled by George Larsen.

In July 2021, DEC RMW Clay Cook resigned. The position continued to be vacant through FFY21. In January 2022, the position was filled by Matthew Russell.

The DEC Remote Maintenance Worker, Capacity Development, and Operator Certification Programs, with input from the Drinking Water, Wastewater, and Rural Utility Business Advisor Programs (RUBA), created a 2022 Monthly Calendar as a resource for communities. Published in November 2021, the calendar highlights important dates and time-sensitive tasks for municipal water plants, city clerks, and bookkeeping staff. The calendars also include reference pages with important contact information and descriptions of key programs that support Alaska's public water systems.

In December 2020, the RMW program established a Weekly Winter Issues Report. This report was continued throughout the 2021-2022 winter months. The report provided a brief rundown of freeze-ups communities and RMWs were experiencing and assisting in resolving. The report was sent to over 60 recipients, including the DEC Commissioners' office, DEC Directors, RMW supervisors, Village Safe Water (VSW) and ANTHC engineers, and other technical assistance providers.

From August to October 2022, the RMW program participated in agency coordination meetings for the six RMW regions of the state (ADEC, BBAHC, Maniilaq, NSHC, TCC, YKHC). All of the meetings were conducted in a hybrid format allowing participants to attend in person or virtually. The meetings provided an opportunity to coordinate with agencies that work with rural Alaskan communities on issues related to sanitation. Other agencies participating in the meetings included regional tribal health corporation sanitarians; RUBA; the DEC Drinking Water,Wastewaterm and Solid Waste Programs; and VSW and ANTHC engineers. During the meetings, RMWs described each rural community system's status and received input from other programs and agencies regarding community-specific issues, updated classification and operator information, and discussed options available to communities for achieving compliance.

In December 2021, TCC RMW Fred Withrow resigned and transferred to another position within TCC. Shortly after, RMW Bryan Roesing resigned, leaving two vacant RMW positions within the TCC RMW program. In July 2022, one of the vacant positions was filled by Scot Demientieff. In September 2022, the second vacant position was filled by Duane Burnham. During the fiscal year, the TCC RMW program received a donated portable water treatment plant that fits in a Cessna Caravan airplane thanks to Rotary District 5010, NTL Alaska Inc, Campwater Industries LLC, and the Denali Commission.

The Norton Sound Health Corporation RMW program continued to have significant changes during the reporting period. In February 2022, Luke Smith transferred from RMW field staff to the RMW program supervisor. However, in July 2022, he resigned. The position was filled by RMW field staff Richard Kuzuguk. In August 2022, John Bullock was added as an RMW field staff, and unfortunately in September 2022 was placed on administrative leave and subsequently resigned. In August 2022, Shyler Johnson was hired as an RMW based out of Unalakleet. Shyler was previously an RMW in the Maniilaq region.

The Maniilaq region has remained relatively stable throughout the fiscal year. This is partly due to the Community Utility Assistance Program (CUAP), which is a partnership between the Northwest Arctic Borough, ANTHC, and the Maniilaq Association. This program has reduced most residential customers' water and sewer utility rates by about two-thirds. It is also reducing the number of water/sewer emergencies, providing training and support for operators and administrators, and making communities more competitive for construction grants.

The YKHC region experienced traumatic losses to their RMW program. In July 2022, RMW Billy Westlock unexpectedly passed away. Billy worked as a RMW with the Yukon-Kuskokwim Health Corporation for the past 20 years. Billy primarily served the Lower Yukon communities but often taught classes in Bethel and traveled around the region to assist RMWs and water plant operators in other Yukon-Kuskokwim Delta communities. It is often joked that RMW actually stands for "Real Miracle Worker." Billy certainly was a miracle worker. He helped operators troubleshoot hundreds of problems over the years, some with a short phone call, and others in person. His quick thinking and action saved millions of dollars in damages to utility systems and prevented countless illnesses by keeping water and wastewater services flowing.

RMW Billy Westlock

Compounding the loss, in August, RMW Shane McIntyre, passed away in a boating accident on the Kuskokwim River. Shane was with the RMW program for four years and was a great asset to the YKHC team. He handled all the needs at the warehouse as he repaired and shipped equipment to villages all over the YKHC service area in addition to his regular duties working with water plant operators in his assigned villages. He was always looking for creative ways to solve problems and could be counted on to come up with a way to accomplish the task with whatever he could find laying around. Shane was a true "MacGyver".

RMW Shane McIntyre

On May 5-6, 2022, the RMW program held an in-person Annual meeting. This was the first in-person meeting since the beginning of the COVID-19 pandemic. Thirteen RMWs along with the RMW supervisors statewide met in Anchorage and discussed a variety of topics. The meeting agenda is included in the appendices. At the close of the meeting, three RMW were acknowledged for their over 20 years of service.

RMWs Bruce Werba 27 years, Allan Paukan 25 years, and Billy Westlock 20 years of service

As always, each of the regions responded to unique and challenging situations in FFY22. In the beginning of FFY22 the COVID-19 pandemic hampered RMWs' ability to travel and respond to requests for assistance. The RMWs had to constantly assess and reassess ways to assist communities. This curtailed routine village travel in the beginning of FFY22 as each village had different travel restrictions, quarantine requirements, and exceptions for service providers such as RMWs coming into the village.

The following are just a few examples of RMW successes during the past fiscal year.

Bristol Bay Area Health Corporation

In FFY21, BBAHC's RMW program continued its focused communication resulting in receiving consistent Preventative Maintenance Plans from Chignik Lagoon and Aleknagik. Additionally, significant efforts were put into facilitating operator participation. The operator certification rate increased in FY22 due to increased operator participation in remote trainings.

On January 2, 2022, a severe winter storm hit the Bristol Bay region with extremely low temperatures and high winds. South Naknek's water treatment building completely froze and broke numerous pipes and valves when the power was knocked out and wind blew the treatment building's door open. Due to the community having no functioning back-up generator for the treatment building, the pipes froze solidly. With assistance from ARUC's engineer sourcing parts, the BBAHC RMW was able to quickly respond and provide emergency repairs that reestablished water service to the community within a few days. An extended loss of water service would have been an extreme hardship during this storm event. This event demonstrated the high value and irreplaceable service of the RMWs and the RMW program to our remote Alaska villages.

Additionally, the BBAHC RMW supported New Stuyahok with seven site visits and numerous phone consults in FY22. Five of the seven visits were emergency in nature. The community was on an extended boil water notice and was very near running out of water on several occasions. While the water and sewer operators and systems struggled mightily, the extraordinary efforts of the BBAHC RMW working with the ARUC engineer and manager kept the community from running out of water and kept the basic sewer system functional through a long and difficult winter and spring of 2022. Although all the challenges with New Stuyahok water and sewer services have not been completely solved, it is considered a major victory to have maintained water service to this community throughout an extremely difficult winter season and a challenging spring season.

BBAHC RMW Kenny Parker, a well pump in New Stuyahok.

Department of Environmental Conservation

During the week of January 3, several residents in the community of Angoon reported low or no water pressure and appeared to have freezing issues in their distribution system. The assigned DEC RMW wasted no time in responding and advised the operator to get out their distribution map and make a list of customer complaints of low or no pressure, and mark on the map where these issues were so they could effectively locate and isolate any line breaks to save the unfrozen sections of the system. The RMW also advised the operator to monitor the storage tank levels and continue to make water. Additionally, the RMW traveled to Angoon with the ANTHC Tribal Utility Support group staff and together they addressed the issues, restored service, and stabilized the system.

In March 2022, DEC RMWs traveled to Nikolai to assist the community with an overflowing lift station. Once on site, RMWs observed grey water frozen inches deep both inside and outside the control box room. Additionally, sewage covered the floor of wet well room and outside on the ground. The RMW installed new electrical components and assisted the community with the installation of a new lift pump and associated piping. Due to the RMW assistance, the downed lift station was repaired and operational.

In September 2022, the RMW assigned to St. George traveled to the community to repair and clear sanitary survey deficiencies, administer certification tests, and perform overdue sampling. While onsite, the RMW and the operator reviewed the 2021 sanitary survey deficiency list and fixed nine of the thirteen deficiencies on the list. Also, while onsite, the RMW met with the new mayor and city clerk to discuss the community's Best Practice scores, current monitoring summary, and the basics of compliance sampling and reporting. Additionally, the RMW proctored small untreated exams the operator and backup operator who both passed.

RMW Russell replacing a lift station pump in Nikolai.

RMW Graber replacing the well cap and seal in St.George

Also, during SFY22, the DEC RMW Program participated twice in the ANTHC led online Water treatment level 1 class by teaching alongside individuals from ANTHCs Environmental Health and Tribal Utility Support groups. In total, forty operators from 18 communities across Alaska attended the class. Twenty-three of the operators passed the certification exam.

Maniilaq Association

The Maniilaq RMW Program assisted the community of Kiana in getting their heat recovery system back up and running. Getting the system back online allowed the community to save approximately 90% on fuel, and they only burned around 400 gallons over the winter.

In November 2021, despite significant over the phone assistance provided by the Maniilaq RMW, operators in the community of Selawik could not get the raw water transmission line thawed and flowing. The RMW and a CUAP Roving Operator made a trip out to help Selawik address the issue. The transmission line was jetted to the well pump house, and once it was thawed out it was discovered that the drop line from the pump house to the river intake motor was also frozen. The RMW and CUAP team fabricated a makeshift river pump that allowed water to flow into the water treatment plant to be treated and distributed and saved the water distribution system. Additionally, instead of trying to thaw the drop pipe, the team constructed a new one utilizing parts and arctic pipe available in the community. Once the new intake was completed, there were no issues for the remainder of winter.

RMW Bruce Nelson with Maniilaq working with Selawik staff to connect a new arctic pipe.

Norton Sound Health Corporation

NSHC RMWs responded to several water emergencies in aging systems and spent significant
effort during the winter working with operators to resolve boil water notices and water conservation issues.

In January 2022, the community of Elim reported that the water tank was empty, and the community had raw water bypassing into the distribution system. The NSHC RMW traveled to the community and assisted with getting the system stabilized, including changing a bladder in a pressure vessel.

In February 2022, the community of Diomede had a complete power outage which caused the washeteria service line to freeze and caused issues with the water treatment plant heat-add system and ice to form in the water storage tank. In addition, the washeteria septic tanks froze. The NSHC RMW and RMW supervisor traveled to the community once the power was restored and assisted in thawing the service line, fixing the water storage tank add-heat, and safely thawing the septic tanks.

NSHC RMW Richard Kuzuguk assisting the Elim Operator in troubleshooting the pressure pumps

Tanana Chiefs Conference

Due to extreme winter conditions in the Fairbanks region, TCC RMWs responded to multiple requests to assist with freeze-ups.

In October 2021, the well in Koyukuk began to produce less water resulting in a loss of the necessary pressure to force the water through the filters in the water treatment plant. TCC RMWs remotely troubleshot the well issues with the operator and determined that the likely issue was not with the electrical hardware but with the drop pipe itself. The drop pipe was considered extremely brittle due to the potential of one or more pin holes and potential pitting along the entire pipe. The drop pipe was approximately 200 feet long and weighed upwards of 600 lbs. If there was a failure of the pipe during its extraction, it would have likely caused a cascading failure which would have destroyed the well itself leading to the loss of the community's only water supply. After careful consideration of all options, the RMWs assisted in pulling the drop pipe, cutting it every 10 feet. Once the drop pipe was removed a new HDPE drop pipe and well pump were disinfected and installed. Thanks to many weeks of planning and one week of careful execution the Koyukuk well was repaired, and the community had water again.

In early 2022, the community of Venetie's water transmission main froze. Thanks to multiple trips by the RMW and assistance from the ANTHC DEHE program, the water transmission main was thawed and the community was able to make water again. Due to the prolonged freeze, the sewer main also froze. TCC RMWs made three trips to the community and were able to assist in thawing all of the sewer line to allow the sewer main to flow freely.

In March 2022, the DEC RMW program provided mutual aid to the TCC RMW program and sent an RMW to Huslia in response to an overflowing lift station. DEC and TCC RMWs provided diaphragm pumps to the community to assist in the initial control of the overflowing lift station. Once the lift station was no longer overflowing efforts to thaw the sewer main began as the RMWs and local operators began locating the access ports to the sewer main. Due to circumstances outside of the TCC RMW program's control, efforts to thaw the sewer main were halted and all remaining effort was spent on manually emptying the lift station. The lift station has not overflowed thanks to the manual efforts of local laborers. Additionally, RMWs assisted in the summer to completely thaw the sewer main to allow it to flow freely again.

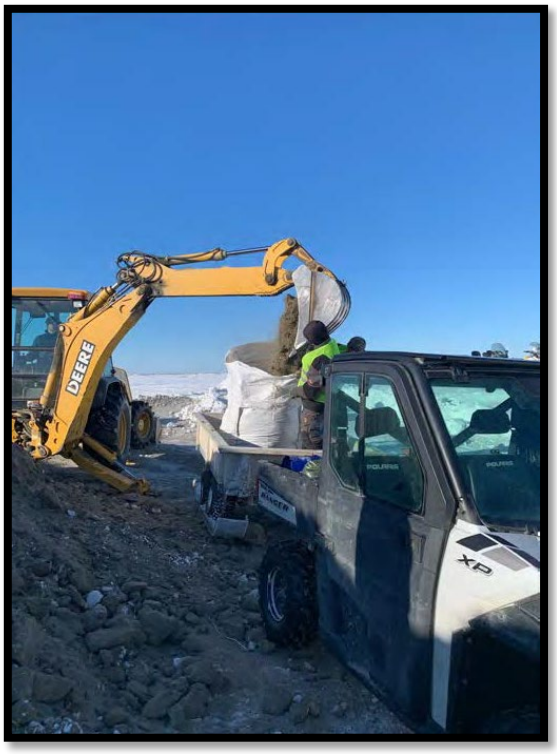
TCC RMW Lee Meckel in Venetie assisting the operator during a freeze-up

This winter breakup saw many communities flooding simultaneously. Thankfully only one community water system was impacted and requested assistance. Prior to the Yukon River breakup the local operator in Circle shut off the water transmission main to prevent contamination if the well pit was impacted during the potential flood. The well pit ended up being covered in ice which initiated a DEC request to chlorinate and sample the water system to ensure it hadn't been contaminated. TCC RMWs assisted the local operator in super chlorinating the well and getting samples to the laboratory to ensure the water supply had not been contaminated and to prevent the community from going on a boil water notice.

Yukon Kuskokwim Health Corporation

The YKHC region experienced a particularly harsh weather year with several large emergencies and limited travel.

Hooper Bay had a mid-winter sewage lagoon dike breach. The RMW program was able to take the lead in emergency planning efforts. Working through several winter storms, RMWs were able to assist in moving over 40 cubic yards of material from a borrow pit well outside the community to the breach site using side by side ATVs and hauling one cubic yard of sand at a time. An ice road was built to reach the location and plowing snow drifts from the road was an ongoing effort. Much of the sand was transported through blizzards that lowered visibility to a few feet. Even with all of these incredible challenges, RMW Paukan was able to lead the team of local labor to complete the task and build back the berm in the breached section.



Filling super sacks in Hooper Bay

In March 2022 YKHC RMW Westlock received a call from water plant operator in Alakanuk requesting assistance with a sewage discharge problem. When the RMW arrived onsite, he assisted the operator in disassembling the sewage pump and discovered that the volute and impeller were damaged. The parts were replaced but the discharge pump still would not discharge. The operator and RMW researched other issues that may have been causing a plugged header for the sewage suction side. They removed the tank cover on the vacuum tank, located a pump, and were able to empty out the liquids to discover two of the control probes had come completely off. Using 5-gallon buckets, they were able to take the sludge out and install the vacuum/sewage pumps probes and install the vacuum tank cover. The RMW also used the onsite visit to train the operators on how to disassemble the vacuum pump, clean the impellers, put it back together, and test the pump.

A LOOK FORWARD AT FEDERAL FISCAL YEAR 2023

Moving into FFY23, the RMW Program will strive to implement improvements to increase efficiency and effectiveness while continuing to develop partner relationships with organizations that also serve rural Alaskan communities including VSW, RUBA, Operator Certification, and ANTHC. The RMW Program will continue to search for novel methods to assist communities and build local capacity.

In FFY23, to prepare for new systems that will be constructed as a result of the Infrastructure Investment and Jobs Act, DEC RMWs will continue to partner with ANTHC Environmental Health and Tribal Utility Support groups to assist in teaching an ANTHC led online Water Treatment level 1 class to rural operators. RMW staff will also be working with ANTHC to develop a Rural Utility Managers training and a Water Treatment level 2 class.

In early FFY23, to promote communication and cooperation, the DEC RMW program developed a RMW Incident Reporting Portal to streamline and ease reporting of freeze-ups, recoveries, and other issues that impact utilities and public health. Each week during the winter, the RMW Program Manager compiles the information and then shares it with all the RMW regions, the DEC Division of Water management, ANTHC engineers, and other agencies assisting rural Alaska community water systems.

Appendix A

RMW Grant Funding History

RMW GRANT FUNDING HISTORY (X $1,000)								
Fiscal Year	***APIA***	***BBHAC***	***MHC***	***NSHC***	***SEARHC***	***TCC***	***YKHC***	***TOTAL***
FY 82	--	--	--	--	--	--	150.0	150.0
FY 84	--	100.0	--	186.0	--	--	100.0	386.0
FY 85	--	100.0	--	182.0	--	180.1	100.0	562.1
FY 86	--	70.0	--	186.0	--	150.0	100.0	506.0
FY 87	--	78.36	--	126.2	--	128.9	47.7	381.2
FY 88	--	72.0	72.0	72.0	72.0	144.0	72.0	504.0
FY 89	--	100.0	77.0	78.0	72.0	186.0	72.0	585.0
FY 90	--	88.7	70.2	72.9	70.0	162.0	74.0	537.8
FY 91	--	88.7	70.2	72.9	70.0	162.0	134.2	598.0
FY 92	--	111.2	92.7	95.4	92.5	207.0	200.4	799.2
FY 93	--	109.2	91.0	93.7	90.8	203.3	196.8	784.8
FY 94	--	109.2	91.0	93.7	91.45	203.3	296.15	884.8
FY 95	--	102.7	85.5	88.1	86.0	191.1	278.4	831.8
FY 96	--	102.7	95.5	88.1	86.0	191.1	278.4	841.8
FY 97	--	102.6	95.6	88.2	85.9	191.1	278.4	841.8
FY 98	--	178.5	96.9	99.5	86.1	292.8	369.5	1,123.3
FY 99	--	178.5	96.9	99.5	86.1	292.8	369.5	1,123.3
FY 00	--	178.5	91.9	104.5	91.1	292.8	359.5	1,118.3
FY 01	--	178.5	86.9	104.5	91.1	297.8	364.5	1,123.3
FY 02	128.6	225.1	105.4	118.5	89.9	370.9	454.8	1,493.0
FY 03	136.4	238.9	96.6	135.0	97.8	370.9	453.9	1,529.5
FY 04	136.4	238.9	96.6	135.0	98.9	370.9	453.9	1,530.6
FY 05	138.9	218.6	96.6	137.7	99.8	377.4	461.1	1,530.0
FY 06	144.9	218.6	101.6	137.7	99.8	377.4	450.1	1,530.0
FY 07	154.2	229.9	106.3	146.7	105.7	401.7	485.2	1,629.7
FY 08	171.2	229.9	106.3	169.9	115.9	426.0	480.2	1,699.4
FY 09	174.3	229.9	114.8	177.2	119.8	446.0	509.0	1,771.0
FY 10	182.8	234.0	120.6	183.0	125.8	430.0	516.8	1,793.0
FY 11	204.3	257.2	137.5	209.0	143.4	436.0	455.0	1,842.4
FY 12	205.7	288.4	122.7	200.2	149.9	426.9	539.2	1,933.0
FY 13	201.7	281.4	134.8	179.5	176.2	427.5	547.2	1,948.3
FY 14	164.0	275.8	146.8	186.8	139.5	425.9	604.2	1,943.0
FY 15	--	288.3	152.4	192.9	139.8	454.1	627.1	1,854.6
FY 16	--	204.1	162.1	99.9	12.6	555.6	706.5	1,740.8
FY 17	--	115.7	187.6	249.2	--	578.7	794.8	1,926.0
FY 18	--	187.2	162.7	200.0	--	572.4	764.3	1,886.6
FY 19	--	252.7	166.5	285.2	--	543.8	825.6	2,073.8
FY 20	--	202.5	174.7	277.4	--	521.0	899.7	2,075.3
FY 21	--	226.1	179.6	286.2	--	615.2	886.9	2,194.0
FY 22	--	223.5	193.5	290.4	--	633.3	909.0	2,249.7

Appendix B

FY21 End of Year Summary

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FY22 Baseline Data

RMW Program

FFY 21 End of Year Outcomes FFY 22 Baseline Data

RMW Service Area	Total # of Villages Supported	# of Advisory Communities	# of Systems Subject to ETT Listing	# of Systems Required to Have Certified Ops	Primary Operator Certified at Correct Level	Backup Operator Certified at Correct Level	Primary Operator Turnover	Backup Operator Turnover	PM Score 25	PM Score 15	PM Score 0	Villages on ETT List for RTCR	Villages on ETT List for Ops-Related Vios
BBAHC	21	9	12	12	9	3	9	10	4	8	0	1	3
DEC	69	15	50	48	29	11	18	10	27	25	0	2	7
Maniilaq	10	0	10	10	5	2	9	8	7	4	0	0	0
NSHC	15	0	15	15	7	3	6	6	4	11	0	1	1
TCC	31	4	25	24	14	6	15	4	3	26	0	0	1
YKHC	51	5	46	46	12	8	8	15	10	40	0	15	27
Totals	197	33	158	155	76	33	65	53	55	114	0	19	39
				Percentages:	49.0%	21.3%	41.9%	34.2%	32.5%	67.5%	0.0%	12.0%	24.7%

Enforcement Targeting Tool (ETT) information was taken from the April 2021 SNC List.

Attachment D identifies primary and advisory communities, as well as those subject to ETTC Listing and Operator Certification Requirements.

Appendix C

FY22 End of Year Summary

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FY23 Baseline Data

RMW Program

FFY 22 End of Year Outcomes FFY 23 Baseline Data

RMW Service Area	Total # of Villages Supported	# of Advisory Communities	# of Systems Subject to ETT Listing	# of Systems Required to Have Certified Ops	Primary Operator Certified at Correct Level	Backup Operator Certified at Correct Level	Primary Operator Turnover	Backup Operator Turnover	PM Score 25	PM Score 15	PM Score 0	Villages on ETT List for RTCR	Villages on ETT List for Ops-Related Vios
BBAHC	21	9	13	13	9	5	6	4	4	8	0	1	4
DEC	72	15	51	50	35	9	40	22	33	21	0	4	13
Maniilaq	10	0	10	10	5	2	8	6	8	3	0	0	0
NSHC	15	0	15	15	8	4	12	15	6	9	0	0	4
TCC	28	4	23	23	13	3	5	4	6	19	0	0	4
YKHC	51	5	46	46	12	6	30	16	13	37	0	8	21
Totals	197	33	158	157	82	29	101	67	70	97	0	13	46
				Percentages:	52.2%	18.5%	64.3%	42.7%	41.9%	58.1%	0.0%	8.2%	29.1%

Enforcement Targeting Tool (ETT) information was taken from the April 2022 SNC List.

Attachment D identifies primary and advisory communities, as well as those subject to ETTC Listing and Operator Certification Requirements with the exception of the eight North Slope Borough communities.

Appendix D

RMW Community Summary

Category	Community	RMW Region	RMW	Primary/ Advisory	PWS Type	WT Class	WD Class	WWC Class	WWT Class	Primary Operator	Backup Operator	PM Score	ETT	Turn Over Primary	Turn Over Backup
Primary Communities which require a Certified Operator and are subject to ETT Listing	Adak	DEC	Graber	P	C	ST				ST	NONE	25		3	1
	Akhiok	DEC	Graber	P	C	1				WT1	WTP	15	OPS (AS, DBP, N, IOC, VOC)		
	Akiachak	YKHC	White	P	C	2			SP	WT1	NO CERT	15			
	Akiak	YKHC	White	P	C	2				WT1	WDP	25			
	Akutan	DEC	Graber	P	C	ST				ST	NONE	15	RTCR, OPS (SW, N, DBP, LCR, VOC)	1	
	Alakanuk	YKHC	Vacant	P	C	2	2	1	SP	NO CERT	NO CERT	15	RTCR, OPS (SW, DBP, VOC, CCR)		1
	Allakaket	TCC	Meckel	P	C	1				NO CERT	NO CERT	15			
	Ambler	MHC	Nelson	P	C	SU				ST	ST	25		2	2
	Anchor Point	DEC	Russell	P	C	1				WT2	WT1				
	Angoon	DEC	Russell	P	C	2	1	1		NO CERT	NO CERT	15	OPS (DBP, CCR)	3	
	Anvik	YKHC	Werba	P	C	ST				NO CERT	NONE	15	RTCR, OPS (N, GWR, DBP, LCR, IOC)		
	Arctic Village	TCC	Meckel	P	C	2				WT2	NO CERT	25	OPS (GWR, CCR)		
	Atka	DEC	Graber	P	C	2				ST	NO CERT	25			
	Atmautluak	YKHC	Vacant	P	C	1				NO CERT	NO CERT	15			
	Beaver	TCC	Demientieff	P	C	1				WT1	NO CERT	15		1	
	Brevig Mission	NSHC	Vacant	P	C	ST				NO CERT	NONE	15		2	
	Buckland	MHC	Nelson	P	C	2				WT2	NO CERT	25			
	Chalkyitsik	TCC	Burnham	P	C	2				NO CERT	NO CERT	15	OPS (DBP, LRC)		1
	Chefornak	YKHC	Paukan	P	C	SU				ST	NO CERT	25	OPS (N, CCR)	3	
	Chenega	DEC	Russell	P	C	2				WT1	ST	15			
	Chevak	YKHC	Paukan	P	C	1	2	1	SP	WT1	WT1	15			2
	Chignik Bay	BBAHC	Parker	P	C	2				NO CERT	WT 1	25		1	
	Chignik Lagoon	BBAHC	Parker	P	C	ST				ST	ST	25			1
	Chignik Lake	BBAHC	Parker	P	C	SU				NONE	NONE	15	RTCR, OPS (GWR,N)	2	
	Chuathbaluk	YKHC	Werba	P	C	ST				ST	ST	15			
	Circle	TCC	Meckel	P	C	ST				ST	NONE	25			
	Clark's Point	BBAHC	Parker	P	C	SU				ST	NONE	15	OPS (AS, N, IOC, VOC)	2	
	Coffman Cove	DEC	Cote	P	C	2	1	1		WT2	NO CERT	25	OPS (DBP)	1	
	Cold Bay	DEC	Russell	P	C	ST				WTP	NONE				
	Crooked Creek	YKHC	Werba	P	C	1				NO CERT	NO CERT	15	RTCR, OPS (GWR, N, DBP, LCR)	2	1
	Deering	MHC	Nelson	P	C	2				ST	NO CERT	25			
	Diomede	NSHC	Vacant	P	C	ST				ST	NONE	15	OPS (N)	1	
	Eek	YKHC	White	P	C	2				WT1	NO CERT	15			
	Egegik	BBAHC	Parker	P	C	1				NO CERT	NO CERT	15			
	Elim	NSHC	Johnson	P	C	ST				ST	ST	15		1	2
	Emmonak	YKHC	Vacant	P	C	2	2	1	SP	ST	NO CERT	15			
	False Pass	DEC	Russell	P	C	2				NO CERT	NONE	25		1	1
	Fort Yukon	TCC	Burnham	P	C	2	2	1	SP	WT3	WT1	25			
	Galena	TCC	Demientieff	P	C	2	2		SP	NONE	WTP	15	OPS (DBP, LCR)	1	1
	Galena 2	TCC	Demientieff	P	C	2				WTP	NONE	15		1	1
	Gambell	NSHC	Vacant	P	C	2	2	1	SP	ST	ST	15			
	Golovin	NSHC	Johnson	P	C	2				NO CERT	NO CERT	15			
	Goodnews Bay	YKHC	White	P	C	1				WT1	WT1	25			1
	Grayling	YKHC	Werba	P	C	ST				NO CERT	NO CERT	15	RTCR, OPS (SW, N, DBP, LRC, VOC)	6	1
	Gulkana	DEC	Cote	P	C	2				NO CERT	WT1	25		3	1
	Holy Cross	YKHC	Werba	P	C	ST				ST	ST	15			
	Hoonah	DEC	Russell	P	C	2	1	1	1	WT2	WT1	25			1
	Hooper Bay	YKHC	Paukan	P	C	2	2	1	SP	WT2	NO CERT	15	OPS (GWR, DBP, CCR)		2
	Hughes	TCC	Meckel	P	C	1				WT1	NO CERT	15			
	Huslia	TCC	Meckel	P	C	1				WT2	WT1	15			
	Hydaburg	DEC	Cote	P	C	2	1	1		WD1	NO CERT	25	OPS (N, DBP, CCR)		
	Igiugig	DEC	Graber	P	C	1				ST	NO CERT	25		1	1
	Kake	DEC	Russell	P	C	2	1	1		WT1	NONE	25	OPS (DBP)		
	Kaltag	TCC	Demientieff	P	C	1				WTP	NO CERT	25			
	Karluk	DEC	Graber	P	C	ST				ST	ST	25			
	Kasaan	DEC	Cote	P	C	1				WTP	WT1	25		3	1

Category	Community	RMW Region	RMW	Primary/ Advisory	PWS Type	WT Class	WD Class	WWC Class	WWT Class	Primary Operator	Backup Operator	PM Score	ETT	Turn Over Primary	Turn Over Backup
Primary Communities which require a Certified Operator Drinking Water and are subject to ETT Listing	Kiana	MHC	Nelson	P	C	1	2	1	SP	WT1	ST	25			
	Kipnuk	YKHC	Vacant	P	C	2			SP	NO CERT	NO CERT	25			
	Kivalina	MHC	Nelson	P	C	ST				WTP	ST	15			
	Klawock	DEC	Cote	P	C	2	1	1	1	WT1	NONE	25	OPS (DBP)		
	Klukwan	DEC	Russell	P	C	2				NO CERT	NO CERT	15			1
	Kobuk	MHC	Nelson	P	C	1				NO CERT	NO CERT	25			
	Kokhanok	DEC	Graber	P	C	ST				WDP	NONE	25		1	1
	Koliganek	BBAHC	Parker	P	C	SU				ST	ST	25			1
	Kongiganak	YKHC	Paukan	P	C	2			SP	ST	ST	25			
	Kotlik	YKHC	Vacant	P	C	2	2	1	SP	WT1	ST	15			
	Koyuk	NSHC	Johnson	P	C	ST				ST	ST	15			3
	Koyukuk	TCC	Demientieff	P	C	1				NO CERT	NO CERT	15			
	Kwethluk	YKHC	White	P	C	2	2	1	SP	ST	ST	25	OPS (N, DBP, LCR, SOC)	1	
	Kwigillingok	YKHC	Paukan	P	C	2				ST	NO CERT	15	OPS (SW, DBP, LCR)		
	Larsen Bay	DEC	Graber	P	C	1				WT2	NO CERT	25			1
	Lower Kalskag	YKHC	Werba	P	C	1				ST	ST	25	OPS (DBP, Rads, CCR)	1	
	Manokotak	BBAHC	Parker	P	C	SU				ST	SU	15			
	Manokotak Heights	BBAHC	Parker	A	C	SU				ST	SU		OPS (AS, LCR, IOC, VOC, SOC)		
	Marshall	YKHC	Vacant	P	C	1	2	1	SP	ST	NO CERT	15			
	McGrath	DEC	Graber	P	C	2	2			NO CERT	NO CERT	15		2	1
	Mekoryuk	YKHC	Paukan	P	C	1				ST	ST	25			
	Mertarvik	YKHC	Paukan	P	C	ST				ST	NO CERT	15		1	
	Minto	TCC	Meckel	P	C	3				ST	ST	15		1	
	Mountain Village	YKHC	Vacant	P	C	1	2	1	SP	ST	ST	25		1	1
	Nanwalek	DEC	Russell	P	C	1				NO CERT	NO CERT	15	OPS (SW, N, DBP, VOC, CCR)	1	
	Napakiak	YKHC	White	P	C	1				ST	NO CERT	15			1
	Napaskiak West	YKHC	White	P	C	1				ST	NONE	15		1	
	Nelson Lagoon	DEC	Russell	P	C	2				NO CERT	NO CERT	15	OPS (N, DBP, LCR, VOC)		
	Nenana	TCC	Burnham	P	C	1	2	1	2	WT1	WTP	15			
	New Kasigluk	YKHC	White	P	C	2				ST	ST	15			
	New Stuyahok	BBAHC	Parker	P	C		2			NO CERT	NO CERT	15			1
	Newhalen	DEC	Graber	P	C	SU				SU	SU	25			
	Newtok	YKHC	Paukan	P	C	2				ST	ST	15	OPS (SW, DBP, CCR)		
	Nightmute	YKHC	Paukan	P	C	SU				ST	NONE	15	OPS (GWR, LCR, SOC)		
	Nikolaevsk	DEC	Cote	P	C	2				WT1	NONE	25			1
	Noatak	MHC	Nelson	P	C	1	2	1	SP	WT1	ST	25			
	Nondalton	DEC	Graber	P	C	ST				NO CERT	NO CERT	25	RTCR, OPS (SW, N, A, DBP, VOC CCR)	3	1
	Noorvik	MHC	Nelson	P	C	2	2	1	SP	NO CERT	NO CERT	25		1	1
	Northway	TCC	Demientieff	P	C	ST				ST	ST	25			
	Nulato	TCC	Meckel	P	C	ST				ST	NONE	25			1
	Nunam Iqua	YKHC	Vacant	P	C	2				WT1	WT1	15	RTCR, OPS (N, DBP, SW, LCR, VOC)	2	
	Nunapitchuk	YKHC	White	P	C	2				ST	ST	25	OPS (N, DBP)		
	Old Harbor	DEC	Cote	P	C	2				WT2	NONE	15	OPS (N, DBP, LCR, VOC)		
	Old Kasigluk	YKHC	White	P	C	1			SP	ST	NONE	15	RTCR, OPS (GWR)		
	Ouzinkie	DEC	Cote	P	C	2				WT2	WDP	25			1
	Pelican	DEC	Russell	P	C	2				WT2	NO CERT	25			1
	Perryville	BBAHC	Parker	P	C	ST				ST	NO CERT	15			
	Pilot Station	YKHC	Vacant	P	C	1	2	1	SP	ST	NO CERT	15	OPS (GWR, N, DBP, LCR)	3	
	Pitka's Point	YKHC	Vacant	P	C	ST				NO CERT	NO CERT	15			
	Platinum	YKHC	White	P	C	SU				NO CERT	NO CERT	15	RTCR, OPS (SW, LCR, VOC, IOC, SOC, CCR)		
	Port Alexander	DEC	Cote	P	C	ST				ST	ST	15	OPS (DBP)		
	Port Graham	DEC	Russell	P	C	2				WT2	WT1	25			
	Port Lions	DEC	Cote	P	C	2	1	1		WT1	WT1	25			
	Port Protection	DEC	Cote	P	C	SU				SU	NO CERT	25	RTCR		
	Quinhagak	YKHC	White	P	C	2	2	1	SP	WTP	ST	15			1
	Rampart	TCC	Meckel	P	C	1				WT1	WT1	15			

Category	Community	RMW Region	RMW	Primary/ Advisory	PWS Type	WT Class	WD Class	WWC Class	WWT Class	Primary Operator	Backup Operator	PM Score	ETT	Turn Over Primary	Turn Over Backup
Primay Communities which require a Certified Operator and are subject to ETT Listing	Ruby	TCC	Burnham	P	C	1				NO CERT	NO CERT	15			
	Russian Mission	YKHC	Vacant	P	C	SU				NO CERT	NO CERT	15			
	Sand Point	DEC	Russell	P	C	2	2	1	SP	WT2	WT1	25			
	Savoonga	NSHC	Vacant	P	C	1	2	1	SP	WT2	WT1	25			2
	Saxman	DEC	Cote	P	C	2	1	1		ST	ST	25		1	1
	Scammon Bay	YKHC	Vacant	P	C	2	2	1	SP	WT1	ST	15	OPS (SW, LCR, IOC)		
	Selawik	MHC	Nelson	P	C	2	2	1	SP	WT1	NO CERT	15		3	1
	Seldovia	DEC	Cote	P	C	2	1	1		WT4	WT1	25		1	
	Shageluk	YKHC	Werba	P	C	ST				ST	ST	15		4	1
	Shaktoolik	NSHC	Johnson	P	C	2				ST	NO CERT	15		2	
	Shishmaref	NSHC	Vacant	P	C	2			SP	ST	ST	15	OPS (DBP)		2
	Shungnak	MHC	Nelson	P	C	1				NO CERT	ST	15		2	2
	Sleetmute	YKHC	Werba	P	C	ST				ST	NO CERT	15	OPS (N, DBP, CCR)	1	
	South Naknek	BBAHC	Parker	P	C	SU				SU	NONE	15		1	1
	St. George	DEC	Graber	P	C	SU				SU	SU	25	RTCR, OPS (N, LCR, VOC)	1	
	St. Mary's	YKHC	Paukan	P	C	2	2	1	SP	WT3	ST	15		1	1
	St. Michael	NSHC	Johnson	P	C	ST				WT1	ST	15			
	St. Paul	DEC	Graber	P	C	1	1	1		ST	ST	15		3	1
	Stebbins	NSHC	Johnson	P	C	1				WT1	NO CERT	25		1	1
	Stevens Village	TCC	Burnham	P	C	ST				ST	NONE	15			
	Takotna	DEC	Russell	P	C	ST				NO CERT	NO CERT	15			
	Tanacross	TCC	Demientieff	P	C	SU				ST	ST	15			
	Tanana	TCC	Meckel	P	C	2				WTP	NO CERT	15			
	Tatitlek	DEC	Russell	P	C	ST				WT1	NO CERT	25	OPS (DBP)		
	Teller	NSHC	Vacant	P	C	ST				WT1	ST	15	OPS (N, GWR, A, IOC, VOC)		
	Tetlin	TCC	Demientieff	P	C	SU				SU	NO CERT	15			
	Thorne Bay	DEC	Cote	P	C	2	1	1	1	WT2	NO CERT	25			
	Togiak	BBAHC	Parker	P	C	1	2	1	SP	WT2	WT1	25			
	Toksook Bay	YKHC	Paukan	P	C	1	2	1	SP	WT2	WT1	25			
	Tuluksak	YKHC	White	P	C	1				ST	ST	15	RTCR, OPS (DBP, LCR, CCR)	1	1
	Tuntutuliak	YKHC	Vacant	P	C	1				NO CERT	NO CERT	15	OPS (GWR, N, A, LCR, VOC)	2	
	Twin Hills	BBAHC	Parker	P	C	SU				SU	NO CERT	15	OPS (N, LCR)		
	Tyonek	DEC	Graber	P	C	1				WT1	ST	25			
	Unalakleet	NSHC	Johnson	P	C	2	2	1	SP	ST	NO CERT	25	OPS (SW)	5	2
	Venetie	TCC	Burnham	P	C	ST				NO CERT	NONE	15	OPS (N, SW, DBP, LCR, VOC)	1	
	Voznesenka	DEC	Cote	P	C	1				WT1	WTP	25			
	Wales	NSHC	Vacant	P	C	ST				ST	ST	25	OPS (CCR)		2
	White Mountain	NSHC	Johnson	P	C	ST				ST	ST	25			1
	Yakutat	DEC	Graber	P	C	1	1	1	1	WT1	NO CERT	25		3	
Primary Communities which do not require a Certified Operator Drinking Water and are not subject to ETT Listing	*Naknek*	BBAHC	Parker	A				1	SP	WWC1	WWT1				
	Alatna	TCC	Meckel	P	NP					NA	NA	15			
	Anderson	DEC	Graber	P	NP					NA	NA	25			
	Aniak	YKHC	Werba	P	NP			1	SP	WWSP	NO CERT	25			
	Chiniak	DEC	DEC	A	NP					NA	NA				
	Dot Lake	TCC	Demientieff	P	NP					NA	NA	15			
	Nikolai	DEC	Russell	P	NP					NA	NA	15			
	Nikolski	DEC	DEC	A	NP					NA	NA				
	Ninilchik	DEC	Cote	P	NP					NA	NA	15			
	Tununak	YKHC	Paukan	P	NP					NA	NA	15			
Federally Regulated System	Metlakatla	DEC	Cote	P	NP					NA	NA	15			
Subject to ETT Listing but does not require a certified operator	*Elfin Cove*	DEC	DEC	A	TNC	NA				NA	NA				

Category	Community	RMW Region	RMW	Primary/ Advisory	PWS Type	WT Class	WD Class	WWC Class	WWT Class	Primary Operator	Backup Operator	PM Score	ETT	Turn Over Primary	Turn Over Backup
Advisory Communities which require a Certified Operators and are subject to ETT Listing	*Craig*	DEC	DEC	A	C	2	2	1	2	WT3	WT2	15			
	Kachemak Selo	DEC	DEC	A	C	ST				ST	NO CERT	15			
	King Cove	DEC	DEC	A	C	2	1	1		WT2	WT1	15			
	Oscarville	YKHC	McIntyre	A	C	1				NO CERT	NONE		RTCR, OPS (SW, N, AS, DBP, LCR, IOC, VOC, RADs, CCR)		2
	Unalaska	DEC	DEC	A	C	2	3	2	2	WT2	WT2	15			
	Whittier	DEC	DEC	A	C	SU				WD2	ST	15			
Advisory Communities which do not require a Certified Operators and are not subject to ETT Listing	*Aleknagik*	BBAHC	Parker	A	NP					NA	NA				
	Birch Creek	TCC	Lee	A	NP					NA	NA				
	Chistochina	DEC	DEC	A	NP					NA	NA				
	Eagle Village	TCC	Lee	A	NP					NA	NA				
	Ekwok	BBAHC	Parker	A	NP					NA	NA				
	Healy Lake	TCC	Lee	A	NP					NA	NA				
	Iliamna	DEC	DEC	A	NP					NA	NA				
	Ivanof Bay	BBAHC	Parker	A	NP					NA	NA				
	Levelock	BBAHC	Parker	A	NP					NA	NA				
	Lime Village	YKHC	Werba	A	NP					NA	NA				
	Manley	TCC	Lee	A	NP					NA	NA				
	Pilot Point	BBAHC	Parker	A	NP					NA	NA				
	Port Heiden	BBAHC	Parker	A	NP					NA	NA				
	Portage Creek	BBAHC	Parker	A	NP					NA	NA				
	Red Devil	YKHC	Werba	A	NP					NA	NA				
	Stony River	YKHC	Werba	A	NP					NA	NA				
	Ugashik	BBAHC	Parker	A	NP					NA	NA				
Communities that have only privately owned water systems.	*Chitina*	DEC	DEC	A	NA										
	Copper Center	DEC	DEC	A	NA										
	Glennallen	DEC	DEC	A	NA										
	Gustavus	DEC	DEC	A	NA										
	Mentasta Lake	DEC	DEC	A	NA										
	Upper Kalskag	YKHC	Werba	A	NA							15			

Appendix E

FY22 RMW Directory

Remote Maintenance Worker (RMW) Directory SFY2023

Alaska Department of Environmental Conservation (ADEC)

Technical Assistance & Financing (TAF)
555 Cordova St.
Anchorage, AK 99501
Fax: 269-7509

Tammy Helms, TAF Manager
tammy.helms@alaska.gov
269-7613

John Johnson, RMW Program Coordinator
john.johnson@alaska.gov
269-7605

Tanner Cote
tanner.cote@alaska.gov
269-7609

Matthew Russell
matthew.russell@alaska.gov
269-3067

Vacant RMW Position

Coffman Cove	Anchor Point	Adak
Gulkana	Angoon	Akhiok
Hydaburg	Chenega	Akutan
Kachemak Selo	Cold Bay	Anderson
Kasaan	False Pass	Atka
Klawock	Hoonah	Iguigig
Metlakatla	Kake	Karluk
Nikolaevsk	Klukwan	Kokhanok
Ninilchik	Nanwalek	Larsen Bay
Old Harbor	Nelson Lagoon	McGrath
Ouzinkie	Nikolai	Newhalen
Port Alexander	Pelican	Nondalton
Port Lions	Port Graham	St. George
Port Protection	Sand Point	St. Paul
Saxman	Takotna	Tyonek
Seldovia	Tatitlek	Yakutat
Thorne Bay		
Voznesenka		

Advisory Communities

Anaktuvuk Pass	*Glennallen*	*Nuiqsut*
Atqasuk	*Gustavus*	*Point Hope*
Chitina	*Iliamna*	*Point Lay*
Chiniak	*Kaktovik*	*Unalaska*
Chistochina	*King Cove*	*Utquiagvik*
Copper Center	*Mentasta Lake*	*Wainwright*
Craig	*Nikolski*	*Whittier*
Elfin Cove		

Updated November 14, 2022

Bristol Bay Area Health Corporation (BBAHC)

P.O. Box 130
Dillingham, AK 99576
(888) 792-2242

George Larsen, RMW Supervisor
glarsen@bbahc.org
842-3396

Kenny Parker, RMW
kparker@bbahc.org
842-9624

Chignik Bay
Chignik Lagoon
Chignik Lake
Clark's Point
Egegik
Koliganek
Manokotak
New Stuyahok
Perryville
South Naknek
Togiak
Twin Hills

Advisory Communities

Aleknagik
Ekwok
Ivanof Bay
Levelock
Naknek
Pilot Point
Portage Creek
Port Heiden
Ugashik

Maniilaq Association

P.O. Box 256
Kotzebue, AK 99752
(800) 431-3321
Fax: 442-7287

Chris Cox, RMW Supervisor
cocox@anthc.org
442-7352

Bruce Nelson, RMW
brnelson@anthc.org
442-7042

Ambler
Buckland
Deering
Kiana
Kivalina
Kobuk
Noatak
Noorvik
Selawik
Shungnak

Norton Sound Health Corporation (NSHC)

P.O. Box 966
Nome, AK 99762
(888) 559-3311
Fax: 443-7498

Richard Kuzuguk, RMW Supervisor
rkuzuguk@nshcorp.org
434-4584

Vacant RMW Position

Shyler Johnson, RMW
skjohnson@nshcorp.org
625-1231

Brevig Mission
Diomede
Gambell
Savoonga
Shishmaref
Teller
Wales

Elim
Golovin
Koyuk
St. Michael
Shaktoolik
Stebbins
Unalakleet
White Mountain

Tanana Chiefs Conference (TCC)

122 First Ave.
Fairbanks, AK 99701
(800) 478-6822
Fax: 443-7498

Noah Tsigonis, RMW Supervisor
noah.tsigonis@tananachiefs.org
452-8251 ext. 3431

Lee Meckel, RMW
lee.meckel@tananachiefs.org
452-8251 ext. 3265

Alatna
Allakaket
Arctic Village
Circle
Hughes
Huslia
Minto
Nulato
Rampart
Tanana

Scot Demientieff
scot.demientieff@tananachiefs.org
452-8251 ext. 3267

Beaver
Dot Lake
Galena
Kaltag
Koyukuk
Manley
Northway
Tanacross
Tetlin

Duane Burnham
duane.burnham@tananachiefs.org
452-8251 ext. 3266

Birch Creek
Chalkyitsik
Eagle Village
Fort Yukon
Healy Lake
Nenana
Ruby
Stevens Village
Venetie

Yukon Kuskokwim Health Corporation (YKHC)

P.O. Box 528
Bethel, AK 99559
(800) 478-6599
Fax: 543-6425

Bob White, RMW Supervisor
robert_white@ykhc.org
543-6428 (land)
545-0916 (cell)

Allan Paukan, RMW
allan_paukan@ykhc.org
438-6124 (cell)

Alakanuk
Emmonak
Kotlik
Marshall
Mountain Village
Nunam Iqua
Pilot Station
Pitka's Point
Russian Mission
Saint Mary's

Bob White, RMW Supervisor
robert_white@ykhc.org
543-6428 (land)
545-0916 (cell)

Eek
Goodnews Bay
Napakiak
Napaskiak
Nunapitchuk
Platinum
Quinhagak

Bruce Werba, RMW
bruce_werba@ykhc.org
545-5063 (cell)
476-7225 (fax)

Aniak
Anvik
Chuathbaluk
Crooked Creek
Grayling
Holy Cross
Lower Kalskag
Shageluk
Sleetmute
Upper Kalskag

Willie Kamuck, RMW
willie_kamuck@ykhc.org
438-6026 (cell)

Chefornak
Chevak
Hooper Bay
Kipnuk
Mekoryuk
Mertarvik
Newtok
Nightmute
Scammon Bay
Toksook Bay
Tununak

Patrick Cleveland, RMW
patrick_cleveland@ykhc.org
543-6427 (land)
556-2000 (cell)

Akiachak
Akiak
Kasigluk
Kongiganak
Kwethluk
Kwigillingok Village
Nunapitchuk
Tuluksak
Tuntutuliak

Updated November 14, 2022

Appendix F

2022 RMW Community Calendar

This calendar was created by the Remote Maintenance Worker and Capacity Development and Operator Certification Programs

with assistance from the Drinking Water, Wastewater, and Rural Utility Business Advisor Programs

2022 Monthly Calendar

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FIFTIETH ANNIVERSARY 1971–2021

Alaska Division of Water
Technical Assistance and Financing Program

The State of Alaska Department of Environmental Conservation extends its best wishes to Doug Poage, who retired on November 30, 2021, after 32 years of service to the Village Safe Water Program.

During his time in the program, Doug provided essential water and sewer services to many of our rural communities. We are grateful for his 32 years of dedicated service and his passion for the communities he served. We wish him the very best in his retirement.

Doug Poage
Village Safe Water Engineer II

JANUARY 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1st quarter of calendar fiscal year 2022 begins, 2nd quarter of federal fiscal year 2022 begins, 3rd quarter of state fiscal year 2022 begins						1 New Year's Day
2	3 Submit your December preventative maintenance records to your assigned RMW *WPO duty*	4 Submit the December Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	5 Take Coliform sample w/distribution residual *WPO duty*	6 Submit the December operator report to DEC *WPO duty*	7 Pay December payroll & child support liabilities *Clerk/Bookkeeper duty*	8
9	10	11	12	13	14	15
16	17 Martin Luther King Jr. Day	18 Check fuel levels and day tank in WTP *WPO duty*	19	20 Have you reconciled the December bank statement? *Clerk/Bookkeeper duty*	21 Have you backwashed the filter? *WPO duty*	22
23	24 Monitor/maintain lift station *WPO duty*	25	26	27 Submit the December meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	28 Submit the Wastewater Permit Annual Report (if required) to DEC *Responsible Official duty*	29
30 IRS forms deadline for w-2, w-3, 1099 misc to be mailed *Clerk/Bookkeeper duty*	31 How many gallons of water did you treat this month? _____ *WPO duty*					

Does your community need assistance? Find your community's assistance providers at http://dec.alaska.gov/water/village-safe-water/

Check the Alaska Training Coalition Calendar often for upcoming trainings, http://dec.alaska.gov/water/operator-certification/training-calendar/

Anaktuvuk Pass

FEBRUARY 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1 Submit the January operator report to DEC *WPO duty* Take Coliform sample w/distribution residual *WPO duty*	2 Pay January payroll & child support liabilities *Clerk/Bookkeeper duty*	3 Submit the January Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	4 Submit your January preventative maintenance records to your assigned RMW *WPO duty*	5
6	7	8 Have you backwashed the filter? *WPO duty*	9	10 Have you reconciled the January bank statement? *Clerk/Bookkeeper duty*	11	12
13	14 Valentine's Day	15 Check fuel levels and day tank in WTP *WPO duty*	16 Elizabeth Peratrovich Day	17	18 Monitor/maintain lift station *WPO duty*	19
20	21 Presidents' Day	22	23	24 Submit the January meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	25 Submit the Wastewater Permit Annual Report (if required) to DEC *Responsible Official duty*	26
27	28 How many gallons of water did you treat this month? _____ *WPO duty*					

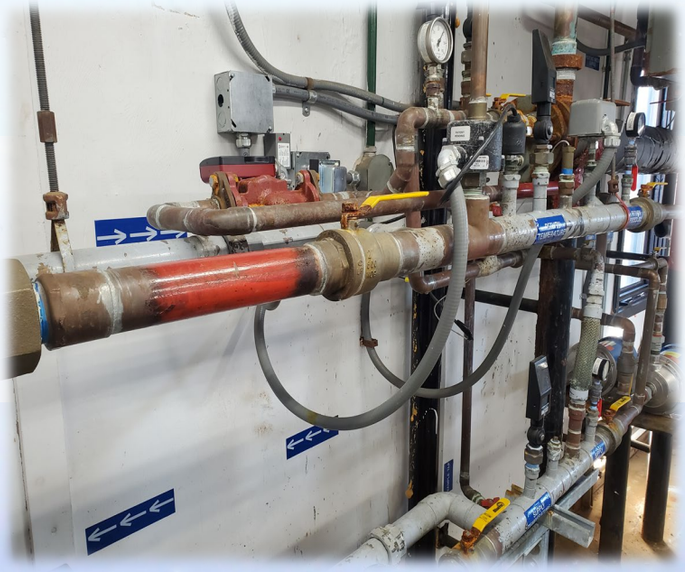
Training Opportunities during the month:
Clerks Management for Rural Utilities, Anchorage, February 7-11,2022 -RUBA

Need Free QuickBooks assistance? Call the RUBA sponsored QuickBooks Helpline 907-440-0242 Monday, Tuesday, and Thursday 10:00a-3:00p

Perryville

MARCH 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1 Take Coliform sample w/distribution residual *WPO duty*	2 Pay February payroll & child support liabilities *Clerk/Bookkeeper duty*	3 Submit your February preventative maintenance records to your assigned RMW *WPO duty*	4 Submit the February operator report to DEC *WPO duty*	5
6	7 Submit the February Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	8	9	10	11 Check fuel levels and day tank in WTP *WPO duty*	12
13 Daylight Savings -Don't forget to set your clocks forward 1 hour	14 Have you reconciled the February bank statement? *Clerk/Bookkeeper duty*	15	16 Have you backwashed the filter? *WPO duty*	17 St. Patrick's Day	18 Request monitoring summary if you have not received one from DEC *WPO duty*	19
20	21	22 Clean & calibrate SCD & Turbidimeter *WPO duty*	23	24	25 Monitor/maintain lift station *WPO duty*	26
27	28 Seward's Day	29 Submit the February meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	30 Begin quarterly Grant, IRS & Dept. of Labor reports *Clerk/Bookkeeper duty*	31 How many gallons of water did you treat this month? _____ *WPO duty*	Training Opportunities during the month: Elected Officials Management for Rural Utilities, Online, March 10-18, 2022 -RUBA	



Twin Hills

APRIL 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
2nd quarter of calendar fiscal year 2022 begins, 3rd quarter of federal fiscal year 2022 begins, 4th quarter of state fiscal year 2022 begins					1 Pay March payroll & child support liabilities *Clerk/Bookkeeper duty* Submit the March operator report to DEC *WPO duty*	2
3	4 Take Coliform sample w/distribution residual *WPO duty*	5 Submit your March preventative maintenance records to your assigned RMW *WPO duty*	6 Submit the March Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	7	8 Have you reconciled the March bank statement? *Clerk/Bookkeeper duty*	9
10	11 Start compiling data for annual CCR-request monitoring schedule from DEC *WPO duty*	12 Check fuel inventory	13	14 Start working on the FY23 Budget if you are on a State fiscal year! *Clerk/Bookkeeper duty*	15 Check fuel levels and day tank in WTP *WPO duty*	16
17 Easter	18 Monitor/maintain lift station *WPO duty*	19	20 Have you backwashed the filter? *WPO duty*	21	22	23
24	25	26	27	28 Submit the March meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	29 Have you flushed your distribution system/hydrants? *WPO duty*	30 How many gallons of water did you treat this month? _____ *WPO duty*

Sand Point

MAY 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Take Coliform sample w/distribution residual *WPO duty*	3 Pay April payroll & child support liabilities *Clerk/Bookkeeper duty*	4 Submit the April operator report to DEC *WPO duty*	5 Submit the April Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	6 Submit your April preventative maintenance records to your assigned RMW *WPO duty*	7
8 Mother's Day	9 Have you reconciled the April bank statement? *Clerk/Bookkeeper duty*	10	11 Have you backwashed the filter? *WPO duty*	12	13 Have you submitted your Community Assistance Program application? *Applications are due by June 1, 2022* *Responsible Official duty*	14
15	16 Check fuel levels and day tank in WTP *WPO duty*	17	18 Monitor/maintain lift station *WPO duty*	19	20 Order fuel for summer *Clerk/Bookkeeper duty*	21
22	23 Draft of FY22 Budget should be supplied to the Council if you operate on a State FY *Clerk/Bookkeeper duty*	24 Flush system hydrants *WPO duty*	25	26 Check chemical supplies/spare parts & re-order if needed *WPO duty*	27 Submit the April meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	28
29	30 Memorial Day	31 How many gallons of water did you treat this month? _____ *WPO duty*				

Find your community's assigned LGS/RUBA staff on DCRA's website or contact the Resource Desk, resourcedesk@alaska.gov

Saint Paul

JUNE 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	June 30th is the last day of SFY22 Is your SFY23 Budget Approved?		1 Take Coliform sample w/distribution residual *WPO duty*	2 Submit your May preventative maintenance records to your assigned RMW *WPO duty*	3 Submit the May operator report to DEC *WPO duty*	4
5	6 Pay May payroll & child support liabilities *Clerk duty/Bookkeeper duty* Request data dump for CCR *WPO duty*	7 Submit the May Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	8	9 Visually inspect source water reservoir or intake gallery and clean intake screen *WPO duty*	10	11
12	13 Have you reconciled the May bank statement? *Clerk/Bookkeeper duty*	14 Flag Day	15	16 Have you backwashed the filter? *WPO duty*	17	18
19	20 Check fuel levels and day tank in WTP *WPO duty*	21	22 Monitor/maintain lift station *WPO duty*	23	24 Clean & calibrate SCD & Turbidimeter *WPO duty*	25
26	27 Submit the May meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	28 Begin quarterly grant, IRS & Dept. of Labor reports *Clerk/Bookkeeper duty*	29	30 CCR Report Due *WPO duty* **Deadline to provide information to RUBA and RMW staff for Operations & Maintenance Best Practices.**	How many gallons of water did you treat this month? _____ *WPO duty*	

Chignik Bay

JULY 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
3rd quarter of calendar fiscal year 2022 begins, 4th quarter of federal fiscal year 2022 begins, 1st quarter of state fiscal year 2023 begins					1 Submit your June preventative maintenance records to your assigned RMW *WPO duty*	2
3	4 Independence Day	5 Pay June payroll & child support liabilities *Clerk/Bookkeeper duty*	6 Take Coliform sample w/distribution residual *WPO duty*	7 Submit the June operator report to DEC *WPO duty*	8 Submit the June Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	9
10	11 Order fuel for the winter	12	13 Start working on the FY23 Budget if you are on a Federal fiscal year! *Clerk/Bookkeeper duty*	14 Operator certificate expiring in 2022? Check you mail for a renewal notice. *WPO duty*	15	16
17	18 Have you backwashed the filter? *WPO duty*	19	20 Check fuel levels and day tank in WTP *WPO duty*	21 Have you reconciled the June bank statement? *Clerk/Bookkeeper duty*	22 Monitor/maintain lift station *WPO duty*	23
24	25	26 Visually inspect the interior of water storage tank. Schedule cleaning and maintenance as needed *WPO duty*	27	28	29 Submit the June meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	30 How many gallons of water did you treat this month? _____ *WPO duty*
31						

White Mountain

AUGUST 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 Take Coliform sample w/distribution residual *WPO duty*	2 Submit the July operator report to DEC *WPO duty*	3 Pay July payroll & child support liabilities *Clerk/Bookkeeper duty*	4 Submit the July Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	5 Submit your July preventative maintenance records to your assigned RMW *WPO duty*	6
7	8 Start preparing for elections. Review your local ordinance/bylaws *Clerk/Bookkeeper duty*	9	10 Have you reconciled the July bank statement? *Clerk/Bookkeeper duty*	11	12	13
14	15 Remember to check fuel levels and the day tank *WPO duty*	16	17 Monitor/maintain lift station *WPO duty*	18	19	20
21	22	23 Check chemical supplies/spare parts & re-order if needed *WPO duty*	24	25 Have you backwashed the filter? *WPO duty*	26	27
28	29 Submit the July meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	30	31 How many gallons of water did you treat this month? _____ *WPO duty*			

Goodnews Bay

SEPTEMBER 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Check in with your assigned RUBA staff for information on fall RUBA training courses				1 Pay August payroll & child support liabilities *Clerk/Bookkeeper duty*	2 Submit the August Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	3
4	5 Labor Day	6 Take Coliform sample w/distribution residual *WPO duty* Submit the August operator report to DEC *WPO duty*	7 Have you reconciled the August bank statement? *Clerk/Bookkeeper duty*	8 Submit your August preventative maintenance records to your assigned RMW *WPO duty*	9	10
11	12 Check fuel levels and day tank in WTP *WPO duty*	13 CCR certification page due to DEC by September 30 *WPO duty*	14 Monitor/maintain lift station *WPO duty*	15	16	17
18	19 Confirm fuel delivery for winter	20 Have you backwashed the filter? *WPO duty*	21	22 Clean & calibrate SCD & Turbidimeter *WPO duty*	23 Begin quarterly grant, IRS & Dept. of Labor reports *Clerk/Bookkeeper duty*	24
25	26	27 Submit the August meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	28	29	30 How many gallons of water did you treat this month? _____ *WPO duty*	

Saint Mary's

OCTOBER 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
4th quarter of calendar fiscal year 2022 begins, 1st quarter of federal fiscal year 2023 begins, 2nd quarter of state fiscal year 2023 begins						1
2	3 Take Coliform sample w/distribution residual *WPO duty* Submit your September preventative maintenance records to your assigned RMW *WPO duty*	4 Pay September payroll & child support liabilities *Clerk/Bookkeeper duty*	5 Submit the September Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	6 Submit the September operator report to DEC *WPO duty*	7	8
9	10	11 Do you have your winter fuel and supplies? *WPO duty*	12	13 Start working on the FY23 Budget if you are on a Calendar fiscal year! *Clerk/Bookkeeper duty*	14 Check fuel levels and day tank in WTP *WPO duty*	15
16	17 Have you reconciled the September bank statement? *Clerk/Bookkeeper duty*	18 Alaska Day	19	20 Have you backwashed the filter? *WPO duty*	21	22
23	24 Monitor/maintain lift station *WPO duty*	25	26 Have you flushed your distribution system/hydrants? *WPO duty*	27 Submit the September meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	28 Check chemical supplies & re-order if needed *WPO duty*	29
30	31 Halloween	How many gallons of water did you treat this month? _____ *WPO duty*				

Saint George

NOVEMBER 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1 Pay October payroll & child support liabilities *Clerk/Bookkeeper duty* Take Coliform sample w/distribution residual *WPO duty*	2 Submit the October Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	3 Submit the October operator report to DEC *WPO duty*	4 Submit your October preventative maintenance records to your assigned RMW *WPO duty*	5
6 Daylight Savings- Don't forget to set your clocks back 1 hour	7	8	9 Calibrate lab instruments *WPO duty*	10	11 Veterans' Day	12
13	14 Operator certificate expiring in 2022? Check your mail for a renewal notice *WPO duty"	15	16	17 Have you backwashed the filter? *WPO duty*	18 Monitor/maintain lift station *WPO duty*	19
20	21 Have you reconciled the October bank statement? *Clerk/Bookkeeper duty*	22 Check fuel levels and day tank in WTP *WPO duty*	23	24 Thanksgiving	25	26
27	28 Submit the October meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	29	30 How many gallons of water did you treat this month? _____ *WPO duty*			

Mountain Village

DECEMBER 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1 Pay November payroll & child support liabilities *Clerk/Bookkeeper duty*	2 Submit your November preventative maintenance records to your assigned RMW *WPO duty*	3
4	5 Take Coliform sample w/distribution residual *WPO duty*	6 Submit the November Discharge Monitoring Report (if required) to DEC electronically through the NetDMR system *Responsible Official duty*	7 Submit the November operator report to DEC *WPO duty*	8	9	10
11	12 Check with DEC Drinking Water program to ensure all required samples have been completed *WPO duty*	13	14 Monitor/maintain lift station *WPO duty*	15 Have you backwashed the filter? *WPO duty*	16 Have you reconciled the November bank statement? *Clerk/Bookkeeper duty*	17
18	19 Check fuel levels and day tank in WTP *WPO duty*	20	21 Clean & calibrate SCD & Turbidimeter *WPO duty*	22	23	24
25 Christmas Day	26 Christmas Day (observed)	27 Submit the November meeting minutes and financial reports to RUBA staff *Clerk/Bookkeeper duty*	28 Begin quarterly grant, IRS & Dept. of Labor reports *Clerk/Bookkeeper duty*	29 Check chemical supplies/spare parts & re-order if needed *WPO duty*	30 **Deadline to provide information to RUBA and RMW staff for Operations & Maintenance Best Practices.**	31 How many gallons of water did you treat this month? _____ *WPO duty*

Drinking Water Program

How they can help:

- Answer contaminant monitoring and sampling procedure questions.
- Respond to complaints of contaminated or damaged public drinking water wells and watersheds.
- Provide monitoring, compliance, and enforcement information on public drinking water systems.
- Approve new public water systems and modifications to existing ones.

Note – always contact your Drinking Water contact person BEFORE making any modifications to your water system.

Domestic Wastewater Program

How they can help:

- Issue permits to discharge treated domestic wastewater and provide information on the appropriate permit for your facility.
- Provide technical assistance on permit-related treatment options.
- Provide technical assistance to operators to optimize wastewater treatment at your facility.

Capacity Development & Operator Certification Program

How they can help:

- Provide information about system classifications, operator certification standards, renewals, and continuing education units.
- Notify operators about opportunities for training and certification exams and assist with resources to improve test scores.
- Provide assistance by connecting communities to additional resources and appropriate contacts.

Remote Maintenance Worker (RMW) Program

How they can help:

- Provide over-the-shoulder training and technical assistance to local water and sewer operators in rural communities through a circuit rider program.
- Provide immediate response to emergency situations that threaten or impact community water and wastewater facilities.
- Provide regional classroom training for area utility operators.
- Maintain an inventory of emergency repair equipment to lend to communities.

Rural Utility Business Advisor (RUBA) Program

How they can help:

- Provide managerial and financial training and assist your community with business planning for your utility.
- Provide an assessment identifying strengths and weaknesses of your utility.
- Develop a proposed work plan and work with your community to implement the plan.
- Provide technical assistance on managerial and financial management.
- Provide regional based utility management courses.
- Develop new management tools to assist your utility.

Alaska Department of Environmental Conservation
www.dec.alaska.gov

Drinking Water Program	(907) 269-7656 Anchorage (907) 451-2108 Fairbanks (907) 262-5210 Soldotna Website: http://dec.alaska.gov/eh/dw.aspx
Capacity Development and Operator Certification Program	(907) 465-1139 Juneau (907) 465-5140 Program Manager: Martin Suzuki (907) 269-7576 Capacity Development Coordinator: Jane Sullivan CapDev Website:http://dec.alaska.gov/water/technical-assistance-and-financing/capacity-development/ Op Cert Website: http://dec.alaska.gov/water/operator-certification/
Remote Maintenance Worker Program	(907) 269-7613 Program Manager: Tammy Helms (907) 269-7605 RMW Program Coordinator: John Johnson (907) 842-3396 Bristol Bay Region (907) 442-7352 Kotzebue Region (907) 443-3294 Nome Region (907) 452-8251 Fairbanks Region (907) 543-6423 Bethel Region RMW Website: http://dec.alaska.gov/water/remote-maintenance/
Domestic Wastewater Program	(907) 269-7681 Anchorage Website: http://dec.alaska.gov/water/wastewater/domestic/
Facilities Program Manager	Carrie Bohan (907) 465-5143

Department of Commerce, Community, and Economic Development
www.commerce.alaska.gov

Rural Utilities Business Advisor (RUBA) Program	(907) 269-5939 Anchorage Website: https://www.commerce.alaska.gov/web/dcra/RuralUtilityBusinessAdvisorProgramRUBA.aspx

Photo Credit

January

- Friends of Doug Poage

February

Anaktuvuk Pass

- Nathan Rogers

March

Perryville

- Melany Eakin

April

Twin Hills

- Carrie Bohan
- Melany Eakin

May

Sand Point

- Theo Graber

June

Saint Paul

- Theo Graber

July

Chignik Bay

- Victoria Jelderks
- Melany Eakin

August

White Mountain

- Richard Kuzuguk

September

Goodnews Bay

- Melany Eakin

October

Saint Mary's

- Cody Uhlig

November

Saint George

- Theo Graber
- Tammy Helms

December

Mountain Village

- Tammy Helms
- Doug Poage

Appendix G

2022 Winter Issues

Department of Environmental Conservation
Master Report for FFY22
Winter Issues

This is a consolidated report of water/wastewater utility issues that occurred in RMW-served communities during the winter/spring of FFY22.

Alaska Department of Environmental Conservation (ADEC) Region

- **Angoon -** During the week of January 3, several residents in the community reported low or no water pressure. There appeared to be freezing issues in the distribution system. The operator had been climbing the tank manually for the last few weeks to get visual water tank levels as the level transducer had failed. As of January 5, they had 6 feet in the upper tank and were gaining and had been running a consistent 19-20 feet in the lower tank in town. The RMW advised the operator to get out their distribution map and make a list of customer complaints of low or no pressure and mark on the map where these issues were so they could effectively locate and isolate any line breaks to save the unfrozen sections of the system. The RMW also advised the operator to monitor the storage tank levels and keep making water. The operator called on the city council to assist her by putting together a volunteer crew to help locate and dig out the isolation valves as well as assist with line repairs. A boil water notice was issued since sections of the distribution system had lost pressure. Both ANTHC and DEC RMW staff were actively engaged with the operator in troubleshooting the system.

  On January 10, the water treatment plant lost power and shut down. It was discovered that their generator was only putting out two of the normal three phases. The issue was fixed by the afternoon, and power was restored to normal. They were then able to start up the water plant and were making water by 9 pm. By mid-day January 11, the middle storage tank in town had water, and they were filling the upper tank. The upper portion of town still had low or no water pressure, but they hoped to restore it by the end of the day. The DEC RMW traveled to Angoon on the morning of January 12, with staff from the ANTHC Tribal Utility Support group. Together they planned to get the second well pump working and address any distribution system leaks that may have happened during the freeze to restore service and stabilize the system. On January 13, water to the upper part of town had been restored, which meant the middle tank level was recovering. The upper water tank by the water plant was holding a foot and a half of water as it was refilling the middle tank. ANTHC staff were troubleshooting the second raw water pump to get it operational. The problem was found, and the issue was fixed. The RMW worked to troubleshoot the polymer pump and resolved the issue. Two filters were now online, which doubled the filtration rate. ANTHC and RMW staff communicated with the Mayor, who coordinated efforts to survey the town and look for possible distribution system leaks. The system was stable, and with the exception of a few burst pipes in homes, most customers had water. The issue was resolved.

- **Hydaburg -** Over the Christmas weekend the water treatment plant shut down during a cold spell. Several components in the water treatment plant (WTP) froze. Local operators installed heaters in the pump house and WTP. The raw water distribution pump malfunctioned due to ice build-up inside the impeller. After the pump was freed, it was determined the raw water line was frozen from the pump house to the WTP. The water storage tank was empty and the community was out of water. Crews worked on thawing the pump house so water could be obtained manually. Additional crews were brought in to assist with recovery efforts. The RMW maintained regular contact with the operator and provided telephonic support. Additionally, there were several freeze-ups in multiple locations throughout the community due to no flow.

With assistance from neighboring communities, the operator was able to thaw the raw water line from the pump house to the water treatment plant. Additionally, they were able to make repairs in the pump house and the secondary pump house. By the end of the day on January 1, water was flowing to the water storage tank. The operator did find a significant water line break at a customer's home, but it was repaired immediately. On January 7, the storage tank had 8 feet of water and was climbing. The raw water transmission pump was pumping, but the operator thought it had lost some capacity. All the broken fittings were replaced, and there were no remaining significant leaks. The RMW was in touch with Hydaburg throughout the situation and contacted ANTHC to request emergency funds to replace some fittings, flow meters, and broken sensors damaged during the freeze-up. The RMW also reached out to the operator in Klawock and extended his gratitude for helping out a neighboring community in a desperate time of need.

The State Emergency Operations Center (SEOC) was contacted on January 12 regarding the possibility of a failure of the Hydaburg Dam, based on observations by residents. SEOC worked in coordination with the DNR Dam Safety Program, National Weather Service River Forecast Center, Alaska State Troopers, and ANTHC to provide technical assistance to the community regarding the locations and magnitude of the possible inundation zone. The dam was constructed in 1939 and is known to have a potential for failure, especially in high flow conditions. The SEOC is monitoring the situation and remains in contact with the community to address possible mitigation options and provide additional assistance as needed. The Indian Health Service recently funded a $3.8M project to replace the impoundment.

- **Nikolai -** During the week of November 29, the lift station in Nikolai stopped functioning. The lift station building froze partially and had some overflow. The operator was able to thaw the building and was manually pumping the lift station to the lagoon. RMWs procured quotes so parts could be purchased to repair/replace the affected lift station components and the community was able to purchase the parts. RMWs planned to travel to the community on December 16; however, the onsite trip had to be canceled due to unforeseen circumstances; another trip was scheduled for December 28, but due to winter storms, travel was postponed. The RMW made multiple attempts to contact the community; however, all attempts were unsuccessful. Due to a lack of contact with the community, it is assumed the issue was resolved.

- **Nondalton -** During the week of January 24, the RMW assigned to the community was working with the operators to unplug a manhole in the overflowing collection system. The week of February 7, the RMW sent jetter equipment to the community. During the week of February 7, the community struggled to get any fuel suppliers to deliver fuel, and their fuel inventory was extremely low. Many community members were sick with Covid, and the labor pool was tight. The available staff was focused on going back and forth daily to Iliamna to get fuel for the critical infrastructure, leaving no time to resolve the sewer issue. An additional staff member had been hired to assist with the sewer issue. During the weeks of February 14-28, the community was unresponsive to RMW calls and emails**.** It is assumed the issue was resolved or no longer an emergency**.**

- **Port Alexander -** On January 6, DEC program staff were notified by the system operator that their primary water source had frozen, and they had to switch to a secondary source. Due to water composition, the secondary source requires secondary filtration that is maintained through expensive filters changed out often. They bypassed the secondary filters while utilizing the backup source water until the primary source was usable. The system will continue to provide treatment through the

primary filters and chlorination. Due to the inability to properly treat the secondary source, a boil water notice was issued. During the week of January 10, Port Alexander reported they will not have any new or updated information until the spring. They plan to continue using their secondary water source and remain on the boil water notice.

- **Saint George -** A power outage occurred over the weekend of December 10-11 due to a blizzard, and one of the distribution lines froze and cracked, which caused the water storage tank to drain. Power was fully restored to the community, and bottled water was available to those that requested it. On December 13, crews isolated the line break and began work to restore water to the community. During that time, the water operator, who was also the interim Mayor, resigned, and a new interim mayor was appointed. By December 16, the local crew was working on repairing the leak with a repair band. During the week of December 20, the leak in the distribution system was isolated, the water storage tank was filling, and the distribution system was charging. The operator was repairing the leak with repair clamps sent by the RMW and the RMW was providing telephonic support to the operator. During the week of December 27, the water line break was repaired. The issue was resolved.

- **Saxman -** On January 13, SEOC received a call regarding a freeze-up issue in Saxman. The operator reported the water tank was lower than normal. The RMW spoke with the mayor, who reported they had had several leaks in the distribution system and were struggling to keep the water storage tank full. The tank level dropped very low and froze. They were able to keep water running through the tank and were filling it, but it was filling extremely slowly due to the leaks in the distribution system. Local crews were locating and fixing leaks. They had not lost pressure in the distribution system, and the community was not out of water. The operator was making enough water to keep up with the demand. Alaska Rural Water Association staff was onsite and helping with leak detection. On January 20, all freeze-ups had been resolved, and the system was fully back online. The issue was considered resolved.

Bristol Bay Area Health Corporation (BBAHC) Region

- **Koliganek -** On February 12, the RMW was notified that the water storage tank was essentially empty, and pressure was lost in the distribution system. The RMW arrived onsite that afternoon to assist the community. The Drinking Water Program was notified, and a boil water notice was issued. The following day, a leak in a service line was identified, and the service was shut off at the main. The water storage tank had sufficient water by Monday to restore service to the community. After service had been restored, the automatic controls of the transfer pumps failed, causing reoccurring pressure losses. The RMW and operator worked closely with ANTHC/TUS engineers to troubleshoot the system. The village remains on boil water notice until stable pressure is reestablished. During the weeks of February 14 and 21, the RMW continued to work with the operator and ANTHC to resolve the issue. During the week of February 28, the system pressure was reestablished, and compliance sampling was completed. DEC rescinded the boil water notice. The issue was considered resolved.

- **Manakotak -** On December 9, the community experienced a power outage. Power was restored on December 14. The water service in the village system was maintained throughout, but the storage tank was at 50% of capacity prior to power being restored. Manakotak Heights has no water storage tank and lost water service as soon as their pressure tanks were exhausted. Service was restored, but

they remained on a boil water notice. The heights also had one residential sewer line freeze up. The RMW was actively consulting and sending needed supplies for thawing the sewer and water lines. During the week of December 20, water and sewer lines had been thawed and restored to service. However, a boil water notice remained in place, and sampling was planned for the following week. The issue was resolved.

- **New Stuyahok -** During the week of November 15, the community's lower distribution loop froze and had a break. Overnight, the issue was compounded and pressure in the lower and upper loops was lost. A major leak in the upper loop was discovered at the firehouse building and the crawlspace was flooded. The RMW advised the operators to notify the community and issue boil water order instructions. The operators were able to find and close the curb stop to the firehouse connection. During the week of November 22, pressure was restored. However, another leak was discovered at a home on the lower loop, so the operator had to depressurize the system to make the repair. The repair was completed, the lower loop was flowing again, and water samples were planned to be submitted.

  During the week of November 29, the operator continued to have problems with additional freeze-ups and leaks in the lower residential loop and the boil water notice remained in effect. During the week of December 6, the operator located additional leaks and repaired them, including one significant leak. The storage tank level had begun dropping and was not able to recover during low-use periods. BBAHC Environmental Health, with the support of the RMW assisted the operator with troubleshooting over the phone. It was assumed that the tank level problem was caused by additional leaks that were not yet located. Plans were being made to send the RMW to assist onsite with troubleshooting. Travel conditions were difficult in the area, but there was hope there would be a weather window later in the week that would allow the RMW to get onsite.

  On December 11-12, the RMW visited the system to assist and was unable to locate any additional leaks. The city shared water conservation messages with the community, and they were hopeful that they would see a recovery of water storage within 24 hours. As of December 16, the rate of loss in water tank level had slowed; however, it was still slowly losing and not able to recover even though both well pumps were pumping 24/7. The RMW, BBAHC Environmental Health, Alaska Rural Utilities Collaborative, and Alaska Native Tribal Health Consortium were all actively involved in assisting system operators in troubleshooting and preparing for potential temporary interruption of water service to allow storage tank recovery.

  During the week of December 20, the community continued to be conserving water, and the operators temporarily shut water service off during the night for three nights. The combination of actions had allowed them to recover 3.5 feet of water in the storage tank. A boil water notice remained in place. During the week of December 27, the system was maintaining a very slow gain of water in the storage tank, although the level remained below normal working levels. The data link for the Remote Monitoring System was lost, so remote monitoring of the system was not available. During the week of January 3, the water level had recovered to ~16 feet in the water storage tank. Water conservation efforts continued in the community, the RMW and BBAHC continued to monitor the situation closely, and the issue was no longer considered to be an emergency.

  In mid-January, the water storage tank again started losing water, a trend that continued into early February. On February 11, it was reported that the water loss was not associated with extreme cold

weather but appeared to be caused by loss of well pump performance. A temporary repair to one of the well pumps provided some relief and the operators had been able to begin regaining water storage in the tank. The community continued to utilize water conservation and periods of water service shutdown to keep an adequate water level in the storage tank. Due to the extended boil water notice, the school was converted to distance learning to protect health in the school and to reduce water consumption.

During the week of February 14, temporary repairs to the well pump had failed again, and the water storage tank levels were fluctuating quickly with overnight service shut-off and continuous pumping of the remaining well being used to maintain water in the tank. A combination of temporary repairs followed by replacement of the well pumps was planned. The RMW was onsite from February 28–March 1 and assisted the operator with temporary repairs. Production from one of the two wells had been lost, primarily due to a failing pitless adapter and ongoing pump problems. New pumps for both wells were on order and would be replaced as soon as they were received. A temporary solution to bypass the failing pitless adapter was planned and was in the approval stage. Water conservation measures combined with periodic water service shutdowns continued for the community. The boil water notice remained in effect.

During the week of March 7, supplies were ordered and were in transit for temporary fixes to bring well two back into production. During the week of March 14, the RMW completed emergency repairs for well two, resulting in gaining an additional six GPM production. ANTHC/ARUC planned a project schedule for late April to complete a project that will provide additional improved output from well two. This will provide increased water source security until the new source and treatment plant project scheduled to start in late FY22 is complete.

During the week of March 14**,** the BBAHC Office of Environmental Health also learned of a plugged and overflowing sewer manhole. While the RMW was onsite working on the frozen water line, he also assisted operators with troubleshooting and unplugging sewer lines and cleaning manholes. The RMW assessed the problem and identified the root cause of the plugging problems.

During the week of March 21, the RMW was able to identify and unplug one frozen manhole. Due to a lack of adequate equipment onsite, the main plug and overflowing manhole were not cleared. The RMW and BBAHC worked with the community to identify the needed resources and equipment to attempt to unplug the manhole and reestablish proper function. During the week of March 28, local operators were waiting for the village to repair their water tank truck for jetting and flushing manholes. Once the repairs were completed, the RMW planned to travel to the community and assist with unplugging the sewer line. During the week of April 18, operators reported there was a leak in the upper loop of the village. Due to spring breakup, they had trouble finding it with the excess water pooling. The RMW sent leak detection equipment to the operator to help locate the leak.

- **South Naknek -** Over the New Year weekend, due to a power failure caused by high winds and the treatment plant doors blowing open, pipes in the treatment plant froze, and several valves broke. The RMW and BBAHC coordinated with ARUC to purchase parts. The RMW was onsite assisting the operator with repairs. Six residences were without water and had been hauling water from nearby private wells. The Drinking Water Program was contacted, and the community was placed on a boil water notice. During the week of January 10, all leaks and valves were repaired with onsite assistance from the RMW, and water service had been restored. A sampling plan was developed with assistance

from BBAHC and the RMW. This allowed the system to be flushed and samples to be taken. The issue was no longer an emergency.

Maniilaq Association (MA) Region

- **Ambler -** In November, two large leaks on the North loop led to the loss of all the water in their water storage tank. ANTHC and the RMW walked operators through thawing the line from the draw tank that froze after running out of water. Once they had enough water, pressure and circulation were restored to South Loop. Operators waited on repair clamps from Kotzebue. Once they were received, operators were able to restore pressure and circulation to the North loop. Operators worked on foaming up the exposed sections of the north loop and then reburying the lines. The issue was resolved during the week of December 6; however, the community remained on a boil water notice. During the week of December 27, the boil water notice was lifted.

  During the week of April 4, it was reported that service lines that had frozen earlier in the winter on both loops in Ambler had started to thaw. Kotzebue staff assisted with actively tracking approximately six service lines and water main leaks that were causing community issues. A boil water notice was issued for both loops, and operators worked to address the leaks. During the week of April 11, all leaks were repaired. The issue was considered resolved.

- **Buckland -** In January, the community experienced a multi-day power outage. Power was eventually restored to residents and then commercial meters the following day. However, because the lift stations did not have backup power, it caused sewer overflow at the manholes in the community. During the week of January 10, no changes were reported. On January 20, power had been fully restored to the community and all issues had been resolved; the issue was considered resolved.

- **Deering -** In November the treated water storage tank transmission line froze for an unknown reason. Local laborers worked on jetting the transmission line; they ran into issues with jetting equipment. During the week of November 29, this issue was resolved.

- **Kiana -** On December 14, a large leak occurred on the west loop. The leak was large enough that it was causing the pressure pumps to run non-stop to keep pressure to the community. The community was placed on a boil water notice. Crews walked along the lines looking for the leak, but they could not locate it. Leak detector equipment was deployed to the community, and efforts to resolve the issue were ongoing. As of December 23, the large leak location was still unknown. Both pressure pump motors had become inoperable; however, replacements had been ordered. A high-demand pressure pump was being used to provide pressure to both loops in the community. The community has agreed to use reserve money to fund upgrades to the panel that controls the pressure pumps. Work on the upgrades began on December 22.

  During the week of December 27, operators were unable to locate the large leak. An onsite trip by the RMW and Regional manager was tentatively scheduled for the week of January 3. During the week of January 3, the RMW was onsite and had the needed parts for the pressure system. They were attempting to band-aid the system until the new panel and controls arrived. During the weeks of January 10 and 17, no changes were reported. During the week of January 24, an ANTHC engineer traveled to the community to address a failed transducer along with some bad wiring. The pressure

pumps were restored and were back to normal operations. There was still a leak somewhere in the distribution that hadn't been addressed or found, but the two well pumps were keeping up with demand from the community. The leak couldn't be further addressed until the weather warmed up significantly. The issue was no longer considered an emergency.

In March, the ongoing water leak threatened the foundation of two homes. The city's frost bucket for their excavator was out for repair and was unavailable for use. Additionally, there was a settled manhole along a gravity sewer main section. This manhole allowed solids to build up and cause sewer overflows onto the road and several properties. The Maniilaq RMW traveled to the community, along with a Noorvik operator, to provide assistance. The sewer issue was addressed, and work was started on the water leak; however, frozen ground conditions made it difficult to dig and isolate the leak. The issue was eventually resolved with the assistance of the RMW and Noorvik operator.

- **Kivalina -** During the week of February 7, the community's water storage tank was getting low, in part due to a man camp purchasing treated water. There was a raw water truck in the community and plans were in place to start pumping raw water to make up for the overages used by the man camp. A newly constructed bridge and road will be used to access river water.

- **Kobuk -** During the week of April 4, a homeowner in the community attempted to thaw their frozen water service line. In doing so, the homeowner melted the HDPE line inside their Arctic Box. This caused a leak on the service line and operators were forced to shut down pressure on the distribution system to address it. Parts were sent to the community, and the operators were able to address the leak before more issues arose. Water samples were sent to the Maniilaq lab to lift the boil water notice. The issue was considered resolved.

- **Noatak -** During the week of February 7, the community reported they had been conserving water for the last few weeks due to the two wells not being able to keep up with demand. The community continued to make water at ~16 GPM and the tank height was at 17ft. The RMW strategized with the operator about how to address this issue. On February 17, it was reported that the issue remained; however, it was no longer an emergency but rather an inconvenience for the residents. This issue was considered resolved.

- **Noorvik -** In January, a multi-day power outage led to the well transmission line freezing from the pump shack down to the pump. Local operators were able to pull the well transmission line, thaw it out in the water treatment plant, and reinstall it before any water security issues became a problem. The backup generator worked well at the WTP, however, they couldn't get the generator going for the lift station, which led to some sewer overflowing out of the lift station manhole. During the week of January 10, this issue was resolved.

- **Selawik -** On November 12, the community's river well pump failed. Operators set up a temporary gas-powered pump to start filling the tank as the water storage tank level was at 6 feet. A pump motor was ordered from Anchorage and the Maniilaq RMW traveled to the community on November 14 to provide assistance. Upon arrival, it was found that the well transmission line was completely frozen, and the new motor was installed on a seized pump end, rendering it useless. Additionally, the river pump controls were wired incorrectly.

The RMW assisted in getting the transmission line thawed, and the team was able to connect a 3" trash pump to establish flow. Cold weather conditions and limited resources hampered repairs. On November 17, the water system was pumping water and treating it to fill the tank, and crews were working around the clock to get the system back to normal. They used a gas-powered trash pump to keep water moving through the transmission line, so it didn't freeze back up. On November 18, the RMW received more parts and equipment to get the intake running properly. They also did an emergency upgrade on the transmission line to keep it from freezing again. A boil water notice was issued because they had to turn the pressure off to work on leaks in the distribution system. At the time, there were 1.29 feet of water in the tank.

On November 21, the new drop pipe, pump, and transmission line were in service and the water tank level was at 11.6 feet, with raw water flowing at 32 GPM. During the week of November 29, the water storage tank was filled, and the crisis was averted. However, there were issues with individual service lines in the community; 35 homes did not have vacuum sewer, and 15 homes did not have water services. The community declared a disaster due to these individual service line issues.

During the week of December 13, many individual service lines were frozen. Power outages were regularly occurring, leading to more service line freeze-ups. A boil water notice was implemented. During the week of December 27, water samples were submitted, and the boil water notice was lifted.

During the week of April 4, boilers at the island vacuum building stopped running. The boilers supply heat to the island and airport loops. Parts were found and sent to the community to assist with the recovery of the boilers. An RMW planned to travel to the community to assist with repairs if needed. During the week of April 11, the boilers were repaired and back online. The issue was considered resolved.

- **Shungnak -** In November, the community's well pumps were failing and needed to be changed. During the week of November 29, the well pumps were changed out, the tank recorded 1.5ft of water, and filters needed backwashing. The operators were trying to limit community use to gain footage in the tank to successfully backwash. However, a leak was found on the back loop after changing the well pump. Operators had to dig through frozen ground to locate and repair the leak. On December 10, the tank was at 2.5ft and climbing. On December 17, RMWs reported there was still a leak somewhere along the back loop; however, the water storage tank was gaining, and there were 6ft of water in the tank. During the week of December 20, there were no changes, and although some issues continued with the system, it was no longer an emergency.

  Over the February 5-6 weekend, Shungnak's recovered heat system was lost. The AVEC power plant stopped sending heat to the water treatment plant, which caused issues with the heat add controls. The backup boilers supplied heat, but the recovered heat issues needed to be diagnosed. ANTHC and the RMW worked with AVEC to come up with solutions to the issues. On February 17, it was reported that the community's recovered heat had been restored.

Norton Sound Health Corporation (NSHC) Region

- **Brevig Mission -** During the week of November 29, the community reported multiple water and sewer freeze-ups. The RMW program sent additional jetting hoses for assistance and continued to monitor the situation. During the week of November 13, service to four homes was restored. Due to harsh weather conditions, the multi-purpose building's sewer froze twice but was recovered both times. Recovery efforts for the additional customer service lines continued.

  During the week of December 20, residential service line recovery issues were ongoing and being addressed as identified. Additional insulation on plumbing underneath some of the homes may be needed to stop these freeze-ups. During the week of December 27, Brevig mission had a power outage on one street that caused three residential freeze-ups and their pipes burst. The water plant operator and Bering Straits Housing Authority maintenance worked on repairing all broken lines. Although issues remained with individual residential freeze-ups, those issues were being addressed as needed. This issue was no longer considered an emergency.

  On January 17, the operator notified NSHC about a leak initially discovered on January 13. Operators had not been able to find the leak. An estimated 30-40 GPM loss disrupted the system and roughly one-third of the town had frozen service lines. NSHC worked to mobilize to Brevig Mission as soon as weather permitted. The leak was elusive, and operators tried plowing the roads to locate it. There was also a concern about excessive water wasting as several arctic boxes in town were in poor condition. It is common practice to waste water to prevent the sewer lines from freezing as the arctic boxes shift away from the houses and this was further exacerbating the problem. The community went on a boil water notice.

  During the week of January 24, the NSHC engineer and RMW were onsite troubleshooting. The system was likely experiencing significant water loss from homeowners with leaky plumbing and those wasting significant amounts of water to prevent their arctic boxes from detaching. Most arctic boxes in town are experiencing deformation. Loop A was pressurized (small loop). Loop B was scheduled to be cycled in intervals of 3 hours off, 15-30 minutes on, to cycle the mains to prevent freezing. During the 15-minute time frame, homes were systematically checked for water wasting or excess usage to narrow down the problem. After water wasting was eliminated as the problem and the flows remained low, a more significant leak detection effort would occur. No leak had surfaced since the initial finding of this problem.

  During the week of February 4, the community experienced several freeze-ups on Loop B. A major leak was found on one of the hydrants; a butt fuse separated. The leak was hidden for six days, then surfaced. During the week of February 7, significant winter storms prevented operators from working on the affected area. The community continued to cycle the water in the distribution loops to preserve the system as best as possible. NSHC ordered batteries for the excavator to get the equipment running. During the week of February 14, NSHC and Kawerak worked to mobilize a mechanic to be onsite Sunday, February 20, per the community's request at a Tri-Org meeting. NSHC planned to travel on February 19 to prep for the mechanic's visit. An indirect heater was sent to Brevig to help start equipment in the cold, windy weather. Operators continued to dig at the leak area without success.

During the week of February 21, the community repaired the major leak on Loop B. The operators worked on thawing out service lines. The RMW expected over 75% of the town to need jetting to thaw all service lines completely. The operators worked with the Drinking Water Program to bring the system back into compliance with the boil water notice. During the week of February 28, the utility clerk reported operators continued to thaw out service lines in town but did not have an estimate as to how many were remaining. The operators focused on restoring services to elders first, then to the rest of the community.

During the week of March 14, the community continued to be on boil water notice. NSHC sent jetter hoses to the operators to start thawing out service lines that were longer than their 50ft section of hose. The operators were making progress with the thawing effort. A leak by the clinic (~10GPM) was still being investigated. Additionally, operators were manually observing the water level in the tank. During the week of March 21, local operators continued to thaw frozen service lines. It was estimated that 10 to 15 service lines were remaining. It was anticipated service to the clinic would be restored soon. The water leak by the clinic was thought to be either the clinic service line or the next line up. Operators expected the weather to be warm enough to get the equipment running to utilize it to locate the leak. During the week of March 28, six homes remained to be thawed but all other service connections had been restored. The issue was no longer considered an emergency.

During the week of April 11, the force main was reported frozen and operators jetted the line. NSHC sent additional jetter parts to assist in efforts to thaw the main completely. During the week of April 18, after jetting the line for three days, the main was thawed and flowing. The issue was considered resolved.

- **Diomede -** On February 23, the community had a complete power outage and needed to shelter in place at the school. The washeteria had a frozen service line. It was assumed there were issues with the water treatment plant add-heat system and there were reports of ice in the water storage tank. An RMW was scheduled to travel to the community once weather allowed. During the week of February 28, the RMW and RMW supervisor were onsite in Diomede. Power was restored within the community, and the water storage tank add-heat was fixed. The ice in the tank began to melt under RMW supervision. The RMW reported both of the water treatment plant boilers were installed and functioning. The washeteria septic issue was identified and was being worked on.

  During the week of March 7, only one operator was available and was focusing on melting the remaining ice in the tank. Manual readings of the water storage tank were taken to verify it against the remote monitoring. City employees worked on the septic tanks. Additional PPE was being sent out to the city. During the week of March 14, the washeteria septic tanks were still frozen, preventing washeteria use. The city had two laborers ready to thaw and shovel out the tanks. The water storage tank level was verified to be around 14 feet.

  During the week of March 21, the operator reported no ice in the storage tank. NSHC made an emergency site visit to assist with the frozen septic systems. During the week of March 28, NSHC and the RMW continued to work with local operators to safely thaw the septic tanks. During the week of April 4, the NSHC RMW program sent a trash pump to help with the evacuation of the septic tanks as they were thawing. NSHC also provided the operator a phone to send pictures and stay in contact. NSHC worked with the city regarding the workforce and proper oversight of the confined space during the thawing process.

During the week of April 11, one septic tank had been emptied, and operators continued to slowly thaw out the line. The NSHC RMW worked with the new operator to get the jetter working so they could get the services restored. Eventually the washeteria was able to be put back in operation and the issue was considered resolved.

- **Elim -** On December 22, the community reported to their RMW that their water storage tank had only 3.2 ft of water remaining. The RMW worked with the operator to confirm the extent of the issue and made plans to fly out; however, the region was experiencing a significant winter storm. During the week of December 27, due to winter storms, the RMW could not travel to the community for onsite assistance; however, he provided telephonic assistance to the primary water plant operator.

  During the week of January 3, the community reported that the water tank was empty, and the community had raw water bypassing into the distribution system. On January 7, the RMW arrived onsite and assisted with getting the system stabilized, including changing a bladder in a pressure vessel and bypassing the well pumps to manual control to prevent them from tripping their circuits. A pump was installed in the creek and pumped water into the infiltration gallery wet well. The community fixed a leak on the raw water transmission line that was draining the tank.

  Pressure in the system was lost sometime between January 9-10. The NSHC Sanitation Engineer arrived onsite to assist with troubleshooting. A sump pump was dropped into the creek next to the pump house and additional water was pumped into the wet well. The distribution system was working in auto, air was evacuated from the lines, and homes began getting water incrementally. The system appeared pressurized; however, some homes had frozen lines in which required heat trace or additional thawing. There were also an uncertain number of frozen sewer lines.

  On January 20, the water storage tank was hovering at 24.5 inches. A power outage over the weekend disrupted the temporary pump installed in the creek. Production from the wells was stabilized, and the operators were running the system without bag filters to help increase production. Additional thawing equipment had been sent to Elim for freeze recovery efforts. The backup operator fixed a hot box onsite and resumed jetting. During the week of January 24, the community was still recovering frozen lines. Service was shut off at some water boxes due to breaks after the service connection.

  During the week of February 4, the community was working to resolve a sewer main issue at the outfall line. The IRA tribe had hired a previous water plant operator from a different community to assist with the sewer issues. The primary operator reported an estimated 10 services were still frozen. The water treatment plant was open for individual water haul. The alternate operator reported that the hot box was malfunctioning and requiring continual repair, slowing progress. Due to inclement weather no parts could be sent out to Elim. The community continued to struggle to make enough potable drinking water to keep up with the demand.

  During the week of February 21, RMWs continued to work daily with the community to assist in resolving issues. During the week of February 28, water operators continued to struggle with low water production at the water source. Temperatures in the region were warmer, which allowed operators to continue to thaw lines out as they froze. Operators requested additional hot boxes or oil heaters to keep up with or get ahead of the frozen service lines. During the week of March 14, water production continued to be low, with operators required to pump raw water to meet the demands of

the system. BacT samples came back negative, but the system was still on a boil water notice. NSHC planned to be onsite March 24 -25 for operator training and investigate potential stop-gap measures to stabilize water production.

During the week of March 21, the water storage tank level was still low due to unidentified leaks and water wasting. The intake and pumps could not keep up with demand. The bag filters were not being used in order to keep flows as high as possible, but the media filter vessels were in use. Operators could not backwash because the tank level was too low. During the weeks of March 28 and April 4, the operators continued to look for leaks. Operators were thawing out service lines but required an additional 3/8" jetter hose to continue thawing the lines. The IRA hired an additional worker to help the operators. During the week of April 11, Elim requested additional jetting hoses and fixtures to finish thawing out homes. Several leaks had been fixed, and the tank was reported to be at 7 feet.

Also during the week of March 21, two separate sewage issues were reported in the community. The eastside sewer system had a clog between the manholes on the bridge. The septic tank was overflowing and causing a public health hazard. A hot box and jetter were onsite to enable operators to jet the line from the furthest manhole to the manhole by the septic tank. NSHC sent lime to the community to help in the remediation of the sewage spill. The second issue was on the west side of the sewer system. The system was clogged at the outfall. Local operators dug at the beachside of the system to expose the outfall, and it was seeping around the area. Operators planned to bandaid the line by connecting a 60-foot arctic pipe to get the outfall as far away from the beach as possible as a short-term diversion. ANTHC sent anchors to hold the temporary arctic pipe outfall line in place until final repairs could be made to the outfall. The community planned to install temporary fencing and post signage along the beach to warn residents of the spill. During the week of March 28, the septic issue was temporarily resolved. The east and west septic tanks were free-flowing to the outlet, which flows to the ocean (no observable surface discharge). The issue was no longer considered an emergency.

Permanent repairs to the outfall are still pending. The ANTHC Project Manager will be setting up a meeting with the community to get the necessary information for the funding request.

- **Gambell -** During the week of November 22, the community's lift station three was not functioning correctly. The NSHC RMW trash pump was sent out for emergency bypass if needed. Additionally, the electrical controls were not working correctly. The RMW planned a trip but also needed an electrician to travel to the community to properly diagnose the lift station control panel issues and other electrical issues in the lift stations. During the week of November 29, the three-water freeze-ups and one sewer freeze-up had all been recovered.

  During the week of December 20, the community experienced a 30,000 gal/day leak for two days. The leak was identified with the assistance of the RMW, but it was also discovered that the glycol in the system was burnt. The RMW assisted operators in purchasing new glycol and provided instructions on extending the life of the glycol in the system without putting it at risk. The RMW scheduled a trip after the holiday to troubleshoot issues and provide assistance. Although issues remained with individual residential freeze-ups, they were being addressed.

  During the week of February 7, the sewer connection to the Headstart building was frozen and backing up. The freeze was in an estimated 400 ft. of 6" sewer line. Operators requested assistance

from the RMW program and two combo jetter units were mobilized to the community. The 1.3MG and 500K water storage tanks also showed signs of ice formation, with ice across the top of the tanks to an estimated depth of 14 inches. The operators were unable to puncture it. The operators suspected the heat exchangers were not providing sufficient heat, noting there is missing insulation on top of the 1.3MG tank. Fluids for flushing the heat exchangers had been ordered. NSHC sent a case of glycol to help alleviate the lack of glycol at the plant.

During the week of February 14, jetter units arrived in the community. The lead operator was out of the office for a few days, which delayed the RMW onsite trip. Additional jetter parts needed to be purchased (hoses, fittings, etc), as most of the NSHC RMW stock was currently in use in other communities. Ice in the tank continued to be a concern. NSHC sent out heat exchange flushing solution and equipment for operators to flush the heat exchangers to in the tanks.

During the week of February 21, the RMW was tentatively scheduled to travel to the community, weather permitting. The Headstart building was still frozen. One of the two jetters sent to Gambell malfunctioned. The operators disassembled the parts to send to NSHC for repair. During the week of February 28, operators made significant headway in jetting the sewer line to the Headstart building (600 feet). They attempted to locate a cleanout to complete the rest of the run, which would require a longer jetter hose to complete the thaw from the arctic box side. During the week of March 7, the cleanout was located, and jetting was completed to the Headstart building.

- **Golovin -** During the week of November 29, the community's washeteria sewer line froze due to low water use at the building. During the week of December 13, the local operators jetted the line and the washeteria was operational. The issue was resolved.

- **Koyuk -** During the week of November 22, the Oksinalook circulation loop in Koyuk froze. Community members were getting water from the water plant well until the operators could jet the line and replace the failed pump/valve. During the week of November 29, the community reported the washeteria sewer line froze due to low water use. During the week of December 6, the washeteria sewer line and Oksinalak well lines were still frozen. The community had been experiencing severe weather conditions. Operators were waiting for better weather to begin jetting both the water source line and the washeteria sewer line.

  During the week of December 13, operators recovered the washeteria sewer line. However, the Auqsinaluuk transmission line was frozen. Additional crews were hired to help with recovery efforts. During the week of December 20, the city had sufficient water production at the water treatment plant well. The operator reported the Auqsinaluuk line was not being used. The RMW will work with operators to identify a way to keep the line from freezing in the future. The issue was considered resolved.

  During the week of February 28, a major leak was found at the corporation building service line. Operators shut the service off to prevent major loss of water. The operators planned with the RMW on the next steps. During the weeks of March 14 & 21, the RMW continued to work telephonically with operators to locate the leak and resolve the issue. The corporation building remained shut off until operators could identify the leak. During the week of April 4, the NSHC RMW arrived onsite and worked with the operators to identify and repair the service line leak.

During the week of March 14, the community reported a frozen transmission line. The RMW gathered more information and found it was not a frozen transmission line; it was a frozen service line. During the week of March 21, NSHC sent a garden hose to the community to help with the jetting operations. The local operators were worked on restoring the service to this homeowner. The issue was identified as a non-emergency.

During the week of April 11, the community was placed on a boil water notice due to turbidity exceedances. During the week April 18, three manholes failed and froze. The local operators were able to jet and clear the manholes.

In April, a water leak developed on the west loop. The water production from the community well was very low, and the community water tank was losing water. The local operators began jetting the Oksinalook well line, which had been frozen all winter, to try to get additional water production to the water plant. Operators made headway and hoped to get it thawed out before the tank ran dry. Community members were alerted to conserve water.

- **Saint Michael -** During the week of December 13, the community had a frozen service connection under the road, which caused freeze-ups in residential homes. Two homes had been recovered, and crews were continuing to work on the restoring services. As of December 23, services had been restored. The issue was resolved.

  In February, operators noticed a quarter-inch diameter hole on the bottom of the water storage tank. ARUC sent a 30-ton jack, and operators utilized a gasket, metal plate, and the jack to put pressure on the leak until it could be addressed in the summer. This issue was being monitored by ARUC and NSHC until it was appropriate to drain the tank to apply a fix.

- **Shaktoolik -** During the week of January 10, the community had two office buildings that froze. The operator was able to recover the services and this issue was resolved.

- **Unalakleet -** During the week of November 15, there were approximately 12 service line freeze-ups due to temperatures as low as minus 27°F. The RMW program responded by sending out parts for jetter equipment. The community worked on installing circulation pump assemblies in the arctic boxes of homes to prevent service line freeze-ups. During the week of November 22, the number of service line freeze-ups increased to 54 water and sewer freeze-ups; some homes had frozen multiple times. The community had 10.5' in the water storage tank. An OM-180 hot water heater was being installed at the infiltration gallery to increase the temperature in the transmission line.

  During the week of November 29 the community continued to have freeze-ups at residential homes. Frigid temperatures increased the difficulty in resolving the issues as temperatures were -50 with the windchill. The main cause of the system's freeze-ups was the lack of heat being added to the raw water system. Only the water plant boilers were operating. On December 2, the VSW Superintendent was onsite to turn on the waste heat from the power plant to the water system. The raw water prior to turning on waste heat was 41°F. After turning on the heat exchanger, the raw water temperature post exchanger was 61°F. It was expected that the distribution water would warm up relatively quickly (2-3 days) to increase the temperature of the water in the distribution system.

On December 2, waste heat from the power plant returned to heat the raw water line. By December 7, the water storage tank temperature had increased from 39°F to 44°F and lines had nearly stopped freezing. There was one frozen line in an occupied house (200ft) and three frozen lines in vacant houses. The Superintendent added a variable-frequency drive and booster pump on the raw water line to help get more water production to the tank. The tank was at 6.5ft.

During the week of December 13, crews continued efforts in recovering residential service lines. During the week of December 20, residential freeze-ups had slowed down. The pressure pump to the distribution system was switched and RMW's sent equipment to thaw lines as needed. During the week of December 27, although issues remained with individual residential freeze-ups, those issues were being addressed. This issue was no longer considered an emergency.

On January 6, the water plant operator reported their storage tank was losing water and was below 4 feet. There was no water going to the treatment plant from the raw water line. Efforts were focused on the infiltration gallery and getting flow resumed. Rain/flooding events followed by a freeze-up had caused damage to the infiltration gallery piping. Operators were able to thaw one of the well lines and began working on the second one. The line between the infiltration gallery and the well house was jetted and cleared. The VSW Superintendent assisted with troubleshooting operations, and the Unalakleet Public Works crew addressed potential areas where flow had stopped, including at the infiltration gallery. The community prepared to have brackish water distributed throughout its lines. NSHC prepared an emergency charter to assist the crew in finding ways to get water to the tank. The community worked with the State Emergency Operations Center and CE2 engineers to determine a possible second water source if their recovery attempts failed.

On January 7, water production had started again at 44 GPM. During the week of January 10, the local crew was able to successfully get the thaw recovered at the same time NSHC was arriving onsite with additional jetting equipment. This was a very fortunate turn of events, as the community did not have to pump brackish water into the distribution system and rely on an emergency water source. The tank had been either staying steady or gaining inches since the installation of the booster pump and thawing at the infiltration gallery. The booster pump on the raw water line helped provide additional production over the average demand. Although three residential homes remained frozen, this issue was considered resolved.

On March 8, a leak was reported on the Happy Valley Loop (60-70 homes). The weather prevented NSHC RMWs from immediately traveling to the community, but operators tried to identify the location of the leak. NSF 60 tracer dye had been purchased and was being explored to detect the leak. The city prepared to pump brackish water into the isolated FAA loop to keep the lines from freezing. During the week of March 14, a minor leak on the West Loop was fixed. Remote Monitoring provided critical data to the city manager, operators, and NSHC to closely monitor the water storage tank levels to avoid introducing brackish water into the system. The tank level gained steadily with careful attention to distribution flows to manage the large magnitude of minor leaks in the system and water wasting by the community. Although the tank level remained low, the water system had been stabilized. This issue was considered resolved.

During the week of April 18, a significant water leak on the Happy Valley Loop was reported. During the week of April 25, the water leak was located and repaired.

Tanana Chiefs Conference (TCC) Region

- **Alatna -** During the week of March 28, the TCC RMW was informed that the water transmission main in the community was potentially frozen. During the week of April 4, the TCC RMW arrived onsite to assess the situation. Additional parts were necessary to complete the repairs to the water transmission main. During the week of April 11, the RMW shipped the part needed to ensure there were no leaks in the well house's water lines. He also shipped a chemical feed pump that the community had previously requested. The water transmission main was thawed and this issue was considered resolved.

- **Arctic Village -** In November, the community was concerned that the river ice was not thick enough to set up the winter pump and transmission line. The community was running out of water and requested RMW assistance. During the week of November 29 an RMW was able to provide assistance to get the winter water line setup and the system online to make water.

- **Beaver -** In November, a hole formed in the add heat section of the distribution loop. The operator was able to fix the hole on his own but then had issues with the system's pressure pumps. RMWs coordinated with the operator to troubleshoot the pumps and get quotes for a replacement pump. During the week of December 6, the operator was able to repair the system with phone assistance from the RMWs. This issue was resolved.

- **Chalkyitsik -** During the week of December 13, the community's water operator resigned and the community was without water. The RMW scheduled an onsite trip for December 20 to provide assistance; however, due to winter storms, travel was postponed. During the week of January 10, the RMW traveled to the community and assisted the new operator in successfully making water for the community. Additionally, the lift station had frozen due to the building running out of fuel. This issue was also resolved.

  During the week of February 11, the community reported the sewer main was frozen to the lagoon. Due to the configuration of the buried sewer pipe, once the line is frozen, it cannot be recovered until spring/summer.

- **Galena -** During the week of December 13, the community's power went out in half of the community for approximately three hours. Service lines to approximately 30 homes froze during the power outage; but the water mains remained unfrozen. A jetter unit was sent to the community, and RMWs provided assistance & training over the phone on how to operate the equipment. The issue was resolved.

- **Healy Lake -** In November, the community's washeteria froze. RMWs coordinated with the operator to locate where the water main froze. RMWs scheduled to travel to the community to assess the situation and assist with thawing efforts. During the week of December 6, water was restored to the washeteria. However, power fluctuations had been causing issues with the community's generator. The community was coordinating with AP&T to come out and inspect their power systems.

- **Hughes -** During the week of December 20, the community reported a leak in the distribution system that drained the community's water storage tank. The operator shut down the distribution system and worked on a repair. During the week of January 3, the issue was resolved.

- **Huslia -** During the week of February 4, the community reported an overflowing lift station due to a non-functioning pump. The RMW sent a new lift station pump to the community and the RMW supervisor coordinated with the community to locate an electrician who could install the new pump. During the week of February 7, assistance from ANTHC's Tribal Utility Support (TUS) was requested, and they agreed to provide remote assistance to the community. During February 11-21, ANTHC contacted the community and provided troubleshooting on the Variable Frequency Device. The following week, TCC located a contractor to assist the community with the lift station issue. However, the city administrator was out of town and had not confirmed if the council had approved the contractor.

  During the week of March 7, ANTHC traveled to Huslia for a separate project but inspected the lift station while onsite. The RMW supervisor coordinated with ANTHC to collect their findings and recommendations to create a work plan to resolve the issue. Also, during that period, TCC shipped Tyvek suits, gloves, and lime to assist the community. Additionally, TCC located a trash pump for the community to order to be used in conjunction with the broken sewage truck for emptying the lift station. DEC RMWs were scheduled to travel to the community on March 18. However, the flight to Fairbanks was canceled. The RMWs rescheduled flights to arrive in Huslia on March 19 to assist in resolving the issue. TCC supplied a trash pump, suction hose, discharge hose, and fittings to assist the DEC RMW in assessing and assisting with the lift station issue.

  During the week of March 21, a DEC RMW assisted in coordinating local response efforts for the lift station and worked with the operator in planning ongoing efforts. The DEC RMW also helped the community locate the necessary quotes for the parts to repair their pump truck. The operator and local labor continued to pump the lift station as they located junction boxes for their thawing operation on the force main.

- **Kaltag -** During the week of February 14, Kaltag reported that their old town distribution loop had completely lost pressure due to a leak at an unknown location. An RMW traveled to Kaltag to assist with the location and repair of the distribution loop. However, they were not able to locate the break and a BWN was issued.

  The RMW and RMW supervisor planned to travel to Kaltag on March 8 to provide assistance and assess the situation. TCC coordinated with ANTHC to ensure the most current drawing sets were available. During the week of March 7, the RMW was onsite. The local operator was able to locate the leak and repair it prior to the RMW's travel. However, there was an ice slug in the distribution main that the operator and RMW attempted to locate without success.

  The RMW traveled to Kaltag on March 15 to assist the community in thawing the frozen line. As the operator and RMW were planning the dig site, they determined that telecommunication lines were in the way. Due to being unable to precisely locate the telecommunication lines, digging and thawing efforts were halted until the lines could be accurately located. During the week of March 21, the operators continued to locate the communication lines and prepare for their next digging operation. During the week of March 28, the community decided not to dig due to fears of hitting the buried

communication lines. The operator informed the RMW that he planned to try jetting the water main again in hopes that they could break through the frozen section.

During the week of April 11, the operator began digging but stopped when he struck a communication line. The operator also reported that the water line to the school had refrozen. During the week of April 18, the RMW traveled to Kaltag and assessed the situation. The community had concerns that there may be an additional break in the water main though an exact location had not been identified. The operator was working on locating isolation valves and determining if there was a way to bypass the potentially broken section.

- **Koyukuk -** During the week of November 15, the service line to the clinic froze. The RMW advised the operator to plug in the heat tape to assist in thawing the line out. During the week of December 6, a leak in the clinic completely drained the water storage tank. During the week of December 13, an RMW was onsite and was able to assist in making water, as the community did not have a primary operator. TCC and the RMW coordinated with the community to locate an individual willing to take on the operator role.

- **Rampart -** In November, there was a frozen sewer section; however, the community appeared to have it under control. During the week of November 29, the operator was able to locate the section of sewer that was frozen and began work on thawing it from the cleanout. RMWs monitored the situation remotely. During the week of December 13, the community was able to resolve the issue.

- **Ruby -** In November the washeteria flooded due to a frozen drain for the washers. RMWs instructed the operator to plug in the washer drain heat tape to see if it would thaw the line. There was also a potentially frozen sewer main. RMWs were scheduled to travel to Ruby on November 22 to investigate; however, the lift stations began working properly prior to their arrival. The washer's drain needed more insulation to prevent freezing and the watering point needed a new hose. During the week of December 6, the needed parts were shipped to Ruby. An RMW was prepared to travel to the community, if needed, to assist with the repairs. The issue was resolved.

- **Stevens Village -** During the week of January 3, due to a power outage, the community's washeteria went without heat, and some components froze, which caused the water storage tank to drain. The RMW supervisor coordinated with the village and contractor to conduct an assessment of the damages. Downed phone lines in the community hampered efforts to get more information.

  During the week of January 10, the contractor conducted an initial assessment of the damage to the water treatment plant due to the freeze and coordinated with the community and RMW supervisor on repair efforts. During the week of January 17, the contractor received approval from the community to acquire the necessary parts. However, certain parts were delayed due to supply chain issues. During the week of January 24, the contractor traveled to the community; however, due to unforeseen complications, he could not finish all of the repairs but would coordinate with the community to make a return trip.

  During the week of February 4, the contractor was able to make water. However, the sewer line had frozen. The RMW supervisor provided telephonic assistance to the community. The community was waiting until the temperature warmed up before inspecting the line to determine if any section had burst due to freezing. During the week of February 7 and 14, the community continued to wait for

weather conditions conducive to inspecting the sewer. During the week of February 21, the community had begun the inspection of their sewer. TCC and the RMW were awaiting photos to determine the extent of the damage.

During the week of February 28, the community hired a contractor to assist in the repair of their glycol heat trace for their above-ground sewer utilidor. During the week of March 7, the contractor traveled to the community with the supplies to make some minor repairs to the glycol heat trace. Unfortunately, upon inspection, it was determined that a significant portion of the glycol heat trace pipe had burst due to too much water in the glycol. During the week of March 14, the contractor supplied a quote to the community for the added glycol heat trace. The council needed to review the quote and decide on how to proceed. During the week of March 21, the community was still in discussions with the contractor. This issue was no longer considered an emergency.

- **Tetlin -** During the week of November 29, the operator reported that the washeteria ran out of fuel, causing it to freeze up. The operator was working to reinstate heat in the washeteria to thaw the pipes, assess any damage, and order needed parts. During the week of December 6, the RMW Supervisor and RMW traveled to Tetlin to assess the damage. The boilers, pipes, joints, heat exchangers, pumps, etc., needed to be replaced as they had been damaged. The community had access to water in the school on a temporary basis.

  During the week of December 13, the RMW was coordinating response efforts with ANTHC to assess the damage in Tetlin; however, travel was hampered due to winter storms. During the week of January 10, the RMW made an onsite visit to the community and an assessment was completed with assistance from ANTHC. A parts list was developed and work began on acquiring the necessary parts. During the week of January 17, the RMW Supervisor and ANTHC coordinated with suppliers to get quotes for the necessary parts to make the repairs. During the week of January 24, some of the necessary parts for the repairs were located, and quotes were sent to the community for payment. The remaining parts necessary for the repair efforts were still being located. During the week of February 4, the community purchased the available parts and began working with a contractor to repair the water treatment plant.

  On February 17, it was reported that the community had made the needed repairs. Water service had been restored and the sewer thawed. They were waiting on a bag filter to be installed and water samples to be taken to be removed from the boil water notice. The issue was considered substantially resolved.

- **Venetie -** During the week of January 10, the community reported they had run out of water. During the week of January 17, an RMW traveled to the community to assess the situation. The RMW determined that the heat trace for the raw water transmission line was not working and the line was freezing. Additional piping was necessary to begin producing water and parts were not immediately available. The RMW assisted the community in locating the necessary replacement parts and planned to schedule a return trip to get the system back online when parts were available.

  During the week of January 24, the parts for repairs arrived in the community and the local operator was able to get the system operational with a temporary raw water transmission line. However, the treatment train was bypassed and the water storage tank was filled with untreated river water, initiating a boil water notice (BWN). The RMW coordinated with the community and the Drinking Water

Program and scheduled travel back to the community on January 31 to assist with the disinfection and sampling of the system to remove the BWN.

During the week of February 4, the RMW arrived to assist the community with disinfecting the system. Upon arrival, it was found that the temporary raw water transmission line had frozen and was unusable. The RMW determined that the best course of action would be to get the buried transmission line thawed and operational again. Due to weather and other circumstances, efforts to completely thaw the transmission line were unsuccessful.

During the week of February 7, the RMW assisted in the recovery of the temporary transmission line and operators were able to treat some water. However, as the system operated overnight, the line froze. The RMW worked closely with the local operator and laborers to ensure they were capable and comfortable thawing the line and continuing to treat water.

During the week of February 28, the community set up their new steamer and began thawing the buried water transmission line. They thawed until they ran out of hose and had to wait on a shipment of additional hoses to finish the job. During the week of March 7, ANTHC returned to the community to work on the washeteria and, while onsite, they spent time repairing the water transmission main heat trace.

During the week of March 14, ANTHC DEHE repaired the heat trace between the well and the drain vault. ANTHC also recommended replacing the heat trace between the drain vault and the water treatment plant. At the request of the Tribal Administrator, hoses and adapters were expedited to the airport for the community. ANTHC Tribal Utility Support offered to coordinate their staff with ANTHC DEHE to assist Venetie in replacing their faulty heat trace and treating water.

During the week of March 21, ANTHC coordinated with another community to have a spool of spare heat tape sent to Venetie. Additionally, the RMW expedited a 2" ROMAC clamp to the airport. During the week of March 28, ANTHC was able to test the upper section of the heat trace and found that the entire upper section of the heat trace had failed. ANTHC plans to replace roughly 800 feet of faulty heat trace.

During the week of April 4, ANTHC and the operator were able to get the temporary transmission main thawed and were able to treat water. ANTHC will be training the operator on how to prevent the main from freezing again and how to chlorinate the water storage tank to remove a BWN. Additionally, ANTHC is working on replacing the heat tape between expansion boxes 1 and 2, and a plan to replace the heat tape between expansion box 1 and the water treatment plant. During the week of April 11, the operator and ANTHC were able to clear the water transmission main and get water flowing to the water treatment plant and through the filters. A previous operator also agreed to assist the community in chlorinating the plant and working with DEC to get off the BWN. During the week of April 18, additional BacT samples were sent to the community and the previous operator was working on getting the system fully operational again. The issue was no longer considered an emergency.

Yukon Kuskokwim Health Corporation (YKHC) Region

- **Alakanuk -** On March 21, a power issue caused the sewer force main pump to stop working. A RMW responded to the emergency and found that although they could get the pump to restart, it would not pump sewage to the lagoon. After checking the line for freeze-ups, they found a restriction in the flow from the vacuum tank. The RMW and local crew worked to remove the restriction. During the week of March 28, with the assistance of the RMW, the clog in the suction line between the well and the vacuum pump was resolved. Additionally, the pump heads were cleared, both pumps were running, and the system was back online. The issue was considered resolved.

- **Chevak -** In late November, the community lost vacuum, glycol circulation, and water circulation due to a line break. The community restored the mains but several service lines were still frozen. The community requested a hot box to thaw lines. The RMW shipped the equipment and monitored the situation. During the week of December 6, the operators significantly recovered the system. There was a small water leak on the school service line, but the leak had not caused a loss of pressure, and the school was not affected at the time. This issue was resolved during the week of December 13, and normal operations resumed.

  During the week of December 27, the water and vacuum were thawed, but a contractor for the school district accidentally drained the east glycol loop. They did not have enough glycol to refill the loop, but it was on order. During the week of January 3 it was reported that the plumber the school had hired to make repairs in their sewer system drained the village sewer glycol trace while removing gaskets; this made the east glycol loop inoperable and caused the teacher housing sewer to freeze. The village had been able to keep the rest of the sewer operational, but they had to jet the line in multiple locations as soon as they detected a problem to keep the system working. During the week of January 10, the village's water and sewer system was functioning, but the school teacher housing was still having sewer freeze-ups. The school was jetting as needed to keep its system running, and their plumber was working on repairing the damage to the glycol system. This issue was resolved.

- **Eek -** During the week of January 10, the community was having trouble keeping up with water demand due to water wasting in the village to keep the small residential lift stations (E-1s) from freezing, coupled with a problem with the river intake sucking in mud, slowing treatment. They were starting to build water levels again, but were concerned that colder weather would cause additional problems. A trip was planned to camera the intake and install a flushing port later in January. During the week of January 17, the system was stabilized, and they had flushed enough mud from the system to improve the water quality. The water tank level had climbed back to the normal operating range. An RMW was scheduled to be onsite during the week of January 24 to assess the situation and help the community develop solutions. During the week of January 24, the RMW was unable to travel to the community due to weather. However, the situation was stable, and the RMW was planning to travel for the following week. During the week of February 4, travel to the community was canceled due to weather. The YKHC supervisor reported this issue was no longer urgent, and the water situation was stable.

- **Hooper Bay -** On February 25, the RMW program was notified of the failure of Hooper Bay's sewage lagoon dike. Sewage had flowed away from the city and onto the tundra north of town. The City of Hooper Bay declared a local disaster later that day. YKHC located the needed supplies to

temporarily repair the dike and ordered parts needed to repair the heavy equipment that will be used in the repair of the dike. The RMW scheduled to travel to the community on March 8 with the supplies and parts to begin repairing the dike with local crews. During the week of March 7, the city got 11 super sacks filled with sand and moved to the location of the breach. After two days of weather hold, the RMW was onsite and brought additional super sacks and sandbags that were needed along with the membrane to seal the berm. During the week of March 14, the RMW and community crews worked through white-out blizzard conditions to haul sand from a local sand dune to the breach site. Enough material had been moved to begin the repair, but progress on the repair had been slowed down by broken-down equipment. A second RMW arrived on March 15 to weld and repair the equipment as it broke. During the week of March 21, the RMW and local crew finished building the dike wall. This summer, more work will be completed to cap the core of sandbags with dirt.

- **Kongiginak -** During the week of January 17, the community's sewer force main to the lagoon froze, and they requested RMW assistance. An RMW arrived on January 17 and they began work to thaw the sewer line. During the week of January 24, the line had been thawed except for the last 60 feet, when the jetter broke down. A new jetter was sent to the community, but the thawing team caught Covid and could not complete the thawing right away. During the week of February 4, the sewer force main was thawed, and the washeteria was returned to normal. The issue was resolved.

- **Kwethluk -** On January 9, the water plant operator reported that the water plant was out of fuel and the community was without water. The RMW arrived in the community the next day and assisted the operator in the beginning by producing water to the storage tank and circulating the distribution line to keep it from freezing. After addressing issues that caused the low water, the RMW was able to assist in restoring water to the community on January 12. Although the water treatment plant fuel tanks were empty, they were hauling fuel daily from the gas station until they received the 16,000 gallons they had purchased from Crowley fuel in Bethel. During the week of January 17, the water tank had been filled and was over 12 feet. The community had returned to normal operation, with both loops circulating. They only experienced minor freeze-ups on service lines during the water outage. They were submitting samples in order to lift the boil water notice. The issue was considered resolved.

- **Kwigilingok -** In November, due to the operator's absence, the water tank was not filled and the raw water line froze. The community requested RMW assistance in thawing the raw water line. During the week of December 6, the RMW was onsite providing assistance. The RMW and local crews worked through blizzard conditions, which slowed the work. During the weeks of December 13 and 20, it was reported that recovery efforts were ongoing, but a lack of additional labor support from the village and winter storms had slowed the efforts. During the week of December 27, the raw water line was thawed, and the water storage tank was filling. This issue was considered resolved.

  During the week of January 24, the community reported the line between the water plant and the storage tank froze and burst, draining the entire water storage tank. The backup operator was working to fix the line. The main operator was out with Covid. The RMW monitored the situation. During the week of February 4, the main operator had returned, but the water intake pump had failed. A new one was on order. During the week of February 7, the community was still waiting on the new raw water pump to come in before thawing efforts could resume. During the week of February 14, the main operator returned to work and was waiting on the raw water pump. He had made

arrangements to move RMW thawing equipment from the nearby village of Kongignak to Kwigilingok in anticipation of beginning thawing efforts. During the week of February 21, the raw water line had been thawed. Water was being filtered, and they were filling the water storage tank for production. The issue was considered resolved.

- **Marshal -** During the week of January 17, the community reported the loss of one of the well pumps, and they were having a hard time keeping up water production. A new pump was ordered. During the week of January 24, the new pump arrived and was installed. The water level was back to normal, and this issue was considered resolved.

- **Mountain Village -** On December 28, the lower distribution loop suffered a major line break that drained the entire loop of water. The community was able to use a bulldozer to plow the ice off the road, move an excavator down to the leak location, and was digging to access the leak and make the repairs. During the week of January 3, all three leaks were patched in the lower loop and they were refilling the system. The community reported 8 feet of water in the middle pump house tank and 1.3 feet in each of the upper pumphouse tanks. During the week of January 10, the water level had been restored in all water tanks and the system seemed to be functioning well. VSW was sending in a plumber to address boiler leaks as they are still under warranty. The issue was considered resolved.

  During the week of January 17, the operators reported a freeze-up in the lower loop that was affecting one house and was preventing circulation of the lower loop. The community was excavating the site to begin jetting the frozen area. During the week of January 24, all water storage tanks were full, but the community was short-staffed to thaw the lines due to Covid. During the week of February 4, it was reported that although there was still a water break at the cannery, the tanks were ¾ full. Temporary repairs had been made, and parts were on hand to make a more permanent repair. This issue was no longer an emergency.

- **Nunapitchuk -** Over the Thanksgiving weekend, the community lost circulation to the west side watering point. With over a mile of pipe and no recovery system installed, it would be labor-intensive to restore during the winter. RMWs briefed the community's administrator and council about the options; the council would have to decide whether to haul water throughout the winter or thaw the line to the watering point.

  During the week of December 6, poor weather conditions hampered the RMW from getting onsite to assess the damages. During the week of December 13 and 20, the line remained frozen, and water was being delivered by haul trailer to keep the west side tank filled. Winter storms continued to hamper RMW travel to assist the community. During the week of December 27, the transfer line remained frozen, but the warm weather was being utilized to pump out and thaw frozen junction boxes. Attempts were being made to thaw the transfer line before the temperature dropped below zero again.

  The sewer line froze over New Years' weekend from the washeteria to the lagoon. It took two and a half days to thaw but was thawed and flowing; however, there was no progress thawing the transfer line to the westside watering point. On January 20, the line was still frozen and was planned to stay that way until the first week of March. During the week of February 28, the temperatures in the region had warmed up enough to begin thawing efforts. During the week of March 7, thawing efforts had not started due to the unavailability of the operator. During the week of March 14, the thaw effort was temporarily postponed due to freezing weather conditions.

During the week of March 21 & March 28, all equipment needed for the thawing efforts had been delivered to the community, and thawing efforts would begin once a crew was put together. During the week of April 4, the village had chosen to wait another week to begin the thawing efforts as night temperatures were below 0 F and daily highs in the low teens. The weather was forecast to improve, and thawing efforts would resume. During the week of April 11, the city was clearing snow off the remaining junction boxes buried under feet of snow in preparation for thawing efforts. During the week of April 18, a YKHC RMW traveled to the community to provide training to the operator and a laborer on how to run the jetting equipment. With the assistance of the RMW, the community was able to thaw the lines.

- **Scammon Bay -** Over the March 19 weekend, the school loop booster station suffered a power loss that caused the building to freeze up, including both booster pumps and some associated piping. The parts to make repairs were ordered. During the week of March 28, an RMW made a site visit to attempt to restart the VFD at the booster station but found that both were damaged beyond repair by the water leak. However, sufficient pressure had been supplied to the school using the bypass line. During the weeks of April 4-11, parts to repair the booster station had not arrived. During the week of April 18, ARUC TUS had taken over the project, and they will be finishing out the new electrical control installation.

- **Tuluksak -** In December, the sewer outfall from the clinic and washeteria froze. During the week of December 13, the outfall was thawed by local operators with equipment loaned by the RMW program. The issue was resolved.

- **Tununak -** During the week of December 27, the raw water line to the washeteria and health clinic froze. Through the week of January 3, RMWs were unable to contact the operator about the status of the frozen line. During the week of January 10, the operator requested parts for their jetter and RMWs shipped them to the community. During the week of January 17, the water plant operator was working to thaw the line but had not completed it yet. During the week of January 24, the community was making slow progress on thawing but was moving toward completion. During the week of February 4 and 7, it was reported that the well intake needed a new meter base for the electrical drop. A new meter base was on order. The raw water line remained frozen.

  On February 16, the Tununuk washeteria caught fire and burned. The facility was a total loss. YKHC RMWs worked on plans to set up a temporary water service for the clinic and establish a temporary location to install washers and dryers for a washeteria until a new one is constructed. The community gets their potable water from the school. During the week of February 21, several meetings took place on what the next step should be. YKHC and the RMWs were waiting on a decision from the Tununak Council about what direction the community wanted to plan for a temporary washeteria. During the week of February 28, the Alaska Division of Homeland Security & Emergency Management had taken the lead in relocating the armory building. After the building is relocated, a temporary water treatment system and washers will be set up, and VSW will take the lead in establishing a new washeteria within the building.

  During the week of March 7, YKHC purchased the parts to install hauled water to the clinic and would mobilize to Tununank as soon as possible. During the week of March 14, the State of Alaska Emergency Management was reviewing costs associated with moving the Armory building. During

the week of March 21, YKHC mobilized parts to Tununak and scheduled personnel to plumb water to the clinic. During the week of March 28, the assigned RMW worked with clinic maintenance staff to get a water tank installed in the clinic, restoring water service to the health clinic. Efforts to relocate the armory building and set up a temporary washeteria within the building are ongoing. This issue has stabilized and is no longer considered an emergency.

- **Upper Kalskag -** During the week of February 21, a tree fell across a power line and caused a control failure at the lift station. The RMW ruled out pump and VFD problems and had isolated the problem to the other control circuits. The community manually pumped the lift station until they could resolve the issue. During the week of February 28, the problem was identified as a faulty voltage monitor. A new monitor was ordered, and the community continued to manually pump the lift station until the new monitor arrived. During the week of March 21, all services were restored in the community. The issue was considered resolved.