

# NEWTOK RELOCATION QUARTERLY UPDATE

INFORMATION FOR NEWTOK RESIDENTS AND COMMUNITY PARTNERS PROVIDED BY PROJECT MANAGER ANTHC TO KEEP STAKEHOLDERS INFORMED OF PROGRESS, KEY MILESTONES AND NEXT STEPS OF THE RELOCATION.



## First Residents Move to Mertarvik

### COMPLETION OF INITIAL COMMUNITY SERVICES SUPPORTS FIRST RESIDENTS

One hundred and forty pioneering residents have turned the decades-long plan to relocate Newtok into reality. Students now walk to a school on firm gravel roads. Families eat smoked fish at new kitchen tables. Kids wash their hands in bathroom sinks fed by Portable Alternative Sanitation System (PASS) water tanks. A brand new electrical system powers streetlights and warms homes, while a water plant provides clean drinking water from a watering point.

In mid-October, families began moving across the Ninglick river to Mertarvik. The relocation occurred in two stages. During the week, families boated their furniture across the river and unloaded their belongings into CONEX boxes that Ukpeaġvik Iñupiat Corporation Construction (UICC) staged along the river. Over the weekend, residents themselves crossed over to Mertarvik. UICC moved CONEX boxes to the associated households for families to unpack their belongings. A Grand Caravan airplane carried school supplies from Newtok to Mertarvik, and the Newtok Village Council (NVC) used its landing craft to ferry larger items and freezers. By mid-November, 19 households completed their relocation to Mertarvik.

On Monday, Oct. 14, school opened for the first time with 10 students. For the first month of the school year, classes were held in the NVC construction camp cafeteria while the interior of the Mertarvik Evacuation Center

(MEC) was retrofitted with three classrooms, a kitchen and a bathroom. In late November, the school moved into the MEC, which will serve as a temporary school until the Lower Kuskokwim School District receives funding to build a dedicated school building. Four teachers, two of whom teach in English and two of whom teach in Yugtun, moved from Newtok's school to provide educational continuity. The students are already learning from their new community site – a few days after move-in, the middle school science class collected volcanic rocks local to Nelson Island, while high school classes completed assignments related to the new BrHEA heating systems in their homes.

Pioneering town services, systems supported by UICC before transitioning to village management, started operations. For the first two months, UICC operated the power plant, ensuring households had enough fuel to heat their new homes and the pioneering water system. In addition, residents placed trash in a centrally located trailer, which UICC hauled to the landfill. The water plant, power plant and bulk fuel farm were commissioned in December and local operators were trained. Many of the new utility operators helped construct the infrastructure they are now responsible for maintaining. At the beginning of January, Stage 1 of Newtok's relocation was complete: around 140 residents were living on site with community operation of all new services and infrastructure.

# MOVING IN: OCTOBER 2019



**Clockwise from top left:** Jeff Charles and his daughter Jodi set up a table in their new home; Taylor John tests the chlorine level in her PASS water tank; residents unload at the boat landing; students build BrHEAThe dioramas at school; community members celebrate Halloween; two teenagers pack water; Project Manager Jackie Schaeffer trains Taylor John on operation and maintenance of PASS

# BUILDING MERTARVIK: SUMMER-FALL 2019



*Building classrooms inside the MEC (10/24)*



*Inspecting the power plant (10/23)*



*Transporting the power plant module (9/13)*



*Spreading liner at the bulk fuel farm (10/9)*



*Installing fuel tanks at the new houses (10/4)*

## BUILDING 13 NEW CCHRC HOUSES



*August*



*September*



*October*

# Completed Construction



*On Oct. 4, Mertarvik's power plant and electrical distribution system successfully provided the first night of power.*

## HOUSING

There are currently 21 homes in Mertarvik. Thirteen homes were designed by the Cold Climate Housing Research Center (CCHRC) and built by UICC and IRT over the summer; the Association of Village Council Presidents Regional Housing Authority (AVCP-RHA) constructed four homes in 2018; and the community built three structural insulated panel (SIP) homes in 2012. The final home is the CCHRC prototype built by a local crew in 2016. While the three designs—CCHRC, AVCP and SIP—have different heating and ventilation systems, all of the homes have multiple bedrooms, a kitchen/living room, and a bathroom with a PASS unit.

The 13 new CCHRC homes are integrated-truss structures designed to maximize energy efficiency. CCHRC designed the combined heating and ventilation system, called BrHEAThe, which uses a Toyo boiler and Heat Recovery Ventilator (HRV) to warm incoming fresh air and duct it to the rooms – providing heat without sacrificing indoor air quality in the tightly sealed house. The homes are also equipped with wood stoves as a back-up heat source.

## ELECTRICAL DISTRIBUTION

The diesel-fired modular power plant provides electric service to all of Mertarvik's homes and buildings. The plant arrived via barge in early September. Alaska Line Builders constructed the electrical distribution system; Oct. 4 was the first night of permanent power in Mertarvik. UICC turned over operation of the power plant to the Tribe in December.

## TOWN-SITE ROADS

Unlike Newtok, Mertarvik does not have a network of boardwalks, but rather four low volume gravel roads. Ungusraq Street provides access to houses along the lower road and Quiraun Street allows access to houses along the middle road and to the community center. The quarry road and the landfill access road are the two other streets in the community.

## PIONEERING WATER AND SEWER

The water plant provides piped service to the temporary clinic in the former NVC man camp, a community laundromat, and the temporary school in the MEC. Additionally, the water plant provides a public watering point where residents can pack water for their homes. The plant arrived via barge in mid-September, and CRW and ANTHC's Tribal Utility Support team commissioned it in December.

A membrane bioreactor (MBR) system provides temporary sewage treatment for the community. The system, comprised of an MBR module and supporting arctic piping, treats sewage generated by the MEC pioneering school, health clinic, and laundromat before effluent discharges into Baird Inlet.

## SCHOOL

Mertarvik's pioneer school is currently operating in the MEC. UICC retrofitted the ground floor with three classrooms, a kitchen and a bathroom. The MEC receives piped water from the water plant and wastewater is piped to the MBR, located directly behind the facility. The school also has a washing machine and a dryer to serve teachers. The Lower Kuskokwim School District (LKSD) applied to the State for funding to design and construct a permanent school building, but the project was not funded in the 2020 state budget.

## COMMUNITY SERVICES

During the summer, the IRT mission constructed a Class 3 landfill west of the townsite. Residents deposit their trash in a centrally located trailer which is hauled by the landfill operator to the landfill. Residents are also served by a bulk fuel farm with a fuel-dispensing trailer, community laundromat, and general store operated by the Newtok Native Corporation.

# COMPLETED CONSTRUCTION



LKSD classes were held in the NVC Mancamp cafeteria until the MEC interior was retrofitted with three classrooms (10/22)



Installing arctic pipe from the MEC to the MBR to provide sewage service to the MEC (6/24)



UICC working to build classrooms in the MEC interior (10/22)



Teddy Tom in his finished CCHRC home (10/6)



PASS unit in the bathroom (10/5)



CCHRC commissioning BrHEAThe systems (10/7)



*ANTHC engineer Joe Hess examines the power plant (10/24)*



*GCI installing antennas on the MEC (9/22)*



*Power plant module (10/31)*



*Ungusraq Street and houses*



*Landfill with fence (9/16)*



*CCHRC houses have slip-proof entrance stairs (10/6)*

# Community update

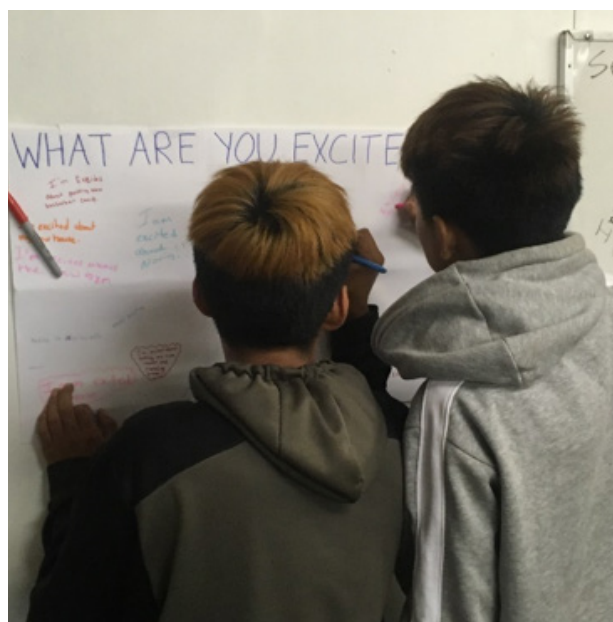
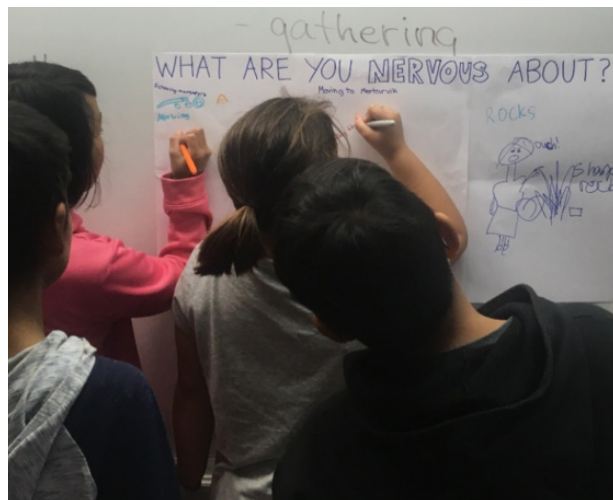
## MOVING TO MERTARVIK – COMMUNITY HOUSEHOLD PREPARATION

The PASS, ventilation and heating systems in Mertarvik homes were designed to maximize health outcomes and home comfort. The experiences of the five communities receiving PASS prior to Mertarvik demonstrated that the system best serves homeowners when they are thoroughly trained on PASS operations and maintenance. Community engagement was therefore a priority throughout the relocation process, with the goal of providing homeowners information in as many forms as possible—both written and oral, in English and Yugtun, and always geared for either youth or adults. This training occurred in two broad stages: first an orientation in Newtok, followed by an in-home training in Mertarvik.

In Newtok, the ANTHC outreach team met with a representative from each relocating household to hand over a set of written materials: a PASS Quick Start manual, a detailed home systems (i.e., heating and ventilation) manual, guides to Mertarvik pioneer services, and rules for site safety during the construction season. The ANTHC PASS project team used a 3D-printed PASS model to walk residents through the system and explain the operations and maintenance tasks.

Once residents relocated, the ANTHC outreach team visited each home to provide another set of written-materials, accompanied by hands-on practice filling water tanks and running sinks. Homeowners also received “Healthy Homes” guides—in both English and Yugtun—developed by the ANTHC Healthy Homes team. These guides provide information on improving air quality, minimizing pests such as bed bugs, and reducing exposure to toxic chemicals. Finally, staff from the Cold Climate Housing Research Center visited each home to train homeowners on the BrHEAThe heating and ventilation system.

In both Newtok and Mertarvik, the outreach team led student activities, introducing students to the new home systems while also exploring fundamental science concepts like heat transfer and the water cycle. Students unscrambled the steps of the PASS system, made and tested their own paper air filters, and built dioramas of the BrHEAThe heating system – diorama builders today, sanitation system engineers tomorrow.



*In an activity at the Newtok school, students wrote what they were excited and nervous about in moving to Mertarvik.*

# Next steps

## DESIGN AND CONSTRUCTION

Design efforts in 2020 include final design of the planned Department of Transportation managed airport, a heat recovery system and an expanded laydown area at the barge landing.

In summer 2020, the laydown area at the barge landing will be improved, and the heat recovery project implemented. Barge landing improvements will reduce barge loading and unloading time, both for deliveries of construction materials to Mertarvik, as well as for export of gravel materials from the Mertarvik Quarry for regional construction projects.

The heat recovery system will transfer waste heat from the generators in the Ungusraq Power Company (UPC)

power plant to the water treatment plant, the MEC and to the Newtok Village Council washeteria. The main heat recovery pipeline between UPC and the associated buildings will be approximately 600 linear feet of buried arctic pipe. New equipment will include heat exchangers at the three associated buildings, circulating pumps and controls.

Lastly, the Alaska DOT anticipates that the airport project will go to bid for construction in the spring or early summer of 2020. Construction could begin as early as later that summer, with the project slated for completion by fall 2022. Learn more at [faa.gov/airports/environmental/records\\_decision/media/rod\\_mertarvik\\_2019.pdf](https://faa.gov/airports/environmental/records_decision/media/rod_mertarvik_2019.pdf).

## NEWTOK CLEAN-UP

In summer 2020, threatened infrastructure in Newtok will be demolished. The National Fish and Wildlife Foundation has provided a \$2.7 million grant to ANTHC for a clean-up effort in the community. Funds will be dedicated to removing, burning, and sorting waste at the Newtok landfill and working with the school district to demolish the old BIA school, which is a known contaminated site,

and teacher housing along the erosion line. The project will prevent contamination of the Yukon Delta National Wildlife Refuge by demolishing infrastructure before it falls in the Ninglick River. In addition, the project will restore three acres of coastal wetland habitat in the Newtok area.



*PASS trainers Liz Wulbrecht and Jackie Schaeffer show a family how to fill their new water tank.*



# Community Story

## A Mertarvik Student on PASS

As a homework assignment, students at the Mertarvik school were asked to write an essay about PASS. In this story, a young student expresses an understanding of the new water system and feelings about their new home.

I'm glad about two new things in my life. I have a new house and a new bathroom. I am glad that my family has our own house in Mertarvik, Alaska, because we have space and we didn't have space in our old house in Newtok. I am also really glad to have my own bedroom instead of sleeping in the living room.

I am also glad we have a bathroom that is separate. I am glad we have running water in the bathroom sink in our house. Our bathroom in Mertarvik is less stinky than in our old house. In our old house, it was more stinky and we had to spray perfume or the spray that lets the bathroom smell good. In our new house, the pee and poop are separated. The pee goes into the ground and while we have to dump the poop, the fans make it less stink! I also like that the boys have their own thing to pee in!

While I miss our old house in Newtok, because we have a lot of memories of living there, we are going to make new memories in our new house in Mertarvik!

## Water is Life Play Performance

"Newtok. Before the land eroded, I was once there. This river is taking it. The land is sinking, or the water is rising – or both." These were the opening words of the play "Before the Land Eroded," which Newtok high schoolers performed in September 2019 as part of a "Water is Life" week facilitated by the National Tribal Water Center (NTWC), a program located within ANTHC, and funded by the United Methodist Committee on Relief.

The play was written by indigenous artists Ty Defoe, X'unei Lance Twitchell, Martha Kasaiuli (a 2019 graduate of the Newtok school) and Marleah Makpiaq LaBelle. "Before the Land Eroded" is based on stories and conversations with Newtok's community members, especially Elders, that occurred in spring 2019. In the play, different characters speaking from every corner of life in Newtok — Martha, two Elders, anthropomorphic salmon, and a spirit hand from Yup'ik stories — tell a story of environmental change and cultural continuity.



Mary Kasaiuli, a 10th grader who played the salmon, wrote in the Newtok student newspaper: "The play was about our own little village, how erosion affected our way of life, the signs elders and Martha noticed and knew it was time to leave. The play showed how much knowledge our elders hold and teach us."

Around 80 community members were in the audience to watch the performance. The show blended the words of the writers with Yup'ik singing and dancing to tell the village's story: "We were here, we are here, we will be here."

### FREQUENTLY USED ACRONYMS

UICC = Ukpeaġvik Inupiat Corporation  
NVC = Newtok Village Council  
Construction

MEC = Mertarvik Evacuation Center

IRT = Innovative Readiness Training

CCHRC = Cold Climate Housing Research Center

PASS = Portable Alternative Sanitation System



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