

Utility completed Renovations at Wastewater Treatment Plant

In January 2015, the Utility completed the rehabilitation of the wastewater treatment plant (WWTP) that had begun in 2014. The rehabilitation was the first to occur at the plant in the past 30 years.

The Utility received funding from the USDA and the Alaska Department of Environmental Conservation (ADEC) to assess the condition of the WWTP and design needed renovations. The engineers completed their assessment and design in late 2013.

The Utility solicited construction bids in winter 2014 and



Two new boilers installed as part of the WWTP Rehabilitation Project.

awarded a construction contract to the low bidder, Ghemm Company, Inc. for \$2,275,000.

The City received a matching grant from ADEC for \$1,783,670 to help finance

the project. The Utility provided the balance of the project funding to satisfy the required cash match. The Utility also used an ADEC loan to pay for a new emergency generator needed as part of the WWTP renovation.

Items rehabilitated and upgraded at the plant included the sewer lift station, new boilers, heating controls, aerators and electronic control, lighting, chemical injection pumps, emergency generator and replacement of rusted pipes and valves.

Groundwater Contamination at Moose Creek and Eielson AFB

A second groundwater contamination has been identified in the North Pole Area. In fall 2009, the City learned there was sulfolane in the groundwater under the city. In 2012, ADEC raised concerns about perfluorooctane sulfonate contamination (PFOS) at Eielson AFB

In 2015, we learned the majority of the drinking water wells on Eielson AFB were contaminated with PFOS and over 130 residential wells in Moose Creek were also contaminated with PFOS.

After learning of the PFOS contamination at Eielson and Moose Creek, as a precaution the North Pole Utility tested the its wells for PFOS. The wells tested negative. As a safeguard, the Utility plans to periodically tests its wells for PFOS.

The highest PFOS reading from a well in Moose Creek came in

at 2.09 micrograms per liter and the highest level on Eielson reached 2,000 micrograms per liter. The high reading on Eielson was the site of a KC-135 aircraft that caught fire in 1989. One microgram per liter is equal to one drop of water in 13,750 gallons water or comparable to three seconds in a hundred years.

Where did the PFOS come from? It is a man-made chemical manufactured in the United States until 2002. PFOS was used primarily in firefighting foam and as a coating to provide stain repellent or fire resistant properties to clothing, upholstery, carpet and furniture.

Current research has not clearly shown that PFOS exposure is related to specific illnesses. Some recent studies have associated PFOS exposure to adverse health effects on the immune system and the liver, but these associations need to be confirmed by research. The

Environmental Protection Agency (EPA) is still evaluating whether Perfluorinated Compounds (PFCs) can cause cancer in humans.

In January 2009, the EPA established a provisional health advisory (PHA) level of 0.2 micrograms PFOS per liter of water as a basis to assess the potential risk of short-term exposure through drinking water. EPA developed the PHA to protect public health and was based upon exposure of children because they typically consume a larger volume of water per body weight than adults. Some of the PFOS levels found in Moose Creek wells are ten times the PHA. Further assessment of the health risks of exposure to PFOS is underway.

This past year, the City began discussions with the Airforce and Senator Murkowski's office about the North Pole Utility being a possible solution to the contaminated drinking water at

Moose Creek and Eielson.

The Utility's new drinking water wells have excess capacity and are located outside of the PFOS contaminated groundwater plume. The Utility could be a source of drinking water to one or both of these communities. The City's position is any extension of the Utility to Moose Creek and/or Eielson would have to be wholly funded by external resources and not funded by the City or North Pole utility rate payers.

For additional information on the PFOS contamination at Moose Creek and Eielson AFB, go the ADEC website: dec.alaska.gov/ and in the SEARCH box type in PFOS.

2015 Annual Report

CITY OF NORTH POLE UTILITY DEPARTMENT

FEBRUARY 2016

Notice of Violation for Sewer Discharge



Channel of the Tanana River where the Utility is permitted by the Alaska Department of Environmental Conservation to discharge treated wastewater. The view above is during a period of lower river flow.

2015 Highlights

- *Utility faces \$4 million expense to fix sewer out-fall*
- *Sewer rate increases by two tenths of a cent*
- *Utility received a \$1.9 million grant*
- *Moose Creek and Eielson AFB face groundwater contamination*

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The Utility Department continues to work toward a solution of the loss of river flow at its sewer discharge on the Tanana River. May 2012 was the first time the Utility discovered there was loss of river flow in the channel where it discharges treated wastewater. River flow returned to the channel at the end of the month. There was loss of river flow again in fall 2013.

The Alaska Department of Environmental Conservation (ADEC) allows the Utility to

discharge treated wastewater to the Tanana River under a permit. The permit requires there be a mixing zone where the river flow dilutes the treated wastewater. Without river flow there is no mixing zone and the Utility is technically in violation of its permit even though the loss of river flow is an act of nature.

In November 2014, the ADEC issued the Utility a Notice of Violation (NOV) for its violation of its discharge permit.

The Utility's preferred option to solve the problem was to be allowed to consider the dry river channel a "conveyance ditch" when there is no river flow and not be in violation of its permit. ADEC and the Department of Environmental Conservation rejected this solution. ADEC required the Utility to propose a solution other than the conveyance ditch approach. In December 2015 after an engineering analysis, the Utility submitted *(Continued on Page 2)*

Utility Rates in 2016

The cessation of refining at the Flint Hills North Pole Refinery had a significant negative financial impact upon the Utility, particularly the Sewer Division. Wastewater discharges from the refinery accounted for almost 20 percent of all flow to the Utility and approximately 20 percent of sewer revenues. Due to the volume and nature of the flow from Flint Hills, the refinery was also subject to an industrial Facility Repair and Re-

placement (FRR) charge. The Utility collected the FRR for capital improvements. Flint Hills' annual FRR payments ranged from \$60,000 to \$80,000 per year.

In 2015 to respond to the loss of revenue, the Utility cut its budget and did not fill an open position. In addition, the Utility tried to function without raising utility rates. Despite these cuts, the Sewer Division is projected to have a negative budget bal-

ance when the 2015 budget is closed. There are projected to be sufficient Water Division revenues to cover the negative Sewer Division budget.

The Sewer Division cannot continue to operate at a loss. Beginning on January 1, 2016, the sewer charge increased from \$0.01141 per gallon to \$0.01340 per gallon, approximately two tenths of a cent increase.

Notice of Violation for Treated Wastewater (continued from page 1)

a report to ADEC that identified an option acceptable to ADEC to address the NOV—an extension of the sewer main to a more active river channel.

The estimated cost of a sewer main extension could exceed \$4 million, a crippling amount for the Utility. Raising this amount

of money will be challenging and will have negative effects on the Utility's future efforts to rehabilitate aging infrastructure throughout the City.

Constructing the sewer main extension will require engineering and design; getting easements because the main will be

on land outside the city limits; and getting permits from federal and state agencies because construction will occur in federally protected wetlands.

Utility Received \$1.9 Million Grant for Lift Stations



Corroded guide rails in the sewer lift station on Hurst Road. The rails hold the pumps in place and are necessary for removing the pumps for service.

In July 2015, the Utility received a Municipal Matching Grant (MMG) for \$1.9 million to renovate aging sewer lift stations. The Utility applied for this grant in August 2014. The Utility was one of only four communities awarded a MMG in the State Capital Budget—there were 51 grant applicants. The Utility cannot use these funds for any other projects. If we do not use the funds to rehabilitate our aging lift stations now we will lose the money and there is no telling when we can rehabilitate these lift stations.

The Utility will use the grant to

rehabilitate four lift stations not upgraded in the first two phases of lift station rehabilitation. The lift stations to be rehabilitated are on Cary Street, Hurst, Tanana, and Mockler Roads. If there are sufficient funds, the Utility will also upgrade the lift station on Patriot Drive. The Utility expects construction to begin in June 2016 with construction completed in October 2016.

The rehabilitation work will repair rusting buried lift station cans; replace aging pumps, pipes and hardware; and upgrade the electronic controls. The prior lift station projects incorporated

sophisticated electronic controls and a telephone-based warning system. These systems will be the model for the lift stations included in this project.

In 2015, the Utility was also eligible for two Alaska Drinking Water Fund (ADWF) loans, but did not accept them. The Utility was not prepared to incur debt for those projects at that time. One loan offer was for \$1.17 million to engineer and design a water system extension. The other loan offer was of \$2.36 million for emergency upgrades at the water treatment plant.

City passed an Ordinance regulating Wells

Groundwater contaminated with sulfolane continues to be a concern in North Pole. All the occupied properties within the City located above the sulfolane plume are either connected to the City's utility or have a source of clean water provided by Flint Hills Resources.

The City has made efforts to achieve solutions to sulfolane

contamination in and outside of the city limits. In June, the City Council adopted an ordinance requiring permits for installing drinking water wells. Well permits are no-fee permits, but are intended as a mechanism to educate property owners and well-drillers about sulfolane. The Cities of North Pole and Anchorage are the only municipali-

ties in the state that regulate wells. In October, the City passed a resolution that it would consider providing water to properties outside the city limits with contaminated wells.

To view the well ordinances Title 13.22: General Provisions for Drilling Wells, go to <http://www.codepublishing.com/AK/NorthPole/>

Update on Sulfolane Contamination

The City's lawsuit filed in 2014 against Flint Hills Resources and Williams Petroleum continues to work its way through the legal system. The City filed the lawsuit to ensure that the public health and economic interests of the City were considered and addressed as the sulfolane issue is resolved.

The lawsuit is in the discovery phase where the parties are requesting and supplying one another with requested documents. The City proposed solutions to avoid a lengthy and expensive court battle, but to date, neither Flint Hills nor Williams have seriously responded to the City's offers.

Analysis of the health effect of sulfolane are underway. According to ADEC, the status of the health studies are:

Toxicology Study: Mice, rats and guinea pigs were given a range of doses of sulfolane.

Goals of this study are 1) to determine if any of the animal species studied is more sensitive to sulfolane toxicity than the other species, and 2) to identify appropriate dosing levels for longer duration studies.

ADME Study: Studies to measure the absorption, distribution, metabolism, and excretion (ADME) of a chemical in male and female mice and rats. ADME studies help understand how a chemical moves around within the body including whether there are any differences between sexes or rodent species.

Subchronic Toxicity Study begun spring 2015: Mice and rats from the 2-year study will be assessed after 3 months of exposure. The study will look at effects on a number of toxicity endpoints including markers of development in the rats. In a separate study, the immune system of rats and mice exposed

to sulfolane for 3 months will be evaluated.

Two-year, Chronic Toxicity Study begun spring 2015: Rats and mice will be given sulfolane in their drinking water for 2 years, consistent with how people would most likely come in contact with sulfolane. The purpose of this study is to determine the effects of long-term exposure to sulfolane including any potential carcinogenic effects. The study will do a limited assessment of pregnancy outcomes in rats.



For additional information about the evolving sulfolane issue in the North Pole area, see the ADEC website: dec.alaska.gov/

Fall Snowfall caused Power Outages for Utility

At the end of September, heavy, wet snow began falling in the Interior. The weight of the snow on trees and power lines began to bring down lines causing power outages across the Interior. Power outages peaked on September 30 with over 21,000 households affected.

Some lucky residents never lost power, and others were without power for only a few hours. The loss of power also affected the Utility. Power loss did not affect the water treatment and wastewater treatment plants.

These two facilities have emergency generators, so even in power outages they can continue to operate.

The Utility was not so lucky with its sewer lift stations. Four lift stations lost power and the Utility had to power them with mobile generators. GVEA restored power to two of the lift stations within a day; however, two other lift stations lost power for three days.

The Utility has only three mobile generators. When more than three lift stations lose

power, staff must work around-the-clock to move the mobile generators from lift station to lift station to ensure that your wastewater keeps flowing.

The Utility hopes to purchase at least two additional mobile generators with a loan from the ADEC. The Utility received this loan in 2013. The Utility used part of the loan to purchase the replacement emergency generator installed as part of the WWTP rehabilitation project completed in 2015.