

Agency: Commerce, Community and Economic Development**Grants to Municipalities (AS 37.05.315)****Grant Recipient: North Pole****Federal Tax ID: 92-6001585****Project Title:****Project Type: Planning and Research**

North Pole - Mixing Zone Compliance Plan

State Funding Requested: \$500,000**House District: Fairbanks Areawide (1-5)**

Future Funding May Be Requested

Brief Project Description:

Develop a solution to the Utility's loss of its mixing zone in the Tanana River

Funding Plan:

Total Project Cost: \$500,000

Funding Already Secured: (\$0)

FY2015 State Funding Request: (\$500,000)

Project Deficit: \$0

*Funding Details:**No prior funding; situation newly developed for city.***Detailed Project Description and Justification:**

The North City Utility's APDES permit requires that the Utility have a mixing zone in the Tanana River to disperse its treated. The recent loss of the river flow to the channel of the Tanana River where the Utility discharges treated wastewater has caused the Utility to lose its mixing zone and be in ongoing violation of its APDES discharge permit.. The Utility is negotiating a Compliance by Order by Consent with the Alaska Department of Environmental Conservation for find a solution to the loss of the mixing zone. Finding a solution will require engineering and wastewater consultations, site assessments, and technology assessments.

Project Timeline:

July 2014 receive funding; solicit professional services and fast-track a solution

Entity Responsible for the Ongoing Operation and Maintenance of this Project:

City of North Pole

Grant Recipient Contact Information:

Name: Bryce Ward

Title: Mayor

Address: 125 Snowman Lane
North Pole, Alaska 99705

Phone Number: (907)488-8584

Email:

Has this project been through a public review process at the local level and is it a community priority? Yes No

City of North Pole Utility Sewer Outfall Analysis and Engineering Request UPDATED February 3, 2014

Legislative Request: \$500,000

Purpose: Conduct an engineering analysis and design for a solution to the loss of flow in the City of North Pole's wastewater discharge channel of the Tanana River

Introduction

The City of North Pole's Utility has a sewer outfall located on a small side channel of the Tanana River where it discharges treated wastewater. (See the attached map for the sewer outfall location.) The sewer outfall is on Department of Natural Resources land. The sewer main to the outfall was constructed in the 1970s as part of a private sewer treatment system associated with a trailer park. The City took possession of that sewer main in the 1980s as part of the City's wastewater treatment system expansion. The City has no record of the engineering, construction or permitting of the original sewer main that feeds the sewer outfall.

The City of North Pole's Utility Department has an Alaska Pollutant Discharge Elimination System (APDES) permit administered by the Alaska Department of Environmental Conservation (ADEC). The permit regulates the Utility's discharge of treated wastewater to the Tanana River. The permit includes a mixing zone to dilute treated wastewater and routine sampling requirements of the sewer outfall and mixing zone. As part of a routine sampling in May 2, 2012, Utility staff found the side channel of the Tanana River where the Utility discharges treated wastewater had lost all river flow. The only water in the channel was treated wastewater. The Utility had no record of previous loss of flow to the discharge channel. Upon investigation, it was approximately 3 miles south before Utility staff found an active flowing channel of the Tanana River. This violation was reported to ADEC and ADEC conducted a site visit. By the end of May, flow returned to the discharge channel. Periodic visits to the outfall site found river flow fluctuated but continued throughout the summer and fall in 2012.

In May 2013 as part of sampling the sewer outfall and mixing zone, Utility staff found there was flow in the discharge channel. On October 9, 2013 when Utility staff went to sample the outfall and mixing zone, they found the discharge channel had again lost river flow. The dry conditions in the discharge channel mirrored those when there was loss of flow in 2012. The Utility again reported the violation to ADEC and again ADEC conducted a site visit to document the conditions. As of December 2013, the only flow in the discharge channel appeared to be treated wastewater covered by a layer of ice and snow.

Options to Respond to Loss of Treated Wastewater Mixing Zone

The loss of river flow twice in 18 months at the Utility's sewer outfall suggests that conditions may be changing on the Tanana River. Reports do not indicate a decline in volume of the Tanana River. One possibility is the Tanana River channel in the vicinity of the sewer outfall may be

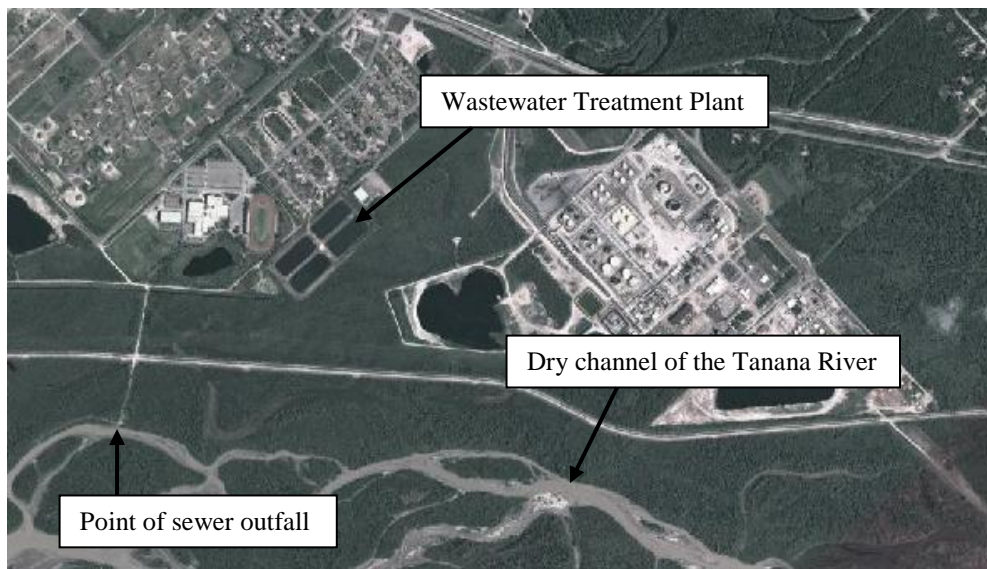
shifting westward cutting off flow to several side channels. Despite the loss of river flow to the sewer discharge channel being an act of nature, according to the Utility's APDES permit the Utility is in violation of the permit. Being in constant violation of the Utility's APDES permit is not a viable solution. The Utility needs to find an alternative method to discharge its treated wastewater, request ADEC modify its APDES permit or a combination of the two.

The City has begun consultations with ADEC to develop a legally binding Compliance Order by Consent (COBC). ADEC's goal is to finalize the COBC by the end of February or early March 2014. The COBC will specify the requirements of the Utility to determine a solution for the sewer outfall that satisfies ADEC's wastewater discharge requirements. The COBC will also include ADEC's role in resolving the sewer discharge problem. The City does not have the technical expertise nor financial resources to conduct a comprehensive analysis of the possible solutions, including analysis of flow in the Tanana River; site characterizations; permitting restrictions; conduct detailed financial analyses of the possible solutions, engineer the selected option; and construction of the selected option.

Consultation with individuals with expertise in wastewater treatment in the Interior have resulted in several possible options to resolve the Utility's sewer outfall problem:

- Extend the discharge sewer main to an active channel of the Tanana River
- Discharge treated wastewater to a pond modeled after Eielson AFB's wastewater treatment system
- Construct a large leach field for the discharge of treated wastewater
- Modify or augment the treatment process
- Dredge the discharge channel
- Consider the dry river channel as an open conveyance ditch for delivery of treated wastewater to the Tanana River when there is loss of river flow in the discharge channel

The City is requesting \$500,000 for an engineering analysis of treated wastewater discharge options and engineering design of the selected solution.



Information submitted to the Alaska Department of Environmental Conservation, Enforcement Division, Fairbanks Office in response to questions related to development of Compliance Order by Consent concerning the loss of river flow at the wastewater treatment plant sewer outfall

1. Has there been an engineering analysis and design upgrade study done for the Wastewater Treatment Plant (WWTP)? If started, when was it initiated?

The Utility issued a Notice to Proceed to USKH on May 11, 2011 to conduct an engineering analysis and design for rehabilitation of the wastewater treatment plant (WWTP). Due to the high cost (+\$20 million) of the recommended rehabilitation and upgrades at the WWTP, USKH divided the project into a series of phases. One of the engineer's recommendations in the preliminary engineering report included extension of the effluent sewer main as part of phase three. The estimated cost for upgrading and extending the main was approximately \$2.5 million. USKH submitted the 95% design documents on February 10, 2014 for the first phase of rehabilitation. The estimated cost of the rehabilitation and upgrades in this phase are approximately \$2.5 million and do not include work on the sewer effluent main. The Utility is financing the project with Alaska Department of Environmental Conservation Municipal Matching Grant (MMG), Alaska Clean Water Fund (ACWF) loan and Utility matching cash contribution.

2. Has the City hired any technical experts?

In December 2013, the Utility requested Mike Pollen, President of NTL Alaska, to provide wastewater technical consultations related to the sewer outfall. The Utility also asked Dean Syta, principal, USKH, Inc., to provide wastewater engineering consultations related to the sewer outfall. As discussions with ADEC Enforcement Division evolved, the Utility contracted with NTL and USKH to provide professional services to assist the Utility with negotiating the Compliance Order by Consent (COBC). Once the requirements and expectations of the Utility are formalized in the COBC, the Utility will negotiate expanded professional services agreements with NTL and USKH to provide technical consultations throughout the COBC process.

3. Has the City purchased any land that could be used for sewer treatment?

The Utility submitted a request to the North Pole City Council for the authority to purchase two parcels of land located adjacent to the WWTP. The Department of Natural Resources (DNR) manages the parcels of land for the Alaska School Trust. On February 18, the Council approved purchase of the land. The recommendation approved by the City Council was to purchase the land versus amortizing the purchase. The Utility is proceeding with the process of purchasing the land.

4. When did the City contacted the Department of Natural Resources & other Government agencies and what was the nature of the contact?

The Utility has not yet contacted DNR or any other agencies related to permitting possible solution to the sewer outfall. The Utility has delayed this process until it identifies specific options as part of the COBC. The Utility did contact DNR requesting that they participate in the initial discussions associated with what steps need to be taken to resolve the problem with the sewer outfall. On November 12, 2014, the Utility invited Alexander Wait, Natural Resources Manager with the Fairbanks DNR office to participate in preliminary discussions to resolve the problem with the sewer outfall. This meeting occurred on December 2, 2013.

5. When did the City requested the meeting with ADEC that initiated the 12/2/13 planning meeting?

Because the Utility had lost river flow twice in 18 months at the site of its sewer effluent outfall resulting in it being in violation of its Alaska Pollutant Discharge Elimination System (APDES) permit, the Utility requested guidance from Kim Speckman, Environmental Program Specialist with ADEC Compliance Program. Ms. Speckman and Marie Klingman, Environmental Program Specialist who manages the Utility's APDES permit, conducted a site visit to the sewer outfall on October 22, 2013. After the site visit, the Utility proposed a preliminary meeting of state agency representatives with connection to the Utility's sewer outfall plus wastewater and engineering consultants to assist the Utility determine the next steps in resolving the problem with the sewer outfall. This meeting was held on December 2, 2013 at the Fairbanks ADEC offices. Individuals participating in the meeting included:

- Marie Klingman, Division of Water-Wastewater, ADEC
- Tonya Bear, Division of Water-Wastewater, ADEC
- Kim Speckman, Division of Water Compliance Program, ADEC
- Tamara Cardona, Contaminated Sites, ADEC
- Alexander Wait, Natural Resources Lands Manager, DNR
- Patty Burns, Natural Resources Lands Manager, DNR
- Mike Philips, Division of Water Grants Manager, ADEC
- Dean Syta, Principal, USKH, Inc.
- Mike Pollen, President, NTL Alaska
- Paul Trissel, Utility Supervisor, City of North Pole
- Bill Butler, Director of City Services, City of North Pole

6. When did the City submit the formal request to initiate the Compliance Order by Consent (COBC) consultation?

On December 20, 2013 by email, Bill Butler asked Kim Speckman what are the next steps the Utility should take to begin the formal process of resolving the problem with the sewer outfall. Bill Butler, Paul Trissel, Kim Speckman and Marie Klingman met on January 30, 2014 to discuss the process of negotiating a COBC. A formal meeting of the City of North Pole and ADEC to negotiate the contents of the COBC has been scheduled for Thursday, February 27 from 9:00 to 11:00 AM. Individuals invited to the meeting include:

- Marie Klingman, Division of Water-Wastewater, ADEC
- Kim Speckman, Division of Water Compliance Program, ADEC
- Dean Syta, Principal, USKH, Inc.

- Mike Pollen, President, NTL Alaska
 - Zane Wilson, City Attorney, Cook Schuhman and Groseclose
 - Paul Trissel, Utility Supervisor, City of North Pole
 - Bill Butler, Director of City Services, City of North Pole
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Possible milestones the City considers should be addressed in the COBC.

1. Engineering analysis and design upgrade study (dates)?

The Utility is considering a variety of solutions to the periodic loss of river flow to its sewer effluent outfall. Options being considered include the following:

- Extend the discharge sewer main to an active channel of the Tanana River
- Discharge treated wastewater to a pond modeled after Eielson AFB's wastewater treatment system
- Construct a large leach field for the discharge of treated wastewater
- Dredge the discharge channel
- Consider the dry river channel as an open conveyance ditch for delivery of treated wastewater to the Tanana River when there is loss of river flow in the discharge channel

Extend Discharge Sewer Main

The materials and condition of the existing effluent discharge main are unknown for the approximately 40 year old main. Should the main be extended, it may be wise to consider replacing the entire main to ensure the integrity of the entire main. Extending the main may require more than just adding more pipe to the existing main. The next braid of the Tanana River southwest of the sewer outfall is also currently dry and it was also dry in 2012 when the Utility last lost flow in the discharge channel. To re-locate the outfall to a reliable channel of the Tanana River may require more than 3000 feet of new main that crosses intermittent river channels. Access to an outfall that adds more pipe to the existing main may be difficult. Flow does return to the intermittent channels and during high river flow, the outfall and mixing zone may not be accessible by truck, foot or even boat. Maintenance on a sewer main buried beneath an actively flowing river channel could be difficult and cost prohibitive. There will also likely be permitting requirements to engage in construction in an active river/wetland.

An extension of the effluent discharge main achieved by adding more sewer main in a straight line may not be a workable approach. The Utility may need to reorient the effluent discharge main to a northeasterly path where it can gain direct access to the main channel of the Tanana River. A new and longer pipe does not entail new technology. This alternative sewer main may require boring under the flood control dike and cutting a construction/access road through wetlands. The project requires an access road because the Utility must routinely sample the outfall and mixing zone. Such a road would provide additional unauthorized public access to DNR land. The current access road to the effluent outfall has created a shooting/dump/partying site. A new road would provide another such site. There would likely be DNR and Army Corps of Engineer permitting issues in addition to ADEC permit requirements. Other issues that will

need to be investigated related to an extended sewer main include analysis of temperature loss over a longer pipe and freeze threats and capacity of the pumps at the WWTP to pump the sewer effluent a longer distance and analysis if gravity flow would still be a viable option. Because the sewer main would only be discharging at a different location on the Tanana River, it is not expected that the discharge limits would be different than those that would apply at the existing outfall site.

Engineering and modeling for a new sewer main that is not an extension of the existing main should be straight forward. Possible sites for the main would need to be surveyed to ensure that construction is feasible. Permitting requirements of state and federal agencies would need to be identified along with estimations of time required to obtain necessary permits. The utility estimates that work associated with investigating the feasibility of constructing a new sewer main to be approximately one year.

Use a Surface Pond to Discharge Treated Wastewater

After initial wastewater treatment, Eielson AFB uses a series of treatment lagoons and the final stage of treatment is discharge to a surface pond. Sampling points comparable to North Pole's mixing zone are monitoring wells. The wells are located upstream of the pond to provide background data and downstream of the pond to ensure the final stage of treatment satisfies the APDES permit. There are existing ponds in the vicinity of the North Pole's treatment works that the Utility could possibly utilize or purchase as discharge ponds. The closest ponds are to the south at Flint Hills Resources North Pole Refinery; to the northwest behind the North Pole High School; and further to the northwest and outside the city limits. The Utility could construct a new pond south of the treatment works where the City is in the process of purchasing a +25 acre parcel of land.

The Eielson system is tested and working, but there are several challenges with using a surface discharge pond in this situation. All the existing ponds in the vicinity of the treatment works are on property not owned by the City--one is surrounded by residential properties, one is on the North Pole High School campus and one is on Flint Hills property. The land the City is purchasing is land within a FEMA identified flood plain and partially located above the groundwater plume contaminated with sulfolane. Regulations limit construction of treatment works within a flood plain. Construction of a pond in the midst of an area with sulfolane-contaminated groundwater may be problematic for ADEC related to Contaminated Sites and the Utility's APDES permit.

To determine the feasibility of using a discharge pond the Utility would need to investigate a number of items. The Utility will need to determine if state and federal regulations would allow the construction of a wastewater discharge pond in a flood plain. Until this is determined, it is not economic to invest time or money in the other activities that need to be investigated to assess the feasibility of a discharge pond. A preliminary determination of the permitting limits of constructing a wastewater treatment pond in a flood plain could take six months to a year. This amount of time is estimated because the Utility cannot control the speed at which other agencies will respond to requests for information or determinations.

If it were legally allowable to construct a wastewater pond in a flood plain, the utility would need to conduct a variety of assessments. The Utility would need to better characterize the contents of its effluent discharge related to regulated compounds. The Utility anticipates that it would also need to install sampling wells upstream and downstream of the proposed discharge pond. The Utility anticipates that it will need to develop a site characterization of groundwater flow and model the effect of discharging treated wastewater into a surface pond that will discharge the wastewater into the groundwater. Some preliminary site characterization data may be available as part of the site characterization being prepared by Flint Hills Resources related to groundwater contamination with sulfolane. The Utility anticipates it will be required to collect a minimum of two years of well data for a site characterization. Preparing the site characterization is estimated to require a minimum of six months. The total estimated time that includes getting a determination that a wastewater discharge pond would be allowed at the site through generation of a site characterization is three years.

Construct a Large Leach Field

Leach fields are a common means in the Interior for discharging wastewater for residential, commercial and institutional facilities not connected to public treatment systems. Palmer, Alaska uses a large leach field as the final stage in its treatment process. As mentioned above, the City is in the process of purchasing a tract of land south of the treatment works. Some of the same issues that limit the use of a surface pond will also limit the use of a leach field—located in a flood plain and constructing the leach field in the sulfolane plume. Construction of a leach field may require significant excavation after grubbing the site to reach a suitable base for a leach field. Because the groundwater table is close to the surface, the leach field would need to be a mounded and that would require trucking in a large volume of fill. The Utility anticipates very similar work will need to be done to assess the feasibility of constructing a leach field as there would be to construct a surface water discharge pond. The total estimated time that includes getting a determination that a leach field would be allowed at the site through generation of a site characterization is three years.

Dredge the Discharge Channel

When the discharge channel has gone dry, the active channel of the Tanana River that feeds the discharge channel is approximately 3 miles to the south. Utility staff have observed the base of the discharge channel being more than a foot above the level of the Tanana River. The main channel of the Tanana River may fall even lower than the observed level. The depth to which the discharge channel would need to be excavated to ensure year-round flow would need to be determined plus a safety margin to ensure adequate flow. Excavating the discharge channel to ensure the outfall could require excavating to such a depth that the Tanana River may backflow into the discharge channel from the northwest creating a channel where there is little or no active flow which may not provide a mixing zone. The situation where the Tanana River backflows into the discharge channel with limited or no water movement would be analogous to the surface pond approach described above.

The Utility expects that at a minimum, dredging the discharge channel could require permitting from DNR, owner of the land; the Army Corps of Engineers; and possibly other agencies. The

Utility needs to determine if dredging is permissible before proceeding with any investigation of the dredging option. A decision from permitting agencies is expected to take six months.

The Utility would need to review historical flow data for the Tanana River. The Utility will also need to review satellite data to assess if the Tanana River channel is shifting away from the entrance to the discharge channel. Review of flow and satellite data is expected to take six months. If flow and/or satellite data indicate that flow to the discharge channel will be problematic to maintain flow even with dredging, the dredging option would be rejected.

If dredging remains a viable option based upon permitting agency decisions and Tanana River flow, the Utility will next need to survey the entire length of the discharge channel. Surveying the channel could be problematic if flow returns to the channel, but it is not impossible. With elevation data for the channel, the Utility will assess the feasibility of dredging the channel. If there is inadequate change in elevation from the original discharge channel entrance or an alternative channel entrance to ensure year-round river flow, than dredging will not be a feasible alternative. The Utility estimates evaluating dredging the discharge channel as an option will require one year.

Dry River Channel as an Effluent Conveyance Ditch

The loss of river flow in the discharge channel twice over 18 months could be an anomaly that will not repeat itself for decades or it could be an ongoing occurrence. Investing what could cost millions of dollars in a “solution” for a situation that only occurs periodically will be a significant burden for the Utility. The Utility only has a customer base of approximately 650 accounts and a annual sewer operating budget of less than \$700,000. The Utility also has millions of dollars in aging infrastructure in its production, distribution, collection and treatment networks that need rehabilitation and ongoing maintenance. An emergency project costing over a million dollars would halt or delay the Utility addressing existing infrastructure rehabilitation and modernization.

A possible modest costing project that could include elements from some of the projects described above plus the Utility’s existing system may be the basis for another option. The Utility is proposing that during those times when the discharge channel loses river flow that it be treated as an open conveyance ditch to transport effluent to the Tanana River. When this occurs, the Utility would have two mixing zones. One mixing zone would be a conventional mixing zone from the point the effluent enters the flowing channel of the Tanana River to a point considered appropriate by ADEC. The second “mixing zone” would be the mixing that occurs as the effluent infiltrates into the river channel on its journey to the Tanana River. The Utility would install downstream and upstream monitoring wells to comply with APDES permit limits for regulated compounds. When there is river flow in the discharge channel, the Utility would fall back to its existing outfall sampling and mixing zone. It is likely that sampling of downstream and upstream monitoring wells would need to be continued routinely.

This approach draws some inspiration from the surface discharge pond model at Eielson AFB. It is expected that there will be infiltration of a significant amount of the effluent into the dry river channel before the effluent reaches the Tanana River. The proposed sampling wells are modeled

upon ADEC's requirement that the effluent entering the ground water satisfy the mixing zone requirements. The dry river channel as a conveyance of effluent is similar to an approach that was permitted in Barrow where effluent from a retaining pond after passing ADEC sampling limits was allowed to flow through an open channel to another treatment lagoon. Also on the North Slope a variety of industrial dischargers have been permitted by ADEC to discharge effluent directly to the tundra, in some cases state-owned land.

The Utility's lagoon system is a relatively simple system that requires few inputs and limited labor to operate. It has a good +20 year record of few violations related to permit exceedances related to regulated compounds. The Utility could add pre-treatment and post-treatment to its current system to make the sewer effluent satisfy ADEC's recreational standard. With unlimited resources, the Utility could produce effluent cleaner than its drinking water. The limitation on this approach is the availability of resources and the utility rates that customers would tolerate to finance such a system.

Since the preliminary meeting ADEC had with the Utility on January 30, 2014, there has been a significant event—Flint Hills Resources has announced that it will cease refining crude oil. When oil refining stops at the refinery, an immediate effect will be a reduction in wastewater flow from the refinery to the Utility's wastewater system. Without Flint Hills' industrial flow to the treatment works the Utility anticipates that the influent will be "cleaner." By cleaner I mean the levels of regulated compounds will be reduced. The Utility will need to institute an intensive analysis of the sewer influent and effluent for regulated compounds. The Utility cannot assume that it can just subtract Flint Hills' contribution of regulated compounds from an assessment of the effluent. There are accumulated regulated compounds in the sludge in the four treatment lagoons. The Utility will need to determine if the regulated compounds are sequestered in the sludge or if these compounds will leech out of the sludge.

The Utility anticipates it will require six months to develop a sewer influent, sewer effluent and sludge sampling regime to more accurately predict the composition of the sewer effluent in the future. The Utility estimates a minimum of two years of data will be need to determine movement of regulated compounds in the influent and sludge leeching of regulated compounds from the sludge into the effluent. At a minimum six months will be necessary to identify pre and/or post treatment technologies to generated a sewer effluent that satisfies the recreational standard. Total estimated time to determine how the Utility could generate effluent that satisfies the recreational standard is a minimum of three years.

2. Is the City considering videoing the condition of the existing main sewer line that runs from the WWTP to the sewer outfall on the Tanana River?

The Utility considers the need to video the existing sewer main only if using the existing sewer outfall continues to be a viable option. Continuing the use of the existing sewer outfall is associated with using the dry discharge channel as a conveyance ditch or if the channel were dredged. Installing an extended sewer main, constructing a discharge pond, or constructing a leech field would require construction of a new discharge main.

Videoring the existing sewer main is problematic. There are no engineering as built for the main. Due to the lack of cleanouts along long lengths of the main, the Utility would need to excavate and cut the main to insert a video camera. Because the Utility does not know what we will discover when we excavate and cut the main—type and size of pipe—it is possible we will not have the necessary patches to repair the pipe. If the options that involve retaining the existing sewer outfall hold promise, the Utility will then plan for the video inspection of the existing sewer main.

3. Is the City engaged in any studies related to the sewer outfall?

At this time, the Utility has no studies other than those discussed above associated with the options currently under consideration to resolve the problem with the loss of river flow to the sewer outfall. Other options may arise upon further analysis and discussion with individuals with technical expertise in wastewater treatment and engineering

4. What research and/or applications related to funding is the City considering?

The Utility anticipates that it will cost approximately \$500,000 to conduct the analyses associated with the options outlined above. These costs will include, but not be limited to, technical consultations, sample collection, laboratory testing, test wells, pilot testing and permit applications.

The Utility has submitted a legislative capital request for \$500,000 for consideration this legislative session. The governor typically does not sign the state capital budget until late June. Even if the state budget includes an appropriation for the Utility, it may be late summer or early fall before the state releases the funds.

On February 14, 2014, the Utility submitted an Alaska Clean Water Loan Fund (ACWF) questionnaire requesting \$500,000 to support background work associated with investigating solutions to the sewer outfall problem. The challenge of an ACWF loan is the Utility must achieve a competitive score; wait for a legislative appropriation; receive authorization to accept the loan by a vote of the people; if the electorate approves the loan, the Utility must submit a loan application to ADEC; and ADEC must process and approve the loan. This process can take 18 months to two years before the Utility receives an ACWF loan.

With the closure of the Flint Hills Resources Refinery in North Pole, the Utility anticipates a loss of \$200,000 or more of operational revenue and \$65,000 of capital project revenue annually. Loss of utility revenue is anticipated to begin in July 2014 when the refinery ceases refining petroleum. The loss of utility revenue will negatively affect the Utility's ability to fund costs associated with responding to the sewer outfall problem—direct expenditures and/or matching contributions for a MMG.