

**Agency: Commerce, Community and Economic Development****Grants to Municipalities (AS 37.05.315)****Grant Recipient: Chevak****Federal Tax ID: 920061087****Project Title:****Project Type: Maintenance and Repairs**

# Chevak - Glycol Rehabilitation Project

**State Funding Requested: \$470,000****House District: 39 / T**

One-Time Need

**Brief Project Description:**

This project if funded would rehabilitate the sewer glycol system to eliminate the freezing problems with the existing system, and would also result in saving the residents \$100,000 per year.

**Funding Plan:**

Total Project Cost:	\$470,000
Funding Already Secured:	(\$0)
FY2012 State Funding Request:	<u>(\$470,000)</u>
Project Deficit:	\$0

*Funding Details:*

N/A

**Detailed Project Description and Justification:**

The Alaska Rural Utility Collaborative (ARUC), in partnership with the City of Chevak, has been operating the Chevak water/sewer system for three years. ARUC determined there is a problem with the sewer system glycol, which causes the sewer system to freeze during very cold weather. This requires many man-hours to thaw sewer services lines, and results in numerous homes, including teacher housing units for the local school district, being occasionally without sewer service. The health impacts to residents of these homes are high; residents of these homes reported urine infections, lung infections and other health issues. Expense data shows that the costs of labor and glycol for these problems are \$100,000 per year. These costs are paid directly by Chevak residents, leading high water/sewer rates in an economically depressed area.

After careful consideration and analyzing the system, using ANTHC engineers it was determined that the design of the glycol system in Chevak is outdated and does not compensate for thermal expansion, air-logging, or glycol gelling if a glycol leak occurs. Once a leak occurs, the system fails and cannot be recovered until air temperatures warm above freezing in the spring. These problems are especially pronounced in long glycol lines over 1,000 feet long.

ANTHC engineering staff has determined the Chevak glycol system can be improved with an updated design and new components. The ANTHC recently constructed a new design in Kipnuk which has proven to effectively deal with the problems being experienced in Chevak. The cost of design and construction of this solution is estimated at \$470,000. The residents of Chevak will see a positive return on this investment since they have been paying out of pocket for these problems.

Attached is a copy of Resolution 11-01 affirming the support of the community for this project, and various schedules detailing the cost estimate.

**Project Timeline:**

If approved, work on this project would commence immediately.

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

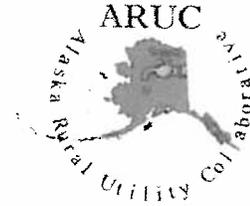
City of Chevak

**Grant Recipient Contact Information:**

Name: Ulric Ulroan  
Title: Mayor  
Address: PO Box 136  
Chevak, Alaska 99563  
Phone Number: (907)858-7128  
Email:

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

**Alaska Rural Utility Collaborative**  
Division of Environmental Health & Engineering  
1901 Bragaw Street, Suite 200  
Anchorage, Alaska 99508  
Telephone: 1-800-560-8637 ext.5692  
Direct Line: 1-907-729-5692  
Facsimile: (907) 729-4506



January 31, 2011

The Honorable Ulric J. Ulroan  
City of Chevak  
P.O. Box 136  
Chevak, AK 99563

Re: Chevak glycol rehabilitation project

Dear Mayor Ulric J. Ulroan,

The Alaska Rural Utility Collaborative (ARUC), in partnership with the City of Chevak, has been operating the Chevak water/sewer system for three years. ARUC has determined there is a problem with the sewer system glycol, which causes the sewer system to freeze during very cold weather. This requires many man-hours to thaw sewer services lines, and results in numerous homes, including teacher housing units for the local school district, are occasionally without sewer service. The health impacts to residents of these homes are high; residents of these homes reported urine infections, lung infections and other health issues. Expense data shows that the costs of labor and glycol for these problems are \$100,000 per year. These costs are paid directly by Chevak residents, leading high water/sewer rates in an economically depressed area.

After careful consideration and analyzing the system, using ANTHC engineers it was determined that the design of the glycol system in Chevak is outdated and does not compensate for thermal expansion, air-logging, or glycol gelling if a glycol leak occurs. Once a leak occurs, the system fails and cannot be recovered until air temperatures warm above freezing in the spring. These problems are especially pronounced in long glycol lines over 1,000 feet long.

ANTHC engineering staff has determined the Chevak glycol system can be improved with an updated design and new components. The ANTHC recently constructed a new design in Kipnuk which has proven to effectively deal with the problems being experienced in Chevak. The cost of design and construction of this solution is estimated at \$470,000. The residents of Chevak will see a positive return on this investment in about 5 years, as the glycol problems are currently costing approximately \$100,000 per year.

ARUC would like work collaboratively with Chevak to find a funding source to implement this solution and decrease the cost of water and sewer for Chevak residents. Would the City be interested in supporting this search for funding? Please contact me if you are interested in this approach.

Sincerely,

A handwritten signature in black ink, appearing to read 'John Nichols', is written over the word 'Sincerely,'.

John Nichols, P.E.  
ARUC Manager

**CITY OF CHEVAK  
PO Box 136  
Chevak, AK 99563  
(907) 858-7128**

**Resolution No. 11-01**

**A RESOLUTION OF THE CHEVAK CITY COUNCIL REQUESTING \$470,000  
FUNDING FOR A GLYCOL REHABILITATION PROJECT TO SAVE CHEVAK  
RESIDENTS \$100,000 PER YEAR**

**WHEREAS** the outdated glycol system of the community vacuum sewer system causes sewer expenses to be far higher than communities with similar sewer systems; and

**WHEREAS** these additional annual costs total \$100,000 (\$50,000 in glycol and materials, and \$50,000 in labor required to thaw frozen sewer lines); and

**WHEREAS** the these water/sewer costs are paid directly by residents of Chevak, creating high costs of living in one of the most economically depressed areas of Alaska; and

**WHEREAS** the freezing sewer lines lead to increased incidents of illness in Chevak residents; and

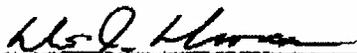
**WHEREAS** the City Council desires improved health and decreased cost of living for Chevak residents; and

**WHEREAS** engineers from the Alaska Native Tribal Health Consortium have identified new technologies to rehabilitate the outdated glycol system, eliminating freezing problems; and

**WHEREAS**, the new technologies have proven to work in a nearby community;

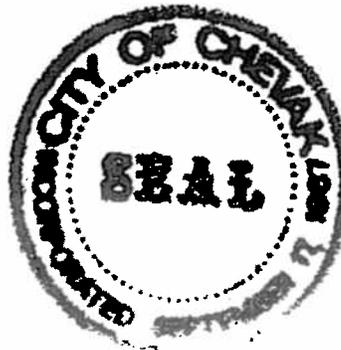
**THEREFORE BE IT RESOLVED** that the Chevak City Council requests \$470,000 of grant funds to rehabilitate the sewer glycol system, which will save residents in Chevak \$100,000 per year and decrease the cost of living in Chevak

**ENACTED THIS** 9<sup>th</sup> **DAY OF** FEBRUARY 2011 **by a vote of** 7 **in favor**  
**and** 0 **opposed.**

  
Ulric J. Ulroan, Mayor

  
ATTEST: Cecelia Atchak, City Clerk

SEAL:



Total Cost Estimate to Redesign and Fix Chevak glycol system for vacuum sewer

	Total Cost
Outside the sewer plant	\$108,609
Inside the sewer plant	\$124,955
Grand total, per glycol loop	\$233,564
<b>North glycol loop</b>	\$233,564
<b>West glycol loop</b>	\$233,564
Grand Total, Chevak Glycol Project	\$467,128
<b>Rounded Grand Total, Chevak Glycol Project</b>	<b>\$470,000</b>

## Inside the sewer plant estimate

Cost Estimate for each loop of Chevak Glycol System

Equipment	Quantity	Each	Total
Expansion Tank Amtrol AX-240, 132-gallon Extrol	1	\$1,724.05	\$1,724.05
Viking Pumps (2) @ \$ 1,500.00 each	1	\$1,724.05	\$1,724.05
GMT Glycol Make-up Tank 50 Gallon-Wessels model GMP-13050	1	\$3,535.00	\$3,535.00
HX Heat Exchanger – Doucette Industries (See Specs for Size)	1	\$654.12	\$654.12
10 – 1 ½" Pro-Press Ball Valves @ \$ 000.00 ea.	10	\$227.00	\$2,270.00
1 ½" Air Separator Taco Vortech	1	\$185.00	\$185.00
Honeywell L6008A1093 Remote bulb Aquastat (TSL-901)	1	\$150.25	\$150.25
FCI 12-64B (FSL-901)	1	\$847.00	\$847.00
W9699257, 4" Face, liquid filled, lower conn. (DPI-901)	1	\$65.00	\$65.00
Weiss DVU35 Digital Vari-angle Solar Thermometer (TI-901-904)	1	\$49.99	\$49.99
Anderson Midwest Model 300, 1 ½", (FI-901)	1	\$215.00	\$215.00
Anderson Midwest Model 300, 1", (FI-902)	1	\$94.00	\$94.00
Griswold Isolator valve (1") (FCV-901A)	1	\$460.00	\$460.00
Griswold Automizer flow control valve package (1") (FCV-901B)	1	\$540.00	\$540.00
Watts Pressure Relief Valve 1" (PRV-901)	1	\$498.00	\$498.00
W9767070 2.5" Face liquid filled, ¼" back conn, (PI-901)	1	\$38.00	\$38.00
(2) 1 ½" copper ProPress unions @ \$ 000.00 ea.	2	\$21.92	\$43.83
(10) 1 ½" copper ProPress 90 degree Ell @ \$ 000.00 ea.	10	\$2.04	\$20.39
(16) 1" copper ProPress 90 degree Ell @ \$ 000.00 ea.	16	\$0.36	\$5.82
(2) 1/2" copper ProPress 90 degree Ell @ \$ 000.00 ea.	2	\$0.86	\$1.72
(9) 1 ½" x ¾" ProPress Tee @ \$ 000.00 ea.	9	\$2.38	\$21.40
(4) 1 x ¾" ProPress Tee @ \$ 000.00 ea.	4	\$2.37	\$9.46
(2) ¾" Boiler Drains @ \$ 000.00	2	\$2.65	\$5.31
(2) ¾" Hose Bibb Caps @ \$ 000.00	2	\$0.80	\$1.61
(1) 1 ½" Wye Strainer	1	\$58.15	\$58.15
(5) 1 ½" Male x 1 ½" ProPress Adaptor @ \$ 000.00 ea.	5	\$3.91	\$19.54
(3) ½" Male x ½" ProPress Adaptor @ \$ 000.00 ea.	3	\$0.64	\$1.92
(2) 1 ½" x ½" x 1 ½" ProPress Tee @ \$ 000.00 ea.	2	\$14.55	\$29.10
(2) 1" x ½" x 1" ProPress Tee @ \$ 000.00 ea.	2	\$6.15	\$12.30
(4) ½" ProPress Ball Valve @ \$ 000.00 ea.	4	\$3.98	\$15.91
(4) ½" Taco Auto Air Vent # 78 @ \$ 000.00 ea.	4	\$9.07	\$36.27
30 feet Type L Copper, 1 ½" @ \$ 000.00/ft	30	\$8.02	\$240.60
30 feet Type L Copper, 1" @ \$ 000.00/ft	30	\$5.79	\$173.60
10 feet Type L Copper, ½" @ \$ 000.00/ft	10	\$1.71	\$17.10

Material only costs in total to right.

Freight/Handling

Freight and handling will equal equip cost, due to bulk

Material Total **\$13,763.48**

Freight Total **\$13,763.48**

Labor estimate to construct	Hours	Burdened hourly rate	
Onsite plumber	80	\$ 125.55	\$ 10,044.00
Onsite electrician	40	\$ 126.40	\$ 5,056.00
Construction Manager	40	\$ 104.11	\$ 4,164.40
Local water plant operator	130	\$ 40.00	\$ 5,200.00
Housing, Per diem, Mob/demob			\$ 10,000.00
Design (mechanical engineers, travel, and CAD techs)			\$ 20,000.00
Subtotal			\$81,991.36
Contingency (20%)			\$16,398.27
ANTHC Indirect (27%)			\$26,565.20
Total work, inside the plant, per glycol loop			<u>\$124,954.84</u>

## Outside the sewer plant estimate

Cost Estimate for each loop of Chevak Glycol System

Equipment	Quantity	Each	Total
Thermofusion couplings, 1-1/2 inch	30	\$15.40	\$462.00
<b>Thermofusion machine</b>	<b>1</b>	<b>\$4,550.00</b>	<b>\$4,550.00</b>
Radiator Hose, 1-1/2 inch, LF	300	\$2.00	\$600.00
<b>Fittings and connectors for radiator hose, LS</b>	<b>1</b>	<b>\$2,500.00</b>	<b>\$2,500.00</b>
Glycol, 60/40 Propylene, 55 gallon drum	10	\$750.00	\$7,500.00

**Material only costs in total to right.**

**Material Total \$15,612.00**

Freight/Handling

**Freight Total \$15,612.00**

Freight and handling will equal equip cost, due to bulk

### Labor estimate to construct

	Hours	Burdened hourly rate	
Onsite superintendent	120	\$ 128.98	\$ 15,477.60
Construction Manager	40	\$ 104.11	\$ 4,164.40
Local water plant operator	360	\$ 40.00	\$ 14,400.00
Housing, Per diem, Mob/demob			\$ 6,000.00

Subtotal	\$71,266.00
Contingency (20%)	\$14,253.20
ANTHC Indirect (27%)	\$23,090.18

Total work, inside the plant, per glycol loop **\$108,609.38**