STATE OF ALASKA
ALASKA CLEAN/DRINKING WATER FUND
GREEN PROJECT ASSESSMENT FORM

As applicable under the EPA annual capitalization grants provided to the Alaska Clean Water Fund (ACWF) and Alaska Drinking Water Fund (ADWF) loan programs, a portion of funds appropriated shall be for projects to address green infrastructure, water or energy efficiency improvements or other environmentally innovative activities." To meet this condition under the federal grant for administering these funds, this assessment form is provided to document this eligibility or what is termed a "Categorical" or "Business Case" justification, which will be reviewed by DEC for provisional compliance. For more information on green infrastructure development, please review the following EPA web site:

http://cfpub.epa.gov/npdes/home.cfm?program_id=298

For those projects requiring a "Business Case," Part 2 will require completion to qualify a "traditional project" as green; justification is broken down into two parts, technical and financial. The technical part should use information from a variety of sources such as maintenance or operation records, engineering studies, project plans or other applicable documentation to identify problems (including any data on water and/or energy inefficiencies) in the existing facility, and that clarifies the technical benefits from the project in water and/or energy efficiency terms. Financial justification needs to show estimated savings to a project based on the technical benefits, and demonstrate that the green component of the project provides a substantial savings and environmental benefit.

For more information and assistance in completing this assessment form, please contact the Municipal Matching Grants & Loans program in Anchorage at 907-269-7673, or in Juneau at 907-465-5300.

GENERAL INFORMATION

Name of Community City of Nome

Address Nome Joint Utility System
PO Box 70 Nome, AK 99762

Contact Name John Handeland Title General Mgr Telephone (907) 443-6587

PROJECT INFORMATION

Project Name Nome Water & Sewer Replacement Ph.II Location Nome, Alaska

Project Type: _____ New Construction X Upgrades

_____ Stormwater Infrastructure X Energy Efficiency Project

_____ Water Efficiency Project _____ Innovative Environmental Project

Green Project Description: Replacement of aging sewer mains which are experiencing a high rate of failure and breakage, primarily due to thawing and settlement of ice-rich permafrost beneath the pipe. This settlement has caused severe movement and deformation of the pipe, numerous sewer main breaks, leading to greatly increased inflow and infiltration (I&I) as well as undetectable discharge of raw sewage to to the environment, which further exacerbates thawing of the permafrost.

PART 1 – GREEN PROJECT CATEGORY & COSTS

Identify the most appropriate "Green" Clean Water or Drinking Water category project type. Note, any selection with (BC) at the end will require a Business Case demonstration.

ENERGY EFFICIENCY – the use of improved technologies and practices to reduce the energy consumption of water quality projects.

_____ Wastewater/water utility energy audits _____ Clean power for public owned facilities

_____ Leak detection equipment _____ Retrofits/upgrades to pumps & treatment processes (BC)

X Replace/rehabilitation of distribution (BC) X Other: Reduce Inflow & Infiltration (BC)

WATER EFFICIENCY – the use of improved technologies and practices to deliver equal or better services with less water.

_____ Water meters _____ Fixture Retrofit _____ Landscape/Irrigation

_____ Graywater or other water recycling _____ Replace/rehabilitation of distribution (BC)

_____ Leak detection equipment _____ OTHER: _____ (BC)

GREEN INFRASTRUCTURE – Practices that manage and treat stormwater and that maintain and restore natural hydrology by infiltrating, evapotranspiring and capturing and using stormwater.

_____ Green Streets _____ Water harvesting and reuse

_____ Porous pavement, bioretention, trees, green roofs, water gardens, constructed wetlands

_____ Hydromodification for riparian buffers, floodplains, and wetlands

_____ Downspout disconnection to remove stormwater from combined sewers and storm sewers

_____ OTHER: _____ (BC)

ENVIRONMENTALLY INNOVATIVE PROJECTS – Demonstrate new/innovative approaches to managing water resources in a more sustainable way. This may include projects that achieve pollution prevention or pollutant removal with reduced costs and projects that foster adaptation of water protection programs and practices to climate change.

_____ Wetland restoration _____ Decentralized wastewater treatment solutions

_____ Water reuse _____ Green stormwater infrastructure _____ Water balance approaches

_____ Adaptation to climate change _____ Integrated water resource management

_____ OTHER: _____ (BC)

PROJECT & GREEN COMPONENT COSTS

	TOTAL PROJECT COSTS	TOTAL "GREEN" COMPONENT COSTS
Administration	$ 139,200	$ 139,200
Legal	$	$
Preliminary Studies/Reports	$	$
Engineering Design	$ 69,600	$ 69,600
Inspection/Surveying/Construction Management	$ 104,400	$ 104,400
Construction	$ 904,800	$ 904,800
Equipment	$ 348,000	$ 348,000
Contingencies	$ 174,000	$ 174,000
Other _____	$	$
Total Costs	$ 1,740,000	$ 1,740,000

PART 2 – PROJECT "BUSINESS CASE" TECHNICAL/FINANCIAL ASSESSMENT

TECHNICAL ANALYSIS OF BENEFITS*

In addition to this form, a supporting technical and financial analysis is required to verify energy and water saving efficiencies for any green component of the project. For green infrastructure and innovative environmental type projects, the analysis should include any applicable efficiency and environmental benefits. For assisting MGL in evaluating "Business Case" assessments of water main, meter, and pump facility replacement type projects, the attached form titled "ADWF - Water/Energy Efficiency Determination - Water Main Replacement/Meter/Pump Facility" is required to be completed. Once the form is complete along with any supporting documentation, please submit documentation to the MGL program for review and concurrence. Note, only water/energy efficiencies that achieve a 20% or greater increase in efficiency will categorically qualify as a Green project.

CERTIFICATION STATEMENT:

I certify the above information is current and accurate.

Michael R. Erdman, PE	Project Engineer
Name	Title
[signature]	20 May 2013
Signature	Date

Submit Completed Form to:

Alaska Department of Environmental Conservation
Municipal Matching Grants & Loans
555 Cordova Street
Anchorage, AK 99501-2617

GREEN PROJECT BUSINESS CASE

CITY OF NOME – NOME JOINT UTILITY SYSTEM

WATER & SEWER REPLACEMENT PROJECT – PHASE II

(Supplement to Alaska Clean Water Fund GREEN PROJECT ASSESSMENT)

Summary

Many of the existing water and sewer mains within the City of Nome were constructed in the 1980's using buried, insulated, "Sclaircore" arctic pipe. The engineering "state of the art" at the time indicated that the use of this pre-insulated piping would minimize heat loss from the pipes, and consequently limit any thawing of the surrounding and underlying ice-rich permafrost.

Unfortunately, time has shown that the permafrost beneath the utility piping has indeed been thawing dramatically. The general trend of warming global temperatures has also contributed to this thawing. The ice-rich permafrost in the project area is extremely "thaw unstable". As the ice lenses thaw, the ground shifts and settles dramatically. As a result the water and sewer pipes have been subject to extreme movement, sometimes settling five feet or more, and numerous breaks have occurred.

The stresses on the piping system as a result of this settling has resulted in separation of pipe fittings and service line connections, failure of water main pipe fuses, splits in the main HDPE pipe.

The resulting inflow and infiltration into the sewer system has dramatically increased the volume of wastewater collected, pumped and treated. Specifically, wastewater from the East End area, which is covered by this project, passes through three lift stations before reaching the treatment facility. Reducing the wastewater volume will directly reduce the energy cost associated with pumping this wastewater at the three lift stations.

This project will replace existing, failing, "Sclaircore" piping in the East End of Nome where a majority of the pipe failures leaks have occurred. New piping will be a modern arctic pipe with a rigid corrugated aluminum pipe jacket, which is much more resistant to deflection. Piping will be installed within a reinforced trench section, developed by NJUS, which removes thaw-unstable soil from beneath the pipe zone, and replaces it with compacted, reinforced gravel fill. The resulting installation is much more resistant to settling due to thawing permafrost.

Technical Information in Support of Green Project Status

Attached are monthly wastewater discharge reports for 2008 through 2012.

The data in these reports show wide fluctuations in wastewater flow volumes, which correlate to high inflow and infiltration during periods of precipitation and high water table. In addition, despite a minimal increase in population, average daily wastewater flow has increased from 377,000 gpd in 2008 to 477,000 gpd in 2012. This is a 27% increase in wastewater volume, compared to a 5% increase in population over the same period, indicating a steady increase in piping failures and subsequent increase in Inflow & Infiltration.

Based upon the 2012 population of 3,759, and a typical per capita water usage of 75 gpd/person, we would expect the average daily water usage and wastewater flow to be approximately 282,000 gallons.

Using this as a base, the average wastewater flow of 477,000 gpd would indicate Inflow & Infiltration of nearly 150,000 gallons per day, or an I&I rate of 41%.

In addition to the impact of Inflow & Infiltration, there are undoubtedly locations where raw sewage is leaking from failing sewer piping. This presents a health hazard, in that failing water pipes are often located in the same ditch within a few feet of the sewer mains. In addition, the leakage of wastewater further contributes to the thawing of the underlying and surrounding permafrost.

The Water & Sewer Replacement Project Phase II (Sclaircore Replacement) will replace piping in an area where the most frequent and serious failures and leaks have been occurring. By targeting the area with the most serious problem, we intend with this project to reduce the overall rate of I&I by 50%, to a total of 20% or less. This will result in a 20% improvement in the efficiency of the wastewater pumping stations.

Financial Information in Support of Green Project Status

Wastewater from this area passes through three lift stations before reaching the wastewater treatment lagoons. Reducing inflow and infiltration will result in a direct reduction in energy usage for pumping at these three lift stations.

In 2012, NJUS used 186,539 kW-h of energy to operate the pumps in these lift stations, at a cost of $34,036.

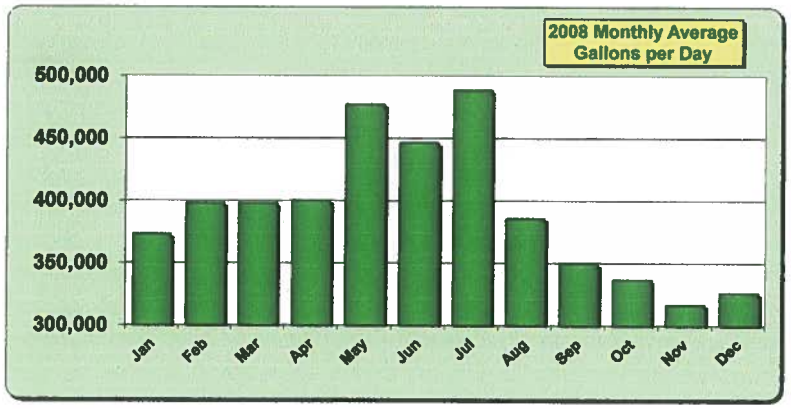
The proposed project will reduce Inflow & Infiltration sufficiently to achieve a 20% increase in energy efficiency in the operation of the three wastewater lift stations.

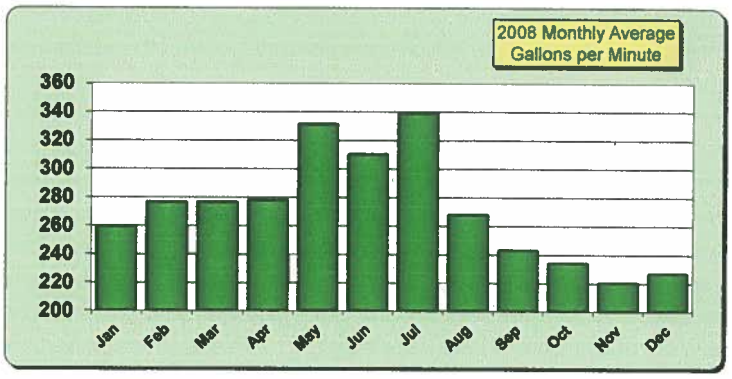
Attachments

- Monthly Wastewater Discharge Summary Reports, 2008-2012
- Location Map – Documented Leaks

MONTHLY WASTEWATER DISCHARGE
2008 - Summary Report

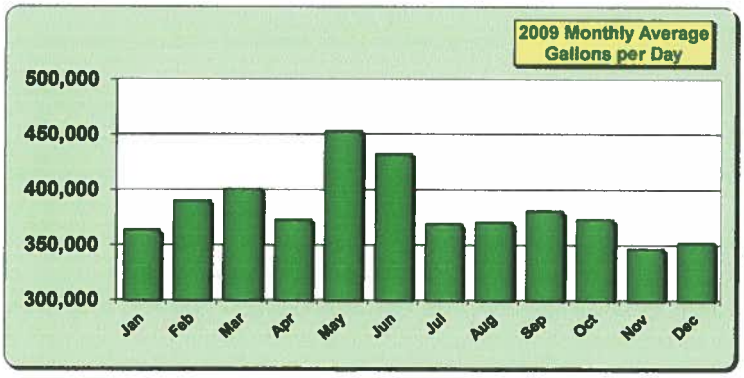
	< MONTH >											
DATE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	313390	447770	370480	375720	377280	402100	412340	481750	395350	329000	265810	304480
2	341980	389960	358730	365690	386180	444780	389450	420740	383920	347380	346750	314560
3	325750	389270	336020	380970	455030	454740	409910	486310	366230	315700	325740	301720
4	350610	420420	351370	300820	501490	433100	319350	437090	374550	365120	325360	323800
5	356570	389890	365540	391050	478110	425490	382760	500850	340730	401250	299350	342010
6	364820	370680	379720	382780	500690	404060	369940	396130	361060	342550	383970	302700
7	352460	418180	387370	368700	526060	415060	443250	544320	313490	382680	176980	344370
8	343040	374330	451910	382830	535590	526740	296700	313590	387260	375930	313960	298320
9	355800	430920	342510	364070	478260	434740	372130	414190	395640	338270	304570	319010
10	370220	406570	418490	356100	517270	474580	388680	396280	309400	347550	343520	313830
11	383050	416360	495600	369290	579040	524250	465020	396280	334130	292540	307210	319240
12	380730	361370	437150	374850	511990	402790	556150	404380	343160	336840	305910	377370
13	389300	411700	425200	381540	500060	459780	434890	435110	341720	335750	273740	267500
14	364330	362290	388730	353700	483470	425860	683670	373800	360950	334390	321730	418890
15	412030	414730	497990	360650	477850	466190	570630	390560	370320	318030	297470	246830
16	382820	462140	487800	397410	475450	496590	658960	367150	324510	327620	412610	315910
17	376690	426790	432890	357030	426600	445090	647140	387320	348380	340770	311820	330980
18	484190	379060	395600	368820	440180	387790	644370	387720	318350	349970	285470	312320
19	305640	414210	385800	430800	435650	460160	624780	372520	364930	343430	309820	331560
20	369380	414210	392120	464660	449660	467440	517580	290810	281210	347270	305360	343550
21	342630	371390	335890	597590	442420	479030	518510	289460	377730	328040	292440	296630
22	380250	367900	361070	512170	466870	411370	505550	320470	317050	302040	304510	334670
23	382700	393640	411000	443460	525940	460040	497520	369560	311580	302980	319580	320340
24	406460	439360	388910	408210	476910	436000	527030	380580	334820	330180	340550	309750
25	379500	323970	410950	402450	482560	476260	540480	331590	291800	401038	295980	364930
26	422430	423500	396980	399240	472840	440950	506070	281090	344390	295562	355770	381140
27	415800	343650	376660	460140	484330	392810	576760	396330	366410	273710	322260	301350
28	408260	375100	360950	432680	536020	435860	452220	377600	354800	340580	414870	328950
29	359210		400560	414270	475310	439620	478720	347940	371470	334500	356540	325900
30	366840		376390	393800	420870	463710	471970	344930	401760	359080	280490	343230
31	366160		411240		459880		469040	314680		299950		389910
TOTAL	11,553,040	11,139,350	12,331,620	11,991,490	14,779,860	13,386,980	15,131,570	11,951,130	10,487,100	10,439,680	9,500,140	10,115,750
Average g.p.d.	372,679	397,834	397,794	399,716	476,770	446,233	488,115	385,520	349,570	336,764	316,671	326,315
Average g.p.h.	15,528	16,576	16,575	16,655	19,865	18,593	20,338	16,063	14,565	14,032	13,195	13,596
Average g.p.m.	259	276	276	278	331	310	339	268	243	234	220	227
No. of days >	31	28	31	30	31	30	31	31	30	31	30	31

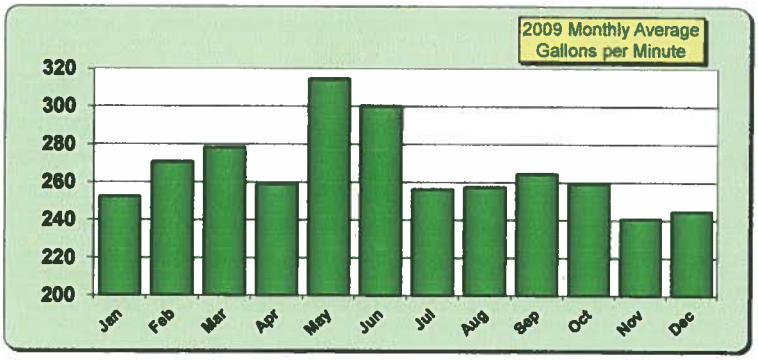




MONTHLY WASTEWATER DISCHARGE
2009 - Summary Report

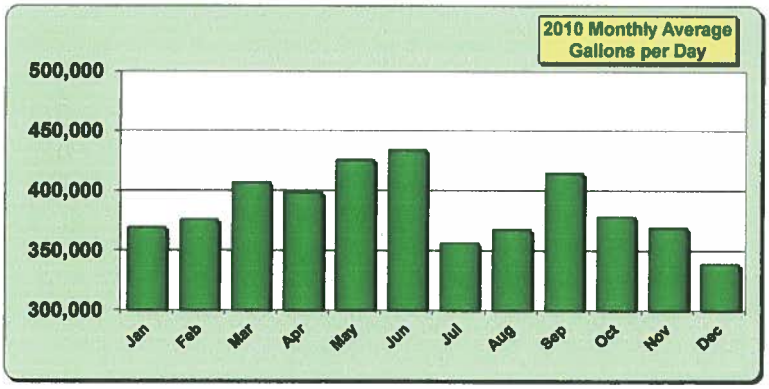
	< MONTH >											
DATE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	297160	384270	403545	412110	402430	400510	381190	392270	405150	346520	370400	304820
2	367330	366160	367870	300180	428350	409820	361000	316720	403640	377640	376680	356444
3	379030	371500	402660	366390	465380	480310	345920	304020	454440	337740	392730	342656
4	396760	380180	411900	417760	388580	447230	417780	366300	342910	355450	376380	346060
5	361800	459570	403180	368400	424160	436090	390220	406810	409540	344150	373620	339900
6	374050	287380	364215	380460	436400	559450	385350	392830	368660	358410	375860	386610
7	415660	396030	364215	356110	437890	448260	385230	359650	427330	390270	373160	389710
8	379350	439630	383090	387290	383010	514490	347670	346810	370390	342230	342570	329400
9	404140	387820	266390	364000	480380	524300	356840	343710	416770	393270	349860	363910
10	341420	401220	259120	220020	396470	424730	369240	357510	406850	420770	370830	362520
11	361380	477660	336990	301410	418980	433450	382860	345620	389690	405230	329000	342390
12	355980	337540	605610	300410	464930	449250	376890	316100	410950	334990	362050	397910
13	361410	409210	605610	341300	478600	490580	421320	386470	382440	370820	339940	358470
14	348780	426130	376600	334550	478400	436060	282670	344880	400170	421780	330680	361050
15	337910	468870	413250	339320	443910	433520	297470	359580	385630	362910	353290	316411
16	423200	354510	384200	349010	532360	400500	316050	422870	356860	319610	336760	331509
17	298720	433970	425830	387510	525540	429110	363820	317300	376745	409120	347830	330210
18	356210	378700	447510	362740	427570	392190	399590	411330	390285	367060	297450	381040
19	372460	321080	430230	425930	519510	408000	390660	368360	410830	360340	265000	329030
20	372500	312810	358000	309580	417330	410097	364820	330370	450880	369220	383670	336750
21	372500	421930	435750	362640	515806	439193	439310	421870	337620	391630	280710	287220
22	372500	404960	410985	416490	501894	375680	315530	400320	297800	352350	312080	329960
23	372500	435150	366365	339480	480240	371140	288230	429210	232780	400840	342360	351710
24	327710	403390	399810	406650	492760	405800	340020	347240	381450	353480	326980	338570
25	341690	354930	400940	469240	487820	395500	404840	370930	357150	368970	377590	387640
26	354300	448550	373070	426780	454610	412260	402990	368770	431250	349520	343840	311910
27	342280	291940	379370	424050	450960	488570	318350	394240	341930	377950	353870	383300
28	363790	352100	423830	446700	370740	335050	382780	362110	373240	424090	303170	353810
29	365730		402420	440050	428990	421470	382290	428490	358330	367830	333620	365720
30	419010		375960	422970	477330	389060	424790	401240	341170	389290	375810	393740
31	318590		439650		417790		391210	370940		402630		401,747
TOTAL	11255850	10907190	12418165	11179530	14029120	12961670	11426930	11484870	11412880	11566110	10397490	10912126.55
Average g.p.d.	363092	389543	400586	372651	452552	432056	368611	370480	380429	373100	346583	352004
Average g.p.h.	15129	16231	16691	15527	18856	18002	15359	15437	15851	15546	14441	14667
Average g.p.m.	252	271	278	259	314	300	256	257	264	259	241	244
No. of days >	31	28	31	30	31	30	31	31	30	31	30	31

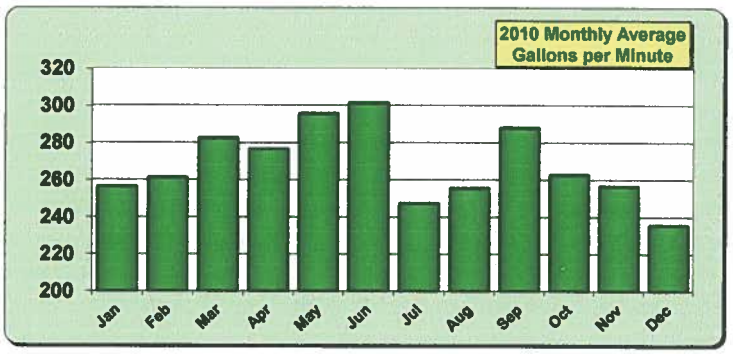




MONTHLY WASTEWATER DISCHARGE
2010 - Summary Report

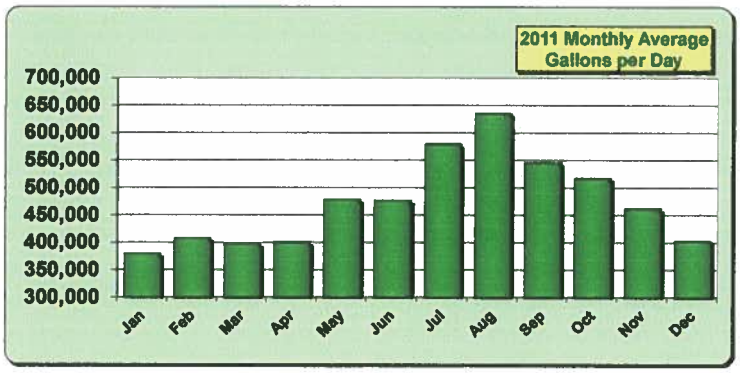
DATE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	< MONTH >											
1	302030	363640	371690	428300	437320	388870	303260	368240	318820	389760	347890	347330
2	378260	347020	391640	377540	359520	388000	288740	376830	333680	373470	367560	348410
3	386140	383920	395440	353060	389980	395380	337480	343260	402280	368220	378600	376500
4	356230	360300	373750	408990	385880	342120	360370	347650	492610	371170	318380	351320
5	351860	387880	415080	378310	518900	457720	384550	362260	461930	365160	314500	361200
6	353980	340280	348800	390570	373910	396950	354450	374860	581900	357720	372130	353160
7	352380	397910	394750	395070	465640	409180	364900	370690	486400	315170	439090	369320
8	363420	352730	383080	355970	404600	479990	334530	310130	439910	374850	352140	353630
9	318560	300080	394960	443660	424180	349930	334610	365640	388630	425910	354620	381530
10	403040	310980	403030	360600	413140	365770	465880	362930	483710	368290	364060	333270
11	369550	379960	422820	397150	439640	402500	288330	411060	518090	411840	346910	346890
12	365690	487860	417620	413670	473150	410310	365700	364640	513010	361240	358010	338950
13	377280	358590	388300	389130	456440	378447	330130	435760	382035	432550	409560	305390
14	371020	311580	440480	408160	462590	391633	363560	489830	447335	385980	316710	395940
15	337820	393140	588380	519390	451100	459070	273640	454220	425770	429850	297610	348520
16	392360	385490	318660	408450	452780	431930	325570	434930	318020	381420	346280	377750
17	378080	377620	392150	468760	506960	435010	413090	451050	398390	400830	367320	471180
18	401620	384230	558440	503350	408470	410830	343960	372210	431720	369930	363620	281460
19	390380	404710	336260	478160	429760	426300	367380	390847	429170	385120	432700	265560
20	393720	349400	435820	366660	434830	440410	367920	358063	379000	380681	547750	315910
21	338720	390140	421310	370450	419630	461500	347260	360950	390720	351089	373420	391120
22	544890	374330	390760	366500	421710	444650	423790	332090	354130	363610	392590	305970
23	335890	374380	394630	320010	423570	368570	301270	326490	299930	411930	347780	280220
24	336680	351420	400350	423000	412930	387720	406020	374310	367970	326980	397960	382340
25	367240	423820	430220	366590	448630	385160	369640	350140	494070	408560	326000	352440
26	383220	327460	400060	380190	372570	393810	349920	221860	326950	353620	377030	369180
27	370210	432570	377700	379660	430150	617320	417930	336820	380830	373820	416970	338050
28	434240	474540	394430	393070	405700	617410	421210	358430	438480	373230	372690	421630
29	269230		394800	374900	400660	604820	347580	329710	390410	370970	345990	322810
30	381390		464390	327770	420140	568390	334570	321410	359200	363390	327170	341630
31	339060		367920		344530		358230	337760		378730		
TOTAL	11439190	10525980	12607720	11947090	13188010	13009400	11035370	11395070	12436100	11725090	11072040	10508510
Average g.p.d.	369006	375928	406701	398236	425420	433647	355980	367583	414503	378229	369068	338984
Average g.p.h.	15375	15664	16946	16593	17726	18069	14832	15316	17271	15760	15378	14124
Average g.p.m.	256	261	282	277	295	301	247	255	288	263	256	235
No. of days >	31	28	31	30	31	30	31	31	30	31	30	31

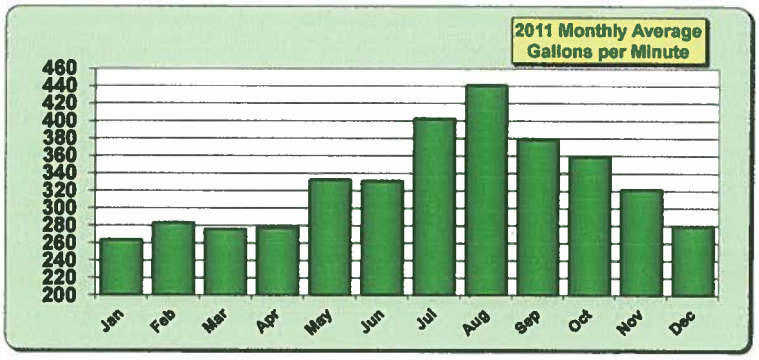




MONTHLY WASTEWATER DISCHARGE
2011 - Summary Report

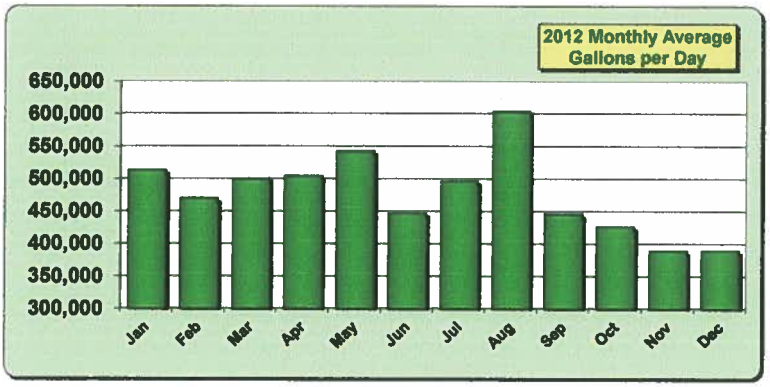
	< MONTH >											
DATE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	354540	385270	382460	440420	416250	492240	536103	556890	534352	508143	488380	415693
2	392190	409370	396880	352030	437820	524520	536103	671320	534352	472680	358690	415693
3	426990	414550	389050	349820	390700	464990	536103	634720	534352	480710	511270	415693
4	367310	373620	411470	340570	417860	448310	570640	621273	534352	488170	511270	426990
5	449460	307310	458470	340570	417860	443460	392120	621273	533150	483580	511270	422650
6	263810	436126	359760	340570	417860	437100	480570	621273	547350	502027	441200	390700
7	363010	314124	384730	340570	417860	473990	445886	691450	514250	502027	433640	454750
8	371580	288780	398450	340570	426530	460780	445886	605900	573643	502027	299000	405343
9	387930	335240	404820	492960	439950	456280	445886	668730	573643	502027	488400	405343
10	349370	407340	403070	320640	430280	537990	529440	876230	573643	600150	470550	405343
11	382640	406260	502400	313120	427860	419370	530920	718470	594070	480500	470550	405343
12	375640	349030	347410	366770	515770	484670	540310	718470	537950	569520	470550	405343
13	342530	424694	459860	362410	493210	467230	555820	718470	542270	551496	425940	473440
14	396550	373436	543040	398080	472160	446940	686903	756150	553500	551496	482720	436640
15	366030	377460	392640	339670	502790	518820	686903	658290	631543	551496	414800	421503
16	422560	339830	417160	383060	540500	607420	686903	608220	631543	556250	412840	421503
17	418500	429280	464130	429510	379160	537500	685670	612520	631543	529850	467733	421503
18	396450	436150	290680	389670	414070	537500	685818	591770	531500	484960	467733	404920
19	426263	628220	342640	402130	538520	599260	630492	591770	562290	543110	467733	450770
20	373607	343080	414070	405270	546090	450000	618070	591770	570110	521283	431700	420780
21	344410	405190	394580	360640	523032	539250	601446	638690	497450	521283	492590	427670
22	365720	492960	344355	457890	478538	338500	601446	641040	535050	521283	511370	441070
23	404190	492960	344355	483170	551180	435476	601446	536810	535050	537780	511370	441070
24	348200	492960	331520	440560	625340	435476	564640	672540	535050	509490	436440	441070
25	362640	320060	468290	483940	532720	435478	666520	547310	486980	544880	436440	441070
26	391340	492960	292000	436020	559610	318810	543230	547310	492880	546080	436440	423090
27	386220	492960	397120	481480	504760	547400	613500	547310	482910	476410	471040	456020
28	415170	431960	353150	481480	509270	451240	621163	580900	529960	476410	575110	491840
29	392700		421890	481480	507220	440670	621163	601280	508143	476410	521090	482587
30	339470		412830	419200	497570	536103	621163	638680	508143	476960	447930	
31	372830		371830		487140		662080	593850		553280		
TOTAL	11749850	11401170	12295110	11974270	14819480	14286573.33	17944244	19680679	16351022	16021768	13865789	12465430
Average g.p.d.	379027	407185	396616	399142	478048	476219	578847	634861	545034	516831	462193	402111
Average g.p.h.	15793	16966	16526	16631	19919	19842	24119	26453	22710	21535	19258	16755
Average g.p.m.	263	283	275	277	332	331	402	441	378	359	321	279
No. of days >	31	28	31	30	31	30	31	31	30	31	30	31

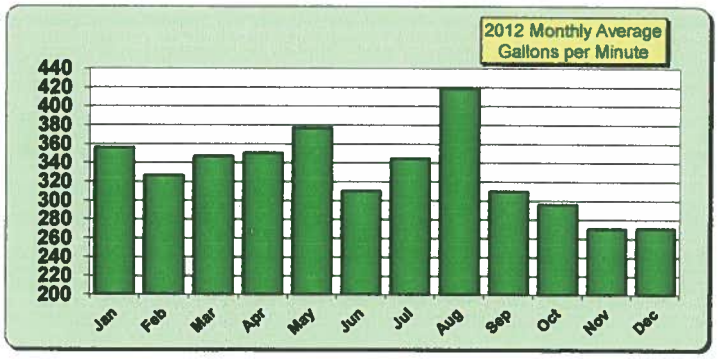


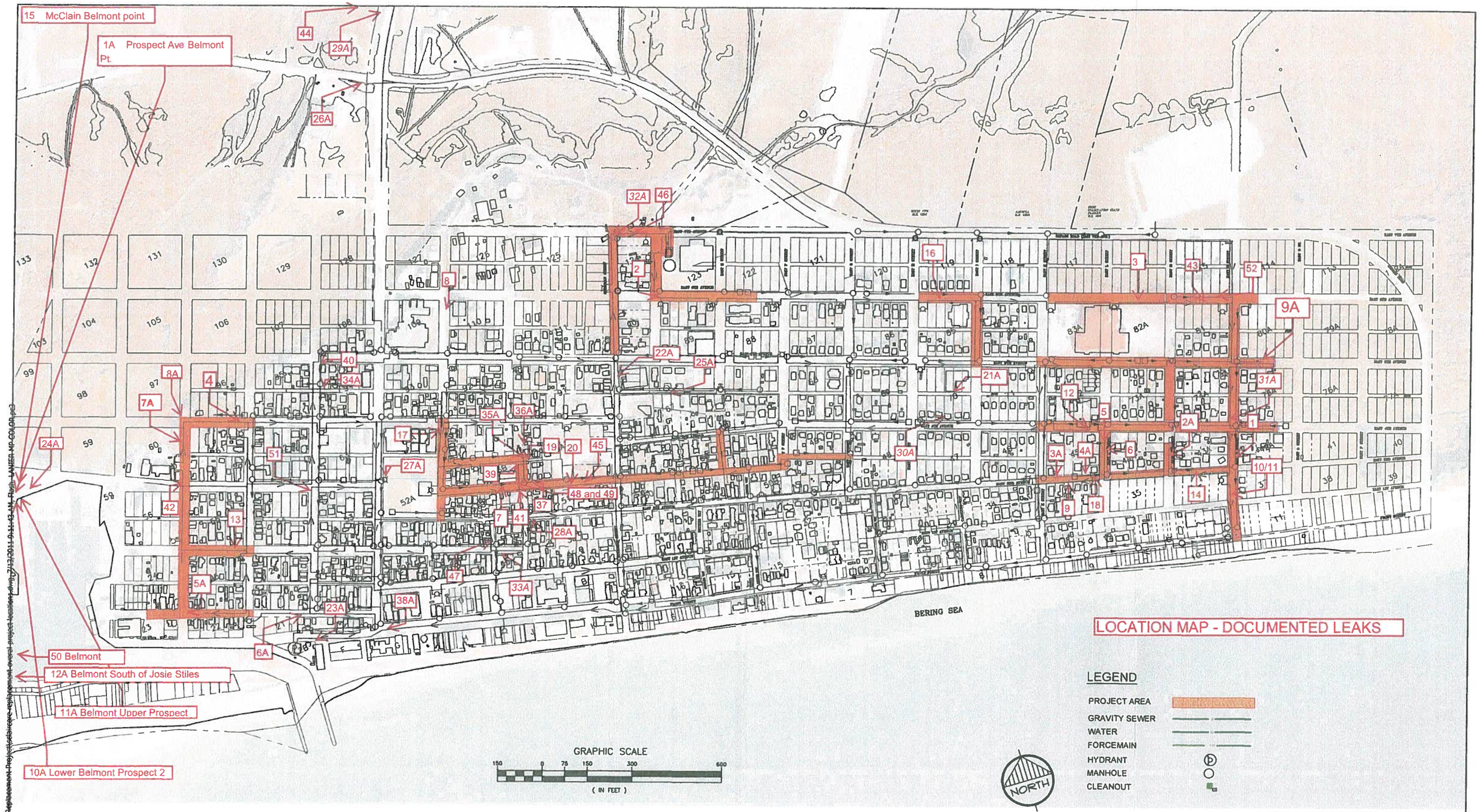


MONTHLY WASTEWATER DISCHARGE
2012 - Summary Report

	< MONTH >											
DATE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	482587	506350	439700	503937	494090	485860	420830	641380	618003	430430	366120	373303
2	482587	442770	456760	494910	498270	485860	444340	607420	618003	196590	351553	373303
3	454810	512940	456760	495440	501650	485860	284383	589390	618003	370730	351553	367660
4	500970	512940	456760	510770	498427	471130	284383	589390	672880	513310	351553	371260
5	493980	512940	470980	484360	498427	457500	438880	589390	626120	492520	398340	386820
6	518513	339320	538820	513090	498427	458110	427263	592080	596190	492520	402300	394900
7	518513	469250	428930	513090	514880	437390	427263	524230	565727	492520	407840	411527
8	518513	472470	497230	513090	521240	455537	427263	528130	565727	475610	396240	411527
9	504330	442250	499550	485110	543020	455537	447040	533210	565727	484140	410257	411527
10	589320	452123	499550	501420	562310	455537	566870	524060	536580	465880	410257	412780
11	496860	452123	499550	507030	528347	471570	327050	524060	399910	447490	410257	443140
12	540250	452123	517500	512940	528347	461630	430350	524060	347540	439257	421530	352260
13	554157	462520	531940	489773	528347	445540	457287	459980	299670	439257	409630	404620
14	554157	476430	548250	489773	517510	452270	457287	507030	361510	439257	404700	408460
15	554157	477860	541960	489773	530510	435017	457287	547720	361510	384640	401180	408460
16	485180	458850	539920	494840	672130	435017	462890	545110	361510	324880	395893	408460
17	530140	480150	539920	498800	640030	435017	484810	672473	455190	455420	395893	397670
18	518260	480150	539920	495960	603653	427590	466040	672473	369840	401400	395893	391900
19	554980	480150	503210	491990	603653	443440	449500	672473	224940	446090	387270	408590
20	486233	465290	501350	493190	603653	429530	437887	658880	44650	446090	378580	395200
21	486233	465590	479800	493190	603450	469710	437887	759500	382903	446090	381882	402127
22	486233	483840	476810	493190	593210	420677	437887	728600	382903	416960	381882	402127
23	501720	472920	506853	501200	576150	420677	452040	696140	382903	425420	381882	402127
24	487350	484487	506853	528870	547120	420677	529630	652250	470300	410600	381882	400695
25	518930	484487	506853	522210	518475	437610	714910	652250	439630	404330	381882	400695
26	512840	484487	495360	557680	518475	432240	646020	652250	427590	421577	382830	418980
27	527360	465360	494310	515580	518475	431690	727853	614980	420180	421577	377240	414600
28	527360	455420	559170	515580	518475	426540	727853	625970	417463	421577	393470	432847
29	527360		437390	515580	510170	420830	727853	599340	417463	423020	374630	432847
30	503440		503937	493720	510850	420830	697030	593050	417463	412850	373303	432847
31	462820		503937		503360		674300	618003		364970		
TOTAL	15880133	13145590	15479833	15116086	16805131	13386423	16372166	18695272	13368028	13207002	11857522	12073159
Average g.p.d.	512262	469485	499349	503870	542101	446214	495876	603073	445601	426032	388584	389457
Average g.p.h.	21344	19562	20806	20995	22588	18592	20662	25128	18567	17751	16191	16227
Average g.p.m.	356	326	347	350	376	310	344	419	309	296	270	270
No. of days >	31	28	31	30	31	30	31	31	30	31	30	31







NOME JOINT UTILITY SYSTEM

a component unit of CITY OF NOME

P.O. Box 70 • Nome, Alaska 99762 • (907) 443-NJUS • Fax (907) 443-6336

Scale: AS SHOWN

Date: JUNE 2011

Drawn: LAP

PROPOSED NOME WATER AND SEWER IMPROVEMENTS
"SCLAIRCORE" REPLACEMENT PROJECT

NOME, ALASKA

FIGURE 1

NOME JOINT UTILITY SYSTEM

a component unit of CITY OF NOME

P.O. Box 70 • Nome, Alaska 99762 • (907) 443-NJUS • Fax (907) 443-6336

October 22, 2014

Ms. Susan Start
Assistant Engineer
Municipal Grants and Loans
ADEC Division of Water
555 Cordova Street, 4th Floor
Anchorage, AK 99501

RE: Green Impact – ACWF 627141
Power Consumption

Dear Ms. Start:

During our meeting in Nome on September 17, you reminded me of the request to submit additional information relative to the "green" impact of our East Nome Sewer Replacement project partially funded through the Alaska Clean Water Fund. I today located the analysis that was prepared at the end of June in response, and I apologize for the delay.

We used the figures from January through May of each year for this initial analysis. We did see a marked reduction in power consumption at two of the three lift stations we had listed as being impacted by this project. Both the Front & N and the Front at Steadman decreased, but the main lift station that pressurizes the waste and sends it to the lagoons saw an increase. Adjacent to the kilowatt consumption information on the attachment you will find explanatory notes.

If you have any questions, or require further information, please let us know. Thank you.

Sincerely,

John K. Handeland
General Manager/Chief Operating Officer
NOME JOINT UTILITY SYSTEM

EAST NOME -> WWTF LIFT STATION KWH CONSUMPTION

PERIOD	FRONT & N KWH	FRONT @ STEADMAN KWH	WWTF (TO LAGOON) KWH	TOTAL KWH
		TOTAL		
	2012	2013	2014	
Jan-May	74,820	73,588	64,527	
		98.35%	86.24%	
Jun-Dec	160,312	152,867		
		95.36%		
Total	235,132	226,455		
		96.31%		

*comparison segregated at May, to match 2014 to date

*2014 vs 2012; project completed in 2012-2013
*Green goal was to reduce use by 20%, so 80% target

*2012 total KWH in "green assessment" KWH (186,539) based on month-end field notes; data herein based on actual billing cycle readings (15th to 15th of month)

*See notes below, by lift station, noting various issues negatively impacted operational efficiency, and additional plans to further reduce electric consumption

BY LIFT STATION	2012	2013	2014
FRONT & N			
Jan-May	3,148	2,840	1,047
		90.22%	33.26%
Jun-Dec	3,578	2,226	
		62.21%	
Total	6,726	5,066	
		75.32%	
FRONT @ STEADMAN (aka "Cavota")			
Jan-May	4,672	4,068	3,760
		87.07%	80.48%
Jun-Dec	5,654	6,041	
		106.84%	
Total	10,326	10,109	
		97.90%	
WWTF (TO LAGOON)			
Jan-May	67,000	66,680	74,820
		99.52%	111.67%
Jun-Dec	151,080	144,600	
		95.71%	
Total	218,080	211,280	
		96.88%	

*Stuck floats Oct-Nov 2013 increased run time/ consumption during 2013

*Pump control panel failure in summer 2013
*Pump failures; were using 2x20HP, now 1x56HP

*Conversion to VFD pumps planned as part of Nome Water-Sewer Improvements Phase III will reduce this lift station's use.

*Additionally, this is the "main station" into which flows effluent from 3 other stations in town not associated with this project.

/jkh
6/27/2014

EAST NOME -> WWTF LIFT STATION KWH CONSUMPTION

PERIOD	FRONT & N KWH	FRONT @ STEADMAN KWH	WWTF (TO LAGOON) KWH	TOTAL KWH
May-14	177	654	14,560	15,391
Apr-14	210	956	11,760	12,926
Mar-14	206	684	10,680	11,570
Feb-14	226	769	11,800	12,795
Jan-14	228	697	10,920	11,845
	1,047	3,760	59,720	64,527
Dec-13	228	644	11,280	12,152
Nov-13	226	1,000	13,000	14,226
Oct-13	264	1,044	15,400	16,708
Sep-13	135	762	26,160	27,057
Aug-13	146	766	29,440	30,352
Jul-13	764	935	25,320	27,019
Jun-13	463	890	24,000	25,353
	2,226	6,041	144,600	152,867
May-13	693	802	13,840	15,335
Apr-13	515	883	14,080	15,478
Mar-13	452	780	12,400	13,632
Feb-13	543	800	13,200	14,543
Jan-13	637	803	13,160	14,600
	2,840	4,068	66,680	73,588
	5,066	10,109	211,280	226,455
Dec-12	434	724	11,960	13,118
Nov-12	646	755	12,120	13,521
Oct-12	416	759	11,560	12,735
Sep-12	513	977	19,080	20,570
Aug-12	583	902	39,200	40,685
Jul-12	377	682	34,400	35,459
Jun-12	609	855	22,760	24,224
	3,578	5,654	151,080	160,312
May-12	635	830	14,280	15,745
Apr-12	785	1,050	14,760	16,595
Mar-12	602	966	12,600	14,168
Feb-12	528	893	12,600	14,021
Jan-12	598	933	12,760	14,291
	3,148	4,672	67,000	74,820
	6,726	10,326	218,080	235,132