



CITY OF IQALUIT
Engineering and Public Works
Committee of the Whole #02
May 22, 2019 at 6:00 p.m.
CITY COUNCIL CHAMBERS

AGENDA

ADOPTION OF AGENDA

1. **MINUTES**

None

2. **DECLARATION OF INTEREST**

3. **DELEGATIONS**

None

4. **DEFERRED BUSINESS AND TABLED ITEMS**

None

5. **NEW BUSINESS**

- a) Apex Pumping Project – Update
Matthew Hamp, Director

6. **IN CAMERA SESSION**

() as per Section 22 (2) (a) CTV Act and Bylaw 526 Section 67

7. **ADJOURNMENT**

Apex River Water Supply 2019-2026

Niaqunguutiup
Kuunganik Imiqtarniq
2019-2026

Iqaluit



May 2019

Mai 2019

Introduction / Nalunaijaijjuti

- The City of Iqaluit has applied to the Nunavut Water Board to take water from the Niaqunguk (Apex) River
 - Requires an amendment to the City's type A water licence 3AM-IQA1626
 - A technical review is underway by the Nunavut Water Board
 - This presentation summarizes the proposed project and main concerns raised
- Nunalipaujait Iqaluit tutsirautililaurtut Nunavut Imalirinirmiit Katimajinik imiqtarumallutik Niaqunguutiup kuunganik
 - Titirarsimaninginnik asijiigialiit sitikkut imaittumut A imalirijunnautinganut 3AM-IQA1626
 - Sunatuinnait aaqisiarsimagiqaarninginnit pijjutilinnit quujisarpallialiqttut Nunavut Imalirinirmiit Katimajingit
 - Ukua unikkaatsait pilluatanginik pijjutiqaqtut piliriatsaujumajuup amma isumaaluutiulauqtunik uqausiulauqtunik

Iqaluit



The Proposed Project / Piliriatsaujumajurq

- The City of Iqaluit draws potable water from Lake Geraldine reservoir
- The reservoir is the City's primary water source
- Lake Geraldine refills naturally from snowmelt and rain within the watershed – no resupply in winter
- The water stored in the reservoir prior to freeze-up must supply Iqaluit during the winter (November-May)

Nunalipaujait Iqaluit imiqtapattut imirijauvattumit angirani imiqtavimmit

Imiqtarvik Iqaluit imiqtarvigivauk

Imiqtarvik immapatturq aput augaimmat amma silalliraimmat kuuviuvattunilu – ukiukkut immapangittuq

Imiq imiqtarviup imarivattanga nuatausimavattuq qualaunginingani Iqalummiunut naammagiaqaqpattuq ukiulimaamut (maiminit nuuviipirimut)

Iqaluit



The Proposed Project / Piliriatsaujumajurq

- The City's water demands are increasing. Almost 80% of the water in the reservoir is used by end of winter
- In some years (e.g., 2018) the reservoir would not fill up naturally – a shortage of potable water is possible
- The City is applying to use the Apex River as a supplementary water supply
- Pump up to 500,000 cubic metres (132 million gallons) of water from the Apex River each year to “top up” (fill) the reservoir before winter
- Nunalipaujakkut imiqaqtigialingit amisuruqpalliatuinnaliqtut. 80%-pusapaluia imiup aturqtausimaliqpattuq ukuingujunniiruaqtillugut
- Ilaannikkut arraaguni (suurlu, 2018-mi) imiqtarvik immagunnalaungittuq imaatuinnaq – imaqrarunniirunnaqtuq nalunangilaq
- Nunalipaujakkut tuttsirautiliqliqtut aturumallugu Niaqunguutiup kuunga nalliuksaarilugu immavvivallugu
- Milluatitsivallutik 500,000 kippaarittunik miitanik (132 milijan gaalait) imirmik Niaqunguutiup kuunganik arraagutamaaq “tatapallugu” imiqtarvik ukiulaunginingani

Iqaluit



The Proposed Project / Piliriatsaujumajurq

- This is a temporary solution to address potential water shortage (2019 to 2026)
 - The City is studying options for a permanent solution to address water supply for the future
 - Apex is the preferred option for the short term:
 - Closest source to reservoir
 - Road access
 - Lowest cost to residents
- Taimaak aaqitsimakainnarunaqtuq imikilisimalirnirutta (2019-2026)
 - Nunalipaujakkut qausisarqpalliajut naliiraarutitsanit aaqqigutitsaujunnaqtumit imiliriniq pijutigillugu sivunittinnut
 - Niaqunguuti aturtaujumasimajuq maanauningani:
 - Qanilaanguninga pillugu imiqtarvimmum
 - Aqqutiqatsiarninga
 - Akikilaangugajarninga nunalirnimiutanut



The Proposed Project / Piliriatsaujumajurq

- Up to three submersible pumps will be installed in the river to withdraw water at up to 150 litres (40 gallons) per second
 - An on-land generator will provide power to the pumps
 - A high density polyethylene (HDPE) pipeline will move water from the Apex River to Lake Geraldine
 - Pumps and associated equipment will be installed and removed each year
- Pingasuuutuinnarialiit milluarutitsait aqqittaugajaqtut kuummi imirmik milluapallutik 150 gallutinguanik qilamimmarialuk
 - Nunamiitumut januraituralaamit aturajartut milluarutinut
 - Sullulikkirmit aturlutik milluarajaqtut kuummik imiqtarvimmum
 - Milluarutiit amma ilangit sunakkutaat aaqittauqattarajaqtut amma piqtauvallutik arraagutamaaq

Iqaluit



The Proposed Project / Piliriatsaujumajurq



Iqaluit



The Proposed Project / Piliriatsaujumajurq

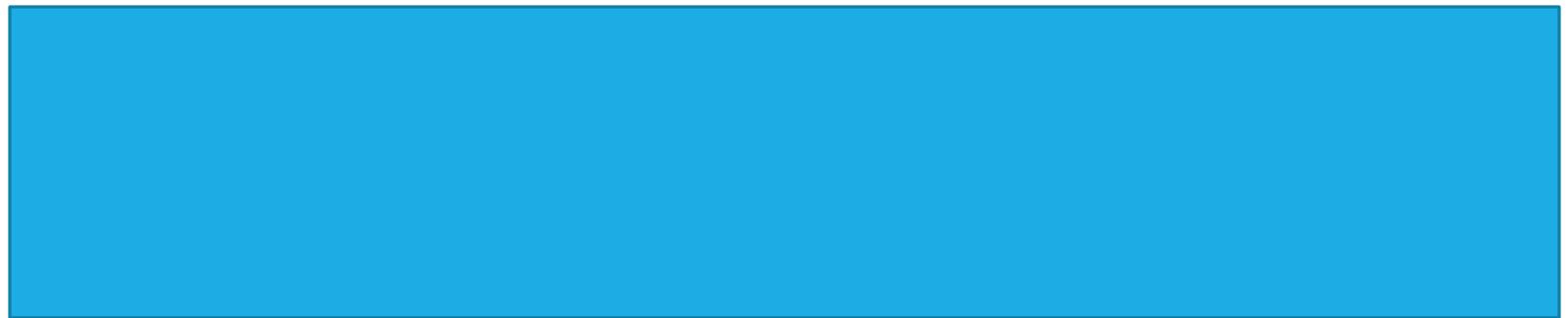
- A decision to implement pumping will be made in late June of each year – dependent on the water levels in the reservoir and the predicted natural recharge
 - If supplemental water is needed, the total amount applied for may not be needed each year
 - The amount of water taken from the Apex River each year will depend on:
 - The amount needed to fill the reservoir
 - The amount of water available in the Apex River
- Pijatsalianguvanniaqtut milluatitsinirmiit Juuniuliraippat arraagutamaaq – malittauvallutik imangata imiqtarviup qanuilluarninga amma nalauttaaqtauvalluni silatigut qanuituinnariaqarninga
 - Immakanniriaqarniqpat, katitugu qanuilluarninga immaijjutiujumajuq arraguni qangakkut aturqtaungituinnariaqarajarmijuq
 - qanuilluarninga immaijjutiugajaqturq Niaqunguuti kuunganik arraaguni nallianni maliqattarajaqtuq ukuninga:
 - Tatatauvalluni
 - Malittauluni Niaqunguuti kuungata qanutigi immaviujuunnarninga

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The Proposed Project / Piliriatsaujumajurq

- Translate to Inuktitut South Baffin dialect in roman orthography



Environmental Mitigations /nunatigut piluarjairsimaniaqtut qanuigutiujunnaqtunik

- Resident Arctic char are known to be present downstream of the bridge on the Road to Nowhere
- Withdrawal for this temporary project will be protective of fish and fish habitat in the Apex River by meeting DFO guidelines:
 - Only pump when Apex River flows are more than 30% of mean annual discharge
 - Withdraw less than 10% of the daily flow of the river
 - Flows in the Apex River vary from year-to-year and from day-to-day
- Iqaluqarniraqtaujuq ikaarutiup ammuagiangani tasiluliariami
- Miluarviuliraiguni sapujauvanniaqtut qajimagiarjuumiqattarlutik iqalunginnik amma iqalunnut najugauvattunik Niaqunguutiup kunganiitunik malittauvallutik Imalirijikkut maligangit:
- Miluaqpallutik Niaqunguutiup kunga kuullualiraippat kisiani arraguup iluani 30%-ngulualiraippat kuunninga
- 10% tungaani milluarivallutik qautamaat kuunninganik
- Kuunirivattanga qanutigi ajjigiipangittuq arraagutamaaq amma qautamaat

Iqaluit



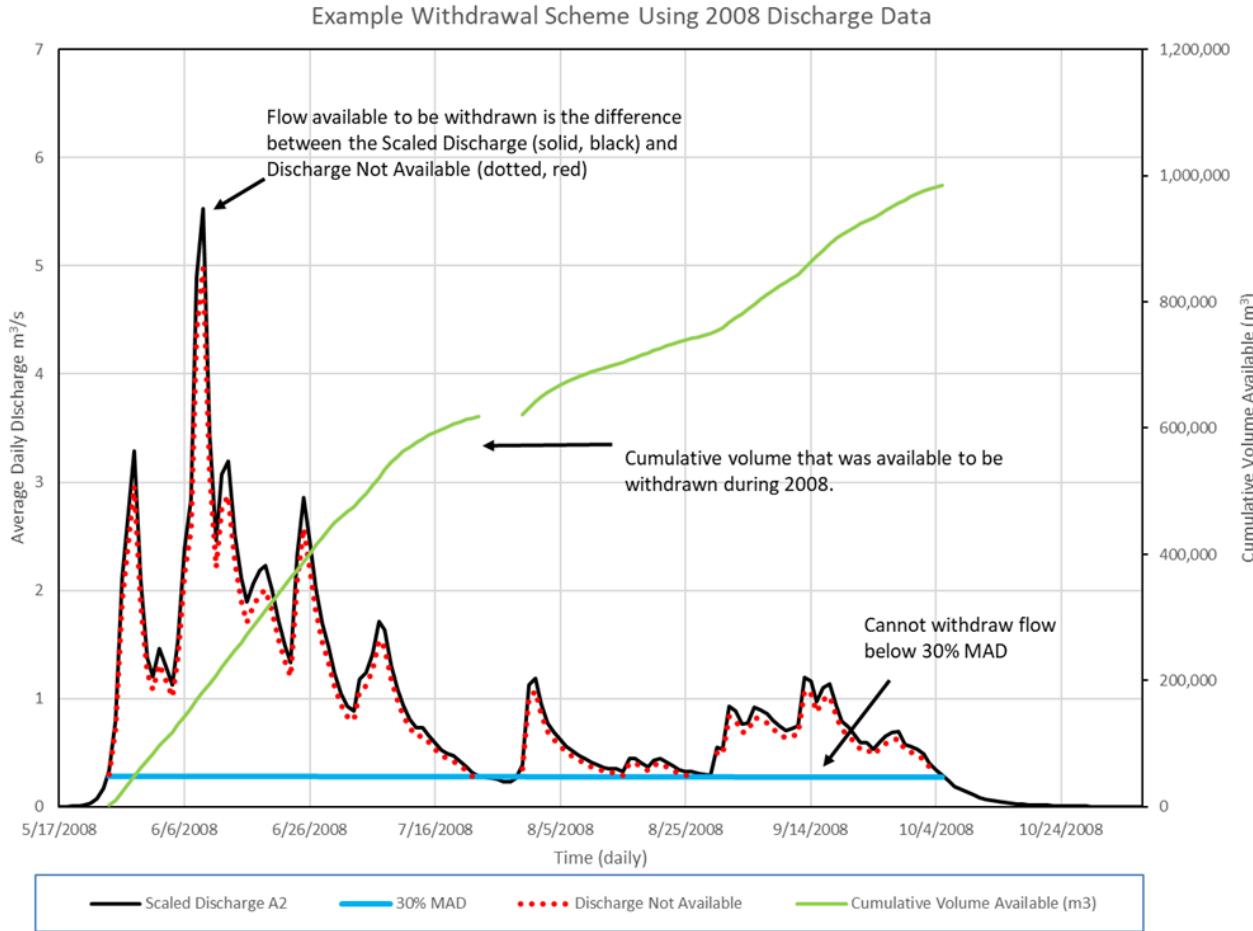
Environmental Mitigations / nunatigut piluarjairsimaniaqtut qanuigutiujunnaqtunik

- Flows in the Apex River are recorded daily at WSC station 10UH002: 1973 to 2018 (mouth of river)
- A new flow meter will be installed upstream of the pumping site and flows will be recorded daily
- Withdrawal rate can be adjusted daily based on flow in the river, and as as compared with MAD
- Kuunnirivattangit Niaqunguutiup kungata titiraqtuvattut arraagutamaaq WSC pilirivvimmii 10UH002: 1973 - 2018 (isuanit kuup)
- Nutaamik kuuninganut qujisautimit aaqijuqalaaqtuq qulaani milluarviup kuup amma qanutigi kuummangaaq titqtauvalluni qautamaat
- Qanitigi milluarninginnut qautamaat aaqigiaqtuvakkajaqtuq malittauluni kuunninga qanutigi, amma qujisaqtauvallutit qanutigi ajjigiinginniqaqpammangaata qangakkut arraagumi

Iqaluit



Environmental Mitigations / nunatigut piluarjairsimaniaqtut qanuigutiujunnaqtunik



Environmental Mitigations / nunatigut piluarjairsimaniaqtut qanuigutiujunnaqtunik

- Environmental protection plans specify measures to additionally protect the environment and the health and safety of workers:
 - Sedimentation and Erosion Control Plan
 - Spill Contingency Plan
 - Daily recording of:
 - river flows as measured
 - withdrawal rates
 - volumes
 - Summary to be included in water licence annual report
- Nunaup avvavianit sapummitsijjutitsanit parnautiliangusimajut nalunaijaisimajut sapummitsijjutitsakannirnik qanukkanniq nunaup avvavianit amma qanuiqunagit timingigut amma attanajairsimasiaqapanningit iqqanaijaqtii:
 - Imaup iluani saniruluujanginnut amma nunaup sinnata surappallianinganut parnautigut
 - Tamaungatuinnaq kuvijuqarniqpat parnautigut
 - Qautamaat titiqtauvallutik ukua:
 - Kuunninga qanutigi uuttuutigut
 - Qanutigi immailijahutujuq
 - Qanutigi immiup milluaqtauninga
 - Pilluatangit titiraqtaugajarqtut imilirijjutiup laisatigut arraagutamaarsiuimi unikkaaliani

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Concerns Raised / isumaaluutiujut uqausiulaurqtut

- Reviewers have asked questions about the proposed project:
 - Can the Apex River reliably provide enough water?
 - What are the alternatives to the Apex 2019-2026 project?
 - What are the City's long-term plans for supplying the growing population?
 - Why is the City applying to pump from Apex for seven years?
- Qaujisaqtiiit apiqqutiqaqpalauqtut piliriatsaq pillugu:
- Niaqunnguutiup kuunga tatigijatsauvaat immavvigiqattarumaniarlugu?
- Sunauvat asigijunnaqtangit Niaqunnguutimut 2019-2026 piliriatsamut?
- Sunauvat sitikkut arraagugasanut parnautingit imaqaqtitsiniarnikkut inugiatsivalliatuinnatillugu nunalik?
- Qanuimmat sitikkut tutcirautiliuqpat milluarsigumaqattaqtutik Niaqunnguutiup kuunganik arraagunut 7-nut?

Iqaluit



Can the Apex River reliably provide enough water? / Niaqunnguutiup kuunga tatigijarniqpa nammattumit imaiviujunarniarningagut?

- 35 years of data available for WSC 10UH002 (near the outlet of the Apex River) were reviewed.
- Flows were scaled to the project location (76% of total Apex flow) and the DFO criteria applied
- Based on this review:
 - 500,000 m³ was available in 29/35 years
 - 400,000 m³ was available in 31/35 years
 - 300,000 m³ was available 34/35 years
 - 200,000 m³ was available in all 35 years
- 35 arraagunut pilirijjutiminirnik nuatausimajunik pitalik qaujisarvimmuit WSC 10UH002 (sanianiittuq paangata kuup) qaujisaqtaulauqtut.
- Kuuninga qajisaqtaulauqtuq pilirivviup sanianut (76%-nga katitugu kuuninga) amma imalirijikkut maligangit aturqtaulauqtut
- Malitugit qaujisautiulauqtut:
- 500,000 sanimut tukimut itininganut imaqautiulauqtuq 29-ni arraaguni ilunginni 35 arraaguit
- 400,000 sanimut tukimut itininganut imaqautiulauqtuq 31-ni arraaguni ilunginni 35 arraaguit
- 300,000 sanimut tukimut itininganut imaqautiulauqtuq 34-ni arraaguni ilunginni 35 arraaguit
- 200,000 sanimut tukimut itininganut imaqautiulauqtuq iluunanginni 35 arraaguni

Iqaluit



Can the Apex River reliably provide enough water? / Niaqunnguutiup kuunga tatigijarniqpa nammattumit imaiviujunarniarningagut?

- Apex is not considered a reliable source for the long term if DFO criteria for protection of fish are maintained
- Supplementing from Apex River is a temporary solution until a permanent additional supply to Lake Geraldine is designed and constructed.
- Niaqunguutiup kuunga isumagijaujuq tatigijatsaungininganik arraagugasanut imalirijikkut maligangit iqaluunik sapummitsijjutingit malittaunginnarniarutik
- Immaqattarniq Niaqunguutiup kuunganik aturqtaukainnatinartuq asianik immaivitsarsiuninginni imiqtarvitsamit sanagasuarninginni.

Iqaluit



What are the alternatives to temporary pumping from Apex River? / Sunauvat asigijunnaqtangit miluarsingaarluni Niaqunguutiup kuunganik?

Supply:

- Other sources of water have not been studied enough to confirm a 7-year supply
- Desalination of seawater is costly to implement as an alternative, but could be used as a contingency

Demand:

- Mandatory water conservation measures directly affect residents and businesses but could be implemented as a contingency

• Imaqautitsaq:

- Asingit imaiivitsaujunnarajaqtut qaujisqaqtausimangiluarmata nalunairviujunnangittut arraagunut 7-nut immaiivujunnarajarmangaata
- Tariungijainiq tariurmik imaliurniarluni akitujukallaumat aturqtaungaarniaruni, kisianittauq nalliuukkumaanguluni aturqtaujunnarajaqtuq

• Imaqarialiit:

- Aturqtaugiaqaqpattut imirmik piursuarniarluni attuijjutiqarunnarmata nunalirmiutanit amma namminiqarqtinik kisianittauq nalliuukkumaangujunarmijuq

Iqaluit



What else is the City doing? / sitikkut qanuiliukkanirqpat?

- Communications to facilitate with water conservation measures:
 - Be Waterwise campaign – tips on how to be waterwise
 - Meetings with Top 10 high volume users to implement water conservation/ efficiency means (i.e. implementation of high efficiency fixtures)
 - Public information sessions with community
 - Water demand monitoring – weekly monitoring in order to identify high volume usage immediately
- Tusaumatisijjutitsaliurniq pijariakiligutitsanit imirmik piursuaqujijjutitsanit:
 - Imirmik piursuaqujiniq – qanuq imikkut piusruarunnaqtuqarmangaaq
 - Katimaqtinqarqpanniq qulinik (10) imirmik angijukallammik aturqpattunik pigiaqtitsijjutiliurumaniarluni imirmik piusuarutitsaujunnaqtunik / atutsiarutitsanik (suurlu pigiaqtitsiniq piunirsanik kuvititsijjutinik)
 - Inulimaaqtitsiniq tukisigarutitsalirilutik
 - Immiqtauvattunit qaujisautiqarniq – pinasuarusiup iluani qaujisautiqaqpallutik nalunaijaijjutitsanik tavvasainnaq nalunairsijunnarumallutik imiup qanitigi aturtaulirninganik

Iqaluit



What are the alternatives to pumping from Apex? / sunaummata asigijunnarqtangit miluarniup Niaqunguutiup kuunganik?

- Communications to public and early system repairs have reduced consumption on average by approx. 30% when compared to previous years since start of campaign (August 2018)
- Early identification of leakage in Utilidor water distribution system, in order to reduce losses immediately
- Tusaumatsivanniq inulimaanik amma qilamiunirsarq pilirijjutiit sanajauvanningit pillugit imiqtunginirsaulirsimajut 30%-nit qaujisqaqttaullultik qanitigit arraaguni anigursimajuni imiqtusimaningit pigalaursimammatanik (aagasi 2018)
- Qilamiunirsaq nalunairsivanniq qillaaqtunik sullulikkut imirmut, tavvasainarq qillaaruniiqtitauvallutik

What are the City's long term plans for water supply? / sunauvat sitikkut arraagugasanut parnautingit imilirinirmut?

- Water Supply is within the City's control:
 - Water supply (water source(s))
 - Water storage
 - Water distribution
 - Water Demand is not within the City's control, but the City can influence:
 - Water conservation by end users
 - Efficiencies in systems and services
 - All of the above work together to meet long term water needs of the City
- Imilirinirq sitikkut aulatangita iluaniittuq:
 - Imiqaqtitsinikkut (imiqtavitsasiurniq nakt)
 - Imirmik sanirvaisimanirq
 - Imiqaqtitsivanniq
 - Imikillisimaniq angirrani iluaniingittuq sitikkut aulagunnaqtangita, kisiani sitikkut ukuninga ajaursuijunnaqtut:
 - Imirmik piursuaqujivallutik aturqpattunik imirmik
 - Piusitigarpallugit pilirijjutiit amma pijitsirautiit
 - Taiguuqtajut iluunatik atautsikkut aturqtaujunnaqtut malittafulutik arraagugasanut imiqarunnarniaqullugu nunalipaujait

Iqaluit



What are the City's long term plans for water supply? / sunauvat sitikkut arraagugasanut parnautingit imilirinirmut?

- The City is progressing:
 - Implementation of Reverse Osmosis system to desalinate water from Koojesse Bay and supply through direct connection to utilidor water distribution system.
 - Sylvia Grinnell River
 - Hydrology sufficient for summer supply
 - Concept design completed for two intake site options
 - Concept design for overland pipeline to Lake Geraldine and evaluation of treat at source option
 - Engagement with Amaruq HTA
- Sitikkut sivumuappalliajut:
- Pigiaqtitsinikkut tariujainirmik imiliurutimut tariup imanganik tariungijaivallutik kuujasi kangirqtukallamik amma imiqautiuvalluni imirmut sullulikkuupallugu.
 - Iqaluit kuunga
 - Iminga naammattuq aujakkut imiriniarlugu
 - Qanuq sanasimagajarninga pijariirsimajut marruunnut miluavitsaujunnaqtuunnik
 - Qanuq sanasimagajarninga nunakkut sulluliup imiqtarvimmumt amma qaujisraqtausimajuq salumarsaivitsanganut naliiraarutitsaq
 - Piliriqatauningit amaruuq angunasuttiiit amma mikigiarniaqtiiit katujjiqatigiingat

Iqaluit



What are the City's long term plans for water supply? / sunauvat sitikkut arraagugasanut parnautingit imilirinirmut?

- Unnamed Lake (3 km north of Apex River)
 - Not enough information to determine if it is a viable source
 - Water level data collection underway; bathymetry survey planned during summer 2019
 - Water balance analysis to commence Q4-2019/ Q1-2020 to confirm long-term viability
 - Fisheries, water quality assessment and concept design of intake and pipeline - if water balance verified
 - Ongoing engagement with HTA
- Attiqtausimangittuq tasiq (3 kilaamitanik ungasinnilik Niaqunnguti kuunganik)
- Tukisimajaungiluaqtuq aturatsaummangaq
- Qanutigi imaqrunnarninganut qaujisautiminiit nuatauvalliajut; qanutigit imaqrarninganik qaujisataulaaqtuuq aujangani 2019
- Imiup qanuinnirivattanga qaujisarniq pigtartaulaaqtuq Q4-2019 /Q1-2020 nalunaiqtaugajarmat arraagugasanut aturatsaummangaq
- imalirijikkut, imiup qanuinninganit qaujisarniq amma qanuq sanasimagajarninga miluarvitsaq amma sullulik – imirivattanga qanitigit nalunailauqtillugu
- Piliriqataunginnarlutik amaruq angunasuttiit katujjiqatigiingit

Iqaluit



What are the City's long term plans for water supply? / sunauvat sitikkut arraagugasanut parnautingit imilirinirmut?



What are the City's long term plans for water supply? / sunauvat sitikkut arraagugasanut parnautingit imilirinirmut?

- Upgrade and optimization of existing Utilidor water distribution system as part of asset management strategy
- Investigate viable alternatives for long-term water supply to supplement Lake Geraldine based on current and projected future demand requirements
- Sanagiartauvallutik amma piusitigiarlugit sulluliit aturqtauvattut imirmut ilagijauluni piqutinit aulatsijjutinut parnagutimut
- Qaujisqaqtaulutik aturqtaujunnarajaqtut asingit imiqautiujunnarajaqtut imirtavimmik malippallutik maanakkut amma sivunirmi nalauttaqtausimajut imiqaqtitaugiaqarajaqtut

Iqaluit

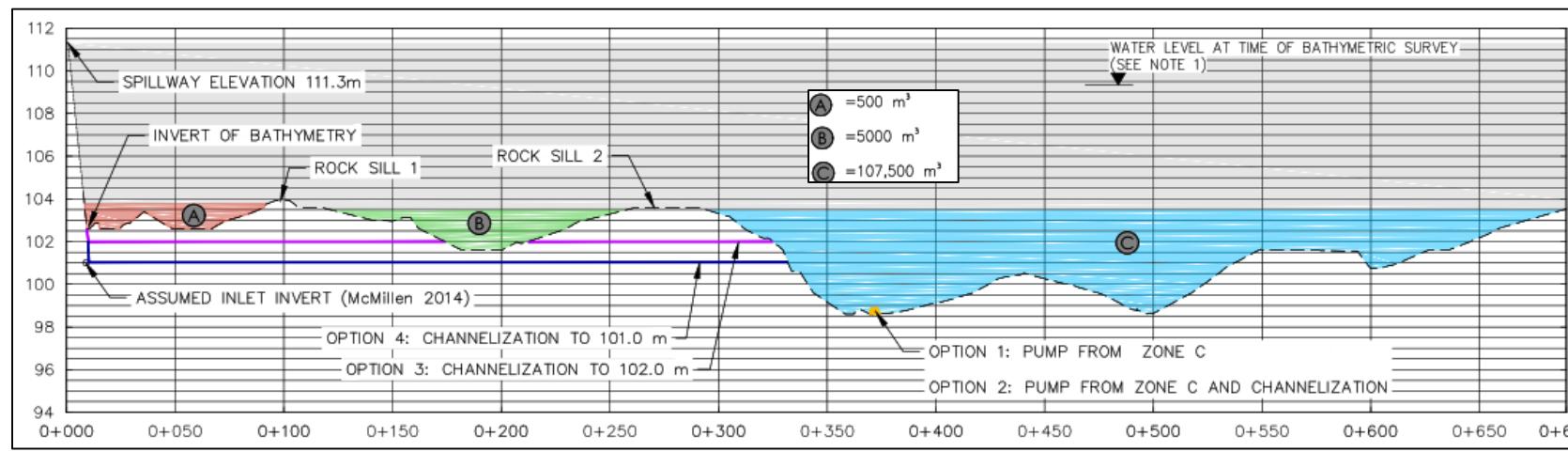


What are the City's long term plans for water supply? / sunauvat sitikkut arraagugasanut parnautingit imilirinirmut?

- Water storage will be equally critical to supply, as City continues to project increase in demand and development/population growth
- Qattaqariaqallarinniaqtut imiqatsiarumaniarutta, sitikkut nalauttaarsimammata imaqarumavanniaqtut amisuruqpallianinginnit malillutik amma sanajauvattu amisuruqpallialutik / inungiatsivallialuni nunalik

What are the City's long term plans for water supply? / sunauvat sitikkut arraagugasanut parnautingit imilirinirmut?

- Investigate viable alternatives to additional water storage capacity for a sustainable long-term water supply
 - Supplementary withdrawal from inaccessible portions within Lake Geraldine reservoir (below intake) - Pumping/ channelization
 - Secondary water storage
- Qausaqtaulutik aturqtaujunnarajaqtut asingit imiqautiujunnarajaqtut qanutigi imaqrunnarajarmangaata makimajjutiujunnaraqaqtumik akunikallak imitigut
- Sanirvattausimajumik immaqattarunnarlutik tikitatsaungittumik iluanik imirtarviup (ataanik immaiviuvvattuup) – miluariniq / kuuviliurniq
- Asianik qatarsiurniq



What are the City's long term plans for water supply? / sunauvat sitikkut arraagugasanut parnautingit imilirinirmut?

- Desktop assessment of Lake Geraldine storage completed in 2018; Prefeasibility options assessment in 2019-2020
- Qarataujakkut qaujisqtauninga imiqtarviup sanirvaivitsanga pijariiqtaulauqtuq 2018-mi; sivuniagut makimattitsijjutitsanit qaujisalaarniaqtut 2019-2020

Why is this application being sought for 7 years? / qanuimmat tuttsirautiliurqpat arraagunut 7-nut aturqtaujutsamik?

Implementing a long-term solution requires:

- Data collection and analysis to confirm feasibility
- Concept designs and costing
- Decision to proceed to design of one option for each of supply, storage, distribution)
- Preliminary design
- Ongoing engagement
- Detailed design and permitting
- Procurement and construction
- In-service implementation

Pigiaqtitsiniarluni

- Pilirijjutiminirnik nuatsigialik amma qujisartaulutik nalurnaiqtauquullugit kasujijutitsaummangaata
- Qanuilingaluni sanajauniarmangaaq aaqitsuiniq amma akitsangit
- Sivumuagiarniarmangaaq qanuq sanasimaniarninganut sanagiarniq atausirmik naliiraarutiusimajumik atuni sunakkutaatsanut, sanirvaijaivitsanik, tunijatsanik
- Qanuq sanasimaniarninganut sanagiaruti
- Piliriqatqainnarniq
- Nalunaijainiq qanuq sanasimagajarninganik amma pijunnautiliriniq
- Tigusiniq amma sanagiarniq
- pijitsirautiugiarninga

Iqaluit



Why is this application being sought for 7 years? / qanuimmat tuttsirautiliurqpat arraagunut 7-nut aturqtaujutsamik?

Estimated timeline:

- Data collection & concept designs
2018-2020
- Preliminary designs and engagement
2020-2021
- Detailed designs
2021-2022
- Permitting
1.5 years
- Procurement and Construction
2024-2025
- In service
2026

Nalauittarsimajut ullursiutiit:

- Pilirijjutiminirnik nuatiniq amma isumagijaujuq sanasimaningagut 2018-2020
- Sivullirpaarsiutiit qanuq sanasimagajarninganut amma piliriqatiqarniq 2020-2021
- Nalunaijarsimajut qanuq sanasimalaarninganit 2021-2022
- pijunnautitaarasunniq arraagumut atausirmut amma nappanganut Tigusiniq amma sananiq 2024-2025
- Pijitsirarutiulirninga 2026

Iqaluit



Nakurmiik



Iqaluit

