

2004 Hamlet of Tuktoyaktuk Annual Water Licence Report

Prepared by AECOM for the Hamlet of Tuktoyaktuk

October 28, 2009

1.0 Introduction

In 2004, the community infrastructure systems providing water, sewage and solid waste management to the residents of the Hamlet of Tuktoyaktuk were operated and maintained by the community. Figure 1 shows the general layout of the water and sewer systems.

2.0 Water Use

Tuktoyaktuk obtains its drinking water from Kudlak Lake. Water for winter use is pumped from Kudlak Lake to a raw water storage reservoir.

In 2004 the community used a total of 46,578 cubic metres (m³) of potable water. Monthly water use is shown in the table below. The estimated potable water use is 133.5 liters per capita per day based upon the 2007 estimated population of 956 (NWT Bureau of Statistics).

Table 1: Water Consumption

Month	Quantity Used (m ³)
January	3,828
February	3,611
March	3,882
April	3,920
May	3,533
June	3,914
July	4,374
August	4,215
September	3,954
October	3,929
November	3,767
December	3,651
Total	46,578

3.0 Surveillance Network Program Monitoring

Water sample data is collected periodically to check the performance of the water and waste systems. The SNP station numbers are:

- 0714-1 Supply line to reservoir
- 0714-2 Effluent discharge structure at the Sewage Disposal Facilities
- 0714-3 Water contained within the Solid Waste Lagoon

In 2004 the community collected seven samples from the sewage lagoon and two samples from the lagoon at the solids waste landfill, throughout August, September and October. SNP sampling results for 2004 are presented in Table 2.

In 2004, to the best of the community's knowledge, the community infrastructure systems providing water, sewage and solid waste management were operating within the water quality criteria of the water licence, with the exception of sewage lagoon pH which was consistently above 9.

4.0 System Abandonment and Restoration Work

The 2004 INAC inspection report noted that "considerable work has been done at the SWDF including the old bulk metal waste storage area. This material was crushed and buried."

5.0 System Studies and Inspections

A Municipal Water Licence Inspection was carried out by Kevin R. Glowa of INAC on September 23, 2004. The report noted three non-compliance items related to reports that had not been submitted.

6.0 System Discharges

The community infrastructure system providing water, sewage and solid waste management to Tuktoyaktuk residents has two licensed discharges. The sewage lagoon discharge is seasonal from the sewage lagoon into a saltwater inlet leading to Kugmallit Bay. The solid waste lagoon discharges into the mouth of a small, adjacent bay.

As noted in the INAC inspection report from September 2004, an emergency decant of the sewage lagoon was authorized to avoid failure of the containment berm, despite high pH in the lagoon water.

7.0 System Excavations

In 2004, there were no trench or sump excavations associated with the community's water, sewer and solid waste management systems.

8.0 Lagoon Sludge

In 2004, there was no removal of sludge from the sewage lagoon.

9.0 Operation and Maintenance Plans

There were no changes to the O&M documentation in 2004.

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Table 2: SNP Sampling Results – Water Licence N7L3-0714

Location (labeled)	SNP #	Sample Date	Fecal Coliforms	BOD ₅		Suspended Solids		pH	Oil/Grease Sheen	NO ₂ /NO ₃	NH ₃
			CFU/100 mL	mg/L		mg/L		(6-9)	Yes/No	mg/L	mg/L
			grab	grab	MAC	grab	MAC	grab	grab	grab	grab
Sewage	0714-2	Aug 17 2004	< 100	34	120	126	180	9.73	No		0.235
Sewage	0714-2	Sept 1 2004	4500	23	120	58	180	9.50	No		1.68
Sewage – Solid Waste Lagoon (SWL)	0714-3	Sept 1 2004	20	< 2	120	6	180	8.12			
Sewage	0714-2	Sept 13 2004	400	10	120	44	180	9.45	No		2.06
Sewage – SWL	0714-3	Sept 13 2004	930	4	120	18	180	7.93			
Sewage	0714-2	Sept 23 2004	870	14	120	46	180	9.46	No		3.01
Sewage	0714-2	Sept 28 2004	1780	13	120	16	180	9.35	No		2.63
Sewage	0714-2	Oct 7 2004	< 10	9	120	36	180	9.29	No		2.73
Sewage	0714-2	Oct 18 2004	6	< 2	120	< 3	180	9.34	No		3.38

Location	SNP #	Sample Date	Polychlorinated biphenyls		Cadmium	Cobalt	Chromium	Copper	Iron	Mercury	Manganese	Nickel	Lead	Zinc
			µg/L		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			grab	MAC	grab	grab	grab	grab	grab	grab	grab	grab	grab	grab
Sewage – SWL	0714-3	Sept 1 2004	0.02	25	1.0	0.3		24.9	894	< 0.02	37.8	2.9	1.9	36
Sewage – SWL	0714-3	Sept 13 2004	< .02	25	< 0.1	0.4		25.4	1360	< 0.02	58.9	3.2	1.3	

Appendix A

Taiga Labs Sample Testing Results

2004 Taiga Labs electronic records for Tuktoyaktuk

242246.xls

Client Name	Taiga Sample ID	Client Sample ID	Sample Type	Sampling Location	Sample Collect Date	Imple Received D	Lab Section	Parameter Name	Result Flag	Reported Result	Units	Calc MDL	mple Result Quali	lysis Result Qual	Analysis Date	Prep Method	Test Method
Hamlet of Tuktoyaktuk	242246	N7L3-0714	sewage	Tuktoyaktuk	8/17/2004	18-Aug-04	Micro. (w)	Coliforms, Fecal	<	100	CFU/100mL	100			8/18/2004	none	SM9222:D
Hamlet of Tuktoyaktuk	242246	N7L3-0714	sewage	Tuktoyaktuk	8/17/2004	18-Aug-04	Nuts. (w)	Ammonia as N		0.235	mg/L	0.005			8/27/2004	none	SM4500-NH3:G
Hamlet of Tuktoyaktuk	242246	N7L3-0714	sewage	Tuktoyaktuk	8/17/2004	18-Aug-04	Nuts. (w)	Oxygen		34	mg/L	2			8/18/2004	none	SM5210:B
Hamlet of Tuktoyaktuk	242246	N7L3-0714	sewage	Tuktoyaktuk	8/17/2004	18-Aug-04	Organic (w)	(Visible)		non-vis					8/20/2004	none	Visual Exam.
Hamlet of Tuktoyaktuk	242246	N7L3-0714	sewage	Tuktoyaktuk	8/17/2004	18-Aug-04	Phys. (w)	pH		9.73	pH units	0.05			8/24/2004	none	SM4500-H:B
Hamlet of Tuktoyaktuk	242246	N7L3-0714	sewage	Tuktoyaktuk	8/17/2004	18-Aug-04	Phys. (w)	Suspended		126	mg/L	3			8/23/2004	GF/C Filt.	SM2540:D

242557_558.xls

Client Name	Taiga Sample ID	Client Sample ID	Sample Type	Sampling Location	Sample Collect Date	Imple Received D	Lab Section	Parameter Name	Result Flag	Reported Result	Units	Calc MDL	mple Result Quali	lysis Result Qual	Analysis Date	Prep Method	Test Method
Hamlet of Tuktoyaktuk	242557	N7L3-0714	Sewage	Tuktoyaktuk	9/1/2004	01-Sep-04	Micro. (w)	Coliforms, Fecal		4500	CFU/100mL	1			9/2/2004	none	SM9222:D
Hamlet of Tuktoyaktuk	242557	N7L3-0714	Sewage	Tuktoyaktuk	9/1/2004	01-Sep-04	Nuts. (w)	Ammonia as N		1.68	mg/L	0.005			9/7/2004	none	SM4500-NH3:G
Hamlet of Tuktoyaktuk	242557	N7L3-0714	Sewage	Tuktoyaktuk	9/1/2004	01-Sep-04	Nuts. (w)	Oxygen		23	mg/L	2			9/3/2004	none	SM5210:B
Hamlet of Tuktoyaktuk	242557	N7L3-0714	Sewage	Tuktoyaktuk	9/1/2004	01-Sep-04	Organic (w)	(Visible)		non visible					9/2/2004	none	Visual Exam.
Hamlet of Tuktoyaktuk	242557	N7L3-0714	Sewage	Tuktoyaktuk	9/1/2004	01-Sep-04	Phys. (w)	pH		9.50	pH units	0.05			9/3/2004	none	SM4500-H:B
Hamlet of Tuktoyaktuk	242557	N7L3-0714	Sewage	Tuktoyaktuk	9/1/2004	01-Sep-04	Phys. (w)	Suspended		58	mg/L	3			9/12/2004	GF/C Filt.	SM2540:D
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	Micro. (w)	Coliforms, Fecal		20	CFU/100mL	10			9/2/2004	none	SM9222:D
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	Nuts. (w)	Oxygen	<	2	mg/L	2			9/3/2004	none	SM5210:B
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	Phys. (w)	pH		8.12	pH units	0.05			9/3/2004	none	SM4500-H:B
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	Phys. (w)	Suspended		6	mg/L	3			9/12/2004	GF/C Filt.	SM2540:D
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	Sub - Org	Biphenyls	<	0.02	µg/L	0.02			9/20/2004	Solvent Ext.	EPA8082
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	T Metals (w)	Cadmium		1.0	µg/L	0.1			9/16/2004	none	EPA200.8
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	T Metals (w)	Cobalt		0.3	µg/L	0.1			9/16/2004	none	EPA200.8
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	T Metals (w)	Copper		24.9	µg/L	0.3			9/16/2004	none	EPA200.8
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	T Metals (w)	Iron		894	µg/L	50			9/16/2004	Microwave	SM3111-B
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	T Metals (w)	Lead		1.9	µg/L	0.1			9/16/2004	none	EPA200.8
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	T Metals (w)	Manganese		37.8	µg/L	0.1			9/16/2004	none	EPA200.8
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	T Metals (w)	Mercury	<	0.02	µg/L	0.02			9/23/2004	Microwave	EPA200.8
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	T Metals (w)	Nickel		2.9	µg/L	0.1			9/16/2004	none	EPA200.8
Hamlet of Tuktoyaktuk	242558	N7L3-0714-3	Sewage	Solid Waste Lagoon	9/1/2004	01-Sep-04	T Metals (w)	Zinc		36	µg/L	10			9/16/2004	none	EPA200.8

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Client Name	Taiga Sample ID	Client Sample ID	Sample Type	Sampling Location	Sample Collect Date	Imple Received D	Lab Section	Parameter Name	Result Flag	Reported Result	Units	Calc MDL	mple Result Quali	lysis Result Qual	Analysis Date	Prep Method	Test Method
Hamlet of Tuktoyaktuk	242906	Kudlak Lake	Freshwater	Kudlak Lake	9/13/2004	14-Sep-04	Organic (w)	Benzene			mg/L	0.002			9/20/2004	EPA5030B	EPA502.2
Hamlet of Tuktoyaktuk	242906	Kudlak Lake	Freshwater	Kudlak Lake	9/13/2004	14-Sep-04	Organic (w)	Ethylbenzene			mg/L	0.002			9/20/2004	EPA5030B	EPA502.2
Hamlet of Tuktoyaktuk	242906	Kudlak Lake	Freshwater	Kudlak Lake	9/13/2004	14-Sep-04	Organic (w)	Extractable			mg/L						EPA8015B
Hamlet of Tuktoyaktuk	242906	Kudlak Lake	Freshwater	Kudlak Lake	9/13/2004	14-Sep-04	Organic (w)	Total Purgeable			mg/L	0.002			9/20/2004		
Hamlet of Tuktoyaktuk	242906	Kudlak Lake	Freshwater	Kudlak Lake	9/13/2004	14-Sep-04	Organic (w)	m/p-Xylene			mg/L	0.002			9/20/2004	EPA5030B	EPA502.2
Hamlet of Tuktoyaktuk	242906	Kudlak Lake	Freshwater	Kudlak Lake	9/13/2004	14-Sep-04	Organic (w)	o-Xylene			mg/L	0.002			9/20/2004	EPA5030B	EPA502.2
Hamlet of Tuktoyaktuk	242906	Kudlak Lake	Freshwater	Kudlak Lake	9/13/2004	14-Sep-04	Organic (w)	Toluene			mg/L	0.002			9/20/2004	EPA5030B	EPA502.2
Hamlet of Tuktoyaktuk	242907	N7L3-0714	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Micro. (w)	Coliforms, Fecal		400	CFU/100mL	100			9/14/2004	none	SM9222:D
Hamlet of Tuktoyaktuk	242907	N7L3-0714	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Nuts. (w)	Ammonia as N		2.06	mg/L	0.005			9/14/2004	none	SM4500-NH3:G
Hamlet of Tuktoyaktuk	242907	N7L3-0714	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Nuts. (w)	Oxygen		10	mg/L	2			9/14/2004	none	SM5210:B
Hamlet of Tuktoyaktuk	242907	N7L3-0714	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Organic (w)	(Visible)		non-vis					9/16/2004	none	Visual Exam.
Hamlet of Tuktoyaktuk	242907	N7L3-0714	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Phys. (w)	pH		9.45	pH units	0.05			9/15/2004	none	SM4500-H:B
Hamlet of Tuktoyaktuk	242907	N7L3-0714	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Phys. (w)	Suspended		44	mg/L	3			9/15/2004	GF/C Filt.	SM2540:D
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Micro. (w)	Coliforms, Fecal		930	CFU/100mL	10			9/14/2004	none	SM9222:D
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Nuts. (w)	Oxygen		4	mg/L	2			9/14/2004	none	SM5210:B
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Phys. (w)	pH		7.93	pH units	0.05			9/15/2004	none	SM4500-H:B
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Phys. (w)	Suspended		18	mg/L	3			9/15/2004	GF/C Filt.	SM2540:D
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	Sub - Org	Biphenyls	<	0.02	µg/L	0.02			9/30/2004	Solvent Ext.	EPA8082
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	T Metals (w)	Cadmium	<	0.1	µg/L	0.1			9/15/2004	Microwave	EPA200.8
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	T Metals (w)	Cobalt		0.4	µg/L	0.1			9/15/2004	Microwave	EPA200.8
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	T Metals (w)	Copper		25.4	µg/L	0.3			9/15/2004	Microwave	EPA200.8
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	T Metals (w)	Iron		1360	µg/L	50			9/15/2004	Microwave	SM3111-B
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	T Metals (w)	Lead		1.3	µg/L	0.1			9/15/2004	Microwave	EPA200.8
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	T Metals (w)	Manganese		58.9	µg/L	0.1			9/15/2004	Microwave	EPA200.8
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	T Metals (w)	Mercury	<	0.02	µg/L	0.02			9/18/2004	Microwave	EPA200.8
Hamlet of Tuktoyaktuk	242908	N7L3-0714-3	Sewage	Tuktoyaktuk, NT	9/13/2004	14-Sep-04	T Metals (w)	Nickel		3.2	µg/L	0.1			9/15/2004	Microwave	EPA200.8

242943.xls

Client Name	Taiga Sample ID	Client Sample ID	Sample Type	Sampling Location	Sample Collect Date	Imple Received D	Lab Section	Parameter Name	Result Flag	Reported Result	Units	Calc MDL	mple Result Quali	lysis Result Qual	Analysis Date	Prep Method	Test Method
Hamlet of Tuktoyaktuk	242943	Kudlak Lake	Freshwater	Kudlak Lake	9/14/2004	15-Sep-04	Organic (w)	Benzene	<	0.002	mg/L	0.002			9/20/2004		GC/FID
Hamlet of Tuktoyaktuk	242943	Kudlak Lake	Freshwater	Kudlak Lake	9/14/2004	15-Sep-04	Organic (w)	Ethylbenzene	<	0.002	mg/L	0.002			9/20/2004		GC/FID
Hamlet of Tuktoyaktuk	242943	Kudlak Lake	Freshwater	Kudlak Lake	9/14/2004	15-Sep-04	Organic (w)	Total	<	0.05	mg/L	0.05			10/12/2004		GC/FID
Hamlet of Tuktoyaktuk	242943	Kudlak Lake	Freshwater	Kudlak Lake	9/14/2004	15-Sep-04	Organic (w)	Total Purgeable		0.016	mg/L	0.002			9/20/2004		GC/FID
Hamlet of Tuktoyaktuk	242943	Kudlak Lake	Freshwater	Kudlak Lake	9/14/2004	15-Sep-04	Organic (w)	m/p-xylene	<	0.004	mg/L	0.004			9/20/2004		GC/FID
Hamlet of Tuktoyaktuk	242943	Kudlak Lake	Freshwater	Kudlak Lake	9/14/2004	15-Sep-04	Organic (w)	o-Xylene	<	0.002	mg/L	0.002			9/20/2004		GC/FID
Hamlet of Tuktoyaktuk	242943	Kudlak Lake	Freshwater	Kudlak Lake	9/14/2004	15-Sep-04	Organic (w)	Toluene	<	0.002	mg/L	0.002			9/20/2004		GC/FID

2004 Taiga Labs electronic records for Tuktoyaktuk

243109_110.xls

Client Name	Taiga Sample ID	Client Sample ID	Sample Type	Sampling Location	Sample Collect Date	Imple Received D	Lab Section	Parameter Name	Result Flag	Reported Result	Units	Calc MDL	hple Result Qual	lysis Result Qual	Analysis Date	Prep Method	Test Method
Hamlet of Tuktoyaktuk	243109	N7L3-0714	Sewage		9/23/2004	23-Sep-04	Micro. (w)	Coliforms, Fecal		870	CFU/100mL	10			9/24/2004	none	SM9222:D
Hamlet of Tuktoyaktuk	243109	N7L3-0714	Sewage		9/23/2004	23-Sep-04	Nuts. (w)	Ammonia as N		3.01	mg/L	0.005			9/29/2004	none	SM4500-NH3:G
Hamlet of Tuktoyaktuk	243109	N7L3-0714	Sewage		9/23/2004	23-Sep-04	Nuts. (w)	Oxygen		14	mg/L	2			9/24/2004	none	SM5210:B
Hamlet of Tuktoyaktuk	243109	N7L3-0714	Sewage		9/23/2004	23-Sep-04	Organic (w)	(Visible)		non-vis					9/28/2004	none	Visual Exam.
Hamlet of Tuktoyaktuk	243109	N7L3-0714	Sewage		9/23/2004	23-Sep-04	Phys. (w)	pH		9.46	pH units	0.05			9/24/2004	none	SM4500-H:B
Hamlet of Tuktoyaktuk	243109	N7L3-0714	Sewage		9/23/2004	23-Sep-04	Phys. (w)	Suspended		46	mg/L	3			9/22/2004	GF/C Filt.	SM2540:D
Hamlet of Tuktoyaktuk	243110	Kudlak Lake	Unknown Water	Kudlak Lake	9/23/2004	23-Sep-04	Organic (w)	Benzene	<	0.002	mg/L	0.002			10/1/2004		GC/FID
Hamlet of Tuktoyaktuk	243110	Kudlak Lake	Unknown Water	Kudlak Lake	9/23/2004	23-Sep-04	Organic (w)	Ethylbenzene	<	0.002	mg/L	0.002			10/1/2004		GC/FID
Hamlet of Tuktoyaktuk	243110	Kudlak Lake	Unknown Water	Kudlak Lake	9/23/2004	23-Sep-04	Organic (w)	Total	<	0.05	mg/L	0.05			10/12/2004		GC/FID
Hamlet of Tuktoyaktuk	243110	Kudlak Lake	Unknown Water	Kudlak Lake	9/23/2004	23-Sep-04	Organic (w)	Total Purgeable	<	0.002	mg/L	0.002			10/1/2004		GC/FID
Hamlet of Tuktoyaktuk	243110	Kudlak Lake	Unknown Water	Kudlak Lake	9/23/2004	23-Sep-04	Organic (w)	m/p-xylene	<	0.004	mg/L	0.004			10/1/2004		GC/FID
Hamlet of Tuktoyaktuk	243110	Kudlak Lake	Unknown Water	Kudlak Lake	9/23/2004	23-Sep-04	Organic (w)	o-Xylene	<	0.002	mg/L	0.002			10/1/2004		GC/FID
Hamlet of Tuktoyaktuk	243110	Kudlak Lake	Unknown Water	Kudlak Lake	9/23/2004	23-Sep-04	Organic (w)	Toluene	<	0.002	mg/L	0.002			10/1/2004		GC/FID

243235.xls

Client Name	Taiga Sample ID	Client Sample ID	Sample Type	Sampling Location	Sample Collect Date	Imple Received D	Lab Section	Parameter Name	Result Flag	Reported Result	Units	Calc MDL	hple Result Qual	lysis Result Qual	Analysis Date	Prep Method	Test Method
Hamlet of Tuktoyaktuk	243235	N7L3-0714	Sewage		9/28/2004	29-Sep-04	Micro. (w)	Coliforms, Fecal		1780	CFU/100mL	10			9/29/2004	none	SM9222:D
Hamlet of Tuktoyaktuk	243235	N7L3-0714	Sewage		9/28/2004	29-Sep-04	Nuts. (w)	Ammonia as N		2.63	mg/L	0.005			9/29/2004	none	SM4500-NH3:G
Hamlet of Tuktoyaktuk	243235	N7L3-0714	Sewage		9/28/2004	29-Sep-04	Nuts. (w)	Oxygen		13	mg/L	2			9/29/2004	none	SM5210:B
Hamlet of Tuktoyaktuk	243235	N7L3-0714	Sewage		9/28/2004	29-Sep-04	Organic (w)	(Visible)		non-visual					10/1/2004	none	Visual Exam.
Hamlet of Tuktoyaktuk	243235	N7L3-0714	Sewage		9/28/2004	29-Sep-04	Phys. (w)	pH		9.35	pH units	0.05			9/29/2004	none	SM4500-H:B
Hamlet of Tuktoyaktuk	243235	N7L3-0714	Sewage		9/28/2004	29-Sep-04	Phys. (w)	Suspended		16	mg/L	3			10/4/2004	GF/C Filt.	SM2540:D

243398.xls

Client Name	Taiga Sample ID	Client Sample ID	Sample Type	Sampling Location	Sample Collect Date	Imple Received D	Lab Section	Parameter Name	Result Flag	Reported Result	Units	Calc MDL	hple Result Qual	lysis Result Qual	Analysis Date	Prep Method	Test Method
Hamlet of Tuktoyaktuk	243398	N7L3-0714	Sewage		10/7/2004	07-Oct-04	Micro. (w)	Coliforms, Fecal	<	10	CFU/100mL	10			10/7/2004	none	SM9222:D
Hamlet of Tuktoyaktuk	243398	N7L3-0714	Sewage		10/7/2004	07-Oct-04	Nuts. (w)	Ammonia as N		2.73	mg/L	0.005			10/15/2004	none	SM4500-NH3:G
Hamlet of Tuktoyaktuk	243398	N7L3-0714	Sewage		10/7/2004	07-Oct-04	Nuts. (w)	Oxygen		9	mg/L	2			10/8/2004	none	SM5210:B
Hamlet of Tuktoyaktuk	243398	N7L3-0714	Sewage		10/7/2004	07-Oct-04	Organic (w)	(Visible)		Non-visual					10/14/2004	none	Visual Exam.
Hamlet of Tuktoyaktuk	243398	N7L3-0714	Sewage		10/7/2004	07-Oct-04	Phys. (w)	pH		9.29	pH units	0.05			10/13/2004	none	SM4500-H:B
Hamlet of Tuktoyaktuk	243398	N7L3-0714	Sewage		10/7/2004	07-Oct-04	Phys. (w)	Suspended		36	mg/L	3			10/18/2004	GF/C Filt.	SM2540:D

243460.xls

Client Name	Taiga Sample ID	Client Sample ID	Sample Type	Sampling Location	Sample Collect Date	Imple Received D	Lab Section	Parameter Name	Result Flag	Reported Result	Units	Calc MDL	hple Result Qual	lysis Result Qual	Analysis Date	Prep Method	Test Method
Hamlet of Tuktoyaktuk	243460	N7L3-0714	Sewage		10/18/2004	19-Oct-04	Micro. (w)	Coliforms, Fecal		6	CFU/100mL	2			10/19/2004	none	SM9222:D
Hamlet of Tuktoyaktuk	243460	N7L3-0714	Sewage		10/18/2004	19-Oct-04	Nuts. (w)	Ammonia as N		3.38	mg/L	0.005			10/29/2004	none	SM4500-NH3:G
Hamlet of Tuktoyaktuk	243460	N7L3-0714	Sewage		10/18/2004	19-Oct-04	Nuts. (w)	Oxygen	<	2	mg/L	2			10/19/2004	none	SM5210:B
Hamlet of Tuktoyaktuk	243460	N7L3-0714	Sewage		10/18/2004	19-Oct-04	Organic (w)	(Visible)		non-vis					10/22/2004	none	Visual Exam.
Hamlet of Tuktoyaktuk	243460	N7L3-0714	Sewage		10/18/2004	19-Oct-04	Phys. (w)	pH		9.34	pH units	0.05			10/21/2004	none	SM4500-H:B
Hamlet of Tuktoyaktuk	243460	N7L3-0714	Sewage		10/18/2004	19-Oct-04	Phys. (w)	Suspended	<	3	mg/L	3			10/20/2004	GF/C Filt.	SM2540:D

Appendix B

INAC Inspection Report



MUNICIPAL WATER USE INSPECTION FORM

DATE:	September 23, 2004	COMPANY REP:	Debbi Raddi/Peter Nogasak
LICENSEE:	Incorporated Hamlet of Tuktoyaktuk	LICENCE #:	N7L3-0714

WATER SUPPLY – Figures 1-4 attached

Source:	Kudlak Lake	Quantity Used:	Refer to Annual Reports
Owner/Operator:	Incorporated Hamlet of Tuktoyaktuk		

Indicate:	A - Acceptable	U - Unacceptable	N/A - Not Applicable	N/I - Not Inspected			
Intake Facilities:	A	Storage Structures:	A	Treatment Systems:	A	Chem. Storage:	A
Flow Meas. Device:	A	Conveyance Lines:	A	Pumping Stations:	U ²	Modifications:	A

Concerns:

- Small fuel spill at water treatment plant (figure 1). Fuel tank and distribution/conveyance lines badly corroded (figure 1,2). This was addressed in the 2003 Inspection Report.
- Fuel spill 04-572 Pumping Station at Kudlak Lake pumping station (Figure 3). Clean up efforts are currently in progress (figure 4).

Notes:

- Water Treatment Plant and reservoir was secure during inspection.

WASTE DISPOSAL – Figures 5-15 attached

Sewage	Sewage Treatment System (primary, secondary, or tertiary):	Primary					
	Natural Water Body:	✓	Continuous Discharge (land or water):				
	Seasonal Discharge:	✓ Fall decant	Wetlands Treatment:		Trench:		

Solid Waste	Owner/Operator:	Incorporated Hamlet of Tuktoyaktuk					
	Landfill:	✓	Burn & Landfill:		Other:		

Indicate:	A - Acceptable	U - Unacceptable	N/A - Not Applicable	N/I - Not Inspected			
Discharge Quality:	U ¹	Construction:	N/A	Disch. Meas. Dev.	A	Freeboard:	A
Decant Structures:	A	O&M Plan:	U ⁴	Dams, Dykes:	A	Seepages:	A
Dyke Inspections:	A	A&R Plan:	N/A	Erosion:	A	Spills:	See Water Supply

Periods of Discharge:	-Sewage Lagoon was decanted in October. -Solid Waste Disposal Facility (SWDF) has not been decanted. Last decant occurred in October 2003.	Effluent Discharge Rate:	Equal to pump rate
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Concerns:

- Discharge of the Sewage Lagoon (figures 6-8) was requested on September 22, 2004. As last year, approval of the discharge at that time was rejected due to high pH levels (above pH 9). As per our letter dated October 05, 2004 fall emergency decant was authorized to maintain structural integrity of the containment berm (figure 6,7) and thus Sewage Lagoon (Part D5, D6). All other parameters were sampled on time and met license effluent quality standards. In the future, industrial discharges to this lagoon will be discouraged until the Hamlet can meet their Water License Discharge criteria. As a note the Hamlet was diligent and made every effort, through sampling and delaying discharge, to meet discharge criteria.
- As indicated last year the SWDF waste oil and hazardous materials area (Figure 12, 13) are becoming permanent storage areas. It is recommended that every effort be made to dispose of these materials at a certified disposal facility. Long term/permanent storage of this material is not recommended. It is only a matter of time before spills occur. It is understood that there is a plan to dispose of this material (waste oil) at Grubens
- No signs seen for waste segregation at SWDF. Signs should be posted for various areas including but not limited to: domestic garbage, tires, appliances, wood, bulky metals, and hazardous wastes (oils, paints, lead-acid batteries) if accepted.
- O&M plan deemed incomplete by the NWT Water Board. September 2000 Drafts as prepared by UMA engineering have been received at this office. Please ensure that these documents are updated to reflect the current conditions of the Waste Disposal Facilities.

Notes:

- Lagoon green color indicating aerobic conditions (figure 8).
- No leaks found at sewage Lagoon and SWDF containment berm (figure 6, 7 and 14, 15 respectively).
- In general considerable work has been done at the SWDF including the old bulk metal waste storage area. This material was crushed and buried. The hamlet is looking for a new bulk metals waste disposal area.
- Currently understood that the landfill does not accept hazardous wastes (used oil, batteries, etc). Currently used oil is disposed of at Grubens and is incinerated. Public does not drop off used oil at this facility.

FUEL STORAGE – Figures 1-4 attached

Owner:	Hamlet	Operator:	Hamlet	Condition of tanks:	Poor (Figure 1)
Berms & Liners	Not bermed	Water within Berm:	N/A	Evidence of Leaks:	Yes (Figure 1, 4)
Drainage Pipes:	N/A	Pump Station and Catchment Berm:	N/A		
Pipeline Condition:	N/A	Not Applicable:			

Concerns:

1. See concern 1 & 2 under water supply.

SURVEILLANCE NETWORK PROGRAM – Figures 5-8,9,15 attached

Samples Collected (Hamlet)	-Hamlet collected various samples prior to decanting the Sewage Lagoon in 2004. -Hamlet collected a sample at the SNP 0714-3. Discharge had yet been conducted.		
(DIAND)	-Samples taken at SNP station 0714-1, 2, 3. -Sample taken of ocean water at North East most end of town (boat launch). -Ten part composite sample was taken at the SWDF pond along the north west containment berm (figure 14). -All results pending. -2003 sample results (attached to this inspection report) are summarized below: <ul style="list-style-type: none"> • SNP 0714-1 – No concerns noted. • SNP 0714-2 – High pH (9.75) above permit limits for discharge, as per CCME guidelines there is concern of ammonia toxicity to receiving environments at high pH levels. • SNP 0714-3 – Elevated parameters likely caused by ocean influence. No concerns. 		
Signs Posted: SNP	-Yes SNP 0714-2 & 3 posted (figures 5, 9). Please see concern 1 below.	Warning	No warnings seen
Records & Reporting:	-The 2003 Annual report not completed. Hamlet was reminded that the Annual Report was Due March 31, 2004. Please ensure that all abandonment and restoration work, as done at the SWDF, is summarized. -Condition Assessment Report of Tuktoyaktuk Sewage Lagoon submitted August 11, 2004. -Tuktoyaktuk Landfill Condition Assessment Report submitted July 14, 2004. -Understanding that IEG is currently working on the “assessment of the effects of sewage discharge on the waters of Kugmallit Bay”.		
Geotechnical Inspection	Submitted – See UMA Condition Assessment reports dated September 2000.		

Concerns:

1. SNP 0714-2 & 3 signs (figures 5 & 9 respectively) posted but should be relocated. Please place SNP 0714-2 & 3 where water samples are taken at locations identified in figures 7 & 15 respectively.

Notes:

- As a reminder please note that any discharge from the SWDF lagoon must occur between September 15 and October 31 (Part D13). Also see conditions for discharge (Part D14-D19).

Non-Compliance / Violations of Act of Licence:	<ol style="list-style-type: none"> 1. Part B, section 1. 2003 Annual Report not submitted. 2. Part D, section 9. The “terms of reference for an assessment of the effects of sewage discharge on the waters of Kugmallit Bay” not submitted. 3. Part D, section 10. Report as per D9 not completed and was due December 1, 2003. 4.
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General / Additional Inspection Comments:

- *****Hamlet was reminded by letter on May 5, in the 2001-2003 inspection reports and during this inspection that the Hamlets Water Licence Expires April 29, 2005. Recommended Submission of renewal document was August 31, 2004.*****
- A copy of the Water Licence was produced.

Additional Comments Attached:	Yes	No	X
Figures Attached:	Yes	X	No

Inspectors Name Kevin R. Glowa Water Resource Officer	Inspectors Signature
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LIST OF FIGURES FOR WATER LICENCE INSPECTION REPORT

DATE:	September 23, 2004	COMPANY REP:	Debbi Raddi/Peter Nogasak
LICENSEE:	Incorporated Hamlet of Tuktoyaktuk	LICENCE #:	N7L3-0714

Figure 1. Water Supply. Fuel storage at water treatment plant.



Figure 2. Water Supply. Fuel storage at water treatment plant and chlorination system.



Figure 3. Water Supply. Water intake pumping station at Kudlak Lake



Figure 4. Water Supply. Sea Can Fuel Storage Container at Figure 3 and spill 04-572 clean up efforts.



Figure 5. Waste Disposal. Sewage Lagoon entrance and SNP 0714 sign.



Figure 6. Waste Disposal. Sewage Lagoon (south west end) containment berm.



Figure 7. Waste Disposal. Proper location for SNP 0714-2 sign.



Figure 8. Waste Disposal. Sewage Lagoon SNP 0714-2 sampling area.



Figure 9. Waste Disposal. SWDF entrance and SNP 0714-3 SNP sign.



Figure 10. Waste Disposal. SWDF domestic garbage disposal area.



Figure 11. Waste Disposal. SWDF north west view with old bulk metal waste storage facility in the background.



Figure 12. Waste Disposal. SWDF waste oil and hazardous wastes area.



Figure 13. Waste Disposal. SWDF waste oil and hazardous wastes disposal area.



Figure 14. Waste Disposal. SWDF north west containment berm.



Figure 15. Waste Disposal. SWDF north west containment berm and proper location for SNP 0714-3 sign.

