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A. Owners information		
Type of ownershipSo(select one)Ot	ble proprietorship	nip Corporation Society
Legal owner (ex: Jane Doe or 123456 Lto	d.): Common Name of Wat	er System (ex: City of Fort Frank Water System):
Owner contact name:		Owner contact number:
B. Contact information		
Site information:		
Person in charge (operator):		Position: Owner Manager Other
Street address:		
City / municipality:	Postal code:	Phone / Fax:
Cell:	Email:	
Mailing / Billing information:	as site information	
Mailing address:		
City / municipality:	Postal code:	Phone:
Cell:	Owner Email:	
Reason for applyingNew systemExisting (not previ	system needing approval iously approved)	System upgrade / alteration / extension
Components being modified: (Check all that apply)	New system Source*	Treatment Storage Distribution
Section to be completed:	All parts Part A	Part A and B Part C Part D
Describe Proposed Works **		

* New OR not previously approved water source

** For watermains, list length of each size, class, type – eg, 85m of 150mm C900 DR18 PVC – include # hydrants, # valves



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Submission Package Checklist – to be completed for all applications in addition to "Parts" selected above.	Enclosed	Previously Submitted	Not Applicable
Cover Letter (explain the context of application)			
Manufacturer's Technical Specifications (for new or altered equipment, specify model, settings, NSF validation, test protocols)			
Design Brief (eg, assumptions and design parameters)			
Plans and Drawings (11x17 or 8.5x 11 preferred in pdf electronic format)			
Either: A) Three Basic Plans (i, ii, iii)			
i. Location Map (regional setting, how to get there from the nearest town)			
 ii. Site Plan (intake, treatment, storage, watermains, valves, hydrants, clean-outs, sampling locations - include contaminant sources like sewers, lagoons, etc.) 			
iii. Schematic Diagram(s) – water flow sequence. See Appendix B for examples			
Or B) Engineered Plans (plan and profile, piping and instrumentation, etc.)			
Source Approval			
Completed by EHO if a new source or a source that has not previously been approved is proposed			
Reference any additional plans, drawings, reports, etc. that will be submitted wi	th your applie	cation below:	

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Does the water system have an existing Operating Permit under the Drinking Water Protection Act?	Yes	🗌 No
Is the water system currently on a Boil Water Notice or Water Quality Advisory?	Yes	🗌 No
Is the water system operated only part of the year (seasonal operations e.g., camps, resorts)?	Yes	🗌 No
Is the system classified as a small water system (max. 500 users within any 24 h period)?	Yes	🗌 No
Is this application for the purposes of a subdivision under the Local Services Act?	Yes	🗌 No
Will the Water System operate as a <i>Water Utility</i> ?	Yes	🗌 No
Are all proposed works located on public right-of-ways or registered easements?	Yes	No
Does the proposal involve any strata lots or buildings?	Yes	🗌 No
Are plans and drawings signed, sealed, and dated by a Professional Engineer?	Yes	🗌 No
Incomplete applications will not be processed and will be returned to the applicant.		

Please mail or email the submission package (or any questions) to:

Att: Regional Public Health Engineer Northern Health Authority, Public Health Protection

4th Floor – 1600 3rd Avenue, Prince George, BC V2L 3G6

Phone: 250-565-7322

Email: PHE@northernhealth.ca

Please allow 30 to 60 days for normal processing of Waterworks Construction Permit Applications. The works may be inspected by Northern Health during or following construction. You also require a valid Water System **Operating Permit** before supplying water to users. Operational details should be discussed with your local Drinking Water Officer / Environmental Health Officer.

Submitted by:		Signature:		
Representing:	Owner	Operator	Designer	Legal Agent for Owner
Address: as above				
Telephone(s):		Email:		



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Par	t A New or Modified Raw Water Sour	ce					
	 Groundwater Source Well construction: drilled dug driven other not sure Well pit: drained sump pump Flowing (artesian) well Well pump: submersible hand turbine other none 	 Aquifer type: sand/gravel bedrock not sure Aquifer protection: confined unconfined not sure Attached documents: driller's well log hydrogeologist's report GUDI / GARP screening 	 Surface Water Source MoE Water Licence Lake Stream Spring DFO approved intake Low-lift pump Hauled Water Source 				
Source	 Attach lab report on chemical, physical Water quality concerns iron manganese arsenic cysts viruses DBPs Odour: none slight strong Taste: none sweet salty Sampling tap for raw water quality Does raw, untreated, unfiltered source wa for all <i>health-based</i> parameters? for other <i>aesthetic</i> parameters? 	I, and bacteriological raw untreated, source water quality U uranium sulphur hardness turbidity Other (specify: g (describe: bitter metallic other (Describe: bitter metallic other (Describe: Ves No List any exceedances: Yes No List any exceedances:] colour [] UVT [] coliforms])])) es:				
Par	t B New or Modified Treatment Work	<u>م</u>					
- ui	What is the design flow for the treatment v	vorks? gpm, m³⁄d, specify:					
	 Attach supporting calculations for design Discharge backwash/reject water to: 	gn flow, if available, based on population served, fixture co	unts, etc.				
Treatment	 Source water protection plan Bank (subsurface) filtration Coarse pre-filter (µm) Oxidation: aeration Cl₂ KMnO₄ Coagulant: PACI Alum other: flocculation / sedimentation Rapid sand filter (backwashable) Multi-media filter: gravel sand anthracite GAC garnet other greensand pyrolusite BIRM Water softener (□ Na □ K) Anion exchange (target:) 	Activated carbon: granular, block, powdered, other: Membrane cartridge filter(s) µm →µm →µm (abs) Pressure drop measured Chlorination: feed pump batch Ozone disinfection Contact tank volume? gal L CT?mg·min/L Membrane filtration: micro ultra nano RO Validation: NSF EPA none Integrity testing: direct indirect	Slow sand filtration UV disinfection NSF 55 Class A Class B UVT value? % UV dose? mJ/cm² Point-of- Entry Use #: Chlorine monitor/log Turbidity monitor/log Sampling taps #: Qualified operator Other:				
	Does the treatment comply with 4-3-2-1-0 treatment objectives? Yes No Not required Required for surface water and groundwater at risk of containing pathogens as per the BC Drinking Water Treatment Objectives (Microbiological)						

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Par	C New or Modified Storage (Raw or Tr	reated Water)				
Storage	Raw Water Storage Volume? gal L m³ Covered Uncovered Above ground Below ground Pressurized Vented Has provision been made for backflow preve At average flow conditions, how long will wat	 Treated Water Storage Volume? gal L m³ Pressure tank(s) Clear well Cistern(s) High lift pump kW hp ntion and a sampling tap at all storage sites? er be stored in the tank or reservoir last? 	 Distribution Storage Volume? gal L m³ Rechlorination stations Distance to first user? metres feet Yes No hours days 			
Par	D New or Modified Distribution Syste	m				
	Watermain replacement Watermain	extension Pumping station Other	(specify)			
-	How many new lots/units will be serviced?	# fee simple units:	# fee simple units:			
	Does the waterworks produce enough water	(quantity) to service existing and future lots?	Yes No			
	Will all watermains have 3 metres clear <i>horizontal separation</i> from sewers and drains? Yes If NO, propose protection measures on plans and submit Schedule A below.					
ution	At all sewer/drain crossings, and wherever the normal 3 m <i>horizontal separation</i> is not possible, are the watermains at least 450 mm (18 inches) above the sanitary or storm sewer?					
trib	If NO, propose protection measures on pl	ans and submit Schedule A below.				
Dis	Do all service connections meet the above se	eparation guidelines?	Yes No			
	Have blow-offs or hydrants been provided for	flushing purposes on all dead-ends and low	points? Yes No			
	Does the location of valves permit flushing to	be carried out effectively?	Yes No			
	Have valves, hydrants, or services designed	to provide air relief been provided at all high p	points? Yes No			
	Will water for flushing, testing, and disinfection	n come from a hydrant (testable BFP) or wat	er hauler? Yes No			
	Do you have enough water pressure to achie	ve a flushing velocity of at least 0.8 m/s (2.5	ft/s)? Yes No			
Sch	edule A: (Attach a separate page if neces	sary, and refer to the <i>Guideline: Sewer</i> –	Watermain Conflicts for more details.)			

001	Schedule A. (Allach a separate page in necessary, and refer to the Schedule.) Sewer – Watermain Sommets for more details.)					
#	Street Name	Station (0+000)	Horizontal Separation (m)	Vertical Separation ^a (mm)	Proposed Protective Measures	
1						
2						
3						

^a Vertical Separation = elevation of bottom sewer - elevation of top of watermain (can be negative)

How will you disinfect the new pipes and equipment before putting them in service following construction activities?				
AWWA C651-C654				
MMCD Section 02666				
No disinfection planned				
Other (describe)				

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Appendix A: Required Water Quality Parameters

Core Parameters	Guideline
E. Coli	[none detected]
Total Coliforms	[none detected]
□ HPC ⁽¹⁾ [~	100-500 CFU/mL]

Alkalinity	[~30-500 mg/L]
Chloride	[250 mg/L]
	[15 TCU]
Electrical Conductivity	[~ 800 µS/cm]
Fluoride	[1.5 mg/L]
Hardness	[~ 250 mg/L]
Langelier Saturation Index	[~-2 to + 2]
Metals Scan	[varies ⁽²⁾]
Nitrogen species ⁽³⁾ :	
Ammonia – N	[~1.5 mg/L]
Organic N	[~0.15 mg/L]
Nitrate – N	[10 mg/L]
Nitrite – N	[1 mg/L]
□ pH	[6.5 – 8.5]
Sulphate	[500 mg/L]
Total Dissolved Solids (TDS)	[~ 500 mg/L]
Total Organic Carbon (TOC)	[2.5 mg/L]
Turbidity	[~1 NTU]
Odour	[describe]

May require	Guideline
UV Transmittance (UVT) ⁽⁴⁾	[80%]
Disinfection By-Products (DBPs)	5)
Trihalomethanes (THMs)	[0.100 mg/L]
Haloacetic Acids (HAAs)	[0.080 mg/L]
Bromide	[0.050 mg/L]
Tannins and Lignin ⁽⁶⁾	[~0.400 mg/L]
Iron and Sulphate Bacteria ⁽⁷⁾	[presence]
Sulphide ⁽⁸⁾	[0.050 mg/L]
Hydrocarbons ⁽⁹⁾	
Benzene	[0.005 mg/L]
Toluene	[0.024 mg/L]
Ethylbenzene	[0.002 mg/L]
	[0.300 mg/L]



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Appendix A: Required Water Quality Parameters (cont.)

General Comments

- The sampler must make arrangements for receiving and shipping of chemical / physical sample bottles and coolers with an accredited private lab. Northern Health may accept bacteriological samples only.
- Analysis of additional parameters may be required based on the results of the initial analysis and on potential impact by nearby sources of contamination. The required parameters should be confirmed with Northern Health before sampling.
- The analytical detection limit must be less than 10% of the Guideline for Canadian Drinking Water Quality where
 applicable. Other analyses must provide sufficient information to reasonably assess the water suitability for domestic use
 and to determine what, if any, treatment might be needed. Analyses must be conducted in accordance with the methods
 prescribed in Standard Methods (latest edition).
- Analyses should be for total or closely equivalent concentrations, to represent potential quality problems.
- A copy of all analytical results must be sent to the Northern Health Officer responsible for the water system.

Notes

- 1. May be omitted if bacterial growth is not found during Total Coliform test lab to note "Other bacterial growth not present".
- Total metals required. Dissolved metals optional, but recommended if turbidity is elevated. Scan to include both highand low level metals: Aluminum (if coagulant used), Antimony(0.006), Arsenic (0.010), Barium (1), Boron (5), Cadmium(0.005), Calcium (~ 100), Chromium (0.050), Copper (2, 1), Iron(0.300), Lead (0.005), Magnesium (~ 30), Manganese (0.12;0.02), Phosphorus (~ 0.100), Potassium (~ 400), Selenium(0.010), Sodium (20-200; 1000), Zinc (5), Uranium (0.020) [expand scan if zone is mineralised to include Mercury (0.001)].

* For the most up-to-date limits, refer to the Guidelines for Canadian Drinking Water Quality

- 3. Required for source water characterisation. If all are less than 1 mg/L as N, later samples may be analyzed for **Total N** only.
- 4. Required if **UV disinfection** is being considered as part of the water treatment process. The test must be conducted on a RAW, UNFILTERED water sample. [Modified version of Standard Method 5910B where the sample is not filtered or pH adjusted.]
- 5. Required if **chlorination** is used or proposed and TOC greater than 2.5 mg/L. For new sources, specify *"DBP formation potential"*. Different DBPs are required for **chlorine dioxide** or ozone disinfection.
- 6. Required for TOC greater than 2.5 mg/L and/or color greater than 15 TCU.
- 7. Required if bacterial regrowth is suspected in well or distribution piping. Contact laboratory for sampling procedure.
- 8. Required if unsatisfactory **odor** is suspected. Analyse on site or preserve sample. Contact laboratory for sampling procedure.
- 9. Required if hydrocarbon / gasoline type contamination is suspected. Contact laboratory for sampling procedure.



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Appendix B: Example Schematic Diagram for Typical Water Systems



Figure 3. (EXAMPLE ONLY) Typical Small Water System Surface Water Treatment Train



Figure 4. (EXAMPLE ONLY) Typical Secure Groundwater Treatment Train with Monitoring and Control



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