



## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Glenmore Ellison Improvement District 445 Glenmore Road KELOWNA, BC V1V 1Z6	<b>WORK ORDER</b>	23K1689
<b>ATTENTION</b>	Chris Mackay	<b>RECEIVED / TEMP REPORTED</b>	2023-11-14 14:46 / 12.8°C 2023-11-21 15:27
<b>PO NUMBER</b>		<b>COC NUMBER</b>	eCOC#00008185
<b>PROJECT</b>	Drinking Water		
<b>PROJECT INFO</b>	Comprehensive Samples - Okanagan Lake Source		

### Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

#### *Big Picture Sidekicks*



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

#### *We've Got Chemistry*



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

#### *Ahead of the Curve*



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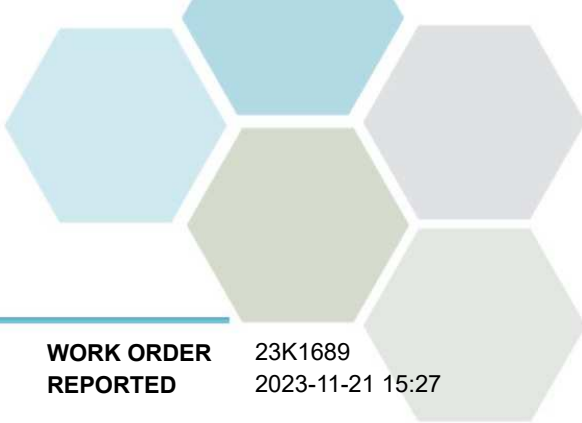
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

1-888-311-8846 | [www.caro.ca](http://www.caro.ca)

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



# TEST RESULTS

**REPORTED TO PROJECT** Glenmore Ellison Improvement District  
Drinking Water

**WORK ORDER REPORTED** 23K1689  
2023-11-21 15:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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**Okanagan Lake P/S (RAW) (23K1689-01) | Matrix: Drinking Water | Sampled: 2023-11-14 10:45**

**Anions**

Chloride	6.01	AO ≤ 250	0.10 mg/L	2023-11-16	
Fluoride	0.12	MAC = 1.5	0.10 mg/L	2023-11-16	
Nitrate (as N)	0.023	MAC = 10	0.010 mg/L	2023-11-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-11-16	
Sulfate	31.5	AO ≤ 500	1.0 mg/L	2023-11-16	

**Calculated Parameters**

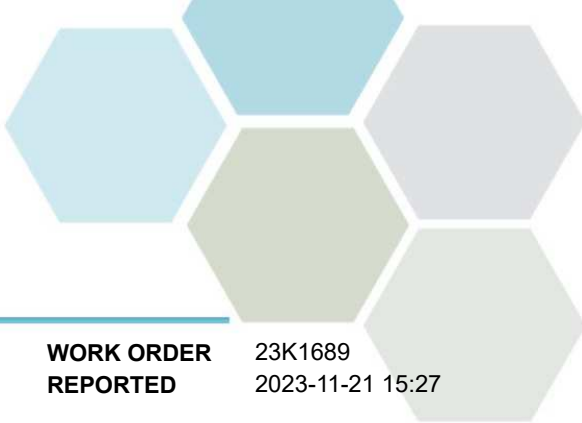
Hardness, Total (as CaCO3)	130	None Required	0.500 mg/L	N/A	
Langelier Index	-0.4	N/A	-5.0	2023-11-20	CT6
Solids, Total Dissolved	175	AO ≤ 500	1.00 mg/L	N/A	

**General Parameters**

Alkalinity, Total (as CaCO3)	127	N/A	1.0 mg/L	2023-11-17	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-11-17	
Alkalinity, Bicarbonate (as CaCO3)	127	N/A	1.0 mg/L	2023-11-17	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-11-17	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-11-17	
Colour, True	5.1	AO ≤ 15	5.0 CU	2023-11-15	
Conductivity (EC)	289	N/A	2.0 µS/cm	2023-11-17	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020 mg/L	2023-11-18	
pH	7.43	7.0-10.5	0.10 pH units	2023-11-17	HT2
Temperature, at pH	23.7	N/A	°C	2023-11-17	HT2
Turbidity	0.22	OG < 1	0.10 NTU	2023-11-15	

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-11-17	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-11-17	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2023-11-17	
Barium, total	0.0223	MAC = 2	0.0050 mg/L	2023-11-17	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-11-17	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-11-17	
Calcium, total	35.8	None Required	0.20 mg/L	2023-11-17	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-11-17	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-11-17	
Copper, total	0.00106	MAC = 2	0.00040 mg/L	2023-11-17	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2023-11-17	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2023-11-17	
Magnesium, total	9.84	None Required	0.010 mg/L	2023-11-17	
Manganese, total	0.00073	MAC = 0.12	0.00020 mg/L	2023-11-17	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2023-11-21	
Molybdenum, total	0.00346	N/A	0.00010 mg/L	2023-11-17	
Nickel, total	0.00046	N/A	0.00040 mg/L	2023-11-17	
Potassium, total	2.45	N/A	0.10 mg/L	2023-11-17	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-11-17	



# TEST RESULTS

**REPORTED TO PROJECT** Glenmore Ellison Improvement District  
Drinking Water

**WORK ORDER REPORTED** 23K1689  
2023-11-21 15:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>Okanagan Lake P/S (RAW) (23K1689-01)   Matrix: Drinking Water   Sampled: 2023-11-14 10:45, Continued</b>					
<i>Total Metals, Continued</i>					
Sodium, total	11.9	AO ≤ 200	0.10 mg/L	2023-11-17	
Uranium, total	0.00250	MAC = 0.02	0.000020 mg/L	2023-11-17	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2023-11-17	

**UV Plant (PRE UV - RAW) Sink (23K1689-02) | Matrix: Drinking Water | Sampled: 2023-11-14 12:10**

**Anions**

Chloride	6.02	AO ≤ 250	0.10 mg/L	2023-11-16	
Fluoride	0.12	MAC = 1.5	0.10 mg/L	2023-11-16	
Nitrate (as N)	0.023	MAC = 10	0.010 mg/L	2023-11-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-11-16	
Sulfate	31.6	AO ≤ 500	1.0 mg/L	2023-11-16	

**Calculated Parameters**

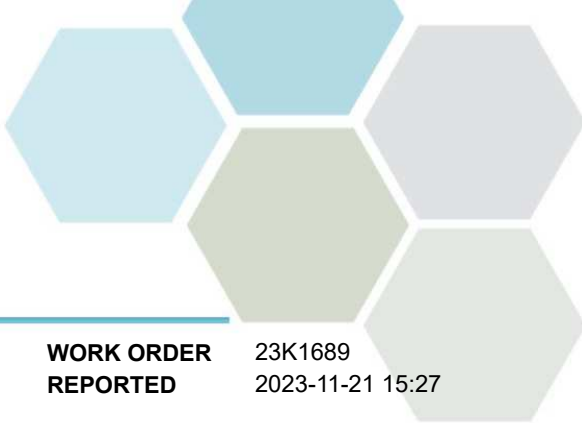
Hardness, Total (as CaCO3)	127	None Required	0.500 mg/L	N/A	
Langelier Index	-0.3	N/A	-5.0	2023-11-20	CT6
Solids, Total Dissolved	173	AO ≤ 500	1.00 mg/L	N/A	

**General Parameters**

Alkalinity, Total (as CaCO3)	125	N/A	1.0 mg/L	2023-11-17	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-11-17	
Alkalinity, Bicarbonate (as CaCO3)	125	N/A	1.0 mg/L	2023-11-17	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-11-17	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-11-17	
Colour, True	5.2	AO ≤ 15	5.0 CU	2023-11-15	
Conductivity (EC)	291	N/A	2.0 µS/cm	2023-11-17	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020 mg/L	2023-11-18	
pH	7.59	7.0-10.5	0.10 pH units	2023-11-17	HT2
Temperature, at pH	24.0	N/A	°C	2023-11-17	HT2
Turbidity	0.25	OG < 1	0.10 NTU	2023-11-15	

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-11-17	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-11-17	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2023-11-17	
Barium, total	0.0218	MAC = 2	0.0050 mg/L	2023-11-17	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-11-17	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-11-17	
Calcium, total	34.2	None Required	0.20 mg/L	2023-11-17	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-11-17	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-11-17	
Copper, total	0.00110	MAC = 2	0.00040 mg/L	2023-11-17	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2023-11-17	



# TEST RESULTS

**REPORTED TO PROJECT** Glenmore Ellison Improvement District  
Drinking Water

**WORK ORDER REPORTED** 23K1689  
2023-11-21 15:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**UV Plant (PRE UV - RAW) Sink (23K1689-02) | Matrix: Drinking Water | Sampled: 2023-11-14 12:10, Continued**

**Total Metals, Continued**

Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2023-11-17	
Magnesium, total	<b>10.0</b>	None Required	0.010	mg/L	2023-11-17	
Manganese, total	<b>0.00076</b>	MAC = 0.12	0.00020	mg/L	2023-11-17	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-11-21	
Molybdenum, total	<b>0.00339</b>	N/A	0.00010	mg/L	2023-11-17	
Nickel, total	<b>0.00043</b>	N/A	0.00040	mg/L	2023-11-17	
Potassium, total	<b>2.49</b>	N/A	0.10	mg/L	2023-11-17	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-11-17	
Sodium, total	<b>12.0</b>	AO ≤ 200	0.10	mg/L	2023-11-17	
Uranium, total	<b>0.00254</b>	MAC = 0.02	0.000020	mg/L	2023-11-17	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2023-11-17	

**Clearwell Outflow (23K1689-03) | Matrix: Drinking Water | Sampled: 2023-11-14 12:30**

**Anions**

Chloride	<b>8.39</b>	AO ≤ 250	0.10	mg/L	2023-11-16	
Fluoride	<b>0.12</b>	MAC = 1.5	0.10	mg/L	2023-11-16	
Nitrate (as N)	<b>0.018</b>	MAC = 10	0.010	mg/L	2023-11-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-11-16	
Sulfate	<b>31.7</b>	AO ≤ 500	1.0	mg/L	2023-11-16	

**Calculated Parameters**

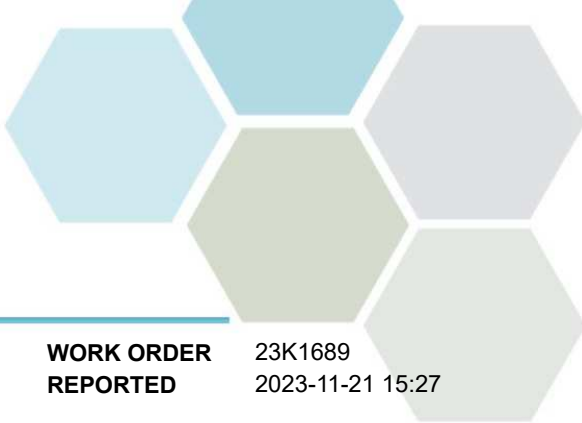
Hardness, Total (as CaCO3)	<b>129</b>	None Required	0.500	mg/L	N/A	
Langelier Index	<b>-0.3</b>	N/A	-5.0		2023-11-20	CT6
Solids, Total Dissolved	<b>175</b>	AO ≤ 500	1.00	mg/L	N/A	

**General Parameters**

Alkalinity, Total (as CaCO3)	<b>123</b>	N/A	1.0	mg/L	2023-11-17	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-11-17	
Alkalinity, Bicarbonate (as CaCO3)	<b>123</b>	N/A	1.0	mg/L	2023-11-17	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-11-17	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-11-17	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2023-11-15	
Conductivity (EC)	<b>293</b>	N/A	2.0	µS/cm	2023-11-17	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2023-11-18	
pH	<b>7.55</b>	7.0-10.5	0.10	pH units	2023-11-17	HT2
Temperature, at pH	<b>24.2</b>	N/A		°C	2023-11-17	HT2
Turbidity	<b>0.20</b>	OG < 1	0.10	NTU	2023-11-15	

**Total Metals**

Aluminum, total	<b>0.0054</b>	OG < 0.1	0.0050	mg/L	2023-11-17	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-11-17	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2023-11-17	



# TEST RESULTS

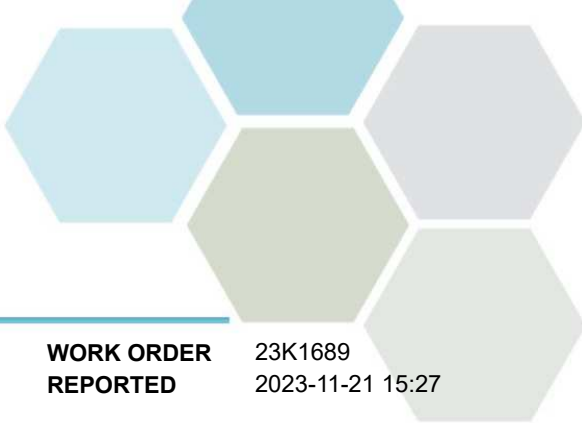
**REPORTED TO PROJECT** Glenmore Ellison Improvement District  
Drinking Water

**WORK ORDER REPORTED** 23K1689  
2023-11-21 15:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>Clearwell Outflow (23K1689-03)   Matrix: Drinking Water   Sampled: 2023-11-14 12:30, Continued</b>					
<i>Total Metals, Continued</i>					
Barium, total	0.0215	MAC = 2	0.0050 mg/L	2023-11-17	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-11-17	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-11-17	
Calcium, total	35.4	None Required	0.20 mg/L	2023-11-17	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-11-17	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-11-17	
Copper, total	0.00142	MAC = 2	0.00040 mg/L	2023-11-17	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2023-11-17	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2023-11-17	
Magnesium, total	9.85	None Required	0.010 mg/L	2023-11-17	
Manganese, total	0.00065	MAC = 0.12	0.00020 mg/L	2023-11-17	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2023-11-21	
Molybdenum, total	0.00345	N/A	0.00010 mg/L	2023-11-17	
Nickel, total	0.00042	N/A	0.00040 mg/L	2023-11-17	
Potassium, total	2.46	N/A	0.10 mg/L	2023-11-17	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-11-17	
Sodium, total	11.9	AO ≤ 200	0.10 mg/L	2023-11-17	
Uranium, total	0.00254	MAC = 0.02	0.000020 mg/L	2023-11-17	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2023-11-17	

**Sample Qualifiers:**

- CT6 Results were based on lab temperature & lab pH.
- HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Glenmore Ellison Improvement District  
Drinking Water

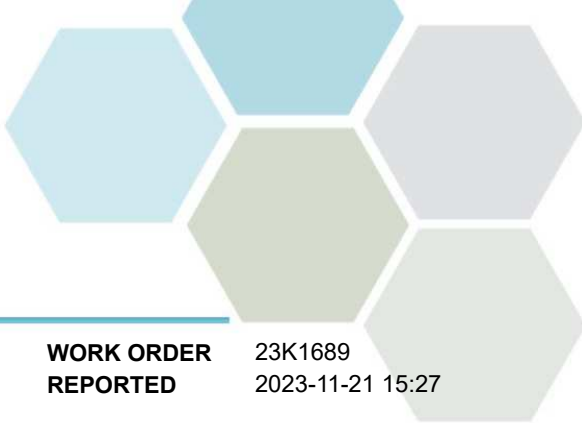
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Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2020)	Nephelometry	✓	Kelowna

*Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method*

### Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
AO	Aesthetic Objective
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



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**REPORTED TO PROJECT** Glenmore Ellison Improvement District  
Drinking Water

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2023-11-21 15:27

**General Comments:**

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Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager: [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

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