Water Sciences Laboratory Analyte/Protocol Price List 2020

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Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
STANDARD				
WATER				
Major elemental cations **Protocol ID:** 01_02_01 **Reference:** "Standard Methods 3111 - Atomic Absorption Spectrophotometry", **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add nitric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**Calcium** **Potassium** **Magnesium** **Sodium**	0.1 mg/L 0.1 mg/L 0.1 mg/L 0.1 mg/L	**$11.00***	$8.80*
Ammonia-N **Protocol ID:** 02_01_01 **Reference:** "EPA 103A Ammonia-N in Drinking and Surface Waters, Domestic and Industrial Wastes". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**Ammonia-N**	0.01 mg/L	**$13.20**	$10.56

Reporting Limits are subject to verification * = protocol cost is per analyte & = add digestion cost of $8/sample

Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Nitrate-N with nitrite-N subtraction **Protocol ID:** 02_02_01 **Reference:** (1993), "EPA 353.2 Determination of Nitrate-Nitrite Nitrogen by Automated Colorimetry". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 2 Days **Estimated Turnaround Time:** 10 Days	**Nitrate-N**	0.01 mg-N/L	**$13.75**	$11.00
Nitrate-N+nitrite-N **Protocol ID:** 02_03_01 **Reference:** Seal Analytical "EPA 127A Nitrate-N + Nitrite-N in Drinking and Surface Waters Domestic and Industrial Wastes". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**Nitrate-N**	0.01 mg/L	**$13.20**	$10.56
Nitrite-N **Protocol ID:** 02_04_01 **Reference:** Seal Analytical (2009), "EPA 116A Nitrite-N in Drinking Waters, and Domestic and Industrial Wastes". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 2 Days **Estimated Turnaround Time:** 10 Days	**Nitrite-N**	0.004 mg/L	**$16.50**	$13.20

Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Silica **Protocol ID:** 02_05_01 **Reference:** Seal Analytical (2009), "EPA 232A Silica in Drinking, saline and surface waters, and Domestic and Industrial Wastes". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 30 Days **Estimated Turnaround Time:** 44 Days	**SiO2**	0.2 mg/L	**$13.20**	$10.56
Soluble phospate **Protocol ID:** 02_06_01 **Reference:** Seal Analytical "EPA-118-A". (1993), "EPA 365.1 Determination of Phosphorus by Semi-Automated Colorimetry". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 2 Days **Estimated Turnaround Time:** 2 Days	**Phosphate-P**	0.02 mg/L	**$13.20**	$10.56
Total Kjeldahl phosphorus **Protocol ID:** 02_08_01 **Reference:** Seal Analytical (2009), "EPA 135A Total Phosphorus-P in Kjedahl Digests of Drinking water, domestic and Industrial Wastes (copper catalyst Method)". (1974), "EPA 365.4 Phosphorous, Total (Colorimetric, Automated, Block Digester AA II)". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**Total Kjeldahl Phosporus**	0.1 mg/L	**$27.50**	$22.00

Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Total dissolved phosphorus **Protocol ID:** 02_09_01 **Reference:** (1993), "EPA 365.1 Determination of Phosphorus by Semi-Automated Colorimetry". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**Total Dissolved P**	0.01 mg/L	**$22.00**	$17.60
Total nitrogen **Protocol ID:** 02_10_01 **Reference:** "Standard Methods 4500P", **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**Total Nitrogen**	0.05 mgN/L	**$22.00**	$17.60
Total phosphorus **Protocol ID:** 02_11_01 **Reference:** Seal Analytical "EPA 119A Phosphorus-P, total, in Surface and Saline Waters and Domestic and Industrial". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**Total Phosphorus**	0.02 mgP/L	**$22.00**	$17.60
Total Kjeldahl Nitrogen **Protocol ID:** 02_13_01 **Reference:** "Standard Methods 4500N org - Semi-Micro", **Sample Container:** 125 mL polyethylene bottle	**Total Kjeldahl Nitrogen**	0.2 mg N/L	**$27.50**	$22.00

Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Preservation: Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days				
Total dissolved nitrogen **Protocol ID:** 02_14_01 **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**TDN**	0.01 mg/L	**$22.00**	$17.60
Chemical oxygen demand **Protocol ID:** 03_02_01 **Reference:** (1999), "Standard Methods 5220D - Chemical Oxygen Demand, Closed Reflux, Colorimetric Method", **Sample Container:** 40 mL septum vial **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**COD**	25 mg/L	**$22.00**	$17.60
Conductivity **Protocol ID:** 03_03_01 **Reference:** "Standard Methods 2510", **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 2 Days **Estimated Turnaround Time:** 10 Days	**Conductivity**	1 µS/cm	**$8.80**	$7.04
Dissolved oxygen **Protocol ID:** 03_04_01 **Reference:** "Standard Methods 4500O", **Sample Container:** 40 mL septum vial	**DO**	0.1 mg/L	**$17.60**	$14.08

Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Preservation: Pending **Holding Time:** 2 Days **Estimated Turnaround Time:** 2 Days				
pH **Protocol ID:** 03_05_01 **Reference:** (2000), "Standard Methods 4500H - pH Value", **Sample Container:** 125 mL polyethylene bottle **Preservation:** None **Holding Time:** 2 Days **Estimated Turnaround Time:** 2 Days	**pH**	Pending	**$11.00**	$8.80
Free chlorine **Protocol ID:** 04_07_01 **Sample Container:** Pending **Preservation:** Pending **Holding Time:** 30 Days **Estimated Turnaround Time:** 28 Days	**Free chlorine** **Total chlorine**	Pending Pending	**$22.00**	$17.60
Dissolved organic carbon **Protocol ID:** 05_01_01 **Reference:** "Standard Methods 5310 - Total Organic Carbon", **Sample Container:** 40 mL septum vial **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**DOC**	0.05 mg C/L	**$22.00**	$17.60
Total organic carbon **Protocol ID:** 05_02_01 **Reference:** "Standard Methods 5310 - Total Organic Carbon", **Sample Container:** 40 mL septum vial **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC	**TOC**	0.05 mg C/L	**$22.00**	$17.60

Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Holding Time: 28 Days **Estimated Turnaround Time:** 42 Days				
Major anions **Protocol ID:** 10_01_01 **Reference:** (1993), "EPA 300 Determination of Inorganic Anions by Ion Chromatography". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 30 Days **Estimated Turnaround Time:** 44 Days	**Bromide** **Chloride** **Fluoride** **Nitrate-N** **Nitrite-N** **Phosphate-P** **Sulfate**	0.1 mg/L 0.1 mg/L 0.1 mg/L 0.1 mg/L 0.1 mg/L 0.1 mg/L 0.1 mg/L	**$27.50**	$22.00
Ammonia in water **Protocol ID:** 13_01_01 **Reference:** (2009), "SM4500NH3 Ammonia (Phenolate) in Potable and Surface Waters", **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**NH4-N**	Pending	**$11.00**	$8.80
Nitrate-N+nitrite-N in water **Protocol ID:** 13_03_01 **Reference:** (2000), "EPA353.2 Determination of Nitrate/Nitrite in Surface and Wastewaters by Flow Injection Analysis". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**NO2+NO3-N**	0.008 mg-N/L	**$11.00**	$8.80

Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Total solids **Protocol ID:** 17_01_01 **Reference:** (1997), "EPA 2540B Total Solids Dried at 103-105oC". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 30 Days **Estimated Turnaround Time:** 44 Days	**TS**	10 mg/L	**$11.00**	$8.80
Total suspended solids **Protocol ID:** 17_02_01 **Reference:** (1997), "EPA 2540D Total Suspended Solids Dried at 103-105oC". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 30 Days **Estimated Turnaround Time:** 44 Days	**TSS**	10 mg/L	**$11.00**	$8.80
Turbidity **Protocol ID:** 17_03_01 **Reference:** (1992), "Standard Methods 2130B - Turbidity: Nephelometric Method", **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 30 Days **Estimated Turnaround Time:** 44 Days	**Turbidity**	0.1 NTU	**$8.80**	$7.04
Total volatile solids **Protocol ID:** 17_04_01 **Reference:** (1997), "Standard Methods 2540G - Total, Suspended, and Volatile Solids in Solid and Semisolid Samples",	**TVS**	10 mg/L	**$8.80**	$7.04

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Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Sample Container: 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 30 Days **Estimated Turnaround Time:** 44 Days				
Volatile dissolved solids **Protocol ID:** 17_05_01 **Reference:** (1997), "Standard Methods 2540C - Volatile Dissolved Solids Dried at 180oC", **Sample Container:** 1 liter amber bottle **Preservation:** Cool, < 6ºC **Holding Time:** 30 Days **Estimated Turnaround Time:** 44 Days	**VDS**	10 mg/L	**$8.80**	$7.04
Volatile suspendedsolids **Protocol ID:** 17_06_01 **Reference:** (1997), "Standard Methods 2540E - Volatile Suspended Solids in Solid and Semisolid Samples", **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 30 Days **Estimated Turnaround Time:** 44 Days	**VSS**	10 mg/L	**$8.80**	$7.04
Water hardness by calculation **Protocol ID:** 17_07_01 **Reference:** "EPA 130.2 Hardness, Total (mg/L as CaCO3) (Titrimetric, EDTA)". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Add nitric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**Hardness (mgCaCO3/L)**	0.05 mg/L	**$10.00**	$8.00

Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Oil and grease **Protocol ID:** 17_08_01 **Reference:** (2009), "EPA 1664A Oil and Grease". **Sample Container:** Pending **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**Oil and Grease**	5 mg/L	**$55.00**	$44.00
Suspended sediment concentration **Protocol ID:** 17_10_01 **Reference:** (2013), "ASTM D3977 - 97", **Sample Container:** 250 mL plastic bottle **Preservation:** Cool, < 6ºC **Holding Time:** 30 Days **Estimated Turnaround Time:** 44 Days	**SSC**	0.5 mg/kg	**$11.00**	$8.80
Total disolved solids **Protocol ID:** 17_11_01 **Reference:** (1999), "EPA 160.1 Total Dissolved Solids (TDS)". **Sample Container:** 125 mL polyethylene bottle **Preservation:** Cool, < 6ºC **Holding Time:** 30 Days **Estimated Turnaround Time:** 44 Days	**TDS**	10 mg/L	**$11.00**	$8.80
Potentiometric tititration of alkalinity **Protocol ID:** 17_12_01 **Reference:** "Standard Methods 2320B", **Sample Container:** 250 mL plastic bottle	**Alkalinity as CaCO3** **Alkalinity as HCO3** **Initial pH**	10 mg/L 5 mg/L 1 mg/L	**$16.50**	$13.20

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Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Preservation: Cool, < 6ºC **Holding Time:** 7 Days **Estimated Turnaround Time:** 21 Days				
Bacteria in water **Protocol ID:** 17_13_01 **Reference:** "IDEXX Colilert-18 Test Kit for the Determination of E.coli and Coliform Bacteria in Water Samples", **Sample Container:** Sterile 120mL bottle **Preservation:** Cool, < 6ºC **Holding Time:** 2 Days **Estimated Turnaround Time:** 7 Days	**E. coli** **Total coliform**	1 MPN/100mL 1 MPN/100mL	**$22.00**	$17.60
SOLIDS				
Ammonia-N - solids **Protocol ID:** 02_01_02 **Reference:** (1993), "EPA 350.1 Determination of Ammonia Nitrogen by Semi-Automated Colorimetry". **Sample Container:** 125 mL wide mouth amber glass bottle **Preservation:** Frozen **Holding Time:** 60 Days **Estimated Turnaround Time:** 74 Days	**Ammonia-N**	0.1 µg/g soil	**$13.20**	$10.56
Nitrate-N+nitrite-N - solids **Protocol ID:** 02_03_02 **Reference:** (1993), "EPA 353.2 Determination of Nitrate-Nitrite Nitrogen by Automated Colorimetry". **Sample Container:** 125 mL wide mouth amber glass bottle **Preservation:** Frozen **Holding Time:** 60 Days	**Nitrate-N**	0.1 µg/g	**$13.20**	$10.56

Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Estimated Turnaround Time: 74 Days				
Total Kjeldahl nitrogen - solids **Protocol ID:** 02_07_02 **Reference:** Seal Analytical "EPA 111A Total Kjeldahl Nirtogen-N (copper catalyst) in Drinking, Ground, and Surface Waters, and Domestic and Industrial Wastes". **Sample Container:** 125 mL wide mouth amber glass bottle **Preservation:** Frozen **Holding Time:** 60 Days **Estimated Turnaround Time:** 74 Days	**Total Kjeldahl Nitrogen**	0.5 mg N/g	**$27.50**	$22.00
Total Kjeldahl phosphorus - solids **Protocol ID:** 02_08_02 **Reference:** (1974), "EPA 365.4 Phosphorous, Total (Colorimetric, Automated, Block Digester AA II)". **Sample Container:** 125 mL wide mouth amber glass bottle **Preservation:** Pending **Holding Time:** 30 Days **Estimated Turnaround Time:** 28 Days	**Total Kjeldahl P**	0.5 µg/g	**$27.50**	$22.00
Chemical oxygen demand **Protocol ID:** 03_02_02 **Reference:** (1999), "Standard Methods 5220D - Chemical Oxygen Demand, Closed Reflux, Colorimetric Method", **Sample Container:** 40 mL septum vial **Preservation:** Pending **Holding Time:** 28 Days **Estimated Turnaround Time:** 28 Days	**COD**	25 mg/L	**$22.00**	$17.60

Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Total organic carbon in soil **Protocol ID:** 04_06_02 **Reference:** Islam, K. R., & Weil, R. R. (1998), "A rapid microwave digestion method for colorimetric measurement of soil organic carbon.", *Communications in Soil Science & Plant Analysis* **29(15-**16), 2269-2284. **Sample Container:** 125 mL wide mouth amber glass bottle **Preservation:** Frozen **Holding Time:** 60 Days **Estimated Turnaround Time:** 74 Days	**TOC**	0.5 µg/g	**$22.00**	$17.60
Extractable organic carbon from soil **Protocol ID:** 05_01_02 **Reference:** "Standard Methods 5310 - Total Organic Carbon", **Sample Container:** 125 mL wide mouth amber glass bottle **Preservation:** Add sulfuric acid to pH < 2, Cool, < 6ºC **Holding Time:** 28 Days **Estimated Turnaround Time:** 42 Days	**DOC**	Pending	**$22.00**	$17.60
Chloride in soil **Protocol ID:** 10_02_02 **Reference:** "EPA 325.2 Chloride (Colorimetric, Automated Ferricyanide AAII)". **Sample Container:** 125 mL wide mouth amber glass bottle **Preservation:** Frozen **Holding Time:** 60 Days **Estimated Turnaround Time:** 74 Days	**Bromide** **Chloride** **Fluoride** **Nitrate** **Nitrite** **Phosphate** **Sulfate**	Pending 0.5 µg/g Pending Pending Pending Pending Pending	**$22.00**	$17.60
Others				

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Matrix Protocol	Analyte	Reporting Level	Protocol Cost	NU Cost (20% discount)
Major anions in plant tissue **Protocol ID:** 10_02_06 **Reference:** Schropper-Meier, G.; Kaiser, W. M. (1988), "Ion Homeostasis in Chloroplasts under Salinity and Mineral Deficiency", *Plant Physiol.* **87**, 822-827. **Sample Container:** Paper bag for plants or 125 mL glass amber bottle for other types **Preservation:** Frozen **Holding Time:** 60 Days **Estimated Turnaround Time:** 74 Days	**Bromide**	5 µg/g	**$27.50**	$22.00
	Chloride	5 µg/g		
	Fluoride	5 µg/g		
	Nitrate-N	5 µg/g		
	Nitrite-N	5 µg/g		
	Phosphate-P	5 µg/g		
	Sulfate	5 µg/g		

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