

**Yarmouk Water Company
Laboratories Directorate
TeleFax: 7401113**

Appendix –1

Drinking Water Laboratory Analysis 2018

<i>Analyses</i>	<i>Methods</i>	<i>Reference Methods</i>	<i>YWC Price JD</i>
<i>Sulfate</i>	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 SO₄⁻²</i>	<i>11</i>
	<i>Turbidimetric Method</i>	<i>Standard method 22 ND edition 4500 E SO₄⁻²</i>	<i>11</i>
<i>Nitrite</i>	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 NO₂ B</i>	<i>11</i>
<i>Nitrate</i>	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 NO₃ B</i>	<i>11</i>
	<i>Spectrophotometer _ UviKon</i>		<i>15</i>
<i>Chloride Cl</i>	<i>Titration</i>	<i>Standard method 22 ND edition 4500 Cl B</i>	<i>10</i>
	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 Cl B</i>	<i>11</i>
<i>Bromide Br</i>	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 Br B</i>	<i>11</i>
	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 F B</i>	<i>11</i>
<i>Fluoride F</i>	<i>Spectrophotometer Hach-DR3900</i>	<i>User manual method 8029-SM 4500 FD</i>	<i>15</i>
	<i>Spectrophotometer Hach-DR3900</i>	<i>User manual method 8155</i>	<i>15</i>
<i>Ammonia</i>	<i>Nessler Method Spectrophotometer _ UviKon</i>	<i>Standard method 16th edition /Colorimetric</i>	<i>15</i>
	<i>Stannous chloride Spectrophotometer _ UviKon</i>	<i>Standard method 22 ND edition 4500 – P D</i>	<i>10</i>
<i>Phosphate</i>	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 – P B</i>	<i>11</i>
	<i>Hetropoly Blue Spectrophotometer _ UviKon</i>	<i>Standard method 22 ND edition 4500-SiO₂</i>	<i>15</i>
<i>Boron</i>	<i>Carmin Method Spectrophotometer _ UviKon</i>	<i>Standard method 22 ND edition 4500-B C</i>	<i>15</i>
<i>Aluminum</i>	<i>Eriochrome Cyanine – R Spectrophotometer _ UviKon</i>	<i>Standard method 22 ND edition 3500-Al B</i>	<i>15</i>
	<i>Shimadzu GF AAS 6800</i>	<i>Standard method 22 ND edition 3111-Al B</i>	<i>20</i>
<i>Color</i>	<i>APHA PtCo Spectrophotometer Hach-DR3900</i>	<i>User manual method 8025</i>	<i>10</i>

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<i>Analysis</i>	<i>Method used</i>	<i>Method No. And Ref</i>	<i>YWC Price JD</i>
<i>Manganese</i>	<i>Flame AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3111 Mn-B</i>	<i>20</i>
	<i>Avanta-GBC-AAS</i>		
<i>Chromium</i>	<i>GF AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3111 Cr-B</i>	<i>20</i>
<i>Cadmium</i>	<i>GF AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3111 Cd-B</i>	<i>20</i>
<i>Cobalt</i>	<i>Avanta-GBC-AAS</i>	<i>Standard method 22 ND edition 3111 Co-B</i>	<i>20</i>
	<i>Flame AAS 6800 Shimadzu</i>		
<i>Copper</i>	<i>Avanta-GBC-AAS</i>	<i>Standard method 22 ND edition 3111 Cu-B</i>	<i>20</i>
	<i>Flame AAS 6800 Shimadzu</i>		
<i>Molybdenum</i>	<i>GF AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3111 Mo-B</i>	<i>20</i>
<i>Selenium</i>	<i>HVG AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3114Se-C</i>	<i>20</i>
	<i>GF AAS 6800 Shimadzu</i>		
<i>Arsenic</i>	<i>HVG AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3114 As - C</i>	<i>20</i>
	<i>GF AAS 6800 Shimadzu</i>		
<i>Nickel</i>	<i>GF AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3111 Ni-B</i>	<i>20</i>
<i>Antimony</i>	<i>GF AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3111Sb-B</i>	<i>20</i>
<i>Lead</i>	<i>GF AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3111 Pb-B</i>	<i>20</i>
<i>Silver</i>	<i>GF AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3111 Ag-B</i>	<i>20</i>
<i>Mercury</i>	<i>Shimadzu HVG AAS 6800</i>	<i>Standard method 22 ND edition 3112 Hg-B</i>	<i>20</i>
<i>Barium</i>	<i>GF AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3111 Ba-B</i>	<i>20</i>
<i>Iron</i>	<i>Avanta-GBC-AAS</i>	<i>Standard method 22 ND edition 3111 Fe-B</i>	<i>20</i>
	<i>Flame AAS 6800 Shimadzu</i>		
<i>Zinc</i>	<i>Avanta-GBC-AAS</i>	<i>Standard method 22 ND edition 3111 Zn-B</i>	<i>20</i>
	<i>Flame AAS 6800 Shimadzu</i>		
<i>Calcium</i>	<i>EDTA Titrimetric</i>	<i>Standard method 22 ND edition 3500 Ca B</i>	<i>10</i>



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<i>Analysis</i>	<i>Method used</i>	<i>Method No. And Ref</i>	<i>YWC Price JD</i>
<i>Magnesium</i>	<i>Calculation</i>	<i>Standard method 22 ND edition 3500</i>	<i>10</i>
<i>Carbonate</i>	<i>Titrimetric Method</i>	<i>Standard method 22 ND edition 2320 B</i>	<i>10</i>
<i>Bicarbonate</i>	<i>Titrimetric Method</i>	<i>Standard method 22 ND edition 2320 B</i>	<i>10</i>
<i>Sulfur</i>	<i>Iodometric Method</i>	<i>Standard method 22 ND edition 4500 S² - F</i>	<i>9</i>
<i>LSI</i>	<i>Calculation</i>	<i>User Manual_ Alco Chemical</i>	<i>32</i>
<i>T. Hardness</i>	<i>EDTA Titrimetric Method</i>	<i>Standard method 22 ND edition 2340 C</i>	<i>10</i>
<i>Odor</i>	<i>Threshold Odor No- Water Bath</i>	<i>Standard method 22 ND edition 2150 B</i>	<i>7</i>
<i>Cyanide</i>	<i>Pyridine -Pyrazalone Spectrophotometer Hach-DR3900</i>	<i>User manual method 8027</i>	<i>30</i>
<i>ABS</i>	<i>Crystal Violet Spectrophotometer Hach-DR3900</i>	<i>User manual method 8028</i>	<i>20</i>
<i>PH</i>	<i>PH Meter - Electrometric Method</i>	<i>Standard method 22 ND edition 4500 B</i>	<i>2</i>
<i>EC</i>	<i>EC Meter - Electrometric Method</i>	<i>Standard method 22 ND edition 2510 B</i>	<i>2.5</i>
<i>Turbidity</i>	<i>Hach 2100N Nephelometric Method</i>	<i>Standard method 22 ND edition 2130 B</i>	<i>4</i>
<i>TDS</i>	<i>Calculation to EC ratio</i>	<i>Standard method 22 ND edition 1030 E</i>	<i>2.5</i>
<i>TDS</i>	<i>Calculation by analyses & summation</i>	<i>Standard method 22 ND edition 1030 E</i>	<i>80</i>
<i>Sodium</i>	<i>Flame Photometric Method</i>	<i>Standard method 22 ND edition 3500 Na-B</i>	<i>10</i>
<i>Potassium</i>		<i>Standard method 22 ND edition 3500 K-B</i>	<i>10</i>
<i>Lithium</i>		<i>Standard method 22 ND edition 3500 Li-B</i>	<i>10</i>
<i>Total Organic Carbon (TOC)</i>	<i>Oxidation Combustion-Infra red</i>	<i>Standard method 22nd edition 5310B</i>	<i>25</i>
<i>Volatile Organic Compound (VOCs)</i>	<i>GC / MS – Head Space Method</i>	<i>Standard method 22nd edition 6200 -B</i>	<i>170</i>
<i>Trihalomethanes (T.THM)</i>	<i>GC / MS – Head Space Method</i>	<i>Standard method 22nd edition 6232-B</i>	<i>80</i>



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Microbiological Analysis For Drinking & Waste Water2018

<i>Analyses</i>	<i>Methods</i>	<i>Reference Methods</i>	<i>YWC Price JD</i>
<i>Total Coliform</i>	<i>Multiple Tube Fermentation Technique MTF/MPN/100ml.</i>	<i>Standard method 22 ND edition 9221A,B</i>	<i>20</i>
<i>Fecal Coliforms(Total thermo tolerant Coliform)</i>		<i>Standard method 22 ND edition 9221 E(1)</i>	<i>18</i>
<i>Escherichia coli.</i>		<i>Standard method 22 ND edition 9221 F(1)</i>	<i>17</i>
<i>Total Coliform & Escherichia coli.</i>	<i>Presence/Absence Enzyme Substrate by Colilert</i>	<i>Standard method 22 ND edition 9223 B</i>	<i>28</i>
<i>Total Coliform & Escherichia coli.</i>	<i>Quanti Tray Enzyme Substrate by Coliler-18</i>	<i>Standard method 22 ND edition 9223 B</i>	<i>35</i>
<i>Fecal Coliform / Seven Hours.</i>	<i>Membrane Filtration Technique MTF/MPN/100ml.</i>	<i>Standard method 22 ND edition 9211 B</i>	<i>30</i>
<i>Free-Living Organisms (Nematodes).</i>	<i>Membrane Filtration Sedimentation</i>	<i>American Water Works Association (AWWA), Chapter 5,&10200C2 / 1995-Amman labs</i>	<i>20</i>
<i>Pseudomonas Aeruginosa.</i>	<i>Multiple Tube Fermentation Technique MTF/MPN/100ml.</i>	<i>Standard method 22 ND edition 9213F</i>	<i>20</i>
<i>Helminthe Eggs Count & Identification</i>	<i>Sedimentation / Flotation</i>	<i>WHO 1990</i>	<i>45</i>
<i>Algae</i>	<i>Sedimentation Technique</i>	<i>Standard method 22 ND edition 10200F</i>	<i>20</i>
<i>Fe. Bacteria</i>	<i>Membrane filtration Direct Microscopy</i>	<i>Standard method 22 ND edition 9240 E 2</i>	<i>25</i>
<i>S. Bacteria</i>	<i>Membrane filtration Direct Microscopy</i>	<i>Standard method 22 ND edition 9240 E-3C</i>	<i>25</i>



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<i>Analyses</i>	<i>Methods</i>	<i>Reference Methods</i>	<i>YWC Price JD</i>
<i>PH</i>	<i>Electrometric</i>	<i>Standard method 22 ND edition 4500 B</i>	<i>2</i>
<i>Total dissolved Solids</i>	<i>By Calculation(TS-TSS)</i>	<i>Standard method 22 ND edition 2540C</i>	<i>12</i>
<i>Total dissolved Solids</i>	<i>Drying @180 deg. C</i>	<i>Standard method 22 ND edition 2540 C</i>	<i>12</i>
<i>Total Solids</i>	<i>Drying @103-105 deg. C</i>	<i>Standard method 22 ND edition 2540B</i>	<i>12</i>
<i>Total Suspended Solids</i>	<i>Drying @103-105 deg. C</i>	<i>Standard method 22 ND edition 2540D</i>	<i>12</i>
<i>Total Volatile Solids</i>	<i>Ignition @550 deg. C</i>	<i>Standard method 22 ND edition 2540 E</i>	<i>16</i>
<i>Total fixed Solids</i>			<i>16</i>
<i>Biological O₂. Demand</i>	<i>5-Day BOD5 Test</i>	<i>Standard method 22 ND edition 5210 B</i>	<i>28</i>
<i>Biological O₂. Demand_f</i>			<i>30</i>
<i>Biological O₂. Demand₇</i>	<i>7-Day BOD5 Test</i>		<i>30</i>
<i>Chemical O₂.Demand</i>	<i>Closed Reflux / manual Titration</i>	<i>Standard method 22 ND edition 5220C</i>	<i>25</i>
	<i>Closed Reflux/ Potentiometric Titration</i>		<i>25</i>
<i>Nitrate</i>	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 NO3 B</i>	<i>11</i>
	<i>Spectrophotometric_Nova 60</i>	<i>User manual method DIN 38405-9</i>	<i>15</i>
<i>Phosphate</i>	<i>Stannous chloride</i>	<i>Standard method 22 ND edition 4500 – P D</i>	<i>10</i>
	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 – P B</i>	<i>11</i>
<i>Total Phosphate</i>	<i>Stannous chloride after Digestion</i>	<i>Standard method 22 ND edition 4500 – D P</i>	<i>20</i>
<i>Nitrite</i>	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 NO2 B</i>	<i>11</i>
<i>Ammonia</i>	<i>Phenate Method</i>	<i>User Method 4500-NH3 F</i>	<i>15</i>
<i>Total Nitrogen</i>	<i>Koroleff's methods</i>	<i>User manual p 114763</i>	<i>20</i>
	<i>Oxidation Combustion-Chemiluminescence</i>	<i>Standard method 22nd edition 5310B</i>	<i>20</i>
<i>Total Organic Carbon</i>	<i>Oxidation Combustion-Infra red</i>	<i>Standard method 22nd edition 5310B</i>	<i>25</i>
<i>Anionic Surfactants ABS</i>	<i>Crystal Violet Spectrophotometer Hach-DR2800</i>	<i>User manual method 8028</i>	<i>20</i>



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<i>Analyses</i>	<i>Methods</i>	<i>Reference Methods</i>	<i>YWC Price JD</i>
<i>Chloride Cl</i>	<i>Argentometric Method</i>	<i>Standard method 22 ND edition 4500 Cl B</i>	<i>10</i>
	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 Cl B</i>	<i>11</i>
<i>Total Alkalinity as CaCO₃ (HCO₃, CO₃, OH) Each</i>	<i>Automatic Potentiometric Titration</i>	<i>Standard method 22 ND edition 2320 B</i>	<i>15</i>
<i>Turbidity</i>	<i>Nephelometric</i>	<i>Standard method 22 ND edition 2130 B</i>	<i>4</i>
<i>Total Cyanide</i>	<i>Pyridine -pyrazalone Colorimetric</i>	<i>User manual method 8027</i>	<i>30</i>
<i>Total hardness</i>	<i>EDTA Titrimetric</i>	<i>Standard method 22 ND edition 2340 C</i>	<i>10</i>
<i>Calcium</i>	<i>EDTA Titrimetric</i>	<i>Standard method 22 ND edition 3500 Ca B</i>	<i>10</i>
<i>Magnesium</i>	<i>By Calculation</i>	<i>Standard method 22 ND edition 3500</i>	<i>10</i>
<i>Aluminum</i>	<i>Eriochrome Cyanine-R</i>	<i>Standard method 22 ND edition 3500-AI B</i>	<i>15</i>
<i>Boron B</i>	<i>Carminic Method Spectrophotometer _ UviKon</i>	<i>Standard method 22 ND edition 4500-B C</i>	<i>15</i>
<i>Sulfate SO₄</i>	<i>Turbidimetric</i>	<i>Standard method 22 ND edition 4500 E SO₄-</i>	<i>11</i>
	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 SO₄</i>	<i>11</i>
<i>Fluoride F</i>	<i>Spectrophotometer Hach-DR2800</i>	<i>User manual method 8029</i>	<i>15</i>
	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 F B</i>	<i>11</i>
<i>Bromide Br</i>	<i>Ion chromatograph</i>	<i>Standard method 22 ND edition 4110 Br B</i>	<i>11</i>
<i>Sulfur</i>	<i>Iodometric Titration</i>	<i>Standard method 22 ND edition 4500 S-</i>	<i>10</i>
<i>Sodium</i>	<i>Flame Photometric Method</i>	<i>Standard method 22 ND edition 3500 Na-B</i>	<i>10</i>
<i>Potassium</i>	<i>Flame Photometric Method</i>	<i>Standard method 22 ND edition 3500 K-B</i>	<i>10</i>
<i>SAR No (Na, Ca, Mg)*</i>	<i>By Calculation</i>	<i>Standard method 22 ND edition</i>	<i>30</i>
<i>Total Phenol after Digestion</i>	<i>Spectrophotometer Hach-DR2800</i>	<i>Standard method 22 ND edition 6420</i>	<i>35</i>
<i>FOG</i>	<i>Infra Red Absorption</i>	<i>ASTM D 7066-04 /EPA 413.1-418.1</i>	<i>35</i>
<i>Lithium</i>	<i>Flame AAS 6800 Shimadzu</i>	<i>Standard method 22 ND edition 3111 Li -B</i>	<i>20</i>

*SAR No: the listed price if the customer requested SAR only and not its constituents (Na, Ca, Mg)



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Appendix -2

Drinking Water Field Analysis 2018

<i>Analyses</i>	<i>Methods</i>	<i>Reference Methods</i>	<i>YWC Price JD</i>
<i>PH</i>	<i>Electrometric Method</i>	<i>Standard method 22 ND edition 4500 B</i>	<i>3</i>
<i>EC</i>	<i>Electrometric Method</i>	<i>Standard method 22 ND edition 2510 B</i>	<i>3</i>
<i>Turbidity</i>	<i>2100N Nephelometric Method</i>	<i>Standard method 22 ND edition 2130 B</i>	<i>3</i>
<i>TDS</i>	<i>Calculation to EC ratio</i>	<i>Standard method 22 ND edition 1030 E</i>	<i>3</i>
<i>NH₄</i>	<i>Nessler Method Colorimetric</i>	<i>Standard method 16th edition / Colorimetric</i>	<i>7</i>
<i>Temperature</i>	<i>EC /PH& Digital Thermometer</i>	<i>Standard method 22 ND edition 2550 B</i>	<i>2</i>
<i>RCL₂</i>	<i>DPD Colorimetric</i>	<i>Standard method 22 ND edition 4500-CL G</i>	<i>2</i>
<i>CN</i>	<i>Hatch Colorimetric</i>	<i>User Manual</i>	<i>15</i>
<i>Dissolved O₂</i>	<i>Membrane Electrical Method</i>	<i>Standard method 22 ND edition 4500 -O G</i>	<i>10</i>

Waste Water Field Analysis 2018

<i>Analyses</i>	<i>Methods</i>	<i>Reference Methods</i>	<i>YWC Price JD</i>
<i>PH</i>	<i>Electrometric Method</i>	<i>Standard method 22 ND edition 4500 B</i>	<i>3</i>
<i>Dissolved O₂</i>	<i>Membrane Electrical Method</i>	<i>Standard method 22 ND edition 4500 O -G</i>	<i>10</i>
<i>Temperature</i>	<i>EC /PH& Digital Thermometer</i>	<i>Standard method 22 ND edition 2550 B</i>	<i>2</i>
<i>RCL₂</i>	<i>DPD Colorimetric</i>	<i>Standard method 22 ND edition 4500-CL G</i>	<i>2</i>



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Appendix -3

Field Trips Prices – Drinking Water 2018

<i>No of samples</i>	<i>Destination</i>	<i>Prices JD 2018 YWC Labs</i>		
		<i>Vehicle</i>	<i>Personnel</i>	<i>Total JD</i>
S ≤ 4	<i>Within Greater Irbid</i>	30	15	45
S > 4		30	25	55
S ≤ 4	<i>Outside Greater Irbid</i>	50	30	80
S > 4		50	40	90
S ≤ 4	<i>North Badia + Rewashed</i>	60	45	105
S > 4		60	55	115

Field Trips Prices – Waste Water Grab Samples 2018

<i>No of samples</i>	<i>Destination</i>	<i>Prices JD 2018 YWC Labs</i>		
		<i>Vehicle</i>	<i>Personnel</i>	<i>Total JD</i>
S ≤ 4	<i>Within Greater Irbid</i>	30	25	55
S > 4		30	35	65
S ≤ 4	<i>Outside Greater Irbid</i>	50	50	100
S > 4		50	70	120



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Appendix -4

الاستثناءات

1. يستثنى من بدل خدمات التحاليل والخدمات المخبرية القوات المسلحة والاجهزة الامنية والديوان الملكي على ان لا تتجاوز عشر عينات شهريا .
2. يستثنى من بدل خدمات التحاليل والخدمات المخبرية المشاريع التي تنفذ من قبل شركة مياه اليرموك .
3. تستثنى الحالات الدراسية ضمن مذكرات تفاهم مع الجامعات الاردنية والمختصين في شركة مياه اليرموك او سلطة المياه على ان يتم تزويدنا بالنتائج والتقرير النهائية للدراسات للاستفادة منها وعكسها على تحسين العمليات في الشركة .



Appendix -5

اسعار البيانات التراكمية لنوعية المياه

1. يتم احتساب التكلفة الاجمالية الحقيقية للبيانات التراكمية وفقا لما هو وارد في قائمة اسعار التحاليل المعتمدة وبدون احتساب اسعار الجولات الميدانية .
2. النسبة المئوية المطلوبة من التكلفة الحقيقية هي ٢٠% فقط .
3. التكلفة الاجمالية للبيانات التراكمية = التكلفة الاجمالية الحقيقية للبيانات التراكمية * ٢٠%
4. يقدم خصم اضافي على التكاليف الموضحة اعلاه بقيمة ٥٠% لطلاب الجامعات والدراسات العليا والجهات البحثية .

