

Laboratory Certification For  
VICC WATER LABORATORY

Lab ID: LCP-030

Issue date: June 13<sup>th</sup>, 2018

Expiry date: June 12<sup>th</sup>, 2019

This letter confirms the completion of inspection and certification for the VICC Water Lab, which is located at Spin Ghar Road, District 9, Hod Khail, Pol-e- Charkhi, Kabul, Afghanistan. This laboratory should now be considered as certified for use by the US Army Corps of Engineers Transatlantic Afghanistan District (USACE TAA) and other clients, for all tests listed in Table 1 to Table 8, as attached to this letter. This certification will be included with records that are maintained at the ABA and USACE TAA Headquarters in Bagram Airbase, Afghanistan. Retaining the certification will require yearly inspections by the ABA. This certification is also contingent upon the following conditions:

- A. Continued employment of the below individual while without his oversight, the laboratory will require recertification:
  1. Noorullah Mashwani the laboratory manager;
- B. If the calibration certificates of equipments expire or become invalid as per the relevant standard;
- C. If the laboratory is moved to a new location, it will require recertification; and
- D. If the laboratory fails to comply by the approved lab quality management plan, safety standards, and other criteria set forth in the most up-to-date ABA lab certification manual, the lab certification may be suspended.

For verification and good standing of this certification please check our online directory of laboratories at [http://aba.af/lcp\\_directory.php](http://aba.af/lcp_directory.php). The inspection and certification process for the VICC adhered to procedures outlined by the Materials Testing Center (MTC), which is located at the Geotechnical and Structures Laboratory (GSL), U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg, Mississippi, USA. The MTC is the USACE-authorized agency for certifying laboratories for use in quality control testing for USACE construction projects. To facilitate construction in Afghanistan, the USACE TAA has authorized the ABA to conduct laboratory certifications with strict adherence to MTC protocol. Qualifications of the authors for conducting these certifications include: 12 years of laboratory experience, 12 years of teaching classes on construction materials, and six years of teaching university-level construction classes.

Certified to perform 63 tests, as shown on attached sheets and summarized as:

Table 1:	16
Table 2:	16
Table 3:	17
Table 4:	3
Table 5:	4
Table 6:	5
Table 7:	1
Table 8:	1

Regards,  
Mowdood Popal

President of Afghanistan Builders Association



### VICC Certified Laboratory Tests

Table 1. List of Standard Test

No	Test Method	Test Procedure Title	Detection Limits
1	HACH #8202	Acidity	10 - 4000 mg/L
2	HACH #8203	Alkalinity	10 - 4000 mg/L
3	HACH #8025	Color	5-500 PtCO
4	HACH #8160	Conductivity	0-199.9 ms/cm
5	HACH #8333	Dissolved oxygen	1.0 - 40.0 mg/L
6	HACH #8204	Hardness	10 - 4000 mg/L
7	HACH #8213	Total hardness	10 - 4000 mg/L
8	Direct measurement	pH	1-14
9	Direct measurement	Redox potential	-
10	Direct measurement	Salinity	0-100 ppt
11	HACH #8006	Suspended solids	0-750 mg/L
12	HACH #8271	Total solids	-
13	Direct measurement	Total dissolved solid (TDS)	-
14	HACH #8237	Turbidity	1-1000 NTU
15	HACH #8073	Corrosivity	Non Aggressive-Aggressive
16	Direct measurement	Resistivity	0-199.9 ms/cm-1

Table 2. List of Inorganic Compounds

No	Test Method	Test Procedure Title	Detection Limits
1	HACH #8016	Bromine	0.05-4.50 mg/L
2	HACH #8021	Chlorine free	0.02-2.00 mg/L
3	HACH #8167	Chlorine Total	0.02-2.00 mg/L
4	HACH #8138	chlorine dioxide	5-1000 mg/L

No	Test Method	Test Procedure Title	Detection Limits
5	HACH #8031	Iodine	0.07 to 7.00 mg/L
6	HACH #8038	Nitrogen as Ammonia	0.01 to 0.50 mg/L
7	HACH #8185	Silica	1.0 to 100.0 mg/L
8	HACH #8207	Chloride	10 - 4000 mg/L
9	HACH #8027	Cyanide	0.001 to 0.240 mg/L
10	HACH #8029	Fluoride	0.02 to 2.00 mg/L
11	HACH #8171	Nitrate	0.1 to 10.0 mg/L
12	HACH #8507	Nitrite	0.002 to 0.300 mg/L
13	HACH #8048	Phosphate	0.02 to 2.50 mg/L
14	HACH #8131	Sulfide	5 to 800 µg/L
15	HACH #8051	Sulfate	2 to 70 mg/L
16	HACH #8203	Carbonate	10 - 4000 mg/L

Table 3. List of CATIONS

No	Test Method	Test Procedure Title	Detection Limits
1	HACH #8012	Aluminum	0.008 to 0.800 mg/L
2	HACH #8014	Barium	1 to 100 mg/L
3	HACH #8204	Calcium	10 - 4000 mg/L
4	HACH #8023	Chromium hexavalent	0.01 to 0.70 mg/L
5	HACH #8506	Copper	0.04 to 5.00 mg/L
6	HACH #8008	Iron, Total	0.02 to 3.00 mg/L
7	HACH #8149	Magnesium	10 - 4000 mg/L
8	HACH #8034	Manganese	0.2 to 20.0 mg/L
9	HACH #8357	Sodium	-
10	HACH #8049	Potassium	0.1 to 7.0 mg/L
11	HACH #8009	Zinc	0.01 to 2.00 mg/L
12	HACH, EZ Test kit	Arsenic	0 to 500ppb
13	HACH #8317	Lead	5 to 150 µg/L

No	Test Method	Test Procedure Title	Detection Limits
14	HACH #8023	Chromium, total	0.01 to 0.70 mg/L
15	HACH #8015	Boron	0.2 to 14.0 mg/L
16	HACH #8194	Selenium	0.01 to 1.00 mg/L
17	HACH #8120	Silver	0.005 to 0.700 mg/L

**Table 4. List of Organic Compounds**

No	Test Method	Test Procedure Title	Detection Limits
1	HACH #10129	Total Organic Carbon	0.3 to 20.0 mg/L
2	HACH #8043	Biochemical Oxygen Demand( BOD )	-
3	HACH #8000	chemical Oxygen Demand (COD )	3 to 150, 20 to 1500, and 200 to 15,000 mg/L

**Table 5. List of Microbiological Test**

No	Test Method	Test Procedure Title	Detection Limits
1	Method 8319 and Method 8364	Total Coli form	Present/Absent Method
2	Method 8319 and Method 8364	E- coli	Present/Absent Method
3	Method 8319 and Method 8364	Fecal coli form	Present/Absent Method
4	Count Method	Total Coli form-E, Coli & Fecal Coli form	Count Method

**Table 6. List of Soil Test**

No	Test Method	Test Procedure Title	Detection Limits
1	ASTM D4972	pH of soil	1-14
2	ASTM C1580	sulfate content of soil	2 to 70 mg/L
3	AASHTO T291	chloride content of soil	10 - 4000 mg/L
4	HACH #10073	Salinity of soil	0-100 ppt
5	HACH #8073	Corrosivity of soil	Non Aggressive-Aggressive

Table 7. List of Step-drawdown Test

No	Test Method	Test Procedure Title	Detection Limits
1	Well Drawdown	Well drawdown 75 %,100% &150 %	Water Level Measurement

Table 8. Water System Disinfection Test

No	Test Method	Test Procedure Title	Detection Limits
1	AWWA	Disinfection of Portable Water System	-