

USACE-Certified Laboratory Certification For  
VICC WATER LABORATORY

Lab ID: LCP-030

Issue date: June 28<sup>th</sup>, 2021

Expiry date: June 27<sup>th</sup>, 2023

This letter confirms the completion of inspection and certification for the VICC Water Testing Lab, which is located on Spin Ghar Road, District 9, Hod Khail, Pol-e- Charkhi, Kabul, Afghanistan. This laboratory should now be considered as **USACE-Certified for a period of 24-months** from the date of this letter. This laboratory should now be considered as certified for use by the US Army Corps of Engineers Transatlantic Expeditionary District (USACE-TAE) 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-TAE Headquarters. Retaining the certification will require yearly inspections by the ABA. This certification is also contingent upon the following conditions:

- A. Continued employment of the following individuals while without their oversight, the laboratory will require recertification:
  1. Mr. Noorullah Mashwani the laboratory manager; and
  2. Mr. M. Salih Hovida, Water Testing Section Technician;
- 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 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 has authorized the ABA to conduct laboratory certification evaluation 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 65 tests, as shown on attached sheets and summarized as:

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

Regards,



Ferdaws Khaliqi, PMP

ABA Laboratory Certification Program Manager  
(ABA-LCP)



VICC Certified Water 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  | HACH (Direct measurement) | pH                          | 1-14                      |
| 9  | HACH (Direct measurement) | Redox potential             | -                         |
| 10 | HACH (Direct measurement) | Salinity                    | 0-100 ppt                 |
| 11 | HACH #8006                | Suspended solids            | 0-750 mg/L                |
| 12 | HACH #8271                | Total solids                | -                         |
| 13 | HACH (Direct measurement) | Total dissolved solid (TDS) | -                         |
| 14 | HACH #8237                | Turbidity                   | 1-1000 NTU                |
| 15 | HACH #8073                | Corrosivity                 | Non Aggressive-Aggressive |
| 16 | HACH (Direct measurement) | Resistivity                 | 0-199.9 ms/cm             |

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 #8213        | Magnesium            | 10 - 4000 mg/L      |
| 8  | HACH #8149        | 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 #8024   | Chromium, total      | 0.01 to 0.70 mg/L   |
| 15 | HACH #8015   | Boron                | 0.2 to 14.0 mg/L    |
| 16 | HACH Unicell | Cadmium              | 0.02 to 0.3 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  | HACH #8319<br>&<br>HACH # 8364 | Total Coliform                          | Present/Absent Method                  |
| 2  | HACH #8319<br>&<br>HACH # 8364 | E- Coli                                 | Present/Absent Method                  |
| 3  | HACH #8319<br>&<br>HACH # 8364 | Fecal Coliform                          | Present/Absent Method                  |
| 4  | HACH #8074                     | Total Coliform, E-Coli & Fecal Coliform | Count Method                           |
| 5  | HACH Test Kit<br>223801        | Hydrogen Sulfide Test                   | 0 to 0.55, 0 to 2.25, and 0-11.25 mg/L |

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 | -                |

