

Laboratory Certification For

Green Tech Construction & Engineering Company

Lab ID: LCP-034

Issue date: July 27th, 2020

Expiry date: July 26th, 2022

This letter confirms the completion of inspection and certification for the Green Tech Water Testing Lab, which is located at House # 4, Finest Street, Saray-e-Ghazni, Kabul, Afghanistan. This laboratory should now be considered as **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 Afghanistan District (USACE, TAA) and other clients, for all tests listed in Table 1 to Table 5, 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. Amanullah Rahimi 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. The inspection and certification process for Green Tech 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 36 tests, as shown on attached sheets and summarized as:

- Table 1: 5
Table 2: 2
Table 3: 12
Table 4: 9
Table 5: 8

Regards,



Ferdaws Mirza

ABA-Laboratory Certification Program Manager
(ABA-LCP)

Green Tech Certified Laboratory Tests

Table 1. List of Physical Parameters

No	Test Method	Test Procedure Title	Detection Limits
1	HACH #8160	Electric Conductivity (EC)	0-199.9 $\mu\text{s}/\text{cm}$
2	Direct Measurement	Total dissolved solid (TDS)	-
3	HACH #8195	Turbidity	0-40 NTU
4	HACH #8156	pH	1-14
5	Direct Measurement	Temperature	-

Table 2. List of Bacteriological Determination

No	Test Method	Test Procedure Title	Detection Limits
1	101295	Total Coliform	Present/Absence Method
2	Ready cult	Fecal Coliform	Present/Absence Method

Table 3. List of Chemical Characteristics

No	Test Method	Test Procedure Title	Detection Limits
1	HACH #8203	Total Alkalinity M	10 - 4000 mg/L
2	HACH #8203	Total Alkalinity P	10 - 4000 mg/L
3	HACH #8203	Bicarbonate (HCO_3^-)	10 - 4000 mg/L
4	HACH #8016	Bromine (Br^-)	0.05-4.50 mg/L
5	HACH #8203	Carbonate (CO_3^{2-})	10 - 4000 mg/L
6	HACH #8206	Chloride (Cl^-)	10 - 4000 mg/L
7	HACH #10225	Fluoride (F^-)	0.02 to 2.00 mg/L
8	HACH #8039	Nitrate (NO_3^-)	0.3 to 30.0 mg/L
9	HACH #8507	Nitrite (NO_2^-)	0.002 to 0.300 mg/L
10	HACH #8048	Phosphate (PO_4^{3-})	0.02 to 2.50 mg/L
11	HACH #8051	Sulfate (SO_4^{2-})	2 to 70 mg/L
12	HACH #8131	Sulfide (S^{2-})	5 to 800 $\mu\text{g}/\text{L}$

Table 4. List of CATIONS

No	Test Method	Test Procedure Title	Detection Limits
1	HACH #8012	Aluminum (Al^{+3})	0.008 to 0.800 mg/L
2	HACH #8038	Ammonia (NH_3)	0.02 to 2.50 mg/L
3	HACH, EZ Test kit	Arsenic (As^{3+} and As^{5+})	0 to 500ppb
4	HACH #8329	Calcium Hardness (Ca^{2+})	10-4000 mg/L
5	HACH #8329	Magnesium Hardness (Mag^{2+})	10-4000 mg/L

No	Test Method	Test Procedure Title	Detection Limits
6	HACH #8329	Total Hardness	10–4000 mg/L
7	HACH #8506	Copper (Cu ²⁺)	0.04 to 5.00 mg/L
8	HACH #8008	Iron (Fe ²⁺)	0.02 to 3.00 mg/L
9	HACH #8149	Manganese (Mn ²⁺)	0.006 to 0.700 mg/L



Table 5. List of Other Components

No	Test Method	Test Procedure Title	Detection Limits
1	HACH #8021	Chlorine free (Cl ₂)	0.02-2.00 mg/L
2	HACH #8033	Lead (Pb)	3 to 300 µg/L
3	HACH #8006	Total Suspended Solids (TSS)	5 to 750 mg/L
4	HACH #8000	Chemical Oxygen Demand (COD)	3 to 150, 20 to 1500 mg/L
5	HACH #10099	Biochemical Oxygen Demand (BOD)	0–700 mg/L
6	Standard Method 2710	Sludge Volume Index (SVI)	-
7	HACH #10360	Dissolved Oxygen Demand (DO)	0.1 to 20.0 mg/L
8	Standard Method 2540 HACH #8006	Mixed Liquor Suspended Solids (MLSS)	5 to 750 mg/L