



Scope of Work for the Borehole drilling and Construction Supervisor

Project/Consultancy Title: Borehole Drilling and Construction Supervisor
Project Location(s): South Sudan, Unity State, Rubkona County, Bentiu PoC/IDP Camp-Sector-1,Block-7
Project Fund codes:
33486
Deadline for Applications
26th July 2021.

Background and Project Description:

In Rubkona County, 100,051 IDPs have been registered in Bentiu Protection of Civilians (IOM DTM update April 2021] PoC)¹ and they have been dependent on humanitarian support to sustain their lives. Mercy Corps has been implementing WASH programs in Bentiu PoC since 2014. Currently, Mercy Corps is supporting over 31,463 IDPs in Bentiu PoC, sector one and sector four through USAID/OFDA funding. Mercy Corps has been supplying safe water to IDPs through water network systems in sector one and sector four in Bentiu PoC.

Sector 1 Block 7 boreholes exhibits leaking joint at 0.8m from the surface. Silt could be traced leaking through the joint causing contamination of surface effluents down the hole. From 0.8 to 3.6m, a brownish precipitate was observed in the internal surface of the plain casings as a result of the leaking joint noted at 0.8mbgl. The joint at 6.6mbgl was not well tightened and live insects could be observed in the internal surfaces of the casing. More leakage at the joints were observed at 12.4m and at 24.0mbgl. A crack in the internal surfaces of the casings were noted at 24.2mbgl, however this could not affect the structural integrity of the borehole. The Water Rest Level (SWL) was observed at 31.7mbgl. The surface of the water at this level was brownish in color due to the surface runoff leakage in to the borehole at the leaking joint at 0.8mbgl. From 31.7-38.5mbgl, suspended solids and brown precipitate were noted in the borehole. A visible crack could also be observed at 38.5mbgl. Between 38.5 and 47.8mbgl, suspended solids and brown precipitate were noted in the internal surface of the casings. These suspended solids reduced from 50.7mbgl but the casings were still decolorized down to 55.8mbgl. Clear water with minimal suspended solids were noted throughout the remaining part of the borehole. However, leaking joints were observed at 58.8mbgl and 66.8mbgl. There was loss of verticality at 62.2mbgl and 69.9mbgl as was observed by the pump friction on the internal surfaces of the casings. At 67.5 and 70.6, the joints were not well tightened while another crack was observed at 67.8mbgl. Screens could be observed from 76.4 to 79.4 and from 82.2 to 87.9mbgl. These screens were filled up with silt and fine precipitates which was an indication of fine sand and silt ingress into the borehole. The borehole was filled up with silt and fine sands from 87.9 to 100mbgl.

The sector one-block seven borehole is the most Oldest among several boreholes providing water to the PoC population; a private company "LIFE FOR CONSTRUCTION Co. Ltd" contracted by UNICEF drilled it in 19 May 2015. The borehole was drilled at the depth of 100 meters and tested yield 12m³/h. The borehole has been cased with UPVC casings of 6" diameter. Mercy Corps is planning to engage an expert to Drilled new

¹ IOM DTM update April 2021]
Scope of Work Template – Edited 6/18/2021





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Borehole. In the long term, a replacement borehole is highly recommended. The borehole should be drilled to a maximum of 200mbgl. Detailed technical specifications are attached,



Borehole
Inspection Report-N

Supervisor Objectives:

The objective of the Supervisor is to ensure the quality new Borehole is Drill for sector one in Bentiu PoC.

1. To design the Daily records as per the details in the borehole log
2. To provide Maintain proper records and Reporting.

Drilling Supervisor Activities:

The scope of work shall include but not necessary limited to;

- The primary responsibility of a drilling supervisor is to oversee the work of drilling operators, as well as work closely with Drilling Company management to develop operational plans and ensures that it is completed in a timely manner.
- Examining drilling sites, working cooperatively with management to develop operational plans and ensuring that drilling operators and other personnel follow safety standards.
- **Records and reporting**

The Supervisor shall keep daily activity records for each borehole. The records shall contain the Information as specified below. In addition, separate records should be supplied for the borehole upon completion.

Daily Record

- Site name
 - ✓ Reference number of borehole
 - ✓ GPS Co-ordinates of borehole (latitude longitude)
 - ✓ Date of reporting
 - ✓ Names of foreman and drillers
- Method of drilling
 - ✓ Make, model, type and size of drilling rig
 - ✓ Diameter of hole, and depth of changes in diameter
- Depth of hole at start and end of shift or working day
 - ✓ Depth and size of casing at start and end of shift or working day
 - ✓ Description of strata drilled with depth of transitions encountered
- Depth at which water is struck
 - ✓ Yield of air lifted water, when drilling or developing with air in liters per second.
 - ✓ Time log showing rate of penetration in minutes per meter, type of bit, standby time due to breakdown.
 - ✓ Depth intervals at which formation samples are taken
 - ✓ Records of components and quantities used or added to the drilling fluid or air.
 - ✓ Water level at the start of each working day
 - ✓ Electrical conductivity measurements during test pumping
 - ✓ Problems encountered during drilling





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- Submit the design to the client before the contact agreement sign between the client and the contractor
- Develop a detailed Drilling Borehole report and submit to Mercy Corps WASH PM

Supervisor Deliverables:

1. Design the site for the new Borehole drilling.
2. Provide necessary equipment and accessories as per the design
3. Train WASH team on operation and maintenance of the new Borehole and provide operation manual

Timeframe / Schedule:

2nd/3rd week of November of 2021

The Supervisor will report to:

Mercy Corps WASH program Manager/DoP

The Supervisor will work closely with:

MC WASH program officers

Skills and competency required

- Bachelor's degree in several key areas, such as mechanical engineering technology, drilling technology, construction management and civil engineering technology or related fields with 5 years' experience.
- Proven Previous experience in undertaking similar assignment, minimum of 3 successful completed assignments
- Have all necessary required equipment
- Field knowledge of working in South Sudan.

Drop your application to Mercy Corps Office Juba, or by email: ss-apply@mercy Corps.org.

