REPORT ON MONITORING HYDROGEN GENERATOR PERFORMANCE

1. Background

Following the installation of the Upper Air Station and the Hydrogen (H_2) Generator at the Huye Upper Air Station site, an operational malfunction was observed whereby the generator failed to automatically fill water into the electrolytic cells. Consequently, a fourteen days monitoring exercise was conducted from 30th January to 12nd February 2026, in collaboration with the supplier, to diagnose the issue.

2. Objective

The objective of the monitoring exercise was to assess the operational performance, reliability, and safety of the Hydrogen generator under normal operating conditions.

3. Key Findings

- It was found that the auto-filling system failed due to a malfunction of the KA20 timer relay**.** Initially, the relay was configured to close the auto-fill system circuit in 10 minutes after the generator started; however, this 10-minute setting was faulty. After reconfiguring the timer to 1 minute, the auto-filling system operated normally.
- It was noted that excessive foam was present in the cells, which misled the filling probe and affected the timely filling of water into the cells.
- The generator demonstrated overall good performance in hydrogen production and maintained safety during operations.

4. Recommendations

- To restore the original 10 minutes setting for closing the auto-fill system circuit after generator start-up, the KA20 timer relay needs to be replaced.
- The supplier indicated that the foam was likely caused by chemical agents present in the on-site tubing and is expected to dissipate naturally as the generator continues to operate; therefore, close monitoring is recommended during the initial operational period.

5. Conclusion

The monitoring exercise confirmed that the Hydrogen generator is capable of automatically refilling water following reconfiguration of the KA20 timer relay; however, replacement with a new KA20 timer relay will ensure the full functioning of the generator. Foam-related interference with the filling probe continues to affect full automation of the water-filling process. Therefore, further close monitoring during the operational period will determine appropriate corrective actions should take if the issue persist.

Prepared by:

BIKORIMANA Christian
Ag. Data Quality Control Officer

NDAYISHIMIYE Eric
Electrical Engineer

Approved By:

Dr. Vedaste IYAKAREMYE
SOFF Focal Person and Division Manager of DOQC&P Division