

# IAEA Mission Sees High Commitment to Safety at Ghana's Research Reactor After HEU to LEU Fuel Conversion

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IAEA's INSARR Mission Team at the GHARR-1 research reactor in Accra, Ghana. (Photo: IAEA)

An International Atomic Energy Agency (IAEA) team of experts said the operator of Ghana's research reactor has demonstrated a high commitment to safety following the conversion of the reactor core to use low enriched uranium (LEU) as fuel instead of high enriched uranium (HEU). The team also made recommendations for further safety enhancements.

The Integrated Safety Assessment for Research Reactors (INSARR) team concluded a five-day mission today to assess the safety of the GHARR-1 research reactor, originally commissioned in 1994. The 30 kW reactor, operated by the Ghana Atomic Energy Commission (GAEC) at the National Nuclear Research Institute in the capital Accra, is used primarily for trace element analysis for industrial or agricultural purposes, research, education and training.

In 2017, the reactor core was converted in a joint effort by Ghana, the United States and China, with assistance from the IAEA. The IAEA supported the operation to eliminate proliferation risks associated with HEU, while maintaining important scientific research.

"The research reactor's operator is showing a high commitment to safety and has implemented safety improvements as part of the reactor core conversion," said team leader Deshraj Venkat H. Rao, Nuclear Safety Officer at the IAEA. "There is a need for further improvements, however, particularly in areas related to organizational measures, safety documentation, and operational safety, including radiation protection aspects."

The four-member team comprised experts from France, Jamaica and the United States as well as the IAEA. The mission covered organizational and management aspects as well as technical areas including the core conversion, safety assessment, training and qualification of operating personnel, operation and maintenance programmes, radiation protection, and emergency preparedness. The team visited the reactor and associated facilities, and met with GAEC officials.

"We appreciate the IAEA's continuous support, which was vital to carry out the core conversion activities safely. The INSARR mission recommended organizational and technical measures to further strengthen safety of the GHARR-1 research reactor," said Shiloh Dede

Osae, Deputy Director General of the GAEC. "We are committed to implementing the recommendations. The reactor's continuous safe operation will enhance its utilization and support research, education and training in the nuclear field in Ghana."

The team made recommendations for improvements to the GAEC, including:

- Completing the revision of reactor safety and operating documents to reflect the results of the commissioning of the reactor after the core fuel conversion.
- Enhancing the training and qualification programme for operating personnel.
- Improving the capability for monitoring operational safety parameters under all conditions.
- Strengthening radiation protection by establishing an effective radiation monitoring of workplace.

The GAEC said it will request a follow-up INSARR mission by 2020.

### About INSARR Missions

INSARR mission is an IAEA peer review service, conducted at the request of a Member State, to assess and evaluate the safety of research reactors based on IAEA safety standards. General information about INSARR missions can be found on the IAEA Website.

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## Related Resources

 [Integrated Safety Assessment of Research Reactors \(INSARR\)](https://www.iaea.org/services/review-missions/integrated-safety-assessment-of-research-reactors-insarr)  
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