

MAST SIPPING

Online Technique for Identifying Leaking Fuel Assemblies During Core Unloading and/or Shuffling

MAST SIPPING minimizes time and effort of fuel inspections.

Challenge

Gaseous fission products released from leaking fuel into the reactor coolant is the first indicator that there is defect fuel operating in the core. The challenge is to efficiently identify the fuel assembly that is defective in the core with minimal impact to the outage refueling schedule. Here, we offer our proven solution MAST SIPPING.

Solution

MAST SIPPING has been fully acknowledged as the best technique used in a reactor for individual leaking fuel detection. Applicable light water reactor types are: pressurized water reactors, boiling water reactors or Russian-type (VVER) reactors.

The MAST SIPPING system follows the fuel handling machine cycle but has no interference with the normal functions of the cycle. The system is quick and easy to calibrate and works as follows: A water sample is taken when the fuel assembly is extracted from the core via the refueling machine mast and drawn into the hydraulic cabinet. Here, the gaseous fission products in the water are separated and analyzed. System operation and evaluation of the measured data are performed via the control unit. So at the completion of each individual fuel assembly movement the result of the test sample is completed and the fuel assembly disposition is determined as sound or leaking.

Depending on your needs, you can either purchase the entire MAST SIPPING system or just rent it. Plus, a team of our highly qualified fuel service experts is available to provide assistance during core unloading, inspection or final examination before loading into a storage cask.

Customer benefits

- Short inspection times
- No additional hold time
- Immediate information on the condition of the fuel assemblies
- Online evaluation, automatic display and documentation of results
- Operator radiation exposure is reduced utilizing remote control option

Your performance
is **our everyday commitment**

Technical information

The control unit of the MAST SIPPING system includes:

- Automation software based on Siemens SIMATIC and Microsoft Windows
- A remote control (optional)
- A highly efficient detector system
- Mechanical controls arranged within a single control unit

The system is fast and easy installed and removed upon completion of the fuel assembly inspections.

Key figures

About **21,000** fuel assemblies inspected since 1997

More than **170** fuel assemblies identified as leakers

99,9% of leakers detected during usual MAST SIPPING campaigns

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