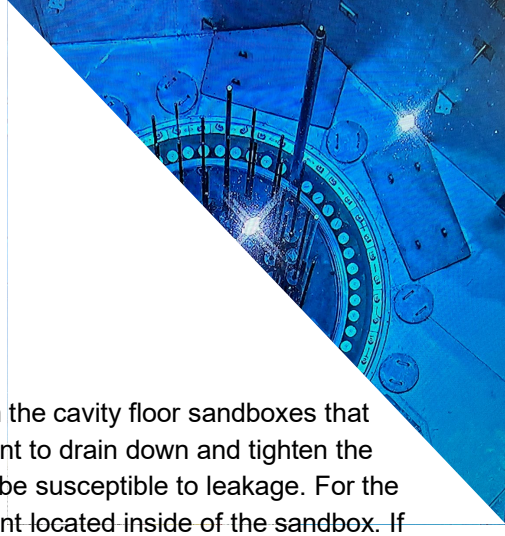


# Reactor Cavity Floor Sandbox Cover Modifications

## Background

Reactor cavity leakage during flood-up can be a major concern. Leakage can occur in the cavity floor sandboxes that house piping and instrumentation. This leakage can be minor, or it can require the plant to drain down and tighten the sandbox covers, reactor vessel / cavity seal rings, and any other hardware that could be susceptible to leakage. For the sandbox regions, even minor leakage can cause damage or corrosion to the equipment located inside of the sandbox. If the plants need to perform a drain down to resolve the leakage issues, it will result in increased radiation exposure and cause delays to the outage schedule.

Additionally, plants may spend critical path time installing and removing sandbox covers each outage. These plants typically operate with their sandbox covers removed and therefore are required to install them before reactor cavity flood-up and then remove them at the back end of the outage prior to plant operation. The sandbox covers are typically handled with the polar crane and the activities associated with installing and removing them may be on critical path.

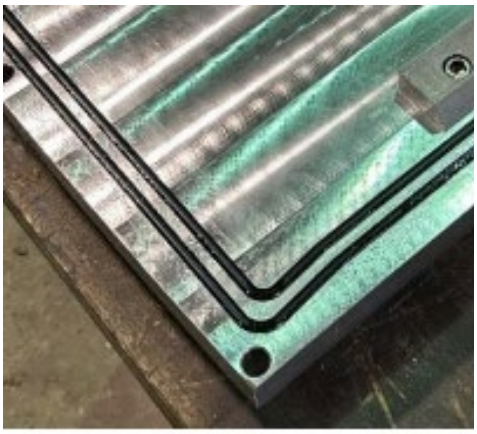
## Westinghouse Solution

Westinghouse has developed a replacement sandbox cover design that includes a double gasket seal that can be pneumatically tested to confirm there are no leaks prior to reactor cavity flood-up. The double gasket design is based on Westinghouse's permanent cavity seal ring hatch double gasketed seal design which has been installed at 20+ nuclear plants. The new sandbox cover design can be customized to fit plant specific sandboxes and greatly reduces the risk of leakage through the sandboxes during refueling activities.

Westinghouse can also incorporate a hinge into the sandbox cover design that will allow the sandbox covers to be rotated to the open position and locked / restrained for maintenance or during operation (if required) and can be bolted to the cavity floor for cavity flood-up. Plants can continue to use the polar crane to rotate the sandbox covers about the hinge or can work with Westinghouse to develop a new lifting configuration so that chain-falls can be used to open and close the sandbox covers instead of the polar crane.

## Key Benefits

- Reduces the risk of leakage through the sandboxes while the reactor cavity is flooded.
- Reduces risk that a plant would need to drain the cavity to resolve leakage issues, this would result in additional dose and delays in the outage schedule.
- Reduces the risk of damage / corrosion for components located inside of the sandbox.
- Optional hinge design reduces outage critical path time and frees up the polar crane for other activities.



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