

Smart-Sip™ High Definition Vacuum Fuel Sipping

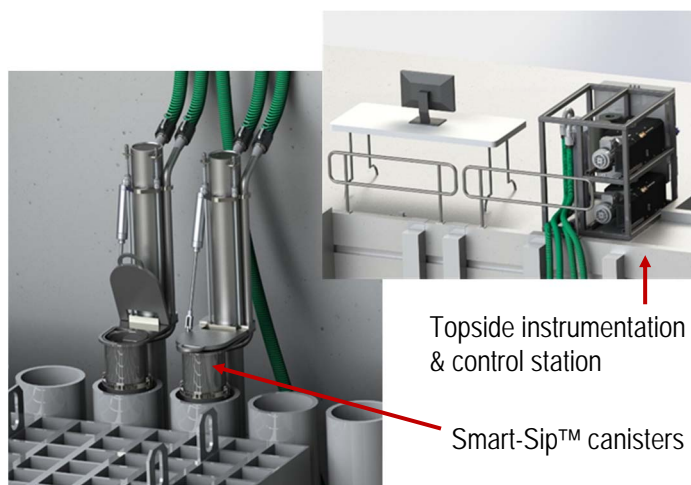
Background

Vacuum canister sipping is the NRC-preferred technique for verifying that used fuel assemblies are leak-free prior to transferring them to dry cask storage. VCS is also a standard technique for isolating a leaking fuel assembly when a fuel failure is detected during normal plant operation.

One challenge is that fission gas released during the sipping process increases background radiation levels in the surrounding pool water, making it difficult to reliably detect fuel leaks. For this reason, conventional VCS equipment is not always successful in identifying fuel leaks, and may require extended sipping time and increased subjectivity during data interpretation.

Description

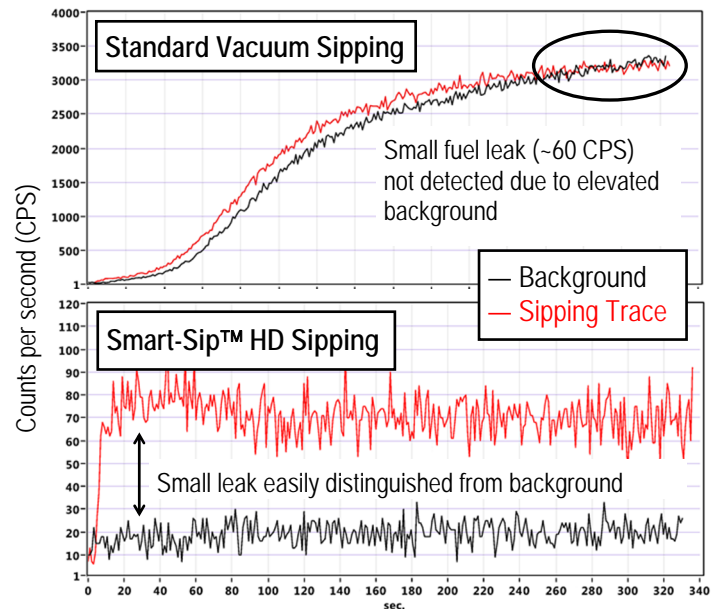
DEI's patented Smart-Sip™ technology system ensures rapid and highly sensitive fuel leak detection through incorporation of a proprietary fission gas removal system (FGRS). The FGRS strips dissolved fission gases out of pool water as it enters the canisters, ensuring consistently low background and highly sensitive fuel leak detection. Automated leak detection software is also used to increase throughput and eliminate manual interpretation during sipping.



Topside instrumentation & control station

Smart-Sip™ canisters

Smart-Sip™ equipment installation



Enhanced leak detection with Smart-Sip™

Key Features

- Proprietary FGRS facilitates high fidelity fuel leak detection and characterization
- Automated leak detection software increases sipping throughput and improves accuracy by eliminating manual interpretation
- Compact design facilitates greater flexibility in equipment installation location

Benefits

- Much more sensitive fuel leak detection
- Greater ability to characterize and disposition tight leaks (hairline cracks, pin holes, etc.)
- Reduced sipping cost and time
- Greater radiological protection of workers near sipping equipment
- No criticality control issues
- No need for monitoring or control of flush water or spent fuel pool chemistry or volume