

BNL ALARA Center Data Base

GERMANY

R-377

CONCEPT AND EXPERIENCE OF SYSTEM DECONTAMINATION WITH CORD

Keywords: CONTAMINATION REMOVAL; CORD; CORD PROCESS; DECONTAMINATION; FULL SYSTEM DECONTAMINATION; SUBSYSTEM DECONTAMINATION; COBALT REMOVAL

Principal Investigator:

H.C. Wille
Siemens AG KWU
Hammerbacherstr 12+14
D-8520 Erlangen
GERMANY
Phone:

Project Manager:

H. O. Bertholdt
Siemens
Hammerbacherstr 12+14
D-8520 Erlangen
GERMANY
Phone:

Objectives: Outline the Siemens concept for the decontamination of systems with the CORD process. The results of sub-system and full-system decontaminations of a PWR and a BWR is presented.

Comments: The latest decontamination processes used by Siemens AG KWU may be characterized as follows:

- low chemical concentrations
- simple analytical monitoring
- short treatment cycles of a few hours with continuous adjustment of the chemical concentration
- waste reduction to the virtual elimination of secondary waste

The use of permanganic acid as oxidation agent in the process makes it possible to perform a decontamination cycle (oxidation, reduction, and decontamination) with only one system fill, thereby avoiding an intermediate cleanup and rinsing step.

Also, the CORD process does not leave chelating agents in the final waste.

There is virtually no external equipment required for the decontaminations of Siemens PWR primary loop. But for Westinghouse built 3 loop units and BWRs, additional purification equipment is required.

Remarks/Potential for dose limitation:

- A recirculation loop decontamination at the 640 MWe NPP Wurgassen led to a saving in personnel dose of 2000 mSv.
- During the decontamination of the sealing water supply system of the internal axial flow pumps with CORD in a German BWR (KKI), the personnel dose was reduced by 300 - 400 mSv.
- CORD was applied in 1990 and 1991 to Swedish BWR (OKG) subsystems. The two decontaminations resulted in savings of 250 and 200 mSv for the repair and inspection work respectively.

BNL ALARA Center Data Base

GERMANY

R-377

- In 1991, a FSD with CORD at the BR3 in Mol/Belgium resulted in personnel dose savings between 4000 and 8000 mSv for subsequent dismantling operations.

References: Wille, H., Bertholdt, H.O., "Concept and Experience of System Decontamination with CORD," *Water Chemistry of Nuclear Reactor Systems 6*, Vol. 2, pp. 161-167, British Nuclear Energy Society, London, 1992.

Duration: from: 1991 to: 1992

Funding: N/A

Status: Completed

Last Update: September 1, 1993