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R-409

FULL REACTOR COOLANT SYSTEM CHEMICAL DECONTAMINATION - NATIONAL DEMONSTRATION

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FULL-SYSTEM DECONTAMINATION; INDIAN POINT 2

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Objectives: The project had the following objectives:

1. To demonstrate that a decontamination factor of 5 was achievable
2. Lower O&M costs by increasing productivity
3. Show process does not adversely affect equipment
4. Demonstrate the waste form is acceptable for burial
5. Create a bridge from subsystem to fuel-in decontamination

The scope of the project was to decontaminate the following systems:

1. Reactor Coolant System
2. Residual Heat Removal System
3. The Chemical and Volume Control System
4. Portions of the Primary Sampling System

Comments: The following approaches were used during this decontamination:

1. A five step AP/CAN-DEREM process was used.
2. Fuel was out.
3. CRD shafts were removed and placed in a shielded tank.
4. Reactor head was on with 1/3 of the studs torqued.
5. Three of four Reactor Coolant Pumps provided heat and flow.
6. Process system was linked to RHR system to provide cooling.
7. Operation was under "Decon mode" procedures.

The decontamination was successful and the following results were achieved:

1. A decontamination factor of 7.8 (goal was 5)
2. Resin volume of 1,770 (goal was <2,400)
3. Outage dose avoided was 650 rem (goal was 560)
4. The dose in rem saved over the life of the plant should be well above the goal of 3,000

Remarks: One major benefit of the experience was that it was shown that operation and maintenance costs were significantly reduced:

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1. 15 days of net critical path time was saved.
2. It is estimated that greater than 3,000 person-rem will be avoided.
3. Time, labor, materials and waste were reduced.
4. Net present worth is estimated at \$20-25 million over 10 years.

References: Parry, J.O., and S.A. Trovato, "National Demonstration of Full RCS Chemical Decontamination," Proceedings, EPRI Radiation Field Control and Chemical Decontamination Seminar, Tampa, Florida, November 1995, EPRI Distribution Center, P.O. Box 23205, Pleasant Hill, CA 94523.

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Status: Complete

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