

Palisades Presentation

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Outage SPOC

Background for Palisades, March 31 2001

- ◆ Discovered a through wall leak on control rod upper housing number 21 during PCS walkdown.
- ◆ Performed Ultrasonic testing and visual testing on outside of upper housing. These inspections found indications on upper housings number 25 and 40.
- ◆ Began weld over lay preparations, during grinding of through wall discovered the crack to be different than expected from UT results.
- ◆ Radiographed weld areas and discovered circumferential cracking. 7 more upper housings had indications.
- ◆ Condition of inner housing was questioned. Used camera with high magnification to perform VT. 18 additional housings had indications.
- ◆ Decision to replace all 45 upper housings

Exposure for Activities (Person-Rem)

| Activities for Palisades NPS | |
|-----------------------------------|-----------------------|
| CRD Upper house Removal | Exposure (Person-Rem) |
| Seismic | 10.4 |
| Cutting | 55.9 |
| Preps | 2.2 |
| Dose received during installation | Exposure (Person-Rem) |
| Seismic | 9.2 |
| Installation | 21.8 |
| Support Tubes | 5.4 |
| NDE | 4.9 |
| Final Dose per Phase | Exposure (Person-Rem) |
| Discovery | 48.4 |
| Removal | 73.4 |
| Installation | 63.7 |
| TOTAL | 185.5 |



Palisades Lessons Learned

Lessons from Removal Phase

- Installing cutting machine took longer than expected due to head curvature
- Original shield package was difficult to work on or with. Design new shield package (roman shields)
- Difficulty removing seismic restraints bolts.
- Stopped work after 4 CRD housing removal due to higher than anticipated dose. Could have been documented better but understood situation and dose consequences.

Dose Saving Initiatives for the Removal Phase

- Mock-up Training
- Shield packages
 - ICI flanges
 - Roman Shields
 - Shield floor over roman shields-increases distance from source
- Approximately 14,000 pounds of shield on head.
- General area dose rates went from 100-150 mrem/hr to 30-75mrem/hr with new shielding.

Lessons from Installation Phase

- Initial crew size difference from days to nights.
- Expertise of personnel performing alignment and welding.
- Changed method of housing alignment from a plumb-bob to laser light.

Dose Saving Initiatives for the CRD Upper Housing Installation Phase

- Mock-up Training
- Approval of dose extensions up to 4 rem.
- Camera used during QC hold point
- Installation of more than one at a time
- Created tool to install rice paper for argon welder
- Installation of seismic before placing housing on head
- Exposure rate reduction due to the new housing