

### **3442. ALARA CONSIDERATIONS FOR PWR REACTOR VESSEL ANNEALING**

Due to the level of neutron irradiation, annealing was considered necessary to enable the Palisades Nuclear Plant reactor vessel to operate to the end of plant license. A project was initiated for vessel annealing as a contingency by 1998. Recalculation of vessel neutron flux and material embrittlement were performed in parallel. Reactor vessel annealing is performed by heating the base and weld metal to approximately 850° F for a one week period. Due to system constraints, a "dry" anneal would be necessary. This would require shielding of the reactor vessel internals during storage for the anneal. Instrumentation of the reactor vessel exterior would require extensive work in the reactor annulus area. Supplemental insulation of the reactor vessel was also under investigation. Prior to cancellation of the annealing project significant progress was made on the conceptual design to incorporate conventional ALARA techniques in planned reactor annulus work and innovation for shielding of the reactor internals.

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