

**From:** Timothy O'Hara  
**To:** jrw1  
**Date:** 08/14/2006 12:54:01 PM  
**Subject:** Fwd: Summary of Oyster Creek Liner

John,

Please see Mike's briefing paper about the OC drywell. It's good background.

Tim

**From:** Michael Modes  
**To:** TLO1@nrc.gov  
**Date:** 08/10/2006 2:50:34 PM  
**Subject:** Summary of Oyster Creek Liner

Timothy,

Can you give the attached briefing paper a quick read? Let me know if I mis-stated anything. BTW ... you did say you were unavailable to attend the exit on September 13th 6:30 Lacey Township?

Thanks.

M<sup>2</sup>  
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**From:** Timothy O'Hara

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### BRIEFING PAPER: DRY WELL LINER ISSUE

About 20 years ago, Oyster Creek's then-licensee identified corrosion on the outside of the drywell liner, finding the most severe corrosion in the sand bed region.

The apparent cause of the corrosion was water that entered the annulus between the liner and the concrete shield wall, from a leaking seal at the refueling cavity when it was flooded for refueling activities.

In 1986, GPU, then the licensee of Oyster Creek, used ultrasonic testing at two elevations of the drywell liner – 11 feet (in the sand bed region), and 51 feet – to determine the extent of the damage caused by the corrosion. The UT measurements taken at the 51-foot level did not reveal significant damage; however, of the 143 UT measurements taken in the sand bed region at the 11-foot level, 60 measurements indicated a reduction of more than 1/4 inch from its design thickness of 1.154 inch

From November 1992 to February 1993 – Oyster Creek permanently removed all the sand from the sand bed region, cleaned the rust and scale from the drywell liner in that region, and applied a protective epoxy coating to the corroded areas of the drywell liner in that region

A visual inspection of the drywell liner conducted, prior to the remediation, from the 10 access bays surrounding the liner revealed corrosion in the shape of a "bathtub ring" in each bay, which the licensee described as "an 8 to 18 inch wide band" about "30 to 40 inches long. It should be noted the total summation of all the observable corrosion is 390 inches -less that 33 feet- in a total perimeter of 150 feet or 28% and is not contiguous around the liner.

Readings taken in 1991 showed the minimum thickness in the sandbed to be 0.803" and the thinnest measurement in December 1992 was 0.800".

In September 1994 readings were again taken with no measurable degradation. Visual examinations also showed the integrity of the epoxy coating was being maintained. Oyster Creek took UT readings in 1996 (16<sup>th</sup> Outage) of the sandbed region and performed visual examinations fo the coating. No additional corrosion was noted.

Oyster Creek continues to monitor, by UT, the cylindrical portion of the liner although no appreciable corrosion has been noted.

A SIDE ISSUE: The NRC Staff approved the inspection plan (in an SER 11/1/95) , with the caveat that "since water leaking from the pools above the reactor cavity has been the source of corrosion, the licensee should make a commitment to the effect that an additional inspection of the drywell will be performed about 3 months after the discovery of any water leakage" Further correspondence from GPU reduced this "requirement" by making the case that the epoxy coating was mitigating corrosion and the water was now not relevant. This issue was raised when it was reported that Amergen emptied water jugs that were recepticals of leakage from the cavity drains by-way-of tygon tubing, prior to the NRC walk-down of the Torus Room.

#### ADDITIONAL DOCKETED COMMITMENTS

Prior to the period of extended operation additional visual exams, IAW Sec XI, IWE, such that all 10 drywell bays have been inspected once. 100% of all epoxy coating will be inspected

every 10 years during the extended period with at least 3 bays per outage.

UT of the drywell shell at the sandbed at a frequency of 10 years in the same locations as the 96 readings, then compared to the 92, 94, and 96 results. STATISTICALLY SIGNIFICANT DEVIATIONS (this language is the subject of the NIRS rebuttal) will result in additional UT, NRC notification within 48 hours, visual inspection of the exterior of the liner in the sandbed where the unexpected corrosion was found. Engineering evaluation and Operability determination.

Commitment to use a strippable coating on the refuel cavity.

Commitment to monitor leakage at the sand bed drains.

Visual examination of the drywell shell in the drywell floor inspection access trenches. Degradation will be evaluated and corrective actions taken as appropriate. Inspected as part of the IWE program or restored to original condition, or using concrete or other suitable material to prevent moisture from collecting.

Torus coating will be visually inspected in accordance with IWE "Protective Coatings Program"

UT measurements will continue to be taken in the upper regions of containment.