

Exhibit

ANC 3

Turnover 10/21/06 Night to 10/22/06 Day: JFOR to JGH

Completed today

1. Completed computation to determine how long it would take the trickle of water from the 2 ½ inch pipe into the 1-8 sump (measured at 200 ml/min) to fill the sump to 8 inches (7 gallons per inch sump capacity).
2. Completed Excel spreadsheet to compare the chemistry data from the latest chemistry samples of Reactor Water, Condensate, RBCCW and TBCCW with the six samples that were taken of water in the drywell (1-8 sump, CRD leakage, Trench in #5 Bay, DW Trough).
3. Completed Excel spreadsheet to document the inspections of the water in the Bay 5 Trench area. Activities concluded pending fluorescent dye test.
4. Completed computation to determine how much water was being removed from the Bay 5 trench based on the vacuum container being emptied at 1715 on 10/21/06. Based on 2 ½ inches of water in container and a capacity of 0.8 gallons per inch for the container, about 2 gallons of water was removed in a 30 minute period. A subsequent check based on a 3 hour, 23 minute period, about 1 ¼ inches of water was removed or 1 gallon. This indicates the rate of water flow into the trench has slowed (0.067 gpm for the first check versus 0.005 gpm for the second check).
5. Action Plan for fluorescent dye test drafted by Ralph Larzo. Sent to Chemistry (Michelle Mura and Leanne Birkmire) for review.
6. Provided Chemistry with AR Number A2133635 to document evaluation of fluorescent dye for use in tracer test (IR 545422 that documented the water in the trenches was completed and an AR could not be created under this IR per Rick Skelskey so A2133635 was used (C2013479 under this AR is for the UT inspection of the trenches).

Turnover to next shift

1. Maintain Communications requirements
2. Orientate Day Shift tomorrow to Status report on the K Drive, Engineer/1R21 Drywell Inspections/Specs Data Sheets/ Excel Spreadsheet with Status Report. E-mail in the morning to normal e-mail distribution from previous days.
3. Discuss documents list that Howie Ray asked Tom to put together and see what he still needs (Howie and I did not have time to discuss before he had to leave).
4. Check to see that chemistry samples results were received. They were supposed to go to Howie. I tried to get John Diletto on the phone to reroute to OC Chemistry but was not successful (left urgent message).
5. Confirm with EOM that scaffold was built to support inspections in upper areas of drywell and that Venture support was provided to lift scaffold at 23' elevation to support plate transition UT's.
6. Implementation of Tracer Test by Chemistry. Need observation of the trench at 15 minute intervals (need to determine who to do this).

Exhibit

ANC 4

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CORRO-CONSULTA

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MEMORANDUM

To: Richard Webster, Esq
Rutgers Environmental Law Clinic
Newark, NJ, 07102

December 19, 2006

From: Rudolf H. Hausler
Corro-Consulta

Subject: **General Discussion of the Assessment of the Serviceability of the Oyster Creek Nuclear Generating Station Drywell Liner in Light of New Information Contained in recent AmerGen Submissions to the NRC and the ASLB.**

I. Background

The AmerGen Company, Operator of Oyster Creek Nuclear Generating Station (Oyster Creek), is applying for a license to allow continued operation of the 40-year-old Oyster Creek Plant for another 20 years. An integral and vital part of the operating license extension is the assessment of the integrity of the drywell liner, (the primary containment of the nuclear reactor), and the assessment and monitoring of its aging management process. A number of concerns involving the integrity of the drywell had been discussed before (Ref. 1 – 6). In particular, the following notions had been brought forward:

- The integrity of the epoxy coating in the former sandbed area should not be assessed visually only since holidays and pinholes can hardly be expected to be seen in the confined space. Furthermore, it cannot be assumed that the rate of deterioration of an epoxy coating is “linear” with time, rather, once flaws have been initiated, the “cancerous area” grows exponentially, and the rate of such growth cannot be predicted. Hence much more frequent inspections must be planned. Standard methods for detecting pinholes and holidays had been put forth. Apparently, according to the newest information (see below), the anticipated life of the coating of 8 to 10 years, as specified by the vendor, was quite well predicted.
- There are various structural integrity criteria used to assess the continued serviceability of the drywell shell. Some relate to the average thinning over a given area and define a “buckling” limit. Others relate to localized pit penetration and define containment pressure limits. It was an objective of the

2006 refueling outage to assess the degree of deterioration, which may have taken place over the period of from 1996 to 2006, particularly in the former sandbed area. This new information coming forth from the 2006 NDT effort puts into question the entire corrosion monitoring data both new and historical. In particular, it has become quite clear now that the scope of the aging management as it applies to the drywell liner is totally inadequate.

- This is due to the fact that the floor inside the drywell has experienced significant standing water, the consequences of which need detailed discussion. AmerGen just recently recognized the fact that corrosion may have occurred on the inside embedded region defined as the region where the curb and the inside floor meet the drywell liner. Such corrosion would reinforce the outside bathtub ring (sandbed region) with an inside bathtub ring (essentially behind the curb) and significantly lower the margin of safety or negate it completely. The current monitoring scheme could not possibly assess these realities if in fact they were to exist.
- A second embedded region exists between the sandbed floor and the outside of the drywell liner. If the floor, the coating of the floor and the sealer at the crevice between the floor and the wall of the liner were in good condition corrosion in that embedded region would likely not be a concern. However, attempts to deal with the problem, as inept as they were, have not been able to resolve the question.

II. General Comments

There appears to be a tendency on part of AmerGen to present certain conditions and facts in milder terms (euphemisms) than had been done earlier and than reality truly merits. This contention is illustrated below with just one example of many:

- It had been well established that after removal of the sandbed the sandbed floor had been found in a state of significant deterioration (Ref 7).
 - *The drainage channel, as shown in the drawing, was completely missing*
 - *Drain pipes were 6 to 8 inches above the floor level and some were clogged*
 - *The floor was cratered with some craters adjacent to the shell. A few craters were big, about 12 to 13 feet long and 12 to 20 inches deep and 8 to 12 inches wide.*
 - *Concrete reinforcement bars could be seen bare in many bays.*

However, more recent characterizations of the sandbed floor following removal of the sand are: “concrete surface was found to be unfinished with improper provisions for water drainage” (Ref. 8 pg 12 of 74) and “the sandbed floor was found to be cratered and unfinished” (Ref. 9 pg 4-3).

Clearly these latter characterizations of the sandbed floor do not exactly reflect the severity of the deterioration reported earlier. The concern with the

sandbed floor is important since it is the only direct indication one has regarding the possible aggressiveness of the water and the resistance of the concrete to breaking up (see discussion below)

- To a large extent one also finds that monitoring work performed during various outages is presented as much more than it actually is in order to create the impression of great due diligence. Thus one reads for instance on pg 6-2 of Ref. 9 that *“prior to applying the coating the entire surface of the outside of the drywell liner in the sandbed area was visually inspected to validate the UT thickness measurements previously made from inside the drywell, and to identify local areas thinner than the minimum average general thickness of 736 mils. 125 such areas were identified by visual inspection”*. One has to ask the question how a man in a confined space of 15” wide, 3’3” high and several feet long can examine a surface visually and select areas of corrosion where the penetration would have been more than 0.415 inches. It stretches credulity particularly when in the end 125 such locations were identified and they were all located in the sandbed area below the various vent lines, and in essence close to the areas of the measurements from the inside. Hardly a reflection of the random nature of corrosion.
- Additional instances of vague reporting or poorly substantiated conclusions will be discussed below. Suffice it to state here that the entire aging management plan as outlined by AmerGen for Oyster Creek, as extensive as it may appear, is poorly conceived, poorly executed, and the results are poorly interpreted.

III. Details

1. The Embedded Areas

AmerGen has recently recognized (or admitted to the fact) that corrosion of the embedded areas is at least a concern, if not a problem. There are three kinds of embedded areas where the drywell liner may be subject to corrosion. The first of these concerns the steel in contact with the concrete of curb and the inside drywell floor. This area is essentially at the same elevation as the sandbed area (see attached Fig. 1). The second embedded area focuses on the steel of the liner in contact with the concrete of the sandbed floor, i.e. the outside embedded area. The third, more general class of embedded steel surfaces are all those in contact with concrete of the foundations where intrusion of groundwater could lead to degradation of the concrete and subsequent corrosion.

In order to begin to deal with these questions two trenches were dug inside the drywell opposite bays 5 and 17. The depth of these trenches originally (in 1986) nominally reached to the elevation of the sandbed floor. In actuality the trench in Bay 5 was 2 inches below the nominal elevation of the sandbed floor while in Bay 17 the depth of the trench was two to 4 inches above the sandbed floor. At this time UT

measurements confirmed corrosion in the sandbed area (bathtub ring corrosion). Specifically “measurements inside the trenches (579 individual UT measurements in the two trenches) showed that the reduction in shell thickness below the drywell concrete floor level (10’3”) was no greater than indicated above the floor level”. In order to fully understand this statement, please refer to Fig. 1. The UT measurements “above the drywell floor” made from the inside of the drywell (by means of the “grid”) at the elevation of 11’, i.e. at locations where the curb was lowered due to the attachment of the vent lines to the drywell liner. Inside the trenches, i.e. where the curb was the normal height of 2’3” corrosion could be assessed essentially over the full depth of the sandbed. Because these measurements reflected the measurements above the sandbed floor (see Fig. 1), the trenches were subsequently filled in with synthetic resin foam and covered up. No further measurements were made in the trenches until the outage of 2006.

In passing, I note that AmerGen did not present any discussion regarding corrosion of the shell from the inside of the drywell at the sandbed elevation.. This is likely because potential corrosion of the drywell liner on the inside opposite the sandbed region could not have been distinguished by UT measurements from the corrosion on the outside in the sandbed area. Second, the trenches at first were not deep enough to assess the outside embedded areas. However, in 2006 the trench in Bay 5 was dug deeper by 6 inches and would at that point in time have been 8 inches below the sandbed floor. While in 2006 a large number of measurements were made in both trenches, only average wall thicknesses were reported (see also pg 20 of Ref 8 – 0.041” loss in embedded region). The wall thickness below the sandbed floor was not separated out from the wall thickness in the sandbed region. Moreover, Bay 5 was and is the least corroded, and is not the one where the trench should have been deepened to assess the outside embedded area corrosion. As a consequence, one does at this point not have any valid information with respect to the corrosion of steel (containment of structural) in concrete embedded area.

In 2006, when the two trenches were opened again water was found in both of them. It appears that there is enough leakage inside the inaptly named drywell to at times generate standing water. It is not known how high the water may get. However, it was found necessary to seal off the gap atop the curb where the concrete meets the steel of the inside of the drywell liner. (Much of the water may have been condensation running down the inside walls of the liner). Clearly, corrosion behind the concrete of the curb was reasonably being suspected. If in fact water had entered that gap the same type of differential aeration cell would have been formed and would have led to corrosion rates comparable to the rates found in the sandbed. In fact a new bathtub ring might have formed a few inches below the top of the curb. The dangers of such a ring, we suggest are significant and AmerGen must conduct further UT testing to discover whether interior corrosion below the concrete curb is significant..

(It should be noted that all the measurements regarding the depth of the trenches relative to the sandbed floor are nominal, i.e. according to the drawings (Fig. 1). Since it had been found that the sandbed drains were 6 to 8 inches above the floor one

might justifiably ask the question whether the floor was at the correct elevation to begin with. Data like these have never been properly verified even after the sandbed had been removed and the floor had been found to be in a bad condition.)

AmerGen of course realized lack of quantitative factual information regarding the embedded region and proceeded to structure an elaborate argument in order to demonstrate and “verify” that steel in contact with concrete will not corrode. This argument is based in essence on an EPRI advisory report (see Ref. 9 subref. 30). The EPRI report states: *“The high alkalinity of concrete (pH > 12.5) provides an environment around embedded steel and steel reinforcement which protects them from corrosion. If the pH is lowered to about 10 or less, corrosion may occur, however, the corrosion rate is still insignificant until a pH of 4 is reached. (Please note that the term insignificant has not been quantified and clearly depends on the expected life of the structure in question). A reduction in pH can be caused by leaching of alkaline products through cracks, the entry of acidic materials, or carbonation. Chlorides may be present in constituent materials of the original concrete mix (i.e. cement, aggregates, admixtures, water, etc.), or they may be introduced environmentally. The severity of corrosion is influenced by the properties and type of cement, and aggregates as well as moisture content (again, non of this terminology is quantified).*

The aging effects due to corrosion of embedded steel (e.g. inserts, embedded plates, and channels, and steel reinforcements are visible concrete degradation and steel corrosion. The presence of corrosion products on embedded steel subjects the concrete to tensile stress that eventually cause hairline cracking, rust staining, spalling and more cracking”.

Now EPRI specifies a water composition necessary for significant concrete degradation: pH < 5.5, Cl⁻ > 500 ppm, SO₄⁼ >1500 ppm. However, this limiting composition does not apply to corrosion as indicated above.

Analysis of the Facts: The water draining from the sandbed was analyzed in 1986 as follows: pH = 8.46, Cl⁻ = 45 ppb, and SO₄⁼ = 17 ppb. This is the only available analysis of sand bed water. Clearly this composition reflects highly “polished” water originating from steam generation. It is hard to believe that water, which has run down the outside of the drywell liner through the compressible material separating the drywell liner from the reactor housing, which material is said to a magnesium oxy chloride, should not contain chlorides in at least the ppm range if not hundreds of ppm. In the absence of duplicate analysis it may be fair to suggest that this analysis is atypical. We believe it to be because the corrosion rate of the drywell liner in the sandbed area was of the order of tens of mpy varying from bay to bay prior to the application of the epoxy coating, hence quite outside EPRI’s characterization of “low”. Furthermore, the concrete floor in the sandbed region clearly was more than just unfinished. Along with the sand copious corrosion products were removed as well. It may be argued that these originated from the outside of the liner exclusively, however, it is clearly stated that rebar was exposed.

Now it may be quite possible that indeed the floor was “unfinished”. Meaning that that the concrete after pouring had not been properly degassed and that therefore crevices and craters remained and rebar remained exposed because a) concrete was poured short or b) rebar was built up to high. We think the former may be the case because it has also been said that the drains in the sand bed were several inches above the floor. Nevertheless, there were cracks and craters and crevices observed, some rather large and located between the concrete and the liner. First, we know that the water was corrosive, second we can reasonable infer that the rebar corroded as well and caused the concrete to spall, and third, water in the crevices near the drywell liner would have caused corrosion in the embedded area.

AmerGen brings forth a convoluted argument to demonstrate that this should not have happened. First, Amergen explains correctly that the drywell liner in the sandbed region corroded because of a differential aeration cell in which the oxygen starved area becomes anodic and corrodes while the cathodic reaction occurs at the oxygen rich area, i.e. outside the sand bed. Now, the cracks in the embedded area are at the lowest level of the sandbed and hence most oxygen starved and should therefore corrode the most. However, AmerGen maintains that the embedded areas were “somehow protected by the anodic reaction in the sandbed area”. The reason why possibly corrosion in the crevices in the embedded areas may have been less than in the region of the bathtub ring is related to the conductivity of the water present. At low conductivity of the water in the sand bed, the differential aeration cell would have been confined to the top of the sand bed. However, a gradual decrease of the extent of the corrosion attack with increasing depth in the sandbed has not been demonstrated. Rather, there are indications that the corrosion rate (pitting rate) was evenly distributed over the height of the sandbed.

Therefore, there remains great uncertainty with respect to the extent of the corrosion attack in the embedded region of the drywell below the sandbed floor, and therefore great uncertainty with respect to the integrity of that part of the drywell liner.

There are other embedded areas, which are of some concern. These deal with the possible intrusion of groundwater toward the lower part of the drywell. The groundwater analysis indicates that the pH is of the order of 5.6 to 6.4 with low chlorides (3 to 138 ppm) and low sulfates (7 – 73 ppm). On the face of it this water is certainly corrosive toward carbon steel, but probably only mildly aggressive toward concrete.

In discussing the impact of this (these) analysis one needs to also take into consideration a number of facts:

- The plant started operating in 1968 and was no doubt designed under specifications and guidelines predating the start-up date. These guidelines have changed over the 40 years past. It is therefore inappropriate in our opinion to quote a 2003 EPRI document with respect to water quality and its

aggressiveness upon concrete structures without at the same time presenting the nature of the concrete with which the water is in contact. Reason: concrete specifications have changed as well over the past 40 years. **The emphasis on monitoring ground water composition must be matched with emphasis on the chemical composition of the concrete.** 40 years ago nobody could predict the deterioration of a given concrete structure in contact with a given water composition 40 years into the future, let alone 60 years.

- AmerGen is well aware of these difficulties. For this reason AmerGen attempts to demonstrate that a) the groundwater is not aggressive to the below ground level concrete structures, and b) that there is virtually no possibility for groundwater to reach the embedded steel structures. However, in reading the protracted arguments we find them studded with unsubstantiated assumptions. The real concern here is that if indeed the concrete structures surrounding the lower part of the drywell liner and the foundations on which the entire housing rests were in equally poor condition as the sandbed floor had been found in, then all arguments toward water not being able to penetrate the concrete barrier and reach the embedded steel structures would be voided.
- AmerGen has argued that water in contact with concrete would become alkaline and that “thermodynamic calculations demonstrate that iron cannot corrode in the region of pH 12”. This argument is patently false. A review of the Pourbaix Potential diagram for iron (standard in the industry) shows clearly the opposite. In fact detailed studies by Lorenz and others in Germany and Denmark have shown that the OH ion catalyses the corrosion reaction. The fact that the corrosion reaction rate decreases at higher pH is based on the formation of a corrosion product layer (rust – iron oxide – iron oxy-hydroxide – or wustite) and it is the inherent protectiveness of these layers which governs the corrosion rate.

In conclusion it must be said that very little, if nothing, is known about the integrity of the embedded regions (both concrete and steel). AmerGen has taken the approach of arguing themselves out of any concerns using at times questionable assumptions. However, what little facts are available would indicate that the concrete surrounding the below grade steel structures is not in the best of conditions.

2. The Epoxy Coating in the Former Sandbed Area

After the removal of the sandbed the sandbed floor was “built up” and then both the floor and the drywell liner in that area were coated with epoxy. Indications are that the “build-up” of the floor was accomplished with the same epoxy product as later the coating. It is hard to understand how 6 to 8 inches of epoxy coating were applied to the floor in order to bring the floor level up to the level of the drains.

Prior to applying the coating, extensive tests were conducted in order to determine the best method of application which would result in about a 10 mil coat with a minimum of holidays, cracks, and/or blisters. While during these extensive tests test panels were routinely examined for pinholes etc. Surprisingly there does not seem to be any

documentation to such examination once the coating had been put in place in the former sandbed region.

The coating, being a primary barrier to continued corrosion in the sandbed area, was an important part of the aging management and was "visually inspected" at intervals during refueling outages. All reports indicated that the coating was in pristine condition. On December 3, 2006 AmerGen reports to the NRC (Ref. 8, pg. 13 of 74) that the VT-1 inspection program would have documented any flaking, blistering, peeling, discoloration, and other signs of deterioration of the coating. **The VT-1 inspections (during the 2006 outage) found the coating to be in good condition with no degradation.**

However, in the submission to the ACRS (Ref. 9 pg. 7-3) AmerGen states that: **"AmerGen observed in 8 of 10 Bays separation/cracking of the floor epoxy coating"**. The comments continue to say that: "these areas had no impact on the exterior drywell shell epoxy coating or the caulk seal between the drywell shell and the sandbed floors because the cracks were in areas of the floor away from the shell".

Now the sandbed floor is only 15" wide. Even if the cracks/separation in the coating were removed from the wall, it is not a stretch of the imagination that water seepage in the cracked concrete to the drywell wall most certainly did take place. However, AmerGen did not concern itself with this possibility.



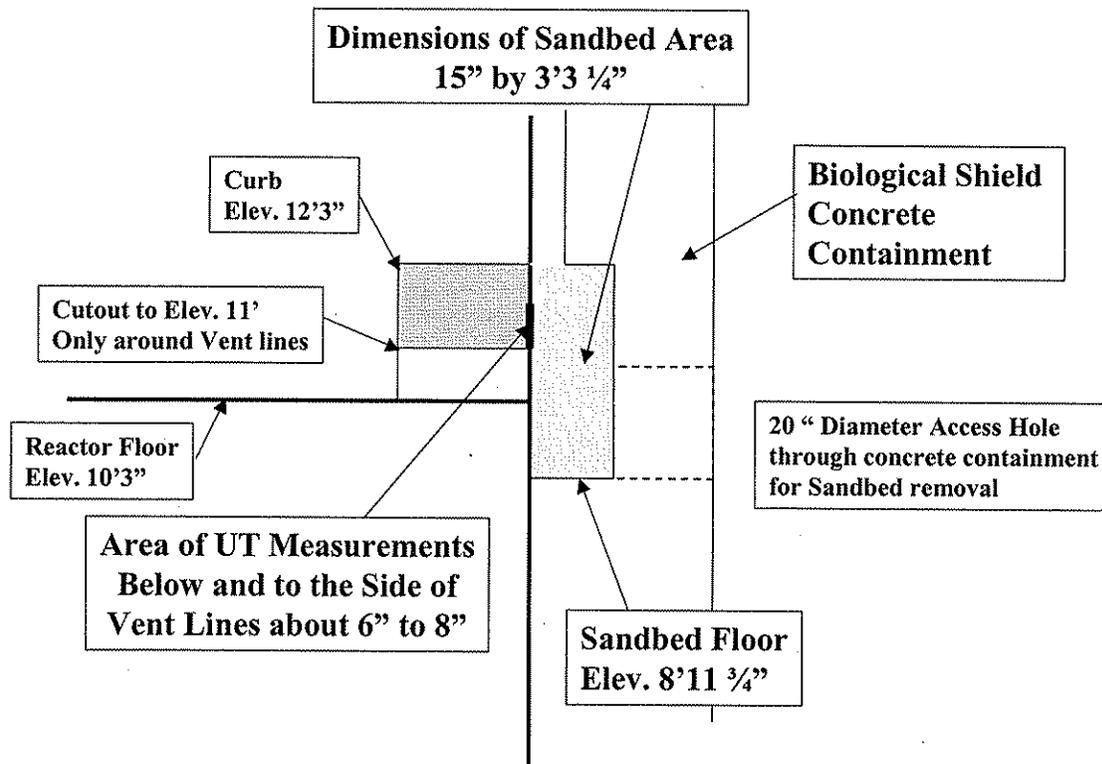
December 19, 2006

References

1. Memorandum: Corro-Consulta to Paul Gunter, President NIRS, Nov. 10, 2005, *Oyster Creek Drywell Liner Corrosion*
2. Memorandum: Corro-Consulta to Paul Gunter, November 12, 2005, Outlines areas of concern re. drywell liner corrosion, not heretofore emphasized.
3. Memorandum: Corro-Consulta to Richard Webster, Esq., March 16, 2006, *Oyster Creek Drywell Corrosion, Additional Evidence for Continued Corrosion*
4. Memorandum: Corro-Consulta to Richard Webster, Esq., June 9, 2006, *Statistical Analysis of Amergen-Exelon UT Data; Drywell Corrosion*
5. Memorandum: Corro-Consulta to Richard Webster, Esq., June 12, 2006, *Discussion of Corrosion Monitoring Methodologies At Oyster Creek Nuclear Plant Drywell*
6. Memorandum: Corro-Consulta to Richard Webster, Esq., June 22, 2006, *Discussion of Corrosion Monitoring Methodologies At Oyster Creek Nuclear Plant Drywell.*
7. Letter: GPU Nuclear Corp to NRC, Sept. 15, 1995, *Drywell Corrosion Monitoring Program.*
8. Letter: AmerGen to US NRC, Dec. 3, 2006; Information from October 2006 Outage Supplementing AmerGen Energy Company, LLC (AmerGen) Application for Renewed Operating License for Oyster Creek Generating Station (TAC No. MC 7624)
9. ACRS Information Package, Submitted by AmerGen to NRC Dec. 8, 2006

Schematic Cross Section through Sandbed Area
(not to size)

Figure 1



Exhibit

ANC 5

*** ACTION REQUEST ***

A/R TYPE : CM ECR
REQUEST ORG : OED
REQUEST DATE: 21OCT06
REQUESTED BY: TAMBURRO

A/R NUMBER : A2152754
A/R STATUS : ASIGND
STATUS DATE: 23OCT06
LAST UPDATE: 25OCT06
PRINT DATE : 25OCT06

EVALUATION NBR: 01
EVALUATING ORG: OEDM
EVAL ASIGND TO: TAMBURRO, PETE
EVAL REQUEST ORG: OEDM
EVAL REQUESTOR: RAY, H
EVAL RETURNED BY: HUTCHINS, SP
ORIG DATE ASSIGNED:
EVAL DUE DATE: 23OCT06
DATE ASSIGNED: 22OCT06
EVAL STATUS : RETURN

IMPORTANCE CODE: OEAP: SCHEDULE CODE: DATE FIXED:

EVAL DESC: DETERMINE PROPER SEALANT FOR DW SANDBED FLOOR VOIDS	TAN0 23OCT06
*****	TAN0 23OCT06
DETERMINE/EVALUATE THE PROPER FILLER (SEALER, CAULK, ETC)	TAN0 23OCT06
MATERIAL TO USE ON THE VOIDS/SEAMS IN THE DW SANDBED BAYS	TAN0 23OCT06
AS DESCRIBED IN IR/AR # 00546932.	TAN0 23OCT06
*****	TAN0 23OCT06
THE SUBJECT EVALUATION (QUESTION) REQUIRES TECHNICAL	PXT0 23OCT06
(DIRECTION, GUIDANCE, INTERPRETATION, EVALUATION) TO BE	PXT0 23OCT06
GIVEN TO THE REQUESTOR (MAINTENANCE). AS SUCH, THE	PXT0 23OCT06
RESPONSE WILL BE TREATED AS A TECHNICAL EVALUATION IAW	PXT0 23OCT06
PROCEDURE CC-AA-309-101.	PXT0 23OCT06
THE RESOLUTION OF THIS TECH EVAL WAS REVIEWED IN	TAN0 23OCT06
ACCORDANCE WITH HU-AA-1212 AND FOUND TO HAVE A RISK	PXT0 23OCT06
RANK OF 3. THEREFORE A THIRD PARTY REVIEW BY AN	PXT0 23OCT06
INDUSTRY COATING EXPERT IS RECOMMENDED.	PXT0 23OCT06
A. REASON FOR EVALUATION / SCOPE:	PXT0 23OCT06
DURING VISUAL INSPECTIONS OF THE DRYWELL VESSEL	PXT0 23OCT06
EXTERIOR COATING IN THE SANDBED REGIONS (BAYS 1,7,9 &15)	TAN0 23OCT06
AREAS WERE OBSERVED TO HAVE SEAMS/VOIDS. SPECIFICALLY,	PXT0 23OCT06
THE AREAS WHERE THE EPOXY COATING REPAIRS WERE APPLIED	PXT0 23OCT06
TO THE ORIGINAL CONCRETE FLOOR OR THE SIDE OF THE	PXT0 23OCT06
BIOSHIELD HAVE SEPARATED IN SPOTS. TO PREVENT WATER	PXT0 23OCT06
FROM SEEPING UNDER THE EPOXY, AN EXPANDABLE FILLER	PXT0 23OCT06
MATERIAL IS REQUIRED FOR THE SEAMS/VOIDS.	PXT0 23OCT06
THE SCOPE OF THIS TECH EVAL IS TO PROVIDE GUIDANCE ON	PXT0 23OCT06
FILLING THE SUBJECT SEAMS/VOIDS.	PXT0 23OCT06
B. DETAILED EVALUATION:	PXT0 23OCT06
IN 1992, THE EPOXY COATING WAS APPLIED TO THE FLOOR IN	PXT0 23OCT06
AREAS WHERE IT WAS UNEVEN, SO THAT ANY WATER ENTERING	PXT0 23OCT06
THE SANDBED WOULD FLOW AWAY FROM THE VESSEL AND BE	PXT0 23OCT06
ROUTED TO THE DRAINS. SINCE 1996, INSPECTIONS HAVE	PXT0 23OCT06
FOUND INDICATIONS OF THE EPOXY SEPARATING FROM THE	PXT0 23OCT06
CONCRETE. THIS SEPARATION COULD BE CAUSED BY THE	PXT0 23OCT06
CONCRETE SWELLING (EXPANDING AND CONTRACTING) OVER	PXT0 23OCT06
TIME.	PXT0 23OCT06

*** ACTION REQUEST ***

PAGE: 05

A/R TYPE : CM ECR
 REQUEST ORG : OED
 REQUEST DATE: 21OCT06
 REQUESTED BY: TAMBURRO

A/R NUMBER : A2152754
 A/R STATUS : ASIGND
 STATUS DATE: 23OCT06
 LAST UPDATE: 25OCT06
 PRINT DATE : 25OCT06

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THE DRYWELL IS CLASSIFIED O (SAFETY RELATED). THE	PXT0 23OCT06
CONCRETE FLOOR IN QUESTION DOES NOT HAVE A SAFETY RELATED	TAN0 23OCT06
FUNCTION. THE FUNCTION OF THE FLOOR IS TO ROUTE WATER	PXT0 23OCT06
THAT MAY ENTER THE SANDBED TO THE FIVE EQUALLY SPACED	PXT0 23OCT06
DRAIN LINES AND KEEP THE WATER AWAY FROM THE DRYWELL	PXT0 23OCT06
VESSEL.	TAN0 23OCT06
	PXT0 23OCT06
THE SEPARATED SEAMS COULD POTENTIALLY ALLOW SOME WATER	PXT0 23OCT06
TO GET UNDER THE EPOXY COATING REPAIR. PLEASE NOTE	PXT0 23OCT06
INSPECTION OF THESE BAYS SHOWS NO DEGRADATION DRYWELL	PXT0 23OCT06
VESSEL COATING OR THE CAULKING BETWEEN THE VESSEL	PXT0 23OCT06
COATING AND THE FLOOR. SEPARATED SEAMS ARE LOCATED	PXT0 23OCT06
AWAY FROM THE DRYWELL VESSEL AND ARE LOCATED NEAR	PXT0 23OCT06
CONCRETE BIO SHIELD.	PXT0 23OCT06
	TAN0 23OCT06
THE EPOXY THAT WAS USED IN THE EARLIER REPAIR IS DEVRON	PXT0 23OCT06
184 EPOXY COATING WITH A	PXT0 23OCT06
DEVOE PREPRIME 167 SEALER.	PXT0 23OCT06
	PXT0 23OCT06
BASED ON THE CONDITIONS AND MATERIALS, THE	TAN0 23OCT06
RECOMMENDED FILLER SEALANT TO USE IS SIKAFLEX -	PXT0 23OCT06
TEXTURED SEALANT. THIS PRODUCT IS RECOMMENDED BY THE	PXT0 23OCT06
WILLIAM COATINGS GROUP AND IS TYPICALLY USED TO SEAL	PXT0 23OCT06
CONCRETE TO EPOXY JOINTS.	PXT0 23OCT06
	PXT0 23OCT06
THE SEALANT SHALL BE APPLIED PER THE MANUFACTURERS	PXT0 23OCT06
INSTRUCTIONS. ATTACHED IS THE TECHNICAL DATA SHEET FOR	PXT0 23OCT06
THE PRODUCT (SEE EVAL ATTACHMENT 1).	TAN0 23OCT06
ALSO ATTACHMENT 2 PROVIDES THE MSDS SHEET FOR THE	PXT0 23OCT06
PRODUCT.	PXT0 23OCT06
	TAN0 23OCT06
AS PER ENGINEERING STANDARD ES-027, THE ENVIRONMENTAL	PXT0 23OCT06
PARAMETERS OF THE DRYWELL (ZONE 1) ARE AS FOLLOWS:	PXT0 23OCT06
	PXT0 23OCT06
1) NORMAL PLANT OPERATING;	PXT0 23OCT06
AGING TEMP = 139 DEG F	PXT0 23OCT06
RADIATION = 20 E06 RADS	PXT0 23OCT06
HUMIDITY = 50 %	PXT0 23OCT06
PRESSURE = 16 PSIA	PXT0 23OCT06
	PXT0 23OCT06
2) DESIGN BASIS ACCIDENT;	PXT0 23OCT06
AGING TEMP = 317 DEG F	PXT0 23OCT06
RADIATION = 32 E06 RADS	PXT0 23OCT06
HUMIDITY = SUBMERGENCE	PXT0 23OCT06
PRESSURE = 53.1 PSIA	PXT0 23OCT06
	PXT0 23OCT06
THE TECHNICAL DATA SHEET (ATTACHMENT 1) INDICATES THAT	PXT0 23OCT06
SEALANT IS ACCEPTABLE FOR A SERVICE RANGE OF -40F TO	PXT0 23OCT06
170F AND IS WHETHER RESISTANT. THEREFORE THE SEALANT	PXT0 23OCT06
WILL NOT DEGRADE OVER TIME DUE TO TEMPERATURE AND	TAN0 23OCT06
HUMIDITY. THE SEALANT IS NOT REQUIRED TO PERFORM ITS	PXT0 23OCT06
FUNCTION DURING THE DESIGN BASIS ACCIDENT. THEREFORE	PXT0 23OCT06

*** ACTION REQUEST ***

A/R TYPE : CM ECR
REQUEST ORG : OED
REQUEST DATE: 21OCT06
REQUESTED BY: TAMBURRO

A/R NUMBER : A2152754
A/R STATUS : ASIGND
STATUS DATE: 23OCT06
LAST UPDATE: 25OCT06
PRINT DATE : 25OCT06

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THE DESIGN BASIS ACCIDENT PARAMETERS IN ES-027 ARE NOT APPLICABLE.	PXT0 23OCT06
	PXT0 23OCT06
	PXT0 23OCT06
THE MATERIAL IS A POLYURETHANE BASED PRODUCT MATERIAL	PXT0 23OCT06
AND IS EXPECTED TO HOLD UP WELL UNDER ABOVE NORMAL	PXT0 23OCT06
OPERATING RADIATION EXPOSURE.	PXT0 23OCT06
	TANO 23OCT06
C. CONCLUSION / FINDINGS:	PXT0 23OCT06
	PXT0 23OCT06
BASED ON THE ABOVE EVALUATION, SIKAFLEX - TEXTURED	PXT0 23OCT06
SEALANT IS AN ACCEPTABLE FILLER MATERIAL FOR THE	PXT0 23OCT06
SEPARATIONS/VOIDS IN THE BAYS.	PXT0 23OCT06
	TANO 23OCT06
IT IS NOTED THAT THE SIKAFLEX TEXTURED SEALANT IS	TANO 23OCT06
DESIGNED FOR ALL TYPES OF JOINTS, WHERE THE MAX AND MIN	TANO 23OCT06
DEPTHS DO NOT EXCEED 1/2" OR 1/4" RESPECTIVELY. ANYTHING	TANO 23OCT06
BEYOND THESE VALUES HAS THE POTENTIAL OF DEGRADING.	TANO 23OCT06
	PXT0 23OCT06
LIMITATIONS ARE AS FOLLOWS:	PXT0 23OCT06
	TANO 23OCT06
1) AFFECTED AREAS ARE PROPERLY PREPPED AS STATED ABOVE.	PXT0 23OCT06
2) APPROPRIATE CURE TIMES ARE ADHERED TO.	PXT0 23OCT06
3) THE SEALANT IS APPLIED PER THE MANUFACTURERS	PXT0 23OCT06
INSTRUCTIONS.	TANO 23OCT06
	PXT0 23OCT06
NOTE: A REVIEW OF CC-AA-102 DETERMINED THAT THE	PXT0 23OCT06
ACTIVITY DOES NOT IMPACT THE CONFIGURATION OF THE	PXT0 23OCT06
SANDBED. THE APPLICATION OF THE SEALANT IS A PREVENTIVE	PXT0 23OCT06
MAINTENANCE MEASURE TO ENSURE THE EPOXY GROUT WILL NOT	PXT0 23OCT06
DEGRADE OVER TIME.	PXT0 23OCT06
	PXT0 23OCT06
D. REFERENCES:	PXT0 23OCT06
	PXT0 23OCT06
1) IR/CR # 00546932	PXT0 23OCT06
2) ENG STD ES-027 REV.4	PXT0 23OCT06
3) SPECIFICATION # SP-1302-32-035 REV. 0	PXT0 23OCT06
	PXT0 23OCT06
E. LIST OF ATTACHMENTS (TO BE CMT'D WITH EVAL TO RM):	TANO 23OCT06
	PXT0 23OCT06
1) SIKAFLEX PRODUCT DATA SHEET (2 PAGES)	PXT0 23OCT06
2) SIKAFLEX MSDS SHEET (5 PAGES)	PXT0 23OCT06
	PXT0 23OCT06
RESPONSE PREPARED BY: PETE TAMBURRO	PXT0 23OCT06
CO-PREPARED BY: TEDD NICKERSON 10/23/06	TANO 23OCT06
	TANO 23OCT06
*****	TANO 23OCT06
INDEPENDENT REVIEWER BY : HOAT HO (TMI) 10/23/06	HDHO 24OCT06
	HDHO 24OCT06
THE TECH. EVAL WAS REVIEWED TO DETERMINE WAS	HDHO 24OCT06
CORRECT INPUT USED. THE RESULTS ARE REASONABLE.	HDHO 24OCT06
ANY CONCERNS WERE DISCUSSED WITH CO-ORIGINATOR OF THIS	HDHO 24OCT06
TECH. EVAL AND RESOLUTIONS HAVE BEEN INCORPORATED.	HDHO 24OCT06

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VERIFIER CONCURS WITH ORIGINATOR.	HDH0 24OCT06
BASED ON THIS EVALUATION, THE TECH.EVAL. IS VERIFIED TO	HDH0 24OCT06
BE ACCEPTABLE.	HDH0 24OCT06
*****	HDH0 24OCT06
THIS TECH EVAL WAS REVIEWED BY JON CAVALLO (THIRD	PXT0 24OCT06
PARTY REVIEW) AND FOUND TO BE ACCEPTABLE. ATTACHMENT	PXT0 24OCT06
3 PROVIDES AN EMAIL DOCUMENTING HIS REVIEW.	PXT0 24OCT06
	SPH1 25OCT06
THIS TECHNICAL EVALUATION HAS BEEN REVIEWED AND APPROVED	SPH1 25OCT06
BY ENGINEERING MANAGEMENT. IT MEETS THE REQUIREMENTS OF	SPH1 25OCT06
CC-AA-309-101 AND HU-AA-1212. S. HUTCHINS (10/25/06)	SPH1 25OCT06

Exhibit

ANC 6



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

November 9, 2006

Mr. Richard Webster
Staff Attorney
Rutgers Environmental Law Clinic
123 Washington Street
Newark, NJ 07102

Dear Mr. Webster:

In an e-mail dated September 26, 2006, addressed to Michael Modes, Team Lead for the Oyster Creek License Renewal Inspection, you posed a number of questions about the integrity of the former sandbed area of the Oyster Creek drywell. Information related to this subject can be found in NRC Inspection Report 05000219/2006007, dated September 21, 2006 (ADAMS Accession No. ML062650059) and the NRC "Safety Evaluation Report With Open Items Related to the License Renewal of Oyster Creek Generating Station" issued in August 2006 (ADAMS Accession No. ML062300330). In addition, you were present at the public exit meeting concerning this inspection, which was held on September 13, 2006, in Lacey Township, NJ, during which this subject was discussed and you asked numerous questions. The following responds to your September 26 e-mail.

The subject of emptying of the sandbed drain collection bottles (i.e., 5 gallon poly bottles or jugs) during the March 2006 license renewal inspection was discussed in the September 21, 2006 Inspection Report, on pages 23-24. During the inspection, the NRC inspection team overheard an Amergen technician talking about clearing the torus room for the NRC walkdown and emptying some bottles of water he found. Amergen told the NRC that a member of Amergen's staff was sent into the torus room, on the day before the NRC inspection team entered, in order to make sure the area was safe for the NRC team inspection walkdown. The Amergen staff took it upon themselves to empty the collection bottles into the floor drains provided for the purpose of catching water overflow, before the team entered the torus room. The overflow drains route liquid to the sump where it is then processed.

Because the bottles were emptied prior to any sampling or analysis, the source of the water was not determined and there was no determination about whether the water contained any radioactivity. The team inspected the bottles during their walkdown and noted there was no evidence of overflow from the bottles because there were no water stains or residue on the floors around the bottles. The technician responsible for emptying the bottles was asked about over-flow and indicated that only two of the five bottles were filled with water, and that no water was flowing out of the filled bottles.

During the NRC walkdown of the torus room, the NRC determined there was no discernable residue that could be analyzed. The NRC examined the bottles and concluded the high heat in the room dried the water bottles such that no usable residue was present. In addition, during the torus room walkdown, the NRC noted that, in one location, water was leaking from the

ceiling onto the torus. Amergen indicated that this leak was from a known condenser leak in the room above.

As noted in our inspection report, Amergen indicated that the bottles were improperly emptied without measurement or analysis and that it was unable to locate any documentation that showed prior surveillance of the water drains had been completed. Amergen also took corrective actions to ensure that, in the future, the drains would be monitored.

The NRC did evaluate the incident for enforcement action based on the commitment made by the licensee in 1996 to monitor leakage from the former sandbed drains. Using the guidance contained in NRC Manual Chapter 612 "Significance Determination Process," Appendix A (www.nrc.gov/reading-rm/doc-collections/insp-manual/manual-chapter/index.html), we determined this was a performance deficiency of minor significance because the performance deficiency had no impact on the safe operation of the plant. The failure to fulfill a commitment is not, by itself, a violation of our regulations. As noted in our inspection report, the performance deficiency related to the monitoring of leakage from the former sand bed region of the drywell was deemed not to be safety significant and was entered into the applicant's ongoing corrective action system.

Ten bays in the former sand bed region of the drywell were excavated and coated with an epoxy paint in 1992. Although Amergen has been performing regular visual inspections, prior to October 2006, five of the bays had not been visually inspected, but were inspected during the October 2006 outage. Each inspection is performed by an individual trained and qualified for visual inspection who enters the sand bed cavity. This individual inspects all accessible areas of the surface and documents the results of the survey. The NRC does not have a schedule of the inspections performed by Amergen prior to October of 2006 and has not received any Amergen reports or data related to these prior inspections.

As noted in our report, the NRC inspection of Amergen's aging management programs, including for the sand bed region, was conducted in accordance with NRC Manual Chapter 2516 and NRC Inspection Procedure 71002. The results of that team inspection are documented in Inspection Report 05000219/2006007, and are not based on the expertise of one individual.

The NRC continues to evaluate Amergen's proposed aging management programs related to the sand bed, including the embedded region. NRC staff conclusions about Amergen's aging management programs for the drywell shell will be included in the Safety Evaluation Report that is scheduled to issue in December 2006.

I trust that you will find this information responsive.

Sincerely,



Richard J. Conte, Chief
Engineering Branch 1