

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
UNION ELECTRIC COMPANY) Docket Nos. 50-483 OL
(Callaway Plant, Unit 1))

AFFIDAVIT OF ANTHONY A. VARELA IN SUPPORT OF
NRC STAFF MOTION FOR SUMMARY DISPOSITION ON THE
ISSUE OF JOINT INTERVENORS'S CONTENTION I-B(1)

I, Anthony A. Varela, being duly sworn, depose and state:

1. I am a civil engineer with the U.S. Nuclear Regulatory Commission. Since February 1979, I have been assigned to the Region I Office of Inspection and Enforcement. During 1977, I was assigned to inspect the Callaway facility in Region III.

2. I conducted four inspections of the Callaway Plant in 1977. My responsibilities during those investigations consisted of: (1) ascertaining whether adequate quality assurance plans, instructions, and procedures had been established for the construction of concrete structures; (2) providing an independent evaluation of the performance, work in progress, and completed work to ascertain whether activities relative to concrete construction were accomplished in accordance with NRC requirements; and (3) reviewing the quality related records to ascertain whether these records reflected work accomplished consistent with NRC requirements and license commitments. The results of these inspections are contained in the following NRC inspection reports:

50-483/77-01,	conducted January 12-14, 1977.
50-483/77-03,	conducted April 4-9, 1977.
50-483/77-06,	conducted June 23 - July 1, 1977.
50-483/77-07,	conducted August 30 - September 2, 1977.

3. I was present for part of the pouring of the concrete for the section of the reactor moat area in which the crack identified in Joint Intervenors' Contention I-B(1) was found. The pour, which took place in early April of 1977, lasted approximately sixty-two hours. During that period, either I or another Staff inspector was present at the placement at all times. The results of our inspection are documented in NRC Report 50-483/77-03 . We found no substantive inadequacies with the pour.

4. Union Electric reported by telephone to Region III on May 10, 1977, a potential significant deficiency under 10 C.F.R. § 50.55(e). A crack had been discovered on the top surface of the reactor base mat concrete adjacent to a wide-flange steel member which had been embedded in the concrete to serve as an anchor for floor liner plate. Following welding of the liner plate on one side of the embedded steel member, a crack approximately $\frac{1}{4}$ inch wide was discovered on the opposite side of the member. Applicant immediately initiated an investigation into the cause of the crack.

5. The embedded steel member is located at the top of the base mat surrounding the reactor vessel moat. It is approximately 65 feet long and continues circumferentially 270 degrees around the moat. The concrete crack was discovered outside of the embedded member the day following completion of the welding of the liner plate to the embedded member.

6. The crack was caused by the heat generated from continuous welding without any interruption or stagger in the weld sequence. Post-weld contraction of the liner attached to the embedded member pulled the member inward, causing the concrete to crack on the outside of the member. Quality control inspectors and field engineers reported the above deficiency in construction in Nonconformance Report NCR 2-0631-C-A, dated May 10, 1977.

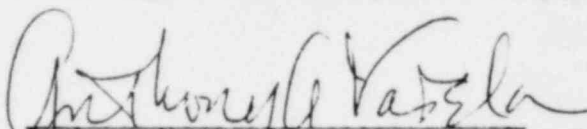
7. The recommended disposition consisted of the complete removal of the crack and replacement of the removed concrete. The replacement concrete was incorporated in a subsequent concrete pour that would have taken place without regard to the occurrence of the crack. This pour took place on June 2, 1977; quality control documentation of the pour is identified in NRC Report 50-483/77-06.

8. The significance of the crack was evaluated by Union Electric and its architect-engineer (Bechtel). They determined that the crack was not a significant deficiency pursuant to 10 C.F.R. § 50.55(e) in that it would not have adversely affected the safety of the plant even if it had not been corrected. I agree with this assessment.

9. The cause of the crack was not due to a deficiency in the concrete-related procedures followed at the site. A welding contractor prosecuted his work in a way that resulted in the crack. Despite the attention to individual control by different contractors of separate sequential features of nuclear construction, lack of interface between the contractors can sometimes cause problems. Corrective actions were taken by Union Electric and the welding contractor to prevent subsequent

weld-related cracks in concrete. Documents identifying the corrective actions are listed in NRC Report 77-06.

10. I did not physically inspect the repair of the removed crack. I did, however, visually observe the replacement concrete to be sound. I also reviewed quality control documentation of the pour and interviewed the responsible quality control personnel. I found no indication of any deficiencies in the pour and see no reason to believe the repair was inadequate in any way.


Anthony A. Varela

Subscribed and sworn to before me
this day of October, 1981.


Notary Public

SARAH A. DILISSIO, Notary Public
Upper Merion Twp., Montgomery Co.
My Commission Expires Dec. 5, 1983

My Commission expires: _____