

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Nuclear Regulatory Commission

In the Matter of)
)
)
PACIFIC GAS AND ELECTRIC)
COMPANY)
)
Diablo Canyon Nuclear Power)
Plant, Units 1 and 2)
)

Docket Nos. 50-275
50-323

AFFIDAVIT OF

STATE OF CALIFORNIA
COUNTY OF ALAMEDA
CITY OF BERKELEY

SS

The above, being duly sworn, deposes and says:

My name is I am submitting this affidavit
freely and volentarily, without any threats, inducements or
coercion, to Mr. Thomas Devine, who has identified himself to me
as the legal director of the Government Accountability Project
(GAP). I am submitting this affidavit to evidence my personal
knowledge of deficiencies with engineering practices on large
bore piping and pipe supports at the Diablo Canyon nuclear power
plant. Based on my review of Nuclear Regulatory Commission (NRC)
inspector Isa Yin's comments in Diablo Canyon Supplemental Safety
Evaluation No. 25, I believe that I am one of the persons he
would have sought to question had he been allowed to complete his
investigation. I was in a position to be directly aware of the

engineering practices in question.

I have instructed Mr. Devine to transmit my affidavit to the NRC staff but to remove my name. Because I am actively employed within my profession as a Registered Professional Engineer, I have a lot to lose from retaliation. For that reason, this statement lists issues but does not provide supporting details or specific referances that could be traced back to me. Similarly, certain issues are not included for that same reason. I will fill in those holes during further correspondence with the NRC staff after assuring myself that my identity will be protected. In some cases, the issues may appear duplicative of prior allegations, because I have presented them in a generalized fashion to protect my anonymity. In further correspondence with the NRC staff I will provide further details necessary to assess whether an identical allegation already has been resolved, and whether my own contribution would affect the prior resolution. Further I have instructed Mr. Devine to withdraw this affidavit if my anonymity cannot be protected.

I. OVERVIEW

1. On balance, the report of NRC inspector Isa Yin on Diablo Canyon was accurate with respect to off-site consultant(s), but it failed to provide specific findings that matched the systematic scope of the quality assurance (QA) breakdown with respect to engineering work.

II. DESIGN ERRORS

2. The engineering calculations of off-site consultant(s) contained an unacceptable high rate of mistakes, including a high

rate of significant errors and some error in all but a few of the packages.

3. Due to the use of the wrong formula, engineering calculations for Diablo Canyon may have underestimated the stresses in welds attaching baseplates to structural steel channels and angles where torsional or twisting force was applied, to the extent that hangers which passed should have failed.

4. In using the STRUDL computer program used for Diablo Canyon there was much confusion regarding the orientation of the principal axis of beam elements. This confusion resulted in the beam elements on occasion being oriented 90 degrees from where they were orientated in fact.

5. In using the STRUDL computer program used for Diablo Canyon the use of defaults for the unbraced length of beam members on occasion resulted in an over estimation of the allowable loads. This unconservative error could overestimate the allowable loads by up to 400%.

6. Due to insufficiently precise modeling in the use of the STRUDL computer program used for Diablo Canyon, stresses on baseplates may be underestimated by 50% or more because the location at which the stresses were calculated differed from the location of maximum stress.

7. Despite knowledge of inaccuracies in the STRUDL computer program for Diablo Canyon, management at off-site consultant(s) told employees to continue using the program as it was until instructed otherwise by Diablo Canyon Project Organization (DCPO), which in some cases meant that the errors

were repeated indefinitely.

8. Based on International Congress of Building Officials Research Report No. 2156 and statements by Hilti personnel the use of expansion concrete anchors in areas subject to vibratory or shock loads is inappropriate. Since all power plants generate vibrations in piping during normal operation there use at Diablo Canyon is questionable.

9. The M-9 design guide for Diablo Canyon mistakenly allows allowable stresses approaching yield while only requiring that the members be designed to elastic criteria. If these higher allowables are to be allowed then the plastic design requirements in the AISC code should be required. Failure to meet these plastic design requirements could preclude the members from carrying the required loads.

10. Due to an error in the M-9 design guide used to calculate allowable stresses, pipe supports throughout Diablo Canyon may be underdesigned to only withstand 89% of the stresses from a Hosgri earthquake, which could lead to mass failures if such an earthquake occurred.

III. PROGRAM WEAKNESSES

11. Off-site consultant(s) worked to uncontrolled documents on a generic basis, because Bechtel and PG&E sent them documents without letters of transmittal to assure that the documents were current when sent and were regularly updated.

12. There was considerable confusion by off-site consultants as to the Diablo Canyon Project Office (DCPO) standards for acceptable calculation packages, which raises

questions whether DCFD procedures F-6 and I-26 were transmitted to the consultant(s) in a timely manner.

13. There was heavy emphasis on production pressure at off-site consultant(s) that could override quality concerns, to the extent that quotas were imposed on the number of packages that had to be processed daily.

14. Personnel at off-site consultant(s) often assumed their responsibilities for extended periods prior to receiving any quality assurance indoctrination.

15. Quality assurance surveillance activities at off-site consultant(s) were inadequate, because they only occurred on an erratic basis and were skipped for extended periods of time.

16. Quality assurance auditing activities at off-site consultant(s) were inadequate, because they failed to check for the full extent of prior errors that could be represented by specific findings.

As mentioned earlier, I will provide further issues and details on the allegations above, if the NRC chooses to correspond with me on these concerns. If there is such a correspondence, I request that the NRC contact me through Mr. Devine.

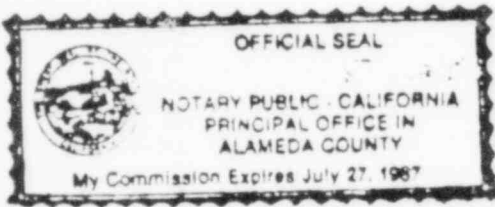
I have read the above 5-page affidavit, and it is true accurate and complete to the best of my knowledge and belief.

GENERAL ACKNOWLEDGMENT

State of California }
County of Alameda } SS.

On this the 6th day of February 1985, before me,

the undersigned Notary Public, personally appeared



I personally known to me
 proved to me on the basis of satisfactory evidence
to be the person(s) whose name(s) is subscribed to the
within instrument, and acknowledged that he executed it.
WITNESS my hand and official seal.

Notary's Signature