ATTACHMENT 1

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 MICHAEL C. THOMPSON

STATE OF CALIFORNIA)
)
COUNTY OF SAN LUIS OBISPO)
) ss.
CITY OF ARROYO GRANDE)

The above being duly sworn deposes and says:

My name is Michael C. Thompson. I am submitting this affidavit freely and voluntarily without any threats, inducments or coercion, to Mr. Tom Devine, who has identified himself to me as the legal director of the Government Accountability Project (GAP.) This statement evidences my concern over false and destroyed records which could create possible threats to public health and safety at the Diablo Canyon Nuclear Power Plant. The problems remain,

despite my efforts as a Lead Engineer for Pullman Power Products to notify management officials.

I worked at Diablo Canyon from March 1983 until July 16, 1984, originally as a Field Engineer and later as a Lead Engineer. My specific assignments included Systems Turnover Engineer, Intake Structure Lead Engineer/Nuclear Plant Operations (NPO) Coordinator, Unit 2 Cold Hydro Team Leader for Reactor Pressure Boundary welded attachments, Area Lead Engineer for Unit 2 Containment, Elevation 91, which included the training of incoming engineers. Before coming to Diablo Canyon, I served as a First Lieutenant in the United States Army, obtained my Bachelor of Science of Architecture from California Polytechnic State University with a minor in Civil Engineering; and worked in non-nuclear engineering jobs. My resume is enclosed as Exhibit 1.

1. In March I came to Diablo and began work in the Unit 2 Containment Structure as a Pipe and Pipe Support Engineer. In May I was promoted to Area Lead Engineer for the lower half of the containment structure (Elev. 91). Although I believe that I did an excellent job due to my dedication and curiosity, I doubt that I was qualified according to the formal professional codes; my degree was in Architecture. I was not out of the ordinary, however; individuals without any college education were assigned as "Field Engineers". Promotions often occurred out of necessity, rather than based on qualifications. To illus-

trate, if we had to have engineers, the "redliners" who redraft marked-up field drawings got promoted to Field Engineers without any training or proper supervision. The problem was that they were not qualified and in many cases their inexperience caused poor performance. I can direct NRC investigators to specific examples.

2. My initial training was similarly deficient. I received several volumes of Engineering Specifications Diablo (ESD's) and was told to sign that I had read and was familiar with them. To my knowledge, I was the only incoming engineer who read them all. I received classroom instruction, but many engineers did not. We received no quality assurance/quality control (QA/QC) training. It was assumed that we were familiar with the professional codes, but that is unrealistic. I believe that I learned my job adequately because I took the initiative to study at home. I cannot recall seeing any other new engineer carry home his ESD's for study.

In May I was promoted to Field Engineer I, which formalized an informal promotion as Area Lead Engineer for Elevation 91, Containment. My notice of promotion is enclosed as Exhibit 2.

3. On June 23, 1983 I learned just how loosely Pullman controlled welding procedure changes; they were done through informal memos. I had learned that since the beginning of

construction Pullman theoretically had been preparing full penetration bevels for Tungsten Inert Gas (TIG) welding at a 37½ degree maximum angle, the procedure requirement. Actually, that is impossible for perpendicular connections on structural steel; the welding torch will not fit in less than a 45 degree angle. The problem was using pipe welding procedures (where a 37½ degree angle is feasible) on structural steel (where it is not). When I told Pullman QA Manager Harold Karner, his response was that Pullman had been doing it that way for many years. I replied that under the procedure as written it would be necessary for me to put Hold Tags on all the relevant hangers which could have extended the Cold Hydro test date. There was silence and Mr. Karner said he would send me a memo in an hour. A weld procedure qualification test could not possibly be done in an hour. When I received the memo (Exhibit 3.) his solution was obvious; revise the procedure to legalize the existing practice. This would only be legal if a qualification test were conducted to prove that the altered procedure was as reliable as intended.

4. The incident with the TIG weld procedure illustrates another facet of the Quality Assurance breakdown. For many years QC inspectors had been accepting full penetration welds that cannot be achieved due to the required bevel angle. This raises questions about how many other problems were missed.

5. The most serious problem of which I am still quite con-

cerned involved dangerously discrepant welds on Paramount welded attachments that transfer loads from the pipe to the plant's structure.

In June, I was assigned as Cold Hydro Team Leader in Unit 2, responsible for all work on weldments within the reactor pressure boundary. On a particular rupture restraint on a pipe within this boundary, the QC personnel and I could not verify that a full penetration weld existed on the stanchion. This was specified by contract and in our design commitments. QC Supervisor Russ Nolle told me that full penetration welds were required by code, and that code was in effect at the time the Paramount spools were fabricated. As a result, I received permission to take off the end plate and look inside. I was shocked by what I saw -- approximately 30 arc strikes on the process pipe; condensation from trapped water vapor, welding slag, and even corrosion on the stainless steel; and most significantly, an excessively discrepant full penetration weld. Instead of a full penetration weld with required fusion, much of the weld was just covered with a fillet cap, with a faked TIG root on the inside. This root was faked by a "stick" weld with the slag still remaining. It was beautifully polished for In Service Inspection (ISI) on the exterior and looked fine. The cosmetic touches, however did not create a full penetration weld. The structure of this attachment was a cruel and dangerous bluff. The documentation was therefore false; the required full penetration weld had not been achieved.

6. I checked for this flaw on a total of four ~~other~~ stanchions. The paperwork was false on all four; none of the stanchions had the required full penetration weld. Documentation describing the results is enclosed as Exhibits 4 and 5. In all, only one Paramount stanchion out of between 15 and 20 checked by the team had an acceptable full penetration weld. Other types of Paramount welded attachments ~~known as~~ (plates and shear lugs) had the same fusion problem.

7. I was very eager to check in Unit 1 for the same problem, but the Pacific Gas and Electric (PG&E) Project Team General Construction (PTGC) department refused to give me permission. This was illogical as the two units are mirror images and Paramount also supplied the stanchions for Unit 1. We should have been allowed to extend our inspections to check for the full extent of the fake welds at Diablo; the NRC and other approving authorities should check every other Paramount customer, not only within the nuclear industry.

8. Another aspect of the management response concerned me. I did not agree with the instruction to throw out relevant documentation, including originals. Management officials told me that it was unnecessary to keep relevant and irreplacable Hangar Process Sheets, a complete Approved-for-Construction package and Discrepancy Sketches. The clear inference was to destroy the drawings and process sheets. I declined to discard these documents, which are included within Exhibits 4 and 5 (*supra*). One prime reason is that those documents contained

relevant QA information that could not have been included on anyQA reports; I possess the original documents. The records also are evidence to show the widespread consistency of the stanchion discrepancies.

9. Upon completion of Cold Hydro, I was transferred to the Intake Structure. Because this assignment required a Unit 1 security clearance, I had access and was able to check for similar deficiencies within Unit 1 Containment. I checked the same four stanchions in Unit 1, and on the outside they looked identical as those in Unit 2. Statistics dictate that the fake welding problem exists in Unit 1 as well.

10. The gravity of this problem was too solemnly serious to ignore, as it occurred at several places within the reactor pressure boundary, ONLY FORTY FEET FROM THE REACTOR. Failure of these weldments could rupture the pressure boundary, releasing steam that would instantly reach ballistic velocities. During operation, the pressurized water in these pipes is 2250 PSI, and 605° Farenheit. If vented to atmospheric pressure (ruptured) it would immediately turn into steam and would kill anyone near it. Ruptured pipes would whip around like limp spaghetti. I AM NOT A DESIGN ENGINEER, BUT UNDERSTAND THAT Failure of the reactor pressure boundary inherently creates a high probability of A LOSS OF ~~melt-down.~~ COOLANT ACCIDENT WITH THE POTENTIAL TO BE WORSE THAN THREE MILE ISLAND. I cannot overstress the resulting hazard to public safety. CITIZENS IN THE SURROUNDING COMMUNITIES ~~MAY~~ HAVE TO BE EVACUATED.

11. I am not confident that all the vendor deficiencies

similar to the Paramount attachments have been properly addressed due to the fact that we were not even allowed to note vendor discrepancies. To illustrate, a January 17, 1984 summary from the Hydrogen System walkdown (Exhibit 6) illustrates the problem: "All vendor installed items (identified as * on P. & I. D.) are not included within the scope of P.P.P. walkdown."

12. There is little question that Pullman and Paramount knew the stanchions were illegal. An ex-Paramount official who came to Pullman later explained to Pullman QA manager Harold Karner, QC supervisor Russ Nolle and myself, among others, "We have to make money on these, you know." Nolle exploded, explaining that full penetration welds are required by code and specified in the contract. Pullman may have been upset, but not enough to check in Unit 1 as well.

13. Even in Unit 2, our corrective action may have damaged the plant by creating carbon contamination, through carbon arcing (gouging). Carbon Arcing is a "quick and dirty" way to remove stainless steel by melting it and blowing it away from the work with compressed air. Damage can occur to sensitive equipment and piping through carbon contamination and splattering of molten steel. Previously there had been a memo that we could not air arc inside the reactor pressure boundary. For these repairs, however, management made an exception that occurred through an informal memorandum. To my knowledge the prohibition was lifted without formal QA or engineering review. In fact the instructions were not even con-

sistent. (Exhibit 7.)

14. While checking the Paramount stanchions, I confirmed another Unit 1 problem that I had previously seen in Unit 2 -- fishplates that were grossly too thin due to underlength studs protruding from the concrete. The fishplates are on top of the column baseplates that support the steam generators, and keep the baseplate from moving by compensating for inherent construction inaccuracies. The fishplates should have been several inches thick, the same as the baseplates. Instead they were as thin as shims, or about the thickness of one or two threads on a bolt. Further, some fishplates were too small in size and failed to completely cover the holes in the baseplate. This deficiency violated the requirements of ESD 223 for new construction.

15. I checked all four steam generators in Unit 1. The fishplates were defective in all four. The same situation had existed in Unit 2.

16. I told everyone I saw about the fishplates. I discussed it with Chuck Dougherty, Paul Wertz, and George King of the Civil Branch, among others. Everyone agreed that the fishplates looked wrong. But to my knowledge no one did anything. Similarily, there had been no response to an earlier initiative that I took in Unit 2 Containment. My April 12, 1983 memorandum to Pullman's Production Superintendent is enclosed as Exhibit 8.

17. While down in the Intake Structure, I realized another condition that could threaten plant security and the safety of all workers, and parts of the surrounding community. There are eight one-ton containers of liquid chlorine stored in the open within the highwater mark known as the tidal inundation line. The chlorine is highly poisonous and there is no antidote or cure; a lethal dose insures death. It is used to "de-mussel" the circulating water system (saltwater) for the plant. Unfortunately, the canisters are not adequately secured. I have observed storm spray and waves wash across the top deck, including underneath the chlorine canisters. A tidal inundation could pick up those tanks and throw them around like corks, rupturing them and releasing chlorine to the atmosphere. There is nothing between those tanks and water except open grating and the front sea wall. They are similarly vulnerable to sabatoge. The tanks are high pressure. If they broke, or worse: If a shoulder held anti-tank rocket were fired at them from a rowboat during a hot, breezy evening where both reactors and supportive personnel are directly downwind of these tanks, the liquid chlorine would incompacitate or terminate all personnel in the plant utilizing outside breathing air, and several miles downwind. This not only threatens the safe shutdown of the facility, but the lives of downwind residents, highways, etc.

18. I wrote a confidential memorandum to plant security about this condition. I also told Dave Miklush, Director of

Maintenance Nuclear Plant Operations (NPO) staff, along with Senior Maintenance Engineer Bob Nanninga. Informally the security guards thanked me. Micklush and Nanninga appeared to be genuinely concerned. An emergency air pack and leak repair kit were placed near the chlorine storage area -- on the other side of the guard shack needing them in an emergency. As of my departure, no protective easures for the chlorine tanks had been done.

19. Before my assignment at Intake, a Quick Fix engineer named Charles Stokes discovered that there were blocks of wood in the concrete. I can add that I found a can of Coke. I had construction crews remove it and repair the chipped out area. I am not confident that all extraneous material was removed. This repaired area was not used for hanger attachments. I had heard stories of three concrete vibrators abandoned within the walls at the containment structure during the concrete placement. Due to the poor condition of the concrete at Intake Structure, the Coke can didn't surprise me.

20. The concrete issue led to my first contact with the NRC. I was interviewed by NRC Inspector Terry Ross, who was checking allegations about the wood block in the concrete. Ross was very conscientious, so I confided to him about a void between the liner plate and the concrete in Unit 2 and possibly Unit 1 Containment.

Inside the concrete is a huge concrete-encased rebar cage with a thin skinned steel containment liner. There is always a gap between the concrete face and the liner. I personally had confirmed through soundings a void that was twenty feet long and ten feet tall with an unknown depth. The void was at the point where an anchor baseplate is attached on the containment spray system. Ross took a statement and spoke with me several times. He said it would take a few months, but the NRC would get back to me. By the time I left I had not received a reply.

21. Management had given a similar response. I had mapped out the boundary of the void on the liner with a marker. These markings had been removed prior to the time Terry Ross and I inspected the problem area. Terry and I could still re-map the area using the same sounding technique.

I recommended to the Containment 2 PTGC Lead that we put that hanger on "hold" until we could find out the full extent and significance of the void prior to it being covered with a baseplate. He refused, and I had him put it in writing. I authored a written memorandum recommending that we drill a small hole and check for the depth of the void inside. The PTGC Lead Engineer said he would inform San Francisco of the problem, removing it from any workflow control I would have to "hold" the hanger, he said my part was over. I never heard the results, however. The baseplate had already been installed when the NRC Inspector and I looked at it, and to my knowledge

the depth and full extent of the void(s) was never checked.

22. Within the Intake Structure I saw another potentially serious problem with the concrete. At first I noticed rust stains bleeding through the concrete walls. This means the reinforcement bar inside is rusting. When I observed the exposed rebar, it was clear how bad the rust was: The solid part of the rebar had shrunk to less than half of the original size. Because of the intake environmental conditions, this problem may exist on a widespread basis throughout the structure.

23. Management's response was to chip off the rust until clean steel was exposed and then just fill in the area with patch grout. The effect was to greatly weaken the steel skeleton of the concrete, which is necessary to transfer the tension element of the loads through the concrete without it failing (cracking).

24. On balance, my evaluation is that the Intake Structure is coming apart. One symptom is a crack through the concrete floor slab along the center line of the Circulating Water Pumps (CWP's), which operate at a combined 52,000 horsepower, the induced loads carried by this concrete. I conducted an informal test to see whether the crack was continuous by pouring water into the crack on the top of the floor slab.. The water penetrated through approximately three feet of concrete; strongly implying the crack existed all the way through the slab.

25. Informally I discussed the issue with other engineers. The flaw was so obvious it was well known. To my knowledge, however, there was no corrective action taken. Much of the problem was due to the difficulty of communicating deficiencies from PTGC Mechanical Branch to PTGC Civil Branch for evaluation and/or repair.

26. A design flaw that I learned about in the Intake Structure threatens the isolation and independence of Unit 1 from Unit 2. One valve controls a common air supply for the instrument air and bubblers on the Auxiliary Saltwater Pump Sump Water Level Indicators. A problem with this valve or its line would compromise accurate level readings on all four pumps. The level indicators let you know that there is enough water to safely operate the pumps. These pumps supply cooling water for all of the Component and Service Cooling Water systems. Due to the design configuration of the Intake Structure, there is little or no isolation between Unit 1 and 2 systems in the Intake Structure.

27. Another serious problem in Intake that I got fixed taught me some lessons about the Diablo QA program. I found 28 discrepancies during "Room Turnover Walkdown" preceeding "Systems Turnover" in Unit 2, in an area where PTGC previously had said there were 7. I found severe corrosion, a valve operator that struck its concrete enclosure before the valve fully opened, fluid leaks at flanges, gouges on plastic pipe, and pressure gauges that didn't work. I was able to get these problems fixed, but was restricted from initiating repairs

that involved welding. The most serious problem was the lack of bilateral and axial restraints for piping lines throughout the entire Intake Structure. This discrepancy was severe enough to allow pipes to generate "standing waves" that would travel throughout the length of the structure. Although I first turned in a Discrepancy Report (DR) to QC in August, it took until January 13 to get a DR number. Instructions from QA Manager Harold Karner on a different type of discrepancy documentation (DCN), gave me a method to break the stalemate. Although this problem eventually was corrected, the issue illustrates the difficulty in getting a QC Discrepancy Report processed at Diablo. It took real conviction and persistence. I wonder how many reports of serious QA violations fell by the wayside because the authors were not as stubborn as me. My Discrepancy Report is enclosed as Exhibit 9.

28. At Intake, I noticed deficiencies in the fire protection system that are reflected throughout the entire facility. I believe that the entire Firewater Protection System from sprinkler head to municipal supply should be tested for compliance with National Fire Protection Association (NFPA) standards. I understand that compliance is required to be eligible for mutual aid with California Department of Forestry and local fire departments. Compliance with NFPA standards is also required by PG&E Piping Class design criteria. Few, if any of P.P.P. piping isometric drawings for System 18 (Firewater) show this required NFPA design requirement. I informed Steve Kapsalis (Engineering Supervisor) of this. He issued

a memorandum to Piping Department requiring NFPA standards to be specified on all System 18 isometric drawings. (See PG&E Line Designation Table, enclosed as Attachment 11-D to Exhibit 9.) My point is that many pipe supports were already constructed, and I doubt if they were designed to NFPA standards.

29. The most significant problem concerning NFPA Standards is the lack of any fire flow tests, to my knowledge. These tests involve opening up a hydrant all the way and measuring the flow rate with a hand held meter. This is the standard test method used by municipal fire departments to test hydrants, and is required for acceptance of any new construction.

30. Since my departure from Diablo Canyon, I have continued to research certain NFPA concerns, and according to S.L.O. County Standards, there is not enough fire water storage if there is an earthquake that would damage the municipal supply. An NRC Resident Inspector told me that each unit has about 185,000 gallons, which is enough storage for an average industrial or commercial project. It would be only a few drops in the size bucket necessary for a nuclear plant. In my opinion, it is not an adequate defense to say that Diablo could rely on municipal lines for additional water. Diablo Canyon is the last customer on a long fragile waterline that extends all the way to the water treatment plant near Lake Lopez. This waterline would be very vulnerable to siesmic activity (earthquake). As NFPA section A-2-3.1.1 (Exhibit 10) states:

"Reliability of public water supply should take into account probable minimum pressure condition prevailing during such periods as at night or during summer months when heavy usage may occur, also possibility of interruption by flood, or ice conditions in winter."

31. I also question whether the pipes in the firewater protection system have been designed for the proper flow capacity. At Intake Structure, for example, the piping is designed to carry 150 gallons per minute, from three hose reels each at 50 gallons per minute. NFPA says that the flow rate for a commercial structure should be a minimum of 1000 gallons per minute. (Relevant portions of the NFPA standards are enclosed as Exhibit 11.)

32. Later in March 1984, while working as a Systems Turnover Engineer, I began to see the generic nature of the Firewater Protection System deficiencies. On March 23 I wrote a memorandum (Exhibit 12) disclosing the lack of bilateral and axial supports required by NFPA. Not only had the P.P.P. isometric drawings omitted the design requirement for NFPA Standards, but now I was observing that the steel inplace reflected this same omission of compliance with NFPA.

33. I received no response to my memorandum. Earlier, the DR I authored had upgraded the Intake Structure to meet NFPA, but the standards have not been complied with for the rest of the plant.

34. On September 5, 1984 I disclosed to the NRC Resident Inspector another uncorrected problem -- the lack of clearances between concrete penetrations and firewater piping. The relevant NFPA Standard (Exhibit 13) requires a specified clearance, but I personally observed that the piping and concrete had no clearance at all on the main supply line rising out of the turbine building floor. Clearances are necessary to allow movement of the pipes independent from the building. Induced loads in the piping are increased if there is direct contact with the concrete. On a return visit the NRC Inspector said that he had looked at it and confirmed to me that the problem existed. I can recall that in other areas of the plant the same problem exists.

35. In the fall of 1983 I was transferred to Systems Turnover Engineer for Unit 2, although I retained my Unit 1 clearance. I continued finding problems that had been missed. In some cases the problems were routine deficiencies that would have been caught in other walkdowns, if conducted according to instructions. In other cases, however, I learned of problems only by taking the initiative to go beyond the instructions. These cases involved work supplied by vendors. (Exhibit 6, *supra*.) For example, a large number of Paramount shear lugs did not have full penetration welds, as called for by design.

36. The problem described above indicates that my earlier reports did not lead to full corrective action on Paramount purchases. It also means that some of the Paramount lugs are

still not properly welded, because of PG&E's response. On one hanger, I told the QC inspector to initiate a Deficient Condition Notice (DCN), but she later admitted she hadn't done it because PG&E's PTGC informed her that it was a "generic problem" and therefore did not need to be documented. I relayed this to the PPP Field Engineer DR specialist, who researched it and was told the same thing by PTGC. To me, that means the problem existed in many places. (See CCW System 14 walkdown report 150 2-14-22 and item #3 on May 3, 1984 walkdown enclosed in part of a packet as Exhibit 14.)

37. I eventually was told that no corrective action was necessary, because PG&E was not using the area of the full penetration welds in its calculations. Even if correct, that would not excuse the failure to write a QA report. The bottom line is that this informal approach left the drawings incorrect; they do not reflect the true As-Built Condition at the plant.

38. A much more severe vendor problem that I discovered in the May 1984 walkdown concerns the Reactor Head Gasket Monitor lines. The lines are supported by electrical conduit clamps that are not designed for that purpose. Further, there is no protection against "chain" failure; failure of one strut would add to the burden on the next strut, and so on down the lines. (See Exhibit 14, page seven of ten.)

39. There is no question that this line is safety-related.

The gasket separates the reactor head from the reactor vessel. Failure of the reactor would place the work within the pressure boundary. Yet management responded to my disclosure in the walkdown by claiming that corrective action was unnecessary because the work came from a vendor -- Westinghouse. In my opinion that was no excuse to ignore the problem. It could be dangerous. It only means that the vendor QA/QC program was deficient.

40. During a January 1984 Systems walkdown I identified a loose clamp on the Containment Spray System, which cools Containment during a nuclear event. This clamp supports a seismic limiter to prevent excessive movements. Although the clamp had been installed according to procedure, it could be rotated around the pipe with my hand. This was totally unacceptable on a system as important as Containment Spray.

My discovery indicated that earlier attempts to work within the system had been unsuccessful. On December 28, 1983 I had identified the problem to PG&E and Pullman, but it was not corrected. The System Turnover Walkdown Summary and memo are enclosed as Exhibit 15.

41. The breakdown in corrective action continued. Even after I identified the uncorrected problem in the walkdown, there was no effort to check for the full extent of similar deficiencies. In fact, as of July 1984 even the original clamp remained unfixed. Almost every time I walked by, I would give it a spin. As one of my last acts on site, I pointed it out to

a QC inspector who indicated a desire to write it up on a DCN in order to properly document this discrepancy.

42. On January 26, 1984, during my tenure as a Systems Turnover Engineer I uncovered a problem with the Unit 2 Hydrogen Gas System that was similar to the Reactor Head Gasket Monitor lines: Several lines in the system were supported by electrical conduit clamps that are not designed for that purpose. These conduit clamps are to support lightweight tubing with no dynamic induced loads. The Hydrogen System has dynamic live loads that must be calculated in order to properly define the structural requirements of the hanger. Although the line theoretically is not safety-related, this does not mean that it is not a hazard to plant personnel. Recently at San Onofre a hydrogen fire killed workers when it ruptured. These lines cool the generator and related components and in my opinion must be required to function properly. My January 26, 1984 walkdown report is enclosed at Exhibit 16.

43. This problem, which I disclosed to the NRC Resident Inspector on September 5, remains uncorrected. Again management would not take corrective action, because it again involved a vendor item -- Westinghouse. I can identify the PG&E PTGC official for NRC Office of Investigations who refused to act further. I do not believe his culpability is deserved, as he also had been trying to contend with problems on vendor piping with the same unsuccessful results.

44. Recall of an earlier problem is added at this point due to my concern that an anchor within the Reactor Coolant System has been damaged due to excessive welding. I did not include it earlier, because I have not confirmed the relevant code requirement. But management's reaction was sufficiently suspicious that the issue should be evaluated. This anchor is on line 13, which is within the Reactor Pressure Boundary. In June 1983, shortly after I started as Cold Hydro Team leader, I discovered that the hanger had been subjected to welding at the same spot on four separate occasions. To my knowledge, under code, a weld can only be performed three times at one location, due to embrittlement, etc. Documents that I submitted as evidence of the problem are enclosed as Exhibit 17.

45. Management refused to face up to the issue. The excuse was that one of the four welds "did not count" because it was a "base metal repair". In my opinion that is unrealistic, as a base metal repair introduces as much stress as other welding. This is one reason why weld repairs are subject to QC coverage. I believe that the explanation was a pretext to avoid a serious problem within the Reactor Pressure Boundary.

46. Shortly before I left Diablo Canyon, a colleague gave me a document that should be brought to the NRC as a violation for failure to submit a report required by 10 CFR Part 21. The incident occurred in 1978, when 133 Unit 2 hangers had to be cut out and replaced due to unqualified welders performing full penetration welds. Many of the hangers involved Paramount spools

and most of the welds were in Containment. The mass deficiencies could have caused system failure if the plant had been operating, so the relevant DR 3538 (enclosed and Exhibit 18), should have been forwarded to the NRC under Part 21. Unfortunately the last page of the DR indicated that PG&E official Rick Etzler -- now the Resident Construction Manager -- decided that, "Pacific Gas and Electric Company" does not "consider the discrepancy reportable" and "will not report" it. In my opinion, that was an intentional violation of reporting requirements. If PG&E had been forthright at the time, we may have caught the full extent of the problem with Paramount weldments.

47. Another earlier allegation also involved Paramount piping within Unit 2 Reactor Pressure Boundary. An ultrasonic testing report indicated that for 55 inches a Paramount spool (pipe) was eccentrically extruded. This means the hole in the pipe wasn't centerd; its walls were not of equal thickness. My turnover report is enclosed as Exhibit 19. I know the problem still exists as the pipe spool was not replaced.

48. Even if this pipe defect were acceptable, it demonstrates the poor quality of Paramount work, especially as it was caught only through random inspection. How many other portions of critical piping like this were missed, perhaps with even more gross eccentricities or slag inclusions, etc? We should check for the full extent of similar or worse problems. An adequate inspection program should have been instituted. The disposition of the DCN had no such recommendation.

49. A related example concerned PTGC's failure to follow section 3.13 of its own M-9 design cirteria manual. This provision states that if an item supported by a hanger is designed to be removable, the hanger also must be designed to be removable. A Nuclear Plant Problem Report (NPPR) confirming this inadequate design in the Auxiliary Saltwater Pump Room is enclosed as Exhibit 20. Having confirmed that the flaw existed we should have checked for the deficiency plantwide. I saw no evidence of that response. The NRC should confirm the corrective action or lack of it.

50. On July 16, 1984, I was denied further access to the site when my security clearance was cancelled. This action had the same effect as terminating me. It was cancelled without explanation, although PG&E had been attempting unsuccessfully to "catch" me with drugs. I believe that the denial of my security clearance was retaliatory, because I had been openly gathering evidence for a disclosure to the NRC, primarily about the Firewater Protection System. I didn't make any attempts to conceal my intentions and discussed them with other workers, including the PTGC Systems Lead, Janos Molmar. I firmly believe that PG&E decided to get rid of me -- evidence or no -- because I "knew too much".

The Department of Labor investigated and rejected my complaint without talking to any witnesses on my behalf and without formal explanation. The Labor Department investigator expressed sympathy with me afterwards, but said PG&E had found a

loophole in the law and "surgically" performed my removal to take advantage of it. I think I'm entitled to know why I lost my job, so that I can defend myself. I didn't know there was a loophole in the whistleblower protection statute.

My Department of Labor complaint and the decision are enclosed as Exhibits 21 and 22.

51. My discussion with Mr. Molnar involved more than the NRC. I raised that option, because he told me that I could not write a DR on the numerous Firewater Protection System deficiencies. I believe that my announced persistence to follow through on this issue, combined with my reports on uncorrected vendor defects such as on the Reactor Head Gasket Monitor lines also contributed to my dismissal.

52. My last day on the job I was checking hangers for small-bore piping around the Reactor Coolant Pumps within Containment. I saw that there were too many temporary hangers in place, which could create damage by keeping the piping too rigid to permit movement of the line as calculated in the design. I am not confident that the problem was fixed by their removal, because Pullman engineer Bob Oldenkamp told me that PG&E's PTGC was not concerned with temporary supports on small-bore piping. They already had fixed what they were going to and it was on the large-bore lines. He told me I would be not ~~not to~~ waste my time. He had already tried. I could not follow through with a report to challenge this violation of the small-bore design, because I was terminated.

In reviewing the above issues, I remembered several other relevant significant points that should be added to the record. They are listed below.

53. Within Unit 2 Containment, I observed unacceptable impurities in the argon that came from the argon header. Argon is the gas that shields the TIG welding process from oxidation. Oxygen can create tiny bubbles in the weld ("SUGARING") which leaves it more susceptible to cracking. Unfortunately, the argon needs to be 99.9% pure, according to the relevant welding procedures. The Unit 2 header is so dirty that the argon gas may have contaminated the welds, instead of shielding them. The header was corroded and had condensation from trapped water. In theory, to avoid this problem argon bottles could be substituted for the header during welding. That is what we generally did. But there wasn't any warning to the craft not to use the header, and I saw a case where a worker tempted to use it who didn't know any better. I recommended he use an Argon bottle, which he did. The scope and effect from the resulting contamination is unknown. But the contamination is probably significant. Unit 1 used the same model header, although I did not personally observe them in use. Further, if the argon header has to be used during an emergency, it may not perform as expected.

54. I noticed another design problem in the fire protection system at Intake with respect to the way nuts are installed for U-bolts that support piping connected to the carbon dioxide tanks. The nuts are installed in a manner that

allows contact and possibly damage to delicate small-bore lines being held in place. In many cases, the nuts make contact directly with the pipe, although the design requires a gap. There is a high potential for interference since these lines have significant thermal movement.

55. In reviewing this statement I also realized another scenario that could prevent critical heat transfer due to the unsecured status of the chlorine tanks. The upper deck with the hatches to the auxiliary saltwater pump room are only about 20 feet west of the chlorine tanks. These hatches, which are used for pump maintenance, are not secured. If a tidal inundation occurs, a chlorine tank could be dropped into a hatch, which could open due to the air trapped inside ~~pressure~~. Since chlorine is 1.5 times heavier than water, at least some of the chlorine from the one ton tank will make it to the sump pump and be sent out of the pump discharge lines. If these lines -- which themselves have Class 1-C status -- do not rupture first, all of the trapped chlorine will make it to the heat exchanger and cause a vapor-lock that is like having air in your car radiator. It could incapacitate the entire Component Cooling Water system. The consequences would be disastrous. Rather than producing a calculation to explain away this scenario, it would be better if PG&E properly protected and secured the chlorine tank.

Bleeding the "air" from the heat exchangers would release vapor chlorine inside the 85 foot elevation of the Turbine Building.

56. One of the causes for poor quality, sloppy work and stop-gap solutions was the spectre of unreasonable deadlines

that "must be met" to avoid shutting down the plant. Meeting the deadlines became the number one priority. During those periods, quality concerns were viewed as obstacles to be ignored or deemphasized. A June 27, 1983 example of a deadline memorandum is enclosed as Exhibit 23.

57. I raised most of the above problems in a September 5, 1984 interview with an NRC Resident Inspector. I sought out and found the Government Accountability Project, because of my disillusionment with the results -- nothing. The Resident Inspector took full notes and clearly understood the problems. He also made copies of my evidence. I still have his notes and have enclosed the evidence with this affidavit. But there was no apparent follow-through. I spoke with the Resident Inspector ~~a few days~~ later about what would be next on the Paramount stanchions, and he said that maybe Mr. Rockwell would like me to point out the problems to him on a walkdown. That indicated that the NRC may have just sold the public out by turning over evidence of criminal violations to PG&E. Mr. Rockwell is one of PG&E's top executives. PG&E had its chance. I tried to point out the welds to them over a year ago. PG&E wasn't interested. I don't want to walk through the plant with Mr. Rockwell. I want to do it with the NRC -- under closely controlled conditions, with a reliable record of photographs to prove what I expose to them. Unfortunately, the NRC has not appeared interested, either.

I have read the above 29 page statement, and it is true, accurate and complete to the best of my knowledge and belief.

Dated October 22, 1984.

Michael C. Thompson

STATE OF CALIFORNIA,

COUNTY OF San Luis Obispo } ss.

ON October 22, 1984,

before me, the undersigned, a Notary Public in and for said State, personally appeared Michael C. Thompson

OFFICIAL SEAL
STANLEY H NELSON
NOTARY PUBLIC - CALIFORNIA
SAN LUIS OBISPO COUNTY
My comm. expires MAY 3, 1985

, known to me, to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

WITNESS my hand and official seal.

Stanley H. Nelson

Notary Public in and for said State.

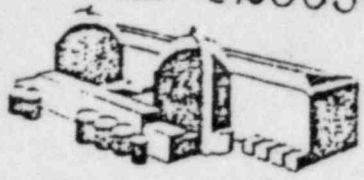
ACKNOWLEDGMENT—General—Wolcotts Form 233—Rev. 3-64

END

ATTACHMENT 2 026690

INTEROFFICE MEMORANDUM

Diablo Canyon Project



PACIFIC GAS AND ELECTRIC COMPANY
BECHTEL POWER CORPORATION

To R.D. Etzler

From G.V. Cranston/G.H. Moore

Of SFPD/Project Engineering

At 221/15/B1 Extension 8-1658
45/10/C29 8-2963

Date July 21, 1983

File No. 913

Subject Stanchions - Paramount Shop Welds, MVR M-3925

The following is a complete reply to your memo dated October 20, 1982, our Correspondence Control Number 005335.

We have reviewed the information in the above letter and have determined no further action is required on the subject MVR. We agree that the Paramount Shop stanchion welds met the engineering/contract and code requirements. That is, these welds are acceptable for the service intended.

The Unit 2 Class A Paramount stanchion welds were included in the design review of all Class A welded attachments. As a result of this review, a number of welded attachments were added or replaced. It was decided to replace the Paramount stanchion welds even though they met the code requirements. This conservative decision was made to avoid any concerns that might subsequently develop in the future.

All Unit 2 Code Class B and C stanchion shop and field welds are included in Plant Design's current pipe support review. Any changes to these stanchions will be issued on a case-by-case basis via a revision to the applicable pipe support detail.

Unit 1 Project Engineering has reviewed and determined that no further action is required on the 60 Unit 1 Paramount stanchion welds. These welds, as with the Unit 2 welds, meet the engineering/contract and code requirements. These welds are acceptable for the service intended and no further action is required.

DCC 5343

Please advise Clyde Nichols at (415) 768-0293 if further information is required.

G.H. Moore
Project Engineer
Unit 1

G.V. Cranston
Project Engineer
Unit 2

No Reply Requested
MRTresler/CNichols:mej
Response to Chron 005335

cc: PGAntiochos
JArnold
DCrosby
EHJadelrab
JRManning
VPMercado
PWProvence
DCTateosian
JWShryock

DCC 5343

Bill M. 005335
Pg 58 of 60

INTEROFFICE MEMORANDUM

Diablo Canyon Project

PACIFIC GAS AND ELECTRIC COMPANY
BECHTEL POWER CORPORATION

To G.V. Cranston/V. Mercado

Date October 20, 1982

From J. Arnold

File No

Of Mechanical Dept.

Subject Paramount Stanchion Shop Welds MVR-M-3925

At Diablo Canyon Project Extension X2737

During U.T. Inspection by DER of field stanchion welds listed on Pullman Power's Discrepancy Report 3538, eight Paramount stanchion shop welds were also inspected. Three of the eight stanchions were found to have lack of penetration. Paramount welds were only required to have a visual inspection as per Spec. 8711. The P.T. procedure followed was 8711-ES-JP102. A Minor Variation Report was written against the three shop welds, MVR M-3925. Our disposition of the MVR is as follows: "The engineering/contract requirements for NDE of stanchion welds made at the Paramount Shop were properly met by M.T. and P.T. A U.T. Inspection of the stanchion welds was not required. Therefore, the findings based on U.T. examination do not constitute a discrepant condition and the welds are acceptable based on the shop NDE."

NOTE: There are approximately 60 Paramount welds in Unit 2 and 60 in Unit 1. All were inspected visually by P.T.

Questions:

1. Do you concur with the disposition of MVR M-3925?
   If not, what further action will be required on the remaining 52 stanchions in Unit 2 and the 60 stanchions in Unit 1?

Kurt A. Wilson / J.A.

J. Arnold
Resident Mechanical Engineer

Response Required: Yes
Date Due: October 31, 1982
Attachment: MVR-M-3925
RW:KAN:sh
cc KAN

cc: KANilson w/a
RWillis w/a

DCC 0353