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My name is Thomas Devine. I am the Legal Director of the Government Accountability Project (GAP). I am submitting this affidavit to provide a record of allegations received by GAP from anonymous whistleblowers over the last two weeks. The allegations concern stresses on the concrete from Hilti Quick Bolts which may result in failures of the bolts themselves. The alleged conditions include--1) deep embedment; and 2; failure to consider the possible design effects when bolts are installed too close to the back of other bolts from opposite sides of concrete walls.

The particular examples are on safety related work, specifically in the GE area, 85 foot level elevation in the Auxiliary Building just outside the containment wall. They help support an anchor-type hanger in Component Cooling Water (CCW) system 14. The witnesses described these specific examples as illustrative of a generic condition. The problems have been reported on Quick Fix process sheets and recently on a Deficient Condition Notice (DCN). There still has not been effective corrective action, although one witness estimated that the problem should have been reported to the NRC with in 24 hours under 10 CFR Part 21 due to its ^{TD} potential to cause failure in a safety-related system. The witness was deeply concerned with the potential for the bolts to shake right out of the wall during an earthquake, unless there is a full review and any necessary corrective action.

Beyond technical significance, if true the accounts below of the two major bolting issues demonstrate the ineffectiveness of the

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Quick Fix and Quality Control (QC) reporting systems to identify, disclose and correct all related deficient conditions. They also demonstrate a pattern of management non-response to a significant issue that has been raised repeatedly over the last year. Both the effects -- bolting -- and the cause -- mismanagement -- should be corrected before Diablo Canyon goes commercial.

The first alleged problem is that bolts were embedded a minimum of 10.5 inches into concrete that was only 12 inches thick. Although the witnesses were not aware of specific calculations to demonstrate whether this condition were acceptable, I was informed that unacceptable residual stresses can result if bolts are embedded too deeply into the concrete. Allegedly an inspector on-site has requested relevant back-up data to see if the problem were considered but has not received any response. Mr. Stokes informed me that at most nuclear plants in his experience the concrete is 24 inches thick when embedment is that deep.

I was told that the origin of the problem was instructions on design drawings to achieve a minimum of 10.5 inches embedment. Allegedly the deep embedment had been considered necessary to achieve the required strength for the structural loads--the hangers. The potential problem depends on whether the consequences from excessive embedment also were taken into account. As one witness said, "It doesn't do much good to fix one problem by creating another that may be worse."

The nature of management's response may be as significant as the bolting problem itself. Last June a QC inspector identified the issue to Pullman Power Products (PPP) engineers. Despite recog-

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nition of specific problems and individual corrective action--the use of "thru-bolts"--the generic condition was never addressed.

Last June 28 a different inspector allegedly also identified a similar problem, but in this instance a Pullman engineer disregarded the warning and responded that structural integrity would not be effected.

Unfortunately, the engineer was mistaken. During installation, concrete cones directly beneath three relevant bolts suffered a structural failure: the concrete popped out. The allegers were concerned that the concrete failure could cause the bolts to fail as well.

They also were concerned that the corrective action at the time was ineffective. The "solution" was to "dry pack" the voids left when the concrete fell out. "Dry packing" means applying filler to the void that does not have any structural value. In other words, the corrective action was ineffective from a design perspective and was only applied to a few examples for a potentially generic condition.

In 1983 Pacific Gas and Electric (PG&E) engineers also were alerted to this problem and instructed the relevant Pullman engineer to resolve it. As seen by the recent DCN, however, the problem wasn't resolved. The new DCN allegedly was filed several weeks ago but Pullman management has not responded. The witnesses inquired whether Pullman is violating the NRC 24 hour reporting requirements for significant conditions. They told me that for all practical purposes the embedment problem is the same as last year, and the quality of the bolting remains indeterminate after three attempts to work within the system.

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Allegedly the DCN author raised an ancillary question whether there was any design consideration for the structural effects when Hi-Ti Quick Bolts are embedded too closely to each other from opposite sides of the concrete. In that circumstance the zones of structural influence from the bolts might conflict, leading to the possibility of structural failure such as cracking and resulting voids on the concrete. As with the embedment problem, the witnesses were concerned that this could cause failure of the bolts themselves, and compromise the hangers and the lines being supported.

The anonymous witnesses stated that in fact there have been instances when bolts from one side had been hit during the drilling and installation of bolts from the opposite side. Those types of conditions were found as late as last fall. The occurrences suggested to the witnesses that design control had been inadequate to prevent the conflicts.

The witnesses told me that both technical issues were identified on Quick Fix process sheets. In fact, the bolting embedment was verified by QC inspectors and placed on the back of Quick Fix sheets. But the relevant as-built drawings do not reflect this specific information. They only reference the 10.5 inch minimum requirement. As a result, specific information on the Quick Fix sheets was factored out of the as-built reviews.

The witnesses emphasized that the specific examples may be generic because so many other instances of voids, cracks, buried drain pipe, forms left in concrete and dry packed knock outs are still being identified in the field.

Several of the witnesses requested the opportunity to

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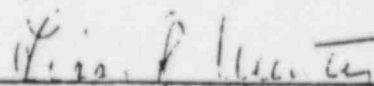
confidentially disclose Quick Fix problems with NRC Inspector Isa
Yen, during his next visit.

I have read the above -5- page statement and swear under
penalty of perjury, that this statement is true and accurate to the
best of my belief.


Thomas Devine

Subscribed and sworn to before me this 22 th day of May, 1984.




Notary Public in and for
the County of San Luis
Obispo, State of
California