

GOVERNMENT ACCOUNTABILITY PROJECT

Institute for Policy Studies

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EXHIBIT ORIGINAL  
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50-358

January 11, 1984

Mr. James Keppler  
Region III Administrator  
U.S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

This letter is in partial response to Cincinnati Gas and Electric's (CG&E) proposed Plan to Verify the Quality of Construction (PVQC) for the William H. Zimmer nuclear power station. This letter also explains the reasons for the decision by counsel for the Miami Valley Power Project (MVPP) not to attend the January 11, 1984 public meeting called by Region III on the PVQC, which are as follows:

- 1) Your complete disregard for the substance and message of public input during and after the November 2, 1983 public meeting before approving the CG&E Course of Action has exposed these meetings as meaningless vehicles which the NRC holds solely to permit the community to let off steam. In that sense, counsel does not have the time to engage in futile gestures.
- 2) On January 6, 1984, through an anonymous source, counsel received the June 7, 1983 deposition of James McCarten, your former lead investigator for the 1981 Zimmer reinvestigation. The interview was part of the probe conducted by Administrative Law Judge Helen Hoyt into charges by Thomas Applegate. In the interview transcript, Mr. McCarten reveals that in 1981 you "knowingly" provided false statements to the public on whether hardware problems existed at Zimmer. He further reveals that you were aware since January 1981 that the Zimmer quality assurance breakdown was caused by CG&E's refusal to permit its contractor to build the plant to minimum nuclear industry and legal standards. Yet in November 1981 you

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made that same contractor, the Kaiser Corporation, the scapegoat and blamed the QA breakdown on CG&E's ignorance. The deception was so thorough that Mr. McCarten described your November 1981 report on Zimmer as a "false report".

MVPP counsel is boycotting your January 11 meeting in protest of the 1981 deception. That deception, which was designed to maintain CG&E's control over Zimmer when such a decision was indefensible, has continued for three years.

I. DEFICIENCIES IN THE PLAN TO VERIFY THE QUALITY OF CONSTRUCTION

MVPP's initial critique of the PVQC primarily is contained in a December 31, 1983 brief submitted to the Atomic Safety and Licensing Board. The brief is enclosed as Attachment 1. The PVQC reflects all the previously challenged flaws of the Course of Action, but tells little more of substance. Basically, the PVQC represents a promise to develop a program, rather than a completed proposal that can be evaluated. The plan is too premature to merit serious consideration. CG&E has not yet finished its QA Manual, training program, qualifications standards, PVQC procedure, nonconformance reporting system, or program to identify and correct Approved Vendors List violations. The utility has not yet revealed the scope or methodology of its sampling programs. As a result, with respect to the nuts and bolts of the PVQC program, Applicants have requested the NRC staff to sign a blank check. (Attachment 1, at 15-16, 34, 37-8.)

Further, the PVQC is biased by CG&E's control. CG&E's "reform" institutionalizes the unacceptable bias in Bechtel's cost estimate - a forecast which explicitly assumed that potential violations involving most of 10 CFR 50, Appendix B would neither have any impact on plant hardware nor require any corrective action, including every case where the hardware is buried or inaccessible. CG&E disqualified itself by essentially adopting Bechtel's time schedule as its own in the PVQC. (Compare Bechtel forecast with PVQC, Appendix L.) There is no room in that schedule to fix Zimmer. There is not even room in the schedule for reinspections to accurate design drawings and specifications. That work deteriorated so badly that CG&E has been forced to contract for an Independent Design Review (IDR), which Ubasco Services has been selected to conduct. Unfortunately, CG&E is not willing to wait for the IDR. Instead, the PVQC will be based on the current design drawings and specifications whose accuracy is suspect. (Attachment 1, at B.) As a result, the PVQC is susceptible to repeating the previous design control and engineering mistakes, instead of correcting them. Hopefully, the NRC will tell CG&E to put the horse back in front of the cart.

The bias against QA is inherent. Mr. McCarten's June 7 1983 interview explains the causes for CG&E's previous failure to accurately

report and correct the most widespread QA violations.

The strongest tool, the field representative's tool to tell the utility something is wrong, the NR, was thrown away because when these guys wrote stuff, it identified big generic problems and the utility didn't want to deal with them because it meant big money and it meant not getting licenses.

(Attachment 2, at 37.)

Mr. McCarten's insight is even more valid today, when compliance with the law could lead to bankruptcy. Unless Region III is willing to bail CG&E out by throwing the Atomic Energy Act overboard, CG&E and Bechtel must be replaced by independent organizations free from financial conflicts-of-interest. Mr. McCarten recalled a faulty tradition of Region III investigations - "to take a manager's word as to what happened without verifying it and this is flawed". (Id., at 124.) Under the present circumstances, it is even more flawed.

Finally, the McCarten transcript further discredits the PVQC's reliance on a paperwork review to screen out physical reinspections. For example, the proposed review of nonconformance reporting violations only covers "Deficiency Documents". It fails to include the most informal substitutes for Nonconformance Reports (NR's), such as violations reported on construction punchlists. That is exactly what happened, however. As Mr. McCarten reports, "Inspectors told us, they said I have identified problems, but it is put on a punch list or it is put on a lesser significant document that does not get any engineering or NRC review". (Attachment 2, at 29.)

The paperwork review inherently misses cases where the nonconformance report was thrown out and uncontrolled, undocumented repairs ensued. Mr. McCarten described an instance when Kaiser cut out and repaired approximately 50 beams, threw out the original nonconformance report and whited-out the relevant entry in the NR log. At the time, Zimmer management was able to avoid detection, because Region III management forced Mr. McCarten to wait from February when the allegation arrived, to May when he was finally permitted to look at the hardware. (Id., at 35-36.)

Under the PVQC similar problems can be avoided, because the scope of physical reinspections depends on the existence of accurate paperwork. At Zimmer that is inappropriate -- too much of the relevant paperwork on quality-related problems has been falsified, or thrown away. There is only one rational solution -- a comprehensive, physical reinspection of all safety-related hardware in the plant.

## II. ABDICATION OF PUBLIC TRUST BY REGION III

### A. 1983

In December 1983 Region III refused to consider the most significant evidence presented by the public, and effectively ignored the strong message from public officials who requested meaningful participation in the Course of Action. Instead, under your leadership the NRC rammed through approval of the Course of Action. The effect is that you sacrificed the NRC's legitimacy as a regulator of public health and safety. MVPP counsel's boycott of your latest meeting is partially due to three areas where you ignored the previous public record.

#### 1. Public participation

On December 16, 1983 the Commission accepted the Course of Action on your recommendation, without any final public participation plan. Presumably, some provision will be approved as an afterthought.

There is no defensible excuse to maintain CG&E and Bechtel's monopoly over the Course of Action -- and over the local population's public health and safety. In the past, you have rationalized this result by stating that the state and local officials have not asked for more. That excuse is no longer available. The Governor, the last three Mayors and the City Council all have requested that the NRC implement a strong plan developed by the Cincinnati City Council's Environmental Advisory Council. It did not make any difference to you.

MVPP cannot accept that the worst-constructed nuclear plant in the country will be completed with the least public oversight of any major remedial program. MVPP also cannot accept that you are insisting on those terms.

#### 2. Bechtel cost estimate

At the December 14 1983 NRC briefing, you did not say a word about the Bechtel cost and schedule estimate. That is curious, since Bechtel's estimate essentially assumed that the laws under your jurisdiction are irrelevant. Your representatives argued to me that the forecast is irrelevant. That is utter nonsense. Even American Electric Power, which owns CG&E's partner Columbus and Southern Ohio Electric, reported: "AEP and C&SOE believe that any decision would be premature if it were made before an assessment of all the considerations associated with each option is completed. In fact, we have retained an independent engineering consultant to



review Bechtel's detailed data and estimates and to evaluate their reasonableness". (AEP Report to Shareholders, 3rd Quarter, 1983, p. 5, enclosed as Attachment 3.)

MVPP is disappointed that you do not think the reasonableness of Bechtel's cost estimate is relevant. Your vision has not always been so narrow. At September 14, 1982 congressional hearings you rejected a similarly-biased CG&E estimate for completion of the Quality Confirmation Program: "I don't know how you can make a projection of rework until you know what the problems are." (Cited in Supplement to MVPP August 20 Petition to Suspend Construction of the Zimmer Station (October 18, 1983), at 19.) At September 16, 1982 EAC hearings, you dismissed the same CG&E estimate as "wild speculation". You explained that you couldn't estimate when the QCP will be completed, because "I don't prejudge what the program will show". You added that it would only be possible to state a time frame for completing the plant "(i)f you presume the program won't find anything wrong" and that no rework will be necessary." Clearly, those same principles are as relevant today as in 1982. MVPP will not believe that you are serious about your regulatory mission unless you require an independent engineering review of the Bechtel estimate. Bechtel's forecast represents the money CG&E is willing to spend for its rhetorical commitment to quality assurance.

3. Bechtel's experience at Diablo Canyon

Bechtel publicly supports its qualifications for the PVQC, based on its "success" with a more limited design verification program at Diablo Canyon. Bechtel is importing its Diablo Canyon Project Manager to run the engineering and licensing program at Zimmer. At the December 14, 1983 Commission briefing, you postponed consideration of the Diablo Canyon allegations as they relate to Zimmer. It is time that you began addressing these issues. The charges have led the NRC staff to recommend against any decision on Diablo Canyon's low-power operating license until they are resolved. (See Safety Evaluation Report related to the operation of Diablo Canyon Nuclear Power Plant, Units 1 and 2 NUREG-0675, Supplement No. 21 (December 1983), at E-5.) ("SSER 21") The issues include lack of training; ineffective design document and procedure controls, falsification and destruction of engineering calculations and logs, and

numerous engineering errors despite three layers of Bechtel review. The staff already has identified ineffective training, document and procedure controls which corresponded to possible errors in design calculations. (SSER 21, at 2-177-179; 184-85.) Although a whistleblower exposed the problems to Bechtel and utility management over a year ago, the staff found that "management response to timely correct the problem and to prevent recurrence appears to be inadequate. The spirit of the allegation was substantiated." (Id., at 2-189.)

At Diablo Canyon the damage already may have been done. At Zimmer there is an opportunity to avoid a repeat performance through comparing the two programs and plugging the loopholes where discretion has been abused, as well as by evaluating the qualifications of relevant Bechtel personnel in light of their track records at Diablo Canyon. To date Region III has not demonstrated any such effort.

B. 1981 and 1982

The McCarten transcript indicates that Region III's 1983 performance has roots in a 1981 coverup as comprehensive as Zimmer's quality assurance breakdown. In light of the implications, MVPP believes that it thoroughly compromises your impartiality to make decisions on the Course of Action.

1. Region III censorship of 1981 report

Mr. McCarten charged that NRC IE Report 81-13, which you presented in November 1981 as a tough response to Zimmer's QA breakdown, was censored, rewritten and edited until "in a sense Keppler issued a false report...I found instances where the report that was presented to the Commissioners was false and contradicted sworn statements that were attached to the report." (Attachment 2 at 75, 102.) Mr. McCarten recalled that in a November 1981 meeting he warned you, Mr. Davis and OIA representatives about misstatements. He further recalled that you and Mr. Davis "hit the ceiling..." (Id., at 78.) Perhaps you can then understand why MVPP too is upset.

To illustrate, Mr. McCarten cited the "only paper" summary of Zimmer's QA breakdown that "was told to the press in November. I was present at that press conference. I didn't believe that...I sat in the back of the room and I knew it was false." (Id. at 99, 102.) Mr. McCarten added that the deception was "knowing...Mr. Keppler was fully briefed that there

were hardware problems. As inspectors began to look more and more at the plant, they found more and more hardware problems in the October and November time frame." (Id., at 100, 103.) Even early in the investigation Region III knew better. NRC Inspector Jerry Shapker reported that the structural welding was "terrible". (Id., at 38.)

The most basic technique used was simply not to include relevant evidence, such as CG&E management's control of the quality assurance program. Although in November 1981 you reported the utility's sin as "ignorance," in January 1981 you already knew better. By that point, Mr. McCarten had reported to you the results of his initial witness interviews. The focus of the case was CG&E management:

The substance of what these people said was phenomenal. Here is the former QA Manager saying the vendors, all the people that supplied material to the plant were not approved, a lot of them were not approved vendors. So what he is saying is you are getting non-nuclear material in there from unapproved vendors. He says I knew this and I was the manager and Kaiser did not support us. Kaiser would not give us adequate staffing. Not Kaiser, but CG&E would not give us adequate staffing. Kaiser officials made allegations that CG&E management was not properly running the plant, and all this was communicated to the region. The statements were given to regional officials, Mr. Norelius, Mr. Streeter, Mr. Keppler, Mr. Warnick, Mr. Heismann, Mr. Fioarelli (sic).

(Id., at 14/15.)

Mr. McCarten summarized one of the early witness statements from a former Kaiser QA official: "I wanted to build the plant to nuclear codes and standards and CG&E wouldn't let me do it and I left." (Id., at 75.)

Mr. McCarten explains that at the time you said "Zimmer was always a D student and now it has gone to an F." (Id., at 16.) Ironically, you sent the student who flunked to a permanent seat at the head of the class.

You knew that CG&E was involved in potentially criminal records falsification. As Mr. McCarten explained, "I had allegations that I entered into the computer system which indicated that CG&E was directly involved in the falsification of records..." (Id., at 30.)

You also knew the weakness in the NRC's regulatory program and how CG&E took advantage of it. The flaw was the simple failure to doublecheck on corrective action, which "gives the utility the opportunity to weaken and water down the procedures which is what Zimmer did." (Id., at 23.)

## 2. Techniques to manipulate the record

Mr. McCarten described a series of techniques that distorted the public record in Report 81-13. The methods that he identified include --

- a. editing until the report effectively was re-written. For over four months, the editors used approaches called "word engineering" and "massaging" the text. Unfortunately, the masseurs were not trained investigators. In some cases they were editing the same issues for which they had earlier let the utility off the hook. The report was so toned-down that the impact was "gone." (Id., at 73-80, 140, 146-50.)
- b. removal of exhibits and statements that represented the "meat" of the report. (Id., at 77.)
- c. restricting the substantive scope of the investigation to avoid looking at CG&E management activities. (Id., at 101.) Mr. McCarten explained how this was symptomatic of a generic flaw in Region III -- failure to learn the causes for violations. "[W]e are citing them and saying that is it. We are almost doing what the utility did with the plant. We never look at why." (Id., at 121-22.)
- d. restricting the procedural scope of the investigation to define-out the most serious issues. For example, Region III limited its coverage of Mr. Applegate's issues to the first 19 allegations, although subsequent GAP supporting affidavits disclosed another 100 issues. In the end Region III sat on over 200 allegations received by January 1981 for up to 1.5 years, which at best was "just gross mismanagement." The issues uncovered by Mr. McCarten but put on hold included felonies, CG&E complicity with falsification, and the decision of CG&E management, to build the plant contrary to legal requirements. (Id., at 21-22, 119.) Those issues, now covered in



the upcoming Office of Investigations (OI) report, still have not been publicly resolved. Three years after Mr. McCarten first learned what went wrong at Zimmer, it appears that you will attempt to approve the entire Course of Action before the same facts are in. That may set a bureaucratic record of sorts.

- e. returning to witnesses who had conceded regulatory violations and attempting to talk them out of the admission (Id., at 81-82.)

### 3. Bias

Mr. McCarten described the attitude of Region III management about the Zimmer investigation as follows: "[W]e have got egg all over our face, we are in a bad situation, we have got a real mess here, and I think the management wanted to contain that mess." (Id., at 22.)

The most vivid illustration of bias was your April 1981 refusal to suspend construction at Zimmer. Mr. McCarten set the scene as follows:

We started pursuing the QC allegations and hit pay dirt. Every single inspector that was given a QC allegation found it to be substantiated and there was a lot of real strong feelings. Everybody just came back to the trailer every night saying hey, the one you gave me, they are all screwed up in structural welding, in radiographs, in design drawings, in the electrical area. Everything we looked at and everything we had an allegation of was proven, and this was after weeks of working on Applegate and just spinning our wheels for a lot of them, for a lot of the inspectors. By Wednesday Warnick said hey, we have been out here seven weeks and people are getting tired. Everybody in the trailer said we ought to shut the plant down.

(Id., at 52.)

When the staff recommended that sanction on Good Friday. "Keppler left the meeting...to discuss strategy and they left it at that." (Id., at 53.) You overruled the staff. Instead, the Quality Confirmation Program (QCP) was born.

Mr. McCarten listed the three reasons given to substitute the QCP for a shut down as ways to "dodge the issue of an internal inquiry into why Region III failed to inspect it, a stop work order which would make Applegate look like a hero, and one of the reasons given was they said they would never get back up again they were so screwed up.

Those three reasons were given at various times during the discussion." (Id., at 55.) Put more simply, Region III officials summed up the rationale to avoid a shutdown: "[W]e can't shut down a plant that is 90% inspected and 93% complete. It would make us look bad." (Id., at 53.)

The effect of the QCP on the 1981 investigation was devastating. As Mr. McCarten explained, "The inspectors all the sudden into a mode where they were working hand in hand with the CG&E people and the criminal issues are dropped. There is no hard investigating going on any more. We are all of the sudden helping the utility with this QCP.

Mr. Aloom: Now you just mentioned that you were not involved in this QCP.

Mr. McCarten: Yes

Mr. Aloom: The inspectors were involved. What did you do with your time?

Mr. McCarten: That is the point. You lose your inspection support and you can't do much more investigating." (Id., at 56.)

From Mr. McCarten's description, it appears that the shutdown decision was dominated by your desire to save face. He recalls your reaction: "[H]ow do we go and explain the fact that a 90 percent complete plant is bad and how do I personally explain that? When you heard that six or seven times, the tone became clear. He didn't want to shut that plant down." (Id. at 53-54.) Mr. McCarten recalled that your major concern was, "How can I go to the public and say that we have completely inspected the plant, it is 93 percent complete, but it is a mess?" (Id., at 22.)

In 1981 you found a way: censor the record and offer the public the Quality Confirmation Program -- a wolf-in-sheep's clothing reform. MVPP submits that in 1983 you have followed a parallel pattern: refuse to consider the publicly-created record and offer the Course of Action. Both are techniques to avoid problems. The first time that meant postponing the inevitable shutdown -- and the road to recovery -- for 1.5 years. As Mr. McCarten explained, the effect of the postponement was also to delay rework for 1.5 years, which is an "injustice to the utility." (Id., at 150.) This time avoiding Zimmer's problems would be fatal to the plant.

4. Withholding information from the Department of Justice.

Mr. McCarten charged that in November 1981 Region III "impede[d] a criminal investigation by failure to adequately disclose all the information that they had... There are 50 statements taken by I and E Investigators at Zimmer that were never given to the U.S. Attorney and were never included." (Id., at 104-05, 182.)

In March 1982 when Mr. McCarten resigned in protest, he was careful to leave behind his complete investigative file on Zimmer. Later that year he supplied the same documents under subpoena to FBI agent Michael O'Neill. "He told me that he didn't have these documents and that the NRC had told him they had provided everything they had to him....He had never seen whole books of documents.... Anything to do with the criminal case, he said he didn't have almost all of it...." (Id., at 91-92.) The only comfort to the public is that we're in good company.

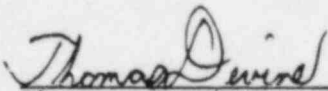
### III. RECOMMENDATIONS

MVPP believes it is not too late for you to begin the long road back to public credibility. Toward that goal, MVPP recommends that you--

- 1) reconsider responsibilities for the Course of Action until public release of the OI report, and simply defer judgment on the PVQC;
- 2) require completion of the Independent Design Review and the PVQC successively, before allowing the Continuation of Construction Plan (CCP) to begin;
- 3) require normal QC coverage in a reinspection program covering 100% of the plant's hardware; and
- 4) order implementation of the EAC - Cincinnati City Council public oversight plan.

MVPP submits these recommendations without any faith that they will be seriously considered. As a result, MVPP is no longer willing to accept the NRC's decisions as the final word on Cincinnati's safety. MVPP is conducting a detailed review of the PVQC with whistleblowers, in order to create a record for submission to the Commission under 10 CFR 2.206. If necessary, MVPP will take the matter to court for injunctive relief and to appeal any adverse Commission decision.

Respectfully submitted,

  
Thomas Devine  
Counsel for MVPP

cc: Julian Greenspan, Department of Justice

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In: the Matter of	)	
	)	
THE CINCINNATI GAS AND ELECTRIC	)	
COMPANY, <u>ET AL.</u>	)	
	)	Docket No. 50-358
(Wm. H. Zimmer Nuclear Power	)	
Station)	)	
	)	

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PROPOSED ISSUES AND SUPPORT FOR  
MIAMI VALLEY POWER PROJECT CONTENTIONS

Pursuant to the December 12, 1983 Order of the Atomic Safety and Licensing Board ("ASLB" or "Board"), the Miami Valley Power Project ("MVPP") files the issues and prospective witnesses that currently support its eight proposed quality assurance ("QA") and character and competence contentions. For purposes of clarity, the following three guidelines explain MVPP's good faith interpretation and implementation of the Board's Order:

First, MVPP recognizes the distinction between specific issues within its contentions, and the many relevant supporting examples. The latter will not be listed comprehensively, but will be provided where necessary to illustrate the point of an issue. All supporting examples currently available to MVPP are contained within the citations accompanying each issue.

Second, where witnesses have required confidentiality from MVPP, their disclosures will be identified by reference to specific citations in the appropriate briefs where their allegations were published. Further, five witnesses who provided seven

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censored affidavits enclosed as Attachment 7 to MVPP's July 12, 1983 reply will be referenced as witnesses A - E. Those confidential witnesses provided support for but were not specifically referenced in MVPP's June 3, 1983 Motion to Reopen the Record.

Third, since many issues are based upon documentation or other support, where relevant MVPP will provide references to the brief or other communication in which such information was originally disclosed. <sup>1/</sup>In some cases the Board has not yet accepted referenced documents for the record. In those cases, MVPP moves that the Board admit the materials. If this motion is granted, MVPP will submit the relevant supporting information for the record.

MVPP also is sensitive to Judge Hooper's inquiry into the value of reopened hearings. MVPP seeks accountability, but only with respect to issues which are constructive to insuring adequate corrective action or are relevant to the legal standards for granting an operating license. All parties should agree that some serious early mistakes were made at Zimmer. For most issues the point is not to assess blame, but to ensure that the errors are properly corrected. Therefore, MVPP will limit its supporting issues to instances where there is reasonable doubt as to the adequacy of existing or planned corrective action or where the information casts serious doubt upon Applicants' character, competence or commitment to properly operate a nuclear facility. MVPP also will seek to provide illustrations in its bases of how

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<sup>1/</sup>A full listing of relevant filings is contained in Appendix 1, along with abbreviations for use in MVPP pleadings generally.

the Board could complete or modify currently-planned corrective action to assure public health and safety.

MVPP recognizes that any such remedies are premature until the litigation has run its course, and does not intend to propose these examples as comprehensive relief. Rather, the examples of remedies illustrate the potential value of reopened licensing hearings. MVPP is attempting to reopen these proceedings to obtain and ensure implementation of needed solutions, not merely to monitor events at Zimmer.

MVPP believes that the issues as defined below are sufficiently specific to satisfy the essential requirement of notice to the Staff and the Applicants. Philadelphia Electric Co. (Peach Bottom Atomic Power Station, Units 1 and 2), ALAB-216, & AEC 13, 20 (1974). But this submission inherently cannot provide a full itemization of all issues that should be litigated. The situation is too fluid. For example, pending determination by the Office of Investigations (OI), this Board has not ruled whether MVPP's disclosure of specific issues would compromise the OI's work. (See December 12, 1983 letter from Chairman John H. Frye, III, to OI Director Ben B. Hayes, and Attachment V.)

Further, certain significant additions to the record are guaranteed to occur. Although these events are not necessary to supply a basis for MVPP's contentions, during reopened hearings they must be taken into account to maximize the relevance of this Board's proceedings. To illustrate, OI will finish its long-awaited report. Further, the Staff and Commission will evaluate and make

decisions on the adequacy of the Plan to Verify the Quality of Construction (PVQC) and the Continuation of Construction Plan (CCP), the next two steps after the Course of Action in the program to complete the Zimmer station. Based on these and/or equivalent developments, undoubtedly it will be necessary to add or subtract from issues contained in the list below.

MVPP therefore moves for the Board's permission to further modify its supporting issues after public release of the OI Report, as well as after any eventual approval of the PVQC and CCP, and after any other significant developments during the Course of Action and/or are revealed during discovery which require litigation to obtain the reasonable assurance required by 10 C.F.R. 50.40 that operation of the plant will not endanger the public health and safety.

1. CG&E and its contractors have failed to maintain sufficient quality assurance controls to ensure that the as-built condition of the plant reflects the final version of a design that complies with all applicable regulations and requirements for public health and safety, as required by 10 C.F.R. 50; Appendix A, Criterion 1; Appendix B, Criteria III, V, and VII.

A. Specific Issues

1. Despite contrary commitments by the Applicants since 1975, an unknown but significant number of design deviations have occurred, because purchases, installation and quality control inspections have proceeded on the basis of construction aids rather than drawings approved by the architect/engineer, Sargent and Lundy ("S&L"). (August 20 Petition to Suspend Construction,

at 10-12 and related attachments -- witnesses Reiter and Tyner; July 12, 1983 Reply Brief at 4-5 Attachment 10 -- witness Reiter; and September 27, 1983 letter, at 11, Attachment 6 -- anonymous witness.)

2. In an unknown but significant number of instances, construction modifications occurred before Design Document Changes ("DDC") were approved by S&L, reflecting an unreliable "trial and error" approach to the development of Zimmer's design. In some instances, the anticipated DDC's did not arrive or could not be located. In others, work proceeded on the basis of "partially" approved DDC's. The result is that the NRC cannot state with confidence how CG&E's actions have changed the approved design (August 20 Petition to Suspend Construction at 12-13, 16-18 and related attachments -- witnesses Nichols, Reiter, Yates; July 12 Reply Brief at 4-5, Attachments 10, 12 -- witnesses Reiter, Nolder.)

3. Design revisions have not been fully incorporated and distributed to all relevant construction and QA personnel. Up to five different outdated versions of design specifications have been relied upon by various HJK personnel at the same time. (August 20 Petition to Suspend Construction, at 13-15 and related attachments -- witnesses Jones, Reiter; July 12 Reply Brief, at 3-4, Attachment 11 -- witness Jones.)

4. The result of the practices described above is that the approved design for Zimmer does not match the as-built condition of the plant. The breakdown extends to Structures, Systems and Components ("SSC's") throughout the plant, with some deviations from nearly all of the design drawings, and serious deviations from approximately 50% of the design drawings in some instances, such as small-bore piping.



(August 20 Petition to Suspend Construction, at 9, 15-16 and related Attachments -- witnesses Reiter, Tyner and Yates; May 25, 1983 letter from MVPP to Nuclear Regulatory Commission ("May 25 letter") at 3-4; June 3, 1983 MVPP Motion to Reopen the Record for Admission of Eight Contentions ("June 3 MVPP Motion"); and related references to NRC Evaluation Team on the Quality of Construction at the Zimmer Nuclear Power Station, NUREG-0909 (April 1983) ("NET Report"), at 1-7, 180-224.)

5. Erroneous engineering decisions by the architect/engineer Sargent and Lundy compromise the reliability of SSC's, which have been installed according to incorrect DDC's and "accept-as-is" determinations. (August 20 Petition to Suspend Construction, at 17-18, 98-9 and related attachments -- witnesses Reiter, Yates; NRC IE Rep. No. 50-351/81-13, at 83-84, Attachment A at 25-27; NET Report, at 224.)

B. Unreliable Corrective Action

Current corrective action plans are not reliable to adequately protect public health and safety, due to - - -

6. the absence of a commitment to correct any design control deviations between the approved drawings and the as-built condition of Zimmer. Rather, one of the premises of a 2-3 year completion estimate by Applicants' new constructor, the Bechtel Corporation, is that these type of deviations will result in "0%" repairs. (December 5, 1983 letter from MVPP to NRC Region III Administrator James J. Keppler ("December 5 letter") at 3 and related attachments.) This estimate is only possible under the assumption that widespread violations of 10 C.F.R. 50,

Appendix A, Criterion I, and Appendix B, Criteria III, V, and VII at Zimmer are irrelevant to the public health and safety.

Unfortunately, Applicants built a two year completion schedule into their proposed Plan to Verify the Quality of Construction ("PVQC"), inferring that they agree with the Bechtel forecast. (PVQC, Appendix L.) The Board could complement the status quo by conditioning Zimmer's operating license on correction of all design deviations that affect public health and safety.

7. Reliance upon erroneous Bechtel forecast estimates, compromised by superficial methodology which primarily consisted of a walkdown. This technique can only identify the most glaring visible deficiencies, and is counterproductive as a reliable measure until conducted within a comprehensive design review program. (August 20 Petition to Suspend Construction, at 18, Attachment 38 -- witness Nichols; July 12, 1983 Reply Brief, at 5-6, Attachment 10 -- witness Reiter.) Further, the Bechtel forecast was based on empirically erroneous assumptions, such as consistency between the as-built condition of Zimmer and the approved design drawings for nearly all mechanical and Heating Ventilating and Air Conditioning ("HVAC") equipment. (Compare December 5 letter, Attachment 1, at B-33, B-42, with references cited in Paragraph 4, supra.) The Board could complement the status quo by correcting the errors in the Bechtel/Applicants empirical assumptions and requiring appropriate repairs, prior to granting an operating license.

8. The absence of a commitment to base PVQC inspections on accurate, technically reliable information. The PVQC program

will proceed based on currently approved design drawings and specifications, without first obtaining the results of a required Independent Design Review ("IDR") whose purpose is to determine whether the approved design drawings are indeed accurate and technically adequate. (PVQC, at 8, 11-12.) As a result, the PVQC is susceptible to reflecting previous design control and engineering mistakes, instead of correcting them. The Board can complement the status quo by requiring all relevant IDR results to be incorporated into the Zimmer Course of Action as a condition for valid PVQC inspections, and by reviewing the reliability of the IDR as warranted.

2. Applicants have failed to maintain an adequate traceability system to identify and document the history of all material, parts, components and welds, as required by 10 C.F.R. Part 50, Appendix B, Criteria IV, VII, VIII, IX.

A. Specific Issues

9. Adequate traceability at Zimmer is compromised by reliance on erroneous criteria, such as a mistaken decision only to require traceability to the point of receipt, rather than to the point of use. Therefore, Applicants were unable to keep track of items such as an unknown quantity of 40 foot beams that were cut up and used in different parts of the plant, and other changes to hangers and piping due to construction modifications (August 20 Petition to Suspend Construction, at 22 and related attachments -- witnesses Nichols and Nolder; August 26, 1983 Motion, at 2.)

10. Adequate traceability at Zimmer is compromised by erroneous techniques, such as reliance on missing, incomplete or unreliable records; improperly upgrading materials without

keeping track of the changes; use of inferior traceability substitutes, such as purchase orders or bills of materials that do not provide unique identification; use of the same identification record for distinct items; voiding traceability records; reliance on falsified identification documents sometimes borrowed from items already discarded, and used for work that had been completed without required traceability records; failure to maintain required traceability records for weld rods; reliance on weld repair forms that failed to provide for traceability; and inconsistent inspection standards. (August 20 Petition to Suspend Construction at 19-24 and related attachments -- witnesses Jones, Nichols, Nolder, Reiter and Tyner; October 18 Supplement, at 5; July 12, 1983 Reply, at 6-7 -- witness C; August 26 Motion, at 2-3.)

11. Although the full extent of traceability deficiencies is unknown, they are sufficiently severe and widespread to represent a generic breakdown in the identification and history of materials, components and special process materials installed during construction, including but not limited to small bore piping, NX hangers, electrical equipment, structural steel such as materials used in drywell steel modifications and upgraded beams, and weld rods. (August 20 Petition to Suspend Construction, at 22-24 and related attachments -- witnesses Jones, Reiter and Nolder; July 12, 1983 Reply -- Witness C; August 26, 1983 Motion, at 2-3; September 27 letter, at 12, Attachment 7 -- witness Reiter.)

B. Unreliable Corrective Action

Current corrective action is not reliable to adequately protect public health and safety, due to - - -



12. biased predictions in the Bechtel 2-3 year completion forecast. Examples include but are not limited to an estimate that only 2% of structural steel with widespread heat number deficiencies would be repaired, and that no corrective action would occur for traceability deficiencies in both material and electrical instrumentation welds. (December 5 letter, at 3 and related attachments.) Applicants' two year schedule to complete the PVQC infers agreement with these assumptions, which are biased against the relevance of the Atomic Energy Act. (PVQC, Appendix L.)

13. the absence of a commitment to correct all significant traceability deficiencies. The PVQC does not disclose the traceability standards that will be honored. Similarly, the PVQC offers no commitment to require corrective action such as removal or testing for all significant deficiencies or even for a specified sample. The Board could complement the status quo by conditioning Zimmer's operating license upon removal, or nondestructive and destructive testing to achieve a 95% confidence level, for all items which fail to meet relevant traceability requirements in the professional codes, post-LDR design specifications, and the Final Safety Analysis Report.

3. Applicants have failed to maintain an adequate quality assurance program for vendor purchases before or after receipt, in violation of 10 C.F.R. Part 50, Appendix B, Criteria I, II, III, IV, V, VII, IX, X XIII and XV.

The QA breakdown for vendor purchases has been systematic, from selection of individual vendors to toleration of hardware defects discovered after installation.

A. Specific Issues

14. Applicants improperly shrank the Approved Vendors List ("AVL") to exclude material suppliers. This practice violated the constructor Kaiser's own quality assurance manual and created a significant gap in accountability. (August 20 Petition to Suspend Construction, at 26 and related attachment -- witness Nolder.)

15. The Approved Vendors List was not monitored through site surveys, updated and purged in order to keep it current and accurate. QA personnel complained that once a vendor was added to the AVL, it was nearly impossible to remove the firm despite poor performance. This traditional problem persisted into 1982. (August 20 Petition to Suspend Construction, at 28 -- witness Nolder; August 26, 1983 Motion, at 4.)

16. Previous versions of the Approved Vendors List have been improperly destroyed, leaving holes in the history of the AVL that inherently cannot be filled. (August 26, 1983 Motion, at 3.)

17. Applicants required the constructor Kaiser to accept vendors for the AVL on unreliable superficial bases, such as unsupported memoranda from or personal preferences of management, or a review of vendor QA manuals unsupported by on-site surveys or source inspections to check whether the manuals reflected reality and components were properly assembled. In some cases there was not even token review. Blanket approval was given for Sargent and Lundy suppliers, without independent evaluations of the supporting data or, in some cases, disclosure of the identities of some of the firms involved. The QA manual did not require pre-purchase reviews. These abuses persisted at least from 1978-82, nearly the entire life

of Zimmer's construction. (August 20 Petition to Suspend Construction, at 26-28, 29, 33-34 and related attachments -- witnesses Griffin, Jones and Nolder; August 26 Motion, at 3-4.)

18. Applicants did not maintain adequate support documentation for firms on the AVL. To illustrate, a 1982 audit revealed that the majority of required support documentation was missing for a review of 16 suppliers on the Approved Vendors List.

(August Petition to Suspend Construction, at 35 -- witness Griffin; August 26 Motion, at 3.)

19. Firms were approved for limited purposes on the AVL but then used without restriction. As a result, they supplied materials and services that had not been covered by the AVL. To illustrate, Gladstone Laboratories was used for the destructive testing necessary to qualify the welding procedures that governed welding throughout Zimmer, although the firm had only been approved on the AVL for nondestructive examinations ("NDE") such as x-rays. The flaw renders invalid a major portion of the welding procedures at Zimmer. (August 20 Petition to Suspend Construction, at 29 and related attachments -- witness Nolder; August 26 Motion, at 4.)

20. Applicants improperly added firms to the AVL, made vendor purchases and then directed the constructor Kaiser to assume quality assurance responsibility for the purchases. As holder of the required American Society of Mechanical Engineers ("ASME") N-Stamp, the initial decisions represented Kaiser's legal responsibility. To implement the improprieties, Kaiser purchase orders were signed by construction and CG & E officials, instead of Kaiser

QA representatives as required. (August 20 Petition to Suspend Construction, at 27, 31 and related attachments -- witnesses Griffin, Jones and Nolder; August 26 Motion, at 3.)

21. Applicants improperly restricted Kaiser receipt inspections to a limited check for transit damage and thoroughness. This practice was premised on "trust in the manufacturers". It means that serious defects not visible on the surface due to transit damage were missed. (August 20 Petition to Suspend Construction, at 32-34 and related attachments -- witness Griffin.)

22. After receipt of vendor purchases, the items frequently were upgraded from "non-essential" to "essential" status. This phenomenon occurred for 80%-90% of structural materials purchased from vendors. As a result, items were installed in critical safety systems without first meeting the corresponding QA requirements, such as material traceability. (August 20 Petition to Suspend Construction, at 35-36 and related attachments -- witnesses Griffin, Nolder; August 26, 1983 Motion, at 3.)

23. When quality control ("QC") inspectors identified nonconformances on vendor purchases, they were instructed to ignore the problems or to record the deficiencies on Inspection Reports, which would neither permit necessary trending analysis of vendor performance nor be reviewed by the NRC. (August 20 Petition to Suspend Construction at 29-30, 36-37 and related attachments -- witnesses Griffin, Jones.)

24. The result of these violations is a breakdown of unknown but significant proportions in vendor QA that compromises the reliability of materials, components and services purchased



throughout the life of the plant and which by March 1982 affected 45,000 Purchase Orders. The Nolder Report itself, which raised most of the issues above, was only a preliminary paper for a management meeting, rather than a comprehensive audit. The most obvious effect is that unqualified vendors have been included on the AVL. To illustrate, Applicants relied on the work or hardware of unqualified vendors such as --

- a. Frank Adams Company, a local junkyard dealer whose beams were upgraded for use in essential systems;
  - b. Cincinnati Valve, which supplied instrument fittings despite lack of approval as a material supplier;
  - c. Gladstone Laboratories, which was used from 1973-83 beyond even its specific AVL approval, despite almost total noncompliance with 10 C.F.R. 50, Appendix B;
  - d. Bristol Steel, which supplied structural steel despite the absence of adequate welding procedures;
  - e. La Barge Corporation, which failed to control the firms on its own AVL;
  - f. NES, which was hired to provide radiography services consistent with Kaiser's QA Manual, but did not keep a copy of the Manual on-site; and
  - g. CG & E itself, which was unable to qualify for Kaiser's AVL until CG & E terminated the original audit, the personnel in the Kaiser audit team were replaced and the new members rubber-stamped the plant's owner, thereby approving all the other unreviewed firms which CG & E had approved over the years.
- (August 20 Petition to Suspend Construction, at 29, 31-32, 36-37

and related attachments -- witnesses Griffin, Jones, Nichols and Nolder; July 5, 1983 Reply Brief at 8 and related attachments -- witnesses Jones and Nolder; August 26, 1983 Motion, at 3-4.)

25. The breakdown in vendor QA had a spillover effect on the quality of construction work in the rest of the plant. To illustrate, inadequate traceability has led to confusion over which items are vendor purchases and which are not. Vendor purchases at Zimmer are not examined by on-site QC inspectors. As a result, in a significant number of cases items fabricated on-site have been erroneously defined-out of the CG & E and Kaiser QA systems after being classified as vendor work. (August 20 Petition to Suspend Construction, at 25-26 and related attachments; July 12, 1983 Reply Brief, at 8 -- witness Reiter.)

B. Unreliable Corrective Action

Currently announced corrective action is not reliable to adequately protect public health and safety, due to --

26. the absence of an announced commitment to correct all vendor deficiencies, or even a methodology to address the violations. Both Applicants and the NRC Staff have postponed this issue for years. The PVQC does not offer a specific plan to correct past AVL violations. Rather, the PVQC discloses that it will rely on previous AVL's from Kaiser, CG & E and other contractors, only bolstered through a review of unspecified methodology. As a result, corrective action will be compromised by reliance on the same unreliable AVL results that are supposed to be corrected. (PVQC, at 33; December 15, 1983 letter from Joseph Williams, Jr., CG & E, to James Kepper, NRC, response to question 2.) The Board can establish meaningful

corrective action by requiring Applicants to establish a full, accurate list of NRC design and professional code requirements and commitments for vendors; to compile all available documentation and match it with the list; and to either replace the hardware which does not meet the requirements, or subject each item to a program of nondestructive and destructive tests until a 95% level of confidence has been achieved that the requirements will be met.

28. biased assumptions in the Bechtel completion forecast, which have been adopted in Applicants' own PVQC schedule. Bechtel's two-three year estimate explicitly assumes "no impact on hardware" (emphasis in original) for all AVL violations, as well as from vendor design deviations incurred during installation of mechanical and HVAC work (December 5, 1983 letter, at 3 and related references.) These estimates assume that the Atomic Energy Act requirements for vendor control are irrelevant for the safety of a nuclear plant. Unfortunately, Applicants' two year completion schedule for the PVQC infers agreement with Bechtel's biased assumptions (PVQC, Appendix L.) At a minimum, Applicants have not scheduled enough time to disagree with Bechtel's assumptions. The Board can further establish meaningful corrective action by requiring replacement of all completed services, materials or components that do not meet a 95% level of confidence in the standards established above (#26, supra.)

4. Applicants have failed to maintain an adequate quality assurance program to identify and correct construction deficiencies, as required by 10 C.F.R. Part 50, Appendix B, Criteria I, II, V, VI, IX, X, XI, XII, XIV, XVI, XVII and XVIII.

This contention challenges the structure and premises of the construction QA program at Zimmer, as well as illustrations of the effect on hardware at the plant.

A. Specific Issues

Generic violations

29. Traditionally there has not been a valid quality assurance manual for CG & E and Kaiser QA/QC personnel. Not all safety related components were covered by the Manual, and the requirements did not satisfy minimum legal requirements in the relevant codes, FSAR and design specifications. To date, Applicants still have not rewritten and prepared an acceptable Manual. (August 20 Petition to Suspend Construction, at 39, 49 and related attachments -- witness Nichols; PVQC, at 19.)

30. The primary foundation for Applicants' QA breakdown has been a decisive lack of independence from cost, scheduling and construction pressures. The most glaring effect involved inadequate staffing. From the earliest years of construction, Zimmer had the lowest ratio of QA/QC to construction personnel of any plant in the country being built under 10 C.F.R., Part 50, Appendix B. The lack of staff explains why QC coverage was skipped for entire construction shifts. CG & E refused to permit adequate QA staffing despite warnings from Kaiser QA managers that otherwise it would be virtually impossible to comply with minimum legal requirements. The short-staffing even extended to Authorized Nuclear Inspectors ("ANI") to monitor compliance with ASME requirements. Applicants only hired one ANI for the entire plant. On December 9, 1981 Mr. Richard Jagger of the National Board of Boiler and Pressured Vessel



Inspectors explained that it was "ludicrous" to assume that the system could function properly under this "impossible" premise. (August 20 Petition to Suspend Construction, at 39-45 and related attachments -- witnesses Jagger, Milan and Tyner.)

31. Applicants did not provide an adequate training program for personnel, either within or outside the QA department. Training programs were limited and at times nonexistent for QA personnel. When they did occur, trainees were instructed to outdated procedures at least as late as 1982. For those outside the QA department at least as late as 1982, training was voluntary and informal. The contents did not match activities conducted on-the-job. (August 20 Petition to Suspend Construction, at 45-47 and related attachments -- witnesses Griffin, Jones, Nichols and Tyner; July 12, 1983 Reply Brief, at 11 -- witness Reiter.)

32. Qualifications of personnel were suspect. To illustrate, students and enrollees in summer youth jobs programs assumed key inspection duties. QA personnel were not required to have high school diplomas. Management officials had only a few months of nuclear experience before receiving such significant assignments as responsibility for start up operation of Zimmer. (August 20 Petition to Suspend Construction, at 46-47 and related attachments -- witnesses Jones and Nichols; July 12, 1983 Reply Brief.)

33. The QA program did not have required freedom from the construction department. As early as 1971, Applicants instructed the QA department not to go beyond legal minimum requirements. In 1980 Applicants instructed QA not to require certification for review of all relevant construction records. In August 1983 the

Torrey Pines management review team reported "recent examples" where construction controlled or attempted to perform QA/QC inspections and audits for work such as hardware modifications after design changes. (August 20 Petition to Suspend Construction, at 39-42 -- witnesses Griffin, Jagger and Jones; September 27, 1983 letter and related citations.)

34. Individual QA/QC personnel did not have the organizational freedom to identify and report violations. Construction management threatened to blackball inspectors who interfered with production. In 1982 inspectors were forbidden to communicate outside of their departments without supervisory clearance, or even to inspect or surveil beyond narrowly defined areas for which they could operate. In written 1982 memoranda, inspectors were ordered to obey without question Applicants' management directives and "in no case" to stop work due to a disagreement. In 1982 auditors were ordered not to issue interoffice memoranda. In 1982 auditors also reported "tremendous pressure" to close out QA audits despite irrelevant corrective action responses. (August 20 Petition to Suspend Construction, at 40-41 and related attachments -- witnesses Jagger and Jones; October 18 Supplement, at 5-7 and related attachments -- witness C; July 12 Reply Brief, at 10-11 and related attachments -- witnesses Jones and Nolder.)

35. The scope of the QA program effectively excluded significant safety-related systems, structures and components. After a short-term review, the NET Report found nonexistent or inadequate QC coverage for turnover of equipment, cable trays and support systems, structural steel bolting, safety-related panel

foundation welds, inspection and maintenance of pipe supports, and HVAC work. Nearly until the plant was shut down, major construction repairs occurred without QC coverage, which can exacerbate the original deficiencies. (August 20 Petition to Suspend Construction, at 42-43 and related attachments; NET Report, at 3-7; July 12 Reply Brief -- witnesses D and E.)

36. The integrity of the QC effort has been compromised by a program of informal, undocumented inspections outside the formal records system and not subject to NRC scrutiny. The technique to circumvent accountability was reliance on "For Information Only" radiographs conducted by QC personnel frustrated by management's refusal to permit formal inspections. (October 31, 1983 letter, at 4 -- witness Jones.)

37. Authorized QC inspections were compromised by inadequate outdated inspection procedures, undocumented results, and verbal instructions to violate written program requirements. (August 20 Petition to Suspend Construction, at 48-51 and related attachments -- witnesses Jones and Nichols; July 12, 1983 Reply Brief -- witness c.)

38. The number of QC inspections was shrunk by an inadequate sampling program, which failed to expand as violations were uncovered, and which permitted approval of work with up to 80% rates of rejectable hardware. (July 12 Reply Brief, at 11 -- witness Reiter.)

39. Applicant permitted informal, undocumented repair work on sensitive safety-related SSC's, again without QA/QC oversight. Examples include repairs to a damaged steam jet air condensor, and disassembly of valves after informal training

classes, without documenting the work or procedures used. (August 20 Petition to Suspend Construction, at 50-51 -- witness Jones; October 18 Supplement, at 18 -- witness Milan; October 31, 1983 letter, at 4 -- anonymous witness.)

40. Applicants have been unable to establish retrievability for significant quantities of required QA records, which effectively have been lost. To illustrate, in 1981 after two days Applicants were only able to find eight out of 22 work packages requested by General Electric auditors. In 1982 a QC inspector was unable to conduct any inspections on hangers over a two week period, due to the total absence of any assigned work packages in the vault, on the computer or at Document Control. In 1983 an anonymous NRC inspector estimated that approximately four million records have been lost at Zimmer. (August 20 Petition to Suspend Construction, at 51-52 and related attachments; October 18 Supplement, at 7 -- witness C; October 31, 1983 letter, at 7 n.16.)

41. Applicants have failed to properly protect and maintain materials, equipment and components. The NET Report found a generic deficiency in maintenance of equipment during rework, modifications and generally. The NET concluded that these practices could degrade safety-related equipment in a manner not evident until sometime in the future. The potential hardware effects can be demonstrated on valves, which are extremely sensitive components. For example, on seven out of 18 valves checked, the NET found access covers open or missing entirely. The valves were excessively dirty, corroded from a packing leak, and had fuses pulled. On balance, NET recommended that "previously-conducted testing on most systems"



should be considered invalid due to inadequate documentation and the high probability of damage, change or degradation resulting from original rework. (NET Report, at 219, 223; August 20 Petition to Suspend Construction, Attachment 67 -- witness Griffin.)

42. Applicants compromised the reliability of required audits by terminating individual audits, pressuring specific auditors, failing to supply necessary information, terminating the program entirely from 1979-81, restricting the scope of audits and failing to act on significant audit findings for up to three years. The delays, which are unprecedented in the nuclear industry, continued into 1983. (Supra, at 19 ; August 20 Petition to Suspend Construction, at 52-53 -- witness Jones; July 12, 1983 Reply Brief at 9 and related attachments -- witnesses Jones and Nolder; September 27 letter, at 4 and related reference to Torrey Pines report, at 4-34.)

43. Applicants have compromised effective corrective action by failing to provide timely responses, failing to learn the root causes of the violations, and failing to learn and address the full scope of related deficiencies. As a result, at best the QA program has provided belated corrective action for specific examples of systematic problems. It also has resulted in repetitive violations. The flaw is generic and has extended into 1983. (August 20 Petition to Suspend Construction, at 54-55 -- witnesses Jones, Nolder and Reiter; July 12, 1983 Reply Brief, at 12 -- witnesses Jones and Reiter; and September 27, 1983 letter, at 4 and related reference to Torrey Pines report, at 3-18.)

44. Applicants further compromised effective corrective action by failing to control it through honoring hold tags to stop work until determination of the proper remedy. This failure has been both traditional and common for work throughout the plant. (August 20 Petition, at 74 and related attachments -- witnesses Nichols and Reiter; July 12, 1983 Reply Brief, at 11-12 and related attachments -- witnesses Reiter, D, and E; October 18 Supplement, at 13-14.)

45. Applicants have failed to adequately control the preoperational test program, either during or after the tests. To illustrate, at Zimmer uncontrolled hydrostatic tests have resulted in an unknown but significant amount of damage to piping and pressure vessels, as maximum allowable pressures have been exceeded by 100%. This defect leaves piping in wide areas of the plant in a quality-indeterminate state. (August 20 Petition to Suspend Construction, at 56-57 and related attachments -- witness Tyner; October 18 Supplement, at 8 -- witness Milan.)

#### EFFECTS ON REPRESENTATIVE HARDWARE

46. The overall result of the limited inspection effort has been limited identification of the QA violations at Zimmer. As Mr. Reiter estimated, the QA program allowed at least as many deficiencies as it identified. (July 12 Reply Brief, at 11, Attachment 10 -- witness Reiter.) Representative examples of deficiencies which have been missed include - -

- a. 300-500 snubbers in a specified system that were welded improperly to American Welding Society (AWS) instead of ASME standards, therefore skipping the ASME preheating

treatment (July 12 Reply Brief -- witness C.);

- b. generic problems with certain hanger supports, because the design called for 1.5-inch welds, but the as-built installation only left space for 1/2 to 3/4-inch welds (Id);
- c. cable tray supports that are rusted and corroded at specified locations (July 12 Reply Brief, Attachment 9);
- d. excess tension at a specified location which may have overstressed cables when they were pulled originally (Id);
- e. excessive heat buildup from overpacked cable trays that is not being detected by QCP inspectors (Id);
- f. widespread use of improper reamer and dye tools for rework on stainless steel electrical conduits in the containment, that could result in rough edges, gauges and loose fits, and lead to electrical shorts, fires and other threats to reliable functioning of circuits on the multiple backup safety systems (July 12 Reply Brief -- witness Kreidler);
- g. guides for cameras inside the reactor that were welded out of alignment (July 12 Reply Brief -- witness A);
- h. shims placed haphazardly and sitting in water drain channels at a specified location (Id);
- i. use of the wrong size hoedown bolts to connect the circulating pumps motor to a concrete base at a specified location (Id); and
- j. damage during rework to brackets for fitpins that brace the reactor (Id);
- k. "use of common hardware bolts in place of unspecified items, and evidence of the use of improper procedures such as flame cutting of holes in plates and beams." (NET Report, at 3)
- l. purchase of a second-hand diesel generator that has been plagued by sucking in exhaust (October 31 letter, at 4 -- anonymous witness);
- m. main feedwater pipes now buried in concrete that are not functional due to corrosion and banacles from the lack of fresh water (October 31 letter, at 4 -- anonymous witness);

- n. failure to install tendons necessary to control tension and to maintain structural strength in the containment. There are not even all the required "strain gauges," (October 31 letter, at 4 -- anonymous witness);
- o. splaying, or busting open, concrete areas up to 1.5 feet in the bottom of the reactor building when attempts were made shortly before the November 1982 shutdown to drill holes and set anchors. This means the concrete either had frozen originally or the test results had been falsified. (October 31 letter, at 4 -- anonymous witness).

47. The breakdown in the quality of welding is a microcosm of the effects from the quality assurance breakdown. Applicants cannot demonstrate that personnel who did the welding were qualified for that responsibility. Conservative estimates of welders who worked despite indeterminate qualifications range from 20% of the active welders during 1982 to 50% throughout the life of the plant. The problem was not limited to the primary constructor, Kaiser, but extended to other contractors as well. Those percentages may severely underestimate the problem. Last July only 103 out of 470 active welders supposedly had to take requalification tests, of which Applicants reported that 98 passed. In fact, over 300 welders participated and most failed the first time. Over 220 welders had to requalify to one or more of the procedures under which they previously had worked. (Citations for #42 Supra; October 31, 1983 letter, at 3 -- anonymous witness; July 12, 1983 Reply Brief -- witnesses A-E).

48. There is no basis for confidence in the qualifications of welders who passed the retesting program. The program represented a crude effort to rig the results. Some QC inspectors monitoring the weld test booth had no previous experience for the assignment. QC



inspectors were prevented from continuing surveillances, after discovering violations. There were multiple welders in the same test booth, creating "group tests" in effect. Testing procedures were waived through verbal directives to permit handicaps. Welders literally could take the examination as many times as necessary to pass; some who passed required four attempts. Welders who had been judged unqualified for specific procedures mysteriously received credit for those same procedures, despite the absence of evidence for the specific tests required. One technique used to inaccurately pass welders was the use of "ringers" -- weld test coupons falsely used to represent the work of multiple welders. An unqualified vendor conducted the bend or destructive tests, both traditionally and in the retesting program. Again, these practices were not limited to welders in Kaiser's retesting program. (August 20 Petition to Suspend Construction, at 57-59 and related attachments -- witnesses Jones and Tyner; October 18 Supplement, at 9-12. July 12, 1983 Reply Brief -- witnesses A-E.)

49. The basis for the problem of indeterminate welder qualifications reflects the breakdown of QA paperwork at Zimmer. Record requirements have been improperly waived. Records are incomplete, signed by unqualified personnel, and falsified through almost a dozen techniques. At least 19,000 welding-related records, including 10,000 records related to welding qualifications, have been lost. (August 20 Petition to Suspend Construction at 60-62 -- anonymous witness; Memorandum to W. P. Christianson from T.P. Gwynn, NRC Region III, WHZ NRC 83-06 (January 31, 1983).)

50. A September 1981 Kaiser corporate audit of special processes such as welding, Audit No. 67, illustrates the full scope of the Zimmer organizational QA breakdown. Despite a new task force to rewrite the welding procedures, the procedures used to build over 95% of the Zimmer plant were not qualified. This flaw would doom the legitimacy of the entire welding program. Even if the individual welders were qualified, their work would not pass legal muster if it were performed according to procedures whose reliability were not demonstrated as required by law. The tests for welding procedures were so unbelievable, due to identical passing scores on sensitive strength impact tests for different procedures, that Morris Udall, Chairman of the House Interior Subcommittee on Energy and the Environment, concluded they were "obviously phoney." (Quality Assurance at the Zimmer Nuclear Station: Oversight Hearing before the Subcommittee on Energy and the Environment of the Committee on Interior and Insular Affairs, 97th Cong. 2d Sess. 24 (September 14, 1983); July 12, 1983 Reply Brief, at 8 Attachment 12 -- witness Nolder.) Representative QA violations connected with Audit 67 include the following:

- a. The program for weld rods failed to meet minimum standards in nearly all areas, starting with the inability to provide Certified Material Test Reports (CMTR) and continuing through using the wrong metal for electrodes as specific assignments.
- b. There were no tests done on one weld procedure for the first two years of work.
- c. There is an inability to locate CMTR's on the coupons

used to test welding procedures, resulting in an inability to verify the base metal relied on to approve the procedures.

d. Welding procedures were approved without being tested for all the uses to which they would be put, such as pipe welding.

e. Although welding procedures are required by the American Society of Mechanical Engineers (ASME) to be redone whenever certain tolerance levels are exceeded for essential variables, at Zimmer excessive tolerances were written into the welding procedures.

f. Basic data on essential variables was not always recorded on the relevant Q-1 forms for welding procedures, and the recorded data was not always updated to reflect changes.

g. Welding procedures were improperly changed through "supplements," instead of revisions, thereby circumventing the requirement for new tests.

h. Although the ASME code required welding procedures to be requalified to the current version of the code, the Welding Task Force at Zimmer has attempted to circumvent the effort by using earlier versions of the code which have less stringent requirements. The audit team leader whose findings led to the creation of the Task Force termed its efforts "a complete white-wash."

i. All of the welding procedures qualified at Gladstone Laboratories are invalid, because Sargent and Lundy specifications required the procedures to be tested on-site at Zimmer.

j. Kaiser has improperly attempted to manipulate Audit #67 -- of, inter alia, welding procedures, welder qualifications

and vendor purchases -- through transferring the unresolved issues to a new audit, instead of solving the problems under the oversight of the original auditors.

k. A top Kaiser audit official improperly asserted that the Welding Task Force addressed all of the issues in Audit #67, although some of the audit findings had dealt with unrelated vendor QA deficiencies. (July 12, 1983 Motion, at 9-10 and related attachments -- witness Nolder; August 26, 1983 Motion, at 4-5.)

51. The breakdown in welding procedures had a severe effect on the techniques used for welding in the field. The resulting improprieties include --

- a. failure to use purge gas to eliminate air bubbles and oxidation during welding, which will later make the welds crack under pressure. The practice was literally covered up by "surface passes" that masked the bubbles; and by concrete, where many of these welds are buried. (October 31, 1983 letter, at 3 -- anonymous witness);
- b. failure to use an alloy plate when welding stainless steel to carbon piping, a practice which leads to cracks. Many of the welds are on pressure boundaries. (Id.);
- c. Failure to distinguish between the use of carbon steel and stainless steel weld rods, resulting in an inability to account for approximately 50,000 pounds of weld fitter metal (Id.); and
- d. failure to comply with ASME heat treatment requirements, for treating the metal to achieve reliable bonding which were violated or replaced with less stringent rules. As of October 6, 1981 no audit could be done of preheat treatment of welding at Zimmer, because it was not performed despite knowledge of heat treatment deficiencies since 1979. (August 26 Motion, at 6.)

52. Quality control oversight of welding at Zimmer was not reliable. QC inspectors failed to inspect representative samples



of welds, conducted uncontrolled, undocumented inspections, and followed the wrong inspection procedures for the welds in question. (August 20 Petition to Suspend Construction, at 63-64; October 18 Supplement, at 11-12, July 12, 1983 Reply Brief -- witness C.)

53. Corrective action for identified welding deficiencies has been inadequate, due to failure to learn the root causes of violations, failure to expand the inspection samples to find the full scope of problems, a prospective-only approach for correction of previous generic deficiencies, and lack of QC coverage for the weld repairs -- which again were being conducted and/or supervised by unqualified welders. As a result, repetitive violations have been common, as with qualifications, training and control of weld rods. Due to the lack of QC coverage, the welding program has been subjected to massive, undocumented repairs supervised only by construction personnel who generated inaccurate records of the work. (August 20 Petition to Suspend Construction, at 62-65, 79-80, and related attachments; October 18 Supplement, at 9-12, July 12, 1983 Reply Brief -- witnesses A, C, D, and E.)

54. The welding QA breakdown has significantly affected the quality of welding in the plant, as confirmed on a sample basis by the NET Report. Although welding was evaluated as reliable in some areas, in others the identified deficiencies were gross. Overall, the NET admitted that original welding on structural steel was "poor." Shop welds were "fairly good." To illustrate the violations, in the cable tray system many required welds were not done at all. Others were undersized, had excessive undercut, overlap,

unfilled craters, and excessive slag. Four out of the 13 welds in three lines in the Reactor Building Closed Cooling Water System violated code requirements and standards of good workmanship. The NET neatly drew the relationship between poor QA practices and poor hardware when it observed that field weld "defects" were easily detectable and indicate that an inadequate inspection program had ~~een~~ in effect. (NET Report, at 3-5, 98-99, 150.)

B. Unreliable Corrective Action

There is no basis for confidence that the current corrective action plans will adequately protect public health and safety, due to --

55. reliance on biased assumptions that hardware defects in the plant will not be fixed as a rule. The premise of Bechtel's forecast and cost estimate is that the effects of an inadequate quality assurance program are mere technicalities. The following assumptions of the Bechtel cost estimate reveal this bias: <sup>2/</sup>

- a. There will be no replacement of embedded or buried piping or welds. (December 5, 1983 letter, attachment 1, at B-6, B-10, B-14, B-33, B-41-2, B-42 and B-48.) Unfortunately, the buried hardware may be the worst in the plant.
- b. Overall, only 4,000 out of 22,000 deficient welds in the civil and structural work will be repaired. (Id., at b-16.)
- c. With respect to the hardware impact of unqualified structural steel welders, Bechtel assured CG&E -- "No corrective action assumed." (Id., Appendix 1.0, at 1-4.) (Emphasis is original.) With respect to unqualified welders for any civil and structural welding, Bechtel concluded, "No repairs assumed." (Id., at B-17.)
- d. With respect to lack of ability to verify use of the right structural steel weld metal, Bechtel assured CG & E -- "No corrective action assumed." (Id.) (Emphasis in original.)

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<sup>2/</sup> References are to pages of the Bechtel study.

- e. With respect to the effect of welding procedures for the entire plant that have been completely replaced because none passed legal muster, Bechtel assured CG&E -- "For estimate purposes assume no impact on hardware." (Id., at 1-7.) (Emphasis on original.)
- f. With respect to inconsistent structural steel weld inspection procedures, Bechtel assured CG&E -- "No corrective action assumed." (Id., at 1-4.) (Emphasis in original.)
- g. With respect to unqualified quality control inspectors of concrete work, Bechtel has assured CG&E -- "No construction impact is assumed." (Id., at 1-6.) (Emphasis in original.) Overall, Bechtel assumed that "n/o major modifications to concrete presently in place will be required." (Id., at B-5.)
- h. With respect to valves that violate vendor criteria for installation and installed condition, Bechtel predicted that less than 1% would be repaired. (Id., at 1-13.)
- i. Despite "n/umerous outstanding NR's" against electrical conduit supports due to design deviations, which were confirmed by a Bechtel walkdown identifying incorrect installation at a 40% rate, Bechtel forecast repairs on 10%. (Id., at 1-15.)

The Licensing Board can neutralize this bias by conditioning Zimmer's operating license on corrective action that neutralizes the effects of all violations of 10 C.F.R. 50, Appendix B.

56. a proposed PVQC methodology that retreats from previous formal quality assurance standards at Zimmer.

Applicants' Plan to Verify the Quality of Construction is tailor-made to fulfill the Bechtel forecast. The following representative loopholes and undefined terms provide Applicants with the discretion to "pass" the PVQC without fixing, or even looking at, all safety related deficiencies. At best, the

PVQC as proposed means that significant portions of the plant will never have the benefit of quality assurance oversight that should have been provided during initial construction.

a. There is no commitment for any specified scope or sample of physical reinspections to any specified degree of confidence, even where documentation is not available or visual inspections are impractical due to buried or inaccessible hardware. As a result, the PVQC will permit an unknown number of hardware items to be approved without any QA oversight.

(December 6, 1983 letter, answers to questions #'s 7, 8, 9, 30, 37, second round #4, and related references to the PVQC.)

b. There is no commitment to define PVQC-generated documents as quality assurance records until the work has been fully processed, which permits applicants in the interim to destroy records that raise or prove unwanted problems. (Id., answer to question #28, and related PVQC references.)

c. There is no commitment to answer all public allegations. Indeed, there is only a commitment to answer two public allegations of Applicants' choosing out of more than 400 previously presented. (Id., answer to question #7, and related PVQC references.) This loophole institutionalizes the significance of MVPP's contribution to the record. Without reopened hearings, Applicants can ignore the public allegations at whim.

d. There are not yet criteria for "significant" quality concerns that must be reported to the NRC. (Id., answer to question #17, and related PVQC references.)



e. Applicants have not yet completed a QA Manual, training program, qualifications standards, or PVQC procedures, yet have submitted the PVQC for NRC approval. As a result, with respect to the specifics of the PVQC program Applicants have requested the NRC staff to sign a blank check. (Id., answers to questions #19, round two question #3 and related PVQC references.)

The Licensing Board can insure an adequate methodology by conditioning an operating license on comprehensive visual and physical reinspection of all safety-related SSC's, to the same standards of 10 C.F.R. 50, Appendix B that should have been honored during initial construction.

5. Applicants failed to maintain adequate controls to initiate, process and respond to internal Nonconformance Reports ("NR's") identifying violations of internal or government requirements, in violation of 10 C.F.R. 50, Appendix B, Criterion II, XV, and XVI.

A. Generic Issues

57. Applicants have developed a bewildering system of inferior substitutes for Nonconformance Reports ("NR"). Although some of the substitutes relied on quality-related records, many did not. Reporting vehicles outside the QA system included verbal reports, letters, inter-office memoranda, Requests for Information, punch lists and exception lists. The approach is illustrated by a "typical" memorandum Ms. Nolder found during her investigation of vendor QA. The memorandum returned a CAR to its author, Mr. John Deerwester, with the following.

explanation: "I believe this deficiency with a General Electric alignment pin is a special case. . . I don't believe a CAR is necessary. It would unnecessarily stir the pot." (emphasis supplied.) Such non-reporting sacrificed all accountability for corrective action. As a result, there is no guarantee that all identified deficiencies are available for review. (August 20 Petition to Suspend Construction, at 66-67, 70-71 and related attachments -- witnesses Jones and Reiter; July 12, 1983 Reply Brief Attachment 12, Exhibit 4.)

58. Even when NR's were written, up to 1700 were lost due to the practice of "voiding" the report as "Not Issued" -- returning the NR to the originator and not retaining a copy. A similar procedure was instituted in 1982 for "Draft NR's." (August 20 Petition to Suspend Construction, at 74-76, 82-83, and related attachments -- witnesses Jagger and Jones; October 18 Supplement, at 13.)

59. The construction department has controlled the disposition of Nonconformance Reports, and NR substitutes, which improperly deprived the originator of the ability to follow through on corrective action for the problems he or she had identified. (August 20 Petition to Suspend Construction, at 68, 72-74, witnesses Jones and Reiter.)

60. Even when the nonconformance system was permitted to operate, the limited scope of inspections prevented the NR's from solving all the deficiencies even for individual items. As one construction supervisor noted in his affidavit, the NR's on

overfilled cable trays missed the generic problem of sulfate corrosion for cable tray supports and grounding in specified locations. These cables could be necessary to supply power for the water used to cool the reactor during an accident. (July 12 Reply Brief, Attachment 9, at 2.)

B. Unreliable Corrective Action

The PVQC is designed to address many of the effects of improper NR practices. As a result, most of the MVPP's previous allegations for this contention have been withdrawn. In four areas, however, the PVQC still does not reliably protect public health and safety, due to --

61. failure to include the most informal NR substitutes.

There is no provision in the program to track deficiencies solely written up on the most informal substitutes for nonconformance reports, such as inter-office memoranda, construction punchlists and Requests for Information. Only "Deficiency Documents" are included. (PVQC, Attachment 11, p. 39.) Unfortunately, more informal practices were widespread at Zimmer and represent the instances where the quality assurance program was missed entirely. The Licensing Board can contribute to the record either by requiring comprehensive reinspections, or by requiring the PVQC document review to cover all communications.

62. removal of the originator from any role in corrective action. In this respect the PVQC reinforces the most severe illegality of the previous NR system. Both the originator and the PVQC organization have been stripped of any role in

dispositioning the Nonconformance Reports generated by the PVQC. All authority will be delegated to the Continuation of Construction (CCP) program. This illegal procedure guarantees that QA personnel will be unable to insure, or even monitor, adequate corrective action for the deficiencies they uncover. (PVQC, Appendix 4, at 4.) The Board can contribute to effective corrective action by conditioning an operating license on a program that holds the originator of an NR's responsible for full participation through its resolution.

63. absence of any commitment to review the scope of previous Nonconformance Reports for adequacy. The PVQC includes a review to determine whether previous NR's can be "validated." (PVQC, Attachment 11, p. 39.) But there is no commitment to extend the review for the validity of what was reported to also assess whether the previous NR's were sufficiently comprehensive. As a result, the process could eliminate inaccurate reports of problems while continuing to skip deficiencies that were missed the first time. The Board can complete necessary corrective action by requiring the NR review to assess whether previous reports were sufficiently comprehensive.

64. submission of the corrective action plans for NRC approval before preparing a new Nonconformance reporting system. Applicants have requested PVQC approval, although new systems to write and to "void" NR's have not yet been developed. (Id., at 1, 3.) This is premature, and again represents a request to accept an unknown commodity. The Board can contribute to effective corrective



action by conditioning Zimmer's operating license on a nonconformance reporting system that complies with all the requirements of 10 C.F.R. 50, Appendix B, Criteria II, XV and XVI for the items covered, before or after NRC staff approval of the PVQC.

6. Applicants have engaged in illegal retaliation against QA/QC personnel who attempt diligently to perform their duties or who disclose QA deficiencies outside the chain of command, in violation of 10 C.F.R. Part 19 and Part 50, Appendix B, Criteria I and II.

A. Specific Issues

65. Physical harassment has been an unfortunate reality throughout most of Zimmer's history. Construction personnel on at least one occasion physically attacked, and repeatedly have attempted to intimidate QC inspectors. In 1980 and 1981 QC personnel attempting to conduct inspections were doused with buckets of water and scattered with high-pressure fire hoses. Management officials did not pursue and discipline the offenders, nor did they deter repeated harassment. (August 20 Petition for Reconsideration, at 28 and related attachments; August 20 Petition to Suspend Construction, at 89-90 and related attachments -- witness Applegate.)

66. In May 1982, the plant had to be closed for a few hours after three QC inspectors were doused with "dirty water" possibly containing human wastes. CG&E hired a private detective to solve the mystery but has not announced any corrective action based on findings from the still-secret report. (Id., at 89-90.)

67. Physical abuse is only the crudest illustration of a history of harassment and intimidation at Zimmer. The primary methods have been techniques known as "Heart to Hearts" and "Zimmertizing" -- an expression created by employees who were told they could (put aside professional ethics and) obey orders, or else "go on down the road." Top management officials have berated QC inspectors and supervisors for writing memoranda, nonconformances, and other written disclosures of QA deficiencies. Kaiser management official David Howard announced that he "Managed by intimidation." The practice of Zimmertizing persisted at least until October 1983. (August 20 Petition to Suspend Construction, at 31-32, 84-87, 90-92 -- witnesses Baker, Griffin, Jones, Nichols and anonymous witness covered by the Board's July 21, 1982 Protective Order; October 18 Supplement, at 15-16, July 12, 1983 Reply Brief, at 14 and related attachments -- witnesses C-E; September 27 letter, at 14 -- witnesses Jones, C; October 31, 1983 letter, at 5 -- anonymous witnesses.)

68. Management imposed uniform gag orders against dissent during NRC inspections, and carried out its threats of retaliation at employees who disclosed serious violations to the NRC during its 1981 reinvestigation. These reprisals included dismissal, demotions, job transfer, and reorganizations. Employees who retracted or modified their NRC statements, after interviews with CG&E counsel, were promoted or kept their supervisory positions. (August 20 Petition to Suspend Construction, at 85-86, 91-92, related attachments and references -- witnesses Baker and Jones; October 18 Supplement, at 16, July 12, 1983 Reply Brief -- Witness C.)

69. Applicants and their constructor's harassment has extended to those in positions of high responsibility in the QA program who challenged violations of 10 C.F.R. Part 50, Appendix B. Kaiser QA managers who defended the integrity of their program were dismissed. (August 20 Petition for Reconsideration, at 25-28, and related attachments; August 20 Petition to Suspend Construction at 85-86 and related attachments -- witness Baker.)

70. Applicants and their constructor have carried out threatened personnel actions against non-management employees who persisted in challenging QA violations. Techniques included isolation through reorganization or transfer, demotion, disciplinary citation, furlough, and/or dismissal. (September 27, 1983 letter, at 13-15 and related attachments -- witnesses Jones, Reiter, Weaver, Q and R; August 20 Petition for Reconsideration, at 25-28 and related attachments, and references for #65, supra.)

71. Corporate contractors were subjected to retaliation. CG&E removed Butler Services, Inc. and Peabody Magnaflux, Inc. from responsibilities for certain QC inspections and radiographs, respectively, in a successful attempt to destroy the independence of these portions of the QA program. (August 20 Petition to Suspend Construction, at 87-89, and related references and attachments -- witness Applegate.)

72. The summer of 1982 represented an intensive period of retaliation against QA/QC personnel, primarily consisting of layoffs and transfers. In part, the actions were attempts to implement the May 24, 1982 "NR Action Plan" recommendations to solve the problem

of "habitual NR writers and deficiency generators": "Identify individuals for corrective action." (August 20 Petition to Suspend Construction, at 90-91 and related attachments; references for #68, supra.)

73. Another period of intensive retaliation occurred around the Commission's November 12, 1982 suspension of safety-related construction. Experienced QC personnel and key or potential witnesses for NRC and Federal Bureau of Investigation (FBI) investigations were laid off. At least some of these employees were immediately replaced with relatively inexperienced personnel who were unfamiliar with legal requirements. The layoffs could not be excused due to the shutdown, since QA activities continued after safety-related construction was halted. (July 12, 1983 Reply Brief -- witness C; September 27, 1983 letter, at 15 -- witness Weaver.)

74. Retaliation continues in 1983. Kaiser corporate auditor Sherrill Nolder was dismissed after challenging the non-response to significant QA abuses she had exposed. Ms. Nolder authored and co-authored reports revealing systematic violations such as fundamental defects in material traceability, improper upgrading of safety classifications, inadequate QA oversight of vendors, and unreliable qualifications for welding procedures. Despite appeals to successive Kaiser corporate presidents before the dismissal, Ms. Nolder was branded as a "spy" and was denied access to documents. Additionally, her certification to perform audits was removed; rude disciplinary lectures and a low performance



appraisal ensued; her desk was ransacked; her time cards were altered; and on occasion she was chased to the elevator by a Kaiser corporate official. Pursuant to 42 U.S.C. §5851, Ms. Nolder is challenging her dismissal through the Department of Labor. (July 12 BR. Att 12.)

75. Ms. Nolder's 1983 experience is not unique.

Consistent with continued "Zimmertizing" threats (supra, #65), retaliatory personnel actions have persisted. A September 7, 1983 Wall Street Journal article quoted an NRC inspector as follows:

"The simple truth is that if the quality-control people aren't willing to give up their jobs to report this sort of thing, then we don't find out about them." (September 15, 1983 Petition for Reconsideration, at 31, Exhibit 2.)

#### B. Unreliable Corrective Action

Despite rhetorical commitments to end retaliation and hold offenders accountable, Applicants' corrective action program is not reliable to protect public health and safety, due to --

76. the absence of any empirical results or organizational program to match the rhetoric of accountability. Despite the rhetoric and ample opportunities, Applicants have never announced any disciplinary sanctions against managers or others who engaged in reprisals. Neither the Course of Action in general, nor the PVQC in particular, have proposed a structure to implement Applicants' public relations gestures. By contrast, Applicants endorsed the promotions of Kaiser officials involved in previous retaliation and/or restrictions on organizational freedom to the posts of Project Director and Acting QA Manager. They will retain

significant duties through Kaiser's responsibility to verify the quality of ASME code work. (October 31, 1983 letter at 6; December 5, 1983 letter, at 12.) The Board can contribute to effective corrective action by providing a forum to establish the scope and responsibility for illegal reprisals, and conditioning Zimmer's operating license on appropriate disciplinary action against significant offenders.

77. the absence of any attempt to compensate for the impact of retaliation on the results of the quality assurance program. Applicants' Course of Action also does not attempt to address the quality-related effects of previous retaliation. At best, corrective action is prospective. This omission is unacceptable, because it is clear that a serious problem of retaliation can suppress full QA disclosure.<sup>3/</sup> The Board could contribute to effective corrective action by either conditioning Zimmer's operating license on a truly comprehensive quality verification program; or by identifying individual cases, trending periods of retaliation, and requiring comprehensive quality verification for the relevant QA results.

7. Reforms imposed since the April 8, 1981 Immediate Action Letter ("IAL"), such as the Quality Confirmation Program ("QCP") and the Course of Action have been inherently and empirically inadequate to adequately mitigate or solve the serious consequences of the QA breakdown at Zimmer.

A. Quality Confirmation Program

78. Although the QCP has now been replaced by the Course

<sup>3/</sup> See, e.g., Union Electric Company (Callaway Plant, Unit 1 (ACAB-740, 17 NRC \_\_\_\_\_ slip op. at 2-3 (September 14, 1983)).

of Action, deficiencies in the former remain relevant to evaluate the adequacy of corrective action at Zimmer. The Course of Action and its PVQC will adopt the QCP results, if they are "validated" by a review of unspecified methodology. In other portions of the PVQC, Applicants tipped their hand that the results of the theoretically objective validation process have been predetermined. Applicants' PVQC assumes approval of previous QCP results. Applicants premised the intensity of PVQC inspection levels on whether the previous QCP had "identified a significant number of nonconformances." On balance, the PVQC is designed to "reflect the findings of the QCP. . ." (PVQC, at 15, 19 and 33.) As a result, it will also reflect the errors and omissions of the QCP.

79. Empirically, QA violations accelerated since the IAL. MVPP's August 20, 1982 Petition alleged 101 QA violations since the IAL. Thirty-four (34) out of 42 QA violations alleged in MVPP's October 18, 1982 Supplement occurred after May 1982. Not surprisingly, the flaws have reflected the traditional weaknesses of the QA program. For example, the reporting was suspect. Monthly QCP status reports provided data so inconsistent to be impossible. At an October 28, 1982 briefing of the Commissioners, the NRC staff was unable to explain all the inconsistencies. This trend continued at least until October 1983. (August 20 Petition to Suspend Construction, at 93; October 18 Supplement, at 17; October 31, 1983 letter, at 5 -- anonymous witnesses.)

80. The QCP was compromised by lack of organizational authority to enforce its judgments on nonconformances, which were consistently, erroneously dispositioned "accept-as-is." (the same

"findings" that Bechtel has announced in advance for its own future dispositions of PVQC NR's). The QCP identified "no problems" with S&L's design and engineering work. These judgments have been flatly rejected after-the-fact by the NRC staff and the ASME. (August 20 Petition, at 98-99; October 18 Supplement, at 21-22, supra at 6-8).

81. Applicants revealed biased judgment by prematurely predicting a prompt QCP completion schedule. The NRC Staff rejected such claims as "wild speculation." Region III Administrator James Keppler explained that he could not estimate when the QCP would be completed, because "I don't prejudge what the program will show." He added that such a time estimate would only be possible "if you presume the program won't find anything wrong and that no rework will be necessary." (October 18 Supplement, at 18; September 14 Udall Hearings, at 12.)

82. The root cause of the QCP breakdown was conflicts of interest. One such conflict was due to Applicants' responsibility to assess the quality of their own work. CG&E, Kaiser and S&L were all deciding for a second time whether their work was deficient the first time around. As Chairman Morris Udall (D.-Ariz.) stated at September 14, 1982, House Interior oversight hearings, "It seems unrealistic that the Committee or the public would have confidence that the company that neglected quality assurance for so many years will, on its own, fully uncover deficiencies resulting from its neglect. He rejected confidence in a program where "the company itself says we made an investigation and everything is lovely." (August 20 Petition, at 97-98; October 18 Supplement, at 23; September 14 Udall Hearings, at 2.)



83. Applicants also were compromised by an unprecedented legal and financial conflict of interest due to the economic consequences of repairs necessitated by ~~the~~ previous QA violations. Every QCP-uncovered deficiency--which should not have been missed the first time -- weakened Applicants' chances to obtain rate increases, weakened their defense against related shareholder derivative suits; and materially affected Applicants' own litigation against each other. (See, e.g., June 3 Motion, Exhibits 3 and 4;)

84. The QCP was compromised by structural flaws. At the most basic level, the program did not address the causes of problems it identified -- the first step for any effective corrective action program. (August 20 Petition, at 94.)

85. The QCP was instituted prematurely, before it had its own completed program of approved functioning procedures. As of August, 1983 QCP procedures still had not been completed, over two years into the program. As a result, QCP personnel could not be adequately trained, inspected to inconsistent standards, and produced results that had to be redone. (August 20 Petition, at 99-103; NET Report, at 101; September 27, 1983 letter, at 7-8 and related references.)

86. The QCP program was premised on a paperwork review. Unfortunately, the paperwork at Zimmer is neither reliable nor complete. For example, Kaiser failed to provide some 19,000 welding-related records to the QCP, which the NRC staff has conceded could have a potentially major impact on the program. (Supra, at 26; see also contention 8 infra.)

87. The scope of QCP re-inspections was shrunk to superficial flaws or specific problems identified on construction punchlists, rather than whatever was wrong within the structure, system or component. To illustrate, while structural steel work is supposed to be covered by the QCP, significant deficiencies found by the NET were outside the previous formal boundaries and therefore had not been covered by QCP inspections. The NRC's Evaluation Team also found defects not covered by QCP inspections, such as cable tray hanger supports in the wrong location, the absence of necessary pipe supports, panel and equipment foundation bolting, instrumentation racks, and identification of electrical equipment for location and color coding to distinguish their classifications. (October 18 Supplement, at 22; July 12, 1983 Reply Brief, at 15-16, Attachment 9, witnesses C-E; June 3, 1983 Motion, n. 33.)

88. QCP empirical failures extended to corrective action. Construction crews engaged in corrective action work largely without QA/QC coverage. The results may have been to create worse problems than the original deficiencies, as even the NRC staff and Chairman Palladino have recognized. To illustrate, instead of minor rework such as polishing structural steel welds, construction crews engaged in major repairs or entirely replaced welds, with only visual QC inspection of the results. (October 18 Supplement, at 22, July 12, 1983 Reply Brief, Attachment 9 -- witnesses D and E.)

89. The QCP management did not respond adequately to audits identifying deficiencies in the program. As of August 1983, Torrey Pines management reviewers could find "no evidence" of attention

to 11 out of 19 identified concerns from a February 1982 audit of the QCP. (September 27, 1983 letter, at 7-8 and related references.)

90. If anything, the QCP program deteriorated over time. At least until October 1983, supervisors directed Quality Confirmation Program (QCP) inspectors to accept QA violations that could generate bad publicity or significant ramifications with the NRC, but to write Nonconformance Reports on petty problems in order to make it appear that the system was identifying defects. Supervisors implemented this misconduct through verbal instructions which had little or nothing to do with the official written QA program, or the formal training program. (October 31, 1983 letter, at 5 -- anonymous witnesses.)

B. Course of Action and PVQC

91. The above list of QCP deficiencies is not exhaustive. With the exception of issues 89 and 90, however, it represents structural flaws that have been repeated in the Course of Action and proposed PVQC. As a result, the same defects prevent the latest Zimmer reform from succeeding where the QCP failed. (See "Unreliable Corrective Action" issues for contentions 1-6 supra; October 31 letter, at 6-8; December 5, 1983 letter, at 13-16.)

92. The PVQC results are even more compromised than the QCP, through reliance on Bechtel's cost estimate. In addition to prejudgment, the estimate is biased due to ignoring evidence from whistleblower and intervenor allegations; relying on empirically indefensible assumptions, such as accurate design drawings; rewriting the empirical history of QA violations, such as those associated with welder qualifications; assuming that deficiencies

can be "corrected" by retroactively relaxing the rules; as well as relying on previously suspect paperwork and superficial walk-downs. (December 5, 1983 letter, at 4-5; supra, at 7.)

93. Applicants' financial conflict of interest has severely intensified since the Course of Action was proposed. Even as stock values and bond ratings sink to an all-time low, economic analysis and local editorials are predicting that Zimmer could cause CG&E to go "belly-up" -- bankrupt. The economic and public safety issues now directly compete in a high stakes struggle to the finish. Under these circumstances, Applicants' continued control of quality verification activities is untenable. (December 5, 1983 letter, at 9-10 and related references; Geraldine Brooks, "Nuclear Plant Poses Dilemma at Ohio Utility," The Wall Street Journal (October 14, 1983).)

94. Applicants' new constructor, the Bechtel Corporation, faces a similar conflict of interest. In February 1983 the Commission rejected Bechtel's nomination as management reviewer, due to the conflict between its assessment of Applicants' management and its proposed role as manager of the construction program. Bechtel's unrealistic cost estimate created a more severe conflict. Its objectivity to verify quality is compromised by its mission to achieve the terms of its forecast. Toward that end, it will have routine control to disposition "accept-as-is" any deficiencies identified by the PVQC. In analogous contexts at Three Mile Island and Diablo Canyon, and with some of the same personnel, Bechtel has succumbed to the temptation and compromised its remedial programs so badly that significant public scandals and



congressional hearings ensued. (October 31 letter, at 6 and related references; December 5 letter, at 6-8 and related references -- witness Stokes; December 14 letter; December 16 letter.)

95. The PVQC is compromised by Applicants' plans to resume construction prematurely in some cases after inspections are finished on individual components. As a result, Applicants have sacrificed the ability to learn lessons about previous construction mistakes. These lessons could be revealed by studying the results of "trending" analyses from PVQC results. Unfortunately, Applicants are not willing to wait. (PVQC, at 10.)

96. Premature resumption of construction also insures conflicts between construction and reinspections. Applicants reassurances to the contrary are not supported by any specific program to avoid PVQC-CCP conflicts. Conflicts are unavoidable unless inspections first are completed for each system and non-conformances are dispositioned. The conflicts are inherent, because the components within each area are interdependent. As one witness explained, the PVQC as planned would be like "inspecting and fixing a car piece-by-piece. When you're done, they may work fine individually but not fit together. It's an infatation to build a car that's approved, but won't run." (PVQC Executive Summary, at 4, 6; PVQC, at 63, 70; -- witness C.)

97. The Board can contribute to a reliable corrective action program by conditioning Zimmer's operating license on PVQC that eliminates the inherent deficiencies of the current program, and which delegates comprehensive QA authority -- from

reinspection through standards for and surveillance of corrective action -- to an independent organization free from Applicants' and Bechtel's conflicts of interest.

8. Applicants lack the necessary corporate character and competence to operate a nuclear power plant, as required by 10 C.F.R. 50, Appendix B, Criteria I, II.

98. Applicants' traditional philosophy has been to tolerate quality assurance as a necessary evil that threatened cost and schedule goals. There is insufficient basis that Applicants have reversed this policy and accepted a meaningful commitment to quality assurance. Applicants' President William Dickhoner ultimately remains in charge of the Course of Action and has not retracted his earlier positions. Applicants' Senior Vice President Joseph Williams has announced that "safety" is no longer a "valid" issue for public discussion. Further he has repeatedly announced his intent to shave the Bechtel cost and schedule estimate, which already is unrealistically optimistic and assumes that QA standards are irrelevant. Applicants have built the timetable of the Bechtel forecast into the proposed PVQC. (August 20 Petition, at 105-08, and related attachments; September 27, 1983 letter, at 5-6 and related attachments; October 31, 1983 letter at 4, 6; December 14, 1983 letter, at 2 and related attachments; supra at 47-8.)

99. Applicants' delegation of responsibilities within the Course of Action demonstrates that priorities have not changed. Applicants have promoted the manager of the QCP, Mr. Wayne Shaefer, to manage the entire QA program, despite the dismal record of the QCP. Applicants have appointed the Bechtel

Corporation to operate the PVQC and the CCP, despite a Bechtel track record at analagous remedial programs that was counter-productive to even minimally-reliable, good faith QA practices. Most significant, Applicants have retained the Kaiser Corporation for quality verification work on ASME code items -- despite previous false statements and QA violations by key Kaiser executives and despite the NRC staff's rejection of Kaiser for less sensitive, routine construction assignments. Mr. Williams announced motive for the decision -- to avoid time lags while Bechtel qualifies for an N-Stamp -- demonstrates that Applicants are still willing to gamble with public health and safety in order to avoid a few months delay. (October 31, 1983 letter, at 6 and related references; December 5, 1983 letter at 2-8, 12 and related references -- witness Stokes; December 14, 1983 letter; December 16, 1983 letter -- anonymous witness.)

100. Applicants' track record in non-safety related construction during 1983 demonstrated the absence of required corporate character and competence. The Clermont County Building Inspector's October 1983 work stoppage for cost-cutting violations of the electrical code on Zimmer office buildings under construction illustrates how deficient the "new" Applicant remains -- unable to properly build non-safety structures, let alone a nuclear plant. (October 31 letter, at 4-5.)

101. Applicants' program has produced falsified records at a rate unprecedented within the nuclear industry. MVPP's August 20, 1982 petition summarized 30 instances of alleged falsification, primarily with respect to material traceability and

welder qualifications. At September 14, 1982 congressional hearings, House Interior Subcommittee on Energy and the Environment Chairman Morris Udall disclosed an additional six examples of falsification of Charpy tests for welder qualifications. In its October 18 Supplemental Petition, MVPP disclosed another six instances of falsification. Since that time, MVPP has submitted two additional affidavits to government authorities concerning deliberate falsification on contractor welding qualification tests and records, between 1979 and 1982, as well as for materials traceability. MVPP has also submitted evidence to government authorities of attempts by CG&E to have witnesses provide knowingly inaccurate responses to government authorities last summer and fall with respect to welder qualifications and related disclosures to the NRC staff

Even the NRC staff has conceded "a potential generic problem" due to improperly altered welder qualification records. (August 20 Petition, at 20, 24, 60, 113-17 and related attachments -- witnesses Jones, Reiter and anonymous witness covered by this Board's Protective Order; October 18 Supplement, at 23-24, July 12, 1983 Reply Brief, at 16-19, witnesses A-E, Jones, Nolder and Reiter; August 26, 1983 Motion, at 7 -- anonymous witnesses; NRC IE Report No. 50-358/82-10, at 30.)

102. Falsification of records intensified after the November 12, 1982 suspension of safety-related construction, at least until October 1983. Supervisory QA personnel directed document reviewers to accept incomplete records as complete, and obviously falsified records as accurate. Similarly, supervisors directed document reviewers to "create" records which were missing



or incomplete. A "fill-in-the-blanks" approach to document review became common. (October 31, 1983 letter, at 5 -- anonymous witnesses.)

103. Applicants have deliberately failed to disclose to the NRC violations which must be reported under 10 C.F.R. Part 19 and 10 C.F.R. 50.55(e). To illustrate, Applicants' constructor Kaiser cancelled an audit, ordered the auditor not to write memoranda, and transferred him after a preliminary review concluded a potentially reportable incident regarding QA violations for radiography on-site. Similarly, Applicants' constructor suppressed what it recognized should have been a 50.55(e) report on vendor QA violations. Applicants' attitude has been that the NRC will learn of problems if, and only if, the Commission asks precisely the right questions. (August 20 Petition, at 31-32, and related attachments -- witness Jones; July 12, 1983 Reply Brief, at 16-19 -- witnesses Jones and Nolder.)

104. Applicants have made false statements in response to specific NRC inquiries. The inaccuracies have been both verbal and written. They included inaccurate representations that CG&E was ignorant of Kaiser's QA program; that 11 DR's were not used improperly as, inter alia, improper substitutes to nonconformance reports, and that Zimmer's approved design matched the as-built condition of the plant. In short, Applicants have not responded in good faith even when the NRC did ask precisely the right questions. (July 9, 1982 letter to Nunzio J. Palladino, NRC Chairman, from Thomas Devine, and related attachments -- witnesses Jones, C; August 20 Petition, at 108-13, 117-18 and related

attachments; May 25, 1983 letter at 3-4 and related references.

105. The Licensing Board can compensate for Applicants' deficiencies by conditioning Zimmer's operating license on --  
a. full public oversight throughout completion of the plant;  
and b. appointment of a qualified organization to manage Zimmer if the plant ever operates.

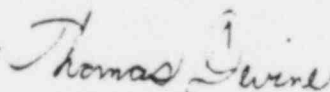
MVPP has attempted to comply in good faith with the Board's order, and believes that the 105 identified issues present a manageable basis for litigation. In order to further this goal, MVPP would consent to limiting the litigation for each issue to a representative supporting example(s) approved by the Licensing Board subsequent to discovery, where the Board is not satisfied that the issues warrant hearings on a generic basis.

MVPP has attempted to illustrate its contribution to the record through references to relevant witnesses, and citations to briefs where relevant documentation was originally disclosed. MVPP has further attempted to illustrate the contribution from reopened hearings, by describing possible improvements in corrective action that could result from proceedings before this Board. MVPP submits that its contribution would be unique, because Applicants have only agreed to address intervenor issues in the Course of Action that Applicants believe are relevant; i.e. next to none. Further, the NRC staff has failed to even initiate communications with MVPP over any issues raised in 1983. In short, this Board is the last opportunity for the public to contribute meaningfully within the NRC system to solving Zimmer's quality assurance breakdown.

If the Board does not agree that the contentions and issues are sufficiently manageable, however, MVPP requests that the Board reconstruct the contentions to its satisfaction, rather than deny public accountability altogether. This option is available to the Board. Pennsylvania Power and Light Company, et al. (Susquehanna Steam Electric Station, Units 1 and 2) LBP-79-6, 9NRC 291, 295-96 (1979).

MVPP respects the Board's objectivity. As a result, Board-modified contentions to ensure a compelling contribution to the record would be preferable to protracted review of good cause to assess whether MVPP, Applicants or the NRC staff were insufficiently diligent in disclosing material evidence to this Board. The most important contribution now for all participants is to insure that Zimmer will only operate after fully complying with the Atomic Energy Act. MVPP hopes the time for finger-pointing has passed, and the time for litigation to provide reliable solutions has arrived.

Respectfully submitted,



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DATED: December 31, 1983

# APPENDIX 1

<u>Submission</u>	<u>Date Filed</u>
Motion for Leave to File New Contentions ("May 18 Motion") . . . . .	5/18/82
Reply to Applicants' and Staff's Responses to MVPP's Motion for Leave to File New Contentions ("July 8 Reply") . . . . .	7/8/82
Motion for Protective Order ("July 8 Motion") . . . . .	7/8/82
Motion to Strike Applicants' Answer to intervenor's Motion for Protective Order ("July 26 Motion") . . . . .	7/26/82
Submission of Affidavits in Support of Eight New Contentions ("July 26 Supporting Affidavits") . . . . .	7/26/82
Petition for Reconsideration of Commission's Order of July 30, 1982 ("August 6 Petition") . . . . .	8/6/82
Petition for Reconsideration of the Commission's Order of July 30, 1982 ("August 20 Petition for Reconsideration") . . . . .	8/20/82
Petition to Suspend Construction of the Zimmer Station ("August 20 Petition to Suspend Construction" or "August 20 Petition") . . . . .	8/20/83
Reply to NRC Staff and Applicant Responses to MVPP's Petition for Reconsideration ("October 11 Reply") . . . . .	10/11/82
Motion for Leave to File Reply Brief to Applicants and NRC Staff Responses to MVPP's Petition for Reconsideration ("October 11 Motion") . . . . .	10/11/82
Supplement to MVPP August 20 Petition to Suspend Construction of the Zimmer Station ("October 18 Supplement") . . . . .	10/18/82
Notice of Correction to Intervenor MVPP's Petition for Reconsideration ("November 3 Notice of Correction") . . . . .	11/3/82
Opposition to Applicants' Motion to Strike MVPP's Reply Brief ("November 10 Opposition") . . . . .	11/10/82
Response in Support of Zimmer Area Citizens-Zimmer Area Citizens of Kentucky and the City of Mentor Petition for Appointment of a Consultant to Monitor Third Party Audit and Petition to Establish a Detailed Structure for Public Participation Throughout the Audit ("November 30 Response and Petition") . . . . .	11/30/82
Supplemental Memorandum in Support of MVPP's Petition for Reconsideration of Commission Order of July 30, 1982 ("December 14 Supplemental Memorandum") . . . . .	12/14/82
January 31, 1983 Letter to Nunzio J. Palladino, NRC Chairman, from Lynne Bernabei and Thomas Devine, Government Accountability Project. . . . .	1/31/83



# APPENDIX 1, Page 2

<u>Submission</u>	<u>Date Filed</u>
May 25, 1983 letter to the Nuclear Regulatory Commission, from Thomas Devine, Government Accountability Project ("May 25, 1983 letter") . . .	5/25/83
Motion to Reopen the Record for Admission of Eight Contentions on Quality Assurance and Character and Competence ("June 3 Motion") . . . . .	6/3/83
Reply Brief by Miami Valley Power Project in Support of Motion to Reopen the Record for Admission of Eight Contentions on Quality Assurance and Character and Competence; and Motion to Compel Discovery on those Contentions ("July 12, 1983 Reply Brief") . . . . .	7/12/83
Motion to Submit Additional Evidence ("August 26 Motion") . . . . .	8/26/83
September 27, 1983 letter to the Nuclear Regulatory Commission from Thomas Devine, Government Accountability Project ("September 27, 1983 letter") . . . . .	9/27/83
Petition for Reconsideration of September 15, 1983 Order ("October 3, 1983 Petition") . . . . .	10/3/83
October 31, 1983 letter to James Keppler, Nuclear Regulatory Commission, from Thomas Devine, Government Accountability Project ("October 31, 1983 letter") . . . . .	10/31/83
December 5, 1983 letter to James J. Keppler, Nuclear Regulatory Commission, from Thomas Devine, Government Accountability Project ("December 5, 1983 letter") . . . . .	12/5/83
December 14, 1983 letter to Nuclear Regulatory Commission from Thomas Devine, Government Accountability Project ("December 14, 1983 letter") . . . . .	12/14/83
December 16, 1983 letter to Nuclear Regulatory Commission from Thomas Devine and Billie Garde, Government Accountability Project ("December 16, 1983 letter") . . . . .	12/16/83

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that copies of the foregoing "Proposed Issues and Support for Miami Valley Power Project Contentions" have been served upon the following by mailing first-class, postage prepaid, this 31st day of December, 1983.

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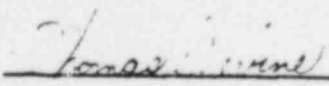
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