

UNITED STATES OF AMERICA
BEFORE THE NUCLEAR REGULATORY COMMISSION

In the Matter of:)
)
CINCINNATI GAS AND ELECTRIC)
COMPANY, et al.) Docket No. 50-358
)
(William H. Zimmer Nuclear)
Power Station))
_____)

SUPPLEMENT TO MVPP AUGUST 20 PETITION TO
SUSPEND CONSTRUCTION OF THE ZIMMER STATION

I. INTRODUCTION

1. On August 20, 1982 the Miami Valley Power Project ("MVPP") petitioned the Nuclear Regulatory Commission ("NRC" or "Commission") to Suspend Construction of the Zimmer Station ("August 20 Petition"). MVPP also requested that the Commission remove Cincinnati Gas and Electric ("CG&E") from responsibility for reinspection of construction work where the quality is indeterminate; and a management audit of both CG&E and its contractor, the Henry J. Kaiser Company ("HJK" or "Kaiser"). In support of its petition, MVPP presented 205 attachments, consisting of affidavits, documents and news articles. The issues in the August 20 Petition were identical to eight contentions originally proposed by MVPP on May 18, 1982 as the basis for reopened licensing hearings on the Zimmer quality

assurance breakdown. On July 15, 1982 the Atomic Safety and Licensing Board ("ASLB") ordered renewed hearings on the eight proposed contentions. On July 30, 1982 the Commission reversed the ASLB. On August 20 MVPP petitioned the Commission to reconsider its July 30 order.

2. On September 24, 1982 the Commission ordered CG&E to respond by December 31, 1982 to each allegation in the August 20 Petition. The Commission required this action through a formal Demand for Information issued by the Office of Inspection and Enforcement. (Attachment 1.) The responses must admit or deny each allegation, and explain the basis of each denial. The responses must also identify how the Quality Confirmation Program ("QCP"), established to determine the effect of previous quality assurance ("QA") deficiencies, addresses the potential consequences of each allegation. The responses are to be submitted by December 31, 1982.

3. Since August 20 there have been a series of significant developments concerning the issues raised in the petition. MVPP, through counsel the Government Accountability Project ("GAP") of the Institute for Policy Studies, has continued to receive allegations and evidence from current and former employees at the Zimmer station. In addition, on August 27, 1982 CG&E responded to a July 9, 1982 letter from MVPP to Chairman Palladino. The July 9 letter described the comparative abilities of Nonconformance Reports ("NRS") and In-Process Inspection Deficiency Reports ("IIDRs") to verify quality and corrective action when QA violations are identified. In the July 9 letter, MVPP also requested

an investigation into possible material false statements by two CG&E representatives at a June 16, 1982 briefing of the Commission. On September 14, 1982 the House Interior and Insular Affairs Subcommittee on Energy and the Environment held hearings to consider, inter alia, whether the Quality Confirmation Program should be replaced with a third-party effort. Throughout September the Environmental Advisory Council ("EAC") to the Cincinnati City Council held hearings on quality assurance at Zimmer and other issues of public concern.

4. MVPP believes that the issues raised by these developments should be placed on the public record to supplement the August 20 Petition. At a minimum, the September 24 Demand for Information should be updated so that CG&E's eventual response will be current. The additional evidence obtained by MVPP demonstrates that QA violations have intensified this summer. If that pattern continues during the rest of 1982, CG&E's December 31 response may be dated and fail to address ongoing significant developments. As long as there are no licensing hearings on the eight quality assurance contentions covered in the August 20 Petition, MVPP will continue to supplement the record as significant, credible new allegations and evidence are received.

5. The new evidence and public statements also demonstrate the need for immediate action on the remedies requested in the August 20 Petition. By granting CG&E at least until December 31, 1982 to respond, the Commission is postponing its own decisions on suspension of work and CG&E's competence until early 1983, possibly six months or longer after MVPP submitted the evidence.

The evidence obtained since the August 20 Petition indicates that CG&E or its contractors may take advantage of this six-month "grace period" to cover up information relevant to the August 20 allegations, through destruction and/or falsification of relevant records, as well as through undocumented repairs.

II. ADDITIONAL BASES FOR IMMEDIATE
SUSPENSION OF CONSTRUCTION

6. Since submitting the August 20 Petition, MVPP has received four affidavits or signed statements from three current and former Zimmer employees, as well as additional documentary evidence. All evidence was obtained under conditions of confidentiality, except for information generally available at Zimmer which could not be traced back to a witness. MVPP has disclosed the witness statements and other documentary evidence covered by the confidentiality pledge to representatives of the Commission's Office of Investigations and the Department of Justice ("MVPP disclosure"). The following additional grounds for relief are drawn from the evidence already submitted to law enforcement and NRC staff representatives, as well as from additional evidence which MVPP is at liberty to submit for the public record. These further bases to suspend construction are organized according to the relevant quality assurance contentions in the August 20 Petition.

A. Failure to Maintain Adequate Material Traceability to Identify and Document the History of All Material, Parts, Components and Special Processes

7. The response to missing material traceability records has been to accept inadequate substitutes. The MVPP disclosure reports a policy on-site that the item number on the bill of materials can be used to establish traceability. But since each item number on a bill of materials can refer to thousands of items in the plant, traceability has not been established.

B. Failure to Maintain an Adequate Quality Assurance Program to Identify and Correct Construction Deficiencies

8. A fundamental requirement of 10 C.F.R. 50, Appendix B, Criterion I is that "[t]he persons and organizations performing quality assurance functions shall have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions." Further, one of the basic causes for the QA breakdown at Zimmer has been the lack of independence and authority for quality assurance personnel to carry out their duties. This policy of nonindependence for QA personnel not only persists, it has intensified. An August 18, 1982 Kaiser memorandum from R. A. Davis to all quality control ("QC") inspectors (Attachment 2) declared,

SPECIFIC DIRECTION TO QC INSPECTION

Direction received from the Owner (CG&E), the Engineer (S&L) or HJK (Site Management Committee, Quality Engineering) will be followed to the letter. This direction is given from a level

which provides evaluation for all conditions on this project. This direction is not the QC Department's responsibility to question.

- (1) Responses to RFI/E's, DDC's issued by S&L, and specific direction from CG&E or Site Management Committee will be followed by all QC Inspection personnel.
- (2) In the case of a disagreement of the disposition on an NR, ZAPO-5 identifies how this will be handled. In no case, however, will work be stopped because of the disagreement.

[Emphasis in original.] Unthinking obedience, rather than legally-mandated authority and independence, is the policy outlined in the August 18 memorandum for inspectors at Zimmer. This policy violates 10 C.F.R. 50, Appendix B, Criterion I. It also raises questions about the reliability of all favorable QC inspection findings and verification of corrective action.

10. The August 18 memorandum illustrates another illegal trend at Zimmer -- verbal instructions as a substitute for approved, written QA procedures. This practice is in violation of 10 C.F.R. 50, Appendix B, Criterion II, which states, "This [quality assurance] program shall be documented by written policies, procedures or instructions which shall be carried out throughout the plant life in accordance with those policies, procedures or instructions."

11. Another basic requirement of 10 C.F.R. 50, Appendix B, Criterion I is that any QA employee must have access to the highest levels of management to report violations. At Zimmer, however, inspection supervisory personnel can effectively screen out QC inspection reports. An August 20, 1982 memorandum (Attachment 3) imposed an immediate requirement that the inspection

supervisor must initial all significant reports that leave the department for processing.

12. Quality control inspections for all safety-related work are required under 10 C.F.R. 50, Appendix B, Criterion X. Unfortunately, the practice of nonexistent mandatory inspections continued this summer at Zimmer. MVPP has submitted evidence of QC inspection and/or surveillance work that was halted after internal disclosure of significant QA violations. In other cases, internal construction notes reveal that QC inspectors failed to conduct assigned inspections on rework in the Quality Confirmation Program due to time pressures.

13. Even when inspections did occur, they were not always comprehensive, even for the specific work operation under scrutiny. To illustrate, in an October 4, 1981 statement a QC inspector stated that Quality Confirmation Program reinspections are being done merely to check whether specific, informal punch list work assignments were done properly, instead of full reinspections.

14. A Zimmer employee's October 4 signed statement disclosed that the reason for incomplete QCP inspections is incomplete or nonexistent construction work records. The phenomenon of missing records has intensified over the last four months. MVPP has submitted evidence, for example, that one QC inspector was unable to conduct any inspections 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.

15. Rather than squarely confront the problem of missing records, management has declared it irrelevant for QC inspectors.

For example, in an October 4 signed statement a witness reported that the lead QC inspector--

issued a memorandum saying not to refuse to accept document packages because of missing documentation. Instead, the Q.C. inspectors are supposed to pass along the packages to Document Control. This makes it very difficult to accept the packages.

CG&E has offered two excuse[s] for accepting packages without complete records: 1) Document Control will certify the records and 2) The records are in the vault. But Document Review employees told me that they can't Certify [sic] the packages when the records are missing. As seen above, they are often not in the vault.

16. The effect of missing records and failure to conduct QC inspections is to circumvent the quality assurance program through undocumented repairs. To illustrate, at September 14, 1982 Congressional hearings, Ohio's Chief Boiler Inspector Donald Milan testified that a steam jet air condensor was so badly damaged it had a gash 7/8th inches wide. Construction crews then repaired it without the participation of the authorized nuclear inspector, as required. Mr. Milan said "they can kiss it good-bye too, because it is going out." Mr. Milan's written testimony is enclosed as Attachment 4. The full extent of work that should be kissed good-bye due to undocumented repairs remains a mystery.

17. MVPP's August 20 Petition documented a practice of uncontrolled, overpressurized hydrostatic tests which can severely weaken or damage piping and components. The undocumented repairs in the steam jet air condensor were the outgrowth of improperly-conducted hydrostatic tests. In his September 14 testimony, Mr. Milan explained, "They forgot to close...some isolation valve"

and overpressurized a vessel, a jet air condensor, and they ruptured that vessel...." Mr. Milan's September 14 testimony also reported that at least two portions of safety-related piping -- in the Low Pressure Core Spray and the Residual Heat Removal Systems -- were overstressed. In each case the piping received almost twice the maximum allowable pressure. (Attachment 4, at 2-3.)

18. The combination of undocumented construction work, the absence of mandatory inspections, and sloppy tests inevitably leads to unreported violations of professional codes. For example, in an October 4 statement a witness reported that there are many instances of code violations such as clamps on Nuclear Steam Supply System line welds.

Welds

19. As documented in the August 20 Petition, the quality breakdown of welding at Zimmer is the best model to illustrate the overall breakdown of the QA program. The trend to circumvent sound QA principles has intensified this summer, as evidenced by witness statements and construction work notes concerning the weld recertification program and weld repairs from the Quality Confirmation Program.

20. Initially, the QC oversight of weld recertification tests were compromised by inspectors with questionable qualifications. The MVPP disclosure reports three examples where the QC inspectors in the program had never before participated in welder qualification tests. Their lack of experience may explain why the inspectors permitted the extensive cheating described below in the recertification tests.

21. The modus operandi for cheating on the welder recertification tests was to issue verbal instructions that were contrary to approved procedures. As one example, the MVPP disclosure evidences special welder recertification tests with built-in handicaps for those who couldn't pass the normal examinations in certain difficult weld procedures.

22. Another improper verbal policy allowed welders taking their recertification tests to grind the welds repeatedly, according to an October 4 signed statement. This technique violates the usual test procedure and cosmetically improves the appearance of the weld during visual inspection.

23. As with other areas, deliberate falsification of records may have complemented illegal verbal policies in the welder recertification tests. A September 24, 1982 affidavit reports that certain welders this summer who had been welding to the wrong procedure had their recertification cards collected. They then received new certification cards for the correct welding procedure, without having taken the recertification test.

24. The weld repair program for certain structural steel deficiencies identified by the Quality Confirmation Program represents a comprehensive quality assurance breakdown. An October 3, 1982 Cleveland Plain Dealer article confirmed that some 8,000 welding deficiencies in the structural steel are being reworked. (Attachment 5.) Initially, certain supervisors for the weld repairs did not receive any training for this sensitive QCP assignment, according to affidavits submitted in the MVPP disclosure. One witness had to learn how to weld by watching the

men he supervised.

25. CG&E has repeatedly contended that the deficient welds are basically sound but suffer from petty cosmetic problems that only require superficial polishing up. As a result, the QC oversight program has been limited to visual inspections after the rework is completed. Unfortunately that premise is false, according to affidavits and construction work notes filed in the MVPP disclosure. Major repairs have occurred on welds with a complete absence of QC oversight, until inspectors came to visually check what they thought was surface-level grinding. In fact, welds were completely cut out and replaced, or ground down so far that in one case a channel beam sprang loose. Many of the welds were reworked several times in this fashion, according to a September 24 affidavit.

26. The MVPP disclosure reports that not only were these weld repairs conducted without QC oversight, but the construction crews were working to the wrong work package and generating inaccurate work records. In short, the paperwork does not accurately reflect the weld repairs that occurred.

27. Even when quality control inspectors conducted visual inspections, the ensuing QC reports were of questionable reliability. For example, construction work notes submitted in the MVPP disclosure evidence repeated frustration by repair crews when QC inspectors turned in reports that failed to specify whether the welds had passed or failed.

28. As with welding recertification, evidence of deliberate records falsification accompanies QA circumvention of weld repairs. One of the practices that most facilitates criminal falsification is to change entries on records without initials or explanation. MVPP has submitted evidence that the weld repair records contain anonymous, unexplained changes.

29. In other cases, there is evidence that the records for accepted work are inaccurate. To illustrate, construction work notes in the MVPP disclosure report that repairs on items were accepted on paper, when the work had not yet occurred. In another case, repair work was processed when the QC inspections had not yet occurred.

30. Even when the substance of records refers to more than fictional activity, some reports are deliberately inaccurate. For instance, MVPP has submitted evidence that some weld rod slips were knowingly falsified to reflect different rods than those actually used, due to the ease of covering up use of the wrong rods in the first place.

31. While the bulk of the new evidence on welding involves QCP repairs and recertification, there are further indications of widescale welding deficiencies that remain undiscovered due to previous spotty QA coverage. To illustrate, in an October 4 signed statement a QC inspector reported serious welding deficiencies in two-thirds of the sacrificial shield wall, which had not been covered in the previous quality control x-ray sample.

C. Failure to Maintain Adequate Controls
to Process and Respond to Internal
Nonconformance Reports

32. Since MVPP's August 20 Petition, press accounts have confirmed the wide scope of the breakdown in Nonconformance reports ("NRs") -- which are supposed to serve as the primary record to assure that QA violations have been identified and corrected. For instance, an October 3 press account quoted NRC official Dorwin Hunter's estimate that 1,700 NRs have been voided at Zimmer. (Attachment 5, supra.) Further, a September 19, 1982 Dayton Daily News press account (Attachment 6) reported that hundreds of NRs are missing from the system. The August 20 Petition explained how they were lost: the NRs were effectively expunged from the system by voiding them as "Not Issued" and then returning them to the original QC inspector. These hundreds of lost records may represent hundreds of QA violations, in light of the finding in last November's IE Report that 25 out of 26 voided NRs carefully investigated by the NRC were cancelled improperly. The lost NRs are not even available to review, leaving the potential violations a mystery.

33. After a nonconforming item has been identified, "hold tags" are necessary to assure that construction crews do not continue work until the proper corrective action has been determined. Otherwise, the QC inspector's findings may become moot, or else the work will have to be redone a third time. Respect for hold tags is a basic requirement of 10 C.F.R. 50, Appendix B, Criterion X. The August 20 Petition disclosed evidence that hold

tags have been traditionally violated at Zimmer. The tradition has continued this summer. The MVPP disclosure evidenced the continuing trend through construction notes and witness statements. For example, a witness reported in a September 24 affidavit that hold tags were violated for weld repairs in the QCP. As with other QA violations, the uncontrolled work resulted from verbal orders. The witness stated, "From my own direct experience, this occurred on three occasions. Other employees had the same experience."

34. Respect for hold tags is only meaningful if the NR leads to effective corrective action. Unfortunately, new evidence casts further doubt upon the reliability of QA "solutions" to problems identified on NR's over the years. A witness explained in an October 4 statement: "The old NR's are particularly bad.... [Recently] I was out tagging old N.R.'s. They had dispositions like 'If it looks good to you, accept it.'"

35. In a June 16, 1982 briefing of the Commission, MVPP counsel challenged a trend at Zimmer to substitute In Process Inspection Deficiency Reports ("IIDR") for NRs. On July 9 counsel submitted further analysis and evidence demonstrating the inferiority of the IIDR substitute ("July 9 letter"). MVPP also requested, inter alia, that the Commission's Office of Investigations check whether CG&E Vice President of Nuclear Operations B. R. Sylvia made material false statements to the Commissioners at the June 16 briefing, concerning the nature and scope of the IIDR program. On August 27, 1982 CG&E responded ("August 27 response"). Unfortunately, the analysis in the CG&E response

cannot withstand careful scrutiny. Counsel will rebut CG&E's August 27 policy analysis in a separate response.

36. Evidence in the MVPP disclosure indicates that CG&E's position in the August 27 response may be as inaccurate as at the June 16 briefing. The factual dispute between MVPP and CG&E concerns the scope of the IIDR program. CG&E contends that since 873 NRs were written between June 1 and August 1, 1982, IIDRs have not "gutted" or otherwise significantly replaced the NR system. (August 27 response, Attachment A, at 2.) Critically, however, the utility did not report the number of IIDRs issued during the same time frame. As a result, it is impossible from CG&E's response to compare the relative frequency of IIDRs and NRs under ZAPO-5. CG&E's reticence is understandable. A QC inspector revealed in an August 26, 1982 affidavit--

IIDR's are the most common approach to record deficiencies in the Quality Confirmation Program and throughout the plant. Under the ZAPO-5 procedure, IIDR's have replaced Nonconformance Reports as the main quality record. There are hundreds of IIDR's to every Nonconformance Report... They are used all the time for welds throughout the plant. Anyone who says otherwise either is deliberately misrepresenting the IIDR program or obviously has too little information for an informed opinion.

D. Retaliation Against Quality Assurance and Quality Control Personnel Who Attempt to Diligently Perform Their Responsibilities or Report Violations to the NRC

37. CG&E insists that retaliation at Zimmer is at most a historical phenomenon. But GAP has continued to receive evidence that it still takes an act of courage for a quality

assurance employee to do his or her job. In an August 26, 1982 affidavit, a QC inspector explained the retaliatory consequences of lack of independence for the QA department:

One of the basic causes of the problems there quickly became apparent to me--lack of independence for quality control personnel in violation of 10 CFR 50, Appendix B, through harassment and intimidation. If the inspector questions how the work and/or procedures are being performed, he is either neutralized or "Zimmertized." The former refers to being transferred or dismissed. "Zimmertized" refers to an expression on-site that means to put aside professional ethics and go along, in order to avoid going on down the road. Every day at Zimmer, career decisions are made by those who must choose between their professional ethics and their paychecks.

In short, at Zimmer the historical policy--those who expose problems are the problem--is still in effect.

38. The MVPP disclosure evidenced several new examples to illustrate how employees are "Zimmertized." In one case, an employee who persisted in his dissent was offered the alternative futures of being promoted or being laid off. The choice would depend on whether he persisted in his dissent. The employee persisted and was laid off. All witnesses have told GAP that mass layoffs have occurred this summer among QA personnel. Frequently the employees who lost their jobs either were internal critics or experienced enough to recognize QA violations.

39. Frequently retaliation against QC inspectors is not the result of high-level management decisions. Rather, the origins can be with crews who are resentful of long delays waiting for a QC inspector who finally arrives and writes up a Nonconformance Report rejecting their work. In a more specific context, the MVPP

disclosure included construction notes explaining how the precise phenomenon described continues among construction supervisory personnel.

E. Inherent and Empirical Failure of the Quality Confirmation Program as the Final Solution to the Zimmer Quality Assurance Breakdown

40. In the August 20 Petition, MVPP charged that empirically the NRC reform program initiated through an April 8, 1981 Immediate Action Letter has not worked. The evidence in the MVPP disclosure further support that conclusion. To put the failure in perspective, 34 of 42 allegations raised in this supplemental petition concern issues that have occurred since April 8, 1981; all 34 took place since May 1982.

41. The primary structural flaw in the QCP is conflict-of-interest. As Congressman Udall stated while he chaired the September 14 congressional hearings, it is unrealistic for Congress or the public to have confidence "that the company that neglected quality assurance for so many years will, on its own, fully uncover deficiencies resulting from its own neglect." Despite this increasing loss of legitimacy, the NRC staff has responded to evidence of misconduct by increasing CG&E's responsibility to investigate the issues concerning its own conflicts-of-interest. The vehicle to intensify CG&E control through self-investigation has been the Quality Confirmation Program, which in the absence of licensing hearings is the final solution to the Zimmer QA breakdown. To illustrate the trend, at September 16, 1982 hearings of Cincinnati's Environmental Advisory Council, NRC Region

III Administrator Keppler stated that CG&E would review the suspect qualifications of the 2400 previous welders at Zimmer, through the QCP. GAP had already shared evidence with Region III that CG&E agreed to present false information to the NRC about the qualifications of past and current welders, because the only other alternative would be "to lock the gates."

42. At the same September 16 hearings Mr. Keppler stated that CG&E would investigate Kaiser official Sherrill Nolder's charges of vendor QA abuses, through the QCP. More specifically, Mr. Keppler stated that CG&E would prepare a list of material purchased from approved vendors. The point of the Nolder Report was that CG&E was directly responsible for the deterioration of the Approved Vendors List ("AVL") through policies of questionable legality that were implemented over Kaiser's protests. Similarly, in June 10 congressional testimony former QA analyst David Jones testified that last year CG&E refused to cooperate with a Kaiser audit that was about to reject the utility from Kaiser's own AVL. One of the key flaws identified by Kaiser auditors had been CG&E's inability to provide a comprehensive, reliable AVL. The NRC staff policy institutionalizes conflict-of-interest at Zimmer.

43. There is also serious questions about organizational responsibility for the QCP. The premise of the reform theory was that CG&E needed to assume its responsibilities and take over from its errant contractor to verify the quality of past Kaiser work. As CG&E admitted in its August 26 letter to Chairman Palladino, however, Kaiser reviews all the NR's dealing with

the American Society of Mechanical Engineers ("ASME") code. Kaiser must assume this responsibility because it is the ASME Certificate Holder. The August 26 letter does not specify, but presumably Kaiser must be able to enforce its review findings if they conflict with CG&E's. Otherwise, the ASME Certificate would be meaningless. In effect, the QCP may not have even succeeded in removing CG&E's scapegoat Kaiser from legal control of the quality verification reforms.

44. At the September 16 EAC hearings Commissioner Asselstine explained that to have an effective QA program there must be a strong management commitment to quality, as well as a structurally sound verification program. Recent public statements by CG&E Vice President Earl Borgman indicate that the utility's primary goal for the QCP is to complete it in a hurry, rather than to fully address the backlog of serious quality violations. At September 14 congressional hearings, Mr. Borgman testified that the QCP is 63% complete and should be finished by next spring. At the same hearing Mr. Keppler responded to the estimate: "I don't know how you can make a projection on a rework job until you know what the problems are." At the September 16 EAC hearings Mr. Keppler expanded his rebuttal, dismissing the CG&E projection as "wild speculation." He explained that he couldn't estimate when the QCP will be completed, because "I don't prejudge what the program will show." He added that it would only be possible to state a time frame for completing the QCP "[i]f you presume the program won't find anything wrong" and that no rework will be necessary. CG&E's management commitment is exactly the opposite of what's needed to complete Zimmer safely.

45. There has also been a negative commitment by some managers in the field to effective quality solutions through the QCP, when the solutions could slow production or require work to be done over. All of the affiants in the MVPP disclosure first attempted to work through supervisory personnel on-site to restore sound quality policies. In each case, they were cut off with warnings or given vague reassurances that management was already aware of the problem and had taken care of it.

46. There are strong reasons not even to trust the commitments CG&E does make to improve Zimmer's quality. To illustrate, at a September 8 plant tour CG&E Vice President Borgman stated that a basic lesson the utility had learned was the necessity of thorough training. He pledged that if CG&E could do it over, there would be a "pretty massive retraining program." In fact, CG&E has to do it over through repair work arising from the Quality Confirmation Program. Yet, MVPP has submitted affidavits from supervisory personnel for QCP weld repairs who were not trained and had not worked previously as welders at a nuclear plant. (Supra, at 10-11.)

47. CG&E's on-balance assessment of QCP results is as suspect as its predictions for completing the program. In congressional testimony, public statements and editions of its "O-K News," CG&E continues to insist that the QCP has not uncovered any significant quality violations but rather has confirmed the basic quality of workmanship at Zimmer. At the September 16 EAC hearings Mr. Keppler rejected this assessment.

By contrast he concluded that "the real sin" is that when so much of the plant is already in the ground the quality of the work must now be considered indeterminate.

48. CG&E's self-exoneration on specific issues has been as suspect as its overall judgment of QCP results. Since MVPP's August 20 Petition, more objective authorities continue to reject CG&E's QCP conclusions. To illustrate, in his September 14, 1982 congressional testimony Mr. Milan disclosed that QC inspectors at Zimmer had already identified and written Nonconformance Reports on the overpressurized hydrostatic tests. (Supra, at 8-9.) But CG&E's Architect/Engineer Sargent and Lundy had dispositioned the NR "accept-as-is." Mr. Milan and the National Board of Boiler and Pressure Vessel Inspectors Audit Team rejected S&L's action, because the test pressures were nearly twice the maximum permitted by the ASME code. (Attachment 4, at 2-3). CG&E's QCP status reports, by contrast, consistently have found "no problems" with S&L's design and engineering judgments. It is unclear how many erroneous S&L design and engineering judgments compromise the safety of Zimmer. But it is clear that the Quality Confirmation Program will not provide the answer.

49. The NRC findings on the adequacy of audits at Zimmer also contradict CG&E's conclusions. A September 1, 1982 NRC staff report concluded: "Coverage of [all previous Zimmer] audits was not sufficient to verify implementation of program requirements." (September 1, 1982 memorandum from William J.

Dircks to Chairman Palladino, at 16.) By contrast, CG&E's June 30, 1982 QCP status report found that all necessary procedures and criteria had been covered collectively, if not individually, by previous audits. (Id., Attachment II.)

50. These suspect individual conclusions raise questions about CG&E's disposition of NR's already written in the QCP. To illustrate, CG&E has only found that 38 out of 300 voided NR's should be reopened after a second look. (Id., at 13.) CG&E graded itself much more leniently than did the NRC, which last November rejected the decisions to void NR's in 25 out of 26 cases studied. Similarly, out of 257 NR's on cable tray separation, CG&E has dispositioned 158 "accept-as-is" and the other 99 "rework," the most superficial possible options. (Id.) In short, CG&E is enforcing in the field its policy not to accept reality and repair defective workmanship. Under these conditions, the QCP is merely going to repeat history by producing more unreliable paperwork.

51. Even if the QCP results were accurate as far as they went, the program may have missed the lion's share of deficiencies for areas covered. A September 24 affidavit from a former supervisor for QCP weld repairs stated that "only 30-40% of the defects were identified by the original QCP inspectors." The basis for his conclusion was that welds accepted by QCP inspectors "were much worse than the ones we were told to rework."

52. On balance, the Quality Confirmation Program continues to fail as a viable solution to the extraordinary problem that Zimmer represents. As Congressman Udall stated at the September 14 congressional hearings, public confidence cannot be restored "simply because the company itself says we made an investigation and everything is lovely."

F. CG&E Failure to Achieve the Necessary Character and Competence to Operate a Nuclear Power Plant

53. CG&E's sinking public credibility is not only relevant for licensing hearings. It should also be applied to disqualify the utility from further responsibility for the QCP. To illustrate, Mr. Borgman has publicly explained that no one ever warned the top utility management of the consequences of its QA policies. At the September 16 EAC hearings, Mr. Keppler finally put that rationalization to bed when he testified there was no question of CG&E misunderstanding its responsibilities. The NRC met with CG&E officials in 1973 and 1974 to fully explain the utility obligations.

54. Intentional false statements are relevant to a utility's "character and competence." (August 20 Petition, at 113.) This submission has summarized six additional examples of possible intentional falsification to add to the 30 cases disclosed in the August 20 Petition. (Id., at 117.)

55. At the September 14 congressional hearings, Congressman Udall disclosed another six examples suggesting intentional falsification. In each case, the records showed that different

weld procedures achieved the exact same results on stress tests, although the variances in position and the nature of the weld procedures made that outcome virtually impossible. Congressman Udall rejected Group Vice President Donald Iselin's explanation that the inaccuracies were the innocent result of machine error.

56. Finally, evidence submitted to the NRC further supports MVPP's charge that Mr. Sylvia made false statements to the NRC at the June 16 briefing. At the June 16 briefing Mr. Sylvia asserted that IIDR's are only used for problems that do not require an engineering solution. In reality, according to an August 26, 1982 affidavit, "IIDR's are used routinely for deficiencies that require engineering solutions." In sum, the Quality Confirmation Program is only as valuable as CG&E's word. But CG&E has repeatedly devalued its opinions due to deficiencies in character and competence.

III. REQUESTED REMEDY

57. Although the NRC staff has upgraded its regulatory program, the response has been too little and too late. To illustrate, on September 14 and 16 Mr. Keppler announced that the NRC would require an independent audit at Zimmer, but not until CG&E had a better opportunity to define the issues through the QCP. This again reinforces conflict-of-interest, since the NRC program will give CG&E the chance to define the scope of the "independent" review. The third party should establish the scope and effects of the QA breakdown, not CG&E. Further,

the NRC program is not an extraordinary remedy. Rather, it is merely glorified language to describe what is little more than routine NRC policy. At the September 16 hearing Commissioner Asselstine reported that the Commission is now requiring third party audits at most plants near the completion of construction.

58. One of NRC's primary justifications for waiting to bring in a third party is to give CG&E more experience. The NRC needs to gain confidence in CG&E's work, according to Mr. Keppler. This policy is totally inappropriate. CG&E has had a decade to gain experience. The NRC's primary goal now should be to assure completion of a plant that will not threaten public health and safety, rather than to provide CG&E with on-the-job training.

59. The scope of the NRC reform is also inherently flawed. An after-the-fact audit is no substitute for a comprehensive reinspection program. NRC officials repeatedly have emphasized the limitations of their own enforcement program, precisely because it is basically an audit effort. An audit can only catch a small percentage of total defects if the day-to-day decisions were based on the wrong premises, such as cost-cutting and speeded-up production instead of quality. The solution to Zimmer's QA breakdown is to replace CG&E and Kaiser with an independent organization that has nothing to lose by identifying and correcting all illegalities through a comprehensive reinspection.

60. At its best, the NRC audit plan is comparatively inefficient and could further delay opening the plant. If MVPP's charges are only partially accurate and outside auditors discover significant inaccuracies in QCP findings, the NRC program will force CG&E to go back and do the job over a third time. The pattern could continue indefinitely. In terms of cost and delay, the NRC should impose a reform policy that assures the necessary repairs will be properly completed the second time through a QCP removed from CG&E's control. Twice is enough.

61. Before any auditors come in, it is necessary to suspend construction. Mr. Keppler has publicly explained that he chose to let construction continue last April because stopping work would not have accomplished anything beyond punishing the utility. The flaws that underlined last April's decision still apply. First, final solution is premature until the full extent of damage is determined. For example, the NRC conceded at the Udall hearings that last year's backlog of 100 pending allegations has now mushroomed to 300. They are arriving "faster than we can put them to bed," according to Mr. Keppler's public explanations. These pending issues may significantly effect the scope and decisions in the QCP. In short, the problem should be fully identified before choosing a solution. It still isn't.

62. The NRC also should have suspended construction last year in order to break the "business as usual" routine at Zimmer-- an undertrained, intimidated QA staff barely tolerated by con-

struction management. The net effect of the NRC's April 1981 reform was to formalize CG&E control of the QA program and increase the number of inspectors. Now there are simply more QA employees frustrated at their inability to do their jobs. The same philosophy persists as before the April 8, 1981 Immediate Action Letter.

63. Finally, it is difficult to understand why the NRC staff is trying so hard to avoid "punitive" measures at Zimmer. CG&E should be liable for its misconduct the same as private citizens. Stopping work at Zimmer until all the QA violations are identified would contribute more than a comprehensive assessment. This strong sanction could serve as a deterrent for other utilities not to violate the Atomic Energy Act, and for CG&E to stop violating it. Instead, the NRC staff continues to sacrifice accountability by refusing to suspend construction.

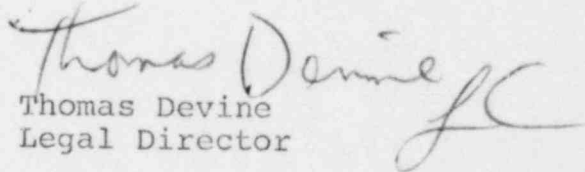
64. The contrast between CG&E's and the NRC's respective positions create a dilemma. If Mr. Borgman is correct and the QCP indeed is 63% complete, there is no need to further delay a third party audit. CG&E has defined the topics for an audit to its own satisfaction. If CG&E is wrong, then after 1.5 years the QCP is still too undeveloped to even frame the issues, the utility has demonstrated its inability to continue running the program. *

*At a minimum the NRC should require a more prompt response to MVPP's August 20 Petition than the current December 3. tentative deadline. That time frame gives the utility almost as long to answer the charges as it took GAP to investigate them. The evidence in the August 20 Petition required an emergency response, not a drawn-out debate.

IV. CONCLUSION

65. At the September 16 EAC hearing Mr. Keppler stated that there is a serious question whether CD&E can complete the Zimmer job properly. To maintain public credibility, the NRC must answer that question before relying on CG&E any further to provide the answers to the alarming questions about Zimmer's safety. For all of the above reasons, MVPP requests that the Commission immediately order the remedies requested in the August 20 Petition.

Respectfully submitted,


Thomas Devine
Legal Director

October 18, 1982

CERTIFICATE OF SERVICE

I hereby certify that the foregoing MVPP's Supplement to MVPP August 20 Petition to Suspend Construction of the Zimmer Station have been served by mailing copies first class postage prepaid, this 18th day of October, 1982.

*Chairman Nunzio J. Palladino U.S. Nuclear Regulatory Commission Washington, DC 20555	Dr. Stanley M. Livingston Administrative Judge 1005 Calle Largo Santa Fe, New Mexico 87501
*Commissioner John F. Ahearne U.S. Nuclear Regulatory Commission Washington, DC 20555	*Chairman, Atomic Safety and Licensing Appeal Board Panel U.S. Nuclear Regulatory Commission Washington, DC 20555
*Commissioner James K. Asselstine U.S. Nuclear Regulatory Commission Washington, DC 20555	*Chairman, Atomic Safety and Licensing Appeal Board Panel U.S. Nuclear Regulatory Commission Washington, DC 20555
*Commissioner Thomas M. Roberts U.S. Nuclear Regulatory Commission Washington, DC 20555	Robert F. Warnick Director, Enforcement and Investigation NRC Region III 799 Roosevelt Road Glen Ellyn, IL 60137
*Commissioner Victor Gilinsky U.S. Nuclear Regulatory Commission Washington, DC 20555	Deborah Faber Webb, Esquire 7967 Alexandria Pike Alexandria, KY 41001
*Leonard Bickwit, Esquire General Counsel U.S. Nuclear Regulatory Commission Washington, DC 20555	Andrew B. Dennison, Esquire Attorney at Law 200 Main Street Batavia, Ohio 45103
*Judge John H. Frye, III Chairman, Atomic Safety and Licensing Board U.S. Nuclear Regulatory Commission Washington, DC 20555	Troy B. Conner, Esquire Conner and Wetterhahn 1747 Pennsylvania Ave. NW Washington, DC 20006
*Charles A. Barth, Esquire Counsel for the NRC Staff Office of the Executive Legal Director U.S. Nuclear Regulatory Commission Washington, DC 20555	John D. Woliver, Esquire Clermont County Community Council Box 181 Batavia, Ohio 45103
Dr. Frank F. Hooper Administrative Judge School of Natural Resources University of Michigan Ann Arbor, Michigan 48109	

*Delivered through NRC internal mails.

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Lynne Bernabei

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
793 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

C.A.E.E.
ATTACHMENT 1

SEP 24 1982

Docket No. 50-358
Construction Permit No. CPPR-88

Cincinnati Gas and Electric
Company
ATTN: Mr. Earl A. Borgmann
Senior Vice President
Engineering Services and
Electric Production
139 East 4th Street
Cincinnati, OH 45201

Gentlemen:

Enclosed for your response is a "Demand for Information" issued pursuant to the Commission's authority under section 182 of the Atomic Energy Act and 10 CFR 50.54(f) of the Commission's regulations. The "Demand for Information" makes reference to and requires a response to certain aspects of the Miami Valley Power Project's Petition to Suspend Construction of the Zimmer Station dated August 20, 1982. It is our understanding that Cincinnati Gas and Electric Company or its representatives have a copy of the petition within its possession. If this understanding is incorrect, we will provide you a copy of the petition. You will note that the petition has been referred to the NRC staff for consideration under 10 CFR 2.206.

A response to the "Demand for Information" is required by December 31, 1982, though an extension of time for response may be requested for good cause. Your response to the "Demand for Information" will be used in determining whether Construction Permit No. CPPR-88 should be modified, suspended, or revoked.

~~8249274296~~

Cincinnati Gas and Electric
Company

2

SEP 24 1982

If you have any questions concerning this matter, please contact
R. F. Warnick (312-932-2500).

Sincerely,

A. Bert Davis

for James G. Keppler
Regional Administrator

Enclosure: Demand for
Information

cc w/encl:

J. R. Schott, Plant Superintendent
DMB/Document Control Desk (RIDS)
Resident Inspector, RIII
Harold W. Kohn, Power Siting
Commission
Citizens Against a Radioactive
Environment
Helen W. Evans, State of Ohio
Robert M. Quillin, Ohio
Department of Health
Thomas Applegate
Thomas Devine, Associate
Director, Institute for
Policy Studies
Dave Martin, Office of
Attorney General
R. DeYoung, IE
S. Richardson, IE (HQ)
S. Burns, ELD
G. Dick, NRR
Troy Conner, Esq.
Louis Clark

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
CINCINNATI GAS & ELECTRIC COMPANY) Docket No. 50-358
) Construction Permit No. CPPR-88
(William H. Zimmer Nuclear)
Power Station))

DEMAND FOR INFORMATION

I

Cincinnati Gas and Electric Company (CG&E) holds Construction Permit No. CPPR-88 which authorizes construction of the William H. Zimmer Nuclear Power Station in Moscow, Ohio. Over the past two years, significant deficiencies have been identified in the quality assurance and quality control program for the Zimmer project. These deficiencies raise serious questions about the adequacy of the constructed Zimmer station. In April 1981, NRC Region III had issued an Immediate Action Letter to confirm CG&E commitments to initiate corrective measures to ensure adherence to quality assurance requirements. CG&E has also developed a Quality Confirmation Program intended to address deficiencies in the quality assurance program and to

~~82-9290303~~

ensure adequate corrective action for construction deficiencies. On the basis of an NRC Region III investigation in 1981, the NRC imposed civil penalties in the amount of \$200,000 for violations of the Commission's quality assurance requirements in 10 CFR Part 50, Appendix B.

II

On August 20, 1982, the Miami Valley Power Project, an intervenor in the Zimmer operating license proceeding that is represented by the Government Accountability Project, filed a petition with the Nuclear Regulatory Commission. The petitioner requests that the Commission immediately suspend construction of the Zimmer station, replace the Quality Confirmation Program with a third-party reinspection program, and require an independent audit of CG&E's and the principal contractor's (Henry J. Kaiser Company) management. The petition has been referred to the Director of the Office of Inspection and Enforcement for appropriate action in accordance with 10 CFR 2.206. The petition contains numerous allegations of quality assurance and construction deficiencies and further alleges that CG&E's Quality Confirmation Program is inadequate to correct such deficiencies.

III

In order for the Commission to determine whether the Zimmer station has been constructed in accordance with applicable requirements and to deter-

mine whether the Zimmer construction permit should be modified, suspended, or revoked, the NRC requires additional information concerning the extent and significance of quality assurance and construction deficiencies at the Zimmer station and the adequacy of CG&E's Quality Confirmation Program.

IV

Accordingly, in order to determine whether Construction Permit No. CPPR-88 should be modified, suspended, or revoked, Cincinnati Gas and Electric Company is hereby required to submit to the Regional Administrator, NRC Region III, the following information in writing and under oath or affirmation pursuant to section 182 of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f) of the Commission's regulations:

- (1) Admit or deny each of the allegations applicable to the licensee's and its principal contractor's or subcontractor's performance contained in Paragraphs 19 through 273 of the Miami Valley Power Project's Petition to Suspend Construction of the Zimmer Station. If the allegations are not admitted, explain the basis for not admitting the allegations;
- (2) Identify the manner in which the Quality Confirmation Program addresses the type of existing or potential quality assurance or construction deficiencies and problems identified in each of the

above allegations. If the Quality Confirmation Program does not address such deficiencies or problems, describe the manner in which CG&E will ensure such deficiencies or problems are corrected;

The information requested above shall be submitted by December 31, 1982. Extension of time for response may be granted for good cause.

FOR THE NUCLEAR REGULATORY COMMISSION

A. Bert Davis

for James G. Keppler
Regional Administrator
NRC Region III

Dated at Glen Ellyn, Illinois
this 24th day of September 1982

INTER-OFFICE MEMORANDUM

ATTACHMENT 2

TO ALL INSPECTION SUPERVISORS
AT Moscow, Ohio

DATE 8-18-82

FROM R. A. Davis

COPIES TO G. Hill All Inspectors
C. Melton
P. Norman
W. Smith
R. Prewitt

AT Moscow, Ohio

JOB NO. 7070

SUBJECT SPECIFIC DIRECTION TO QC INSPECTION

Direction received from the Owner (CG&E), the Engineer (S&L) or HJK (Site Management Committee, Quality Engineering) will be followed to the letter. This direction is given from a level which provides evaluation for all conditions on this project. This direction is not the QC Department's responsibility to question.

- (1) Responses to RFI/E's, DDC's issued by S&L, and specific direction from CG&E or Site Management Committee will be followed by all QC Inspection personnel.
- (2) In the case of a disagreement of the disposition on an NR, ZAPO-5 identifies how this will be handled. In no case, however, will work be stopped because of the disagreement.

RAD/nam

SR

INTER-OFFICE MEMORANDUM

ATTACHMENT 3

TO INSPECTION SUPERVISORS
AT Moscow, Ohio

DATE 8-20-82

FROM R. A. Davis

COPIES TO R. Prewitt All Inspectors
W. Smith N. Vitale
C. Melton
P. Norman
G. Hill

AT Moscow, Ohio

JOB NO. 7070

SUBJECT

Effective immediately, all NRs, CARs, RFI/Es, and Surveillance Reports issued from the Quality Control Department will be reviewed and initialed by the inspection supervisors before being forwarded to any other department for processing.

RD/nm

September 13, 1982

U. S. House of Representatives
Committee on Interior and Insular Affairs
Subcommittee on Energy and Environment

Hearing on Quality Assurance
for
The Zimmer Nuclear Power Station
on
Tuesday, September 14, 1982

Testimony By: Donald M. Milan
Chief Inspector, State of Ohio

Mr. Chairman, and members of the Committee.

It is once again my pleasure and privilege to be permitted to appear before this distinguished committee.

I would like to thank you on behalf of the citizens of Ohio for allowing our views on this vital subject to be expressed at a forum of such a high level.

The reports that I receive on a regular basis from the National Board of Boiler and Pressure Vessel Inspectors, along with my personal visits have lead me to the following conclusions:

1. The work being performed by The National Board of Boiler and Pressure Vessel Inspectors Audit Team is vital to providing the State of Ohio the necessary assurances that the Zimmer Nuclear Power Station is being constructed in a safe manner and in accordance with our laws and regulations.
2. The work being performed by The Nuclear Regulatory Commission Inspectors under the present N.R.C. program appears to be effective and extremely important.
3. I have seen evidence that the N.R.C. and The National Board are working in close cooperation with each other to the mutual benefit of all concerned. I believe it is extremely important that these two organizations work together as they are doing at Zimmer. If we would have had both organizations auditing in close liaison with each other as we now have, the problems we are faced with at this plant could have been averted.

This could have saved the owners of this plant huge amounts of money, time and frustrations. I am of the opinion that The National Board Audit Team activity should be written into the federal Regulations, since it would enhance assurances of safety and compliance with all regulations in each and every Nuclear Power Plant in this great country.

4. One of the problems of the past relates to the number of N.R.C. personnel on site to the number of workmen or craft personnel. Many of these sites have over 2,000 construction workers on site. The size, scope, and magnitude of this activity is such that three or four inspectors regardless of how highly trained or capable they might be, they cannot keep pace with the activity. I hasten to point out that this is no reflection upon the quality or dedication of all N.R.C. personnel, because I can assure you these people are truly professionals performing their duties in a highly commendable manner. There is just a need for more personnel, and we fully comprehend the budgetary restrictions which prevent more inspectors or auditors from being assigned to every nuclear site.
5. At Zimmer, by utilizing a National Board Audit Team, we have increased the number of audit personnel on site from three to six since we presently have three National Board Auditors on site. Whenever you double the number of personnel it only stands to reason that you will have a greater opportunity to achieve the necessary levels of safety.
6. The second Interim Report sent to me by the National Board of Boiler and Pressure Vessel Inspectors identifies many additional violations.

Listed below are a few of these violations listed in the second Interim Report dated July 1, 1982.

2.0 CINCINNATI GAS AND ELECTRIC COMPANY

2.1 The National Board Audit Team in reviewing CG&E generated NCR's, noted that at least two (2) portions of piping systems had been overstressed during hydrostatic tests. Involved were Low Pressure Core Spray (LP) and the Residual Heat Removal (RH) Systems.

2.1.1 The LP piping system involved was 12 inch diameter designed for 475 psi at 202 F and includes lines 1LP17A3, 1LPO2A12 between valves 1E21FO05 and 1E21F309, 1LP14A2, 1LPOSA12 to valve 1E21FO12; lines 1LPO303A3 and 1LPO902 between valves 1E21FO34 and 1E21FO04 and 1LP32AA314, 1LP32AB314, 1LP30A114 and 1LP31A314. The maximum hydrostatic test pressure permissible was 629 psi (475 x 1.25 x 1.060). The actual test

pressure applied was 1200 psi according to a nonconformance report issued (Re: NR-7247 R-1). The system is classified as ASME Section III, Class 2.

2.1.2 The RH piping overstressed was a section of 8 inch diameter piping having a design pressure of 1125 psi at 575 F. The maximum hydrostatic test pressure permissible (based on $DP \times (1.25 \times 1.06)$) was 1490 psi. The actual test pressure applied was 2700 psi according to a Nonconformance Report (Re: NR-7258). The system is classified ASME Section III, Class 2.

2.1.3 The above-referenced NR's (NR-7247, R-1 and NR-7258) were reviewed by the Owner's A.E., Sargent and Lundy Engineers, and dispositioned by the S&L engineer "Accept-As-Is". This disposition was based on the A.E.'s reviewing the yields as shown on the CMTR's for the material used, using the actual thickness of the material as determined by UT and recalculating the design pressure using actual thickness as measured and actual yield strength as indicated on the CMTR's and not using the stress values as listed in Table 1.7.1, Appendix I, ASME Section III. The piping material used in both systems is SA-106 Grade B.

2.1.4 It is the National Board Audit Team's opinion that disposition of the above overpressurization and "Accept-As-Is" is not permitted by the rules of ASME Section III since maximum allowable stress values for material are established in the Appendix I tables; and in NC-3600 the definition of "S" states "the value of "S" shall not exceed that given in Tables 1.7.1, 1.7.2 and 1.7.3".

NATIONAL BOARD FINDINGS

2.3 In the National Board Audit Team's Interim Report No. 1, concern was expressed regarding the scope of the work that was to be performed by Catalytic, Inc. (Item 2.6)

The National Board Audit Team has been advised that Catalytic, Inc. has been assigned by CG&E the implementation of ECR-623, which involves the cutting out and replacing of Code piping installed by Henry J. Kaiser that has not been Code symbol stamped or covered on a N-5 Data Report.

2.3.1 Again the National Board Audit Team is of the opinion that such construction shall be in accordance with Code requirements and shall be acceptable to all parties involved; CG&E (Owner), the Authorized Inspection Agency (A.I.A.), and the State of Ohio.

NATIONAL BOARD FINDING

2.4 A letter dated February 22, 1979, by S. A. Zych and D. D. Crisp of Sargent and Lundy Engineers contains "Notes of Inspection - February 5, 1979, regarding a Steam-Jet Air Ejector Condenser, William H. Zimmer Unit 1".

Apparently this steam jet air ejector condenser failed due to overpressure causing cracks on the shell side to the tube sheet and the pulling of some tubes in the outer two (2) rows of tubes. A reference in the report was made to "poor penetration" (Weld), and the National Board Audit Team became interested in a possible Code violation by the manufacturer of the pressure vessel. In addition, the Team wished to confirm that the vessel was replaced as recommended in the above-referenced "Notes of Inspection".

2.4.1 The National Board Audit Team examined externally the pressure vessel ICDO3AALIA and noted a Westinghouse nameplate with information as follows:

Westinghouse 1-8A 2679-1
Steam Pressure -200
Cooling Water -7600

There was a tag as follows:

HJK
P.O.# CG&E 2043
MR #10247 Received 7/1/74
ID ICD-03AA
Location - Compound

2.4.2 There was no evidence externally on the pressure vessel that it had been constructed and stamped in accordance with the ASME Code (a State of Ohio requirement for pressure vessels designed for 15 or more psi). It was also noted that the pressure vessel had apparently been repaired in the field.

2.4.3 The National Board Audit Team has attempted to obtain documentation from the CG&E vault and the Henry J. Kaiser vault for this pressure vessel and any repairs that have been made to it, and none has been made available to date.

2.4.4 It is the opinion of the National Board Audit Team that documentation shall be presented to the National Board Audit Team assuring the pressure vessel(s) in this condensate system and repairs to pressure vessels in the system are in accordance with the requirements of the State of Ohio.

7. There are many conformance programs in effect to correct these violations at the Zimmer site. The National Board is Monitoring and will continue to monitor these programs.

We are getting good cooperation from the Cincinnati Gas and Electric Company at this time.

8. With a joint effort by the N.R.C. and The National Board of Boiler and Pressure Vessel Inspectors and The Jurisdiction, I believe we can bring this plant into conformance with the code and State of Ohio rules and standards or the equivalent.

By: Donald M. Milam
Boiler Div. Chief, State of Ohio

THE PLAIN DEALER

OHIO'S LARGEST NEWSPAPER ☆

* CLEVELAND, SUNDAY, OCTOBER 3,

1982

Zimmer nuclear plant: an exercise in bungling

By James Lawless

The Zimmer nuclear power station near Cincinnati is the worst nuclear construction project in the Midwest and, perhaps, in the country, in the opinion of federal regulators.

Construction began in 1972 at a projected cost of \$240 million, with a target completion date of 1976.

A decade later, thanks to incompetence on the part of the utility, the builders and the regulators, bureaucratic bungling and endless delay, and after the expenditure of \$1.7 billion, no one knows when, or if, the plant will ever open.

The Cincinnati Gas & Electric Co., which is building the plant at Moscow, O., is redoing 70% of the thousands of structural welds. Nuclear Regulatory Commission officials worry that more such problems may be found, forcing even more reworking of a plant which is supposed to be 95% complete.

CG&E, Columbus & Southern Ohio Electric Co. and Dayton Power & Light are partners in the plant.

The NRC's fear is that mechanical problems could cause the plant to fail during operation, possibly causing a radiation leak.

The construction records at Zimmer are in shambles. Without the proper paper work, there is no way to know the extent of Zimmer's problems, said James G. Keppler, NRC regional director @ Chicago.

The NRC has ordered CG&E to undertake a massive quality confirmation program to re-examine and in some cases reconstruct the records of the project. The work is not nearly done, according to Keppler. Until the records are complete and the safety of the plant assured, Keppler said the plant would not be permitted to start operating.

CG&E and its contractor, Kaiser Engineers Inc., contend most of the problems involve only poor recordkeeping, and that there are few actual construction problems.

Keppler and other NRC officials said there was a lot more than paper work involved, pointing to the improper welds as one example. Keppler last week demanded that CG&E answer several hundred allegations made by one of the principal critics of the project — the Washington-based Government Accountability Project (GAP).

The Plain Dealer examined thousands of records and interviewed scores of people to find out what went wrong at Zimmer.

The following picture emerged:

- CG&E failed to take control of the project and was too tight-fisted with Kaiser. During much of the project, CG&E had only six quality assurance inspectors. Under NRC pressure to prove the safety of the plant, it now has 211.

- The NRC failed to keep close watch

over the project and recognize the problems Keppler said should have been obvious. He said inspectors looked at specific problems while ignoring the more basic issues, and let construction difficulties slide.

- Kaiser Engineers failed to operate a proper quality assurance program, partially because CG&E would not pay for sufficient inspectors.

- Billie Garde, a GAP investigator, argues that CG&E failed to respect the dangers and complexity of nuclear power.

"Every point that should have been a warning was ignored," she said.

Keppler said the utility had the ultimate responsibility for constructing the plant properly, but he admitted NRC failed in its investigations. He said the agency overlooked nine years of evidence that things were going wrong at Zimmer.

"Somebody should have said, 'Here's Cincinnati Gas & Electric, a small utility, never been in this business before, and here's Kaiser who's never constructed a commercial nuclear power plant before,' and that alone should have inspired all kinds of thought," Keppler said. "The symptoms were all there in the records."

Keppler admitted that NRC did not have enough manpower, in effect using one man to review the work of 2,000 workers. Keppler said he was embarrassed that, for several years, NRC did not notice that the utility had only six quality assurance inspectors.

Zimmer called the worst project

■ FROM FIRST PAGE

Quality control problems in the record-keeping were uncovered by NRC inspectors in March 1981, but Keppler opted to allow the project to continue because he said there were no actual construction problems to argue for a shutdown. The resident inspectors wanted the project halted to give them time to get control of the project.

Last November, NRC fined CG&E \$200,000 and ordered the major re-examination of construction practices. NRC described the quality control program as "out of control." The utility also was fined for falsifying quality control documents and for harassing and intimidating quality control workers.

CG&E denied most of these allegations, but paid the fine in February.

The report said workers were doused with water and threatened with bodily harm. When other workers were doused in June, Keppler went to the construction site and raised hell.

The NRC's Office of Inspections and the Justice Department are continuing the investigation of possible criminal violations in the intimidation of quality control inspectors and falsification of records. But the NRC has not provided all of the personnel needed to investigate.

In late August, the Miami Valley Power Project, a Cincinnati anti-nuclear group, asked the NRC to stop construction and reopen safety hearings on the plant.

Even though Keppler, the NRC staff and the Atomic Safety and Licensing Board wanted the hearings reopened, the commission refused.

Thomas Devine, a lawyer for GAP, which represents the anti-nuclear group, said he was concerned that if the hearings were not reopened the full story of Zimmer's problems would not be uncovered.

"Before NRC reforms in 1981, the utility and its contractor were ignoring the problems at Zimmer; now they are actively covering them up," he said.

Whatever weaknesses existed within the NRC inspection programs, the more central issue is why CG&E did not find the problems.

Earl A. Borgmann, CG&E senior vice president, said the company relied too heavily on Kaiser to assure the quality of the construction work. He said CG&E would take direct control over construction, if it were building Zimmer again.

Borgmann argued the plant was safe and that the massive quality confirmation program, ordered by NRC, was primarily one of rebuilding the paper trail which proves how the plant was built.

Borgmann said CG&E had been forced to spend hundreds of millions of dollars on design and construction changes ordered by NRC.

Critics have said that CG&E constantly interfered with the quality assurance program by refusing to allow Kaiser to hire people needed to do the work and by interfering with inspection procedures.

Kaiser's internal memos, and correspondence between Kaiser and CG&E in 1974 and 1975, show CG&E holding a tight fist

over Kaiser's quality assurance program.

In Oct. 14, 1974, William J. Friedrich, Kaiser's quality assurance manager, wrote to CG&E: "It is becoming virtually impossible to continue working in all areas with the present staff."

But CG&E President W.H. Diekhoner refused to allow Kaiser to hire additional quality assurance staff.

Dorwin R. Hunter, who heads the NRC re-examination program, said, "Quality assurance is cheap up front, but very expensive after the fact."

Hunter said, "They screwed up horribly." He said many reports which identified construction mistakes were missing, some were "whited out" and others were just never issued.

Hunter ticked off a series of mechanical and paper work problems that had been found:

- Structural beams and the welds connecting them. Hunter said CG&E had chosen to rework about 70% of these, rather than contest their potential faults. He said about 8,000 deficiencies had been discovered.

- Piping and welds involved throughout the plant. Hunter said that while only 40% of this re-examination had been completed, there were wide-ranging problems of documentation. Inspectors have not been able to establish where materials came from, whether the right materials were installed and whether they were installed properly.



An aerial view of the Zimmer nuclear plant.

• Welder qualifications. Among the 450 welders working at Zimmer now, 100 were found not qualified by NRC standards and had to be retested. Four of them could not pass the tests. Other welders who have left the site will also have to be rechecked. It is possible their work will have to be redone.

• Records of 1,700 work or procedural problems were voided. This was reported to be one of the major abuses of written records at Zimmer. Hunter said he had found the problems reflected in some of these reports still had not been corrected.

Beyond NRC, inspectors from the National Board of Boiler and Pressure Vessel are checking violations of state and national standards. Violations range from welding on the containment vessel to problems in the steam ejector, which must be replaced.

Victor Griffin, a former quality assurance worker, said the problems at Zimmer developed because of CG&E's arrogance and ignorance.

"They were not stupid, but ignorant of critical areas and wouldn't listen to anyone else," he said.

Critics of Zimmer, including Rep. Morris K. Udall, D-Ariz., have questioned whether CG&E could be trusted to re-examine problems it ignored in the past. Keppler said he would order an independent audit to check CG&E's work.

Are there other Zimmers around the country, and does the NRC have the manpower to find them?

John R. Sinclair, another NRC inspector, said problems at Zimmer were similar to those found at another plant in Bay City, Mich.

Keppler said, "We should be applying more manpower at sites under construction. As a result of Zimmer, we have used two inspection teams to look for fundamental problems. We have found serious problems at Clinton (Ill.). Clinton has been shut down for about six months."

"There probably are some other Zimmers out there," he said.

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Believing

'No-shot' campaigners cite many reasons for running

By ANDREW ALEXANDER
Staff Writer

WASHINGTON — As he guides his wheezing auto down lonesome country roads from endless county fairs to countless union halls, he looks for all the world like a mixture of Don Quixote and Willy Loman in search of the impausible dream.

He is John W. Griffin, sometime farmer, full-time candidate. He is the loser — by landslide — of three consecutive congressional elections. And he is running again.

But there is something different this time.

Gone is the peculiar Lincolnian stovepipe hat. Shorn is the long black hair and beard

that gave him the appearance of a crazed Bolshevik.

This is the new John W. Griffin, self-assured and confident. He can fairly taste victory over 8th District Rep. Thomas H. Kiousis, even though the four-term Hamilton Republican has twice thrashed Griffin by 2-to-1 margins.

"I think I've got a better chance this time than I've ever had before," said Griffin, 55, of Miamiburg.

FOR THOSE WHO do not follow the intrigue of 8th Congressional District campaigns, until this past week Griffin's chief political adviser was Harold J. Wright, also known as "Brother James."

The one-time host of a local religious television show, Brother James has more recently come to public attention by pleading guilty in 1980 to fraudulently obtaining federal job training funds and for a conspiracy and embezzlement conviction that same year in connection with \$44,000 worth of blankets for the Montgomery County Community Action Agency. He was released from prison after serving 10 months.

"I think John can win it," Brother James said recently, although he hastened to emphasize: "I'm not talking about a landslide victory."

But this week he unexpectedly bowed out of the campaign, fearing publication of his

criminal record might hurt Griffin's "good chance."

Griffin agreed his chances are good: "I really believe, in politics, you can win if you're in the right place at the right time. There are those who doubt I can do it, I know."

There are also those who think John Griffin has a reality problem.

FOR IN THIS sophisticated political age when money is king and incumbents are hard to dethrone, a virtually penniless candidate like John Griffin isn't even a long shot — he's a no shot.

See PERENNIAL, Page 17-A.



John Griffin, candidate for congress

Errors haunting Zimmer

The William H. Zimmer Nuclear Power Plant, like similar plants elsewhere around the country, today is plagued by construction flaws, cost overruns and delays. Staff writers Wes Hills and Darwin Sator spent more than a month examining thousands of pages of documents and conducting numerous interviews to find out what went wrong and what it will mean for consumers. Today's stories are the first in a series.

By WES HILLS
and DARWIN SATOR
Staff Writers

The year was 1969, and a Wapakoneta man named Neil A. Armstrong had just taken the historic first giant step for mankind on the moon. America's technological capabilities seemed limitless.



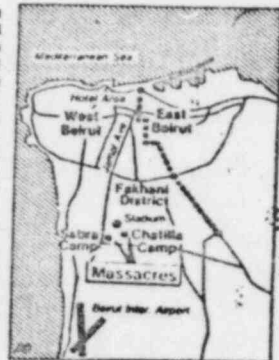
World leaders express outrage over massacre

BEIRUT, Lebanon (AP) — Christian militiamen raided the Chatilla and Sabra Palestinian refugee camps in west Beirut, killing men, women and children in a massacre that began Friday and lasted until early Saturday.

The International Red Cross in Geneva said hundreds of women, children, adolescents and old men were killed, while the Palestine Liberation Organization asserted the death toll was in the thousands.

The Israeli Foreign Ministry said the Chatilla attack was carried out by gunmen loyal to the Phalange Party of President-elect Bashir Gemayel, slain Tuesday in a bomb attack. It said Israeli troops fired on the marauders and used "all possible means and measures" to stop the killing.

But the PLO blamed Israel for the massacres and appealed for international intervention. It claimed the militiamen slaughtered "every man



Eye witness

He switched

Homeowner saw future clearly, got woodburner

By WES HILLS
Staff Writer

Weak Energy Neuhard's electric bills soared to more than \$300 a month two years ago, he did what an estimated nearly 5 million other Americans have done.

He bought a woodburning stove to heat his home.

Neuhard, 60, of 515 Little York Rd., said the monthly bills in his all-electric home now run about \$50 a month and are lowest in the winter when he also cooks on his \$500 woodburner.

Neuhard is an example of measures taken by many people in the Island Valley to cope with soaring energy costs.

HE ALSO DEMONSTRATES one reason why Dayton Power and Light Co.'s forecasts in the 1960s that the area's electrical demand would double in the 1970s were too optimistic. Those forecasts were a

major reason behind DP&L's decision in 1966 to join with two other Ohio utilities in building the William H. Zimmer Nuclear Power Plant.

Controlling energy costs has been a life-time battle for Neuhard, who said he began chopping wood for his parents in Pennsylvania when he was only 8 years old.

When he purchased his 1½-story, three-bedroom home here 27 years ago, Neuhard said he first heated it with an oil furnace. But about nine years ago, when DP&L was still aggressively promoting cheap and clean electric heating, Neuhard switched.

DP&L'S PROMISES only proved to be half right, Neuhard said. Electric heat was clean, but hardly inexpensive. Within seven years, he said his monthly winter electric bills soared from about \$150 to \$300.

"I couldn't reach that \$300," he said. "So I just decided to buy a stove."

"It's dirty," Neuhard acknowledged of his woodburner. "It's not clean like electric and you have a lot of work cleaning out ashes."

Neuhard said he obtains the 15 cords of wood he burns each winter from neighbors "getting rid of trees" and a relative with a woodlot. He said his grandson cuts and splits the wood.

"If THEY (DP&L) wouldn't have jumped things (rates) so high, I wouldn't have switched to wood," he said.

Neuhard estimated that it took less than three months for him to recover his investment in his woodburner through lower utility bills. Unlike many DP&L customers who have turned down their thermostats to a shivering 65 degrees in the daytime and 55 degrees at night, Neuhard said he kept his home at a warm 80 degrees last winter.



DP&L bill showed Neuhard wisdom of heating with wood.

Errors from early in construction haunt Zimmer

Continued from Page 1-A.

were fined \$200,000 by the federal Nuclear Regulatory Commission for a "widespread breakdown in the Zimmer quality-assurance program." Investigators found numerous, serious construction flaws in some of the plant's safety systems.

Some critics of the plant argue it should never be allowed to operate because of potential safety problems.

AN EXTENSIVE review of the Zimmer project by Dayton Newspapers found that many of the plant's problems today are a result of mistakes and miscalculations by CG&E and the NRC dating back to the early 1970s.

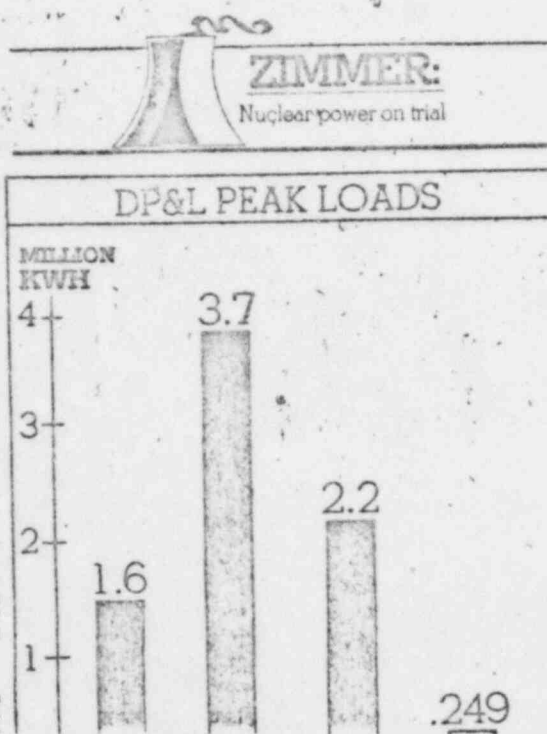
The problems were magnified by soaring inflation in construction costs and tighter federal regulations, especially following the nation's worst nuclear plant accident in March 1979 at the Three Mile Island Nuclear Power Plant in Pennsylvania.

Consumers already reeling from rapidly escalating electric rate increases will be paying for decades for what went wrong at Zimmer.

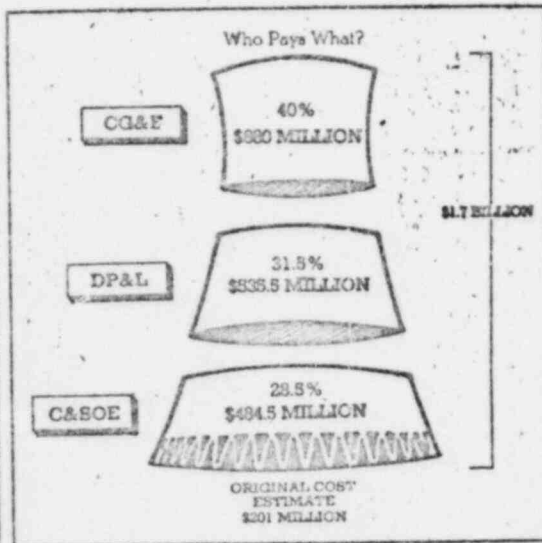
Dayton Newspapers examined thousands of pages of NRC and other records and conducted interviews in Washington, Chicago, Cincinnati and other locations to reconstruct what happened.

AMONG THE findings:

• Eager to complete the plant as quickly as possible, contractors let-



249



percent review of the work at the plant.

Perhaps more significant than the re-inspection program, however, are contentions by GAP and other critics that the plant can't be repaired because of the missing documentation problem.

"Beams, bolts, welds and piping

out an inspector to examine the plant only once every three or four months.

KEPPLER SAID the NRC initially relied too much on the good faith of the utility companies at nuclear power plant sites, despite early warnings of problems.

"There were symptoms there to tell us of a bigger problem ... but we just didn't recognize, not only at Zimmer,

DP&L President Robert E. Frazer disagreed with the inspector's claim that the Zimmer plant was a "Ford" and not a "Cadillac."

"I THINK WE'RE building a Cadillac worker, with dual thickness and dual redundancy (backup systems) in everything," Frazer said.

Frazer insisted the plant "could have, not gone on line" in 1979 and "operating safely."

NRC reports suggest otherwise: In October 1980, a design flaw in the heat-exchanger control panel allowed an operator to force 1,200 pounds of pressure through piping meant to handle only 300 pounds, ripping the pipe and soaking electricians with water. The water would have been radioactive had the plant been in operation, the NRC reported.

As a consequence of the NRC's findings, CG&E was fined \$50,000 for falsified quality-assurance records, \$50,000 for harassment and intimidation of inspectors and \$100,000 for failure to adequately oversee the quality-assurance program.

CG&E, DP&L AND the Columbus and Southern Ohio Electric Co. did not formally contest the fine.

Frazer said it was simply not in the interest of DP&L and the other utilities to fight the fine.

"You have to sometimes say, 'Well, OK, NRC, we are not going to contest that. Let's get together and solve the problems you've got and let's get the thing operating,'" Frazer said.

The fine was small compared to the costs associated with the re-inspection,

happened.

AMONG THE FINDINGS:

• Earlier to complete the plant as quickly as possible, contractors initially discouraged quality-control inspectors from vigorously enforcing strict federal construction guidelines, according to NRC investigative documents.

• The NRC and CG&E failed repeatedly to adequately respond to early warnings of construction problems. As early as 1974, CG&E rejected requests for improvements in the quality-assurance staff at the plant, NRC documents indicate.

• Last year, after an investigation finally was undertaken, several NRC investigators argued that construction problems at the plant were so serious that it should be shut down. Instead, the NRC decided to fine the company and require a major re-inspection and repair program that is still under way.

• Despite the re-inspection program, there remain questions whether all the defects at Zimmer can be located and repaired, according to James G. Keppler, director of the NRC Region III office.

• When Zimmer finally goes into operation, DP&L's 31.5-percent share will increase the utility's rate base — the value of electric generating and distribution equipment used in calculating future electric bills — by more than half.

• Ongoing investigations and hearings before congressional committees could further delay the plant's operation and add more millions of dollars to its cost.

• Even if present cost estimates are accurate, the average DP&L residential customer will pay at least an additional \$128.12 each year for 33 years — Zimmer's expected lifespan — for construction of the plant. That doesn't include the cost of running the plant.

These findings will be discussed in this and subsequent articles.

Zimmer has appeared ready to go into operation for nearly four years.

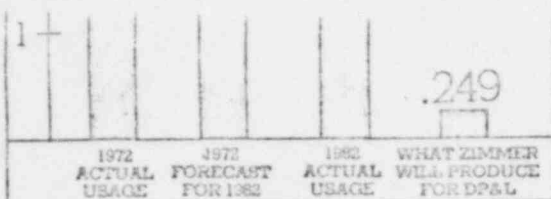
Its 50-story cooling tower is in place, as are virtually all other components. The nuclear fuel is ready to be loaded.

Yet more than 1,800 construction workers and 480 inspectors report daily to the plant. Zimmer isn't expected to begin commercial operation before 1984.

ZIMMER'S ESTIMATED cost soared from \$201 million in 1969 to \$1.7 billion today. CG&E has stated that each month it is delayed adds \$15 million to its cost.

If the \$1.7 billion cost estimate holds, DP&L's 31.5-percent share of Zimmer will cost \$535.5 million, compared to the original estimate of \$66.1 million.

A bigger question than cost, however, may be when the plant can begin producing power — or if it can be used at all — in light of the quality-assurance breakdown the NRC found



during its construction.

"If there's any hope that facility will operate someday, the NRC is going to have to be convinced... that the plant has been built properly," said Keppler.

MANY NUCLEAR power plants around the country have faced problems, including a damage failure at the Davis-Besse plant near Port Clinton, Ohio, in 1977 and a 1975 fire in the Brown's Ferry, Ala., plant.

But Zimmer is the most troubled nuclear plant now under construction, Keppler said. "I can't compare it, say, with what's going on at Three Mile Island, but certainly, for a construction site, that's going to be true."

At the Zimmer plant, the NRC reported defective welds, wiring and other deficiencies still must be repaired.

Potentially much more serious are hundreds of missing nonconformance reports — reports that were written over the years by quality-control inspectors alleging defects in some safety-related systems in the plant.

A 1981 REPORT of the NRC's ongoing investigation at the Zimmer plant found some such reports were improperly voided while others were falsified. Some other records were stolen, the report said.

The shoddy construction work and missing documents were considered so serious by Keppler's 13-member investigation team headed by Robert F. Warnick that many of them pressed to have construction at the plant stopped in March 1981.

"We had a meeting right after they came back and it (stopping construction) certainly was the initial feeling of Mr. Warnick, who was heading the (investigation) team, and it was the view of many of the members," Keppler said.

Keppler said he felt shutting down the plant would be too harsh.

KEPPLER SAID he met with CG&E Senior Vice President Earl A. Borgmann on March 31, 1981, four days after his investigative team called for Zimmer to be shut down. CG&E was ordered to undertake the largest re-inspection program in the NRC's history.

The Government Accountability Project — a non-profit, watchdog group based in Washington — has charged that the NRC covered up some of its most critical findings at Zimmer. GAP also suggested the decision to permit construction to continue was part of a deal between Keppler and CG&E.

Keppler denied GAP's allegations.

"We said to ourselves, should we stop the job or should we let it go on?" Keppler said.

THE INVESTIGATION was incomplete, he said, and the full extent of construction problems wasn't known.

"We decided that at this point in time... it would be a punitive matter to shut the plant down."

Also, Keppler said, "If you shut it down prematurely, you would have lost a valuable source of your workers who might not be inclined to come back on the job that was that far along."

Warnick agreed. He said he and his investigative team was in full accord with the re-inspection program.

"When we went into the meeting with Borgmann, we knew what we wanted to lay on him and we did," Warnick said.

The re-inspection program and subsequent \$200,000 fine levied against CG&E "were two of the toughest actions ever against any licensee in the whole country," Warnick said.

BORGSMANN SAID CG&E itself proposed a re-inspection program to the NRC, but it was not of the broad scope ordered by Keppler.

"We recommended one of a scope... where we didn't go and look at every particular item," Borgmann said. "We ended up having to go to a 100-percent sampling in certain areas."

This 100-percent re-inspection was recently reduced by the NRC to a 50-

percent re-inspection at nuclear power plant sites, despite early warnings of problems.

"There were symptoms there to tell us of a bigger problem... but we just didn't recognize, not only at Zimmer, but at other facilities, that there was a message there, that we were seeing implications from a bigger problem and we were just not broadening our look at it," Keppler said.

Terry Harpster, an NRC inspector assigned to the Zimmer site from 1977 to 1979, told NRC investigators in 1981 about how he had repeatedly tried to resolve quality-control problems at the plant, "but with no luck."

"ZIMMER WAS out of control," Harpster said in a report to the NRC. He said the NRC's requirements were a "joke."

He cited the pressure quality-control personnel were under to approve work at the plant.

"To stop construction for any deficiencies, he (an inspector) would have to hold up many phases of the construction of a \$1 billion plant, so the QC inspectors so what they are told," he said.

Harpster estimated that the interest cost alone in holding up construction of a nuclear plant for one day could be several hundred thousand dollars.

He also noted that a utility can't begin to recover that cost until a plant is 75-percent complete.

Harpster's contentions regarding the rush to build Zimmer are echoed in a sworn statement provided to the NRC by Dennis Donovan, an inspector at the Zimmer site.

"We are here to get this plant built," Donovan said he was told by a quality-control manager at the plant when Donovan expressed concern over a lack of support of the inspection program. "We are not building a Cadillac, we are building a Ford. Don't be nit-picking in your inspections."

Borgmann denied that quality was sacrificed to get the plant quickly into the rate base or to avoid increasing costs.

"We did not consciously rush to shortcut any quality or any criteria," Borgmann said.

GAP RECENTLY charged that the omission of Harpster's allegations from a 1981 NRC report citing the inadequacy of an earlier commission investigation is evidence of efforts to conceal damaging information about the plant.

James Cummings, director of the NRC's Office of Inspector and Auditor that reported on the earlier, inadequate investigation, angrily denied GAP's allegation.

Cummings said Harpster's allegations are part of an ongoing investigation at Zimmer by the newly created NRC Office of Investigation in Washington.

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OK, NRC, we are not going to contest that. Let's get together and solve any problems you've got and let's get the thing operating," Frazer said.

The fine was small compared to the costs associated with the re-inspection program ordered by the NRC.

The order, in effect, boosted the quality-assurance staff at the site from about 80 to about 480 — earning \$25,000 to \$45,000 a year, according to the rate-increase-request testimony before the Public Utilities Commission of Ohio.

They are re-inspecting old work overseeing new construction and searching for lost paperwork at the site.

THE NUMBER OF NRC INSPECTORS at the site was increased from one to eight. Among the inspectors are five who are checking into some 300 allegations of unresolved quality-control problems, including serious issues that could affect the safety of the plant.

Keppler said he also "fully intend to utilize" a third-party, independent audit by a qualified company not associated with either the contractor or CG&E to re-inspect work at the plant.

While paperwork may be the root of many of the problems at Zimmer, the problems are certainly not limited to paperwork.

Frederick Christianon, the senior resident inspector for NRC at Zimmer, tells of breaking through 20 feet of concrete and dirt to repair a pipe weld at the plant.

IN A JULY 18 report to Rep. Morris K. Udall, D-Ariz., chairman of the House subcommittee on energy and environment, the NRC reported hundreds of deficiencies in the plant's hardware.

For example, of 250 connections in electrical cable trays inspected, 181 of NRC reported "253 of those connections were nonconforming in some manner."

Similarly, hundreds of other deficiencies were found in the plant's steel beams, welds and other items.

"The bottom line here," Udall recently said, "is that a massive quality-assurance breakdown has occurred at Zimmer."

It now appears it will take longer to complete the remaining 5 percent of the construction at Zimmer (1979 to 1984) than it was supposed to have taken to build the entire plant (1972 to 1975).

CG&E predicted the re-inspection program will be completed in December.

Threatening further delays are ongoing FBI and NRC investigations, as well as further public hearings before the NRC, congressional committees and others.

Frazer dismissed any suggestion that Zimmer, like Three Mile Island, could pose a safety risk.

"As far as I'm concerned, that's ridiculous," he said. "Because of the quality-assurance program, it is probably the best-built plant in the nation."