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WM. H. ZIMMER NUCLEAR POWER STATION

UNIT 1

NRC/REGION III DISCUSSIONS

APRIL 10, 1981

DRAFT

B506110610 B50117  
PDR FOIA  
BAUSER84-415 PDR

ZIMMER

February 19, 1981

I was called by Mr. Applegate today concerning the investigation at Zimmer. Refer to telephone log for specifics of the conversation.

April 10, 1981

Met with Borgman etc. plus VP of Kaiser. They presented actions to resolve Applegate etc. investigation findings. For two weeks preparation time, they gave a comprehensive plan for action (cc in file). They will revise it based on our comments (a working session may be needed) and then we will likely issue a confirming order.

AREAS OF CONCERN  
FOR  
WM. H. ZIMMER NUCLEAR POWER STATION  
INVESTIGATION

PROGRAMMATIC MEASURES FOR  
CONFIRMING QUALITY OF COMPLETED WORK

Problem: The following programmatic measures will be taken with regard to each of the identified problem areas:

- CG & E + Partners  
to do work.*
- a. A program will be established to define the potential scope of each problem area. The scope shall include but not be limited to identifying, structures, components, materials, the affected organizations and disciplines, the organizations responsible, and the responsibilities of the affected organizations and disciplines. The program shall explicitly identify and distinguish the completed (past) activities and the incomplete (present and future) activities.
  - b. A program will be established to define the causes of each problem. This program will consider organization, QA program, design control, traceability of materials, welding controls, control of nonconformances, corrective action, and audits.

Case: The quality concerns identified by the NRC involve a variety of structures, components, systems and organizations. An overall review to evaluate their significance is appropriate.

Corrective Action: Plant walkdown and inspections are being conducted to address the structural steel, piping and electrical items identified by the NRC. The results of these walkdowns are being monitored to scope and prioritize potential problem areas.

Since such walkdowns by necessity, are limited to accessible areas and deviations which can be visually identified additional efforts are also being implemented. These efforts fall into three basic categories 1) Procedure Review 2) Documentation Review 3) Corrective Actions.

1. Procedure Review

As detailed elsewhere a review of all QC inspection procedures is being conducted by both Design and Q/A personnel. This review will address all of the areas of concern identified by the NRC as well as various Code, Standard and FSAR requirements. No construction work will proceed until the controlling procedure has been reviewed, revised as necessary and personnel have been retrained.

Construction procedures covering deviation from design documents and non-conformances are also being reviewed. Again personnel will be retrained if changes are identified.



Corrective Action: 1. Procedure Review (Continued)

Design procedures are also being reviewed to assure that all appropriate codes, standards and FSAR statements are addressed. Design control procedures are also being revised to assure any deviations are identified, CG&E is involved in approving the resolution and that such approved deviations are documented in the FSAR.

We believe the above will greatly improve project performance and will assure full compliance on all future work.

To help scope and identify any problems which may have occurred in the past, we will be also reviewing prior revisions of procedures. This review will help identify potential deviations which might have occurred during the time period when that revision was in effect. This will help focus on areas of greatest potential for deviations.

2. Documentation Review:

In conjunction with the above review of procedures which control or controlled the design, construction and inspection of the work, an audit of the QA/QC documentation will be conducted. This documentation audit will help establish the extent of potential deviations from codes, standards and FSAR statements. Typical documentation audits would include cable pull records, hydrotest records, and radiographs.

Records of work performed both at site or in vendor shops will be audited as required.

3. Corrective Actions

If the above procedure and record review identifies potential deviations to Codes, Standards or FSAR statements which cannot be justified, physical testing, requalification, or replacement will be used to assure compliance.

Testing might involve various NDT methods or selective destructive testing of coupons removed from potentially deviant areas.

Requalification might involve testing prototypes or if many duplicates are installed in the plant a test unit might be removed and tested.

In addition to the above efforts the Q/C inspectors will be advised, as part of their re-training, to bring concerns directly to the CG&E management whenever they feel such action is appropriate. CG&E management will see that any such concerns are investigated promptly and that corrective measure are taken.

In all the above efforts CG&E staff and management as well as the staff and management of all other involved organizations are being alerted to look for repeat items which might typify a generic problem.

INSPECTION REPORT #1 - BRISTOL STRUCTURAL BEAM WELDS

PROBLEM: Apparent lack of an adequate QA program covering field welding by Bristol resulting in some unacceptable structural welds.

CASE: Inspection of Bristol structural beam welds in the 546' elevation of the Auxiliary Building, Cable Spreading Room, and RHR Heat Exchanger Room revealed that several field welds are unacceptable to AWS weld inspection criteria.

CORRECTIVE ACTION: Inspections of all accessible, essential field welds will be performed to ensure compliance with applicable codes. Those welds found to be unacceptable will be documented and repaired as required. Documentation on the balance of field work will be reviewed for validation. If there are problems with the documentation, sufficient inspections will be made to ensure a satisfactory level of confidence for the service involved.

*Was right weld metal used?  
Look at non-essential welds which could influence a SR system.  
Must convince us only Bristol is involved.  
Only field welds are of concern.*

INSPECTION REPORT #2: LACK OF BRISTOL QUALITY ASSURANCE PROGRAM

PROBLEM: The Quality Assurance Program required only inspection by a non-QC person.

CASE: Structural welds did not receive adequate independent inspection.

Bristol Steel & Iron was responsible for furnishing, fabricating, delivering, and erecting structural steel at the Zimmer Site. Bristol Steel & Iron (BS&I) was relieved of their responsibility for erecting structural steel in some areas of the project; i.e., drywell and SWPS, because of scheduling conflicts with Henry J. Kaiser Company. In these areas, Henry J. Kaiser Company erected the structural steel.

BS&I had their own Quality Assurance Program for field erection and shop fabrication work. The "Erection Quality Control" section of their Quality Assurance Manual sums up the areas of responsibility of their field QC work:

- . Unloading Inspection
- . Verify anchor bolt location
- . Verifying proper location of erected materials
- . Verifying proper erection practice is followed
- . Verifying that high-strength bolting is performed to AISC's "turn of the nut" method
- . Performing visual inspection of welds
- . Reporting nonconforming items to proper authorities.

Bristol Steel had a Project Manager or Superintendent who handled both the bridge erection for I-471 and the

INSPECTION REPORT #2: LACK OF BRISTOL QUALITY ASSURANCE PROGRAM  
(Cont'd) Page #2

CASE: Zimmer Project concurrently. Approximately 60%  
(Cont'd) of his time was spent at the Zimmer Project. Another individual was designated as responsible for QC activities acted as Superintendent in absence of the Superintendent.

Reports were prepared by Bristol Steel as the job progressed which indicate that visual inspection of applicable welds was performed for those welds included in the area covered by the report.

Henry J. Kaiser Company was delegated responsibility for conduct of audits and assurance that quality requirements for structural steel were acceptable. It appears that the Bristol reports are inadequate and insufficient independent weld inspection was performed.

Henry J. Kaiser Quality Assurance inspectors were responsible for all bolting inspection of structural steel erected by both Henry J. Kaiser Company and Bristol Steel & Iron. The requirement for bolting inspection is specified in Henry J. Kaiser QACMI C-11 and the results of the bolting inspection is documented on the "Daily Bolting Inspection Report" from the BS&I erected work.

The implementation of the shop QA/QC fabrication program was verified by CG&E audits. There are no apparent deficiencies in the total program other than in structural welding.

CORRECTIVE ACTION:

See Inspection Report #1 - Bristol Structural Beam Welds.

INSPECTION REPORT #3a & b: MATERIAL TRACEABILITY - BEAMS IN REACTOR  
AND AUXILIARY BUILDING

PROBLEM: Several hundred feet of beams have been received from an unapproved vendor, and cannot be accounted for as to where installed or other disposition.

CASE: H. J. Kaiser purchased W8X17 beams from a non-approved vendor. These beams were placed in essential steel stock on the basis that they were supplied with valid mill certificates by the vendor at time of purchase.

CORRECTIVE ACTION:

An investigation will be made of the unapproved supplier of the structural beams. An evaluation will be made to determine the credibility of the mill certifications from the unapproved supplier and/or the supplier's supplier.

*How do you know Bristol is an isolated case, in light that Kaiser QC audit missed this problem?*

*Looking at material  $\pm$  fabrication of the beams*



PROPOSED AGENDA  
FOR MEETING  
FRIDAY, APRIL 10, 1981

1. Opening Remarks by Mr. Keppler.
2. Discuss Program for Confirming Quality of Completed Work. CG&E to Provide Specific Plan for Accomplishing This.
3. Discuss Immediate Action Letter (Both by NRC and CG&E). CG&E to Provide Approach and Plans for Implementation.
4. Concluding Remarks by Mr. Keppler.

INSPECTION REPORT #3c & d: LACK OF TRACEABILITY OF MATERIALS

PROBLEM: Traceability of heat numbers on small bore piping for the diesel generators.

CASE: A review of the documentation of the small bore piping in the diesel generator system followed by a walkdown of the piping revealed some lack of traceability in accordance with ASME Code requirements.

CORRECTIVE ACTION:

Reinspect the diesel generator small bore piping and take corrective action where traceability is found deficient. With regards to the other small bore piping systems, a comparison of documentation to the actual field installation will be made on representative systems. If a satisfactory level of traceability - and confidence level is indicated, the review of the balance of the small bore systems would be confined to an audit of document verification.

*D/G went thru all 4 levels of review.*



INSPECTION REPORT #3e: LACK OF TRACEABILITY

PROBLEM: Weld rod heat numbers, because heat numbers are being transferred to KEI-1 form from KEI-2 by individuals other than QC inspector who inspected the welds.

CASE: Investigation confirmed that the transfer of information was occurring on the documents performed by inappropriate personnel.

CORRECTIVE ACTION:

Henry J. Kaiser Company has been directed to stop any additional alterations of KEI-1 forms. Reference attached April 2 letter from Borgmann to Gittings on this subject.

*were there other records besides KE1 + KE2 which were changed?*

RE: INSPECTION REPORT - ITEM 3e.

THE CINCINNATI GAS & ELECTRIC COMPANY



April 2, 1981  
KEF-642

E. A. BORGMANN  
SENIOR VICE PRESIDENT

Henry J. Kaiser Company  
P.O. Box 201  
Moscow, Ohio 45153

ATTENTION: Mr. P. S. Gittings  
Site Quality Assurance Manager

RE: Wm. H. Zimmer Nuclear Power Station  
Unit 1 - Alterations to Quality Records  
W.O. 57300, Job E-5590

Gentlemen:

As a result of the Nuclear Regulatory Commission's concerns expressed in the exit meeting held at the site on Friday, March 26, 1981, you are requested to implement the following directions:

1. Absolutely no additional KEI-1 forms or any other reports or for any other reasons will be made to correct the alterations or for any other reasons.
2. Absolutely no alterations nonconformance reports. All alterations will be documented on separate reports which can be attached to the original records at the site for review by NRC personnel.

Please contact me personally if you have any questions regarding this matter.

Commission's concerns expressed Friday, March 26, 1981, you are requested to implement the following directions:

Directions will be made to correct the alterations or for any other reasons.

All alterations will be documented on separate reports which can be attached to the original records at the site for review by NRC personnel.

any questions regarding this matter.

Sincerely yours,

CINCINNATI GAS & ELECTRIC COMPANY

E. A. Borgmann  
Senior Vice President

EAB:dw

cc: W. W. Schwiers  
J. P. Coyle  
B. K. Culver  
W. D. Waymire

INSPECTION REPORT #4: SURVEILLANCE REPORTS NOT BEING CONVERTED  
TO NON-CONFORMANCE REPORTS IN 30 DAYS

This item is covered under Item 9 of the Immediate  
Action Letter.

RE: INSPECTION PORT #5

THE CINCINNATI GAS & ELECTRIC COMPANY



April 3, 1981  
KEQ-550

Henry J. Kaiser Company  
P. O. Box 201  
Moscow, Ohio 45153

Attention: Mr. P. S. Gittings

RE: WM. H. ZIMMER NUCLEAR POWER STATION  
UNIT I - WELD INSPECTION - W.O. #  
57300-957, JOB E-5590

Gentlemen:

Effective immediately, all welds requiring visual inspection shall be inspected prior to covering with Galvanox or other applicable paints. To accomplish this, hold points must be established to assure that these required inspections are completed. If the weld inspection has not been completed and the component is painted, it shall require removal of the paint prior to conduct of the visual inspection and QC inspection documentation.

By copy of this letter, Maldinger-Young & Bertke is requested to comply with the above project requirements.

If you have any questions regarding the above, please call.

Very truly yours,

THE CINCINNATI GAS & ELECTRIC COMPANY

By   
W. W. SCHIERS  
MANAGER, QUALITY ASSURANCE

WWS:pa  
cc: Henry J. Kaiser Company  
Attn: R. Marshall  
Maldinger-Young & Bertke  
Attn: D. Martin  
S. C. Swain

INSPECTION REPORT #6: UNACCEPTABLE TECHNIQUE FOR RADIOGRAPHS  
OF PREFABRICATED PIPE WELDS

PROBLEM: Radiograph technique was inadequate on 25% of the prefab welds that NRC Inspector reviewed (approximately 180 of 600). The penetrometers were not adequately shimmed.

CASE: Region III reviewed approximately 600 radiographs and cited approximately 25% as being in violation of ASME Section III Code requirements for radiographic technique. According to Region III interpretation of the Code, shimming of the penetrometer is required to assure that total thickness being radiographed under the penetrometer is the same as the total weld thickness, regardless of whether or not the Code film density and quality requirements were achieved.

CORRECTIVE ACTION:

It is the intent of the Code to see that radiography is performed with a technique of sufficient sensitivity to display the penetrometer image and the specified hole. For welds the thickness is based on the nominal single wall thickness plus the reinforcement permitted by the Code. If the reinforcement where permitted is not removed then shims may become necessary to meet Code density requirements of  $-15\% +30\%$ . On the other hand, if a weld is blended smooth or nearly smooth into the base material to possibly meet pre-service ultrasonic requirements, the use of shim(s) may cause the

INSPECTION REPORT #6: UNACCEPTABLE TECHNIQUE FOR RADIOGRAPHS  
OF PREFABRICATED PIPE WELDS (Cont'd) Page 2

CORRECTIVE ACTION: (Cont'd)

penetrometer to exceed density requirements and will be cause for a rejectable radiograph. It is not a shim(s) itself that is mandatory by Code, but shims are a mechanism that may or may not be used to meet density which is a Code requirement.

Within the present state of the radiographic art, this practice is acceptable to all processes and techniques.

Pullman Power Products is an ASME Certificate Holder subject to audit and review by ASME and NRC. Furthermore, the Authorized Nuclear Inspector has not rejected Pullman radiographs for inadequate shimming.

CG&E will recheck the 180 radiographs in question to verify that the film density meets the ASME Code requirements.

If above actions are rejected by the NRC, a formal ASME Code Interpretation will be requested.

Inspection Report #7. NR's are being voided improperly.

This concern is addressed in Item 7 of the  
Immediate Action Letter.

INSPECTION REPORT #8: DESIGN VIOLATION CONTRARY TO FSAR -  
CABLE SEPARATION

PROBLEM: A 6 in. green cable tray was designed and installed inside a white tray. The green tray includes green Class 1E cables and the white tray contains blue/white and yellow/white associated cables.

CASE: The white tray is classified as "non-essential"; the green tray is "essential". Separation criteria does not require a specific difference between "essential" and "non-essential" trays.

The blue/white and yellow/white associated cables in the white tray does not make the tray "essential".

The design basis for electrical separation on the Wm. H. Zimmer Nuclear Power Station includes three essential electrical divisions: yellow, blue, and green. In addition, there is a white division which includes non-essential cables. As a design basis, there are cases where non-essential cables are placed in trays dedicated to a specific essential division and there are cases where non-essential cables are connected to a bus to which essential cables are also connected. By definition in the FSAR (8.3.1.12.2.3), these are called "associated cables" and are called blue/white, green/white, or yellow/white depending on the interfacing divisions.

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INSPECTION REPORT #8: DESIGN VIOLATION CONTRARY TO FSAR -  
CABLE SEPARATION (Cont'd) Page #1

CASE:  
(Cont'd)

This design basis, which is different from the current requirements of Reg. Guide 1.75, was accepted by NRR in the Limmer Safety Evaluation Report, NUREG-1019 of January, 1979, Section 7.1.2(2) which says:

"Institute of Electrical and Electronic Engineers Standard 384 and Reg. Guide 1.75, "Physical Independence of Electrical Systems," did not exist when the construction permit was issued. However, with the exceptions as indicated in Sections 7 and 8 of this report, the Limmer Station meets the requirements of these latter criteria."

In November, 1979, Mr. J. F. Stolz of NRR requested an audit of separation of electrical equipment and systems at Limmer Station. In response to this request, CG&E conducted an audit of 16% of the essential cables in the plant which resulted in the identification of one (1) finding which was subsequently rectified. Based on this audit, CG&E has a high confidence level in electrical separation at this plant.

As a result of the recent investigations by NRR, specifically this item being discussed, CG&E reviewed this matter again. It was found that the audit failed to address "non-essential cables in essential

INSPECTION REPORT #8: DESIGN VIOLATION CONTRARY TO FSAR -  
CABLE SEPARATION (Cont'd) Page #3

CASE: trays and non-essential cables connected to essential  
(Cont'd) buses, which by definition are associated cables.

CORRECTIVE ACTION:

CG&E has initiated the following corrective action regarding concerns of electrical separation:

1. Sargent & Lundy will clarify the criteria for associated cables. The appropriate section of the FSAR will be modified to include the clarifying criteria.
2. Sargent & Lundy will perform a 100% analysis on associated cables and demonstrate that Class 1E circuits are not degraded below acceptable levels.
3. Utilizing the clarified criteria and results of the analysis, an audit team consisting of CG&E Engineering, Construction, and Quality Assurance representative will conduct a 10% audit of associated cables.

*They say NRR agrees with the above.*

INSPECTION REPORT #9: LACK OF INSPECTION CONTROL TO VERIFY  
CABLE SEPARATION

This report is divided into four parts, each of which will be addressed separately below:

- 9a.  
PROBLEM: From the end of tray points up to the control panels, two blue cables in the cable spreading room have been pulled into a green tray section leading up to the control room.
- CASE: CG&E investigation of this problem revealed that the blue cables were not pulled into the green tray section; however, their proximity did not meet separation criteria. The blue cables were improperly bundled together when the bundle was installed in a riser.
- CORRECTIVE ACTION: The corrective action is to properly secure the blue cables in the riser.
- 9b.  
PROBLEM: Yellow/white cable coming out of conduit and suspended approximately 6 in. above the cables in the blue tray (in the cable spreading room).
- CASE: If the conduit, containing the yellow/white cable were extended to the wall penetration, no separation deviation would exist.
- \*

INSPECTION REPORT #9: LACK OF INSPECTION CONTROL TO VERIFY  
CABLE SEPARATION (Cont'd) Page 2

9b. (Cont'd)  
CORRECTIVE ACTION:

The corrective action is to extend the conduit containing the yellow/white cable to the wall penetration.

9c.  
PROBLEM:

In the instrument and relay room, a non-safety related white cable, No. DC258 (also labeled DC257) has been misrouted into a yellow tray No. 1040B.

CASE:

The unterminated white cable was routed correctly but installed incorrectly in the yellow tray.

CORRECTIVE ACTION:

The corrective action is to remove cable No. DC258 from the yellow tray, and install it in a white tray.

9d.  
PROBLEM:

Tray loading and cable separation concerns.

CASE:

Cable tray loading is addressed in the response to inspection report #10. Cable separation concerns are addressed in the response to inspection report #8.

INSPECTION REPORT #10: S&L CABLE TRAY LOADING DESIGN CONTROL

PROBLEM: The Region III inspection report under this item lists three specific areas indicating lack of design controls on the part of Sargent & Lundy. In addition, four unresolved items regarding S&L's design are listed.

CASE: Attached is a draft of responses to the specific items of non-compliance and the unresolved items listed under this problem. However, CG&E recognizes that these are examples of deficiencies in exercising design control. Specifically, CG&E must reassess the programs utilized by design organizations working on the Zimmer Project. Generic problems stemming from these inspection examples include:

- a. The FSAR did not reflect the actual reference used in the design.
- b. Procedures were not in place requiring calculations exceeding design index.
- c. Lack of formal procedure to control deviations from design.

CORRECTIVE ACTION:

CG&E will issue specific instructions to all design organizations presently active on the Zimmer Project to review and/or implement formal, disciplined design controls. CG&E will develop a program to audit the policies, procedures and methods utilized by the design organizations to meet this requirement.

*What about the contractor?*

ATTACHMENT TO RESPONSE FOR INSPECTION REPORT #10

DRAFT - PENDING RECEIPT OF FORMAL NRC AUDIT REPORT

POSSIBLE NONCOMPLIANCE NO. 1

Finding

The finding was that the reference in the FSAR, Section 8.3.3.1, for cable ampacity in trays did not reflect the actual reference used for design. The FSAR states that "The tables for power cable loading are based on IPCEA Publication No. 9-46-426."

Response

The FSAR Section 8.3.3.1.1 will be reviewed and revised to reference IEEE Paper 70TP553-PWR rather than IPCEA Publication No. 9-46-426. Table 8.3-18 was revised in June 1978 to indicate the actual data used for design; however, the reference was overlooked in the revision.

This revision will be made to the FSAR by June 1981.

POSSIBLE NONCOMPLIANCE NO. 2

Finding

The finding was that procedures were not in place requiring final weight calculations for cable trays exceeding a design index of 1.25 and thermal check calculations for power sleeves.

Response

Project Procedure PI-II-10.1, Revision 0, dated February 6, 1979, provided the requirements for performing final thermal loading calculations for those cable tray sections exceeding a design index of 1.25. The project instruction did not explicitly state that final weight checks are also to be performed as well as thermal checks of power sleeves:

Although the procedure was deficient, "worst case" calculations that were actually performed included a weight check to confirm compliance with the tray design criteria. Final calculations had not been performed since the cable issues have not been completed. Final calculations are being initiated in response to unresolved item below.

Project Instruction PI-II-10.1, Revision 1, dated March 18, 1981, has been revised to address the specific findings. This action has therefore been completed.

We are presently reviewing if there are any further aspects of cable tray fill that have not been adequately addressed by the project instruction. This review will be complete by April 30, 1981. If additional items are identified, revisions to the project instruction will be initiated.

POSSIBLE NONCOMPLIANCE NO. 1

Finding

This finding was a concern on the lack of a formal procedure to control deviations from design.

Response

Deviations from design or procedure are controlled by Sargent & Lundy QA Procedures GQ-18.01 and GQ-16.01. The deviations are identified as nonconformances per GQ-18.01 and corrective action reports generated per GQ-16.01.

It was observed that, while checking the thermal loading of the cable trays, the design ampere loading of two cables were found to exceed the design capacity. The control of this deviation was maintained by the control of the design calculation for these cables. The design calculation which specifically noted the deviation was not approved by the responsible design engineer due to the exceedence of the cable ampere criteria. Resolution of these cable problems was awaiting actual ampere loading data of the electrical device for recalculation. Withholding approval of the design calculation assured follow-up to correct the deviation. The final ampere loading data has been received and the two cables have been recalculated and found acceptable. The calculation has been reviewed and signed approved per Sargent & Lundy Procedure GQ-1.08. This action is therefore complete.

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In addition to the corrective actions summarized under each of the specific possible noncompliances identified above, the following action will be taken to assess the project generic aspects and their corrective action to prevent recurrence:

Project Generic Aspects of Noncompliance 1:

1. The FSAR will be re-reviewed for correctness and consistency with respect to the design by the responsible system engineers. This review will be complete by July 1981.
2. A new project procedure will be written establishing the need to submit corrections to the FSAR as changes are identified by the design engineers. Formal issue of the FSAR changes will be made on a semi-annual basis. This action will be implemented by May 30, 1981.
3. The project instruction noted in Paragraph 2 will include a requirement to identify changes or deviations from industry codes and standards; i.e., ASME, AWS, ANSI, etc; when applied categorically in the design.

Project Generic Aspects of Noncompliance 2 are addressed in the continuing procedural review of cable tray fill addressed under Noncompliance 2.

Project Generic Aspects of Noncompliance 3:

1. S&L is reviewing within the office on a company generic basis the adequacy of the procedure of using design calculations to control deviations. S&L will review the existing procedures, including GO procedures, project instructions, general

drafting standards and department standards to determine if additional controls are required. The review will be completed along with identification of specific corrective actions by June 1, 1981.

As further clarification, generic aspects of the adequacy of procedural control will be applied on the SixMax Project.

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DRAFT - PENDING RECEIPT OF FINAL MRC AUDIT REPORT

UNRESOLVED ITEM 1

Item

Mr. Barrett would like further explanation of the justification for calculating weight and thermal loading of only those trays with design index greater than 1.25.

Response

Sargent & Lundy will prepare a justification demonstrating adequate thermal and weight design for those cable tray sections with a design index less than 1.25. The justification will be provided to The Cincinnati Gas & Electric Company (CG&E) and to Mr. Barrett by June 1, 1981.

UNRESOLVED ITEM 2

Item

Sargent & Lundy will perform final thermal and weight calculations for all power trays with design index greater than 1.25, final thermal calculations for power sleeves with design index greater than 1.25, and final weight calculations for control and instrument trays with design index greater than 1.25.

Response

These calculations or justification will be provided to CG&E and to Mr. Barrett by July 1, 1981.

UNRESOLVED ITEM 3

Item

Mr. Barrett would like further assurance that cable trays exceeding 50% fill (design index 1.25) are adequately analysed.

Response

The PDR will be revised for the next scheduled revision to add a statement to the effect that, when the design point is exceeded, the adequacy is checked by analysis. This will clarify that all cables in trays exceeding the design index of 1.25 will have calculations performed to justify the design. Project Instruction 91-21-10.1 requires final calculations for all cable tray sections exceeding a design index of 1.25.

UNRESOLVED ITEM 4

Item

Mr. Barrett would like further clarification on the relationship of percent tray fill and design index.

Response

The relationship of 100% tray fill and 1.25 design index was summarized and a copy was given to Mr. Barrett and JCR on March 26, 1991 while in our office for the exit interview.

INSPECTION REPORT #11: LACK OF CG&E FOLLOW-UP ON REPETITIVE PROBLEMS (INADEQUATE  
CORRECTIVE ACTION)

PROBLEM: Repetitive problem regarding design calculations and verifications not being performed by Sargent & Lundy.

CASE: Five audits by CG&E identified this problem.

CORRECTIVE ACTION:

Responses to audit findings now require that corrective action taken to avoid further noncompliance must be supplied by the auditee. In verification of this action, the auditor must have assurance that this corrective action is adequate to address any possible generic deficiency. Also an Unresolved Deficiency Summary is issued monthly from the Manager-Quality Assurance to the Senior Vice President and the Manager of any organization responsible for corrective actions to deficiencies that are past due. This includes deficiencies which are delinquent past the due date and deficiencies which have exceeded the planned completion date and QA verification was not possible due to lack of, or inadequate corrective action on the part of, the audited organization.

The deficiencies addressed by this procedure are those identified during audits conducted in accordance with audit and surveillance procedures.

A new procedure has been established to define the method for the reporting of repetitive, generic, procedural, or significant concerns adverse to quality to the appropriate levels of management.

Conditions for which Corrective Action Reports are issued as follows:

- 1) The condition indicates a trend of declining quality.

CORRECTIVE ACTION (CONT'D.)

- 2) The condition is repetitive indicating current controlling measures are inadequate or insufficient.
- 3) Evaluation indicates that the condition is a result of a program deficiency.
- 4) The condition indicates failures to obtain required approvals for changes in procedures or documents.
- 5) Failure to resolve a deficiency in a timely manner.
- 6) The condition indicates negligence or disregard of document or procedural requirements.
- 7) QA follow-up review of conditions adverse to quality show that the approved corrective action has not been taken, or has been improperly or incompletely accomplished.

The Corrective Action Reports are distributed to the appropriate management of the organization to which the corrective action was addressed as well as those responsible for implementation of the corrective action and the CG&E Senior Vice President.

CAR's must be responded to and corrective action verified within 10 working days or a Stop Work Order is issued in accordance with the applicable Stop Work Order Procedure.

*Go to past audits + close out all open items or justify not doing so.*

INSPECTION REPORT #13 - DELETED DESIGN CRITERIA

PROBLEM: Weld inspection criteria has been deleted from the KE-1 form from 7/80 - 2/81.

CASE: Weld inspection criteria has been deleted from the KE-1 form for AWS structural welding on the drywell steel, and other instructions added as follows:

Deleted: Item 1 on KE-1 form in its entirety

Added: Item 1 on KE-1 form "Rod slip (KE-2 form) to be part of package"

Deleted: Item 2 on KE-1 form except for "Verify Mark Numbers"

Unless the welds are full penetration welds, this criteria need not be hold points; however, proper weld procedure, welders qualification and proper filler metal verification must be conducted prior to weld acceptance. (See KE-2 form)

CORRECTIVE ACTION:

All AWS structural steel KE-1 forms from 7/80 - 2/81 will be checked to ensure that no hold points were violated for full penetration welds. Any welds so found will be documented on a nonconformance report and properly dispositioned and corrected. A sampling of the structural welds that had weld inspection criteria "improperly lined out, noted as not applicable, or otherwise deleted" will be conducted to verify from the record that the weld inspection criteria required by AWS can be verified. If required inspection criteria cannot be verified, then those welds will be documented with a non-conformance and corrective action defined and documented.

This action was initiated to eliminate an overcommitment.

*Also have N/A.*



INSPECTION REPORT : NONVERIFIED SOCKET-WELD FIT-UPS

PROBLEM: Socket weld fit-up has not been verified on numerous small bore pipes.

CASE: According to HJK Procedure SPPM 4.6 and the KE-1 form used for the inspection of small bore piping, the fit-up of socket weld joints is required. ASME Section NB4427-1 requires that approximately a 1/16" disengagement be met on socket welds. Numerous socket welds have been made without the proper documentation witnessing the proper visual inspection of pipe fit-up as documented on several surveillance reports.

CORRECTIVE ACTION:

A review of the completed document packages for small bore piping will be conducted to determine those socket welds for which a verification was not made for disengagement. Any joints so identified will be documented on a nonconformance report, with a disposition to radiograph in sufficient quantity to develop a level of confidence that the fit-ups are acceptable.



INSPECTION REPORT #15: DELETED

INSPECTION REPORT #16: Response covered in Item 8 of the Immediate  
Action Letter.

INSPECTION REPORT #18:

PROBLEM: H. J. Kaiser Procedure SPPM 4.6, Rev. 8 and S&I Specification H-2173, Supplement 7, (Standard EB-117 for cable tray hanger welds) takes exception to A.W.S. D1.1-1972 inspection acceptance criteria for undercut. The FSAR does not stipulate these exceptions.

CASE: Sargent & Lundy approved this exception and had not as yet modified the FSAR.

CORRECTIVE ACTION:

The FSAR will be modified to include this exception. A generic response on Design Control Criteria is given in Item 6 of the Immediate Action Letter.

RESPONSES TO APRIL 8, 1981

IMMEDIATE ACTION LETTER

IAL 1. Concerning QA Staffing

The following corrective actions shall be implemented to increase and improve the CG&E Quality Assurance staff.

A. Quality Assurance Engineering

Six (6) Quality Assurance Engineers shall be added from a contract organization on a temporary basis. Such personnel will have experience in metallurgy, welding, documentation and procedure reviews and similar Quality Engineering expertise. They will have varied discipline capabilities and should start to arrive on site May 4, 1981. It is anticipated that they will supplement the Quality Assurance staff for one year or for however long required. Additional requisitions have been approved for permanent CG&E staff Quality Assurance positions for the following:

- 1) Metallurgical and Weld Quality Assurance Engineer (1)
- 2) Electrical Quality Assurance Engineer (1)
- 3) Structural Quality Assurance Engineer (1)

CG&E Electric Production Department personnel with Quality Assurance experience shall be incorporated into Corporate Quality Assurance Organization. These personnel have experience in structural, chemical and operations expertise. These personnel will be utilized to supplement the present auditing staff and shall be certified to N45.2.23.

Some of those personnel presently in the Quality Assurance organization shall be reassigned outside of the Quality Assurance organization or replaced.

B. Quality Control (Inspection)

Ten (10) qualified inspectors (45.2.6) shall be assigned from an outside contractor for a minimum of one year or however long required. These

B) Cont'd.

personnel shall have experience and qualifications in varied areas of inspection requirements. One individual capable of being designated as a Level III NDE Technician will be included in this group. The other will also be qualified in PT, MT, RT, UT or visual inspection of welds as required by their assignment.

Present personnel in the Quality Assurance organization will be reassigned or assigned as follows:

- D. C. Kramer - Lead Quality Control Inspection Supervisor
- R. N. Taylor - Pipe Support and Inspection
- D. C. Fox - Pipe Support and Inspection
- W. Hopka - Pipe Support and Inspection

Two inspection technicians, qualified to N45.2.6 shall be reassigned from the Electric Production Department to assist in the reinspection verification. A requisition for a technician with inspector's expertise in NDE, capable of certification to Level II of ASNT TC-1A, with eventual certification to Level III has been approved and search is in progress to locate and hire this individual.

C) Miscellaneous Quality Assurance/Quality Control

Contract personnel have been employed on a temporary basis to review procedures, correct inconsistencies or errors, and prepare new procedures as required. These personnel shall also assist in preparation and coordination of training schedules.

Summary of Additions

	<u>Temporary Personnel*</u>
Temporary	6 Quality Assurance Engineers
	10 Quality Control Inspectors
	2 Misc. QA/QC
	18

CG&E Staff Additions

4 Transfers from EPD  
1 NDE Technician  
3 Quality Assurance Engineers  
8

Existing CG&E QA Staff

4 Engineers  
4 Contract Personnel  
1 QA Technician  
1 QA Manager  
10

\* As permanent CG&E personnel are added these may be reduced.

IAL 2. Concerning independence and separation between Kaiser construction and Kaiser QA/QC

In a letter dated April 7, 1981, to the President of Henry J. Kaiser Company, CG&E outlined the steps to be taken by H. J. Kaiser in their QA/QC effort for the Zimmer project. In that letter the Kaiser organization was directed to eliminate any domination by construction of the QA organization and the QC inspectors. They were further instructed to stress the independence of the QA/QC organization and to provide effective leadership to allow that independence to be maintained and for the organization to properly function.

We are also committing to revise the Kaiser QA procedures such that they no longer will require approval by construction personnel.

April 7, 1961

Mr. James F. McCloud  
President  
Henry J. Kaiser Company  
300 Lakeside Drive  
Oakland, California 94623

Dear Mr. McCloud:

As you are aware, the Zimmer Project's QA/QC program has been the subject of an extensive NRC investigation over the past few months. Both the H. J. Kaiser program and the CG&E program have been reviewed as the result of several allegations made to the NRC by unidentified personnel connected with the project.

The NRC has now called to our attention several deficiencies in the execution of our mutual programs which surfaced as the result of its investigations and which must be corrected in a timely fashion. My purpose in writing is to outline the minimum steps to be taken by H. J. Kaiser if they are to remain as the QA/QC entity for the Zimmer construction effort. These are as follows:

1. Eliminate any domination by construction of the H. J. Kaiser Quality Assurance organization as well as the QC inspectors.
2. Stress the independence of the QA/QC organization from construction and provide effective leadership for that organization, both in the field and in the corporate office.
3. Add 6 degreed discipline engineers with nuclear site experience to review acceptability of data packages.
4. Construction will keep both the H. J. Kaiser and the CG&E Co. QA organizations fully informed on all activity affecting essential systems.
5. Stop the voiding of any non-conformance reports and the transferring of documentation from the KE-2 form to the KE-1 form.

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THE CINCINNATI GAS & ELECTRIC COMPANY

Mr. James F. McCloud

Page 2

April 7, 1981

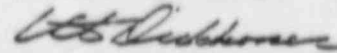
6. Restore a disciplined and rigorous approach to the QA/QC program through surveillance and comprehensive in depth QA audits of the QC activities.

It's disappointing to me to have to write this letter. Since the beginning of construction on the Zimmer project, we have placed our faith in the Kaiser QA/QC program for construction and have limited our own QA involvement to an auditing function. I now find that some of our confidence has been misplaced, not in the basic program, but in its implementation.

I still have every confidence in the quality of construction, but it has become apparent that CG&E must take steps to take control and become completely involved on a day to day basis in the QA function. It is our intention to exercise a level of surveillance over the H. J. Kaiser effort to the extent that Kaiser QA/QC performs on a continuous basis to our and the ERC's high standard.

On a project of this duration, it is not surprising that morale and discipline slide from time to time. At this point, however, we cannot allow it to continue nor to reoccur before we finally achieve our mutual goal of placing Zimmer into successful operation. I still am confident that with the dedicated cooperation of both our organizations we can complete the Zimmer project with pride in a plant that will bring credit to us all in the future.

Yours very truly,



W. H. Dickhoner

WHD:vm

cc: E. A. Borgmann  
J. Coyle  
B. K. Culver  
W. W. Schwiers  
W. D. Waymire

IAL 3. Concerning QC Inspections.

CG&E will conduct 100% reinspection of QC inspections conducted by Kaiser and other contractors by utilizing additional personnel described in Item 1 above, and qualified personnel already on site. This effort will continue until the CG&E audit program is revised, as outlined in Item 10 below, and accepted by Region III. It is requested that Region III regularly monitor CG&E's progress in developing this program so that prompt reduction in the 100% reinspection requirement can be made consistent with the implementation of the revised audit program. Consideration of stepped reductions in reinspections to 50%, then 20%, and then a continuing surveillance by CG&E qualified inspectors is proposed.

IAL 4. Concerning Q.C. Inspection Procedures

All QC inspection procedures are being reviewed by qualified design engineers and QA personnel who are independent of the construction organization. The object of this review is to confirm that the procedures include appropriate inspection requirements and applicable hold points. This review is being performed in accordance with an approved procedure that specifies the reviewers qualifications and training, provides instructions for performing the review, and establishes review documentation requirements. Construction activities controlled by these Q C inspection procedures will not be performed until the applicable procedures have been reviewed, comments as the result of this review resolved, and the procedures approved.

IAL 5. Concerning Training.

Training on any new procedure or practice resulting from the actions taken to fulfill the provisions of this letter will be given to QA/QC personnel at the Simmer site prior to implementation of the procedures. Refresher training in quality procedures is underway and will include the four specific areas mentioned under this IAL item. The "feedback mechanism" for informing the identifying individual of the resolution of an item, and the "avenue of appeal" regarding the resolution, as described in the IAL are being developed. All refresher training will be accomplished by June 1, 1981.

IAL 6. Concerning Deviations from Codes and FSAR

A. Construction Forces

Project Procedures such as DDC and NR procedures have been in effect continuously throughout construction.

These procedures have adequate provisions to assure that deviations to codes or design documents are identified and dispositioned by responsible design engineers. Prior to May 1, 1981, a formal review of these procedures will be conducted.

B. QC Inspection Forces

All QC inspection procedures are being reviewed by both Design and QA Personnel now. A part of this review is to assure that any deviations from Codes and FSAR statements are identified and that CG&E reviews and approves the resolution of such deviations. All construction activities controlled by these QC inspection procedures have been stopped until the applicable procedure has been reviewed and approved.

QC Inspectors will receive training in any procedure changes which are required.

C. Design Forces

Organizations responsible for design of safety-related equipment will be audited to assure that they have sufficient procedures and training to identify deviations from codes and FSAR statements. All such organizations will be required to advise CG&E of any such deviations. CG&E will review and approve the resolution.

IAL 6. Concerning Deviations from Codes and FSAR

D. Other Actions by S&L

In addition to the corrective actions identified above, the following actions will be taken to assess the project generic aspects and their corrective action to prevent recurrences:

1. The FSAR will be re-reviewed for correctness and consistency with respect to the design by the responsible system engineers. This review will be complete by July, 1981.
2. A new project procedure will be written establishing the need to submit corrections to the FSAR as changes are identified. Normal issue of the FSAR changes will be made on a semi-annual basis.
3. The project instructions will be revised to include a requirement to identify changes or deviations from industry codes and standards, i.e. ASME, AWS, ANSI, etc. when applied categorically in the design.
4. S&L is reviewing on a company generic basis the adequacy of the procedure of using design calculations to control deviations. S&L will review the existing procedures, including QC procedures, project instructions, general drafting standards and department standards to determine if additional controls are required. The review will be completed along with identification of specific corrective actions by June 1, 1981.

IAL 7. Concerning the Voiding of Nonconformance Reports

The Cincinnati Gas & Electric Company is presently awaiting the response from Henry J. Kaiser on an audit conducted by CG&E of a sampling of the voided NR's. The audit requested a 100% review of the voided NR's, and justification for the voiding or lack of disposition of each NR. A letter has been submitted to the Senior Resident NRC Inspector committing to a 100% independent review of the voided NR's. This review will be performed by a qualified CG&E Quality Engineer. The original copies of the voided NR's are under the control of NRC personnel. Upon their release by the NRC, the independent review will be performed. While copies of each voided NR are available, CG&E has been informed by the NRC that the original copies are more indicative of a representation of the NRC's concerns.

QACMI 6-4, which covers Nonconforming Material Control was reviewed on April 8, 1981. The review generated numerous comments mainly in the area of increasing the clarity of the procedure. Examples of some of the comments are as follows:

1. A statement should be added to indicate that only a member of the Quality Assurance organization is permitted to remove any tag that applies to an NR.
2. Under no circumstances should an NR be stamped "void". A separate form should be initiated to cancel the NR with sufficient personnel reviews including CG&E.
3. Clarification should be provided regarding the Material Review Board including a statement that CG&E must be in the review cycle regardless of disposition.

IAL 8. Concerning QA/QC Records

All Kaiser QC records were moved to a protected, centralized location at the Zimmer Site on April 7, 1981. (See attached memorandum, Borgmann to Gittings 4/7/81) These records will remain under the care, custody and control of CG&E Quality Assurance Department until agreed to by Region III. Procedures are being developed to implement records handling under this arrangement. Programs for review of the adequacy of these records are being investigated.



# INTER-DEPARTMENT CORRESPONDENCE

TO: MR. P. S. GITTINGS

FROM: E. A. BORGMANN

SUBJECT: WM. H. ZIMMER NUCLEAR POWER STATION  
UNIT 1 - QA/QC RECORDS

DATE: April 7, 1968

In order to exercise better control over the QA/QC records, we have decided that these records should be placed in a central location immediately. By the close of business on April 7, it is our intention to have these records moved from various locations around the site into the trailer complex formerly occupied by Foothill Electric personnel.

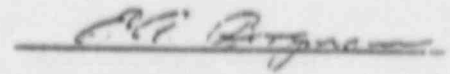
Having these records in a central location will allow us to control the records until a more definitive program with regards to their control and usage has been finalized and accepted by the NRC.

For some time we have been concerned about the lack of fire protection for these records and having them in a central location will allow us to install one fire protection system for their protection.

It is our further intention to assign a CG&E individual as custodian of the QA/QC records until further notice. All removal or insertion of records into the files will be under the jurisdiction of our assigned personnel.

Your cooperation in effecting an efficient and timely transfer of these records as outlined above is requested.

EAB:mjl  
cc: J. Coyle  
R. Marshall  
B. K. Culver  
W. D. Waymire  
W. W. Schwiers



IAL #9 - Concerning Conditions Adverse to Quality

On April 7, 1981, a letter was transmitted to the Henry J. Kaiser Company directing them to submit to CG&E a copy of each new Nonconformance Report or Surveillance Report prepared. A method evaluating these reports will be developed by CG&E to assure that the validity and adequate control exists regarding these reports.

This procedure will be completed May 1, 1981 and implemented May 15, 1981.

KEQ

THE CINCINNATI GAS & ELECTRIC COMPANY

CINCINNATI, OHIO 45220

April 7, 1981  
KEQ-551

Henry J. Kaiser Company  
P. O. Box 201  
Moscow, Ohio 45153

Attention: Mr. P. S. Gittings

RE: WM. H. ZIMMER NUCLEAR POWER STATION  
UNIT 1 - SURVEILLANCES AND NR's -  
W.O. #57300-957, JOB E-5590

Gentlemen:

Effective immediately, one (1) copy of each new or revised nonconformance report and surveillance report shall be submitted to CG&E QA.

Submittal of these reports shall be made at the time of preparation; for example, if a Nonconformance Report is prepared by an inspector, reviewed by the Lead Inspector, and concurred with by the Supervisor of Inspections, and a control number assigned, a copy of the report shall concurrently be submitted to CG&E for review.

If you have any questions regarding this request, please let me know.

Very truly yours,

THE CINCINNATI GAS & ELECTRIC COMPANY

By   
W. W. SCHIFERS  
MANAGER, QUALITY ASSURANCE

WWS:pa

IAL 10. Concerning the Audit Program

Additional auditing personnel, as covered under Item 1 above, "QA Staffing" will be added to implement the CG&E audit program. The existing audit schedule will be completely reviewed and expanded to include technical hands-on type audits and audits of a technical nature at all firms providing design services. Personnel from the General Engineering Department will provide assistance in the conduct of these audits. The audits will be in-depth and comprehensive as to the activity being audited.

al  
Zimmer Thoughts 4/9/21

1. Need to review transcript of Applegate meeting and track completion of commitments
2. It's obvious to me that a construction re-verification program is necessary.
  - a - Need to decide what should be verified, how and by whom.
  - b - Suggest Warnick/Barrett come up with program scope, based on investigation findings.
  - c - Suggest we get C&E to propose program for our review, based on 2b.
  - d - Suggest we proceed to plan our own limited re-verification.

HQ BRIEFING

April 9, 1981

- A. Ex-Zimmer employee allegations
- B. Applegate/Gap allegations
- c. Investigative effort to date
- D. Problems identified through Applegate allegations investigation
- E. Problems identified through ex-employee allegations investigation
- F. RIII Actions
- G. Remaining RIII efforts
  - 1. Work
  - 2. Schedule

Zimmer Allegations

file

HQ Briefing

April 9, 1981

- A. Investigation Background
  - 1. Ex-Zimmer employee allegations
  - 2. Applegate/Gap allegations
  
- B. Investigative effort to date
  
- C. Problems identified through Applegate allegations investigation
  
- D. Problems identified through investigation of allegations made by Zimmer workers (both past and present employees)
  
- E. Problems identified by NRC inspectors while pursuing allegations
  
- F. Remaining RIII efforts
  - 1. Work
  - 2. Schedule

A. INVESTIGATION BACKGROUND

1. EX-ZIMMER EMPLOYEE ALLEGATIONS

RECEIVED NOVEMBER 18, 1980 BY RESIDENT INSPECTOR AT MARBLE HILL.

1. KAISER QC MANAGER VOIDING NONCONFORMANCE REPORTS W/O JUSTIFICATION
2. BOLT HOLES FOR LARGE BORE PIPE SUPPORT HANGERS BEING MADE BY BURNING RATHER THAN DRILLING.
3. TWO DOCUMENT REVIEWERS RECORDING DISCREPANCIES ON EXCEPTION LIST RATHER THAN NONCONFORMANCE REPORT. THEY ARE CATCHING FLACK FOR IDENTIFYING DISCREPANCIES IN DOCUMENTATION.
4. KAISER THREATENED TO FIRE QC INSPECTOR FOR REFUSING TO ACCEPT A WELD.

INVESTIGATION BEGAN ONSITE JANUARY 12, 1981.



2. Applegate/GAP Allegations

RECEIVED IN LETTER DATED JANUARY 5, 1981 FROM GAP

1. MAIN STEAM RELIEF PIPING REPLACED - COSTING \$320,000.
2. 2000 LB FITTINGS USED IN PLACE OF 5000 LB FITTINGS
3. RADIOACTIVE WASTE DRAIN CLOGGED WITH CONCRETE
4. VALVE BROKEN WHEN BUMPED BY PIPEFITTER
5. WELD ROD CONTROL (TEMPERATURE AND ACCOUNTABILITY)
6. CRAFTS OVERCOME BY ARGON GAS
7. DEFECTIVE WELDS IN PIPE THAT WAS DROPPED FROM TRUCK
8. 20% OF THE PREFABRICATED WELDS ARE BAD
9. PIPING INSTALLED THEN DESIGNED
10. CABLE TRAYS (FAULTY HANGER WELDS AND DANGEROUSLY FULL)
11. RIVER INTAKE PUMPS FAIL BECAUSE OF PLANT DESIGN
12. 300 PSIG PIPES OVERPRESSURIZED WITH 1200 PSIG
13. FUEL SECURITY (NO SURVEILLANCE CONCERNS AND CHICKENWIRE FENCE)
14. DRINKING, DRUGS, AND VIOLENCE
15. EMPLOYEES FIRED FOR TIME-CHEATING AND CRITICIZING GA
16. CS&E CONSISTENT APPROVAL OF WELDS REJECTED BY PM. PM REPRIMANDED FOR CRITICIZING
17. PIPEFITTERS AND PM INTIMIDATED
18. DETAILED JOURNAL OF SAFETY HAZARDS
19. PIPEFITTERS "JOKE" TO BE FAR AWAY WHEN PLANT STARTS UP

INVESTIGATION STARTED JANUARY 27, 1981

B. INVESTIGATIVE EFFORT TO DATE

01/12/81 INVESTIGATION BEGAN ONSITE

6 WEEKS ONSITE

92 INDIVIDUALS INTERVIEWED

1266 HOURS ONSITE

10 INSPECTORS/INVESTIGATORS INVOLVED

03/26/81 FIRST EXIT MEETING

03/31/81 MANAGEMENT MEETING - RIII

04/08/81 IMMEDIATE ACTION LETTER

04/10/81 ENFORCEMENT CONFERENCE

C. PROBLEMS IDENTIFIED THROUGH APPELATE ALLEGATIONS INVESTIGATION

AS A RESULT OF LOOKING INTO THE 19 ALLEGATIONS, THE FOLLOWING PROBLEMS HAVE BEEN IDENTIFIED:

1. FAILURE TO SHIM PENETRAMETER  
(RADIOGRAPHY TECHNIQUE PROBLEM)

2. SARGENT & LINDY PROBLEMS

A. NONCOMPLIANCE

- (1) DEVIATION FROM FSAR ON CABLE AMPACITY
- (2) NO MEASURES TO REQUIRE DESIGN CALCULATIONS FOR THERMAL LOADING OF POWER SLEEVES AND WEIGHT LOADING OF TRAYS
- (3) NO PROGRAM FOR ENGINEERS TO IDENTIFY DESIGN DEVIATIONS

B. UNRESOLVED ITEMS

- (1) AMPACITY OF CABLES IN DEPTHS GREATER THAN 2 INCHES
  - (2) CALCULATIONS TO VERIFY THERMAL & WEIGHT OVERLOAD
  - (3) JUSTIFICATION FOR DETERMINING LIMIT OF DESIGN INDEX 1.25
  - (4) CABLE TRAY LOADING - 30 POINTS EXCEED FSAR FILL LIMIT
3. STRUCTURAL WELDS INSPECTED AFTER PAINTING
4. DEVIATION FROM FSAR-WELD UNDERCUT EXCEEDED ACCEPTANCE CRITERIA

D. PROBLEMS IDENTIFIED THROUGH ALLEGATIONS MADE BY ZIMMER WORKERS  
(BOTH PAST AND PRESENT EMPLOYEES)

1. SURVEILLANCE REPORTS NOT CONVERTED TO NONCONFORMANCE REPORTS
2. NONCONFORMANCE REPORTS IMPROPERLY VOIDED
3. WELD INSPECTION CRITERIA DELETED
4. SOCKET WELD FIT-UPS NOT VERIFIED
5. WELD ROD ISSUE SLIP USED AS QC INSPECTION

E. PROBLEMS IDENTIFIED BY NRC INSPECTORS WHILE PURSUING ALLEGATIONS

1. UNACCEPTABLE STRUCTURAL BEAMS WELDS
2. INADEQUATE CONTRACTOR (BRISTOL) QA PROGRAM
3. LACK OF MATERIAL TRACEABILITY
  - A. STRUCTURAL BEAMS
  - B. PIPING
  - C. WELD ROD
4. CABLE SEPARATION VIOLATIONS (S&L DESIGN)
5. LACK OF INSPECTION CRITERIA TO VERIFY CABLE SEPARATION
6. INADEQUATE CORRECTIVE ACTION ON CG&E AUDIT FINDINGS
7. NO CG&E AUDITS PERFORMED OF THE S&L NONCONFORMANCE PROGRAM
8. STRUCTURAL BEAMS INSTALLED THAT ARE NOT REQUIRED BY DESIGN
9. DESIGN DOCUMENT CHANGES DISTRIBUTION NOT CONTROLLED
10. LACK OF CONTROLS TO ASSURE INSPECTION OF DDC ACTIVITIES

F. RIII ACTIONS

1. IAL ISSUED APRIL 8, 1981 TO RESOLVE IMMEDIATE CONCERNS AND STIPULATE CONDITIONS FOR CONTINUED WORK
  - A. INCREASE CG&E QA STAFF SIZE AND TECHNICAL EXPERTISE
  - B. ASSURE SEPARATION BETWEEN KAISER QA AND CONSTRUCTION
  - C. 100% REINSPECTIONS OF CONTRACTOR QC INSPECTIONS BY CG&E
  - D. REVIEW OF QC INSPECTION PROCEDURES
  - E. QC TRAINING - PROCEDURES AND NONCONFORMANCES
  - F. IDENTIFY DEVIATIONS FROM CODES AND FSAR
  - G. REVIEW PROCEDURES GOVERNING NONCONFORMANCES
  - H. STOP RECORDS REVIEW AND ALTERATION. CG&E CONTROL RECORDS
  - I. CG&E REVIEW ALL SURVEILLANCE AND NONCONFORMANCE REPORTS
  - J. REVISE AUDIT PROGRAM TO INCLUDE TECHNICAL AUDITS
  
2. ENFORCEMENT CONFERENCE APRIL 10, 1981 TO DISCUSS CG&E'S PROGRAM FOR ESTABLISHING CONFIDENCE IN COMPLETED CONSTRUCTION.



G. REMAINING RIII EFFORTS

1. WORK

- . DOCUMENT 19 APPELATE ALLEGATIONS & FINDINGS
- . DOCUMENT FINDINGS OF INVESTIGATION TO MARCH 27, 1981
- . FOLLOWUP INSPECTION OF 28 ADDITIONAL CONCERNS IDENTIFIED BY INVESTIGATION TO DATE
- . COMPLETE INTERVIEWS (30-50 ADDITIONAL INDIVIDUALS)
- . COMPLETE DOCUMENTATION OF INVESTIGATION/INSPECTION

2. SCHEDULE

MAY 1 DOCUMENT 19 APPELATE ALLEGATIONS  
JUNE 1 DOCUMENT OTHER FINDINGS TO MARCH 27, 1981  
JULY 1 COMPLETE BALANCE OF INSPECTION  
AUGUST 1 CONSIDER ENFORCEMENT ACTION

ZIMMER MEETING AGENDA

APRIL 10, 1981

- . OPENING REMARKS (J.G.K)
  
- . DISCUSS PROGRAM FOR CONFIRMING QUALITY OF COMPLETED WORK. CG&E  
TO PROVIDE SPECIFIC PLAN FOR ACCOMPLISHING THIS
  
- . DISCUSS IAL (NRC/CG&E)  
CG&E TO PROVIDE APPROACH AND PLANS FOR IMPLEMENTATION
  
- . CONCLUDING REMARKS (J.G.K.)





IMMEDIATE ACTION LETTER  
UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
788 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

April 8, 1981

*B. Lane*  
*file*  
*Zimmer*

Docket No. 50-358

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:

This refers to concerns identified during the ongoing investigation at the Zimmer site which were discussed with you and members of your staff on March 27, 1981, by R. F. Warnick and members of the investigation team and which Mr. Warnick and I discussed with you on March 31, 1981, in the Region III office. The investigation began on January 12, 1981, and is expected to continue for several more weeks. The results of the investigation will be documented in two or more investigation reports.

The NRC's concerns relating to ongoing construction related activities are the subject of this Immediate Action Letter. This letter documents the following corrective measures which we understand you have initiated or plan to take concerning the problems identified by the NRC:

1. Concerning QA Staffing

CG&E will increase the size and technical expertise of the CG&E QA organization by adding individuals qualified in the areas of radiography and nondestructive testing, piping supports and hangers, welding, structural design and fabrication, electrical design and construction, and metallurgy. We understand CG&E will utilize temporary personnel qualified in these areas until permanent staff members have been hired.

2. Concerning Independence and Separation Between Kaiser Construction and Kaiser QA/QC

CG&E will take action by April 15, 1981, to assure independence and separation of the QA/QC function performed by Kaiser from the construction function. Region III will be informed of actions taken.

3. Concerning QC Inspections

Using the personnel described in item 1 above, CG&E will conduct 100% reinspections of QC inspections conducted by Kaiser and other contractors after the date of this letter. This will continue until the

April 8, 1981

revised CG&E audit program as described in item 10, below, is implemented by these qualified individuals and RIII releases this requirement.

4. Concerning QC Inspection Procedures

All QC inspection procedures will be reviewed and revised (where appropriate) by qualified design engineers and QA personnel. These reviews will be conducted by personnel independent of the construction organization to confirm that the procedures include appropriate inspection requirements and applicable hold points. The construction activities controlled by these QC inspection procedures will not be performed after the date of this letter until the applicable procedure has been reviewed and approved.

5. Concerning Training

QA/QC personnel at the Zimmer site will receive training on any new procedures and practices resulting from actions taken to fulfill provisions of this letter prior to implementation of the procedures. In addition, refresher training will be given prior to June 1, 1981, on (a) the identification and documentation of nonconformances, deficiencies, and problems, (b) the procedure for resolving nonconformances, deficiencies, and problems, (c) the feedback mechanism for informing the identifying individual of the resolution of the nonconformance, deficiency, or problem, and (d) the avenue of appeal should the identifying individual disagree with the adequacy of the resolution.

6. Concerning Deviations from Codes and FSAR Statements

Prior to May 1, 1981, the procedures governing the identification, reporting, and resolution of deviations from Codes and FSAR statements will be reviewed for adequacy and revised as appropriate. The procedures will require CG&E to review and approve the resolution of any such deviations.

7. Concerning the Voiding of Nonconformance Reports

The procedures governing nonconformance reporting will be reviewed for adequacy. The review will be accomplished not later than April 10, 1981. The disposition of each nonconformance report together with appropriate justification will be documented.

8. Concerning QA/QC Records

The review and alteration of existing QA and QC records has been stopped. These records will be controlled by CG&E until a program defining records

April 6, 1981

control, usage, and adequacy has been prepared by CG&E and agreed to by RIII.

9. Concerning Conditions Adverse to Quality

CG&E will perform a 100% review of all surveillance and nonconformance reports written by contractor personnel after the date of this letter. This program will continue until RIII releases this requirement.

10. Concerning the Audit Program

The existing CG&E audit program will be reviewed and revised by June 1, 1981, to include technical audits of construction work and more comprehensive and effective programmatic audits.

Please inform us immediately if your understanding of these items is different from that stated above.

Sincerely,

  
James G. Keppler  
Director

cc:  
Mr. J. R. Schott, Plant  
Superintendent  
Central Files  
Reproduction Unit NRC 20b  
AEOD  
Resident Inspector, RIII  
PDR  
Local PDR  
NSIC  
TIC  
Harold W. Kohn, Power  
Siting Commission  
Citizens Against a Radioactive  
Environment  
Helen W. Evans, State of Ohio



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION III  
 799 ROOSEVELT ROAD  
 GLEN ELLEN, ILLINOIS 60137

*Warrick*

March 17, 1981

MEMORANDUM FOR: Victor Stello, Jr., Director, Office of Inspection and Enforcement  
 FROM: James G. Keppler, Director  
 SUBJECT: INVESTIGATION OF APPLIGATE ALLEGATIONS RELATED TO ZIMMER

The purpose of this memorandum is to update you on the status of this investigation and inform you of our future course of action.

We expect to complete next week our investigation of the first 19 allegations received from Mr. Applegate via the Government Accountability Project (GAP). There have been no significant findings to date. Either the allegations have not been substantiated or, for those substantiated, there is no safety significance.

As a result of our investigations into the 19 allegations there have been about twice that many additional matters uncovered. We are now in the process of investigating these and many appear to be significant. Some of the more significant ones involve bad welds on structural steel, improperly voided nonconformance reports, lack of traceability of structural materials, improper socket weld fitups, improper weld inspection criteria, inadequate radiographs on many vendor supplied welds, and inadequate Cincinnati Gas & Electric Company (CG&E) quality assurance implementation. We anticipate about two more weeks of on-site investigation to complete our review of these additional items.

Of the original 19 allegations our findings from interviewing various people differ from the findings made by GAP in their interviews of the same people. In this regard, we intend to request a meeting with the GAP attorney assigned to this case and resolve the discrepancies. We have apprised the Department of Justice (DOJ) (i.e., the U.S. Criminal Division Attorney assigned to Ohio and the Chief, Special Processing Unit, Southern Ohio District) of our investigation efforts and have confirmed that DOJ has all information provided to us by GAP. DOJ informed us that they have found the information to be without merit from a DOJ criminal investigation standpoint. We will keep DOJ informed of our investigation progress, especially in areas where we believe criminal findings may develop.

Note: No contact will be made with GAP until Mr. Keppler meets with Mr. Stello and Mr. DEYUNG on THIS SUBJECT.

OFFICE	RIII <i>W</i>	RIII <i>JK</i>	RIII <i>SS</i>
SURNAME	Davis/jr	Keppler	Streeter
DATE	3/17/81	3/17/81	3/17/81

*Warrick 3/17/81*

Victor Stallo, Jr.

- 2 -

3/17/81

There is some evidence of alcohol and drug use at the Zimmer site in that empty beer containers and marijuana cigarette butts have been found. However, no one has stated that the use was extensive or that such use affected construction quality. We are attempting to identify work which may have been performed by persons under the influence of drugs or alcohol. We are still considering the best way to address this allegation.

We plan to meet with CG&E within the next two weeks to discuss our findings as of that time and obtain their resolution of them. At that time we will decide whether any stop work order should be issued.

If you have any questions or advice regarding the information presented above, we would appreciate hearing from you.

James G. Kappler  
Director

cc: R. C. DeYoung, IE  
J. H. Sniarek, IE  
D. Thompson, IE  
J. J. Cummings, OIA

bcc: R. F. Heishman  
C. E. Norelius  
J. F. Streeter  
~~B. F. Warnick~~  
P. A. Barrett  
J. B. McCarten

OFFICE	SURNAME	DATE





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

MAR 9 1981

MEMORANDUM FOR: R. F. Heishman, Director, Division of Resident and  
Project Inspection

FROM: A. Bert Davis, Deputy Director

SUBJECT: COMMENTS ON APPELATE ALLEGATION

Enclosed are my comments on the first Applegate allegation writeup.  
I will be happy to discuss them with you.

A. Bert Davis  
Deputy Director

Enclosure: as stated

cc w/enclosure:  
C. E. Norelius  
J. F. Streeter  
R. F. Warnick  
P. Barrett  
J. McCarten

COMMENTS ON ALLEGATION NO. 1

General Comment

I recommend the format should be as stated in my memorandum of February 9, 1981. Specifically per l.b. of that memorandum we should pull together in a paragraph all information specified in l.b. The same applies for l.c.

In addition the following specific comments apply.

- 1.\* See comments included on your writeup.
2. This sentence is not very clear to me. Is it fair to say: CG&E decided to proceed with installation of the originally designed main steam relief piping, realizing that some rework would be necessary due to the required redesign. The basis for the decision ...
3. Can you make a statement as to how you knew the radiographs you looked at were not faked?
4. State whether the review of the radiographs showed the welds to be OK or not.
5. Add the following:

The NRC made no attempt to corroborate these costs or the licensee's claim that it was cheaper to proceed with an installation which was known before installation to require rework. The NRC's concern is the adequacy of the design and installation of the final product. This adequacy has been confirmed.

\* Numbers correspond to those shown on the writeup in circles.

Zimmer

FORWARD

The following allegations (numbering 1-19) came to the NRC from the Office of Special Counsel of the Merit Systems Protection Board (M.S.P.B.) in a documented Request for an Investigation Pursuant to 5 USC 1206 (b) (7). The Request was submitted to the M.S.P.B. on behalf of Mr. Thomas W. Applegate by the Government Accountability Project (GAP) of the Institute for Policy Studies (IPS). It is noted that GAP and IPS are not agencies of, nor affiliated with, the United States Government.



NRC Investigation of Activities Pursuant to the Request Submitted to the  
M.S.P.B.

① Note to state whether allegation was substantiated, partially substantiated or not substantiated.

1. KEI knowingly installed and ripped out unsuitable main steam relief piping at an estimated labor cost of \$320,000. During the period of 2/9-13/81 and 2/23-27/81, the RIII inspector discussed and reviewed pertinent information and documentation concerning the allegation. Discussions with Mr. H. C. Brinkman, Principle Mechanical Engineer, CG&E, indicated that in 1975, a nuclear power plant in Germany discovered the need to redesign the relief system based on new discharge loads. Therefore, several utilities, including CG&E, decided on a modification to replace the already installed raws head safety relief valve (SRV) discharge devices with quenchers.

CG&E decided to start the modification, knowing that rework on main steam relief piping would be necessary, even though the piping had not been installed. The basis for the decision was that approximately 95% of the original design would be acceptable and therefore only 5% would be subject to rework. CG&E's decision concluded that it would be less costly to go ahead in 1975 with the installation activities rather than to delay the construction schedule until the modification design was complete. To date, the modification design is not complete. ] 2

The NRC has been aware of the modification activities as described in the Mark II Design Assessment Report, Chapter 2.0 — Zimmer Empirical Loads, ZPS-1. The RIII inspector observed that the latest documentation received from the NRC Licensing Branch No. 2 at the site concerning the

modification activities, was NUREG-0487, Supplement 1, titled, "Mark II Containment Lead Plant Program Load Evaluation and Acceptance Criteria." It should be noted that there may be more changes in the future due to additional load definitions.

The modification has required the replacement of 10 inch schedule 40 pipe with other 10 inch schedule pipe of different configurations, 10 inch extra strong pipe, and 12 inch extra strong pipe.

During this investigation the licensee provided cost figures for modification to date. The total labor cost was \$823,780.00 and the total material plus labor cost was \$1,183,690.00. (5)

The RIII inspector reviewed all revisions to the KEI isometric drawing PSK-1MS, Sheets 21 and -21A, which were pertinent to the main steam relief piping. No additional changes of the magnitude addressed in the allegation were identified. The revisions identified the following changes:

Rev. 0	Redrawn -- original configuration replaced	9/8/76
Rev. 1	Hangers added	3/31/77
Rev. 2	Eight lugs added	1/10/78
Rev. 3	Hanger changed	5/5/78
Rev. 4	New spool pieces added, welds MS212 and MS195 voided per S&L	4/3/79
Rev. 5	Piping tee section added	6/18/79
Rev. 6	Weld MS160 and a 4 inch dimension added	10/1/79

Rev. 7	Field marked (redline) updates added	1/9/80
Rev. 8	Welds K-461 and K-463 changed; weld K-592 changed to K-593 per NR-2499; hanger detail section D-D added	9/27/80
Rev. 9	Weld K-592 changed to K-461; and weld K-593 changed to K-594	9/4/80

All of the above revisions pertained to the aforementioned modification.

The RIII inspector reviewed the QC documentation for the following main steam relief piping field welds: Nos. 160, 160A, 267A, 267B, 267C, 267D, 268B, 268C, 268D, 459, 460, and 461. ↗

The <sup>documentation</sup> ~~records~~ indicated that the welds had been accomplished in accordance with ASME Section III 1971, Summer 1973 Addenda.

The RIII inspector interpreted the radiographs for the following main steam relief piping field welds: Nos. 160A, 459, 460, 461, 462, and 594. ↗

It is noted that there are approximately five to seven radiographs for each of the above welds. The varying number of radiographs are necessary to cover the entire 360 degrees of each pipe weld. The radiography was performed in accordance with ASME Section III 1971, Summer 1973 Addenda. (E) (A)

The above discussions and reviews indicate that the alleged activities were performed in accordance with the KEI QA program.

No items of noncompliance or deviations were identified.

Additional information:

Also contacted: F. J. Oltz, Records Supervisor

R. L. Wood, QA Engineer

Previous reports have not yet been incorporated into this write-up.



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

MAR 5 1981

MEMORANDUM FOR: File

FROM: A. Bert Davis, Deputy Director

SUBJECT: TELEPHONE CONVERSATION WITH IRA ROSEN, 60 MINUTES

On March 4, 1981, Mr. Rosen called for Mr. Keppler and I took the call. He said he was interested in talking about Zimmer. He had been contacted by Mr. Applegate and was aware of the Applegate allegations and concerns. He asked me how serious the matter was. I told him I was not in a position to give an answer to that now since the investigation was proceeding. He asked how long it was going to take to do the investigation. I indicated I could not give an answer to that and in spite of his trying to pin me down, no specific answer was provided.

I attempted to assure Mr. Rosen that we were performing a thorough investigation. We discussed the GAP involvement and the questions being asked as to the quality of our previous investigation of this matter. Mr. Rosen indicated that he felt better that we were being watched closely by GAP and assured me that he would watch us closely also. He implied that we would not do a good job unless we were watched closely. He brought up the Creswell/Davis Besse problem as an indication that we are not thorough in our work. He closed the conversation by restating that he would watch us closely and would be in touch with us with respect to the Zimmer investigation.

A. Bert Davis  
Deputy Director

cc: R. J. Strasma  
J. F. Streeter  
R. F. Heishman  
C. E. Norelius  
J. McCarten  
R. Warnick  
P. Barrett

Toll-free Conference Call

file  
Zimmerman

10

Bonnie Dore  
G. I. Day (G) & Everett (E)

3/4/81  
M. Egan, Bonita, Winona, Struts, A

3/12/80 G call from Egan, Atty, returned by persons who trespassed at Zimmerman, Men, Mrs X, gone Egan. Later J Jones called G.

3/14/80 G met w. Jones (Applegate). 1 1/2 hr mtg. Went thru documents, Ap had tapes - told to give to FBI. G went to FBI, found Ap had been to FBI 3X. One of best agents had been assigned to cover G compared notes w. agent. Concluded that nothing Ap said could be substantiated w/out merit to bring to G attention. Gilroy reviewed Sinala + decided not to ~~open~~ per file.

2/17/81 Applegate brought some records again to G also took some records to Hamilton County + Clairmond County.

At Sinala instructions again went thru the motel and found no merit.

Everett identified allegation  
theft of motel & belt buckles  
embezzlement (KE) Supt diverted motel & labor room address  
theft of copper (20 employees \* 15K in one week, Xmas party w. prostitutes  
false time recording (KE)



Sale of stolen weapons (some hot)

Obstruction of justice coverage:

- found time cards
- inadequate QC (schemas, PM directly)
- defective press cleaning of paper (2nd vs)
- radiographic faults in pipe

We agreed

1. They will take care of referring appropriate things to local and state law-officers
2. For items we believe could be criminal and nuclear safety, we will coordinate with Everett - Gilday before interviewing. Will meet with them in about two weeks
3. They have responsibility for all criminal items which have no relation to nuclear safety or violation of AE related laws.

file  
Zimmer

2/26/81

Meeting w. Applegate & Devine

1. Transcript + 2 tapes, not made public during investigation
2. JGK, ABD personally involved.
3. PM coerced to leave the site. Tapes Ap + Alredge of P Breakin at Zimmer, pilfered data from PM which may have shown bad work, have suspect names + gave to us. Alredge says data was pilfered. This is related to pipe from Kellogg. They don't know what documents were taken
  - \*-- We will get body tape enhanced
4. Fuel not guarded because security understaffed. Guards told not to bring dope into Security VP. How can you weld when drunk, drugged, or interested in a prostitute. Have witnesses who say workers were drunk, engaged heavily.
  - \*-- Will interview Mr. Kuehl. Mr. Hyde, Harris, Donald, Taylor, Griffin, Haffelbacher, Martin, + witnesses
  - \*-- Says fuel is stored near blowout walls and ~~the~~ tornadoes could tear building down
  - \*-- We will cooperate w. DOJ
  - \*-- No will explore how we can protect witnesses so they will be free to talk to us
  - \*-- Pursue scanning people by only using their information as background
  - \*-- will keep OSHA informed + coordinate stuff we referred to them.
  - \*-- Our people will contact Applegate and work with us on down there to see if



- there is any new information,
- \* -- may talk to Applegate if people won't talk to us if he can open any doors for us.
- \* -- We will subpoena Mr. Ross if necessary
- \* -- " may have to subpoena Mr. Harris.

5. Now for questions to help us.
- get specifics on residual heat values.
  - weld rod control
  - Time frame of A gas
  - pipe that fell off truck
  - 20% of welds defective, prefabricated ones.
  - cable tray hangers & pen filling.
  - HT EX control panel
  - Physical videos on site.
    - mafia, bookies, prostitutes.
  - Who has black book?

6. \* If we encounter difficulty in getting info, we would invite DOJ.
- \* We will supply cc of transcript to DOJ
  - \* Mr. Everett will be made aware of meeting, will tell him if FBI wants to <sup>accompany</sup> us - OK; cooperative of state & local - consult our lawyers before inviting them to go with us.
    - ( -- Applegate would interfere between us & state remains if they contact us.

- \* Taking statements from all who provided GAP type info under oath.
- \* Will get tapes enhanced + provide copies.

#### 6. GAP asked about schedule

- hard to say because of spin offs.
- see several weeks or several months involved.
- prepared to add more people.
- Talked to 40 to 50 people, looked at work
- Winnik personally sup. told of our crew.
- Will contact all people on witness list
- Are doing independent verification. No NDE by us yet.
- When would we do our own radiographs? Hard to answer, need to look at preponderance of evidence. May need consultants. Haven't ruled out anything
- What is an INC
- Discussed Reg Guides.
- Discussed Levitating from FSARs.
- How do you decide how narrow an investigation item should be.
- Discussion on upgrading components to SR.
- Do you need NDE to lift CP. No.



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

FEB 25 1981

MEMORANDUM FOR: File

FROM: A. Bert Davis, Deputy Director

SUBJECT: TELECON WITH MR. TOM APPLGATE, FEBRUARY 23, 1981

I attempted to call Mr. Applegate on Friday, February 20, and Saturday, February 21, 1981, to invite him to Region III for discussions concerning additional information that he claims to have related to our current investigation at Zimmer. On February 23, 1981, I was able to make contact with him. He agreed to come to the regional office to provide us any further information he may have concerning our investigation at Zimmer. He requested that his attorney be permitted to attend also.

I agreed to pay the expenses of both Mr. Applegate and his attorney for the trip to Region III. I told him he would be meeting with seven or eight people including the Regional Director, the current investigator and his supervisor, a representative of the Office of Inspector and Auditor, a representative of IE Headquarters, and me during this meeting. We discussed arrangements for the NRC's delivery of an airplane ticket and money for the travel. He said he would have his attorney call me so similar arrangements could be made for that individual.

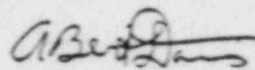
During the conversation Mr. Applegate stated that he would like to have a representative of the Department of Justice present, I told him we would not do that, but we would have a representative of the Office of Inspector and Auditor present. I explained the function of the Office of Inspector and Auditor as an interface between NRC organizational segments and the Department of Justice. This seemed to satisfy him.

He also strongly stated that he would be skeptical of any information resulting from an investigation at Zimmer if we did not take action to remove Kaiser and CG&E people from the facility during the investigation. As he had stated to me in our previous telephone conversation, he believes that CG&E and Kaiser can hide information faster than our investigators can uncover it.

FEB 25 1951

He indicated that he had been on a radio talk show last evening and that many employees from Zimmer had called in confirming what Mr. Applegate had to say.

He indicated that he was not out to ruin CG&E. He said that he had received training in investigation techniques and that he had applied these techniques objectively in developing his information concerning problems at Zimmer. He indicated that neither the government nor CG&E had done anything to show that his findings were not correct.



A. Bert Davis  
Deputy Director

cc: J. Streater  
J. McCarten  
R. Warnick  
P. Barrett



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

FEB 23 1981

MEMORANDUM FOR: File

FROM: A. Bert Davis, Deputy Director

SUBJECT: TELEPHONE CALL FROM MR. TOM APPLIGATE  
FEBRUARY 19, 1981

Mr. Applegate called me and made the following comments:

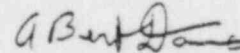
1. He could not understand why our current investigation did not involve talking to him or to those people who had previously provided information to him concerning problems at Zimmer. I told him the reason we had not contacted him was that we felt we had all of his information as a result of the packages of information provided to us by GAP. I asked him if he had any further information or details that he felt that we needed to know in order to conduct a thorough investigation. He answered in the affirmative.
2. He commented that he needed to talk to us in order to protect his life. I told him I did not know what action we could take to protect his life and suggested that he contact the local law enforcement officials.
3. He asked why we had not referred these matters to the Department of Justice. I commented that we had not uncovered anything involving criminality. He took strong exceptions to this, making references to drug use, alcohol use, stealing materials from the plant and so forth. I commented that we had not determined as yet that these activities had adversely affected the quality of construction at the plant in a manner which would affect public health and safety.
4. He commented that he felt that the utility construction permit should be suspended during this evaluation because the utility and its contractors while present at the site could cover material problems faster than we could identify them.
5. He told me about a radio interview that he had this morning. He felt that he was being intimidated because a CG&E employee toured the radio station at the time of the interview and subsequent to the interview the CG&E public affairs person called requesting equal time to rebut Mr. Applegate's statements.

6. On several occasions Mr. Applegate brought up a concern for his life. He compared his case to the Karen Silkwood case in which a jury found that she was killed because she had provided information to the Nuclear Regulatory Commission.

I found Mr. Applegate to be somewhat upset during the conversation but he was quite lucid and convincing in his manner of presentation.

During the conversation Mr. Applegate asked questions which I felt I could not answer because the investigation was in progress. I tried to convince him that we were attempting to conduct a comprehensive investigation, which would be responsive to his allegations. I told him that I could not answer questions in the middle of the investigation, because we could again be criticized for not conducting a thorough investigation if we answer questions before our facts were completely in hand.

I doubt that Mr. Applegate was convinced of our intent to be quite comprehensive in our investigation, as a result of this conversation.



A. Bert Davis  
Deputy Director

cc: J. Streeter  
J. McCarten  
P. Barrett  
R. Warnick





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

FEB 17 1981

MEMORANDUM FOR: Paul Barrett  
Tom Daniels  
Carl Erb  
Jim McCarten  
Jerry Schapker  
Kavin Ward

FROM: A. Bert Davis, Deputy Director

SUBJECT: INVESTIGATION AT ZIMMER FACILITY

I appreciated the opportunity to spend 2 1/2 days with you on the Zimmer investigation. It was a pleasure to get to know each of you and to work with you during this period of time. The comments and suggestions you provided to me regarding ways to improve the regional inspection program were also appreciated. I hope I can do something about many of them.

Based on what I've observed, I'm sure the investigation effort that you have undertaken will be very successful, since your dedication and competence were very apparent.

A handwritten signature in cursive script that reads "A. Bert Davis".

A. Bert Davis  
Deputy Director

cc: C. E. Norelius  
R. F. Heishman

file.  
Zimmer

2/11/81

Maura/Morris/Davis on Zimmer

1. Fred doesn't think problems had been identified and would have been fixed before FL date.
2. Fred had findings in 1979 on CR slides which ~~indicate they were in compliance~~ they blamed on busy letter audits.  
- No confidence in CG&E QA
3. Our modules must be done and closed on a given schedule. Do modules when no work is being done. Things can change after ~~the~~ module is completed.
4. Modules could be improved  
Inspectors may have been too easy  
Supers. don't want to make waves.
5. Vandal + Maura were even twisted to say Zimmer was OK.
6. Select systems for NDE which have most severe service.
7. Zimmer/Mable Hill not consistent in regulatory action. Should have shut Zimmer down.
8. All inspectors should have been present when some met with us to decide if Zimmer project should have been shut down.



9. Fred feels that all records at plant are suspect. Can look at QA records and say nothing else is any good. Conversely he can look at other records which indicate QA records are no good.

Can only accept that plant is quite a No. confidence based on QA.

10. Must make sure the revision to inputs of report are not changed by Wamath/Bennett.
11. Kayphs did not stop the job because there is no direct relationship to H&S.

5/11/81

Zimmer/Manna

1. Purpose is to get your advice on how to proceed with causing construction at other plants in the future.
2. What will be done so far for Zimmer.
3. Do you think it
  - inspector performance
  - inspection program
  - management
4. We don't have manpower to do team inspections at all facilities. What would you do?
5. Is this harder than construction? Does it apply to pre-ops.

James W. Nichols

1. Name to handle to have GAO - to  
determine w.o. of investigation  
themselves why there were more  
or why not instead of itself

2. Possibly get TNT to  
do collection or why we must  
what we do

3. Talk to Howard

ROUTING AND TRANSMITTAL SLIP

Date

To: (Name, office symbol, room number, building, Agency/Post)

Initials Date

1. <i>Butt Davis</i>		
2.		
3.		
4.		
5.		

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

In connection with your concerns for accountability of our actions, I thought you would want to read the attached memo.

Also, I would like to discuss if this memo should be responded to, and if so, by whom.

Long I missed your meeting on the subject Friday.

DO NOT use this form as a RECORD of approvals, concurrences, disapprovals, clearances, and similar actions.

FROM: (Name, org. symbol, Agency/Post)

Room No. - Bldg.

*CH 12/81*

Phone No.

April 22, 1981

MEMORANDUM FOR: R. F. Warrick, Chief, Reactor Projects Section 2B  
THRU: I. W. Jackiw, Acting Chief, Test Program Section  
FROM: F. Maura, Reactor Inspector  
SUBJECT: RESULTS OF ZEDDOR INVESTIGATION

On April 17, 1981 I completed my write-up of the investigation of the Zimmer diesel generator subsystems and gave a copy to Paul Barrett. The purpose of this memo is to give you my recommendations on what actions are required to correct the problems noted.

Small Bore Piping Weld Fit-up Verification

The licenses shall be required to tabulate all small bore piping in systems important to safety where the QA inspector failed to verify proper fit-up prior to welding. The tabulation should be by system, drawing number and line number. Initially our position should be that all those welds be radiographed to verify that approximately a 1/16" gap was maintained prior to welding. Our fall-back position should be that IE:RIII will determine which welds the licenses shall radiograph. Our selection shall be based on system function, type of service the system is subjected to (design pressure, temperature, etc.) materials used, etc. For example, all safety related systems shall require 100% verification by radiography.

Lack of Adequate Material Heat Number Traceability

The licenses shall be required to walk down all systems important to safety, using the latest as-built drawings, and record the heat number of all pipes, fittings, etc. If the heat number can not be found on the component, it shall be marked on the drawing as "unknown". Next, the licenses shall verify that the installed heat numbers are acceptable (material certifications are available at the site and meet the ASTM Specifications). All material with unacceptable heat numbers shall be replaced. With regards to material of unknown heat number (not stamped on pipe) our initial position should be that it be replaced. Our fall-back position should be for IE:RIII to review each item and based on system function, type of service, environment, etc. make a determination of which components shall be replaced and which to accept.



Alterations of Weld Records (NE-1) Based on Weld Rod Issue Records (NE-2)

The licensee shall discontinue using the material issue forms to correct QA records. To prevent further deterioration of the QA records the licensee shall not attempt to remove the "corrections" already made, instead the licensee shall tabulate all QA records which were modified using Construction Department records. For turnover purposes the licensee will have to accept from Kaiser the records as they now exist. Where the records as they now exist are unacceptable, the only solution shall be to perform the work over again.

NERC's Performance

The NRC shall determine why it failed so miserably, during its routine inspection program in identifying and correcting the problems now surfacing at the Zimmer site. These are problems which should have been detected and corrected two or three years ago. Either our inspection program, the inspectors, our management, or a combination of all three allowed these problems to exist for so long. Corrective action must be taken to prevent recurrence. Our findings raise the question whether Zimmer's problems are an isolated case or whether our program has allowed similar problems to develop in other plants within our region. To answer that question NRC must conduct similar team inspections at other NRC plants under construction as soon as possible.

F. Maurer, Reactor Inspector

NERC

Maurer/ls      Jackiw  
4/21/81

Ticket 4/30

Brief Smezek  
on Zimmer independent  
verification.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60127

FEB 9 1981

MEMORANDUM FOR: C. E. Norelius, Assistant to the Director  
R. F. Heishman, Chief, Reactor Operations and  
Nuclear Support Branch

FROM: A. Bert Davis, Deputy Director

SUBJECT: ZIMMER INVESTIGATION

It is requested that the investigation currently in progress at the Zimmer Site, which resulted from the government accountability projects questions regarding our previous investigation of Mr. Applegate's allegation, include the following:

1. Documentation of the areas investigated should address:
  - a. The allegation
  - b. The manner in which the allegation was reviewed. List documents reviewed, individuals with whom discussions were held, and direct observations made. For facts determined by conversations with individuals, document the areas discussed and the information obtained.
  - c. State the acceptance criteria used by the investigator/inspector in reaching a conclusion regarding the allegation.
  - d. Clearly state the conclusion.
2. Sworn statements will be obtained from those allengers who presented information to Mr. Applegate. Statements obtained from other persons such as QA/QC inspectors will not be sworn statements, unless the investigator believes this is appropriate.
3. Since independent tests or radiographs are not intended, please assure that a determination is made that test results and radiographs are not fraudulent and report the basis for this determination.



FEB 9 1981

4. Since it has been stated that management statements may not be accurate because they have a vested interest in the site, verify at least a percentage of management statements by such means as records or direct observation to assure their accuracy.

If you have any questions regarding the above items, I will be pleased to discuss them with you.

*J. G. Keppler Jr.*  
A. Bert Davis  
Deputy Director

cc: J. G. Keppler  
J. Streeter



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

January 5, 1981

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CIA ...  
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involve ...

MEMORANDUM FOR: Chairman Ahearne  
FROM: James J. Cummings, Director  
Office of Inspector and Auditor  
SUBJECT: THOMAS W. APPEGATE ALLEGATIONS

*Handwritten initials:*  
James J. Cummings  
E. B. ...  
...

Attached is a letter to you from the Office of the Special Counsel dated December 29, 1980, which was directed to this office.

As you requested in your December 15, 1980, memorandum to me, this office will investigate the adequacy of the Office of Inspection and Enforcement's (IE) handling of Applegate's allegations. We will also refer to appropriate law enforcement agencies any allegations of criminal activity beyond the scope of IE's current investigation of the safety issues raised by Mr. Applegate.

Attachment:  
As stated.

- cc: Commissioner Gilinaky, w/cy Special Counsel ltr
- Commissioner Hendrie, w/cy Special Counsel ltr
- Commissioner Bradford, w/cy Special Counsel ltr
- Victor Stello, w/attach
- L. Bickwit, w/attach



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

Contains information  
confidential to the public

December 15, 1980

MEMORANDUM FOR: Region III Files  
THRU: *E. E. Norelius*  
Charles E. Norelius, Assistant to the Director  
FROM: G. A. Phillip, Investigative Specialist  
SUBJECT: ZIMMER PLANT - ALLEGATIONS

On November 18, 1980 Jay Harrison, Resident Inspector at Marble Hill, advised Jim Foster and me by telephone that he had been contacted by an individual, Silas Heath, who has been a QC inspector at Zimmer and who is now working at the Marble Hill site. According to Harrison, Heath had made allegations primarily relating to welding. I agreed to contact Heath.

On December 9, 1980 J. Shapker and I had a telephone conversation with Heath who's specific concerns were as follows:

1. Phill Gittings, Kaiser QC Manager, who has been at Zimmer since July 1980, has voided several nonconformance reports issued on hanger welds. Gittings has done this on the basis of personally examining fillet welds by shining a flashlight on them from several feet away and concluding the weld is acceptable. Heath advised that Rex Baker, Inspection Supervisor, Kaiser, should be interviewed and he will be able to provide specific examples.
2. Bolt holes for large bore pipe support hangers are required to be made by drilling rather than burning. Although some instances of burned bolt holes have been identified, there is no inspection program to assure the bolt holes are inspected.
3. David Fox, Welding NDE Quality Engineer and Len Wood, QA Engineer, CG&E, are finding as many as 30 discrepancies during reviews of ASME Code data packages. They "are getting a lot of flak" for identifying so many discrepancies. The discrepancies are being recorded on an exception list rather than in nonconformance reports. Heath did not know whether there was a procedure controlling this review, the documentation of discrepancies and the resolution of them.
4. Kaiser threatened to fire an inspector, Abe Ramos, for refusing to accept a weld. He said he heard that Ramos was also nearly fired for using a magnifying glass when examining welds when, in fact, he was using a mirror to view the far side of a pipe weld. Heath indicated Rex Baker would have more specific information in this regard.

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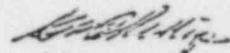
Restricted

Zimmer Plant - Allegations

2

December 15, 1980

Heath was advised that we might not be able to follow up on these items until January 1981 but that we would contact him to inform him of our findings.



G. A. Phillip  
Investigative Specialist

cc: J. Schapker  
G. Fiorelli  
I. Yin  
D. Danielson  
F. Daniels

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confidential sources

Restricted

Docket No. 50-358 80-09 2 980

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

Gentlemen:

This refers to the investigation conducted by Messrs. G. A. Phillip, K. D. Ward and T. E. Vandel of this office on April 7-9 and 30, May 1-2 and 20, 1980, of activities at the Wm. H. Zimmer Nuclear Power Station authorized by Construction Permit No. CFP-88 and to the discussion of our findings with Mr. B. K. Calver and others at the conclusion of the onsite portion of the investigation on May 2, 1980.

This investigation related to allegations concerning installed safety-related piping. The enclosed copy of our investigation report identifies areas examined during the investigation. Within these areas, the investigation consisted of an examination of pertinent records and procedures, independent evaluations and interviews with personnel.

During this investigation, certain of your activities appeared to be in noncompliance with NRC requirements, as described in the attached Appendix A.

This notice is sent to you pursuant to the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within thirty days of your receipt of this notice a written statement or explanation in reply, including for each item of noncompliance: (1) corrective action taken and the results achieved; (2) corrective action to be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter, the enclosures, and your response to this letter will be placed in the NRC's Public Document Room, except as follows. If the enclosures contain information that you or your contractors believe to be proprietary, you must apply in writing to this office, within five days of your receipt of this letter, to withhold such information from public disclosure. The application must include a full statement of the reasons for which the information is considered proprietary, and should be prepared so that proprietary information identified in the application is contained in an enclosure to the application.

OFFICE				
SURNAME				
DATE				

Cincinnati Gas and Electric  
Company

- 2 -

JUL 2 1980

We will gladly discuss any question you have concerning this  
investigation.

Sincerely,

James G. Kappler  
Director

Enclosures:

1. Appendix A, Notice  
of Violation
2. IE Inspection  
Report No. 50-358/80-09

cc w/encls:

Mr. J. R. Schott, Plant  
Superintendent  
Central Files  
Reproduction Unit NRC 10b  
PDR  
Local PDR  
NSIC  
TIC  
Harold W. Lohn, Power Siting  
Commission  
Citizens Against a Radioactive  
Environment  
Helen W. Evans, State of Ohio

OFFICE	RIII	RIII	RIII	RIII	RIII	RIII
SURNAME	Phillip/cv Ward	Vandel Bartlett	Knopf	Fiorelli	Burke	Kappler
DATE	6/30/80					7/2



Appendix A

NOTICE OF VIOLATION

Cincinnati Gas and Electric  
Company

Docket No. 50-358

Based on the results of the NRC Investigation conducted on April 7-9 and 30, May 1-2 and 20, 1980, it appears that certain of your activities were not conducted in full compliance with NRC requirements as noted below. This item is an infraction.

10 CFR Part 50, Appendix B Criterion IV, states in part that "Measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation."

- a. The Henry J. Kaiser Co. Zimmer Quality Assurance Manual in Quality Assurance Procedure (QAP) No. 16 requires in part that "All non-conforming items will be segregated, where possible, from acceptable items, clearly identified with the applicable Hold or Deficiency Tag and documented on the Nonconformance Report." It additionally requires that "Upon Verification that all work on the item is complete and acceptable, the nonconformance report (NR) is signed off in Section 13 by the Inspector."

Contrary to the above, 5 piping spools identified by HRE-1911 Rev. 2 were released from segregation even though the Inspector had signed off section 13 with a notation of specific exceptions to acceptability of the material by identifying another NR controlling the material. This release was achieved through unauthorized removal of the noted exceptions on the NR.

- b. The Henry J. Kaiser Co. Zimmer Quality Assurance Manual in Quality Assurance Procedure (QAP) No. 16 requires in part that "... material is clearly identified as nonconforming and is segregated, where possible. Due to size limitations physical segregation may be impractical. In such instances tagging, marking, or other means of identification is acceptable." Additionally QAP 13 requires that "A 'Hold' tag is placed on the item . . . It is used in conjunction with a 'Nonconformance Report'."

Contrary to the above, 3 piping spools identified in NR E-2020 as nonconforming and required to be cleared by additional tests, not only had been released from the warehouse, but in addition had been installed without any "hold" tag being placed on the material.

OFFICE					
SURNAME					
DATE					



U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-358/80-09

Docket No. 50-358

License No. CPPR-88

Licensee: Cincinnati Gas and Electric Company  
139 East 4th Street  
Cincinnati, OH 45201

Facility: Wm. H. Zimmer Nuclear Power Station

Investigation At: Moscow, OH  
Chicago, IL

Dates of Investigation: April 7-9 and 30, May 1-2 and 20, 1980

Investigators: *G. A. Phillip* 7/1/80  
G. A. Phillip Date

*K. D. Ward* 7/2/80  
K. D. Ward Date

*T. E. Vandell* 7-2-80  
T. E. Vandell Date

Reviewed By: *Gen W. Ray* 7-2-80  
E. Norelius Date  
Assistant to the Director

*R. C. Knop* 7/3/80  
R. C. Knop, Chief Date  
Construction Projects Section 1

Investigation Summary: Investigation on April 7-9 and 30, May 1-2 and 20, 1980 (Report No. 50-358/80-09)

Areas Investigated: Because of allegations made primarily relating to the adequacy of piping welds, performed a review of records and procedures.

made independent evaluations and conducted interviews of personnel. The investigation involved 94 investigation hours by three investigators. Results: Of four allegations, one, which related to the installation of pre-fabricated piping having defective welds, was partially substantiated in that the pipes were installed before questions regarding their acceptability were resolved. One item of noncompliance, an infraction, was identified: (1) 10 CFR 50, Appendix B, Criterion XV, release of material from segregation and failure to use hold tags.

#### REASON FOR INVESTIGATION

On February 28, 1980, an individual who contacted the NRC by telephone made allegations regarding the Wm. H. Zimmer Nuclear Power Station. One of these allegations was that piping having defective welds had been installed in a safety-related system.

#### SUMMARY OF FACTS

Following the receipt of allegations by telephone on February 28, 1980, arrangements were made to interview the alleged to obtain more detailed information. During an interview on March 3, 1980, the individual made several allegations, three of which involved matters under the jurisdiction of the NRC. By letter dated March 11, 1980, the alleged was advised that an investigation would be conducted regarding those allegations which were as follows:

1. Defective welds in safety-related systems have been accepted, among them were welds CY606, HR42 and K811.
2. Five defective welds were identified in prefabricated piping but the pipes were accepted and installed in a safety-related system.
3. The manner in which safety-related installed piping was flushed was inadequate and a scheduled six-week flush was reduced to two weeks.

Allegation No. 1 was not substantiated.

Allegation No. 2 was partially substantiated in that three of five identified pipes had been installed in the main steam relief system before questions as to their acceptability had been resolved. Two items of noncompliance were identified in this regard. It was also determined that at the time of the investigation a nonconforming report requiring disposition remained open concerning the acceptability of the three pipes. During the investigation additional examinations were made of the pipes and they were determined to be acceptable.

Regarding Allegation No. 3, it was determined through contact with the primary source of the information upon which the allegation was based, that he had left the site in November 1978 and problems in this area had been identified and resolved through NRC inspections conducted between November 1978 and the receipt of the allegations in March 1980.

Following completion of the investigation at the Zimmer site, the alleged contacted Region III and alleged he had evidence of a criminal

conspiracy and that the welds on the three above-mentioned pipes had been cut out and repaired during the course of the investigation and this information was withheld from the NRC. The basis for these allegations, which consisted of recordings of three telephone conversations, was obtained from the alleged during an interview on May 8, 1980. No information or evidence was obtained to confirm these allegations during the interview or during subsequent investigation.

One item of noncompliance, an infraction, was identified during this investigation.

DETAILS

1. Persons Contacted

Cincinnati Gas and Electric Company (CG&E)

\*B. K. Culver, Project Manager  
\*W. W. Schwiers, QA Manager  
\*R. L. Wood, QA Engineer  
\*D. C. Kramer, QA and S Engineer  
S. Swain, Construction Manager  
\*J. F. Weissenberg, QA and S Engineer

Kaiser Engineers, Inc. (KEI)

\*R. Marshall, Project Superintendent  
\*E. V. Knox, QA Manager  
K. R. Baumgarten, QA Manager  
R. M. Dorr, Construction Engineer  
A. Fallon, Welding/NDE QA Engineer  
F. Oltz, Analysis and Procedures Supervisor, QA  
J. Deerwester, Supplier QA  
D. Haag, QA Inspector

Peabody Testing Services (Peabody)

Ernest Aldredge, President  
Charles Wood, Manager; Cincinnati Office (via telephone)  
Wayne Draffon, Supervisor (via telephone)  
Alan Sellars, Field Supervisor  
D. Burdsal, Level II Inspector

Nuclear Energy Services, Inc. (NES)

R. Bott, NDE Supervisor  
R. A. Liebel, NDE Inspector

2. Introduction

On February 28, 1980, the Office of Inspection and Enforcement NRC Headquarters advised Region III of a telephone conversation with an individual who made allegations concerning activities at the Wm. H. Zimmer Nuclear Power Plant Construction site, and requested that the individual be contacted. Later the same day during a telephone conversation with Region III, and during an interview on March 3, 1980, the individual made several allegations.

The individual stated that he had been employed by a private detective agency, and the licensee, CC&E, through his employer, had engaged him to work under cover at the Zimmer site to investigate time card padding by site personnel. His investigation effort began on December 10, 1979 and ended on January 4, 1980. In addition to information regarding worker time card padding, he obtained information regarding other activities which was the basis for several allegations, some of which related to matters under the jurisdiction of the NRC.

The individual stated he had earlier brought his information to the FBI. He indicated he was uncertain as to what action, if any, would be taken by that agency.

The individual stated he had documentation relating to his allegations in the form of weekly reports he had prepared and tapes of several of his conversations with site personnel. During the interview on March 3, 1980, the individual played those parts of the tapes which he said contained pertinent information and made available copies of his reports.

### 3. Allegations

Based on the information obtained through the interview with the alleged, a review of the taped conversations and his investigative reports, three allegations involving activities under NRC jurisdiction were developed. By letter dated March 11, 1980, the alleged was advised that an investigation of these allegations would be conducted. A copy of this letter with the alleged's identification deleted is attached to this report as Exhibit A. These allegations and information regarding them obtained during the investigation are set forth below.

Allegation 1: Defective welds in safety-related systems have been accepted, among them were welds CT606, HR42 and KS11.

The identification of the specific welds in this allegation was obtained from a review of the tape the alleged had made surreptitiously of his conversations with site personnel. According to the information obtained by the alleged, weld CT606 was buried in concrete between the Radwaste Building and the Containment Building. He said it was his understanding that they dug it up to repair it, but he was uncertain whether this was done.

Regarding weld HR42, the alleged said that he had informed CC&E that this weld was defective. He said he had heard that another testing firm had been hired as a consultant, and this firm had confirmed the weld was defective. He also said it was his understanding that this defect was reported to the NRC.

Regarding weld KS11, the alleged said he was informed that this weld had "an insert fault" and that KEI had ordered that it be accepted.

The allegor stated that Peabody Testing Services (Peabody), also referred to as Magnaflux, personnel had informed him that some welds that Peabody, the nondestructive testing contractor, had rejected as faulty were subsequently accepted by KEI, the site construction management contractor. He said that a Peabody employee had records identifying the welds rejected by Peabody which were subsequently accepted by KEI. He indicated that by way of explanation, CG&E had informed him that the interpretation of the film obtained through radiographic examinations of welds is a judgment call. The appearance of an item on a radiographic film may be judged to be a defect by one individual and not by another and KEI could overrule Peabody.

Finding:

On April 7, 1980, the Peabody field supervisor was interviewed. He stated that he had no records showing the welds Peabody had initially rejected which were subsequently declared acceptable by KEI. He indicated that, although he was aware that this had occurred, he did not know how often and he could not provide any specific instances. He also stated that the results of radiographic examinations are recorded on reader sheets. The radiographic film and the original reader sheets are turned over to KEI. He said Peabody only had carbon copies of the reader sheets.

As a means of further evaluating whether KEI was accepting welds identified as defective by Peabody, a safety-related system, the High Pressure Core Spray System, was selected and all reader sheets pertaining to it were reviewed. Of 99 welds in the system which were radiographed, two instances were noted in which Peabody had checked the reject column and KEI had lined that check out and had checked the accept column. The radiographs of these two welds were reviewed by an NRC inspector who is a certified NDE Level III. He concurred that the welds were acceptable. Conversely, it was noted that in several instances, between five and ten, the original accept check mark entered by Peabody had been lined through and a reject check had been entered by KEI.

Regarding the subject of welds and radiographs of them, an NRC inspection conducted on November 8-9, and December 12-13, 1978 (Report No. 50-358/78-30) identified several discrepancies in radiographic techniques and reports. During a subsequent inspection on September 18-20, and December 11-12, 1979 (Report No. 50-358/79-17) several more discrepancies were identified. CG&E then hired NES to rereview radiographs and reports of all welds which had been accepted for turnover prior to operation. This review began in October 1979 and was completed in early April 1980. The review included 2,390 radiographed welds. Of those, 958 had report discrepancies, 543 had some technique problems and 14 welds were found to be unacceptable because of defects.



The K&L Project Superintendent advised on May 1, 1980, the 14 welds were being re-examined and resolution regarding them had not been completed. He stated that one of the 14 welds found to be unacceptable was the subject of a nonconformance report and, therefore, had not been accepted for turnover. This weld, he said, should not have been included in the NES review. Another weld had been cut out of the pipe for examination and it was determined that, although it appeared to have a defect on the radiographic film, it was, in fact, an acceptable weld.

Regarding weld No. K811, a review of records showed it was welded on November 9, 1977, but because an Authorized Nuclear Inspector hold point was missed at the fitup, the weld was cut out and replaced by weld No. K916. The missed hold point was documented by Nonconformance Report (NR) No. E-2138R1. This NR indicates that the disposition was to cut out and replace the weld. It was determined that weld No. K916 had not yet received final acceptance.

Regarding weld No. K842, records indicated this weld was first radiographed on August 9, 1976, and found to have unacceptable porosity and slag in the areas of 36-48. The areas were repaired and a reradiograph performed on August 10, 1976 found it to be acceptable. A review was made of the radiographs for weld quality, techniques, and report accuracy by an NES Level II radiographer on January 25, 1980 as part of the above-mentioned re-review initiated after the 1978-79 NRC inspections. The NES Level II radiographer found some discrepancies which have not been resolved, and the weld has not been given final acceptance.

Regarding weld No. CT606, a review of records showed this weld was first radiographed on July 15, 1976 and found to have incomplete fusion and penetration in the areas of 0-13 and 13-16. The areas were repaired and the weld re-radiographed on June 8, 1977 and found to be acceptable. A review was made of the radiographs for weld quality, techniques and report accuracy by an NES Level III radiographer on October 12, 1979 as a result of the NRC inspection conducted in 1978. The Level III found some discrepancies which have not been resolved and the weld has not received final acceptance.

Allegation 1: The manner in which safety-related installed piping was flushed was inadequate and a scheduled six-week flush was reduced to two weeks.

The allegor provided information that a site employee informed him on December 27, 1979, that another individual who had been employed as a general foreman at the site had objected to the flushing procedures used. He had also objected when a particular flush that should have taken six weeks was cut to two weeks. On one occasion the individual had demonstrated the flushing was inadequate by pounding on a pipe which released sediment and slag during the flush. The identity of the former general foreman was provided by the allegor.

Finding: On April 7, 1980, the former general foreman was contacted and interviewed. This individual said he had worked at the Zimmer site from June 1973 until November 1978. In 1978 he was the general foreman of the flush group.

Regarding the six-week versus two-week flush, the individual indicated it had been anticipated six weeks would be needed to prepare for and flush one of the systems. He, however, was able to accomplish a satisfactory flush in two weeks. He indicated that the shorter time did not mean the flush was not done according to the requirements. Rather, it was a case of he and his men being able to accomplish a job in less time than expected.

This individual stated that in his opinion the welding done on the critical systems, such as the main steam lines and in the reactor building, was good. He said, however, that several problems were encountered in the flushing activities while he was at the site but he was unable to provide information regarding any specific requirements that were not met.

NRC inspections conducted subsequent to the departure of this individual from the site included an examination of flushing activities and some specific problems were identified. On the basis of one of these inspections, conducted January 3-6 and 8, 1979 (Report No. 50-358/79-01), one item of noncompliance and one deviation were identified. The noncompliance related to a failure to close a valve during a flush and an inadequate procedure to assure boundary valves are closed. The deviation was that the procedure did not require tagging of boundary valves. A second inspection conducted February 27-28, March 1-2, 19-23, and April 9-11, 1979 (Report No. 50-358/79-06) resulted in one item of noncompliance regarding flushing activities. This related to a failure to maintain control of flushing waters resulting in the flooding of equipment in a system which had been turned over for preoperational testing.

The individual indicated a matter of concern to him was that a hydrotest of the reactor containment was successfully performed, but after the test some instrument lines were cut out which invalidated the hydrotest. He indicated he was uncertain as to whether CG&E would attempt to use this test as meeting test requirements or whether the NRC was aware the test had been invalidated by the subsequent modifications.

On April 8, 1980, the NRC Resident Inspector advised that he as well as CG&E were aware that the initial hydrotest was not valid because of the subsequent modification of the instrument lines. He stated that another hydrotest was tentatively scheduled to be performed during the summer of 1980.

In view of the above, further investigation at the site in the area of flushing activities was not pursued.

Allegation 3: Five defective welds were identified in prefabricated piping, but the pipe was accepted and installed in a safety-related system.

Through a review of reports written by the alleged and the tapes of conversations with site personnel as well as information supplied through interview on March 3, 1980, the following information was obtained regarding this allegation.

During the MRC hearings in November 1979, a question was raised concerning an accident which involved the dropping of fuel rods. A former site employee had provided information to attorneys who were opposed to the licensing of the plant which was the basis for raising this question. A miscommunication between the former employee and the attorneys occurred, however. The question about an accident should have referred to piping being dropped from a tractor trailer rather than fuel being dropped.

The alleged advised that in about October 1979, a trailer load of pipes fabricated at the Kellogg Company, located in Pennsylvania, arrived at the site in the middle of the night. Since personnel and proper equipment were not available to unload it properly a member of CG&E management issued instructions to push the pipe from the truck onto the ground.

When the pipes were found on the ground the following day, it was decided that the pipes would have to be inspected by x-ray to determine whether they had been damaged. Peabody was instructed to x-ray (radiograph) the pipes and 5 to 8 faulty welds were identified. Since Peabody had been instructed to check the pipes but not the welds, and since the welds had been tested and found to be acceptable before shipment by Kellogg, the pipes were approved by KEI Quality Assurance. These pipes were installed in the Main Steam Relief System, a safety-related system.

Finding: A bill of lading dated June 29, 1979 showed that Pullman Power Products, a division of Pullman, Inc., Williamsport, Pennsylvania, formerly known as M. W. Kellogg Company, released to the Daily Express Company five pieces of pipe assembly I/S, weighing 6,700 pounds, for delivery to the CG&E Zimmer site on Monday, July 2, 1979. A packing slip accompanying the shipment listed the following pieces:

IMS08B12-6B  
IMS09BA12-1AH  
IMS08BA12-5BH  
IMS11B12-7BH  
IMS10BA12-1CH

A KEI receiving stamp shows it was received on July 3, 1979. Copies of the bill of lading and the packing slip were obtained and are attached to the report as Exhibits B and C, respectively.

Each of these pipes (spool pieces) were for the Main Steam Safety Relief Valve discharge and were carbon steel pipe assemblies approximately 15' 7 5/8" long, 12 3/4" in diameter and having a wall thickness of .687".

On hand at the Zimmer site were QA documentation packages for each of these 5 spool pieces received from Pullman. A copy of one package was obtained and is attached to this report as Exhibit D.

On July 5, 1979, Nonconformance Report (NR) No. E-1911 was prepared indicating "Spools were rolled off of truck onto ground and striking other spools" and listing the above identification numbers. The issuance of this NR had the effect of placing these pipe spools in a hold status in the KEI warehouse. On July 10, 1979, the KEI Construction Engineer entered the following disposition on this NR "Rework. (1) Perform liquid penetrant test on all welds; (2) perform visual inspection of weld and preps. Accept on basis of inspection (1) and (2). Should any pipe spool fail due to inspections (1) and (2) a separate Nonconformance will be issued." A KEI QA engineer concurred in this disposition on the same date. A copy of NR E-1911 is attached to this report as Exhibit E.

NR E-1911 was voided and superseded by NR E-1911 Rev. 1 on the same date, July 10, 1979. KEI and CG&E personnel advised that the disposition shown on NR E-1911 was reconsidered because they wished to avoid removing the paint from the welds which would be necessary before a liquid penetrant examination could be performed. NR E-1911 Rev. 1 changed the first item of the disposition to: "Perform RT examination of all welds." A copy of NR E-1911 Rev. 1 is attached to this report as Exhibit F.

A QA Surveillance Report dated July 23, 1979, addressed to a CG&E QA engineer signed by the KEI NDE QA engineer, showed that on three spool pieces, weld X4 had rejectable indications, and requested to be advised concerning the dispositioning of these rejections. The CG&E QA engineer stated that to the best of his recollection, he did nothing in response to this request and could not recall having discussed the matter with anyone. A copy of this Surveillance Report is attached to this report as Exhibit G.

CG&E and KEI personnel stated all five spool pieces were radiographed on an "information only" basis but only the films for those three referred to in the Surveillance Report were retained. The X4 weld is a weld which joins a solid cap to one end of the spool piece. Radiography is not the appropriate technique employed to examine a weld of this kind since the gamma rays must pass through the cap (about 12' of metal) as well as the weld. The KEI Construction Engineer said the radiographs were done with the thought that they might show surface damage, even though it was recognized the quality of the film would not be good and it was recognized that the film would not meet any code standards.



NR E-1911 Rev. 1 was voided and superseded by NR E-1911 Rev. 2 on July 31, 1979. The disposition shown on the latter was to perform RT examinations of all "butt-welds" and to perform visual examinations of all "filler-welds."

A QA Surveillance Report dated August 8, 1979 showed that all five spool pieces were visually examined and were found acceptable. A copy of this Surveillance Report is attached to this report as Exhibit H.

Since two spool pieces had shown no indication of damage through radiographic examination and visual examination another NR, No. E-1997, dated August 9, 1979, was prepared as a mechanism to remove those two spool pieces from a hold condition but to retain an open NR on the other three. NR E-1911 Rev. 2 was closed by KEI QA on August 9, 1979, with the notation "Exceptions on → See NR E-1997." A copy of the NR E-1911 Rev. 2 is attached as Exhibit I.

NR E-1997 showed that the spool pieces IMS09BA12-1AH and IMS08BA12-5BE were acceptable. On August 13, 1979 the KEI Construction Engineer placed a notation on NR E-1997 "CG&E to disposition." The KEI Construction Engineer stated that this was appropriate since CG&E has responsibility for off-site vendor supplied items. On August 19, 1979 the CG&E Construction Engineer added the disposition "Accept-As-Is" and described the reasons for this disposition. A copy of NR E-1997 is attached to this report as Exhibit J.

Quality Assurance Instruction, QACMI No. G-4, Nonconforming Material Control, requires that NRs dispositioned "Accept-As-Is" be signed by the Material Review Board before they are closed out. NR E-1977 was closed out on October 17, 1979 with a comment added by the Sargent & Lundy (S&L) board member to the effect that "Welds rejected by radiograph are covered by NCR E-2020." A copy of the closed NR E-1997 is attached to this report as Exhibit K.

NR E-2020 showed the same information as NR E-1997, but at the time of the investigation, E-2020 had not been closed out. A copy of NR E-2020 is attached to this report as Exhibit L.

A review of records at the warehouse showed that the three spool pieces, which were the subject of the open NR had been released to construction for installation as follows:

<u>Item</u>	<u>Issue Date</u>
IMS11B12-7BH	9/18/79
IMS10BA12-ICH	9/24/79
IMS08BB12-6B	9/28/79

On April 8, 1980, it was established that these spool pieces had been installed and no "Hold" tag or "Deficiency" tag had been placed on them. This is in noncompliance 10 CFR 50, Appendix B, Criterion XV, and KEI Quality Assurance Procedure No. 15.

It was ascertained that the spool pieces had been released from the warehouse on the basis of a later version of NR E-1911 Rev. 2 on which the above-mentioned notation referencing NR E-1997 had been lined through on September 14, 1979. A copy of this version of NR E-1911 Rev. 2 is attached to this report as Exhibit M.

It was determined that the QA Document Control Supervisor had lined out the notation. He indicated that he had heard that NR E-1997 was being voided so he felt there was no point in it being cross-referenced any longer on NR E-1911 Rev. 2. The supplier QA man in the warehouse indicated to him that some pressure was being felt from construction to get the spool pieces released. The Document Control Supervisor informed the warehouse that NR E-1911 Rev. 2 had been closed out and it was all right to release the spool pieces. He said this was done on the assumption that what was considered to be a paper problem would be cleared up. The Document Control Supervisor as well as other site personnel indicated the acceptability of the spool pieces was regarded as a paper problem rather than a real problem. It was indicated that the probability of actual damage to pipes of that size and wall thickness due to mishandling upon delivery was extremely remote.

The supplier QA man advised that the spool pieces were released from the warehouse on the basis of the version of NR E-1911 Rev. 2 which had the reference to NR E-1977 lined through (Exhibit M). He indicated that the Document Control Supervisor was instructed to line through the notation by a CG&E official. The latter individual, however, denied any recollection of having given that instruction. The improper close out of NR E-1911 Rev. 2, which resulted in the release of spool pieces for installation before their acceptability had been established is in noncompliance with 10 CFR 50, Appendix B, Criterion XV, and KEI Quality Assurance Procedure No. 16.

On April 23, 1980, Deficiency Tags were placed on the spool pieces and during the period April 25-28, 1980, Peabody personnel performed magnetic particle and ultrasonic inspections of the welds in question. The reports of these inspections were reviewed and the Peabody inspectors performing these examinations were interviewed on May 1, 1980. The Peabody personnel stated that they had concluded on the basis of these examinations that the spool pieces were acceptable. It was also ascertained that on April 28, 1980, Pullman personnel visited the Zimmer site and also performed ultrasonic inspections of the welds. On the basis of these examinations, Pullman provided a statement to CG&E that these welds were acceptable. Peabody personnel advised that they had observed the examinations performed by Pullman and they agreed with the results.

4. Additional Allegations

During telephone contacts with the NRC on May 5 and 7, 1980, the allegor stated that he had evidence of criminal actions relating to the spool pieces which were the subject of Allegation No. 3 above. He stated that he had evidence that between the two visits to the Zimmer site by the NRC investigations team on April 7-9 and April 30-May 1-2, the welds had been cut out and/or repaired. This he alleged, was the reason that the welds were judged to be acceptable during the second visit. He also stated he had evidence that pressure was exerted upon Peabody personnel to withhold information from the NRC in connection with the investigation.

On May 8, 1980, the allegor was interviewed jointly by NRC and FBI personnel. During this interview the allegor provided for review a tape recording of three telephone conversations he had had with Peabody personnel. After listening to the three conversations, the FBI representative indicated that they did not appear to him to be evidence of criminality. The tape was furnished to the NRC for further review and follow up.

The first conversation, according to the allegor, took place on May 5, 1980 with a supervisor in the Peabody, Cincinnati office. At one point during this conversation the supervisor said: "They cut some of those welds out." The allegor responded: "You mean since the NRC had begun their investigation?" The supervisor then said: "Oh, yes, they did that the next Monday." Later in the conversation, the supervisor said: "I do know they started repairing some welds."

On May 20, 1980, the supervisor who had made the above statements, was interviewed by telephone. He stated that he had no first-hand knowledge of activities at the Zimmer site and that his comments to the allegor were based upon his conversations with another Peabody employee. This second individual visits the Zimmer site and may have acquired the information himself, or through conversations with another Peabody individual who does work at the site. He stated he did not know whether the information he received concerning the repairs of welds related to the three spool pieces or to some other pipes.

The second Peabody employee was also interviewed by telephone on May 20, 1980. He advised that the welds that were repaired were some which had been identified as bad during the NES audit. He said to his knowledge no repairs had been made on any 12" pipe welds. He added that he had reviewed the results of the ultrasonic examinations performed on the 12" pipes and he had concluded the welds are acceptable.



The third Peabody individual, who is employed at the Zimmer site, was also interviewed by telephone on May 20. This individual stated that the paint had been removed from the welds on the 12" pipes so that the tests could be made of them. He said this was done with wire wheels and there were no repairs or even grinding done on the welds.

The second taped conversation took place on May 5, 1980 between the allegor and a radiographer employed by Peabody. This radiographer had been identified by the allegor as being one of the individuals who had been involved in performing the radiography on the spool pieces in July 1979. During the conversation the allegor asked the radiographer whether the pipes were bad. The radiographer responded: "I can't really say." The allegor then stated he had been informed the welds were cut out and repaired. The radiographer responded: "I don't know." The allegor again raised the question as to whether the welds were defective and the radiographer responded: "I didn't read the film. I was a Level I and not qualified to interpret the film." The radiographer then identified the Peabody employee who had read the film. The latter individual had been interviewed on May 2, 1980. He had stated that all five spool pieces that had been dropped from the truck had been examined and no indications of defects had been found except the three which were documented by an NR.

The third taped conversation took place on May 6, 1980 between the allegor and the president of Peabody. The primary topic of conversation was the action taken by CG&E in early April 1980 in transferring the radiography work from Peabody to another contractor, NES. The President stated that he did not dispute the action taken because it would have a detrimental effect on his firm's position in the industry, and adversely affect their efforts to obtain future contracts.

On May 20, 1980, the President of Peabody was interviewed concerning this conversation. He stated that the action taken by CG&E, and his posture regarding it, had nothing to do with the quality of work at the Zimmer site. He said that, to his knowledge, no Peabody employees had been pressured to accept or approve defective welds. He stated that Peabody's contract provides for their performing the radiography and that the acceptance or rejection of a weld rested with KEI. Peabody had no responsibility in this regard and, therefore, an allegation that they were forced or pressured to approve bad work was meaningless. All film and original records relating to radiography examinations were turned over to KEI according to the terms of the contract. He indicated that it was his understanding the NRC required that these materials be retained at the site and available for inspection.

#### 5. Management Discussion

On May 2, 1980, the results of the investigation were discussed with CG&E and KEI personnel identified by an asterisk (\*) in the Persons Contacted section of this report.

Attachments: Exhibits A through M

List of Exhibits

- A - Ltr dtd 3/11/80 NRC to Allegor
- B - Bill of Lading
- C - Packing List
- D - QA Documentation Package
- E - NR E-1911
- F - NR E-1911 Rev. 1
- G - Surveillance Report dtd 7/23/79
- H - Surveillance Report dtd 8/8/79
- I - NR E-1911 Rev. 2
- J - NR E-1997
- K - NR E-1997 (closed)
- L - NR E-2020
- M - NR E-1911 Rev. 2 (closed)