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

MAR 2 0 1981

REPORT OF INVESTIGATION

TITLE: William H. Zimmer Nuclear Power Station
ALLEGATIONS CONCERNING QA/QC PROGRAM

CASE NUMBER: HQS-81-001

SUPPLEMENTAL: DOCKET NO. 50-358

PERIOD OF INVESTIGATION: FEBRUARY 18-20, MARCH 2, 1981

STATUS OF INVESTIGATION: CLOSED

INVESTIGATORS:

Peter E. Baci 3/20/81
PETER E. BACI, SENIOR INVESTIGATOR
Investigations Branch, IE Staff
Office of Inspection and Enforcement

Edward C. Gilbert 3/20/81
EDWARD C. GILBERT, STAFF INVESTIGATOR
Investigations Branch, EI Staff
Office of Inspection and Enforcement

REPORT REVIEWED BY:

William J. Ward 3/20/81
WILLIAM J. WARD, CHIEF
Investigations Branch, EI Staff
Office of Inspection and Enforcement

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SUMMARY

During an investigation involving the Quality Assurance (Q/A) Program at the William H. Zimmer construction site (Cincinnati Gas & Electric), NRC Region III investigators identified five former Quality control (Q/C) inspectors at Zimmer who were now believed to be employed at the Virginia Electric Power Company's (VEPCO) North Anna site. The above individuals were believed to have information concerning the Q/A Program at Zimmer which was important to the regional investigation and NRC Headquarters was requested to interview them in this regard.

NRC staff investigators travelled to the North Anna site in Mineral, Virginia on February 18-20, 1981 and on March 2, 1981 for the purpose of conducting these interviews. Four of the five individuals referred to IE HQs by Region III were still employed at the North Anna site. The fifth could not be located. In addition to the four, three other individuals at North Anna were identified by the investigators as having been Q/C inspectors at Zimmer during the same time period as the others. All of the individuals still employed at North Anna were interviewed by the investigators and provided signed sworn statements. In some cases, the individuals were able to provide documentation which they felt substantiated the allegations made to the regional investigators. The allegations which IE HQs was asked to investigate centered around the Q/A program and included the following:

a) Nonconformance reports being voided without justification or explanation;

b) Lack of an independent Q/A program; and

c) Harassment of Q/C inspectors, including the dumping of buckets of water on inspectors by craft personnel.

When interviewed, the seven were generally critical of the Q/A Program as it existed at Zimmer. They said that it lacked the independence from construction necessary for it to be effective and viewed the termination of contracted Q/C personnel (or "shoppers") as a move by the Constructor, Kaiser Engineering, to gain even tighter control over the Q/A Program. According to the inspectors, the lack of independence manifested itself in various ways, including the voiding of nonconformance reports by Q/A management without justification or explanation and the harassment of Q/C inspectors by construction or craft personnel. Concerning harassment, they cited examples of buckets of water being dumped on the inspectors by craft personnel, acts which they attributed to the latter's perception of the inspectors being too conscientious or efficient in their jobs.

Based on their experience working at Zimmer, the interviewees opined that the Q/A Program at that site was, at best, tolerated by Kaiser management as a necessary evil. They stated that both the harassment of the Q/C inspectors and the policies and actions of Kaiser Engineering, as typified by the voiding of nonconformance reports, contributed to the lack of an independent and effective Q/A Program at Zimmer.

The seven individuals who were interviewed provided statements which detailed their knowledge concerning the above allegations.

BACKGROUND

On or about February 13, 1981, Investigator James B. McCarten, IE Region III, contacted IE Headquarters pursuant to instructions from his management and requested assistance from the Investigations Branch (IB). McCarten requested that IB Investigators locate and interview five individuals who had previously worked at Zimmer and who were now believed to be employed as Quality Control inspectors at the Virginia Electric Power Company's (VEPCO) North Anna site.

The Region III request was approved that same day by Dudley Thompson, Director, Enforcement and Investigations Staff, and Investigators Peter E. Baci and Edward C. Gilbert were assigned to the case.

The individuals identified by Region III to be interviewed by Investigators Baci and Gilbert were:

[redacted]
Ernest DUMAS
Billie E. TYREE
Jesse RUIZ
Winston JACKSON

PURPOSE OF INVESTIGATION

The purpose of this investigation was to investigate allegations made to NRC Region III that: 1) nonconformance reports written by Quality Control (Q/C) inspectors at the Zimmer construction site were being voided without justification or explanation; 2) there was no independence of the Quality Assurance Program from construction; and 3) there was harassment of Q/C inspectors which took the form of buckets of water being dumped on the inspectors by craft (construction) personnel.

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INTERVIEW OF JOHN R. BOOTH

John R. BOOTH, Level II Quality Control (Q/C) Inspector, was interviewed on February 19 and 20, 1981 by NRC Investigators Edward C. Gilbert and Peter E. Baci. Mr. BOOTH related he has been employed as a Q/C inspector at the following Nuclear Power Stations: North Anna from November 1, 1980 to the present; Zimmer from August 1 to October 31, 1980; and Summer from approximately January 1978 to August 1980.

Mr. BOOTH remarked that while he was employed by the Butler Service Group, Inc. at Zimmer, working conditions were entirely different than at the other nuclear power stations. He explained that all echelons of Kaiser Engineering personnel emphasized production and barely tolerated the Quality Assurance (Q/A) Program and its inspectors. In this respect, he informed there was no cooperation between craft personnel and the Q/C inspectors since the inspectors received minimum respect and were constantly being challenged regarding their inspection findings.

Mr. BOOTH stated that due to the influence of Kaiser Engineering over the Q/A Program it was extremely difficult for him to initiate a non-conformance report (NCR). He explained that prior to preparing an NCR, he was required to discuss the situation with his immediate supervisor, Wayne BIEHLE, a Kaiser employee. He continued that if Mr. BIEHLE concurred with the necessity of preparing an NCR, he (Mr. BIEHLE) gave him an NCR form and assigned a control number to the NCR. He added, however, that he submitted very few NCR's since Mr. BIEHLE, Phillip GITTINGS, the Q/A Manager, and other Kaiser personnel disagreed with many of his findings. He advised that when his proposed NCR was disapproved, either the deficiency was not corrected or it was handled informally, by "in-house" documents with no accountability, identified as Hanger Inspection or Surveillance Forms.

Mr. BOOTH advised he voluntarily terminated his employment at Zimmer due to the restrictions placed upon the Q/C inspectors and the apparent lack of confidence Kaiser personnel displayed in his professional competence. He added that he subsequently heard a rumor that he would have been fired since Kaiser supervisory personnel were of the opinion his rejection rate unnecessarily delayed construction. Mr. BOOTH's signed sworn statement is Enclosure (A).

INTERVIEW OF WINSTON R. JACKSON

Winston R. JACKSON was interviewed on February 18 and 20, 1981 by NRC Investigators Peter E. Baci and Edward C. Gilbert. Employed by Advanced Industrial Design Engineers (AIDE) since November 3, 1980, Mr. JACKSON works as a Level II Quality Control (Q/C) inspector at the North Anna Nuclear Station. Prior to that, he worked from July 1979 through November 1980 as a Q/C inspector (Electrical) at the Zimmer Nuclear Station for a company known as the Butler Service Group (BSG).

JACKSON opined that, overall, the Zimmer Project was a very poorly run operation. The Quality Assurance Program (Q/A) was theoretically independent of construction; however, he felt that since both Q/A and construction ultimately reported to the same boss in Kaiser (the construction engineer), Q/A was not, in actual fact, an independent function. He stated that while he left the job site before Kaiser terminated the contract of BSG, it was his feeling and the feeling of other inspectors he knew that the reason for Kaiser's action was to tighten their control over the Q/A Program.

JACKSON indicated he was aware of non-conformance reports (NCR) having been voided or rejected but that this had never happened with any of his NCR's as far as he knew. He also indicated that this was not a problem for Q/C inspectors in the electrical area but rather for those doing mechanical and piping inspections.

JACKSON stated that he was aware of several incidents in which buckets of water were dumped on Q/C inspectors by craft personnel. He felt that these incidents represented harassment of Q/C inspectors by construction personnel and said that he believed they were reported to Kaiser management. He stated that he was not aware of any action having been taken by Kaiser concerning this problem.

JACKSON stated that he left the employ of BSG at the Zimmer site to accept a better paying position with AIDE. JACKSON's signed sworn statement is Enclosure (B).

INTERVIEW OF RICHARD B. PRICE

Richard B. PRICE, Quality Control (Q/A) Inspector, was interviewed on February 18 and March 2, 1981 by NRC investigators Edward C. Gilbert and Peter E. Baci. He advised he has been employed by ABACUS Temporary Technical Services, Virginia Beach, Virginia, assigned to the North Anna Nuclear Power Station, from December 15, 1980 to the present. Previously, he worked at the Zimmer Nuclear Power Station, initially as a "shopper" for the Butler Service Group Inc. from September 1979 to November 28, 1980 and then directly for Kaiser Engineering from December 1 to December 14, 1980.

Mr. PRICE remarked that reportedly during the first nine years of construction at Zimmer, prior to Butler being contracted to perform Quality Assurance (Q/A) inspections, the Q/A Program at Zimmer was exceptionally poor. He observed that when he commenced employment at Zimmer many welds had not been documented and the quality of workmanship by craft personnel was very bad. He continued that under Butler, the Q/A Program improved considerably although its effectiveness was diminished by the influence of Kaiser personnel.

He stated he prepared many non-conformance reports (NCR) or punchlists identifying the various deficiencies he discovered during his inspections. He pointed out there were many instances of grossly rejectable work, including arc strikes, unsatisfactory welds and minimum wall violations which had previously been inspected and accepted by Kaiser personnel. Mr. PRICE disclosed some of his NCR's were voided by Kaiser personnel without adequate justification or explanation and others were simply returned to him without being assigned a control number or otherwise being processed. He could not recall the specific deficiencies cited in these NCR's. He added that although he had maintained a personal file of these rejected NCR's he was unable to remove it when he terminated his employment. He stated that to his knowledge the punchlists were "in-house" forms which were not included in the permanent plant documentation or disclosed to other than Kaiser personnel. He continued that for this reason and the fact that punchlists required a minimum of effort, time

and paperwork, the Q/C inspectors were encouraged to submit deficiencies on punchlists rather than NCR's. He stated that in his opinion this resulted in many items appearing on punchlists which should have been reported by NCR's. Further, he noted that the specifications set forth by Kaiser in the Special Process Procedure Manual (SPPM) were very vague in defining whether a deficiency should be reported by an NCR or on a punchlist.

Mr. PRICE remarked that he was warned by his immediate supervisor, John SEILOCK, Lead Inspector in the Hydro Group, that he would be terminated by Kaiser if he continued to be so critical in his inspections and continued to generate an excessive number of NCR's. He stated that many Q/C inspectors felt they were harassed and initimidated by Robert MARSHALL, Project Manager, and other Kaiser construction personnel because of their inspections and their general attitude toward the Q/A Program. He specified that Mr. MARSHALL attempted to force Phillip GIIIINGS, Kaiser Q/A Manager, to fire [redacted], a Q/C inspector. He explained that Mr. MARSHALL accused Mr. [redacted] of using a magnifying glass during an inspection whereas Mr. [redacted] actually had a mirror. Additionally, he volunteered that Walter HAMM Sr., Pipe General Foreman, allegedly told Mrs. Jan MULKIE, another Q/C inspector, words to the effect she didn't know what she was doing and that he was going to proceed on various construction projects even though she had filed NCR's on them.

Additionally, Mr. PRICE informed he was aware of at least twelve occasions during his tenure at Zimmer when construction workers poured buckets of water on Q/C inspectors. He continued that this occurred to both Mrs. MULKIE and Michael DE PUCCIO while they were conducting inspections in the containment building. He did not observe the incidents himself although he did see the inspectors immediately after the acts when they were soaked with water. Mr. PRICE remarked the Q/C personnel were of the opinion that water was thrown on these two individuals since they were conscientious Q/C inspectors who refused to accept inferior and non-conforming work by craft personnel. He revealed that according to rumors, two Kaiser personnel nicknamed "Frenchie" and "John Boy" were responsible for throwing the water. He advised the incidents were

reported to Mr. SEILOCK, Phil NORMAN, Lead Supervisor, and one or more of the three various Q/A Managers. Additionally, he related the information came to the attention of Mr. MARSHALL or Dick CRANSION, one of whom unofficially "spread the word" that five construction workers would be terminated if there were any further incidents of water being thrown on Q/C inspectors. Mr. PRICE was aware of no additional action being undertaken by Kaiser management personnel concerning this situation.

Mr. PRICE stated there were many Liquid Penetrant Iest Reports (LPR) containing the Xeroxed signature of Ierry DAKIN as the authorizing inspector which were continuing to be utilized after Mr. DAKIN had terminated his employment as an inspector at Kaiser. He pointed out the details portion of the LPR's appeared to reflect the original (vice: Xeroxed) handwriting of individuals other than Mr. DAKIN. Iherefore, he concluded the LPR's containing Mr. DAKIN's signature were filled out by other Kaiser personnel after Mr. DAKIN had left. He suspected this was done to indicate welds had been previously inspected and approved by Mr. DAKIN although they actually had not. He noted that LPR's are included in the permanent plant documentation.

Mr. PRICE stated that Rich REIIER had to have his NCR's co-signed by Eloyd OLIZ since Mr. REIIER was not a certified Q/C inspector. He continued that Mr. REIIER prepared many NCR's and/or Surveillance Reports regarding the traceability system on piping and fittings since the heat accountability was not recorded as required. He continued, however, that these reports were not processed. He remarked that Mr. REIIER was not offered a position with Kaiser since Mr. GIIIINGS disliked him as a result of the NCR's he prepared. He added that Lannie WOOD, who still works at Zimmer, reportedly has copies of the unprocessed reports submitted by Mr. REIIER.

Mr. PRICE related that Scott SWAIN, a Cincinnati Gas and Electric Company (CG&E) employee, utilized a new formula to determine the acceptable limits of minimum wall thickness of piping. He continued that Mr. SWAIN then issued a memorandum instructing the Q/C inspectors to accept minimum wall violations which did not exceed the parameters established by his formula. Mr. PRICE

stated, however, that since this method did not conform to procedures set forth in the SPPM, Mr. BAUMGARINER, Q/A Manager, and Mr. COX, another Kaiser employee, told the Q/C inspectors to ignore Mr. SWAIN's memorandum until the change was incorporated in the SPPM. In this same context, Mr. PRICE disclosed that Kaiser directed Q/C inspectors to accept weld splatter on carbon steel pipe approximately two or three months prior to this change in acceptance criteria being officially written.

Mr. PRICE concluded that the Q/A Program and general workmanship at Zimmer were the worst he had observed at the five or six nuclear power sites he has worked at. Accordingly, he suspected there were many potential public health and safety dangers inherent at Zimmer. Mr. PRICE's sworn signed statement is Enclosure (C).

In support of his various assertions, Mr. PRICE provided copies of the following documents on March 2, 1981:

a. Non-conformance Report # E2868, dated November 3, 1980, submitted by Mr. PRICE, which contains no disposition, justification or other processing. (Enclosure H)

b. Inter-office Memorandum, dated August 6, 1980, pertaining to the processing of punchlists tickets on turned over and non-turned over systems. (Enclosure I)

c. Performance instructions (undated) to Q/C inspectors to be followed during the walkdowns conducted prior to Hydro Testing and prior to turnover. (Enclosure J)

d. Liquid Penetrant Test Report, dated " / /79," containing the Xeroxed signature of Terry DAKIN as the reporting and approving Q/C inspector with the details section blank. (Enclosure K)

e. Cincinnati Gas and Electric Company Design Document Change # M-4828, dated February 29, 1980, reflecting the method to be used to determine the actual minimum wall thickness of piping utilizing the formula devised by Scott SWAIN. (Enclosure L)

f. Kaiser memorandum # 415, dated October 29, 1979, instructing Q/C inspectors to accept weld splatter unless it involves dissimilar metals. It also reports that a walkdown procedure specifying acceptances criteria will be written. (Enclosure M)

These documents are set forth as Enclosures (H) through (M), respectively.

INIERVIEW OE [redacted]

[redacted] was interviewed on Eebruary 18 and 20, 1981 by NRC investigators Peter E. Baci and Edward C. Gilbert. Employed by [redacted] of [redacted], [redacted] has worked as a Level II Quality Control (Q/C) Inspector at the North Anna Nuclear Station since December 22, 1980. Prior to that he was employed in the same capacity by the Butler Service Group (BSG) and, briefly, by Kaiser Engineering, at the Zimmer site from October 8, 1979 through mid-December 1980. [redacted] has also worked as a Q/C Inspector for Brown and Root at the Comanche Peak Nuclear Station and has completed nearly two years of job related courses (welding technology, metallurgy, chemistry, etc.) at Iexas Iechnical Institute.

[redacted] stated that while he worked at the Zimmer site, Quality Assurance (Q/A) was just a "gimmick" to keep the job going and the money coming in. He indicated that a major problem was the voiding of Q/C inspectors' nonconformance reports (NCR) by Kaiser management without any justification or explanation and estimated that approximately 20 to 28 NCR's prepared by him were so voided. [redacted] stated that he would often be sent out to reinspect an item he had rejected, even though no corrective work had been performed. He was often overruled by the Q/A Manager, Phillip GIIIINGS, who claimed he was "nitpicking" and put remarks to that effect on the NCR. According to [redacted], if the Project Manager, Robert MARSHALL, wanted an NCR voided, GIIIINGS would either void it himself or send it back to the inspector and have him do it.

[redacted] claimed that there was pressure from MARSHALL to accept and not reject items. In one instance, [redacted] rejected welds on some hanger restraints, which, according to [redacted], had been rejected before, both by him and other inspectors. MARSHALL had signed off on these welds on a "punchlist," (an internal document, not a permanent record) and had expected [redacted] to sign off on them too. [redacted] said he would not sign off on the welds and gave the "punchlist" back to MARSHALL.

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About a week after the above incident, [redacted] claimed he was being followed about by MARSHALL and a CG&E employee named Scott SWAIN. According to [redacted], they were watching him as he was verifying the location and taking structural dimensions of some hangers in the diesel generator room. He told the reporting investigators that he had a flashlight and a mirror with him at the time, which he set down because he was not using them. [redacted] stated that MARSHALL came over, picked up the mirror and showed it to SWAIN. Shortly afterwards, MARSHALL and SWAIN left the diesel generator room.

According to [redacted], he was called in after lunch by his supervisor, Rex BAKER, and advised that he was being terminated at the request of MARSHALL and SWAIN for using a magnifying glass for his final inspections. He claimed that GIIIINGS had told BAKER to terminate him at the specific request of MARSHALL and SWAIN. According to [redacted], GIIIINGS later confirmed this during his ([redacted]) exit interview at Zimmer. [redacted] said that he explained the situation to BAKER; he told him that the incident involved a mirror, not a magnifying glass, and moreover, that he was not even using the mirror when MARSHALL was present.

[redacted] stated that he pointed out to BAKER that even had he been using a mirror or magnifying glass, this was acceptable procedure under both the American Welding Society (AWS) Code and the Special Process Procedure Manual (SPPM), an inhouse Kaiser document. According to [redacted], he told BAKER he would leave only if he received written notice, stating exactly why he was being terminated. [redacted] said BAKER then went back to GIIIINGS and related their conversation, whereupon GIIIINGS changed his mind and said [redacted] could stay, but that he wanted [redacted] out of hanger inspections.

[redacted] felt that this incident was just another example of management harassment for trying to do his job. He stated that whenever he tried to do his job properly, they would tell him he didn't know what he was looking at. When Kaiser terminated the "shoppers" contracts in November 1980, he said he received an offer of direct hire from Kaiser, as did most everyone else. Although [redacted]

indicated he didn't want to work for Kaiser, he took a job with them for about two weeks while he sought employment elsewhere. [redacted] said he was especially disappointed with the offer that Kaiser made to him. This was because others having considerably less training and experience were offered much more money to come to work with Kaiser. It was [redacted] opinion that Kaiser offered less money to those inspectors who had a record of rejecting items than to those who passed them. He felt this was Kaiser's way of encouraging them to seek employment elsewhere. It was the "unfairness of the pay structure" and the "constant harassment by the Q/A Manager, GITTINGS, and the Project Manager, MARSHALL," that [redacted] cited as his reasons for leaving.

[redacted] indicated that he was aware of the harassment of other Q/C inspectors by construction (craft) personnel. In particular, he related that two inspectors were the objects of harassment which took the form of buckets of icecold water being dumped on them by craft personnel. He indicated that he didn't actually see the water dumped on the inspectors, but saw them immediately afterwards, when they were soaking wet.

[redacted] said that the incidents were reported to the Project Manageer, MARSHALL, and the incidents would stop for a few weeks and then resume again. To the best of his knowledge, nothing was ever done about the problem, even though he claimed that many people, including General Foreman, Walt HAMM, knew who the perpetrators were. [redacted] felt that this was a continuation of the friction between Q/C inspectors and craft personnel and that the latter protected one another and would say nothing about the matter.

[redacted] felt that there was a definite antagonism towards Q/C inspectors by craft personnel. The latter, he said, did not follow procedures and disliked being told they were doing something wrong. The craft personnel felt that a lot of the procedures and standards were unnecessary and would argue with the inspectors. According to [redacted], site management did little or nothing to correct this situation because they seemed to share the craft opinion of Q/C personnel.

[redacted] stated that the overall work at the Zimmer site is sloppy and recounted incidents in which valves, rusted shut, were welded into systems, despite NCR's having been written and one incident in which a pipe, on which construction was welding a gamma plug, had 3 3/4" of mud inside and on which work continued despite his comments concerning it.

It was [redacted] opinion that Q/A was not independent of construction and that the problem will only be exacerbated by Kaiser's directly assuming the responsibility for Q/C inspections.

On March 2, 1981, [redacted] provided the reporting investigators with copies of the following documents:

a. Interoffice Memorandum dated 8/18/80 from Rex BAKER to Phil GITTINGS, in which the former stated that he will inspect certain hangers because he was ordered to but feels that the action is contrary to criteria contained in 10 CFR 50, Appendix B. (Enclosure N)

b. List of NCR's filed by [redacted] which remained open as of 10/1/80 (Enclosure O).

c. NCR No. E 1755 with "corrective" action listed. (Enclosure P)

d. NCR No. E2714; no disposition. (Enclosure Q)

e. NCR No. E2777; no disposition. (Enclosure R)

f. NCR No. E2778; no disposition. (Enclosure S)

g. NCR No. E 2796; voided by BAKER because it was ostensibly written in error. (Enclosure T)

h. NCR No. E2860; no disposition. (Enclosure U)

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i. NCR No. E2861; voided by GITTINGS after he reinspected item. (Enclosure V)

j. NCR No. E2882; no disposition. (Enclosure W)

These documents are set forth as Enclosures (N) through (W) respectively.

[redacted] requested confidentiality with regard to the information he provided. A copy of a signed sworn statement provided by [redacted] is included as Enclosure (D).

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INTERVIEW OF JAMES L. RAMSEY

James L. RAMSEY, a level II Quality Control (Q/C) inspector, was interviewed on February 18 and 20, 1981 by NRC Investigators Peter E. Baci and Edward C. Gilbert. RAMSEY, employed by Advanced Industrial Design Engineers (AIDE), has worked as a Q/C inspector at the North Anna Nuclear Station since December 15, 1980. Prior to that, he worked as a Q/C inspector at the Zimmer site for the Butler Service Group (BSG) and, briefly, for Kaiser Engineering. This period included July 1979 through April 1980 and July 29, 1980 through December 14, 1980. From April through July 1980, RAMSEY worked as a Q/C inspector for EBASCO at the Washington Public Power Supply System site in Richland, Washington.

During his employment at the Zimmer site, RAMSEY said he became aware of a number of problems with the Quality Assurance (Q/A) Program. He indicated that the handling of non-conformance reports (NCR) by Kaiser management was a prime example. According to RAMSEY, it was not uncommon for Q/C inspectors to have their NCR's either voided or marked "accept as is." He stated that this frequently happened to him because all the NCR's would go across the desk of the Kaiser Project Manager, Robert MARSHALL, who would have the Q/A Manager, Phil GITTINGS, either void or rewrite them.

> Investigator's Note: RAMSEY stated that he had copies of approximately 10 NCR's which were voided or changed. These were back home in Cincinnati, but he said he would try to get them and forward them to NRC.

RAMSEY indicated that a major problem at Zimmer was that they never had a Q/A Manager who would stand by the procedures and back up the inspectors. He said they would always "cave in" to pressure and either void the NCR's or accept the item "as is." Eventually, according to RAMSEY, he began to write multiple page NCR's and lump many items together; his rationale was that by so doing, there would be just too many items to ignore or void and they would have to correct at least some of them.

RAMSEY was aware of incidents of alleged inspector harassment which involved water being dumped on the latter by craft personnel. In one case, RAMSEY reported seeing this happen to a female inspector named MULKIE while she was inspecting whip restraints in the containment. He commented that the construction workers just laughed when it happened. RAMSEY indicated that MULKIE reported this and other similar incidents to her immediate supervisor, Ken SHINKLE, and that he told the Q/A Manager at the time (either TURNER or BAUMGARTNER).

RAMSEY said that another inspector, Mike DE PUCCIO, had the same thing happen to him on about six or seven different occasions, and that he reported it to his supervisor, Phil NORMAN, who also told TURNER or BAUMGARTNER. No disciplinary action was ever taken as far as RAMSEY could recall. He heard that an investigation was conducted which involved asking the foreman in the containment who had dropped the water on the inspectors; when he replied that he didn't know, the matter was dropped.

RAMSEY attributed the above harassment to the inspectors doing their job. MULKIE was, according to him, "very critical - but very fair." Both she and DE PUCCIO were very accessible to the craft personnel in the containment and it was easy to dump the water on them without being seen.

RAMSEY related that MARSHALL was known at the site as "BIGFOOT," because he would "step on you" if you didn't do things his way. According to RAMSEY, MARSHALL would look at the NCR and then go out with one of his construction men and have the weld or other item worked on so that it appeared acceptable. He would then take the Q/A Manager out to see the item, and have him void or rewrite the NCR. This, according to RAMSEY, was known as "MARSHALLIZATION." If the concerned Q/C inspector refused to change or void the NCR, the Q/A Manager, GITTINGS, could override him.

According to RAMSEY, another ploy used to thwart the writing of NCR's was the issuance of design document changes (DDC). RAMSEY said that it was common

knowledge that inspectors were not to submit an NCR on a Friday, but rather to hold it until Monday. He continued, saying that by Monday, a DDC would have been made and the inspected item would no longer be in noncomformance.

RAMSEY described a meeting which took place in October or November of 1979 during which MARSHALL told the Q/C inspectors that they were being "too critical" on what they inspected. RAMSEY said MARSHALL felt that since the plant was 80% complete, it must have been "OK" before and he, MARSHALL, couldn't understand the holdup in things not critical to its operation. RAMSEY stated that he told MARSHALL that they had procedures to follow and would reject anything not conforming to those procedures; further, that if MARSHALL wanted the items accepted, he should change the procedures. They were, after all, Kaiser's procedures as set out in the Special Process Procedure Manual (SPPM 4.6, Rev. 8). MARSHALL's reply, said RAMSEY, was that: "I'm not changing a fucking thing." A copy of SPPM, 4.6, Rev. 7 is included as Enclosure (X).

RAMSEY attended a November 1980 meeting at which the Q/A Manager, GITTINGS, told the inspectors that "shoppers" were being terminated. Although other reasons were given, RAMSEY attributed this action as an attempt by Kaiser to secure more direct control over the Q/A Program. The inspectors were offered direct employment by Kaiser, but RAMSEY felt the offers were directly related to how critical you had been on the job; if you had been too critical, a lower wage offer was made to discourage you from accepting the job.

RAMSEY finished by saying that the Zimmer site "was the worst job I've ever worked on " - "the pits" - an example of " a bunch of quantity but very little quality."

A copy of a signed sworn statemcnt provided by RAMSEY is included as Enclosure (E).

RAMSEY provided the reporting investigators with a copy of the Special Process Procedure Manual, Number 4.6, Revision 7, a Kaiser document Q/C inspectors use as a standard in conducting inspections. This is included as Enclosure (X).

INTERVIEW OF JESSE RUIZ

Jesse RUIZ, Quality Control (QC) Inspector, was interviewed on February 18 and 20, 1981 by NRC Investigators Edward C. Gilbert and Peter E. Baci. Mr. RUIZ related he has been employed as a Q/C inspector at the following Nuclear Power Stations: North Anna from December 15, 1980 to the present; and Zimmer from April 16, 1979 to November 28, 1980.

Mr. RUIZ stated his employment by U. S. Testing at Zimmer was terminated by Kaiser Engineering. He explained that Kaiser, the construction contractor at Zimmer, released all "shoppers" and offered to hire many of the Q/C inspectors as direct employees of Kaiser. He assumed this was prompted by Kaiser's desire to have more control over the Quality Assurance (Q/A) Program. Mr. RUIZ advised he did not attend a meeting held in November 1980 which addressed the employment arrangements. He noted he declined a job offer by Kaiser since he felt he would be forfeiting the independence required for his position and it would necessitate a $6.50 per hour decrease in his salary. He added that on February 19, 1981, during a telephone conversation with his brother, James RUIZ, a Q/C inspector at Kaiser, he heard that the Cincinnati Gas and Electric Company (CG&E) is not satisfied with the present Q/A Program at Zimmer. He explained that CG&E has reportedly requested that Kaiser respond in writing to the following questions by February 20, 1981: Why were the shoppers terminated by Kaiser in November 1980? Why are so many Q/C inspectors terminating their employment with Kaiser? What problems are being experienced by Kaiser in the recruitment of Q/C inspectors?

Mr. RUIZ expressed a lack of confidence in the entire Q/A Program at Zimmer. He specified that many important areas are not covered by the Q/A Program, qualification criteria for craft personnel are very complex and confusing and the Special Process Procedure Manual (SPPM) prepared by Kaiser is very vague and poorly written (Enclosure X). Additionally, he noted many non-comformance reports (NCR) prepared by him and other Q/C inspectors were either voided or annotated "accept as is" without adequate justification or explanation. In this

respect, he remarked that Phillip GITTINGS, Q/A Manager, Floyd OLTZ, Document Review Manager, and other Kaiser craft personnel were very demanding in their efforts to avoid and circumvent NCR's which, in their opinions, resulted from Q/C inspectors being overly critical and too thorough. Mr. RUIZ volunteered that the prevailing attitude by Kaiser personnel was that Q/C inspectors were to be tolerated as a contractual requirement rather than an operational necessity. He concluded that in view of the lack of independence of the Q/C inspectors due to the influence of Kaiser personnel and the emphasis by Kaiser on construction to the detriment of quality and safety, the Q/A Program at Zimmer was unable to function satisfactorily.

Mr. RUIZ cited several examples of Q/C inspectors being harassed and intimidated by Kaiser Engineering personnel. He informed that his brother had been told by Jerry ADAMS, a Kaiser foreman, to accept and pass a certain item requiring inspection or he would lose his job. He also recalled Mr. GITTINGS and/or Robert MARSHALL, Construction Supervisor, had attempted to fire [redacted], a Q/C inspector, for allegedly using a magnifying glass to inspect a weld; whereas he had actually used a mirror Additionally, he reported that contruction workers poured buckets of water on the following three Q/C inspectors while they were performing their duties: Mike DE PUCCIO, Jeff RICHARDS and Mrs. Jan MULKIE. He advised these acts were prompted by craft personnel thinking the Q/C inspectors were too strict. He continued that when the incidents came to the attention of Mr. MARSHALL, he (Mr. MARSHALL) stated that anyone throwing water on Q/C inspectors would be fired. Mr. RUIZ was aware of no formal complaint, written report, investigation or disciplinary action initiated or resulting from these incidents.

Mr. RUIZ's signed sworn statement is Enclosure (F).

INTERVIEW OF BILLIE E. TYREE

Billie E. TYREE, Level II Quality Control (Q/C) Inspector, was interviewed on February 18 and 20, 1981 by NRC Investigators Edward C. Gilbert and Peter E. Baci. Mr. TYREE advised he has been employed as a Q/C inspector at the following Nuclear Power Stations: North Anna from November 10, 1980 to the present; Hatch for six weeks in October and November 1980; Watts Bar from November 1979 to October 1980; and Zimmer from September 24, 1979 to November 20, 1979.

Mr. TYREE stated that during his employment by the Butler Service Group, Inc. at Zimmer he was aware of buckets of water being thrown on Q/C inspectors by Kaiser Engineering construction workers. He specified this occurred on four to six occasions to Mrs. Jan MULKIE. He acknowledged he never observed these incidents although he did see her immediately afterwards when she was saturated with water. He noted Mrs. MULKIE was very irritated and reported the incidents to her immediate supervisor (name not recalled). Mr. TYREE continued that two or three additional Q/C inspectors (names not recalled) were the victims of similar water throwing incidents during his two-month period of employment at Zimmer. He assumed they reported the incidents to their immediate supervisors (names not recalled). Mr. TYREE was not aware of the incidents being documented in writing or being reported to Kaiser management personnel. Further, he was unaware of any inquiry or investigation to identify the culpable individual(s), or of any resulting disciplinary action. He disclosed that on all occasions the water was reportedly thrown on the Q/C inspectors while they were working in the containment building. He assumed it was done to limit the thoroughness of inspections. Mr. TYREE provided descriptive data on a construction worker nicknamed "Frenchie" who was generally considered responsible for throwing the water on the Q/C inspectors.

Mr. TYREE stated that one of the reasons which prompted his decision to terminate his employment at Zimmer was Kaiser Engineering's lack of emphasis on the Quality Assurance (Q/A) Program which adversely affected the quality of workmanship. He was unable to furnish additional pertinent information. Mr. TYREE's sworn statement is Enclosure (G).

STATUS OF INVESTIGATION

The status of this investigation is CLOSED.

ENCLOSURES

A) Statement of John R. BOOTH/02-20-81
B) Statement of Winston R. JACKSON/02-20-81
C) Statement of Richard B. PRICE/03-02-81
D) Statement of Abel G. RAMOS/02-20-81
E) Statement of James L. RAMSEY/02-20-81
F) Statement of Jesse RUIZ/02-20-81
G) Statement of Billie E. TYREE/02-20-81
H) Nonconformance Report No. E-2868/11-03-80
I) Interoffice Memorandum, BOETGER and SETLOCK to FELTNER/08-06-80
J) Hydro/Turnover Walkdown/(Undated)
K) Liquid Penetrant Report (Undated)
L) Design Document Change No. M-4828/02-29-80
M) Speedmemo, to J. SETLOCK/10-29-80
N) Interoffice Memorandum, BAKER to GITTINGS/08-18-80
O) List of Open Nonconformance Reports/10-01-80
P) Nonconformance Report No. E-1755/03-17-79
Q) Nonconformance Report No. E-2714/06-27-80
R) Nonconformance Report No. E-2777/08-29-80
S) Nonconformance Report No. E-2778/08-29-80
T) Nonconformance Report No. E-2796/09-18-80
U) Nonconformance Report No. E-2860/10-28-80
V) Nonconformance Report No. E-2861/10-28-80
W) Nonconformance Report No. E-2882/11-03-80
X) Special Process Procedure Manual No. 4.6, Revision 7/06-09-80

DO NOT DISCLOSE

Contains Identity of
Confidential Source

ENCLOSURE (A)

Place: Mineral, Virginia
Date: February 20, 1981

STATEMENT

I, John R. BOOTH, hereby make the following voluntary statement to Edward C. GILBERT who has identified himself to me as an Investigator with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator GILBERT is writing/~~typing~~ this statement for me at my request.

I am a level II electrical Quality Control Inspector. I have been employed by Advanced Industrial Design Engineers (AIDE) at the North Anna Nuclear Power Station, Mineral, Virginia, since November 1, 1980. Previously, I was employed by the Butler Service Group Inc at the Zimmer Nuclear Power Station, Moscow, Ohio, from August 1, 1980 to October 31, 1980. Prior to that, I was a Q/C Inspector at the Summer Nuclear Power Plant, Jenkinsville, South Carolina, for two and one-half years. My employer at Summer was the South Carolina Electric and Gas Company. My current local address is the Rebel Motel, Louisa, Virginia, and my permanent mailing address is 1015 Confederate Avenue, Columbia, South Carolina, 29201.

John R. Booth

While employed by Butler at the Zimmer Plant, most of my work was mechanical, inspecting cable tray and conduit supports. Working at Zimmer was entirely different than at Summer or North Anna. At Zimmer, under Kaiser Engineering, the emphasis was on production and the Quality Assurance (Q/A) program was tolerated as a "necessary evil." The general attitude at Kaiser from the construction workers up through management was that the Quality Control (Q/C) inspectors were a "pain in the ass" who deserved minimum respect. Construction ran the whole show. There was no cooperation between the craft personnel and Q/C inspectors. There was no independence between construction and Q/A personnel. In my opinion,

Butler was terminated by Kaiser in November 1980 since Kaiser wanted more control over the Q/C inspectors. I believe Kaiser felt they could exert even more pressure and threaten the Q/C inspectors if they were their own employees. At other plants the craft personnel were very willing to make necessary changes disclosed by the Q/C inspections. At Zimmer the Kaiser personnel were constantly arguing and disagreeing with the results of Q/C inspections.

Wayne BIEHLE was the lead electrical inspector and my immediate supervisor when I was working for Butler. Mr. BIEHLE was a Kaiser employee since all lead inspectors had to work for Kaiser rather than Butler. Mr. BIEHLE told me I could not write a non conformance report (NCR) without his approval. Therefore, since Mr. BIEHLE often disagreed with my Q/C inspection findings, I was seldom able to prepare NCR's. Before attempting to write an NCR I had to obtain the NCR sheet from Mr. BIEHLE and he would assign me an NCR number if he agreed an NCR was necessary. Also, when I was able to submit an NCR, I seldom knew what the disposition of the item was. At other plants I always received my NCR back indicating what action had been taken and then I reinspected the deficiency to make sure it had been corrected. This did not occur at Zimmer. At the other power plants where I worked all the Q/C inspectors were authorized to prepare NCR's without their supervisors' permission.

Since it was so difficult to obtain approval to write an NCR, I was encouraged to utilize a Hanger Inspection Form. This was an informal

Initials & Date

"in-house" form utilized at Kaiser in lieu of an NCR. There was a Hanger Inspection Form for both conduit hangers and tray hangers. We would either stamp the form with an "A" for accept or an "R" for reject. There was no accountability required for these forms. In my opinion, an NCR should have been issued rather than having the Hanger Inspection form stamped with an "R".

I recall an instance wherein approximately twenty of thirty electrical welds which I inspected were deficient. However, Phillip GITTINGS, Q/A Manager, and several other Kaiser personnel looked at the welds and disagreed with me. Therefore, no NCR was written and the welds were not corrected. There were many similar instances wherein NCR's were not issued and corrections not made since my supervisor or other personnel did not agree with my inspection findings. I cannot recall the specific locations and I maintained no records of these deficiencies. These pertained to fit up gaps where the hangers were undersized welds.

Also, there were many instances where I and other Q/C inspectors were asked to inspect welds through zinc rich coating (ZRC) paint. However, we couldn't do this since it was not allowed. This situation resulted in many arguments.

I recall observing [illegible] a one hundred foot run of three inch pipe in a battery room which had no required supports or hangers. This was simply written up by me on a surveillance form rather than an NCR. I do not know whether it was corrected.

I only met Robert MARSHALL briefly on one occasion and it did not pertain to my work.

John E Boswell

Any criticisms by Mr MARSHALL or Mr. GITTINGS normally came to my attention through my supervisor, Mr. RIEHLE.

I am not aware of any incidents at Zimmer involving QC inspectors having water dumped on them.

I terminated my employment voluntarily with Butler since I was disappointed and insecure in my work performance due to the restrictions placed upon me. I resented the fact that Kaiser obviously did not have faith in my work or confidence in my intelligence since my work was continually being reinspected and double checked whenever I found items of non compliance. After I left Butler one of the secretaries told me it was a good thing I left since I would have been fired. She explained that I rejected too much and therefore delayed construction in the eyes of Kaiser supervisory personnel. However, I would like to point out, I took pride in my work and I refused to sign anything as acceptable which in my professional opinion was not up to specifications.

John R Booth

I have read the foregoing statement consisting of 4 handwritten/~~typed~~ pages. I have made and initialed any necessary corrections and have signed my name in in the margin of each page. This statement is true to the best of my knowledge and belief.

INTERVIEWEE: John R. Booth

Name: John R. BOOTH

Subscribed and sworn to me the 20th day of Feb, 1981, at Mineral, Va.

INVESTIGATOR: Edward C. Gilbert 1:27 A.M.

Name: Edward C. GILBERT

WITNESS: Peter E. Baci 1:27 A.M.

Name: Peter E. BACI

ENCLOSURE (B)

Place: MINERAL, VIRGINIA
Date: 2-20-81

STATEMENT

I, WINSTON R. JACKSON, hereby make the following voluntary statement to PETER E. BACI who has identified himself to me as an Investigator with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator BACI is writing/~~typing~~ this statement for me at my request.

I am a level II Quality Control Inspector (Q/C) employed by Advanced Industrial Design Engineers at the North Anna Nuclear Power Station I have been employed by AIDE since 11/3/80. Prior to that, I was employed by the Butler Service Group, Inc. as a Q/C inspector (Electrical) at the Zimmer Nuclear Power Station in Moscow, Ohio. I was employed at the Zimmer site from July 1979 through November 1980 and left my position to accept a better paying job with AIDE. I left the job at Zimmer before the contract with Butler was terminated by Kaiser and never actually was employed by Kaiser. My current address is 3006 CHANTERLY AVE., APT 7, RICHMOND, VA. During my employment at the Zimmer site, there were instances in which nonconformance reports (NCR's) were voided and certain items reinspected. On one case I am aware of, the NCR's written by an Inspector named Donald LUDLUM were voided because they were very confusing and no one could understand them. Since the Inspector had left the job and he couldn't clarify the items, they voided the NCR's and reinspected everything. I believe the NCR's in this case had to do with elevation 510 in the Auxiliary Building. I personally never had any NCR written by me voided that I am aware of nor am I aware of any being voided which were prepared by other Q/C Inspectors in the electrical area. I do know that this was a problem for

Winston R. Jackson 2/20/81

Q/C inspectors in the mechanical/piping area however; in one case, Robert Marshall, the Project Manager for Kaiser Engineering, went out and disputed an NCR on a weld which was submitted by Inspector Bob HERNANDE MARSHALL argued with HERNANDEZ about the NCR but HERNANDEZ did not back down and the NCR stood up. This NCR had to do with pipe hangers. MARSHALL was the one who put the pressure on to accept an item if there was a chance it would be rejected. Phillip GITTINGS was the Quality Assurance Manager for Kaiser and I had no contact with him while I was at Zimmer. Scott SWAIN is unknown to me. I understand that Abel RAMOS, a Q/C inspector in the mechanical area, had problems with the Project Manager Marshall because he tried to pressure RAMOS into accepting certain welds. I do not know what was said at the meeting in November 1980 when Kaiser terminated Butler's contract because I had already left the site to start my new job before the meeting occurred. I am aware of the incidents of inspector harassment in which buckets of water were dumped by craft personnel on Q/C inspectors. I know this happened to a female inspector named Jan MILKIE on several occasions although I did not personally witness the incidents and I do not know the persons who were involved. I believe this was reported to Kaiser management, although I am not sure to who. And I am not aware of any action that was ever taken concerning the problem by Kaiser.

2/3/81

It was the general feeling among the inspectors who I know that the reason Kaiser terminated Butler's contract was so that they could have more direct control over the Q/A program. Although they were theoretically independent, both Q/A and ~~C/C~~ construction ultimately report to the same boss so in actual practice Q/A is not independent at all. The situation is probably worse now that Butler is gone and Kaiser is doing their own Q/A work.

In general, I feel that the Zimmer project is a very poorly run operation.

Q.A.C. 2/20/81

I have read the foregoing statement consisting of 3 handwritten/~~typed~~ pages. I have made and initialed any necessary corrections and have signed my name in in the margin of each page. This statement is true to the best of my knowledge and belief.

INTERVIEWEE: Winston R. Jackson

Name: WINSTON R. JACKSON

Subscribed and sworn to me the 20th day of FEB, 1981, at Mineral, VA

INVESTIGATOR: Peter E. Baci 7:57 AM

Name: PETER E. BACI

WITNESS: Edward C. Gilbert 7:58 AM

Name: EDWARD C. GILBERT

ENCLOSURE (C)

Place: Mineral, Virginia
Date: March 2, 1981

STATEMENT

I, Richard B. PRICE, hereby make the following voluntary statement to Edward C. GILBERT who has identified himself to me as an Investigator with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator GILBERT is writing ~~/typing~~ this statement for me at my request.

I am a Quality control (Q/C) inspector employed by ABACUS Temporary Technical Services, Virginia Beach, Virginia, assigned to the North Anna Nuclear Power Station, Mineral, Virginia. I have been here since December 15, 1980. Previously, I worked for Kaiser Engineering at the Zimmer Nuclear Power Station, Moscow, Ohio, from December 1 to December 14, 1980. Prior to working directly for Kaiser at Zimmer I was employed by Butler Service Group Inc. at Zimmer from September 1979 to November 28, 1980. While at Zimmer I was a Q/C inspector in document review for the piping department. My local address is P.O. Box 1005, Sakra's Motel, Louisa, Virginia, 23093.

Richard B. Price

Some of my non compliance reports (NCR) were voided by other individuals without adequate justification or explanation. I cannot recall the specifics of these voided NCR's at this time. I did keep a file of copies of these voided NCR's of mine at the Zimmer plant however I no longer have them. The day I submitted my termination notice I was not allowed to return to my desk after lunch. Therefore, I couldn't remove these NCR's. Mr. Phillip GITTINGS, Quality Assurance (Q/A) Manager with Kaiser, became very irate when he heard I was going to leave. Therefore, he directed Rex BAKER, Q/A and Q/C supervisor, to fire me if I turned in a termination notice. When I returned from lunch my badge was pulled so I couldn't go back to my work space to get the NCR's. Abel RAMOS

and James RAMSEY, both Q/C inspectors, also left Kaiser the same day as I did. Of the NCR's which I had copied and filed, some had been voided and others had been processed. In respect to the latter, these NCR's had just been handed back to me without having been assigned a number. I assume this was illegal.

In addition to utilizing NCR's, Q/C inspectors also cited deficiencies on a "punch list." A "punch list" was an informal in-house form which never went to the ~~Contractor~~ Cognizant Gas and Electric Company. Items on the "punch list" could be handled strictly in-house with a minimum of effort, time and paper work. I do not believe the "punch lists" were permanently maintained, included in permanent plant documentation or disclosed outside Kaiser. The specifications utilized by Kaiser as set forth in the Special Process Procedure Manual (SPPM) were very vague in respect to defining whether a deficiency should be reported by a NCR or a "punch list." In my opinion, many items requiring correction were put on a "punch list" when an NCR would have been more appropriate. Minimum wall violations, as an example, were normally put on a "punch list."

When I commenced working at Zimmer I was initially assigned to document welding in the diesel pump room. I reworked the diesel generator room. I observed many undocumented welds, etc which required inspection by me. I also saw many examples of gross rejectable work including arc strikes, minimum wall violations and unsatisfactory welds. I would like to point out the welds had previously been inspected and accepted. I was rushed and didn't have sufficient time during this first inspection period.

Richard B Lewis

I reported the various discrepancies in each room by NCR's or "punch lists". Later, when I had more time, I continued to write additional NCR's and "punch lists" on things I had missed during my first inspection. As a result, John SETLOCK, lead inspector in the Hydro group and my immediate supervisor, warned me that unless I stopped turning in NCR's and generally "backed off" on my inspections "they would get my money." By this he meant that I would be terminated by Kaiser if I continued to be critical in my inspections. He also told me he knew how they (refusing construction) operated. Mr. SETLOCK was one of ~~Phillips~~ Robert MARSHALL's, Project Managers, "pets" since he and Mr. MARSHALL always got along very well. He always looked MARSHALL up and spoke well of him. Mr SETLOCK is now a full superintendent with construction (Kaiser).

Repeatedly, before Butler was contracted by Kaiser, the Q/A Program at Zimmer was exceptionally bad. This condition supposedly existed for the first nine years. Since Butler started running the Q/A Program the situation improved considerably. More NCR's were generated. However, this resulted in more conflicts between the Q/C inspectors and craft personnel.

On one occasion a pipe fitter told me in confidence of a problem in the diesel generator room concerning tank # 1DG15TL. Reportedly, there was porosity on the surface of an outside seal weld around the nipple. Allegedly it had been received from the vendor in this condition. As explained to me, the defect had been corrected by the pipe fitters. However, it was later realized it should have been corrected by the boiler makers.

Therefore, the Repair Procedure documents were supposidly destroyed and the boiler makers repaired the defect. Since the procedure was questionable, I prepared an NCR. It has now been satisfactorily corrected. A full penetration weld as required by the code was used although craft wanted to use a partial penetration weld.

I wish to reiterate that when I first started working for Butler the workmanship by the craft personnel was exceptionally poor. Many welds were not documented and everything was just a joke since it was so bad. I was concerned and questioned a lot of the work. I always maintained copies of my NCR's since I had been told it was a good practice. Unfortunately, I no longer have copies of these NCR's.

I recall writing up two items on a "punch list." One pertained to a hanger stanchion welded to a pipe which looked bad. They were getting ready to hydro it. It was undercut and had arc strikes. The other pertained to a gamma plug (Vendor weld). The outside surface of the weld had a cluster of porosity. When I presented the "punch list" to Mr. SETLOCK he told me to rewrite it since he "wouldn't touch a vendor weld. Therefore, I had to rewrite the "punch list" omitting the gamma weld and just including the hanger stanchion.

Liquid Penetration Reports were part of the permanent plant documentation. Mr. Terry DAKIN was a pipe inspector for Kaiser who reportedly created a lot of mix ups in paper work. I don't know when Mr. DAKIN left. After Mr. DAKIN left Kaiser I continued to see

Richard B. Price

many Liquid Penetration Reports (LPR) containing Mr. DAKIN's ~~BRADLEY's~~ RBP Xeroxed signature. Although his signature was Xeroxed (not the original) the rest of the LPR contained someone's original writing. In many instances this handwriting appeared to differ from Mr. DAKIN's ~~BRADLEY's~~ RBP. I suspect these LPR's containing Mr. DAKIN's ~~BRADLEY's~~ RBP signature were filled out by other personnel at Kaiser to cover for welds which had not been previously inspected. I have a sample of one of these LPR forms containing Mr. ~~BRADLEY's~~ RBP DAKIN's signature which I have agreed to provide to Mr. GILBERT.

Rich REITER wrote NCR's which had to be co-signed by Floyd OLTZ since Mr. REITER was not a certified Q/C inspector. He wrote NCR's regarding the traceability of system on all pipings and fittings on the job. The fittings had numbers but the piping didn't. If one number was entered into the heat slot it was acceptable. Therefore, a piece of pipe could be installed with a different heat number. I'm sure there were many instances of all heat accountability not being recorded as required. The Q/C inspectors were told by craft personnel that all the pipe in the drawings ~~was~~ was for the number recorded but this was not necessarily so. Since Mr. REITER knew in advance that his NCR's regarding this situation would never be processed, he made copies of his NCR's before they were given to Mr. GITTINGS. As anticipated, the NCR's concerning the traceability of material was not processed. However, Lonnie WOOD, who still works at

Richard B Price

Zimmer, has a copy of Mr. REITER's NCR. Mr. WOOD works for Kaiser. Mr REITER is familiar with many of the problems at Zimmer regarding documentation. He was not offered a job by Kaiser since Mr. GITTINGS did not like him at all as a result of the NCR's he prepared. Mr. REITER is still working in Cincinnati, Ohio, as a drafter and may possibly be employed by Procter and Gamble at this time. I believe this situation was written up on a surveillance report rather than an NCR by REITER. 1988

Many Q/C inspectors felt they were intimidated by various construction foremen and construction workers in respect to their general attitude toward the Q/A Program and complaints regarding the inspections. Also, several Q/C inspectors felt they were intimidated by Mr. MARSHALL for the same reasons. However, with the exception of being told by Mr. SETLOCK to "back off" a few times, I do not feel that I was personally harassed or intimidated.

Richard B Grace

Dave HOLTZMAN, who worked in start up for CG&E, asked me on several occasions what I was doing in various rooms. I responded by stating, "I'm doing my job." Also, when I pointed out problem areas to Mr. HOLTZMAN he used to comment, "it looks alright to me!"

On several occasions, I questioned arc strikes on carbon steel pipe. Eventually, Kaiser established criteria for what was acceptable during a visual inspection of arc strikes on carbon steel pipe.

Also, in respect to minimum wall violations, Kaiser eventually developed specifications for acceptable criteria. This

allowed craft to go a lot deeper (thinner walls) than previously. I understood Kaiser took this from the Code although I never saw it.

Kaiser also told Q/C inspectors to accept weld splatter on carbon steel pipe. They (Kaiser personnel) explained that procedures to allow this would be revised. Finally, after the Q/C inspectors had been accepting weld splatters for two or three months the procedures were appropriately changed.

Scott SWAIN was a CG&E employee who was Mr. HOLTZMAN's supervisor. When the minimum wall violation problem initially surfaced, Mr. SWAIN came out with a book to determine what was and was not acceptable. Mr. SWAIN prepared a memorandum instructing Q/C inspectors to accept minimum wall violations which did not exceed certain specifications which he had arrived at by using a new formula. At the time of this memorandum being issued, the procedures set forth in the Special Process Procedure Manual (SPPM) had not been changed. Mr. BAUMGARTNER who was Quality Assurance Manager at the time, and Mr. KNOX, another Kaiser employee, told us (Q/C inspectors) to ignore Mr. SWAIN's memorandum until the change was incorporated into a procedure in the SPPM.

RBP ~~this proposed change was later accepted by Kaiser~~ RBP

As I may have indicated previously, we (Q/C inspectors) were told by our supervisors to put violations on a "punch list" whenever we anticipated a violation would be challenged if it was submitted on an NCR. This was to be done even though it should have been

Richard B Price

properly documented by an NCR.

I am aware of construction workers dumping water from buckets onto Q/C inspectors. I would estimate this occurred at least ~~fifteen~~ twelve times on a periodic basis during the entire fifteen-month period I worked at Zimmer. JAN HULKIE was drenched by water several times while she was performing inspections in the containment. As a result she reportedly refused to go into the pipe chase in the reactor building. Also, Michael DE PUCCIO had water thrown on him several times in the containment building. I never saw these incidents but I saw the inspectors immediately after it happened when they were soaked with water. ~~I don't know~~ The incidents were reported to MR SETLOCK and PHIL NORMAN who was a lead supervisory part of the time. They ~~when the inspectors~~ were also reported to one or more of the ~~incidents to however~~ various Q/A Managers. They came to the attention of MR MARSHALL at DICK CRANSTON with Kaiser. One of these individuals got the word spread around that he had a list of five names of construction workers who would be terminated if there were any further incidents of water being thrown on Q/C inspectors. The individuals were allegedly pipe fitters & pipe welders. According to rumors I heard, "Frenchie" and "John Boy" were responsible for throwing the water. I only know these two individuals by their nicknames. "Frenchie" was a welder. Both of them were still employed by Kaiser at Zimmer when I left. I am not aware of either of these individuals being disciplined or even confronted with the accusation by any supervisory or management personnel even though their participation was supposidly

Richard B Fiser

known by Mr MARSHALL and/or Mr. CRANSTON. Further, I don't know of any formal report or complaint being prepared or any inquiries being initiated. The opinion of both me and the other inspectors was that walls was thrown on Mrs MULKIE and Mr. DE PUCCIO since they were good inspectors who wouldn't let craft personnel get away with inferior or non-conforming work.

Several of my co-workers (Q/C inspectors) also felt the Pipe General Foreman, Walt HAMM SR., was intimidating Mrs MULKIE. Jan reportedly said Mr HAMM told her she didn't know what she was talking about. Also, he reportedly told her he was going to go ahead on various projects even though she had filed an NCR. Also, Abel RAPER was intimidated by MARSHALL who tried to pressure GITTINGS to fire him.

Of the five or six different nuclear power sites I have worked at, the conditions at Zimmer were the worst. Based upon my observations, I suspect there are many health and safety potential dangers at Zimmer. I would not want my family to live near this plant.

Two weeks prior to November 28, 1980 Mr. GITTINGS presided at a meeting wherein he announced that Butler was going to be terminated on November 28th. Mr. GITTINGS indicated the possibility of the Butler employees being hired by Kaiser to work as Q/C inspectors directly for Kaiser. I was later offered a job by Kaiser and accepted upon the advice of my lead supervisor. I was the first to leave the meeting and I left prior to it ending. While I was in attendance Mr. GITTINGS made no remarks about "nit picking"

Richard B. Finn

inspections. However, this sounds like something Mr. GITTINGS would say. All the Q/C Inspectors were of the opinion that MARSHALL thought that Mr. GITTINGS was the best thing that could happen to the Q/A Program since he (Mr. GITTINGS) was "pro-construction."

I did not enjoy working for Kaiser directly but I accepted the job until I could find a better position. The main reason I left Kaiser was due to the unsatisfactory salary I was making. I was making $1000.00 a month less with Kaiser than I with Butler. Even though nothing had really changed, I could feel the pressure to get the construction completed as soon as I started with Kaiser.

Richard B. Price

I have read the foregoing statement consisting of 10 handwritten/~~typed~~ pages. I have made and initialed any necessary corrections and have signed my name in in the margin of each page. This statement is true to the best of my knowledge and belief.

INTERVIEWEE: Richard B. Price

Name: Richard B. PRICE

Subscribed and sworn to me the 2 day of March, 1981, at Hanford, Va.

INVESTIGATOR: Edward C. Gilbert 12:32 PM

Name: Edward C. GILBERT

WITNESS: Peter E. Baci 12:32 PM

Name: Peter E. BACI

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ENCLOSURE (D)

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Place: MINERAL, VA
Date: FEB 20, 1981

STATEMENT

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I, [redacted], hereby make the following voluntary statement to PETER E. BACI who has identified himself to me as an Investigator with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator BACI is writing/~~typing~~ this statement for me at my request.

I am a level II Quality Control (Q/C) Inspector employed by [redacted] company which is a subcontractor at the North Anna Nuclear Power Station. I have been employed with ABACUS since 12/22/80 doing Q/C work in the area of welding, piping and nondestructive examination (NDE). Prior to that, I worked as a Q/C inspector at the Zimmer Nuclear Power Station in Moscow, Ohio. While at Zimmer, I was employed first by the BUTLER SERVICE GROUP, INC from 10/8/79 through 12/1/80, and then for the first 2 weeks in December 1980 directly by KAISER ENGINEERING, the construction firm at the Zimmer site. Before I came to work at Zimmer, I was employed at the Comanche Peak Nuclear Station by Brown Root (B+R). B+R employed me as a Q/C inspector and I went through the company training program for Q/C. Before joining B+R, I attended the Texas Technical Institute for almost 2 years where I took courses in welding technology, metallurgy, chemistry, technical writing and procedures, etc. These all gave me background and training for my work as a Q/C inspector. I also have a course in NDE [illegible] at Texas Technical Institute. I am currently staying at the SACRAS MOTEL in Mineral, VA and my local mailing address is Box 1029, Louisa, VA 23093.

I am aware of a number of problems with

the Quality Assurance (Q/A) program at the Zimmer Site. Nonconformance reports (NCR's) prepared by me and other Q/C inspectors would often be voided without any justification or explanation. For example, I'll write several NCR's concerning pipe hangers and supports because the items did not meet American Welding Society (AWS) specifications D11 or Kaiser procedures as set forth in the Special Process Procedure Manual (SPPM) No. H.6 (revision 8). The welding was faulty, there were arc strikes and there was no traceability of materials. By the latter, I mean that I couldn't tell whether an item was a "vendor" hanger and had already been "brought off" or a field hanger. The craft personnel would claim that a hanger (or some other item) which had discrepancies was a vendor hanger and we couldn't prove otherwise because there was no documentation. On the case I am referring to, Phillip GITTINGS, the Q/A Manager for Kaiser, had Rex BAKER, the Q/C Supervisor send me out to reinspect the items I had already rejected. This was done even though no corrective action had been taken yet concerning the discrepancies. GITTINGS said that under this interpretation the hanger was OK and he would void or reject the NCR. GITTINGS would put remarks on the NCR to the effect that I was "nitpicking." Of the Project Manager Robert MARSHALL said he wanted the NCR voided, GITTINGS would void it or accept it "as is" or send it back to me to have me sign off on the voided NCR. I estimate that 25 to 28 of my NCR's were voided

while I worked as a Q/C inspector at Zimmer. Q/A was just a gimmick to keep the job going and the money coming in. I wish to note at this point that I have copies of some NCR's written by me as well as documents concerning the Q/A program at Zimmer. These are at my home in Cincinnati and I will provide them to the NRC.

In mid-October of 1980, I rejected some hanger restraints which I had rejected (and others had rejected) before. I did this after Mr. MARSHALL had signed off on the "punch list" (an in-house document) that the welds were good. Some work had been done on them subsequent to the earlier NCR's but they were still poor and unacceptable. I gave Mr. MARSHALL the punchlist back and would not sign off on the welds. Ray CAMPBELL and Allen EADS, both Kaiser engineers, were there when this exchange took place.

About a week later I was working in the steam generator room. Marshall and Scott SLAIN (works for C(E) were following me around and watching while I was verifying the location and taking structural dimensioning of some hangers. I had a flashlight and a mirror with me which I set down since I was not using them at the moment. Mr. MARSHALL picked up the mirror and showed it to Mr. SLAIN. Shortly after words they left. After lunch, Lead inspector Chuck BELCHER told me that Rex BAKER, Q/C supervisor wanted to see me. BAKER and he had told by GITTINGS that MARSHALL and SLAIN had told GITTINGS that I was using a magnifying glass in my final inspections.

BAKER then told me he had been asked by GITTINGS, at the request of MARSHALL and SWAIN, to terminate me and get me off the site. GITTINGS confirmed this during my exit interview at Zimmer. I explained to BAKER exactly what had happened. I told him that I did not have a magnifying glass, but rather a mirror and that I was not even using that when MARSHALL and SWAIN were there. Further, I told him how MARSHALL had picked up the mirror and showed it to SWAIN. I also pointed out that even if I had been using a ~~mirror~~ magnifying glass both the DAWS code (DH, section C. 5.5) and SPPM 4.6 (Rev. 8) recognize and approve the procedure. I asked him if he wanted me to leave the site and told him that before I did, I wanted them to place in writing that I was being fired for the reasons he had related to me. I also told him I would get a lawyer and fight it. BAKER said he should wait until he saw GITTINGS again. When I next saw BAKER, he told me GITTINGS had changed his mind and I could stay; however, he wanted me out of the hanger program and put into another area. I said that that was fine with me and I went into structural C/C where I worked for 2 weeks before I learned that the BUTLER contract was going to be terminated.

I learned about the termination of the "shoppers" contracts at a meeting held by GITTINGS in November 1980. He said that Oakland (corporate office for Kaiser) had

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[redacted] that he would support me if I did but that

told them to terminate the contracts but that offers would be made to them to work directly for KAISER. Eugene KNOX was there from KAISER although he didn't say much. GITTINGS said he would need to know who wanted a job by Nov. 28th since those who didn't would have to be off the site by December 1st. He said he wanted everyone to work together to get the plant on line by October 1981. I don't recall him saying anything at that time about "accepting" rather than rejecting" but that sounds like what he usually encouraged.

I wasn't particularly anxious to work for Kaiser but was especially disappointed with the "job offer" made to me. Others with considerably less experience and training were offered much more money. I decided to leave because of the unfairness of the pay structure and because of the constant harassment by the C/A Managers (GITTINGS), the Project Manager (MARSHALL), ~~and the latter's assistant (SMITH)~~. When I did my work, they and some of the engineers would tell me — "Mary you don't know what you're looking at."

I was aware of the harassment of other C/C inspectors too. In the case of Jan MULKIE and Mike DE PUCCIO, this harassment took the form of water being dumped on them by craft personnel. This happened to Jan about 3 times and to Mike about 3 or 4 times. I didn't actually see it happen but I saw them afterwards when they were working wet. The two inspectors went to MARSHALL and complained. He said he would terminate

those responsible if he found out who they were. Nothing was ever done though. Things would cool off for a few weeks and then it would start again. The General Foreman, Walt HAMM knew who was involved but he never did anything. They were all union members and protected one another. I heard that a pipefitter/welder nicknamed "Frenchie" was involved. "Frenchie" was a heavyset guy and he was "Fat Frenchie." There was also a welder known as "Skinny Frenchie" and a pipefitter known as "JOHN-BOY" who were supposed to have been involved. I do not know their real names.

There are a lot of problems at Zimmer. The craft personnel do not follow procedures and do not like being told by Q/C that what they're doing is wrong. They feel that a lot of the procedures are unnecessary and tell Q/C that "your procedures suck" or "you don't know what you're doing" or "you don't know the code." There is a definite antagonism toward Q/C inspectors by craft personnel and it shows in incidents like the water dumping. Site management does little or nothing to correct this situation since they seem to share the same opinion of Q/C. The overall work performed at Zimmer is very sloppy. Incidents in which valves, rusted shut, have been welded into systems have occurred, despite NCR's having been written.* Now that the contracts with Shoppers such as the Butler Service Group have been terminated, the problem of the lack of independence of Q/C as it relates to construction will be

* I inspected a 14" carbon steel service water line and found 3 3/4" of wet mud inside a pipe on which they were welding a jimmie plug. They were [illegible] the welding [illegible]

interviewed. I request that it be granted confidentiality with respect to the disclosure of my name in connection with the information provided to the NRC by me.

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I have read the foregoing statement consisting of 7 handwritten/~~typed~~ pages. I have made and initialed any necessary corrections and have signed my name in in the margin of each page. This statement is true to the best of my knowledge and belief.

INTERVIEWEE: [redacted]

Name: [redacted]

Subscribed and sworn to me the 26th day of FEB, 1981 at Mineral, VA.

INVESTIGATOR: Peter E. Baci 1:03 AM

Name: PETER E. BACI

WITNESS: Edward C. Gilbert 1:04 A.M.

Name: EDWARD C. GILBERT

ENCLOSURE (3)

Place: Mineral, Virginia
Date: 2-20-81

STATEMENT

I, JAMES L. RAMSEY, hereby make the following voluntary statement to PETER E. BACI who has identified himself to me as an Investigator with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator BACI is writing/~~typing~~ this statement for me at my request.

I am a level II Quality Control (Q/C) inspector employed by Advanced Industrial Design Engineers (AIDE) at the North Anna Nuclear Power Station. Prior to joining AIDE on 12/15/80, I was employed by the Butler Service Group, Inc. from July 1979 until April 1980 and from 7/29/80 until 12/14/80 as a mechanical Q/C inspector at the Zimmer Nuclear Power Station in Moscow, Ohio. During the last few weeks I worked at the Zimmer site, I was actually employed by Kaiser Engineering since they had terminated the contract with the shipper, Butler, and hired many of the Q/C inspectors directly. During the period from April through July 1981, I worked as a Q/C inspector for EBASCO at the WPPSS site in Richland, Washington. My current address is the SACRAS MOTEL, ROOM 9, MINERAL, VA.

During my employment at the Zimmer site, I was aware of various problems with the Q/A program. For example, when an inspector would write a non-conformance report (NCR), this would frequently result in a new Document Design Change (DDC) being written concerning the item or items which had been rejected. This had the effect of negating the NCR written by the inspector by making changes in specifications so as to bring them in conformance with the problem item, rather than the other way around. It was common knowledge that we were not to submit an NCR

on a Friday, but rather hold it until Monday. By Monday a DBC would have been made and the item was therefore no longer in non-conformance.

Ken BAUMGARTNER was the Quality Assurance (Q/A) Manager for Kaiser before Phillip GITTINGS BAUMGARTNER was an auditor who was not, in my opinion, qualified for the job. He told me on one occasion that I was maintaining "too high a profile — that I wouldn't bump anything at all." This I took to me that I was doing too good a job and rejecting too much. BAUMGARTNER's predecessor was Bob TURNER who left and went to Marble Hill because, from what I understand, he couldn't do a good job at Zimmer. BAUMGARTNER used to take me out on the site and argue over the NCR's I had written.

I left Zimmer the first time because of a reduction-in-force. Although I was terminated on a Friday, I found out that I could have had my job back by the following Wednesday. The fact that I could be laid off and rehired in less than a week was their way of telling me I had been too strict. Since they were expecting a strike at Zimmer, I decided not to go back but took a job with EBASCO in Washington. When I did return to work for BUTLER at Zimmer, I was put on electrical instead of mechanical Q/C work as I had done before I left.

I frequently had NCR's which I had written either voided or marked "accept as is." I kept some copies of these, approximately 10, which I have stored back in Cincinnati. These were ones which were voided or turned down

by Phil GITINGS, the Q/A Manager. All the NCR's would go across the desk of Robert MARSHALL the Project Construction Manager for Kaiser. MARSHALL was known as "Bigfoot" on the site because if you didn't do things his way, he'd put his foot down on you. When MARSHALL would see the NCR's, he'd tell GITINGS to void or rewrite them. MARSHALL would often go out and look at an item written up as an NCR. He'd usually take one of his construction people with him, often Lyle BLACKWOOD, and have the weld or whatever worked on so that it looked alright. Then they would take the Q/A Manager out and show it to him and have the NCR voided or "accepted as is." This was "Marshallization." Even if the inspector refused to change or void the NCR, GITINGS could override him and "accept it as it is" or void it.

In October or November of 1979, a meeting of the Q/C inspectors was held in which MARSHALL told us we were being "too critical" on what we inspected. He told us that since the plant was 80% complete, it must have been OK before and he couldn't understand the hold-up in things not critical to the plant. I told Mr. MARSHALL that we had procedures to follow and would reject anything not conforming to these procedures. If he wanted these items accepted, I told him he should change the procedures. They were, after all, Kaiser's procedures as set out in the Special Process Procedure Manual (SPPM 4.6, R8). His reply to me was — "I'm not changing a fucking thing!" There were many people at the meeting. Those who

I remember include Jimmy MAY (who's now in Louisiana), Gary JODRY (who went to Marble Hill), Ron WRIGHT, STEVE McCOY, Ed Jan MULKIE and Ken SHINKLE (still at Zimmer although I understand MULKIE is going to Georgia) and Joe KING and Lyle BEACKWOOD (both construction people, and still at Zimmer). As I recall, the meeting lasted from 45 minutes to an hour.

As I indicated earlier, there were three Q/A managers during the time I worked at Zimmer. The last one, Phil GITTINGS had a philosophy for Q/C work. Simply put, it was to "buy everything." The main problem we had at Zimmer was that we never had a Q/A Manager who would stand by the procedures and back up the inspectors. They would cave in and void NCR's or "accept as is." Eventually I got to the point where I would write multiple page NCR's and lump many items together. My rationale was that perhaps they would at least correct a part of the items because there were too many to ignore or void.

Q/C never was very strong at Zimmer. During the initial stages of construction there were only 3 Q/C inspectors and if a foreman said to get something done or inspected, it usually was and a lot was overlooked. It wasn't until the plant was 80% complete that more Q/C inspectors were brought on board. Rex BAKER, the Q/C supervisor, was a good man but he didn't have any independence and could not function effectively.

I am aware of the problem of Q/C inspector harassment too, as it pertains

to craft personnel dumping buckets of cold water on them. One inspector, a girl named Jan MULKIE had this happen to her at least 3 times that I am aware of. I saw it happen to her when she was inspecting whip restraints within the containment and she was drenched from head to toe. The construction workers just laughed. She reported the incidents to Ken SHINKLE, her immediate supervisor and he told the Q/A Manager (either Turner or BAUMGARTNER).

Another inspector, Mike DEPUCCIO, also was harassed in this manner. They dumped water on him about 6 or 7 times, again, while he was in the containment. I assume he reported it to his supervisor, Phil NORMAN and he in turn told TURNER or BAUMGARTNER. No disciplinary action was taken because they did not know did it. I heard that then investigation involved asking the foreman in the containment who had dropped the water on the inspectors. When he said he didn't know, the matter was dropped. I think a report was prepared on the matter.

I attribute this harassment of the inspector doing their job. Jan was very critical — but very fair. Both were very accessible to the craft personnel in the containment. They could drop the water on the inspectors without being seen.

In November 1980, I attended a meeting at which GITINGS said that BUTLER and the other "shoppers" were being terminated by Kaiser. The reason given was that Kaiser had 2 or 3 other jobs coming up and they wanted to hire their own people for the work. GITINGS said

that by December 1st, all shoppers would be out. Butler employees were offered jobs working directly for Kaiser but I wasn't interested so I got up and left. I was offered a job, but at much lower pay. I feel the salary offers were directly related to how critical you had been as an inspector. If you were too critical, they felt the low wage offer would discourage you from taking the job. I didn't want a job with Kaiser because I felt I wouldn't have the leeway or independence to do my job properly. Interestingly, the word was around that earlier in the day, before the meeting, GITTINGS had said that all shoppers would be gone by December 1st. Some of the guys went to see REX BAKER, the G/C superviser and asked him about it. BAKER said it wasn't, but it turned out that he didn't know what Kaiser had planned. I feel that this was all done so that Kaiser could exercise more control over the Q/A program and to make the inspectors less independent. In general, the Zimmer site was the worst job I've worked on — "the pits" — "an example of a bunch of quantity but very little quality."

(end of Ramsey)

I have read the foregoing statement consisting of 6 handwritten/~~typed~~ pages. I have made and initialed any necessary corrections and have signed my name in in the margin of each page. This statement is true to the best of my knowledge and belief.

INTERVIEWEE: James L Ramsey
Name: JAMES L. RAMSEY

Subscribed and sworn to me the 20th day of FEB, 1981, at MINERAL, VA

INVESTIGATOR: Peter E. Baci 7:58 AM
Name: PETER E. BACI

WITNESS: Edward C Gilbert 7:59 A.M.
Name: EDWARD C. GILBERT

ENCLOSURE (F)

Place: Mineral, Virginia
Date: February 20, 1981

STATEMENT

I, Jesse RUIZ, hereby make the following voluntary statement to Edward C. GILBERT who has identified himself to me as an Investigator with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator GILBERT is writing ~~/typing~~ this statement for me at my request.

I am a Quality Control (Q/C) Inspector. I have been employed by Advanced Industrial Design Engineers (AIDE) at the North Anna Nuclear Power station, Mineral, Virginia, since December 15, 1980. Previously, I was a shopper employed by U.S. Testing at the Zimmer Nuclear Power Plant, Moscow, Ohio, from April 16, 1979 to November 28, 1980. My home address is 57 Meadowlark Lane, Spotsylvania, Virginia.

While working as a Q/C inspector at Zimmer, I was initially assigned to inspecting hangers and piping. I was then switched to instrumentation and eventually became the non destructive examination (NDE) coordinator. All shoppers were terminated by Kaiser Engineering on November 28, 1980. Kaiser was the construction contractor at Zimmer. Kaiser's excuse for the terminations was that money was tight and Kaiser could not afford to pay the shoppers. However, I don't believe this explanation since the salaries were billed to Cincinnati Gas and Electric (CG+E). In my opinion, the decision to terminate the shoppers was not based upon financial considerations but rather on the desire of Kaiser to have a closer control of the Quality Assurance program. In other words, Kaiser felt it would have a firmer hold on Q/C inspectors who were Kaiser employees than Q/C inspectors who were independent shoppers. Admittedly, the Q/C inspectors created headaches for Kaiser since the additional work which was required as a result of deficiencies discovered during

our inspections delayed the construction progress and cost the company additional money. The large majority of the shoppers were offered jobs working directly for Kaiser as Q/C inspectors. Many of them accepted employment with Kaiser since they already had families and homes in the area. I did not attend the meeting held in November 1980 when the terminations and job offers were discussed. Also, I do not know the specifics of what was said at the meeting. I was offered a job with Kaiser at this time (November 1980) by Phillip GITTINGS, the Q/A Manager. However, I declined the job offer since I felt I would not have the necessary independence to properly perform the Q/C inspections. The other reason I refused the job was that it would have been a $6.50 per hour cut in my salary. I considered this a "slap in the face" since I was offered the same salary as other Q/C inspectors less skilled and qualified than I was.

I am aware of many nonconformance reports (NCR) prepared by Q/C inspectors which were voided without justification or explanation during my tenure at Zimmer. Many of my NCR's were voided. The rationale for voiding these NCR's was often ridiculous. Also, many of my NCR's came back with the notation "accept as is" with no further explanation. I used to reference the appropriate section of the American Society of Mechanical Engineer's (ASME) Code when I prepared an NCR. However, I was told that Q/C inspectors could not refer to the ASME code. Rather, the Q/C inspectors were told to only refer to the procedures set forth in the Special Process Procedure Manual (SPPM) utilized by Kaiser when preparing NCR's. However,

when Mr. GITTINGS & Floyd OLTZ, Document Review Managers, rejected a refuted NCR's, they referenced the ASME Code. It was very difficult to specify procedures in the SPPH since it was very vague and difficult to interpret. As a result, the Q/C inspectors had to rely on their interpretation of the very poorly written procedures in the SPPH when preparing NCR's although the Q/A Managers could utilize the ASME code to reject an NCR. Many of us Q/C inspectors complained and raised many questions regarding the procedures, standards and lack of specific procedures and standards with which we were forced to work. However, our complaints, questions and requests made no difference to Mr. GITTINGS & other Kaiser management personnel. It became very apparent that the Kaiser personnel preferred to waste more time trying to avoid or circumvent an NCR than to acknowledge the NCR and go on and repair the cited item. For example, if the quality of a weld was challenged in an NCR, craft personnel often cut out the weld and replaced it, and then voided the NCR. Therefore, there was no follow up & control over many NCR's. Also, often no "cut cards" were prepared. If I questioned craft personnel they would tell me it was none of my business; that if they needed me they would call me. It became evident that we Q/C inspectors were tolerated as being required by contract specifications rather than by necessity. Mr. GITTINGS constantly displayed a very hard core and demanding attitude toward the Q/C inspectors. He felt we were "over inspecting" and wasting the construction workers' time. Mr. GITTINGS did not like either me or another Q/C inspector,

Abel RAMOS, presumably because he thought we were too thorough and overly critical. After a while, the Q/A Program at Zimmer became a big joke since everyone seemed to be laughing behind our backs about our NCR's. Therefore, I and other Q/C inspectors began keeping copies of our NCR's which were voided or marked "accept as is." We did this to protect ourselves and the integrity of our inspections in case there were subsequent problems. If I can locate any of these NCR's I will provide them to the Nuclear Regulatory Commission at a later date.

Robert MARSHALL was the Construction Supervisor for Kaiser at Zimmer. I am not aware of him being directly involved in the rejection or voiding of NCR's. I do know that he and Mr. GITTINGS used to go out into the field to examine discrepancies cited in NCR's; however I do not know what effect this had on the disposition of NCR's. To my knowledge, Mr. MARSHALL did not directly challenge Q/C inspectors concerning the propriety of NCR's.

Scott SWAIN worked for CG&E at the Zimmer site. As the NDE coordinator, I dealt with Mr. SWAIN on weld deficiencies. On one occasion he violated a hold point on a weld by requesting a radiographic test (RT) on the weld before it was visually inspected by a quality control inspector. As a result I wrote an NCR. Mr. SWAIN explained the violation occurred since quality control should have been more readily available to conduct the visual inspection. Mr. SWAIN often tried to blame Q/C inspectors for NCR's being issued for the same reason.

In my opinion, construction at Zimmer had too much influence over what should and should not be

inspected. Many of the requirements for inspections of welds are set forth in the weld data sheet. However, the weld data package is controlled by construction. Kaiser is leaning more toward the construction aspect than the inspection program since it is anxious to have the job completed. The Q/A program lacks the strength and independence for a satisfactory disposition of the non conforming items. Mr. GITTINGS was under pressure to get the job done. As a result, he attempted to lower specifications and requirements to avoid NCR's and additional work. As an example, according to the ASME Code, 1/32" is the maximum undercut allowable on base metal. However, there were many welds which exceeded this which resulted in NCR's. Therefore, Mr. GITTINGS wanted to change the procedures in the SPPD to 1/16" which would double the maximum undercut allowable. Mr. GITTINGS told Rex BAKER, Supervisory Q/C inspector, to make this change. Mr. BAKER, a Kaiser employee, did not agree with raising the tolerance. However, at Mr. GITTINGS insistance he initiated the change although he signed it "under protest." I do not know whether this proposed change was implemented.

There were several instances of Q/C inspectors at Zimmer being intimidated and harassed by Kaiser employees. My brother, Jim RUIZ, is a Q/C inspector employed by Kaiser at Zimmer. Jerry ADAMS, a Kaiser foreman for structural in the suppression pool, told my brother to the effect that he would have to "buy that item or he wouldn't be there anymore." By this he meant that unless my brother accepted and passed something in inspection he would lose his job. I do not know

what this pertained to or when it occurred. I am also aware of Mr. MARSHALL and/or Mr. GITTINGS attempting to fire Abel RAMOS, another Q/C inspector for supposedly using a magnifying glass while inspecting a weld. I understand Mr. RAMOS had a mirror rather than a magnifying glass which was no violation of Q/A procedures. I am aware of three Q/C inspectors who had buckets of water poured on them by construction workers while they (Q/C inspectors) were conducting inspections. Mike DE PUCCIO, a Q/C inspector in the suppression pool, had water dumped on him on two separate occasions in one day. As a result, he went home for the balance of the day. I know this was reported by DE PUCCIO to his supervisor or to Kaiser management personnel. DE PUCCIO is presently working in Pennsylvania although I have heard he is returning to Kaiser at Zimmer. Reportedly, Jeff RICHARDS, a Q/C inspector, also had water dumped on him by construction workers. However, I am aware of no details. Mr. RICHARDS is presently working at the San Onofre plant in California. Additionally, a female Q/C inspector, Jan MULKIE, had water dumped on her by construction laborers. I don't know when or where this occurred or how much water was involved. However, it was reported to Mr. MARSHALL who told his foremen to spread the word that anyone throwing water on Q/C inspectors would be fired. This was really done and to my knowledge no formal written report or complaint was prepared. I would like to point out that when an employee is terminated at Kaiser he can normally be immediately rehired by Kaiser in another capacity. There was never any

investigation or disciplinary action initiated or taken as a result of these incidents of Q/C inspectors being soaked with water. It was not done by the construction workers as a practical joke. In my opinion and the opinion of others it was done because the craft personnel thought the Q/C inspectors were being too strict during their inspections. The acts were definitely a harassment and embarrassment to the Q/C inspectors. The construction workers just laughed after it happened. I'm sure they knew which one of their co-worker(s) was responsible although they did not tell the Q/C personnel.

In my opinion the entire Q/A Program at Zimmer is in bad shape. There is not Q/C Program in effect for many important areas. As examples, there are no procedures, daily logs of random inspections or anyone specifically assigned to check whether portable rod ovens ~~temperatures~~ were maintained at the proper temperatures or whether welding rods were properly segregated. Also, the justification and qualification methods for determining an individual's level of competence for various welding specifications is very complex and confusing. Therefore, the Q/C inspector often cannot establish whether an individual is qualified to perform a particular welding procedure. Additionally, the Q/C procedures prepared by Kaiser (SKFH) are poorly written and too vague. As a result they provide no meaningful guidance to the Q/C inspectors. In my opinion, they were purposefully written in this vague and unclear manner so they can

be interpreted any way that Kaiser wants to in order to benefit Kaiser. They should be rewritten in a clearer and more specific format.

I spoke to my brother on the telephone at Zimmer yesterday (February 19, 1981). He told me he had been taken out of the suppression pool yesterday and placed on hangers. He told me that MR. GITTINGS had told Rex BAKER to "get me out of the suppression pool." I asked MR. BAKER if this meant that I was being reprimanded for doing my job. He replied that apparently it could be interpreted by me that way. During my conversation with my brother he also told me that CG&E wants to know why Kaiser terminated the shoppers. CG&E has asked Kaiser what the problem is with their recruiting of QC inspectors and why so many are leaving. CG&E also wants to know why the shoppers were terminated in November 1980. CG&E has requested that Kaiser respond to these questions in writing by today.

I have read the foregoing statement consisting of 8 handwritten ~~/typed~~ pages. I have made and initialed any necessary corrections and have signed my name in in the margin of each page. This statement is true to the best of my knowledge d belief.

INTERVIEWEE: Jesse Ruiz

Name: Jesse RUIZ

Subscribed and sworn to me the 20th day of Feb., 1981, at Concord, Va.

INVESTIGATOR: Edward C. Gilbert 8:20 A.M.

Name: Edward C. GILBERT

WITNESS: Peter E. Baci 8:20 AM

Name: Peter E. BACI

ENCLOSURE (G)

Place: Mineral, Virginia
Date: 2/20/81

STATEMENT

I, Billie E. TYREE, hereby make the following voluntary statement to Edward C. GILBERT who has identified himself to me as an Investigator with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator GILBERT is writing ~~typing~~ this statement for me at my request.

I am a level II welding (mechanical) Quality Control (Q/C) inspector. I have been employed by Advanced Industrial Design Engineers (AIDE) at the North Anna Nuclear Power Station, Mineral, Virginia, since November 10, 1980. Previously, I worked for the Butler Service Group Inc at the Hatch Nuclear Power Station, Bailey, Georgia, for about six weeks in October and November 1980. Prior to that, I worked for Butler and Consultants and Designers at the Watts Bar Nuclear Power Station between November 1979 and October 1980. I also was employed by Butler at the Zimmer Nuclear Power Plant, Moscow, Ohio, in the same capacity (level II welding Q/C inspector) from September 24, 1979 to November 20, 1979.

My present local address is the Rebel Motel, Route 33, Louisa, Virginia, telephone (703) 967-1585. My permanent mailing address and residence of my spouse is Route 11, Box 229, Sparta, Tennessee, 38583, telephone (615) 935-2051. I anticipate terminating employment at AIDE in two or three weeks and returning to Tennessee.

Billie E Tyree

During my employment by Butler at Zimmer I was aware of buckets of water being thrown on Q/C inspectors by construction workers. This happened on at least four occasions and possibly six occasions to Mrs. Jan MULKIE, a Q/C inspector. Although I never observed the water being thrown, I did see Mrs. MULKIE immediately after the event occurred when she was soaking wet. She was very

Billie E Pyle

irritated and reported the incidents to her immediate supervisor; however, I do not recall his name. I am not aware of this individual taking any action or reporting it to his supervisors or management personnel. To my knowledge, there was no formal report of complaint prepared and there was no ensuing disciplinary action. During the two-month period I worked at Zimmer, two or three other Q/C inspectors also had water thrown on them by craft (construction) personnel. I cannot recall specifically who these Q/C inspectors were and I doubt that the situations were pursued any further than the probable reporting of the incidents to their immediate supervisors. As far as I know, buckets of water continued to be thrown on Q/C inspectors after I terminated employment in November 1979. This water was not thrown on the Q/C inspectors as a practical joke it occurred when the Q/C inspectors were in the containment building. I assume it was done since the construction workers did not want the Q/C inspectors in the containment area. Therefore, presumably, they threw the water on the Q/C inspectors to limit their stay in the containment building. The inspectors I had been assigned to perform Q/C inspections in the containment building when the water throwing incidents occurred. It was general knowledge that one of the construction workers nicknamed "Frenchie" was responsible for throwing the water. I don't know how this became known or whether any Q/C inspectors actually saw him throw the water. I do not know Frenchie's real name. Frenchie is a short heavy-set individual in his 40's. He speaks with a French accent. He also used to have a

civilian license to fly private aircraft.

I cannot recall any non-compliance reports being written without justification during my two month tenure with Butler & Zimmer. Also, I can offer no information regarding other individuals who worked at Zimmer while I was there. Further, I can offer no additional examples of Q/C inspectors being harassed & intimidated.

The main reason I terminated employment with Butler & Zimmer was to return to Tennessee to be with my wife. However, I was also prompted to leave since, in my opinion, Kaiser Engineering was not interested in a quality product. By this I mean there was an obvious lack of emphasis on the Quality Assurance Program. Under these conditions I was unable to take pride in my work as a Q/C inspector.

I have read the foregoing statement consisting of .3 handwritten/~~typed~~ pages. I have made and initialed any necessary corrections and have signed my name in in the margin of each page. This statement is true to the best of my knowledge and belief.

INTERVIEWEE: Billie E Tyree

Name: Billie E. TYREE

Subscribed and sworn to me the 20th day of Feb, 1981, at Mineral, Va.

INVESTIGATOR: Edward C. Gilbert 1:18 P.M.

Name: Edward C. GILBERT

WITNESS: Peter E. Baci 1:19 P.M.

Name: Peter E. BACI

ENCLOSURE (H)

HENRY J. KAISER, CO.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT

NO. E-2868 PAGE _____ OF _____

1. DWG/INSTALLATION NO.	2. DWG/INSTALLATION NAME:	3. PO/CONTRACT NO.	4. SUPPLIER/CONTRACTOR NAME:	
M-445	Stand By Liquid	7070	HJK	
5. INSPECTION PLAN NO.: ISK 1-SC02D1½	6. INSPECTOR: F. J. Oltz	7. DATE: 11-3-80	8. SPECIFICATION NO. H-2256	ASME YES ☒ NO ☐

9. DESCRIPTION OF NONCONFORMANCE	10. DISPOSITION	11. DISPOSITION INSTRUCTIONS/JUSTIFICATION
LOCATION: Reactor Bldg.		
SYSTEM: SC		
REQUIREMENT: Components to be in-		
stalled to drawing and specs.		
ACTUAL: Valve installed at location		
C41F007 is carbon steel. Should be		
design table 950WZ (Stainless Steel)		
per valve list. Weld 21 & 22 on		
ISK made using ER-308 Rod welding		
stainless steel pipe to carbon steel		
valve.		

12. REVIEW BOARD (REQUIRED ON ALL ACCEPT/REPAIR DISPOSITIONS)

KEI CONSTRUCTION ENGR. DATE

S&L DATE | CG&E SPONSOR ENGR DATE | CG&E Q.A.&S. DATE | KEI QAE DATE

13. REPAIR/REWORK COMPLETE AND ACCEPTABLE

INSPECTOR/ENGINEER DATE

14. CAUSE	15. CORRECTIVE ACTION

KAISER FIELD (7), CG&E (4), S&L (1), A.I. (1), QA FILES (ORIG.)

5168

HJKCO FORM NO. QA-14
Rev. 9/73

ENCLOSURE (I)

INTER-OFFICE MEMORANDUM

TO Marty Feltner
AT

DATE August 6, 1980

FROM Lois Boetger
John Setlock

COPIES TO Distribution

AT Ext. 393

JOB NO. 7070

SUBJECT Processing of Punchlist Tickets on Turned over and Non-Turned over Systems

In response to field engineer's request regarding punchlist tickets on turned over systems and non-turned over systems, the following shall apply:

Turned over Systems

1. Punchlist will be prepared on deficiencies.
2. Punchlist ticket will be issued to the field.
3. Upon completion of the physical work, call Q.A. Inspector.
4. Any additional deficiencies found by the Q.A. Inspector will be worked by the craft at this time and so noted on the ticket by the Q.A. Inspector.
5. If additional metal is required, the ticket should be returned to the Field Engineer. The Field Engineer will then return the ticket to the Punchlist Group where a new ticket will be written, turnback obtained and KE1-A, if required.

Non-Turned over Systems

1. Punchlist will be prepared on deficiencies.
2. Punchlist ticket will be issued to the field.
3. Upon completion of the physical work, call Q.A. Inspector.
4. Any additional deficiencies found by the Q.A. Inspector will be worked by the craft at this time and so noted on the ticket by the Q.A. Inspector.
5. If during the working of a punchlist ticket, if the fillet is reduced below acceptable criteria, the craft will draw rod to complete the repair of the weld and so noted on the punchlist ticket by the inspector. The Q.A. Inspector will document the addition of filler material.
6. If in the working of a punchlist ticket, the minimum wall thickness of the pipe is violated, the punchlist ticket will be returned to the Field Engineer. The Field Engineer will obtain a KE1-A form and/or revise drawings to show replacement of piping. This work will be completed on the original punchlist ticket.

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ENCLOSURE (J)

HYDRO / TURNOVER WALKDOWN

I. During the walkdown conducted prior to Hydro Testing the following inspections shall be made.

A. The piping is installed per the latest revision or the drawing. If the configuration is different try to obtain a copy of the redline.

B. Check the accuracy of the weld map. If welds on the drawing exist and if the welds exist in the field but are not shown on the drawing.

C. Check the slope of the instrument lines ther should be 1/4" per foot in side the Primary Containment and 1/2" per foot outside the Primary Containment.

D. Check to see if the INX Hanger Anchors are installed.

E. Check for carbon steel weld splatter on stainless steel lines. Also check for arc strikes, gouges, and any other base metal violations.

F. Check proper valve installation and the flow direction.

G. Check for seismic clearance violations. (Insulation is considered part of the pipe.)

H. When ever possible the Document Review will be done prior to the Walkdown. When this is the case all Post Weld Inspection will be done during the Walkdown.

I. Temporary attachments welded to the pressure boundry must be removed.

II. During the walkdown conducted prior to Turnover the following inspections shall be performed.

A. Check to see that the pipe is installed per the latest revision and the weld map is accurate.

B. That all INX Anchor Hangers are made.

C. If there is any Carbon Steel weld splatter on Stainless Steel lines. Check for arc strikes, gouges, or any other base metal violations.

D. Check proper valve tagging. Metal identification strip is required. Also see if the 'N' tag is attached if it is accessible.

E. Verify that the proper nuts, studs, and gaskets are installed.

F. Check that nuts are tight and the proper engagement exists. (On flanges, valves, etc.)

G. Check for temporary attachments and hangers.

H. Restricting orifices are installed and the flow direction is proper.

I. That the material take off agrees with the Phyiscal installation.

J. Check if any of the system components are disassembled.

K. Check if any of the system components are damaged.

L. Instrument air lines are conected to air operated valves.

M. Hand wheels and clutch engagement levers are installed.

N. Tape is removed where the tape shows evidence of being arc struck.

O. All instrument lines are color code tagged per H-2256.

P. All welds requiring inservice inspection are banded per H-2256.

ENCLOSURE (K)

KAISER ENGINEERS, INC.

LIQUID PENETRANT: TEST REPORT

☐ Shop ☒ FIELD PURCHASE ORDER 7070

REPORTED BY T. Dekin

DATE 1 /79

CG&E, Columbus and Southern Ohio Electric, Dayton Power and Light Company

SA 312

Sch 80 | N/A | ASME Section III | S&L H2256 | 100% WELDMENT

AS WELDED

Spotcheck by Magnaflux Corporation ☒ SOLVENT-REM

Spotcheck by Magnaflux Corporation | KEI SPPM 4. 2 Rev. 1 | Terry Dekin

PIECE OR JOINT NUMBER	Reference Drawing ISO or PSK.	INDICATE SIZE AND LOCATION (Use Sketch If Necessary)	ACCEPT	REJECT	INFO.ONLY	BRIEFLY DESCRIBE INDICATIONS

ENCLOSURE (L)

THE CINCINNATI GAS & ELECTRIC COMPANY WM. H. ZIMMER NUCLEAR POWER STATION		DESIGN DOCUMENT CHANGE DDC No. M-4828 Page 1 of 1	
DWG/SPEC. NO.: H-2255	REV. ---	ITEMIZATION NO. & SYSTEM: GEN	DDC PREPARED BY: MIKE / GARTNER	DATE: 2-29-80
DWG/SPEC. NAME: H-2056	DWG/SPEC. ISSUED BY: S&L	DWG/SPEC. REGISTER NO: ---	DDC REGISTER NO.: C7884

REASON FOR CHANGE

METHOD TO BE USED TO DETERMINE THE ACTUAL MINIMUM WALL THICKNESS OF PIPING

Ref. Line No. Where Applicable:

Description of change

CARBON STEEL AND STAINLESS STEEL MINIMUM REQUIRED WALL THICKNESS WILL BE BASED ON THE FOLLOWING CRITERIA:

(BASE METAL REPAIR CRITERIA)

~~1) ALLOWABLE STRESS FACTORS AS PROVIDE BY S&L~~

2) FORMULA:

$$t_m = \frac{P D_o}{2(SE + Py)} + A + C$$

3) t_m = MIN. WALL THICKNESS IN INCHES

P = DESIGN PRESSURE IN PSI

D_o = OUTSIDE DIAMETER OF THE PIPE IN INCHES

SE = MAX. ALLOWABLE STRESS IN MAT'L DUE TO INTERNAL PRESSURE. * USE ALLOWABLE STRESS FROM ANSI B31.1 WHICH IS MORE CONSERVATIVE THAN THE CODE. FOR STAINLESS STEEL, ANSI B31.1 GIVES TWO ALLOWABLES. THE LOWER ALLOWABLE SHOULD BE USED.

y = COEFFICIENT GIVEN IN ~~ANSI B31.1 TABLE~~ TABLE NC-3641.1 (A)-2.

A+C = THREADING AND CORROSION ALLOWANCE .065 FOR S.S., .125 FOR C.S., PER S&L.

Spec H-2056 will be revised

Essential [X]

Non-Essential [ ]

APPROVED WITH COMMENTS

J. McElhaney 3-12-80

S&L Preparer Date

KE Cognizant Engineer Review

Chief Piping Engineer | Construction Engineer | N/A Electric Const. Engineer

APPROVAL BY CG&E:

[signature] 3-13-80	[signature] 3-13-80	E. S. Ward 3/13/80
CGE ENGINEERING DATE	CG&E ENGINEERING DATE	CG&E QUALITY ASSURANCE DATE

ENCLOSURE (M)

415 TRIP

HJK-182

HENRY J. KAISER COMPANY **Job No. 7070**

Wm. H. Zimmer Nuclear Power Station
Moscow, Ohio

(WRITE IT/DON'T SAY IT)

TO J. SETLOCK + QA Inspector | AT ZIMMER

SUBJECT WELD SPLATTER ON WALK DOWNS | DATE 10/29/79

WELD splatter will not be rejectable on walk downs unless it is dissimilar metals. A walk down procedure will be written shortly spelling out all acceptance criteria.

PLEASE REPLY TO > SIGNED AC Pallo

DATE | SIGNED

ENCLOSURE (N)

INTER-OFFICE MEMORANDUM

TO Phil Gittings
AT Zimmer #1

DATE 8-18-80

FROM Rex Baker ~~-Eric Schroeder~~
8-18-80

COPIES TO

AT Zimmer #1

JOB NO. 7070

SUBJECT

1). On 8-14-80, 49 packages of NX supports were released to H.J.K. Q.C. for inspection. These packages consisted of an ISK, a field sketch of the "AS BUILT" installation, and welding documentation. The field sketches do not appear to meet the requirements of the design drawings (M-479 series drawings) and no DDC to approve the design change is included. I was told to inspect these hangers not by the design drawings, but by the "AS BUILT" drawings only, and that we would compare drawings after the design changes are ready and approved by the design engineers.

I will have these NX hangers inspected because I was ordered to, but I do not condone the inspection of these INX hangers at this time because I deeply feel the above is contrary to criteria III, V, VI, X, XV, and XVI of 10CFR50 Appendix B. This inspection is being considered an inprocess inspection, but hangers have been manufactured and installed for at least two years.

Please Acknowledge & Return:

P. Gittings 8/18/80

Phil Gittings / Date
H.J.K. Q.A. Manager:

ENCLOSURE (0)

Open NR'S on DG hgts. 11-1-80

E	2263 R1	C/N 4326	1732HA/2319HA	S+T.
E	2333	C/N 4201	231-5HG/2367HA	S+T.
[illegible]	2364	C/N 4735	VARI[illegible]	[illegible]
E	[illegible]26	C/N 4337	2125/23[illegible]	[illegible]
E	[illegible]	C/N 5019	149HR	No Dispo.
[illegible]	[illegible]	C/N 50[illegible]	351HR	No Dispo.
E	[illegible]	C/N 5021	343HR	No Dispo
E	[illegible]	C/N 50[illegible]	021HR	No Dispo.
E	2774	C/N 5023	022HR	No Dispo
E	2775	C/N 5024	122HR	No Dispo
[illegible]	[illegible]	C/N 50[illegible]	[illegible] HR	[illegible]
E	[illegible]	C/N [illegible]	35[illegible] HR	No Dispo
E	[illegible]	C/N [illegible]	355 HR	No Dispo
[illegible]	27[illegible]	C/N 50[illegible]	[illegible]	No Dispo

[illegible] NR'S listed below:

[illegible]

C/N [illegible] - [illegible]

[illegible] - [illegible] deficiencies C/N 4750 - 095 HR

" 4[illegible]5[illegible] - " " C/N 4[illegible]31 - 096 HR

4[illegible]5 -

[illegible]5[illegible] - " "

ENCLOSURE (P)

KAISER ENGINEERS, INC.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT

NO. E1755 PAGE 1 OF 2

1. DWG/INSTALLATION NO.	2. DWG/INSTALLATION NAME:	3. PO/CONTRACT NO.	4. SUPPLIER/CONTRACTOR NAME:	
M-471	INX Hangers	7070	HJK Co.	
5. INSPECTION PLAN NO.:	6. INSPECTOR:	7. DATE:	8. SPECIFICATION NO.	ASME YES ☐ NO ☒
QACMI M-12 & M-16	Ballmer/Norman/Small F	3/17/79	H-2256	

9. DESCRIPTION OF NONCONFORMANCE	10. DISPOSITION	11. DISPOSITION INSTRUCTIONS/JUSTIFICATION
LOCATION: Reactor Bldg.		REPLY REQUESTED BY "RUSH"
SYSTEM: RH		
The following INX Hangers are not in compliance with the requirements of Drawing M-471, SPPM 4.6, Tolerances of Mechanical Construction Test Procedure MC-5, Rev. 1, or SLS-328:		
INX 2423HG & INX 2704HG - Weld undercut at 1¼" angle to 3" I Beam	Rework	Grind undercut & Reweld
INX 1877HG - Base plate 1/8" gap to wall	Rework	Shim per Req. on DDC-SLS-412 See NR E1797
INX 1883HG - Base plate ¼" gap to wall	Rework	Shim plate per req. on DDC-SLS-412 See N.R. E1797
INX 1965 - Contact surface less than 80% of base top left and middle stud	Rework	Per SLS-412. Rework nuts to get (1)

12. REVIEW BOARD (REQUIRED ON ALL ACCEPT/REPAIR DISPOSITIONS)

KEI CONSTRUCTION ENGR. DATE 6-6-79

S&L DATE CG&E SPONSOR ENGR DATE CG&E Q.A.&S. DATE KEI QAE DA

13. REPAIR/REWORK COMPLETE AND ACCEPTABLE

INSPECTOR/ENGINEER DATE

14. CAUSE

INSTALLATION MADE DID NOT meet requirements of FCP-2-128

15. CORRECTIVE ACTION

The Gen. Supt. has instructed all craft Supts. concerning FCP-2-128

KAISER FIELD (7), CG&E (4), S&L (1), A.I. (1), QA FILES (ORIG.)

3197

KEI FORM NO. Q
Rev.

KAISER ENGINEERS, INC.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT
No. E175 Page 2 of 2

9. Description of Nonconformance	10. Disposition	11. Disposition Instructions & Justification
nuts not fully engaged		Full nut engage
INX 1155HA - Extra weld to sleeve at top, C/S hanger plate welds not made, conduit CM-751 under corner of base plate (Seismic Clearance Violation)	Repair	Hanger being cut out because of interference with add stl. in contain
Hilti Bolts will not meet torque requirements base plate not grouted		
INX 2032HG - Installation not per ISK, tow Hilti nuts not fully engaged	Rework	Get redline of hanger drawing Rework Hiltis to get full engagement
INX 224HG - Oversize guide sleeve	ACCEPT AS IS	Dwg revised to SR per DDC #M-3629
INX 219CHG - Contact surface less than 80% of base plate	Rework	Shim plate per req. on DDC-SLS-412
INX 761HG - Installation not per ISK	Rework	Revise ISK
INX 1133 HA - Installation not per ISK	Rework	Revise ISK
INX 2555HG - ½" Hilti Bolts embedded 3.5" in Containment Wall	ACCEPT AS IS	
INX 2553HG - Same as 2555	ACCEPT AS IS	
INX 2693HG Same as 2555	ACCEPT AS IS	
INX 2554HG - Same as 2555	ACCEPT AS IS	
INX 2708HG - ½" Hilti Bolts embedded 3.5" in Containment Wall, pipe out of guide by 2½".	ACCEPT AS IS Rework	For Embeddment Pipe out of guide

ENCLOSURE (Q)

HENRY J. KAISER, CO.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT

NO. E2714 PAGE _____ OF _____

1. DWG/INSTALLATION NO.	2. DWG/INSTALLATION NAME:	3. PO/CONTRACT NO.	4. SUPPLIER/CONTRACTOR NAME:
M-471-3 SH 5 REV 5	INX 543 HA MAIN STEAM	7070	H.J.K. & C. G+E

5. INSPECTION PLAN NO.:	6. INSPECTOR:	7. DATE:	8. SPECIFICATION NO.	ASME
	A. RAMOS + J. MILLS	6-27-80	H-2256	YES ☐ NO ☑

9. DESCRIPTION OF NONCONFORMANCE	10. DISPOSITION	11. DISPOSITION INSTRUCTIONS/JUSTIFICATION
LOCATION: REACTOR BLDG NE 530'10" ELEVATION SYSTEM: MAIN STEAM REFERENCED REQUIREMENTS: H-2256 AND Q.A.C. MT-MIL DISCREPANCIES: INX 543 HA - HILTI BOLTS ON TOP RIGHT HAND CORNER OF PLATE IS APPROX 7.66° AND LOWER LEFT HAND CORNER IS 5.75°. BOTH HILTI BOLTS ARE EXCEEDING MAXIMUM OF 5° PLUM. BOTH BOLTS ARE BENT (SEE D.D.C. # M-11,216 ALSO FOR DETAILS)		

12. REVIEW BOARD (REQUIRED ON ALL ACCEPT/REPAIR DISPOSITIONS)

KEI CONSTRUCTION ENGR. DATE

S&L DATE | CG&E SPONSOR ENGR DATE | CG&E Q.A.&S. DATE | KEI QAE DA

13. REPAIR/REWORK COMPLETE AND ACCEPTABLE

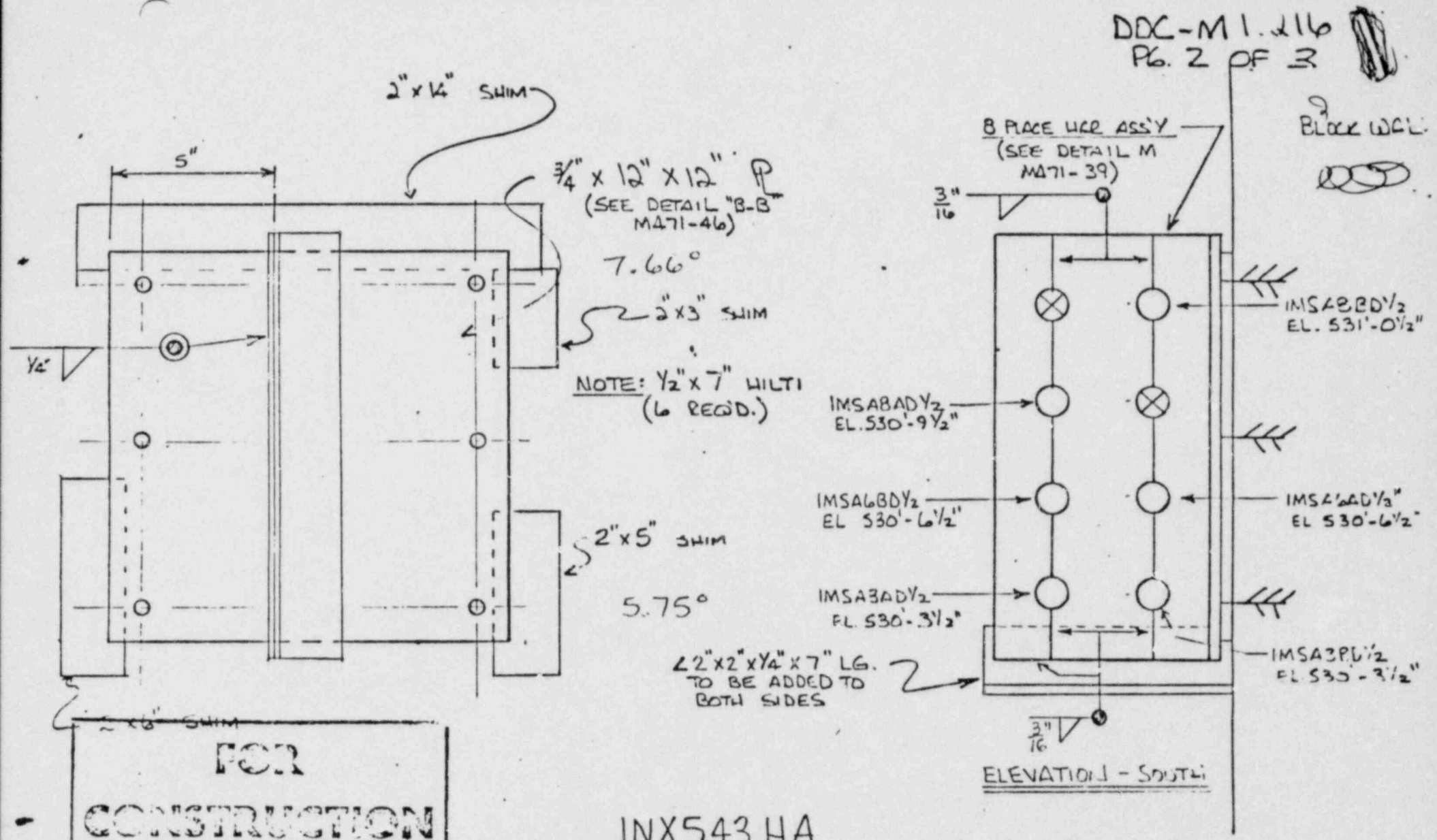
INSPECTOR/ENGINEER DATE

14. CAUSE	15. CORRECTIVE ACTION

KAISER FIELD (7), CG&E (4), S&L (1), A.I. (1), QA FILES (ORIG.) CN # 4911

HJKCO FORM NO. QA Rev. 9.

DDC-M1.216
Pg. 2 OF 3



INX543HA

HGR. TYPE _____
DWG. M-471-39 & 46
D.D.C. SLM-412

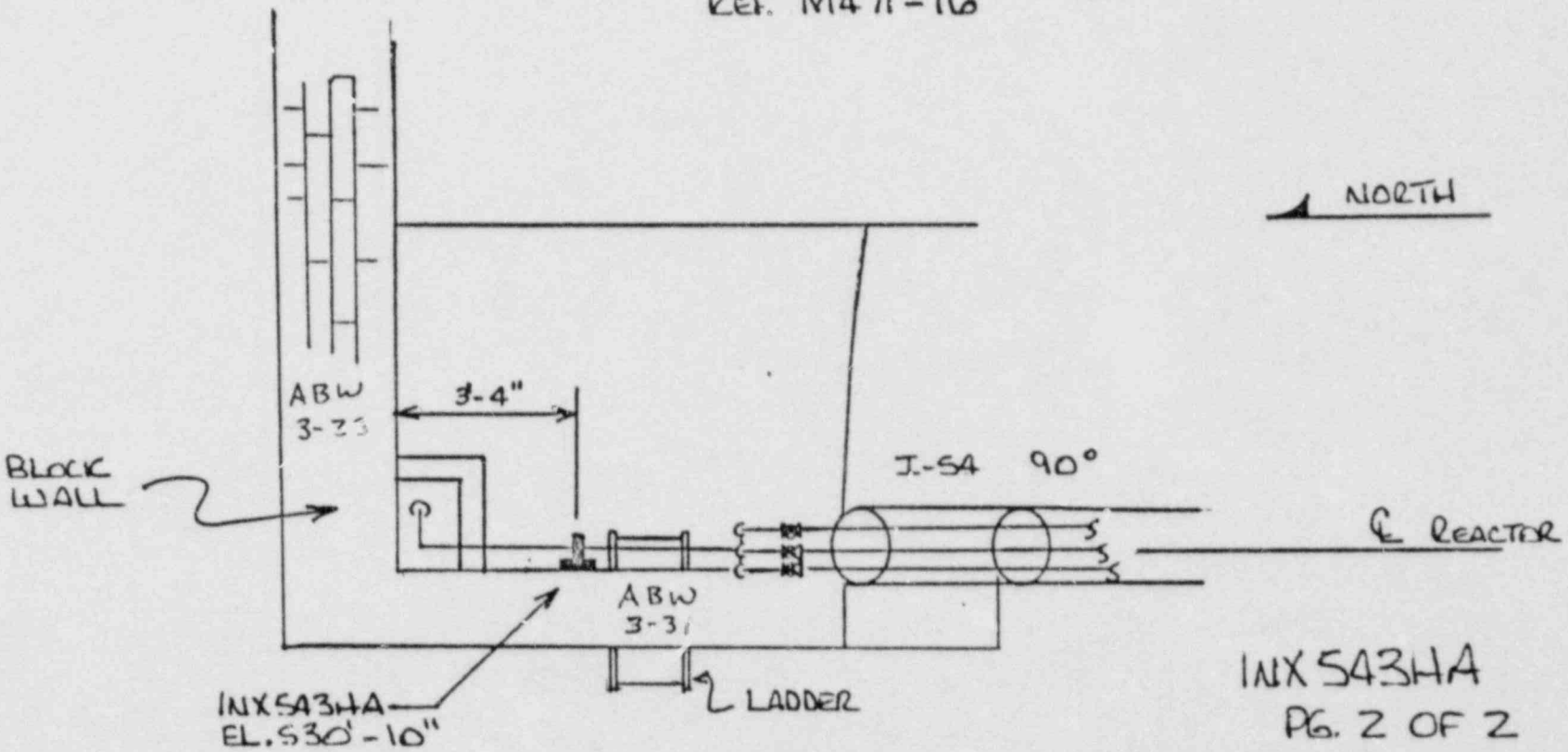
RQ CQ JUN 17 1980
REV. 1

WELDING PROCEDURES

C/S TO C/S SPPM 3.1.51
S/S TO S/S SPPM 3.1.1
C/S TO S/S SPPM 3.1.6

ALL FILLET WELDS TO BE 1/4 INCH UNLESS NOTED

REACTOR BLDG. N.E.
EL. 525'-7"
REF. M471-16



INX543HA
PG. 2 OF 2

ENCLOSURE (R)

HENRY J. KAISER, CO.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT
NO E2777 PAGE 1 OF 2

1. DWG/INSTALLATION NO.	2. DWG/INSTALLATION NAME:	3. PO/CONTRACT NO.	4. SUPPLIER/CONTRACTOR NAME:
A-518 REV K M-602-9H REV B	HANGER Guide No. IDE-354 HG	7070	KAISER ENGINEERS
5. INSPECTION PLAN NO.:	**6. INSPECTOR:**	**7. DATE:**	**8. SPECIFICATION NO.** / **ASME**
Q.A.C.M.I-M-12	A.G.RAMOS	8-29-80	H-2256 / YES ☐ NO ☑

9. DESCRIPTION OF NONCONFORMANCE	10. DISPOSITION	11. DISPOSITION INSTRUCTIONS/JUSTIFICATION
LOCATION: DIESEL GENERTOR BUILDING ELEVATION: 544'-0" SYSTEM: DIESEL GENERTOR FLOOR DRAIN REFERENCED REQUIREMENTS: Q.A.C.M.I-M-12, S.P.P.M 4.6 REV 7, F.C.P 2-135 REV 9 DISCREPANCIES: (A) SEISMIC CLASSIFICATION IS NOT SHOWN ON DRAWING (B) KEY PLAN DOES NOT SHOWN BOTTOM CROSS MEMBER TO BE WELDED ALL AROUND, WHERE IS CROSS MEMBER HAS BEEN FIELDWELDED ALL AROUND. (C) WELD DATA OR DOCUMENTATION HAS NOT BEEN APPROVED.	[redacted]	[redacted]

12. REVIEW BOARD (REQUIRED ON ALL ACCEPT/REPAIR DISPOSITIONS)

KEI CONSTRUCTION ENGR. DATE

S&L DATE | CG&E SPONSOR ENGR DATE | CG&E Q.A.&S. DATE | KEI QAE DA

13. REPAIR/REWORK COMPLETE AND ACCEPTABLE

INSPECTOR/ENGINEER DATE

14. CAUSE	15. CORRECTIVE ACTION

KAISER FIELD (7), CG&E (4), S&L (1), A.I. (1), QA FILES (ORIG.)

5027

HJKCO FORM NO. QA-
Rev. 9/

KAISER ENGINEERS, INC.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT
E 2777 No. 1 Page 2 of 2

9. Description of Nonconformance	10. Disposition	11. Disposition Instructions & Justification
(D) LOCATION OF HANGER ON M-602-911 PIPE DRAWING CANNOT BE VERIFIED TO A-518 BULK DRAWING.	SEE NCR DWG FOR CLOSE	

ENCLOSURE (S)

HENRY J. KAISER, CO.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT

NO. E2778 PAGE 1 OF 2

1. DWG/INSTALLATION NO.	2. DWG/INSTALLATION NAME:	3. PO/CONTRACT NO.	4. SUPPLIER/CONTRACTOR NAME:
A-518 REV. K M-602-911 REV. B SH 32	HANGER Guide No. 1DF-355 HG	7070	KAISER ENGINEERS

5. INSPECTION PLAN NO.:	6. INSPECTOR:	7. DATE:	8. SPECIFICATION NO.	ASME
Q.A.C.M.I.-M-12	A.G. RAMOS RAD	8-29-80	H-2256	YES ☐ NO ☑

9. DESCRIPTION OF NONCONFORMANCE	10. DISPOSITION	11. DISPOSITION INSTRUCTIONS/JUSTIFICATION
LOCATION: DIESEL GENERATOR BUILDING ELEVATION: 544'0" SYSTEM: DIESEL GENERATOR FLOOR DRAIN REFERNCED REQUIREMENTS: Q.A.C.M.I.-M-12, Spec M4.6 REV. 7, F.C.P. 2-135 REV. 9 DISCREPANCIES: (A) SEISMIC CLASSIFICATION IS NOT SHOWN ON DRAWING. (B) KEY PLAN DOES NOT SHOW BOTTOM CROSS MEMBER TO BE WELDED ALL AROUND, WHERE IS CROSS MEMBER HAS BEEN FIELD WELDED ALL AROUND. (C) WELD DATA OR DOCUMENTATION HAS NOT BEEN APPROVED.		

12. REVIEW BOARD (REQUIRED ON ALL ACCEPT/REPAIR DISPOSITIONS)

KEI CONSTRUCTION ENGR. DATE

S&L DATE CG&E SPONSOR ENGR DATE CG&E Q.A.&S. DATE KEI QAE DA

13. REPAIR/REWORK COMPLETE AND ACCEPTABLE

INSPECTOR/ENGINEER DATE

14. CAUSE	15. CORRECTIVE ACTION

KAISER FIELD (7), CG&E (4), S&L (1), A.I. (1), QA FILES (ORIG.)

5028

HJKCO FORM NO. QA Rev. 9/

KAISER ENGINEERS, INC.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT
No. E 2778 Page 2 of 2

9. Description of Nonconformance	10. Disposition	11. Disposition Instructions & Justification
(D) LOCATION OF HANGER ON M-602-9H REV B DRAWING CANNOT BE VERIFIED TO A-518 REV K DRAWING. (E) UNDERSIZED FILLET + COLD LAP.		

ENCLOSURE (T)

HENRY J. KAISER, CO.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT

NO E 2796 PAGE _____ OF _____

1. DWG/INSTALLATION NO.	2. DWG/INSTALLATION NAME:	3. PO/CONTRACT NO.	4. SUPPLIER/CONTRACTOR NAME:
M-428 SHT-10	HANGER Support/RESTRAINT IDG084SR	7070	KAISER ENGINEERS
5. INSPECTION PLAN NO.:	**6. INSPECTOR:**	**7. DATE:**	**8. SPECIFICATION NO.** / **ASME**
QACMI-M-12	A.G RAMOS	9-18-80	H-2256 / YES ☐ NO ☒

9. DESCRIPTION OF NONCONFORMANCE

LOCATION: DIESEL GENERATOR Building ROOM "A"
ELEVATION: 534'-6"
SYSTEM: DIESEL GENERATOR
REFERENCED REQUIREMENTS;
(A) QACMI-M-12 PARA'S; 2.6, 4.1
(B) S.P.P.M 4.6 REV 7 PARA'S; 4.1.3, 4.2.2.5, 4.2.1.6
DISCREPANCIES
(A) 1. FIELD SKETCH DOES NOT COMPARE TO APPROVED DRAWINGS.
2. ~~NO~~ AND 9-18-80 DDC DOCUMENTATION IS NOT SHOWN ON FIELD SKETCH.
(B) 1. SURFACE CONDITION IS NOT FREE FROM SLAG, RUST, ARC BURNS, UNDERCUT, COLD LAP, INCOMPLETE FUSION, AND UNDERRUN.

10. DISPOSITION

11. DISPOSITION INSTRUCTIONS/JUSTIFICATION

VOID
WRITTEN IN ERROR 10-6-80

12. REVIEW BOARD (REQUIRED ON ALL ACCEPT/REPAIR DISPOSITIONS)

KEI CONSTRUCTION ENGR. DATE

S&L DATE | CG&E SPONSOR ENGR DATE | CG&E Q.A.&S. DATE | KEI QAE DATE

13. REPAIR/REWORK COMPLETE AND ACCEPTABLE

INSPECTOR/ENGINEER DATE

14. CAUSE

15. CORRECTIVE ACTION

KAISER FIELD (7), CG&E (4), S&L (1), A.I. (1), QA FILES (ORIG.)

CN-5063

HJKCO FORM NO. 3-14 Rev. 9/73

HENRY J. KAISER, CO.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT

NO E 2796 PAGE ____ OF ____

1. DWG/INSTALLATION NO.	2. DWG/INSTALLATION NAME:	3. PO/CONTRACT NO.	4. SUPPLIER/CONTRACTOR NAME:
M-428 SHT-10	HANGER SUPPORT/RESTRAINT IDC0845R	7070	KAISER ENGINEERS

5. INSPECTION PLAN NO.:	6. INSPECTOR:	7. DATE:	8. SPECIFICATION NO.	ASME
QACMI-M-12	A.G. RAMOS	9-18-80	H-2256	YES ☐ NO ☒

9. DESCRIPTION OF NONCONFORMANCE	10. DISPOSITION	11. DISPOSITION INSTRUCTIONS/JUSTIFICATION
LOCATION "DIESEL GENERATOR Building Room A" ELEVATION: 534'-6" SYSTEM "DIESEL GENERATOR REFERENCED REQUIREMENTS; (A) QACMI-M-12 PARA'S; 2.6, 4.1 (B) S.P.P.M 4.6 REV 7 PARA'S; 4.1.3, 4.2.2.5, 4.2.1.6 DISCREPANCIES (A) 1. FIELD SKETCH does NOT COMPARE TO APPROVED DRAWINGS. 2. ~~AND~~ 9-18-80 DDC DOCUMENTATION IS NOT SHOWN ON FIELD SKETCH. (B) 1. SURFACE CONDITION IS NOT FREE FROM SLAG, RUST, ARC BURNS, UNDERCUT, COLD LAP, INCOMPLETE FUSION, AND UNDERRUN.		

12. REVIEW BOARD (REQUIRED ON ALL ACCEPT/REPAIR DISPOSITIONS)

KEI CONSTRUCTION ENGR. DATE

S&L DATE | CG&E SPONSOR ENGR DATE | CG&E Q.A.&S. DATE | KEI QAE DATE

13. REPAIR/REWORK COMPLETE AND ACCEPTABLE

INSPECTOR/ENGINEER DATE

14. CAUSE	15. CORRECTIVE ACTION

KAISER FIELD (7), CG&E (4), S&L (1), A.I. (1), QA FILES (ORIG.) CN-5063

HJKCO FORM NO. QA-14
Rev. 9/73

ENCLOSURE (U)

HENRY J. KAISER, CO.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT

NO. E2860 PAGE _____ OF _____

1. DWG/INSTALLATION NO.	2. DWG/INSTALLATION NAME:	3. PO/CONTRACT NO.	4. SUPPLIER/CONTRACTOR NAME:
M-428-34 SH 10	DG 011 HA Diesel Generator	7070	Henry J Kaiser

5. INSPECTION PLAN NO.:	6. INSPECTOR:	7. DATE:	8. SPECIFICATION NO.	ASME ESSENT.
SPPM 4.6 R8	A.G. Ramos	10-28-80	H-2256	YES ☒ NO ☐

9. DESCRIPTION OF NONCONFORMANCE	10. DISPOSITION	11. DISPOSITION INSTRUCTIONS/JUSTIFICATION
System I.D. DG Diesel Generator Location: DG Room "B" Elev. 534'0" Specifications: SPPM 4.6 R8 Paragraph 4.1.3, 4.2.1.2, & 4.2.2.4 Deficiencies: In performing an inspection of hanger 1DG011HA it was noted that slag, arc strikes, and rust were covering portions of the welding, and a visual inspection couldn't be performed (Para 4.1.3) Also there are under cut indications whose depths are greater than 1/32 of an inch. (4.2.2.4) Through fusion doesn't exist between weld metal & base metal.		

12. REVIEW BOARD (REQUIRED ON ALL ACCEPT/REPAIR DISPOSITIONS) (Para 4.2.1.2)

KEI CONSTRUCTION ENGR. DATE

S&L DATE CG&E SPONSOR ENGR DATE CG&E Q.A.&S. DATE KEI QAE DA

13. REPAIR/REWORK COMPLETE AND ACCEPTABLE

INSPECTOR/ENGINEER DATE

14. CAUSE	15. CORRECTIVE ACTION

ENCLOSURE (V)

HENRY J. KAISER, CO.

WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT

NO. E2861 PAGE OF

1. DWG/INSTALLATION NO.	2. DWG/INSTALLATION NAME	3. PO/CONTRACT NO.	4. SUPPLIER/CONTRACTOR NAME:	
M-42E-32-H SH 11 RA	1DG121HR Diesel Generator	7070	Henry J. Kaiser	
5. INSPECTION PLAN NO.:	**6. INSPECTOR:**	**7. DATE:**	**8. SPECIFICATION NO.**	~~ASME~~ Essential
SFPM 46 RE	A.G. Ramos	10-28-80	H-2256	YES ☒ NO ☐

9. DESCRIPTION OF NONCONFORMANCE	10. DISPOSITION	11. DISPOSITION INSTRUCTIONS/JUSTIFICATION
System I.D: DG Diesel Generator		
Location: DG Room "B"		
Elev: 532'0"		
Specifications: SFPM 46 R8		
Paragraph 4.1.3, 4.2.1.5 & 4.2.2.4		
Deficiencies: In performing an inspection of hanger 1DG121HR it was noted that slag and arc strikes were covering portions of the weld. A visual inspection couldnt be performed. (Para 4.1.3) Undercut indications exist in the weld whose depths are greater than 1/32 in. (Para 4.2.2.4) Also porosity indications exist in the weld whose diameters are greater than 3/8 to 1 linear in. (Para 4.2.1.5)		

RE-INSPECTION ACCEPTABLE 11-6-80

VOID 11/6/80

12. REVIEW BOARD (REQUIRED ON ALL ACCEPT/REPAIR DISPOSITIONS)

CONSTRUCTION ENGR. DATE

S&L DATE | CG&E SPONSOR ENGR DATE | CG&E Q.A.&S. DATE | KEI QAE DATE

13. REPAIR/REWORK COMPLETE AND ACCEPTABLE

INSPECTOR/ENGINEER DATE

14. CAUSE

15. CORRECTIVE ACTION

KAISER FIELD (7), CG&E (4), S&L (1), A.I (1), QA FILES (ORIG.)

CN 5159

HJKCO FORM NO. QA-14 Rev. 9/73

ENCLOSURE (W)

HENRY J. KAISER, CO.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT

NO. E 9882 PAGE _____ OF _____

1. DWG/INSTALLATION NO.	2. DWG/INSTALLATION NAME:	3. PO/CONTRACT NO.	4. SUPPLIER/CONTRACTOR NAME:
M-HZE-54H SH 19 Rev 8	Diesel IDG 495 HG Generator	7070	Henry J Kaiser

5. INSPECTION PLAN NO.:	6. INSPECTOR:	7. DATE:	8. SPECIFICATION NO.	~~ASME~~ ESSENTIAL
	A.G. Ramos	11/3/80	H-2256	YES X ~~NO~~

9. DESCRIPTION OF NONCONFORMANCE	10. DISPOSITION	11. DISPOSITION INSTRUCTIONS/JUSTIFICATION

System I.D. DG Diesel Generator
Location: DG Room 'C'
6'0" North of 12A & 10'4"
East of L
Elev 543'1"

Specifications: SPPM 4.6 R8
Paragraph 4.1.3, 4.2.1.2 & 4.2.2.4
& QACM1 M12

Deficiencies

1. Item 4 (spacer) isn't welded per detail drawing
2. Hanger isn't oriented as per design (QAM1 12)
3. Arc strikes exist on weld surface (SPPM 4.6 R8 Para 4.1.3)
4. Incomplete fusion exists at the toe of the weld (SPPM 4.6 R8 Para 4.2.1.2)

12. REVIEW BOARD (REQUIRED ON ALL ACCEPT/REPAIR DISPOSITIONS)

KEI CONSTRUCTION ENGR. DATE

S&L DATE | CG&E SPONSOR ENGR DATE | CG&E Q.A.&S. DATE | KEI QAE DATE

13. REPAIR/REWORK COMPLETE AND ACCEPTABLE

INSPECTOR/ENGINEER DATE

14. CAUSE	15. CORRECTIVE ACTION

KAISER FIELD (7), CG&E (4), S&L (1), A.I. (1), QA FILES (ORIG.)

CN # 5162

HJKCO FORM NO. QA-14
Rev. 9/73

KAISER ENGINEERS, INC.
WM. H. ZIMMER POWER STATION

NONCONFORMANCE REPORT
No. _____ Page 1 of 1

9. Description of Nonconformance	10. Disposition	11. Disposition Instructions & Justification
5 Welding also has under-cut conditions which exceed 1/32" (SPPM 4.6.E.2 Req 4.2.2.4)		

ENCLOSURE (X)

1.0 SCOPE

1.1 This procedure covers the minimum requirement for the performance of visual examination of welds in components, parts and/or fabricated assemblies when required by project specifications, ASME Code and/or Construction Inspection Plan.

2.0 PERSONNEL

2.1 Those persons assigned inspection duties which require or involve visual examination utilizing this procedure shall be trained (see SPPM 4.3, Supplement 1) and qualified by the RJK NDE Level III Examiner by written examination. Those persons who have qualified and are certified to ANST-TC-1A, Level II in any of the NDE methods shall be considered qualified to perform to this procedure.

3.0 EQUIPMENT

3.1 Visual examination shall be performed in adequate illuminated area, 15 foot candles minimum, measured at the surface of the item under examination unless otherwise specified. Evaluations of indications shall be performed without the aid of magnification except as noted in the project specifications. Optical magnification may be used to assist in locating and identifying the nature of indications but not in the evaluation of indications.

4.0 AWS INSPECTIONS PROCEDURE:

4.1 Process-Weld inspection shall either be direct or remote visual examination to determine such things as surface conditions of the inspection area and shape alignment of mating surfaces.

4.1.1 Direct examination of weldments shall be used when access is sufficient to place the eye within 24 inches of the surface to be examined and at an angle not less than 30 degrees to the surface to be examined.

4.1.2 Remote visual examination may be used in some cases where direct visual examination cannot be achieved. This requires the use of visual aids such as mirrors, or other suitable instruments provided that the distance and angle requirements as specified in paragraph 4.1.1 above are met.

4.1.3 Surface condition - Joint surfaces to be examined shall be cleaned and free from slag, rust, arc burns, paint, dirt, or other contaminants that would interfere with the examination.

4.1.4 Welds shall be free from overlap.

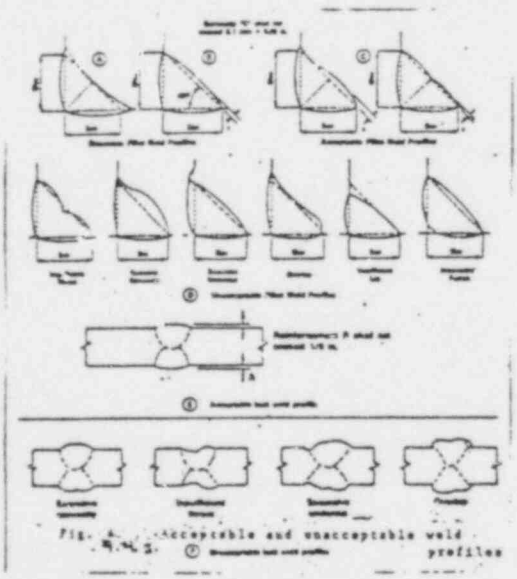


Fig. 4.6.R.7-1 Acceptable and unacceptable weld profiles

5.0 CABLE TRAY HANGER WELDS INSPECTION PROCEDURE: (REF: BDC-ELE-445)

5.1 Process - Weld inspection shall either be direct or remote visual examination to determine such things as surface conditions of the inspection area and shape alignment of mating surfaces.

5.1.1 Direct examination of weldments shall be used when access is sufficient to place the eye within 24 inches of the surface to be examined and at an angle not less than 30 degrees to the surface to be examined.

(1071)

1.0 SCOPE

1.1 This procedure covers the minimum requirement for the performance of visual examination of welds in components, parts and/or fabricated assemblies when required by project specifications, ASME Code and/or Construction Inspection Plan.

2.0 PERSONNEL

2.1 Those persons assigned inspection duties which require or involve visual examination utilizing this procedure shall be trained (see SPPM 4.3, Supplement 1) and qualified by the RJK NDE Level III Examiner by written examination. Those persons who have qualified and are certified to ANST-TC-1A, Level II in any of the NDE methods shall be considered qualified to perform to this procedure.

3.0 EQUIPMENT

3.1 Visual examination shall be performed in adequate illuminated area, 15 foot candles minimum, measured at the surface of the item under examination unless otherwise specified. Evaluations of indications shall be performed without the aid of magnification except as noted in the project specifications. Optical magnification may be used to assist in locating and identifying the nature of indications but not in the evaluation of indications.

4.0 AWS INSPECTIONS PROCEDURE:

4.1 Process-Weld inspection shall either be direct or remote visual examination to determine such things as surface conditions of the inspection area and shape alignment of mating surfaces.

4.1.1 Direct examination of weldments shall be used when access is sufficient to place the eye within 24 inches of the surface to be examined and at an angle not less than 30 degrees to the surface to be examined.

4.1.2 Remote visual examination may be used in some cases where direct visual examination cannot be achieved. This requires the use of visual aids such as mirrors, or other suitable instruments provided that the distance and angle requirements as specified in paragraph 4.1.1 above are met.

4.1.3 Surface condition - Joint surfaces to be examined shall be cleaned and free from slag, rust, arc burns, paint, dirt, or other contaminants that would interfere with the examination.

4.2 Inspection - All completed structural welds shall be visually inspected.

4.2.1 A weld shall be acceptable by visual inspection if it shows that:

4.2.1.1 The weld has no crack.

4.2.1.2 Thorough fusion exist between weld metal and base metal.

4.2.1.3 All craters are filled to the full cross section of the welds.

4.2.1.4 Weld profiles are in accordance with para. 4.2.2. below.

4.2.1.5 The sum of diameters of piping porosity does not exceed 3/8 inch in any linear inch of weld and shall not exceed 3/4 inch in any 12 inch length of weld.

4.2.1.6 Fillet welds in any single continuous weld shall be permitted to undercut the nominal fillet size required by 1/16 inch without correction provided that the undercut weld does not exceed 10 percent of the length of the weld. On web to flange welds on girders, no undercut is permitted at the ends for a length equal to twice the width of the flange.

4.2.2 Weld Profiles

4.2.2.1 The faces of fillet welds may be slightly convexed, flat or slightly concave. Acceptable and unacceptable weld profiles are as shown in figure 4.6.2.

4.2.2.2 Groove welds shall preferably be made with slight or minimum reinforcement except as may be otherwise provided. In the case of butt and corner joints, the reinforcement shall not exceed 1/8 inch in height and shall have gradual transition to the plane of the base metal surface.

4.2.2.3 Surfaces of butt joints required to be flush shall be finished so as not to reduce the thickness of the thinner base metal or weld metal by more than 1/32 inch or five percent of the thickness, whichever is smaller, or leave reinforcement that exceeds 1/32 inch.

4.2.2.4 Undercut shall be no more than 0.01 inch deep when its direction is transverse to primary tensile stress in the part that is undercut, nor more than 1/32 inch for all other situations.

5.1.2 Remote visual examination may be used in some cases where direct visual examination cannot be achieved. This re uires the use of visual aids such as mirrors, or other suitable instruments provided that the distance and angle requirements as specified in paragraph 5.1.1 above are met.

5.1.3 Surface condition - Joint surfaces to be examined shall be cleaned and free from slag, rust, arc burns, paint, dirt, or other contaminants that would interfere with the examination.

5.2 Inspection - All cable tray hanger welds shall be inspected to the same inspection requirements as paragraph 4.2 of this instruction except as modified herein:

5.2.1 The faces of fillet welds may be slightly convex, flat or slightly concave as shown in Figure 4.2.2 A, B, and C of A.W.S. D1.1-1972, except that there shall be no maximum limit on convexity.

5.2.2 The fillet weld size as specified in tray hanger standards shall be the minimum size. There will be no maximum limit on weld size.

5.2.3 Unequal leg fillet welds are acceptable provided they exceed the minimum specified leg size and throat size.

5.2.4 Weld spatter and slag on the end plate or Unistrut members is acceptable. Arc-strike on the end plate or Unistrut member is acceptable providing this condition does not cause loss of base metal greater than 10 mils or produce visual cracks.

5.2.5 The following standards will be adequate with a 10 mil undercut around the Unistrut member or as listed in Table - Item 7:

STD-EB 117.11, .13 thru .16, .20, .32, .35, .37, .43, .63, .64, .66, .67, .72.

STD-EB 116.33, .40, .54, .55.

5.2.6 The following standards will be adequate with a 10 mil undercut around the Unistrut mem... STD-EB 117.. thru .10, .12, .17 thru .19, .33, .38, .41, .42, .47 thru .55, .60, .68, .73.

5.2.7 The following table is for allowable undercut, on Unistryt member only. (See Item 5)

Allowable Undercut*	Type of Unistrut See Figure	Location Undercut Can Occur	No Undercut Allowed**
1/4" long by 30 mil deep	1	3 places - A, B, C	D
1/4" long by 30 mil deep	2	4 places - A, B C, E	D
1/2" long by 30 mil deep	2	2 places - A or B or C or E	D

(cont'd) 5.2.7

Allowable Undercut*	Type of Unistrut See Figure	Location Undercut Can Occur	No Undercut Allowed**
1/4" long by 30 mil deep	3	6 places - A, B, C, D, E, F, G	D
1/2" long by 30 mil deep	3	2 places - A or B or C or E or F or G	D

*Maximum at any one place anywhere along each face instead of 10 mil continuous undercut on that face.

Figure 1

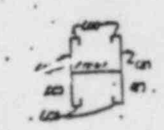
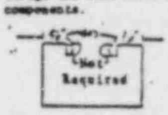


Figure 2

Figure 3

**10 mil undercut not allowed on side "D" when conditions in Item 7 exist.

5.2.8 Welds beyond point "A" (See Figure 4) are not required for seismic design and therefore shall not be considered when inspecting hanger components.



Unistrut cross section typical for all Unistrut types. (Figure 4)

5.2.9 The following standards are adequate with 1/16" undercut on each side of finger providing that the total spacing between cable supports does not exceed 26 feet or 33 feet if undercut is only on 1 side. 1/16" undercut is allowed on both sides of the base at any finger: STD-EB-116.3, .39, .44, .45, .47, .48, .49, .52, .53, .56, .57 thru .60, .78 thru .81, .86 thru .93, .101 thru .104, .111.

5.2.10 The following standards will be adequate with 1/16" undercut on the end plate or the bent plate.

STD-FB-117.1 thru .11, .12, .17 thru .19, .35 thru .37, .41, .42, .47 thru .55, .68, .73, .13A, .13B.

5.2.11 The following standards will be adequate with a 1/16" undercut on end plate. 1/16" undercut is not allowed on side "D" for P1001, P1004A Unistrut or Side C&D for P1000 Unistrut. (Refer to Figures 1, 2, & 3 Item 7)

1/32" undercut is allowed on side D for P1001, P1004A Unistrut or side C&D for P1000 Unistrut.

STD-EB-117.13C thru .16, .20, .35, .37, .43, .67.

STD-EB-116.33, .40, .54, .55.

5.2.12 The surface roughness of welds is acceptable provided the depression (depth) between ripples is not greater than 1/32" and the root of the ripple is rounded.

6.0 <u>ASME INSPECTION PROCEDURE</u>

6.1 Process - Weld inspection shall either be direct or remote visual examination to determine such things as surface conditions of the inspection area and shape alignment of mating surfaces.

6.1.1 Direct examination of weldments shall be used when access is sufficient to place the eye within 24 inches of the surface to be examined and at an angle not less than 30 degrees to the surface to be examined.

6.1.2 Remote visual examination may be used in some cases where direct visual examination cannot be achieved. This requires the use of visual aids such as mirrors, or other suitable instruments provided that the distance and angle requirements as specified in paragraph 6.1.1 above are met.

6.1.3 Surface condition - Joint surfaces to be examined shall be cleaned and free from slag, rust, arc burns, paint, dirt, or other contaminants that would interfere with the examination.

6.2 Inspection - All completed ASME welds shall be visually inspected.

6.2.1 All welds shall be inspected at the following stages:

6.2.1.1 Prior to fit-up for cleanliness and joint configuration.

6.2.1.2 At fit-up for cleanliness, mismatch, and minimum socket engagement.

Socket Welds - minimum engagement follows:

Pipe Size	Minimum Engagement
1/2" and smaller	1/4"
over 1/2" to and including 1-1/2"	3/8"
over 1-1/2"	1/2"

Socket welds shall have an approximate end gap of 1/16" prior to welding for all sizes.

6.2.2 We... ...ls

6.2.2.1 Butt Weld Reinforcement

Unless otherwise defined in the project specifications and/or ASME Code, the maximum reinforcement shall be as follows:

Base Material Thickness	Max. Reinforcement, in.
up to 3/16	1/16
over 3/16 to 1/2 incl.	1/8
over 1/2 to 1 incl.	5/32
over 1" to 2 incl.	3/16
over 2"	1/4

6.2.2.2 Socket, fillet welds size

Unless otherwise defined in the project specifications and/or ASME Code, the minimum fillet size shall be 1.25T, where T is the thickness of the thinner member, but not less than 3/32". The maximum fillet size for fillet seal welds shall be limited to 3/8" throat thickness.

6.2.2.3 Requirements for weld discontinuities found by visual examination shall be evaluated by the applicable project specification and/or ASME Code requirements.

All indications whose major dimensions are greater than 1/16" shall be considered relevant and will be evaluated.

6.3 Miscellaneous Inspection Requirements

6.3.1 Welding across the flange (perpendicular to centerline) or structural members is not allowed.

6.3.2 Base Metal Repairs

6.3.2.1 Arc Strikes

6.3.2.1.1 P-1 Materials

6.3.2.1.1.A Arc strikes occurring on base metal or fluid boundary surfaces shall be removed when:

1. Minimal wall violated.
2. Pit depth exceeds 1/32 inch.
3. Diameter of pit or raised protrusion exceeds 1/16 inch.

6.3.2.1.1.B In those cases where the pitted area is removed/blended, the ground surface shal be examined by PT for indication of crac/ing. All crack indications shall be removed. Also, wall thickness minimum sha be maintained.

FITUP - PRIOR TO AND DURING WELDING

1. Joint design per Project Specification
2. Cleanliness: Internal/External
3. Grid Sorting (QACMI M-13)
4. Joint Fitup, Joint alignment
5. Socket engagement, socket end cap

AFTER WELDING - CONSUMABLE INSERT

1. External surface (3X magnification optional)
2. Internal surface (if accessible)

COMPLETED WELD - INTERNAL SURFACE
(if accessible)

1. Reinforcement/Concavity
2. Oxidation/Crater Pits
3. Incomplete Melting/Incomplete Fusion
4. Burn thru/Under cut

COMPLETED WELD - EXTERIOR SURFACE

1. Reinforcement/Fillet size
2. Undercut/Blending of Surface
3. Socket Engagement
4. Suitability of Surface for NDE
5. Removal of Temporary Attachments
6. Surface Free from arc Strikes
Weld Spatter - etc.

Purge Dams Removed

REMARKS:

FIGURE 1 - VISUAL EXAMINATION CHECKLIST

6.3.2.1.1.C It is intended that cosmetic defects which are not sharp and do not violate minimum wall thickness will fall into the category of base metal defects that do not need to be removed.

6.3.2.1.1.D All arc strikes on GE base metals are required to be removed and liquid penetrant inspected as per para. 11.17 of GE Spec. 22A2290 Rev. 0.

6.3.2.1.2 P-8 Material

All arc strikes shall be removed by blend grinding PT examined per SPPM 3.1.12.

6.3.2.1.3 Structural Steel

Arc strike,crater pits exceeding 1/32 inch deep located on the edge or corner of the material in question shall be removed by blend grinding.

6.3.2.2 Weld Spatter

6.3.2.2.1 Weld spatter on base material will be removed only in the area 1" both sides of weld only.

6.3.2.2.2 Loose or non-adhering weld spatter shall be removed with wire brush.

6.3.2.2.3 Carbon steel weld spatter on P-8 material are required to be removed.

6.3.2.2.4 All weld spatter on GE fluid boundary or pressure boundary are required to be removed by blend grinding and liquid penetrant inspected as per para. 11.18 of GE Spec. 22A2290

7.0 RECORDS

7.1 The KE-1 Weld Form shall be utilized to demonstrate acceptability of the visual weld examination when performed on Class A,B,C, and NSSS contractor supplied material for large bore piping.

7.2 For small bore and instrument piping, visual examination acceptibility will be demonstrated on the appropriate block of the inspection stamp which is applied to the isometric.

7.3 Inspection acceptance of 6.1 and 6.2 verifies compliance with attributes shown in the checklist, Figure 1 of this procedure.

7.4 For structures, hangers and Non-ASME Code Welds on Essential items, which require a KE-1 Weld Form, final visual inspection will be performed and documented on the KE-1 Weld Form and applicable CIP.

8.0 CERTIFICATION

8.1 Certification of qualification to perform visual inspections shall be documented by the HJK NDE Level III Examiner using form, Figure 1.

... NUCLEAR POWER STATION	... CONSTRUCTION (QACMI)	
Title: INSPECTION ... FITTINGS FOR PIPE HANGERS, SUPPORTS ... INSTALLATION	QACMI No. M-3, R10	Page: ... of 12
Prepared by: E. Schroeder/D. Fox	Effective Date:	
Approved by: HJK QA MANAGER [signature]	KEI Project Manager [signature]	
HJK Constr. Gen. Supt.	FSC Gen. Supt. [signature]	

1.0 PURPOSE

1.1 To provide inspection instructions for pipe hangers, supports, and restraints including the requirements to verify location and configuration to applicable drawings, codes and standards.

2.0 SCOPE

2.1 This QACMI shall be used in conjunction with FCP 2-135 and utilized for the inspection of all essential and non-essential seismic category pipe hangers, supports, and restraints installed prior to and subsequent to the issuance of this instruction.

3.0 GENERAL

3.1 HJK Quality Control shall be responsible to conduct inspection to verify that supports are installed in accordance with approved design drawings and specifications. Except: For INX hanger inspection which shall be in accordance with APPENDIX "A".

3.2 The hanger engineer shall submit the support package to the Inspection Supervisor for review, who in turn shall transmit the package to the Lead Inspector.

3.3 Inspection of concrete expansion anchors shall be conducted in accordance with QACMI M-15.

3.4 Any essential hanger base plate installed by HJK shall require the removal of at least one (1) nut/washer in order that the HJK Quality Inspector may verify the correct bolt hole size in the plate.

3.5 During inspections, if the HJK Quality Inspectors observe the bolt hole size to be incorrect (or eccentric), the inspector shall issue a Nonconformance Report (NCR).

4.0 PROCEDURE

4.1 Inspection personnel shall verify that the latest appropriately approved drawings are utilized for the installation of essential and non-essential seismic pipe hangers, supports or restraints.

4.2 Welding inspection shall be performed using the criteria specified in Special Process Procedure Procedure 4.6, paragraph 4.0 and applicable drawings and specifications. Documentation shall be in accordance with SPPM 8.0.

4.3 Inspection results shall be documented in accordance with paragraph 6.0 and results of inspections shall be reviewed by Inspection Supervisor and Q.E. for completeness.

CERTIFICATION OF QUALIFICATION

Employer's Name ____________

Person Being Certified: ____________

Activity Qualified to Perform: ____________

Level of Capability. ____________

Effective Period of Certification: ____________

Basis for Certification: ____________

Reviewed by: ____________

Certified by: ____________

Figure 2

e. An [illegible]structural brace may be varied ± 3°.

f. Use of thicker plates is acceptable provided the anchor bolts meet the requirements specified in QAOKI M-15.

g. Use of heavier hanger rods/hanger rod components is acceptable.

h. Bolt holes in baseplates shall be located as shown in Figure 1.

i. Rigid restraints may be installed on either side of the pipe.

j. Swing angle ± 5° for all rods and springs.

k. Grout thickness requirements are ½" minimum and 2" maximum.

4.4.4 Snubbers and Struts

a. Pin to Pin

1. The maximum pin to pin dimensions on adjustable strut assemblies shall be in accordance with the design dimensions and the manufacturer's tolerances plus cold position tolerances.

2. The pin to pin length may be shortened as required for installation.

b. Snubber cold position setting may be varied from the design drawing provided the minimum distance from either stop is the absolute value of the thermal movement as shown on the drawing plus 1 3/4".

c. Hydraulic snubber units shall not leak oil.

d. Snubbers and struts must be installed such that the direction of restraint is in accordance with the hanger drawing with a maximum tolerance of ± 5° in any direction.

e. The size, bore and stroke of snubbers shall comply to the latest revision of the detail drawing.

f. Horizontal strut assemblies shall be engaged although they shall not be carrying any appreciable load.

g. Piston rods must be clean and free of any paint, weld spatter, etc.

h. There shall be no evidence of physical damage to the snubber or strut assembly.

i. The protective plastic cover must be installed over the accumulator plunger on all Bergen-Patterson Hydraulic Snubbers during construction. The cover shall be removed prior to normal operation of the system.

j. The fluid level in the hydraulic reservoir must be in accordance with the manufacturer's requirements.

k. The cold position setting must be adjusted and identified on the Final Insoection Record. The shipping clamp on hydraulic snubbers shall be removed.

4.4 Inspection Frequency and Acceptance Criteria

Essential and non-essential seismic pipe support installations shall be inspected to verify compliance with the criteria specified applicable drawings, specifications, recommended manufacturer's tolerances, and as identified herein. All structual dimensions for location on the support detail are for reference only. If the location of the support with reference to the pipe is not given on the support drawing, the location must be determined from the single line piping drawing for Phase II pipe supports. Note: All Phase I pipe hanger locations will be by support drawings. Example AF, DF, and RE systems.

4.4.1 Support Location

a. Supports for Class A piping shall be located within 6" of specified locations along the pipe axis.

b. Supports for Class B, C, and D (with Category B seismic) shall be located within the following distance from specified location:

1. Rigid restraints (hanger, struts, and guides) and snubbers perpendicular to pipe shall be within 6" or ½ pipe diameter of specified locations along the pipe axis, whichever is larger.

2. Spring supports (variable or constant) perpendicular to pipe shall be within 6" or one pipe diameter of specified location along the pipe axis, whichever is larger.

3. Supports restraining pipe axially (such as snubbers, struts, or spring supports acting in a direction parallel to pipe) shall be within 6" or 2 pipe diameters of specified locations on the pipe, whichever is larger.

4. The minimum clearance between variable supports and other obstructions must be equal to the pipe movement from cold to hot plus 1".

4.4.2 Support configuration shall be in accordance with the hanger design drawing and the tolerances in paragraph 4.4.3.

4.4.2.1 Inspection personnel shall verify the support is identified with the correct support number.

4.4.3 General Inspection Tolerances

a. Structual dimensions for Seismic Class A piping supports may be ± 1 except as specified in Paragraph 4.4.4 and 4.4.5 and the hanger dra

b. For seismic Class B supports, dimensions are tolerance at ± 2" exce as specified in paragraph 4.4.4 and 4.4.5 and the hanger drawing.

c. Tolerance on total rod length be ± 12" for gravity supports only.

d. Equal leg angles may be installed opposite hand.

4.4.8 Attachment to Pipe

a. Location of attachment to pipe shall be offset from attachment to structure to allow for thermal movement in accordance with the drawing.

4.4.9 General

a. Tape, Visqueen, etc., shall not be allowed between the pipe and hangers.

b. Hangers shall be installed so that they do not interfere with adjacent pipe (including insulation). The tolerance is 1/2" vertical and 1" horizontal.

c. All materials and components (springs, struts, beam attachments, clamps, fasteners, structural shape, etc.) shall be the type and size specified on the drawing, except as noted in paragraph 4.4.3.

d. The tolerance for base plate bolt holes is as follows:
3/8" ∅ and 1/2" ∅ - 1/8" larger than nominal bolt ∅.
5/8" ∅ and Larger - 3/16" larger than nominal bolt ∅.
Torch cut holes that have not been reamed are unacceptable.
(Use "AOKI M-15 checklist to identify.)

4.4.10 NX Type Supports used as Anchors

a. When the split sleeve is used as an anchor (welded to pipe) the code letters stamped on the support shall be recorded on the attached checklist.

5.0 IDENTIFICATION

Upon completion of inspection and acceptance of the hangers, an inspection tag (Figure 3) shall be completed and attached to the hanger in a clearly visible location and stamped with the inspection accept stamp.

6.0 DOCUMENTATION:

6.1 The document package shall consist of the attached checklist, the QAOKI M-15 checklist (as appropriate), support detail or field sketch and ISK (for NX supports) and appropriate welding documentation - KE-1 Form or KE-2 Form, and a completed weld data stamp. If it is determined that welds were fabricated by Bergen/Patterson, the inspector shall note in remarks column on QAOKI M-12 checklist.

6.2 Inspection records shall be forwarded to the Q.E. for final review and processed in accordance with QAOKI's G-17 and G-18.

7.0 NONCONFORMANCES

7.1 Departures from specified requirements shall be identified on a Nonconformance Report (NR) and processed in accordance with QAOKI G-4, "Nonconforming Material Control." The NR shall identify the support detail drawing number with the latest revision. Each NR shall contain no more than one (1) support. The NR shall be implemented within five (5) working days after the non-conformance is identified.

a. [illegible] snubber serial number is that which appears on the record copy of the support detail.

4.4.5 Contact Surfaces and Support Clearances

a. The clearance between walls and structural attachment plates should not exceed 1/32" over a maximum of 40% of the total linear length at the bolt lines. The feeler gauge shall be 1/32" thick and approximately ½" wide. If the gap exceeds 1/32" and the linear length is greater than 40% grouting or shimming is required in order to assure proper bearing.

b. For restraints using structural members, clearances shown on restraint drawings in restrained and unrestrained directions are the maximum allowed, the minimum is visible light. (Use Figure 4 attached as a guide.)

Shim thickness shall be 1/16" minimum and ½" maximum. Total shimmed distance in any one direction shall not exceed ½". Shim welds shall be:

SHIM THICKNESS	WELD SIZE
1/16" (not to be used on load surface)	tack weld 2 places each of support (4 total)
1/8" to 1/4"	1/8" continuous fillet each side of support
greater than 1/4" to 1/2"	3/16" continuous fillet each side of support

c. Clearance between a U-bolt and the pipe may be achieved by either welding the U-bolt nuts to the underside of the structural steel or by installing the nuts on both sides of the structural steel. When the U-bolt is utilized on an instrument line or small bore pipe hanger installation, the gap tolerance between the pipe and U-bolt shall be 1/32" minimum and 1/8" maximum, unless otherwise specified on the design drawing.

d. Support components may be either carbon steel or stainless steel regardless of pipe material, unless welded directly to pipe or the design temperature exceeds 600° F where stainless to stainless is required.

4.4.6 Threaded Connections

a. Must have a minimum thread engagement of one full nut.

b. Threaded lengths at turnbuckles shall be adequate to allow full adjustability and shall have a jam nut tightened at one end.

c. All threaded fasteners shall be checked for tightness by hand with the exception of expansion anchors.

4.4.7 Springs

a. Check to assure spring canisters are not dented of damaged in any way as to interfere with their operational function.

Instruction for Completing
M-12 Checklist

1) Hanger number as stated on the record copy received from the Engineering Department. Record Seismic Class.

2) State the area and elevation as indicated on the "M" drawing.

3) List reference points from the M drawing (single line drawing) giving elevation and distance from a given point, i.e. valve, mov, another hanger etc.

4) State the M drawing and revision, and any applicable DOC's/ open NR's.

5) Enter the preparer's name/date.

6) Signature of the Lead Inspector and date indicating that the above portion is complete and correct.

7) Prerequisites shall be reviewed by the person doing the inspection and their stamp. Place in the space/block provided prior to start of the inspection.

8) Inspection activities shall be inspected as noted, Reference to the Procedure if required and (✓) checked accept yes/no as applicable.

If the accept block is checked "YES", no further action is required. If the accept block is checked "NO", the Inspector must state briefly the reason in the Remarks Column for not accepting the activity. This must be completed from items 2.1 thru 2.22 Wedge Anchor Report item 2.17 should be identified in the Remarks Column at the far right indicating that: 1. - Non-applicable 2. - Needed or 3. - completed per QACMI M-15.

Item 2.18 should be nothing more than a review as required per SPPM 4.6 and if remarks are to be noted they should be so noted in Block 2.24.

Item 2.24 remarks is for the purpose of identifying all the "no's" that are (✓) checked.

If any of the inspection activities are "no" and identified in Block 2.24 the Inspector shall initiate a nonconformance report. If no entry is made in Block 2.24 the Inspector's stamp shall be placed in the accepted block of 2.23.

GENERAL NOTE: The Q.E. reviewing a final inspection record shall stamp the sheet "Record Copy" under the hanger number 1. If the Quality Engineer after reviewing item 2.24 remarks determines that acceptance criteria has been violated or is questionable he shall return the inspection record back to the Lead Inspector with instructions as to the need to bring it into conformance.

QACMI M-12
Figure 2 (Page 2 of 2)

8.0 REWORK OF INSTALLED SUPPORTS

8.1 Supports/Hangers shall be modified to Approved Design Documents only.

8.2 Inspection shall apply to the modified portion of previously inspected hangers (only).

9.0 IN-PROCESS INSPECTIONS

9.1 In-process inspections shall be performed on a surveillance basis and documented on the attached checklist and shall be updated as construction progresses until the support is finally accepted. When checking off the accept yes/no column the inspector shall initial and date the appropriate block.

10.0 PUNCHLIST TICKETS

10.1 Upon notification by the appropriate construction superintendent or engineer, the Lead Inspector shall provide for inspection of the support and if acceptable, stamp the punchlist ticket and return it to the appropriate superintendent or engineer. The inspector shall retain the record copy of the support detail and place it in the respective support package after inspection is complete.

11.0 NON-ESSENTIAL SUPPORTS WHICH ARE SEISMICALLY DESIGNED

11.1 Supports within the above category shall be inspected to Seismic B criteria on check sheet, except that the filler metal and welder traceability is not required.

Wm. H. Zimmer Nuclear Power Station		Methods Instruction (QACMI)	
Title:	... of HX Support Installation ... Appendix A	QACMI No.:	Page: ... of 12
Prepared by:	E. Schroeder	Effective Date:	
Approved by: ... Manager _____		KEI Project Manager _____	
... Manager _____		FKC Gen. Supt. _____	

1.0 PURPOSE

1.1 The purpose of this appendix is to establish a method to verify field sketches of HX supports to the actual installation. This is done to reduce the actual inspection time required when final approved drawings are received.

2.0 PROCEDURE

2.1 Upon receipt of the field sketch the lead inspector shall provide personnel to compare the field sketch with the installation observing weld acceptability, configuration, location, and the general criteria and tolerances established by QACMI M-12 and M-15.

2.2 As this observation is not a final inspection, there shall be no inspection credit received from performing these observations. Determination of final acceptance shall be made following receipt of approved drawings.

2.3 The results of the above observations shall be recorded on the QACMI M-12 and M-15 checklists.

2.4 If problem areas are observed, (ie. - unacceptable welding, anchor bolts, bolt holes, etc.), a copy of the checklist with the problems listed in the remarks column and/or a copy of the field sketch indicating the problem areas shall be transmitted to HJK Hanger Engineering. Original field sketches and checklists shall be retained by inspection pending receipt of approved drawings.

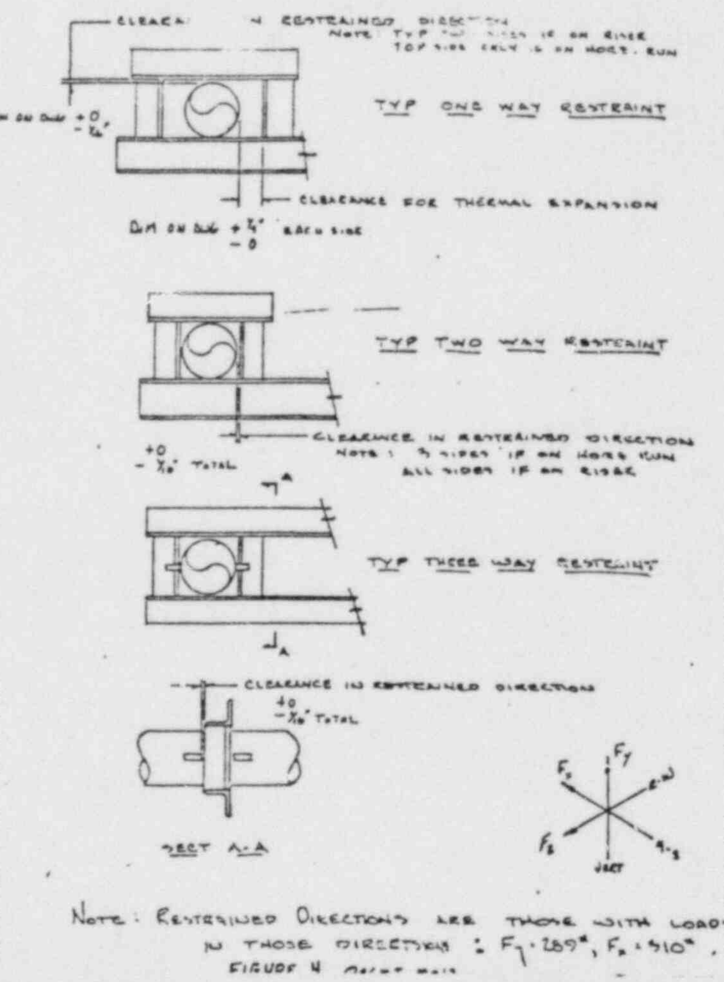
2.5 A log shall be kept by inspection indicating the status of each support such as problem areas, if any. The log shall be updated periodically as required.

2.6 Upon receipt of the final approved DWG, the field sketch shall be compared to the final DWG, checking for any modifications.

2.7 If there were modifications made or if the approved DWG indicates a support has be added (new support) the support shall be inspected as if there were no previous preliminary verification.

2.8 If the approved DWG does not differ from the field sketch the inspector shall verify that in fact no modifications were made to the actual installation and field document and date the above on the remarks column of the original checklists.

2.9 After final acceptance of the documentation shall follow the normal flow addressed by QACMI M-12 and M-15.



Note: Restrained Directions are those with load in those directions: F_y = 289#, F_x = 510#.

Figure 4

HENRY J. [illegible] ER CO. WM. H. ZIMMER [illegible] POWER STATION	QUALITY ASSURANCE - CONSTRUCTION [illegible] STRUCTION (QACMI)	
Title: WEDGE ANCHOR BOLT INSTALLATION INSPECTION PROCEDURE	QACMI No. M-15 Rev. 1	Pages 1 of 4
Prepared By: E.T. Knox, B. Reynolds, I. Schroeder	Effective Date: 8-12-80	
Approved By: HJK QA MANAGER [signature] 8/12/80	KEI Project Manager [signature]	
HJK Constr. Manager [signature] 8/12/80	FLC Gen. Supt. [signature] 8-14	

1.0 SCOPE

This procedure outlines the requirements for inspecting concrete expansion anchors for correct embedment, spacing, edge distance and torque. Expansion anchors used on essential pipe hangers and structural supports will require inspection in accordance with this procedure.

2.0 PROCEDURE

2.1 The anchor Inspection Data Sheet Figure I shall be prepared prior to performing the inspection. Table I lists the minimum requirements for installing concrete expansion anchors in reinforced concrete.

2.1.1 The latest revision of the hanger drawing shall be reviewed and the bolt size and plate thickness shall be entered in the appropriate line on the Data Sheet.

2.1.2 Using the minimum requirements as listed in Table I the minimum embedment, spacing and edge distance required for the specific bolt size shall be recorded. The bolt test torque requirement shall also be recorded. The Data Sheet shall then be transmitted to the QA Inspector and filed with hanger drawing.

2.2 The QA Inspector shall be responsible for inspecting for conformance to the minimum requirements. The results of the inspection shall be recorded on the Data Sheet in the appropriate spaces. The inspector shall sign and date the form on the appropriate line.

2.2.1 An Ultrasonic Test shall determine the length of the anchor bolt when length cannot be determined by length code. UT comparison readings shall be made with a bolt of specified design length. Table I lists the code letter and corresponding length for anchors so identified. Inspectors performing UT shall be trained and qualified and a record maintained of qualification.

2.2.2 A calibrated torque wrench (with a recorded identification) shall be used to determine the acceptability of the anchor installation torque.

2.3 Any anchor bolt not meeting the acceptance criteria shall be identified on the anchor inspection sheet and hanger drawing. A Nonconformance Report shall be generated for each hanger with discrepant anchor bolts in accordance with QAP-16.

2.4 After the anchor bolts have been inspected, the completed Data Sheet shall be signed by the HJK/QA Supervisor or Lead Inspector and filed with the appropriate Hanger Inspection Record Drawing.

3.0 ACCEPTANCE CRITERIA

3.1 Spacing Distance: The minimum bolt spacing must be maintained in accordance with the values listed in Table 1. If the spacing is acceptable but does not agree with the design it shall be noted on the Inspection Sheet.

3.2 Edge Distance: The minimum distance between the bolt and the edge of concrete, penetration or an uncontained hole must be maintained in accordance with the values listed in Table 1.

3.3 Bolt Torque: The bolt must be torqued to the minimum value specified in Table 1. If the nut requires additional tightening to achieve the minimum value, it shall be torqued to the maximum torque value and noted in the Data Sheet. If the bolt cannot be torqued, then it shall be rejected. The torque test shall be performed after a minimum elapsed time of 6 hours.

3.4 Embedment Length: The bolt must be torqued prior to checking the embedment depth. The embedment depth must be equal to or greater than the value listed in Table 1. It is determined by the following formula.

$$E = L - (t + e \quad g)$$

Where

E - Embedment length
L - Bolt length
g - Grout thickness
t - Plate thickness
e - lenth of bolt extending beyond plate

3.5 The bolt may be longer than specified on the drawing provided there are sufficient threads to fully torque the bolt. Nuts shall have all threads engaged and not be bottomed on unthreaded bolt shank.

3.5.1 The bolt may be shorter than specified on the drawing provided the minimum embedment length indicated on Table I has not been violated.

3.6 Bolts installed out of plumb by greater than 5° shall be unacceptable. There shall be a full bearing between nut, washer and plate in an installed anchor. Use of beveled washers allowed.

3.7 A visual inspection shall be performed to determine if there is evidence that the hole in the base plate has been elongated by torch cutting.

4.0 FREQUENCY OF INSPECTION

4.1 All bolts be inspected for criteria of 3.1, 3.2, 3.3 and 3.4 of this procedure and results recorded on Figure-1.

4.2 In addition to the above, all bolts which have been cut off or which visually show excessive extensions shall be checked for torque and embedment.

Figure 1

Anchor Inspection Data Sheet

Hanger No.: ____________ Drawing No.: ____________ Rev.: ________

Location: ____________ Building: ____________ Elevation ________

Bolt Size: Diameter ____________ Length ____________

Record Torque Wrench S/N ____________ Calibration Due Date ____________

Record Actual Plate Thickness ____________

WR No. If Applicable ____________

	1	2	3	4	5	6	7
I Installed Spacing							
II Installed Edge Distance							
III Installed Embedment							
IV Installed Test Torque							
V Did Nut Require Retorque?							
VI Bolts Installed Plumb 5O							
VII Bolt Hole Size							

If U.T. is required, record UT Machine S/N ____________

Remarks:

____________________ ________
HJK/QA Inspector DATE

____________________ ________
HJK/QA Supervisor DATE