



CHAIRMAN

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The Honorable Peter H. Kostmayer
United States House of Representatives
Washington, D.C. 20515

Dear Congressman Kostmayer:

I am responding to the August 9, 1990 letter from you and several other Members of Congress concerning the Nuclear Regulatory Commission (NRC) Independent Review Team (IRT) Report, "Welding and Nondestructive Examination Issues at Seabrook Nuclear Station" (NUREG 1425), and in particular, its treatment of the 100 percent review of radiographs conducted by the Yankee Atomic Electric Company (YAEC). A detailed response to your specific questions is enclosed. Please note that Attachment 2 to the enclosure provides the IRT notes of interviews with licensee and contractor staff. Such inspector notes are normally not made publicly available, and we request that you restrict their access and use to members of your staff.

The YAEC 100 percent review of radiographs, together with many other issues raised by members of the Congressional staff, was reviewed in detail by the IRT with members of the Congressional staff at the Seabrook site on August 28 and 29, 1990. This was the fifth meeting between the NRC staff and Congressional staff to review issues raised by the latter. As we note in the enclosure, the YAEC 100 percent reviews were only one source of NRC assurance of weld quality at the time of the Seabrook full power operating license issuance. Additional information, such as independent NRC radiographic inspection of welds, review of process and radiograph records, review of radiograph film, and observation of in-process welding, was considered by the NRC in arriving at its decision regarding weld quality. The IRT Report notes that although there were some procedural lapses, the YAEC 100 percent reviews were generally conducted in accordance with 10 CFR 50, Appendix B requirements under the auspices of the Quality Assurance Surveillance Program as described in the Seabrook Final Safety Analysis Report. The NRC also believes that previous explanations of the nature and duration of the YAEC 100 percent reviews are consistent and that a comprehensive and accurate discussion of the reviews is provided in NUREG-1425.

I trust that the information we are providing will resolve your concerns on this issue. Commissioner Remick did not participate in the preparation of this response.

Sincerely,

Kenneth C. Rogers
Acting Chairman

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Enclosure: Identical ltrs to Reps. Markey and Mavroules and Sens. Kennedy
Detailed Response to & Kerry
Specific Questions
Originated: NDFDR: Caldwell

ENCLOSURE

Question I:

Is it the Commission's position that the YAEC 100% review was an activity affecting quality? If so, under 10 CFR 50, Appendix B of the Commission's regulations, what documentation of this review is required to be maintained?

Response:

The Yankee Atomic Electric Company (YAEC) 100% radiograph review was an activity affecting quality. The required documentation is that which is needed to show weld quality. These matters are further discussed below.

I.A Quality Aspects

The following quality assurance (QA) program excerpt relates to the design and construction of Seabrook Station and is from the Final Safety Analysis Report (FSAR), which is required in accordance with 10 CFR 50.34 to include a discussion of how the applicable requirements of 10 CFR 50, Appendix B, are satisfied.

The YAEC program for quality assurance normally involves three control levels:

Level 1 - Quality control by vendors, constructors and United Engineers and Constructors (UE&C) on the activities they perform, [and] by YAEC on startup activities. This includes reviews, inspections and tests.

Level 2 - Surveillance of design, fabrication and construction activities, including Level 1 Quality Control. Contractors provide this level for the design and procurement phases. UE&C and YAEC Nuclear Services Division (YNSD) provide additional surveillance on site construction activities.

Level 3 - Audits by YAEC QA Department of activities performed by Level 1 and 2 organizations.

Assurance by YAEC that contractor programs are properly implemented is accomplished, in part, by surveillance and audits at the construction site by YAEC QA representatives.

The YAEC program for the review of radiographs supplied by Pullman-Higgins (P-H) and other contractors and vendors was a surveillance activity which, as discussed above, was a Level 2 QA program activity affecting quality. Concurrent with the start of radiographic examinations of piping in 1979, YAEC began an overview of all P-H pipe weld film with the intent to reduce the 100% overview when confidence in P-H's ability to properly identify and correct deficiencies had been obtained. The overview continued

throughout the piping installation and from all indications appeared to have resulted in YAEC performing a 100% overview on all P-H final pipe weld radiographs. The 100% scope and application of this program was not specified by a regulatory or code requirement but was voluntarily implemented by YAEC to provide confidence that equipment, structures, and systems will perform satisfactorily in service. It is in this context that the NRC Independent Review Team (IRT) documented the following:

These 100-percent inspection activities were in excess of the ASME Code, the ANSI B31.1 Code, and 10 CFR Part 50, Appendix B requirements normally employed at a construction site.

As pointed out in the cover letter transmitting these Congressional questions to the NRC, the IRT also concluded that:

These additional overviews needed to be performed in order to identify deficiencies missed by the piping contractor.

A similar NRC conclusion was reached in 1984 based on the nondestructive examination (NDE) assessment results identified during the NRC Construction Appraisal Team (CAT) inspection. In a March 15, 1990 letter to Congressman Kostmayer in response to his questions regarding the CAT inspection report (IR 50-443/84-07), the NRC staff noted that:

In documenting the difference between the radiographic film which had been reviewed by the applicant and that which had not, the CAT inspectors specifically highlighted the fact that the radiographic review process would have represented a regulatory concern had it not been for the applicant's review process. Hence, this area of inspection was not listed as one where either potential enforcement actions or significant weaknesses were identified.

The NRC staff considered the YAEC radiograph review program to be an activity affecting quality commencing with its implementation as a QA program Level 2 activity. Further, since surveillances are normally planned as sampling activities, the NRC staff initially considered the conduct of the YAEC radiograph review program at a "100%" level to be a conservative licensee measure to comprehensively address problems identified in the QA Level 1 contractor programs, not a specific program requirement. Had the licensee chosen to implement less than a 100% review, no NRC regulation or code requirement would necessarily have been violated. However, ongoing NRC construction inspections, like the CAT inspections and Region I NDE Van inspections, would have evaluated the effectiveness of any reduced level of overview and any quality inadequacies identified would have been considered for enforcement action. The licensee, in this case, voluntarily adopted a program of radiograph review for 100% of the film after it was turned over by Pullman-Higgins. In May 1984, YAEC proceduralized the scope and performance of the film review activities it had been conducting as surveillances.

Thus, the documents provided to Congress evidencing NRC cognizance in December 1983 of a 100% review of contractor radiographs were consistent with both earlier inspection records (e.g., IR 50-443/82-06) and subsequent inspection reports (e.g., the CAT inspection in 1984) in acknowledging and assessing the effectiveness of the licensee's radiograph reviews. Whether the NRC inspection records prior to and after December 1983 document the YAEC film review program as a 100% effort or not indicates neither a conflict nor inadequate licensee performance. In support of this position is the after-the-fact IRT assessment which concluded in NUREG-1425 that:

The 100-percent overview performed by the licensee's agent, YAEC, was an effective program for radiographic film interpretation, in that it successfully found and required the contractor to correct the missed deficiencies.

I.B Documentation Aspects

10 CFR 50, Appendix B, Criterion XVII requires that sufficient records shall be maintained to furnish evidence of activities affecting quality. At Seabrook, the essential sufficiency of the weld records was found during construction and by after-the-fact NRC review. Many documents, including surveillance reports, deficiency reports, deviation notices, management action requests, immediate action requests, controlled speed letters, non-conformance reports, and audit reports related to the YAEC radiograph review program, were classified as QA records. However, in accordance with the procedural requirements of the YAEC "QEG NDE Review Group" procedure issued in May 1984, Radiographic Review Requests (YRT-1s) and Radiographic Review Summaries (YRT-2s) should have been controlled and retained as QA records, but were not. This omission was caused by the licensee decision to treat the YRT form usage as an administrative control rather than a QA record activity. The licensee determined that, since evidence of the YAEC 100% review of P-H radiographs was provided by YAEC reviewer signature or initials on the Radiographic Inspection Reports (RIRs), retention of the YRT forms was redundant and unnecessary. The NRC staff agreed that the annotated RIRs would meet the requirement for documenting weld quality. However, since the procedural requirement to retain the YRT forms as QA records was never revised, a procedural violation was identified. The NRC staff evaluated this violation in accordance with the NRC Enforcement Policy (10 CFR Part 2, Appendix C, Section V.A) and documented this inspection finding in Region I IR 50-443/90-12.

The Code of Federal Regulations, in particular 10 CFR 50, Appendix B, does not mandate the specific records which must be maintained on safety-related pipe welding or repair welding. A commitment in this regard is documented in the Seabrook Station Final Safety Analysis Report (FSAR), which indicates general consistency with USNRC Regulatory Guide 1.88, Revision 2. Regulatory Guide 1.88, titled "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records," endorses American National Standards Institute (ANSI) Standard ANSI N45.2.9-1974 for quality assurance records associated with nuclear power plants.

Additionally, the safety-related piping at Seabrook Station was generally installed in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, 1977 edition through the Winter 1977 addenda. The ASME Code (Section III, Subsection NA) identifies general requirements for quality assurance records.

For welding and weld repair activities on the safety-related piping installed at Seabrook Station, the quality records must include the final results of the code-required nondestructive examination (including final radiographs, where RT is required). The results of such radiographic examinations were documented on the RIRs. As noted above and in responses to Congressional staff members on this subject, the evidence of the YAEC review of radiographs is provided by the YAEC reviewer signature or initials on the RIRs. This was demonstrated during the reviews of final P-H RIRs by the IRT, in that each RIR consistently included the YAEC reviewer's signature or initials. The Radiographic Inspection Reports, which are retrievable for each weld requiring radiography, represent not only complete evidence of the film review but also record the acceptable results of these reviews in accordance with 10 CFR 50, Appendix B, Criterion XVII. These RIRs, supported by the actual radiographs, were maintained as QA records and provide sufficient documentary evidence of both the radiographic quality of the welds and the completeness of the YAEC overview program.

Question II:

Is it the Commission's position that the Seabrook licensee failed to comply with NRC regulations by not conducting its 100% radiograph review in accord with the requirements of 10 CFR 50, Appendix B?

Response:

As discussed in the response to Question I, the YAEC 100% radiograph review program was in general compliance with 10 CFR 50, Appendix B. YAEC performed the review within the framework of its QA surveillance program by requiring experienced film reviewers to inspect and interpret all P-H pipe weld radiographs of the finished weld as well as to review samples of in-process pipe weld radiographs. The 100% scope of the YAEC film review was considered to be a specific requirement only after the licensee's internal procedures mandated the review of all safety-related vendor and site generated radiographs. An NRC assessment of the YAEC film review program was documented in a Systematic Assessment of Licensee Performance (SALP) report, covering the last six months of 1983, in which the following was noted:

Apparent deficiencies in the contractor quality programs have been detected and are being corrected by licensee management overview.

Thus, the NRC was aware of the licensee's overview and, in reviewing this aspect of the program when it was in progress, found the licensee effort in conformance with NRC regulations.

This is not meant to imply that individual violations of 10 CFR 50, Appendix B, did not occur over the course of the licensee's conduct of radiograph reviews. For example, during an NRC Region I NDE Van inspection (50-443/82-06) in June 1982, independent NRC radiography found that a rejectable weld indication had been missed by the licensee's review. A Notice of Violation against 10 CFR 50, Appendix B, Criterion IX, was issued and resulted in significant corrective action to include initiation of secondary review of radiographs by the piping contractor prior to submittal to YAEC. Another example of noncompliance with 10 CFR 50, Appendix B, was the procedural violation relative to the handling of the YRT Forms discussed in the response to Question I. NRC staff evaluation of this violation, consistent with the NRC Enforcement Policy, was documented in Region I Inspection Report 50-443/90-12.

Notwithstanding individual violations of 10 CFR 50, Appendix B, it is the NRC staff's position that the overall YAEC film review program was conducted in conformance with NRC regulations and that adequate welds resulted. This position is confirmed by the IRT findings and conclusions documented in NUREG-1425.

It is also significant that the codes, standards, and regulations governing the design and construction of a nuclear power plant specify minimum requirements. Licensees must establish programs that meet or exceed such minimum requirements and tailor those programs to the unique circumstances and specific needs of

their particular situations and sites. Whether a defined level of review is adequate to meet the requirements of 10 CFR 50, Appendix B, is determined by the extent of the problem and the effectiveness of the review. In this case, the licensee's 100% review process was determined to be effective in that it resulted in technically adequate welds.

Question III:

With respect to the 100% film review performed by the Seabrook licensee's agent, the Yankee Atomic Electric Company (YAEC), the NRC staff has provided inconsistent descriptions of the review's duration, nature and regulatory significance. Attached to this letter is a listing of characterizations of this review.

Since the NRC has relied upon the existence of the 100% YAEC review for assurance of weld quality, please provide a coherent and comprehensive description of the YAEC review's purpose and duration, documents subject to this review, review procedures, record keeping requirements, and procedures for handling deficiencies.

Response:

III.A Assurance of Weld Quality

The NRC staff did not rely solely upon the 100% YAEC review of radiographs for assurance of weld quality. Other processes were also used to control and ensure weld quality. For example, 10 CFR 50.55a prescribes compliance with the ASME Boiler and Pressure Vessel Code, Section III, for nuclear power plant component (including pipe weld) design, fabrication, construction, testing, and inspection. A specific example of the associated design margins and construction conservatism applied to the erection of ASME piping systems is that the installed piping is subjected to a system hydrostatic test of not less than 125% of the design pressure. This testing requirement is applied to all of ASME piping, including Class 3 systems, the welding of which does not even require radiography.

Additionally, 10 CFR 50, Appendix B, Criterion IX, requires that measures be established to ensure that welding, heat treating, and nondestructive testing are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, specifications, and criteria. This generic requirement applies to a series of welding procedures and controls for qualifying each welding procedure, testing each welder, controlling the welding material and welding process variables; specifying the sequence of welding, heat treating, and NDE operations; and implementing a system of in-process checks, weld inspections, and nondestructive examinations that are designed to confirm overall weld quality.

NRC inspections and assessments were conducted as independent checks of the effectiveness of the licensee's program of piping installation controls. NRC involvement in the inspection of pipe welding and NDE activities at Seabrook Station is documented in publicly available

NRC inspection reports dating back to 1978. Certain of these inspections resulted in NRC enforcement actions, and licensee corrective actions in response to several of the violations involved significant programmatic changes. An example was the response to NRC Immediate Action Letter IAL 80-55 issued in December 1980 relative to NRC-identified pipe repair welding problems. A dual repair process sheet system, providing more control of the repair welding process along with the establishment of additional verification hold points, was instituted after a temporary "stop-work" action was taken by the licensee for pipe repair welding. Another example was the corrective action on the NDE violations issued in 1982 in conjunction with Inspection Report 50-443/82-06. In this case, the contractor initiated a secondary review of radiographs prior to turnover to the YAEC (Yankee Atomic Electric Company). These examples reflect licensee program changes to correct NRC-identified problems and directly impacted the welding records, repair welding, and NDE activities which have been the specific subject of Congressional questions.

In the areas of piping, welding, and NDE, the NRC conducted over 70 separate inspections prior to the issuance of a fuel load license. Several of these were conducted by resident inspectors monitoring field activities over an extended period and were supported by specialist inspections, as necessary. The NRC Mobile NDE Van was used on three separate inspections at Seabrook Station to conduct independent measurements and examinations of piping material, components, and welds. Independent radiography was an integral part of the Van inspections. A fourth inspection, by NRC technicians using NDE Van equipment, was performed to verify the adequacy of a licensee weld surface re-examination program. Over 200 completed welds were independently inspected by NRC personnel utilizing NDE Van equipment. One of these was a reactor coolant system weld specifically highlighted as a concern of Congress in an April 2, 1990 letter to the NRC from six Members, including all of the Members who signed the August 9, 1990 letter to the NRC. This weld was the subject of independent NRC radiography and inspection evaluation with no adverse findings. Additionally, several hundred other piping welds were the object of NRC examination of in-process or completed welding or NDE activities during routine resident and region-based inspections at Seabrook Station.

In addition to NDE Van and routine inspections, NRC inspections have included independent review of licensee radiographs to verify weld quality. During one such inspection by an NRC Construction Appraisal Team (CAT), over 3,400 pieces of radiographic film were reviewed. In total, these NRC radiograph review inspections, along with the NRC routine welding examination and independent NDE Van inspection efforts which were conducted prior to the issuance of the fuel load license in 1986, established NRC confidence in the quality of Seabrook welds and overall adequacy of pipe erection. Therefore, while the YAEC radiographic review program was an important part of the integrated system which provided assurance of pipe weld quality, it was clearly not the only aspect relied upon by the NRC to assure weld adequacy.

III.B Consistency of NRC Statements

Question III and its reference to attached NRC quotations question the consistency of NRC statements on the YAEC film review process. Several requests from Congressional staff members on these matters have involved questions of how the Pullman-Higgins radiographs were handled.

As we have previously described to the Congressional staff, the YAEC radiograph review program also encompassed the examination of film supplied by vendors and site contractors other than Pullman-Higgins. The radiographs for vendor-supplied component welds (e.g., Dravo pipe shop welds, manufacturer seam welds for equipment, etc.) were received on site in conjunction with the component delivery to the site. These radiographs were placed in vault storage for control and preservation prior to review by YAEC film reviewers. This process was different from the one for handling Pullman-Higgins (P-H) radiographs in that P-H film was reviewed as it was turned over to YAEC and placed in the vault only if accepted by the YAEC review.

The NRC CAT inspection (50-443/84-07) in 1984 appraised the entire welding and NDE program being implemented for the construction of Seabrook Station, not just that of Pullman-Higgins. Thus, the selected quotations from the CAT inspection report which were highlighted in the Congressional letter attachment reflect the difference between the film already reviewed by YAEC (e.g., Pullman-Higgins) and the film not yet so reviewed (e.g., vendor film), and do not contradict other NRC documentation and information provided to Congressional staff members.

A March 15, 1990 letter from NRC Chairman Carr provided an NRC staff response to a question in this regard raised by Congressman Kostmayer on March 7, 1990. The following is an excerpt from that response:

If the film in which the irregularities were identified by the CAT inspectors had been final accepted radiographs, enforcement actions would have been pursued. Instead, the CAT inspectors recognized that the licensee's program required the noted YAEC review of all safety related vendor and site generated radiographs.

A similar explanation applies to item 12 of the Attachment to the Congressional letter of August 9, 1990. What is highlighted in this item is a previous NRC staff response to Congressional staff questions on this matter which discusses "the licensee's intent to review 100% of the radiographs transmitted to the document control vault as quality records." The term "intent" was used in the NRC staff response because, as of December 1983, notwithstanding the fact that a YAEC 100% review of contractor radiographs was being conducted, there existed no regulatory, code, or procedural requirement for this 100% review to continue. As discussed in the response to Question I, the licensee could have reduced the level of

their review below 100% anytime prior to May 1984, when the 100% scope of this surveillance activity was incorporated in a procedure. Had that occurred, NRC inspection would have evaluated the effectiveness of such a decision. In fact, the NRC CAT inspection in April and May 1984 observed the need for and value of continued application of a rigorous licensee film review program. It was in this context that the inspection findings and conclusions of the NRC CAT inspection were documented in IR 50-443/84-07 and were discussed and explained in the March 15, 1990 NRC response to Congressman Kostmayer's questions.

It is noteworthy that the 1984 NRC CAT documented the fact that "no deficiencies were identified with the radiographs that had received the applicant's review." No deficiencies were identified by the CAT in radiographs supplied by Pullman-Higgins because all of the Pullman-Higgins radiographs stored in the vault had already been appropriately reviewed and accepted by YAEC reviewers.

The NRC staff does not believe there are contradictions in the NRC statements quoted in the Attachment to the Congressional letter of August 9, 1990, forwarding this current set of questions. Concerns expressed in this regard appear to relate more to phrase interpretations and the evolution of NRC inspection documentation than to substantive conflicts in the NRC understanding of what transpired in that historical time frame. As a case in point, although it was not quoted in the current set of Congressional questions, a response to a Congressional staff member's request of May 29, 1990, regarding the YAEC 100% radiograph program is provided as an attachment (Attachment 1). This document illustrates consistency in the NRC understanding, responses, and NUREG-1425 documentation of this issue.

The NRC staff believes that a coherent and comprehensive description of the YAEC radiograph review program is documented in NUREG-1425. That report is consistent with the responses provided by the NRC staff to over 30 sets of questions on this subject from Congressional staff members and documents the findings of an inspection by the NRC Independent Review Team. That team inspection focused on the quality of the finished hardware and associated records as well as on the adequacy of the overall quality assurance program applied to the fabrication and NDE programs for pipe welds.

Question IV.A:

Of the welds approved by the senior Pullman-Higgins reviewer at the time of approval, which ones were the subject of subsequent repairs as a result of defects identified by the YAEC overview?

Response:

The NRC does not have this information. To ascertain the number of such welds, a considerable record search would be required. However, the team determined that the YAEC, in its overview of radiographs, rejected welds for various reasons, including weld defects that required repair and other code-required technique deficiencies. For example, if YAEC rejected a film for failure to meet the code (density is one example), the film was returned to Pullman-Higgins for further review and retest. The retest, in some instances, disclosed rejectable weld defects that were repaired by Pullman-Higgins in accordance with Pullman-Higgins' program. These situations would have been documented on a Pullman-Higgins nonconformance report (NCR) which did not necessarily cross-reference the YAEC document. Since the Pullman-Higgins program corrected the deficiencies and resolved the safety concerns, the exact number of welds that were eventually repaired does not affect the adequacy of the final welds. What is important, and what has been verified by the NRC staff, is that the final welds and weld records are technically acceptable and consistent with NRC requirements.

Question IV.B:

NUREG-1425 (p.14-2) contains a table indicating the number of weld packages reviewed by YAEC during the years 1979 through 1986. Please provide a listing of the dates on which each of the welds reviewed during the years 1981 through 1984 was initially approved by the then current senior Pullman-Higgins reviewer. This information should be readily available from the source of the data on which the NUREG-1425 table was based. If this data is not available, what is the basis for the numbers in the "Weld-quality rejects" column?

Response:

The basis for the "Weld-quality rejects" column provided to the IRT by the licensee was a review of deficiency reports (DRs) and deviation notices (DNs), including welds that were rejected for weld quality by the YAEC reviewers. It should be noted that the IRT did not believe the data contained in the table was germane to its determination of weld quality. Nonetheless, because of previously expressed Congressional staff interest in such data, the licensee was requested to develop the information. It does not include the results of any follow-up reviews and retests done by Pullman-Higgins.

As stated in NUREG-1425 (p.14-1), "[a]t the team's request, the licensee provided a rundown (by year) for the period 1979 - 1986 of total weld packages reviewed by YAEC, and the number and percentage of radiographic film rejects found during the period from mid-1982 through 1986." The team did not request that the licensee provide information relative to the Pullman-Higgins reviewer of each weld. Also, as discussed in NUREG-1425 (p.3-4, 14-1 & 14-2), the data was provided based on deficiency reports and deviation notices which were reviewed by the team and did not include rejects identified in the YAEC overview program before mid-1982, those found through the YAEC QA audit program, or those that were handled by sending controlled speedletters rather than by issuing DRs or DN's.

Question IV.C:

NUREG-1425 (p.14-3), in reference to Deficiency Report (DR) #527, "...none of the discrepancies involved weld quality defects."

Congressional staff have evidence that a least two welds in the DR 527 list were the subject of weld repairs subsequent to issuance of DR 527. What is the evidentiary basis for the NRC conclusion that none of the DR 527 discrepancies involved weld-quality defects?

Response:

We agree that the possibility exists that welds listed in DR 527 may have later been determined to need weld repair as a result of the followup or other types of reviews. However, the basis for the NRC conclusion that none of the DR 527 discrepancies involved weld-quality defects is a document entitled "YAEC RT INTERPRETATION," which lists the welds enumerated in DR 527. This list was provided to the Congressional staff as supplemental information to a staff member's request of May 29, 1990. The listing, which represented a hand-written, YAEC generated document which was not retained by the licensee as a quality record, was found attached to DR 527 in an NRC Systematic Assessment of Licensee Performance (SALP) report file. At the time of the SALP meeting with the licensee and issuance of the final SALP report in 1984, this listing supported the licensee's position that only one code rejectable indication requiring field weld repair had been identified by the YAEC radiograph review conducted during the current SALP cycle. That code rejectable indication requiring field weld repair was documented on DR 544, which was issued on December 28, 1983, and resulted in the issuance of Pullman-Higgins Nonconformance Report (NCR) No. 5773. Additional information related to this matter was provided in a NRC staff response to requests from a Congressional staff member on July 13, 1990, questioning the basis for the revision to the 1984 SALP report.

Further, as stated in NUREG-1425 (p.2-3), "if weld quality was defective, a nonconformance report (NCR) had to be issued per P-H Procedure XV-2." An example is NCR 5773 resulting from the DR 544 finding noted above. For DR 527, none of the deficiencies documented on the YAEC RT INTERPRETATION list directly resulted in the issuance of an NCR, further corroborating the position that none of these deficiencies involved weld quality defects.

The NRC staff is aware that certain of the listed welds were re-radiographed after issuance of DR 527 and certain welds may have received subsequent repair and re-radiography based upon subsequently identified problems (e.g., base metal repairs in proximity to the field weld). Therefore, while the NRC staff does not know which specific welds the Congressional staff is referring to as the subject of subsequent weld repairs, such subsequent repair does not conflict with the position that none of the specific discrepancies in the YAEC RT INTERPRETATION list associated with DR 527 involved weld-quality defects which required weld repair.

Question IV.D:

NUREG-1425, Appendix 8, p.7 contains the following statement:

The team reviewed all of the surveillances listed above whose subject is "RT Review" to determine the nature of the overview of RT film performed by YAEC.

Please list the welds referred to in the surveillance reports to which the foregoing statement refers. Please provide, in addition, descriptions of corrective actions with regard to weld or radiograph deficiencies taken with respect to these welds.

Response:

As stated in NUREG-1425 (Appendix 8, p. 8), "Although documentation for the early surveillances did not always indicate whether P-H or YAEC identified the discrepancies listed or whether the films reviewed were in process or final, practically all surveillance reports identified the film being reviewed by weld number." Also as stated in NUREG-1425 (p.2-2), any film discrepancies identified by YAEC were returned to Pullman-Higgins for disposition and were re-reviewed by YAEC following corrective action by Pullman-Higgins. The Pullman-Higgins program required the issuance of an NCR that listed the weld by number if the re-review found a nonconforming condition. During the course of the inspection, the IRT reviewed numerous NCRs (see NUREG-1425, Appendix 10) to ensure that corrective actions with regard to welds or radiograph deficiencies were adequate. The IRT did not compile a list of weld numbers referenced in the surveillance reports reviewed because it was not deemed necessary to do so in arriving at a conclusion regarding the adequacy of weld quality. However, copies of the surveillance reports retained by the IRT are being provided to the Congressional staff in response to a recent Congressional staff request dated August 17, 1990.

Question V:

NUREG-1425 (p.1-4) states:

The IRT leader met routinely with licensee representatives to keep them apprised of the team's activities, plans, and findings.

Is it standard practice for a leader of an NRC independent regulatory review to keep the licensee apprised of the review teams's activities, plans, and findings while the investigation was in progress? What is the basis for confidence that such discussion of activities, plans and findings with licensee officials did not compromise the NRC assessment? Is such conduct routinely within the scope of what the Commission regards as an independent regulatory review?

Response:

It is standard practice during NRC inspections for the inspectors to ensure that licensee on-site management is made aware of the overall scope and schedule of inspection activities. An NRC inspection manual procedure specifies that inspectors should keep licensee representatives apprised of preliminary findings, including any violations of regulatory requirements or other safety-related concerns. A basic reason for keeping the licensee apprised is that the licensee's interim responses to inspector questions and the additional records which knowledgeable licensee personnel can quickly provide are essential to reaching substantiated NRC conclusions in a reasonable time frame. Additionally, in the event a safety issue or violation is identified, it enables the licensee to initiate appropriate corrective action in a more timely manner.

The Independent Review Team (IRT), in response to Congressional concerns about the adequacy of welding and NDE at Seabrook Station, conducted an overall assessment of the licensee's program during construction and an inspection of the results of this program to include records and other objective evidence of weld quality. The follow-up of Congressional concerns was integrated directly into the inspection plan. The independent nature of the IRT mission was delineated in the internal NRC memorandum of March 27, 1990, issuing the IRT Charter (see Appendix 1 to NUREG-1425), wherein it was stated that "NRC staff and consultants who had previous significant involvement with pipe welding activities at Seabrook will not be a part of the review team."

The IRT inspection plan issued on April 5, 1990, (Appendix 2 to NUREG-1425), fully intended the after-the-fact, independent assessment of pipe welding/NDE activities to be conducted as an "inspection," utilizing qualified NRC inspectors and consultants and governed by the standard practice for NRC

inspections. The IRT inspection plan was not made available to the licensee prior to the issuance of NUREG-1425. The conduct of IRT inspection activities over the course of several weeks provided the IRT leader appropriate opportunity (e.g., upon interim IRT departures from the site) to apprise licensee representatives of the team findings to date and of future inspection activities in order to facilitate the inspection. As evidenced by the documents reviewed by the IRT (listed in Appendices 10-12 of NUREG-1425), the vast majority of the documents reviewed were records which had to be retrieved from the licensee's record file.

The basis for concluding that the Independent Review Team's discussion of findings with the licensee did not compromise the findings is that the findings were based on objective evidence (records) provided by the licensee as well as on interviews, discussions, and physical observations. The results of all the inspection activities were analyzed to arrive at the final staff findings. As supported by the IRT findings and bases discussed in NUREG-1425, the use of the standard NRC inspection practice did not compromise either the conduct or the results of this IRT assessment.

Question VI:

NUREG-1425 (p.1-4) lists principal individuals contacted by NRC staff who participated in the Seabrook weld assessment. Please provide transcripts (other than the Wampler transcript included in NUREG-1425), memoranda and other documents which provide a record of the substance of conversations with the listed individuals.

Response:

During their inspection, the NRC Independent Review Team conducted five interviews that were documented by the inspectors conducting the interviews. The interviews, although not recorded, were documented in inspection field notes (see Attachment 2). The documentation was typed by the inspector and provided to the other team members for reference in performing the on-site inspections. These interviews were conducted primarily during the early stages of the IRT inspection to ascertain the overall views and recollection of certain personnel involved in the radiography/NDE process during the early and mid-1980s timeframe. These interviews assisted the team in focusing the inspection efforts and identified differences in the recollections which the team had to follow up prior to reaching its findings.

Other persons listed in NUREG-1425 were contacted for inspection coordination or the availability of specific information as needed. The information received from all persons contacted was evaluated in conjunction with information obtained from all other sources (e.g., records, radiographs, direct observations) to arrive at appropriate inspection findings as documented in NUREG 1425.

ATTACHMENTRESPONSE TO DR. H. MYERS' REQUESTS OF MAY 29 AND JUNE 6, 1990Request 1 (May 29, 1990):

Please provide prior to COB, Friday, June 1 the procedures that, prior to implementation of Procedure #5 in May 1984, governed the YAEC 100% radiograph review. This request encompasses procedures that mandated the review. It also encompasses procedures that specified and controlled the methodology of the review, the manner in which the review of specific film packages would be recorded and reported, and the manner in which deficiencies would be handled.

Response:

Prior to May 1984, no procedural requirement mandated YAEC 100% review of safety-related radiographs. Such reviews were conducted as surveillances governed by a YAEC Field Surveillance Procedure. Surveillances are not normally intended to be 100% review or inspection efforts. However, with respect to Pullman-Higgins field weld film packages, the surveillance effort encompassed a 100% radiograph review as the film was turned over for YAEC record vault storage. Although the surveillance reports documenting such film review activities were not required to list each weld, evidence of the YAEC review of Pullman-Higgins, code-required radiographs has always been provided by YAEC reviewer signature or initials on the Radiographic Inspection Reports (RIRs). That began when the first film packages were turned over by Pullman-Higgins to YAEC in 1979. Therefore, while the requirement for a 100% YAEC radiograph review was not proceduralized until May 1984, the final RIR record for each weld should provide evidence of the review by YAEC. NRC inspection has not identified any welds for which YAEC radiographic review was not conducted.

Prior to the implementation of the YAEC "QEG NDE Review Group" Procedure No. 5 in May 1984, YAEC radiographic review activities were governed by YAEC Field Surveillance Procedure No. 3. A copy of Revision 7 to this procedure (the revision in effect at the time the YAEC Field QA Manual was updated in April 1984, when the QEG NDE Review Group Procedure No. 5 was written) was express-mailed to the NRC EDO office for delivery to Dr. Myers. Included with the procedure were some YAEC Field QA Group Surveillance Reports, intended to serve as examples of the way the radiography review was conducted and documented. With regard to the above question concerning the methodology and manner of review, it should be noted that a Master Checklist, provided with each surveillance report, established the criteria used by the YAEC QA personnel performing the surveillance. The parenthetical references (e.g. T-270, SE-94) documented with the Master Checklist criteria refer to the applicable paragraphs or sections of the ASME Boiler and Pressure Vessel Code, Section V, as they relate to radiographic requirements and standards.

YAEC Field Surveillance Procedure No. 3 governed surveillance activities of the YAEC Field QA Group during Seabrook construction. That procedure-specified general programmatic and documentation requirements, while the appropriate

Master Checklist provided the specific technical inspection details. With regard to the question of how deficiencies were handled, Procedure No. 3 indicates in paragraph 3.1.4.5 that deficiencies could be either corrected immediately, or transferred to the contractor's QA/QC program (e.g., a contractor nonconformance report could be written), or documented on a YAEC Deficiency Report (the handling and disposition of which are also discussed in Procedure No. 3).

Attached to this response is an inspection report (IR) excerpt documenting the conduct of an NRC surveillance program inspection in the September-October 1983 time frame. Procedure No. 3 was included in the NRC review of surveillance program requirements, as were samples of surveillance and deficiency reports. An additional procedure (No. 4) referenced in this NRC inspection report excerpt, pertaining to the Field QA Checklists used in the conduct of surveillances, was also sent to the NRC EDO office for delivery to Dr. Myers.

~~Predecisional~~

INTERVIEW WITH JERRY MCDONALD (JM)

On April 7, 1990, Spessard and Walton interviewed JM. The interview started at about 10:05 a.m. and ended at about 11:10 a.m. The following information was obtained:

JM was the construction QA Manager for YAEC during the period covering P-H activities. He had three Assistant Managers reporting to him (Records, Audits and QC). From a QA records standpoint the Yankee Records Group provided a second level of review (overview) of all QA records for the owner, NHY. This was a production decision based on problems experienced at other construction sites during this time frame. This effort began as a 100% review of records, except for radiographs which were to be reviewed on a sampling basis by a qualified NDE reviewer (Level II or III). This effort covered all contractors and was over and above the reviews performed by the contractors and the owner per their QA programs. The Yankee philosophy was that nothing (systems/components and associated records) went to Startup without going through their QA Records Group review program. With respect to radiographs the initial reviews started late in 1983 and resulted in the issuance of DR 527 which documented a lot of record problems (many administrative) with the film packages, but not any weld defects. This DR was also incorrectly checked as potentially reportable per 50.55(e). The required review (by UE&C and then by Yankee if deemed reportable by UE&C) was apparently not accomplished. The present NHY view which is to be documented by NHY is that it was not reportable because the weld quality was not an issue. The overall results of Yankee's overview of the film packages was a reject rate of about 17% due to film problems and record documentation (many administrative) and less than 0.5% for weld quality (code rejectable). NOTE: JM did not have an exact breakdown of code violations versus administrative nonconformances, but agreed to make that determination and provide it to the NRC.

P-H had its own QA and QC organizations and held the Code N Stamp for installation. P-H also had a second level review (overview) of all code radiographs by a qualified NDE Level III reviewer as part of its QA program. This effort started from day one and continued until the job was done. It was also over and above the requirements of the construction code of record and NRC requirements. Concerning flow of the P-H (includes Level III acceptance), the packages received Yankee review, then they were returned to P-H for final packaging and forwarding to NHY. The flow paths had to be repeated whenever deficiencies were found. In about the 1984 timeframe, Yankee overview was co-located with P-H overview in an effort to streamline the review process.

Concerning the alleged (by Wampler) P-H radiograph backlog, it may have occurred when the Level III reviewer quit P-H on short notice and about 2-3 months elapsed before he could be replaced (by Wampler). The backlog never affected quality, i.e., the welds didn't become inaccessible, but they did result in a

management problem from a scheduling standpoint. Some backlog resulted at Yankee when P-H started reviewing the backlog. P-H did a good job in welding and construction; Seabrook is a code plant- all ASME welds met code requirements (no weld was accepted by engineering evaluation which would have required an exemption from the ASME Code). P-H got its Code N Stamp on the first try. P-H identified the falsification issue (Padovano) and was generally responsive to QA problems.

Concerning the ANI's review, it was accomplished after the P-H Level III overview which followed P-H's Level II Code required review. This was the process early on, however, it was changed later on to be accomplished after the Yankee overview (exact date not known by JM). Note: The inspectors need to pursue this further because the RIR for weld RC-49-01-F0101 indicates the ANI accepted the weld following the initial review which was accomplished by a Level III P-H reviewer. This also happened for weld RC-49-01-f0102 on two occasions, but in these cases the initial review was accomplished by a Level II P-H reviewer.

Concerning weld quality, JM believes it is good; there were defense in depth quality measures implemented; engineering evaluation was required for all weld repairs made after the third repair. He suggested the team talk to Ray Donald because of his knowledge of P-H welding activities. He has no knowledge of any unresolved weld quality problems or welds that don't meet code requirements or welds that needed a code exemption at Seabrook.

INTERVIEW WITH DICK JULIAN (DJ)

On April 9, 1990, DJ, currently a Yankee QA engineer, was interviewed by Spessard and Walton from about 8:35 a.m. until about 10:35 a.m. On May 17, 1990, a followup interview with DJ was conducted by Spessard and Crowley from about 9:40 a.m. until 10:25 a.m. Also, DJ was contacted on numerous occasions between these dates as part of the inspection process. The following summarizes the information received:

DJ was the Yankee NDE Review Supervisor in the period of about March 1980 to early 1986. He is a certified NDE Level II reviewer. In the March 1980 - March 1982 period he did 100's of QA surveillances of P-H's welding/NDE activities and found many production and quality type problems. During this period, RT film was reviewed and accepted or rejected during these surveillances, and the surveillance reports were the mechanism used for documenting this effort.

In the mid-1982 to early-1983 period, Yankee's 100% overview of all P-H RT film began in a more formalized fashion, and this effort was directed by DJ. The film was reviewed by DJ and his qualified NDE Level II reviewers, some of whom were contractors, and by the Yankee NDE Level III Examiner, when requested. All code requirements found to be violated during Yankee's overview were documented on DRs or DNs. Administrative type discrepancies identified were possibly returned on some occasions to P-H for corrective action without always issuing a DR. He knew essentially all of the P-H welders and estimated that at least 75% were very conscientious about doing a quality job.

Early on in the program (before mid-1982), P-H's QA program required a Level III on-site, but this individual was not required to review each film package sent to Yankee for their overview prior to transmittal to NHY. The practice of the P-H re-review of film by their Level III started in July, 1982; it was precipitated by Yankee's overview and QA surveillance findings that were documented in DR 211. Additional actions or reaffirmation of P-H's commitments on re-review of film occurred because of Yankee's recurring findings, as documented in DRs 241 and 527. Only film that had not been reviewed and accepted by a Yankee film reviewer was required to be overviewed by a P-H Level III.

A backlog of about 2000 film packages, including many duplicates existed and wasn't known by Yankee until the 1983 time frame. The backlog existed for many reasons, including pigeon-holing of film by P-H, approximately a 2-4 month period without a P-H Level III on-site to review film, poor administrative control/management of NDE records by P-H and high production rates of radiographs. There were four crews (two men each) shooting radiographs on the back shift and all of the film was being funneled through one individual.

DR 527 was issued during December 1983, and it identified numerous discrepancies regarding RT film quality for film shot and accepted by P-H in the 1982-1983 period. In some instances the film had not been signed by the ANI and this was a basis for rejection, since Yankee required the ANI to accept the film package prior to their review. This requirement provided the ANI an opportunity to review the package, and although he may have signed the package it did not necessarily mean he had reviewed it. The point in the review process at which the film was presented to the ANI for concurrence changed during the 1984-1985 period; the ANI review occurred after the P-H and Yankee acceptance. At about the same time, DR 574 was issued during February 1984, and it also identified numerous discrepancies that were similar to DR 527. According to DJ, the RT film that was the subject of these 2 DRs was a combination of production and backlog film that had been reviewed and accepted by P-H and presented to Yankee for its review. There was no film (except vendor) in the vault that had not been reviewed and accepted by Yankee.

Regarding Mr. Wampler, DJ believed he was competent and had good intentions of trying to straighten out P-H problems involving production and the disposition of the backlog to assure code compliance. However, he wasn't politically attuned to P-H managers, and he tried to do too much at once. Also, the task facing Mr. Wampler was overwhelming for one individual to accomplish. DJ had a meeting with Wampler about the time of the issuance of DR 527 to explain what was expected of P-H, i.e., strict compliance with the code. In fact, it was standard practice to review all DRs and unacceptable surveillances with P-H.

Richard Davis was the QA Manager for P-H during construction. He had minimal NDE experience and had to rely on the Level III. To DJ's knowledge, there were no outstanding NCRs that Wampler needed to issue when he terminated. Also, as far as he knew none were issued by Wampler when he left. Regarding a meeting on November 22, 1983, between Messrs. Wampler, Oikle and Julian to discuss the high (about 19%) reject rate of Yankee and P-H overviews of film and Yankee's intention to report this matter per 10 CFR 50.55(e), DJ did not recall the precise meeting that Mr. Wampler was referring to, as written in his personal logbook. He did, however, recall discussing the reject issue and needed corrective actions. With respect to Mr. Wampler's statement, during the interview with the team, on expressing concerns about excessive weld repairs and possible damage to base metal, particularly on the RC system, DJ did not recall concerns of this nature. He did, however, recall having discussions with Mr. Wampler on using different welders, when repairs to a weld were necessary; the idea being to have some welders, who were good at making repairs, and others that made the initial weld. Regarding Mr. Wampler's statement (interview) about not having any paperwork, including RT film on vendor (Dravo) shop welds, DJ indicated that this was not unusual, but that sometimes this

documentation was provided from the vault to P-H when it was needed. This documentation was reviewed and accepted by Yankee.

DJ indicated that Yankee wanted a quality plant and took a conservative approach when reviewing film to assure code compliance. There were no gray areas accepted, period! If there was any question, it was reshot or repaired/reshot. If the films were marked showing a surface defect, the weld was visually examined in the field. Regarding accessibility, DJ said there were no cases where welds were not reinspected, if needed. If they were in fact inaccessible, then provisions were made to get to the weld. He does not know if P-H had conditions where welds became inaccessible due to delays. He does not know of any condition in the plant that doesn't meet NDE requirements of the ASME Code. Regarding Wampler's comment on inaccessibility of small bore piping welds (DOL Testimony), DJ said that it didn't make sense because the piping erection schedule focused on large bore piping first and then small bore last.

DJ was questioned about DR 716, that documents a CS field weld with a code rejectable indication at the time the system hydro was completed. This condition was documented in NCR 7966 per procedure requirements, and it was identified on the System Incomplete Items List in accordance with the provisions of the Startup Program. The weld was repaired and re-hydroed per code requirements.

DJ was questioned about DN 90, that documents 85 film packages that did not meet code UG requirements. This issue was discovered while indexing film as part of the vault storage process. Since this condition was not identified by Yankee during its review of the film, the DR was issued. The finding occurred by happenstance. All film in the vault was reviewed to verify that UG requirements were met, and as a result 85 packages were returned to P-H for reshoot. This was accomplished and code acceptable film was obtained. Yankee's review indicated that the condition was not reportable. A further check of these packages by the team disclosed that 3 of the 85 welds had a code rejectable defect, as documented on NCRs that were written following the reshoots of the welds. These conditions were not factored into Yankee's review of DN 90 for reportability. DJ indicated the these conditions were subject to review by P-H and possibly UE&C via the NCR process.

DJ was questioned about the availability of the following records: QARs, YRT-1s and YRT-2s. DJ indicated that a QAR Log, QARs, and some YRT-1s and YRT-2s were available, and this information was provided. The only YRT-1s and YRT-2s available pertained to Yankee's review on vendor film; these records, that documented review of P-H pipe welds, had been available in a file cabinet, but were lost during the relocation of staff following completion of construction.

DJ was asked to express his opinion about the technical competence of Mr. Michael Drew, a P-H NDE Level II reviewer. DJ said that Mr. Drew was a very professional and competent individual and that they had similar views on welding and NDE matters. He was very comfortable with his approach to the job and his film interpreting abilities.

Interview With Sam Volk (SV)

April 9, 1990

On 4-9-90, Spessard and Walton interviewed SV, who is presently the ISI Engineer for Yankee Atomic Electric Company, Bolton, Mass. The interview started at about 1:15 pm and ended at about 2:15 pm. The following information was obtained:

His previous involvement with Seabrook was as a NDE Level III/QA Engineer, working for Pullman and Higgins (P-H). He started working at Seabrook in the February, 1984 timeframe and became the NDE Supervisor in about April, 1984. His responsibilities at this time also included being the Radiation Safety Officer and NDE Level III for P-H. He left P-H in about Feb, 1985 and went to Shoreham.

SV stated that when he started to review film in April, 1984, there was a backlog of approximately 900-1200 film packages stored in disarray in two file cabinets. It was a mess; some weld packages were of the same weld, the majority had been reviewed by a Level II and some by a Level III, some had not been reviewed at all (even by a first reviewer) and some of these packages were over a year old; a lot had been set aside to take care of later. SV said he requested that his management provide additional qualified film reviewers to perform the task of reviewing the film being shot daily plus reducing the backlog. His management agreed with his request, and he stated he hired approximately 6 qualified reviewers, mostly Level II's. To work the backlog, the packages had to be reviewed, organized and reconciled with other quality records which was a big administrative job because of repairs and/or multiple shots of the same weld. This effort was supposedly done by SV's reviewers, and his review occurred after this process which had resulted in a lot of problems being worked out. When questioned about whether all film was reviewed by a Level III, he was very vague on the issue. From the discussion with SV it appeared that it was his thoughts that not all film was required to be read by a Level III, but was required to be read by a qualified film reviewer. The disposition of the backlog was somewhat controlled by the Boundary Identification Package (BIP) turnover process.

SV stated that P-H management supported him 100% on issues and decisions made pertaining to performing his duties. He did not know of any welds becoming inaccessible due to the delay in reviewing and dispositioning the film.

Regarding the safety impact of having a large backlog of unreviewed (by Yankee) radiographic film, SV felt the existence of the backlog had a positive impact on safety because it resulted in management being very critical regarding film quality and, thus, rejecting film that could have been accepted per code. YAEC would make them fix it.

He said the ANI would review the film after P-H reviewed the film.

Regarding the disposition of film problems, SV said that if an indication was found on the film by him and it was not a weld defect, he would return the film to the radiographer to reshoot the weld. If a weld defect was found, an NCR would be written and the weld would be repaired/reshot. When SV left Seabrook in March 1985, he believes there was a backlog of 100 film packs or less.

SV said he did not know of any issues regarding falsification of records at Seabrook, except the Padavano case.

He believes the quality of welds are good; in fact, the welds are unquestionable, or overkill if anything. He does not know of any welds that do not meet the code. In fact, the licensee's overview rejected welds accepted by the P-H re-review that he didn't agree with, and these had to be reshot and/or repaired. He viewed the Yankee overview as being too tight. SV said he does not believe a 20% reject rate is high (Level III review) considering that most of the rejects were administrative in nature and the actual weld reject was very low.

SV said he was not involved in 50.55 (e) reviews except to write NCR's when required.

SV was not aware of any radiation safety problems, except the night shift supervisor crossing the boundary rope to try to catch sleepers. He was allowed to have this individual (Mr Steele - the same Supv involved in the Cramm/Wampler DOL issue) removed from the job because of the problems he was causing.

He suggested we look at the weekly backlog list published by his group to get an understanding of the amount of work involved in the radiographic film review. Subsequent to the interview, the licensee was asked to look for this non-quality record.

Interview with Ray Donald (RD)

On 4-10-90, Spessard and Walton interviewed RD, who is presently a NHY Lead QA Auditor. The interview started at about 8:30 am and ended at about 10:55 am.

RD was the acting P-H QA Mgr starting in early 1986, P-H Ass't QA Mgr starting early 1982, and before that was a QA Supv and a QC Supv, starting with P-H in early 1980.

RD indicated that Mr Wampler was the P-H NDE Level III and that he had no supervisory responsibilities while employed by P-H ; Mr Bowles was the P-H NDE Supv at the time of Wampler's employment. Mr Bowles left (resigned) P-H on January 3, 1984 and was replaced by Stan Elmore. RD provided a P-H organization chart dated 9/27/83 which shows the NDE structure. RD showed an Organization Chart, dated May, 1984, which shows Sam Volk as both the Level III and NDE Supervisor, ie, he was assigned both roles. RD had no problems with Wampler's technical capabilities/performance; however, he did have problems with him trying to function as a Mgr/Supv which created hate and discontent between the workers and Mgt. He also said that Wampler was not very efficient at getting his job done because of the distractions caused by this. He indicated that there were radiography type problems in addition to the film backlog that Wampler had to address. Thus, he didn't make much headway on the backlog while he was there.

Concerning P-H Level III's, RD recalled the following sequence: The initial Level III was David Walker who left in July, 1980. He was replaced by Mr Geski, who was replaced by Mike McCrae, who was replaced by Bill Hinz. Wampler replaced Hinz, however, the time lag for this wasn't recalled, but on the order of a few months. Jerry Storey, a rent-a-tech from NIC, replaced Wampler on 1-7-84, and he was subsequently replaced by Sam Volk in the 2/3, 1984 time period. He (Jerry) was brought back about the 4/5, 1984 time period to help with the reduction of the film backlog re-review. At this time Sam was the NDE Supv/NDE Level III.

The practice of P-H Level III re-review of film did not start until the Wampler era, although Level III review occurred when there were questions of the film or for review purposes to assess the quality of the processes. A lot of film was held up waiting for a review by Wampler. There was a recognition by P-H Mgt of radiographic problems involving both film quality and backlog of welds to be shot. Yankee had identified these problems. RD believed that all the film in the backlog had been read by a P-H Level II.

Note: Subsequent to this interview, the team found records (Yankee DR 211, dated 7-16-82) that identified radiography rejects during their overview of film packages; the corective actions included a commitment by P-H to perform a two step review; a Level II and a Level III.

RD talked about the Richard Cram, a P-H radiographer who was

terminated (reduction in force) on December 29, 1984, and Larry Steele, his Supv, issue/problem, namely Cram wasn't shooting as many welds as he should have been. Steele thought he was sleeping on the job, and was trying to catch him at it by crossing the rope barrier when he was supposed to be shooting, but was believed to be sleeping. Wampler got involved in this and supposedly sided with Cram against Mgt. This issue was subsequently handled by DOL (Reference; Court Case 84-ERA-17). RD wanted to make the point that things greatly improved after the departures of Cram and Wampler.

Regarding the impact of the film backlog, RD indicated that the BIP turnover process prevented it from becoming a quality problem because all of the records, including the film packages had to be ready, or they were identified and tracked on an OIL. The backlog could cause a production problem from the standpoint of doing RTs. The backlog, although undesirable, made no difference on meeting code and QA requirements for weld and film quality. The process was tortuous, many program/process changes, but the output (product) met/exceeded code requirements in his opinion. Based on a request from the team (Insp Plan Item 9), RD had reviewed the NCR Index for P-H activities covering the period 1982-1986, and numerous selected NCRs (based on key words such as Welds, NDE and Inaccessible) and found that none of them (ASME welds) had been dispositioned "Accept As Is". If access was a question regarding a weld the obstruction was removed to provide access.

Regarding 50.55(e) reviews, RD said that this occurred as part of the NCR process.

RD was not aware of any falsification issues involving RT.

Interview with Michael Drew

On 4-27-90, Lee Spessard interviewed Mr. Drew by telephone from approximately 5:00 p.m. to 5:15 p.m. Mr. Drew presently lives and works in the State of Florida, and his telephone number was obtained from his mother, who still resides in the State of Maine, at his the last known address. Mr. Drew was formerly employed by the Pullman-Higgins Company as an NDE Level II Radiographic Film Interpreter during the period 10-22-83 to 8-1-86. Mr. Drew's whereabouts was obtained from the licensee thru the EAR Program, i.e., the address shown on his Concern Disclosure Statement that was completed at the time of his termination following completion of the project by P-H. According to the information on this statement, Mr. Drew did not have any safety concerns at the time of his termination.

During an interview of Mr. Joseph Wampler on 4-24-90, the NRC had been advised that Mr. Drew had been hired by Mr. Wampler and qualified by him to interpret film. Mr. Wampler had a high regard for Mr. Drew's abilities as an interpreter. He also indicated that Mr. Drew would probably be able recall or discuss what happened to the approximate 16 film packages that Mr. Wampler stated had problems based on his review and which he would have written NCR's had it not been for the untimeliness of his termination.

When Mr. Drew was contacted, I introduced myself, who I was employed by, what my job was at Seabrook and why I was calling him. I also explained how I had tracked him down. I explained that we had interviewed Mr. Wampler earlier in the week and that he had informed us of him and the possibility that he (Drew) may be able to tell us about P-H welding activities and the 16 or so weld packages that had been pigeon-holed by Mr. Wampler at the time of his termination.

Mr. Drew was very cooperative and said he would be more than willing to talk with the NRC about these matters. The following summarizes the information provided by Mr. Drew:

He said he read a lot of film as a Level II, consisting of production, backlog and reshoots. With respect to the backlog he recalls there were a lot of problems with the film; his characterization of these problems were consistent with those of Mr. Wampler and those found by YAEC. He recalls a reject rate of about 10% or less of the film in the backlog. He did not have a high regard for the film interpretive skills of Mike McCrae, one of the P-H NDE Level III's who preceded Mr. Wampler. He likewise did not have a high regard for Mr. Wampler's overall film interpretive skills and thought he was short on experience in this area and, thus, was over his head in trying to function as the Level III at a project the size Seabrook. To make his point he indicated that, although Mr. Wampler made some good calls on certain types of code rejects, on many occasions he was very conservative, making overcalls (e.g. porosity with tails) that resulted in needless and costly repairs to welds that already fully

met the code. In his opinion for some of these cases, the repaired weld, although fully code acceptable, was not as good in a quality sense as the original weld because it took so many repairs to remove the indications and make an acceptable weld.

With respect to the 16 or so weld packages referred to by Mr. Wampler, Mr. Drew did not specifically recall them, although he was very familiar with the process of handling film packages and any problems dealing with these packages, whether identified by the P-H NDE Level III or YAEC reviewers. He was familiar with the work desk area and the pigeon-holing of film for subsequent handling by the Level II or III. He indicated that he was certain that the 16 or so Wampler weld packages were properly handled within the established system after his departure, and that he would be willing to swear to it, if necessary. He said that they had reshot and repaired a lot of welds in order to do the job right, and that P-H had spent a lot of money to correct the film problems. He said he basically handled the disposition of the backlog after Mr. Wampler's departure. He said he worked very well with Sam Volk, Mr. Wampler's ultimate replacement as the P-H NDE Level III, and that he respected his abilities to interpret film. He also said that he worked well with the YAEC reviewers and respected their film interpretive abilities. With respect to the ANI, he indicated that the film and weld packages were presented to the ANI following P-H's and YAEC's review and acceptance. He also said that the ANI did not really interpret the film, i.e., didn't possess the necessary skills.

Mr. Drew did not have any safety concerns involving P-H welding activities. I thanked Mr. Drew for talking to the NRC and gave him our telephone number at the site and at NRC headquarters in case he wanted to provide the NRC with any additional information.