

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-528/84-38

Docket No. 50-528

License No. CPPR-141

Licensee: Arizona Public Service Company
P. O. Box 21666
Phoenix, Arizona 85036

Facility Name: Palo Verde Nuclear Generating Station - Unit 1

Inspection at: Palo Verde Construction Site, Wintersburg, Arizona

Inspection conducted: August 27 thru September 15, 1984

Inspectors:

J. Young Jr. for 10-12-84
R. Zimmerman, Senior Resident Engineer
(Team Leader) Date Signed

J. R. Ball 10-12-84
J. R. Ball, Reactor Inspector Date Signed

J. F. Burdoin 10-12-84
J. F. Burdoin, Reactor Inspector Date Signed

Kenneth D. Ivey Jr. 10-12-84
K. Ivey, Reactor Inspector Date Signed

G. C. Kellund 10-12-84
G. C. Kellund, Reactor Inspector Date Signed

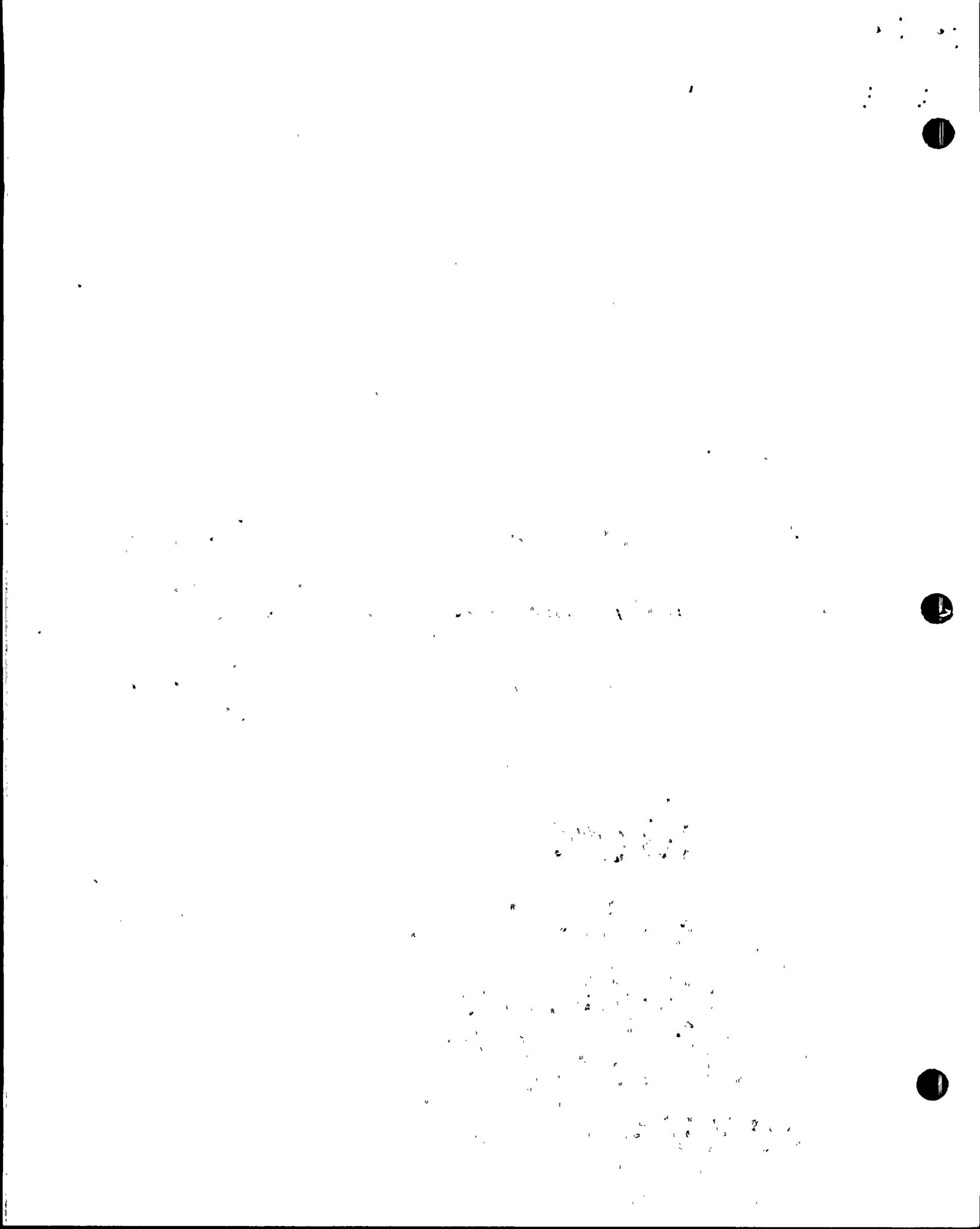
J. Young Jr. for 10-12-84
G. Johnston, Resident Inspector, Trojan Date Signed

J. Young Jr. for 10-12-84
G. Fiorelli, Resident Inspector Date Signed

J. Young Jr. for 10-12-84
C. Clark, Reactor Inspector Date Signed

J. Young Jr. for 10-12-84
M. Grayson, Radiation Specialist Date Signed

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T. Young Jr.
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W. J. Wagner, Reactor Inspector 10/12/84
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Reviewed By: T. Young Jr.
T. Young Jr., Chief, Engineering Section 10/12/84
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Approved By: D. F. Kirsch
D. F. Kirsch, Chief 10/16/84
Reactor Projects Branch Date Signed

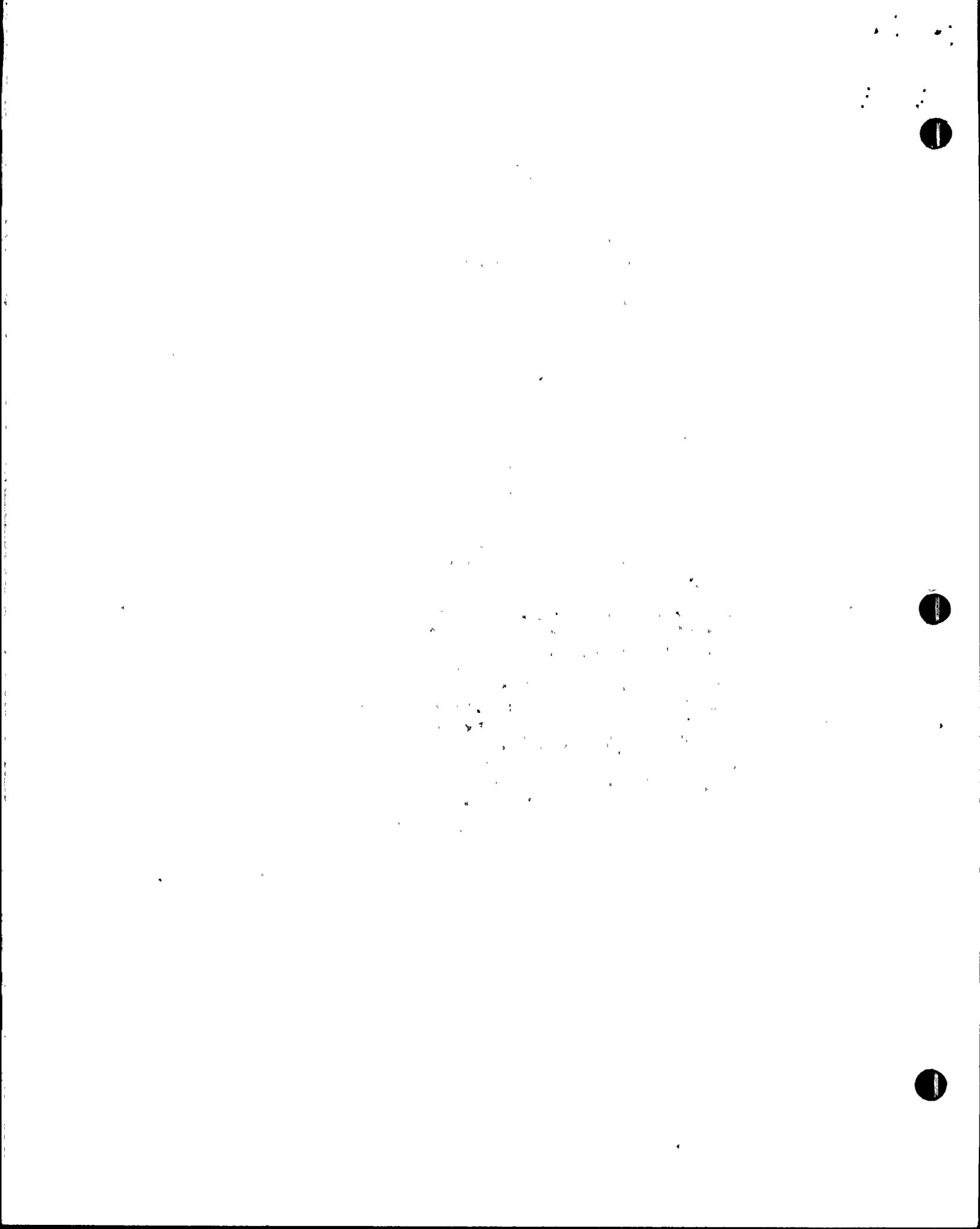
Summary:

Inspection during the period of August 27 thru September 15, 1984
(Report No. 50-528/84-38)

Areas Inspected: A special, unannounced team inspection of design, modifications, testing, maintenance, documents and records, and QA/QC activities for the startup of the auxiliary feedwater system (AFWS).

The team assessed the licensees effectiveness in the areas of work documentation, and methodology of system organizational responsibility turnover and testing. The inspection involved 819 inspector hours by 13 NRC inspectors.

Results: Of the areas examined, one violation was identified in the area of project engineer training (paragraph 20.A).

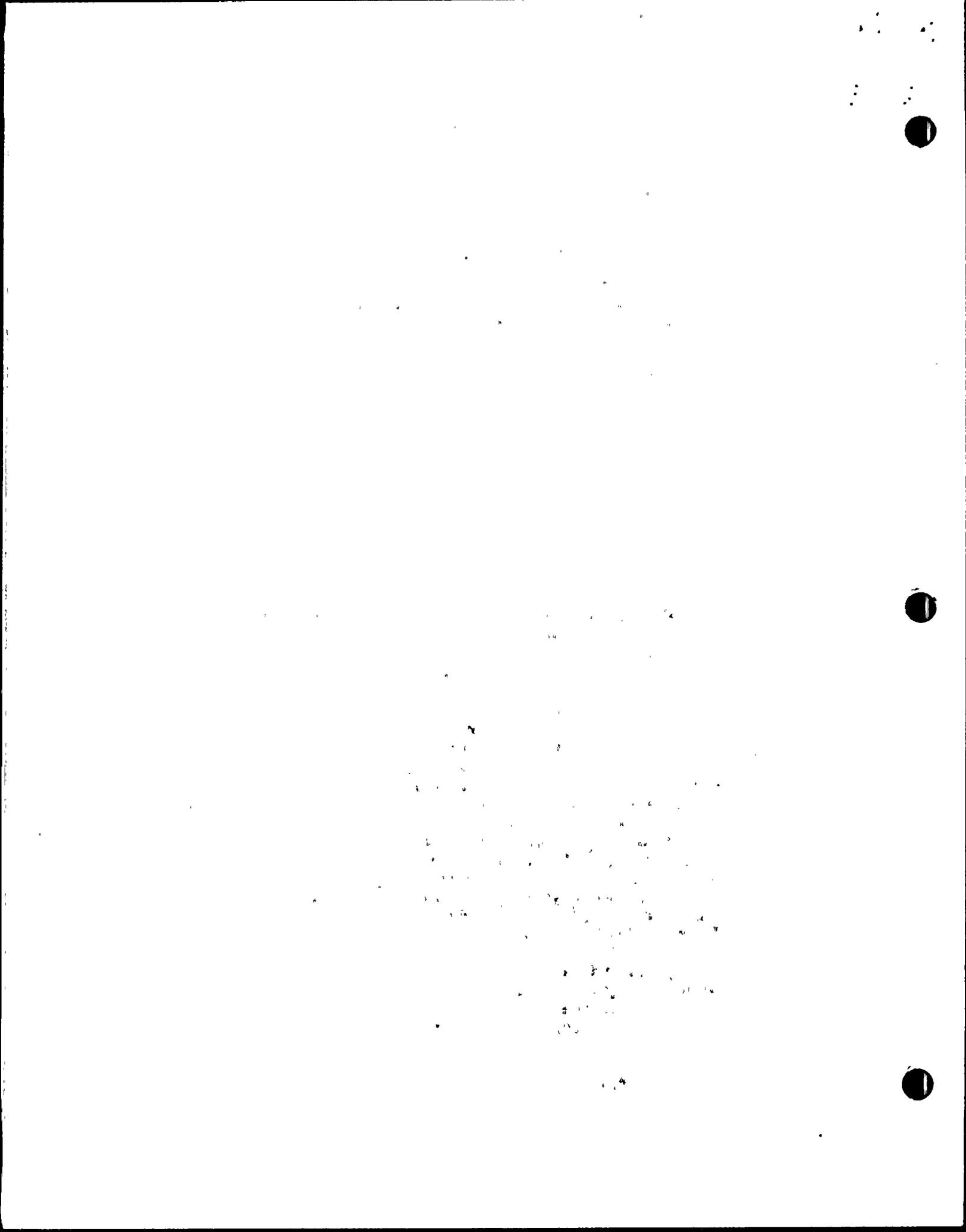


DETAILS

1. Persons Contacted

A. Arizona Public Service Company (APS)

- V. Rhodes, Supervisor, Drawing and Document Control
- J. Flommerfelett, Nuclear Records Analyst
- D. Rhodes, As-Built Records Manager
- *C. Russo, Quality Audits Monitoring Manager
- J. Brantley, Supervisor, Discipline Test Schedule Control Group
- G. Smith, Startup-Information Center Supervisor
- F. Hicks, Training Manager
- D. Deruiter, Maintenance Planner/Coordinator
- C. Braun, Principle Startup Engineer, AFWS
- R. Becken, Startup Group Supervisor
- D. Wittas, Quality Engineering Supervisor (Mechanical)
- #T. Shriver, Quality Systems/Engineering Manager
- A. Ramey, Quality Systems Supervisor
- D. Webster, Lead Auditor
- J. Tills, Supervisor for Maintenance Engineers
- *J. Minnicks, I&C Superintendent
- J. Stout, Mechanical Superintendent
- J. Terry, Electrical Work Group Supervisor
- T. Robb, Acting Supervisor, Maintenance Support Section (MCC)
- G. Olson, Electrical Maintenance Supervisor
- L. Curr, Surveillance Control Group Supervisor
- W. Simko, Engineering Group Supervisor
- M. Keubassion, OPS Engineering Section XI Pump and Valve Operability Program
- W. Roman, OPS Engineering Containment, Mechanical Maintenance Program
- S. Callahan, Operations Shift Supervisor
- *#R. Nelson, Maintenance Manager
- S. Penick, Supervisor, QA Auditing Group
- R. Badsgard, Vice Chairman TWG.
- *#W. Ide, Corporate Quality Assurance/Quality Control Manager
- L. Souza, Assistant Corporate Quality Assurance/Quality Control Manager
- A. Rogers, Manager of Nuclear Operations
- W. Quinn, Manager of Nuclear Licensing
- R. Ecklund, Supervisor of Operations Support
- E. Sterling, Supervisor of Configuration Control
- *#J. Bynum, Nuclear Operations Director
- *J. Houchen, Transition Manager
- *R. Gross, Compliance Supervisor
- *W. Craig, Startup Administrative Support Manager
- R. Ferguson, Startup Engineer
- *R. Baron, QA Engineer
- *I. Zeringue, Technical Support Manager
- *#D. Karner, Assistant Vice President, Nuclear Production
- *J. Self, Nuclear Operation Transition Represent
- *#J. Kirby, Startup Manager



*P. Coffin, QA Specialist
Various Other Personnel

B. Bechtel Power Corporation (Bechtel)

J. Black, Chief Resident Engineer
D. Cole, Quality Systems Engineer
R. Randel, Startup/Operations Resident Engineer, Supervisor
H. Foster, Project QC Engineer
H. Mear, Assistant Project QC Engineer
L. Bowles, Lead Welding QC Engineer
J. Dallam, Administration Supervisor (Training)
Various Other Personnel

#Denotes those individuals attending the final exit interview on September 15, 1984.

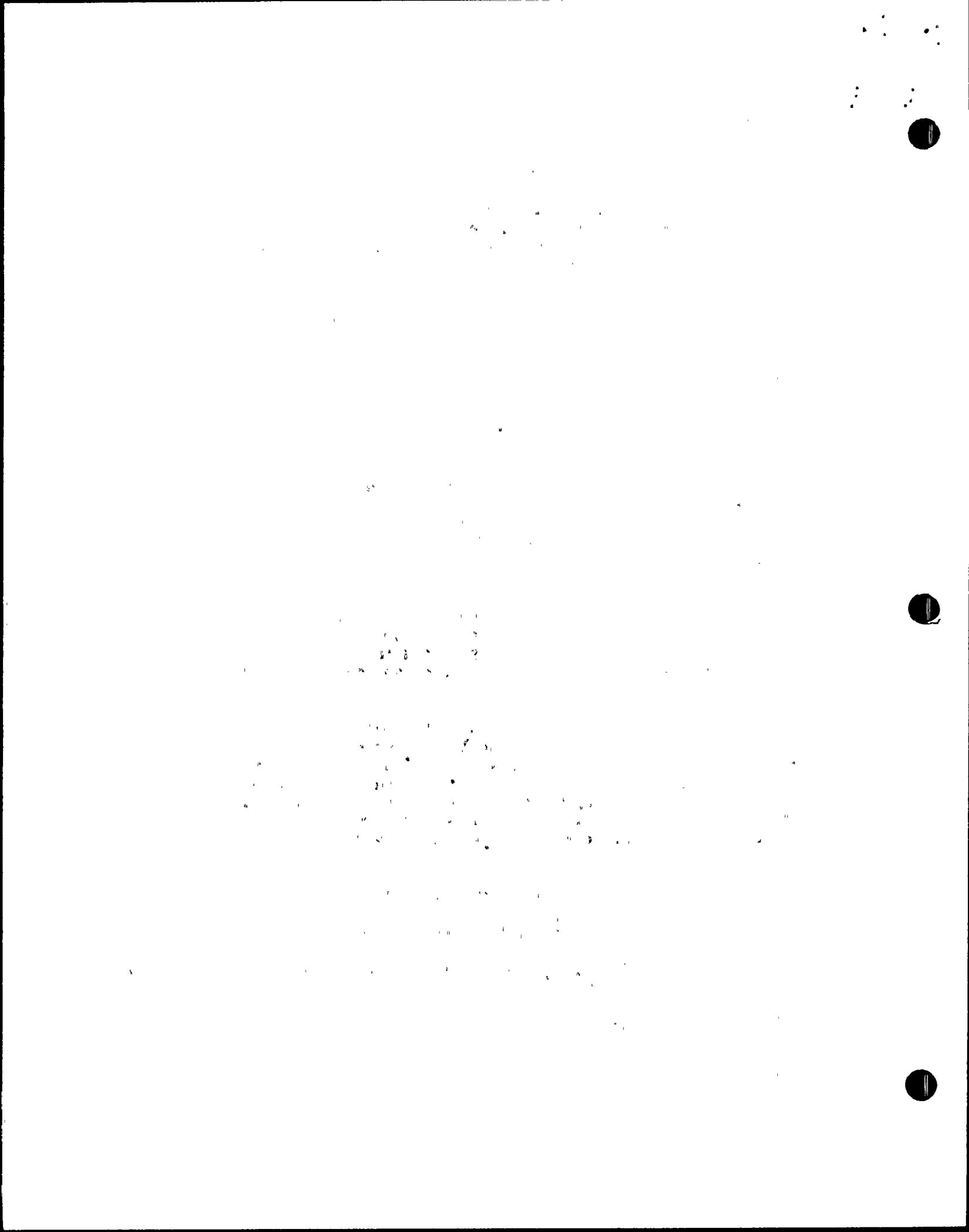
*Denotes those individuals attending the preliminary exit interview on August 31, 1984.

The team's approach was to direct 90 percent of its effort on work controls, test results, test results evaluations and quality assurance applied to the auxiliary feedwater system (AFWS) while this system is/was under the control of the Startup Group. This included the licensee's control of technical work and an in-depth examination of a large number of elements related to this system, including: application of QA/QC; component testing; maintenance; resolution of NCR's and CAR's; evaluation of test procedures; evaluation of testing; evaluation of test results; and other. The other 10 percent of the team's effort was focused on inspection of other important areas, including AFW support systems (electrical supplies), and the QA/QC program for operations.

The AFWS was selected because of its high safety significance and the presumption that it would be representative of the work controls, testing, documentation, and methodology of system organizational responsibility turnover and testing, applied to all safety-related work performed while the systems are under the control of the Startup Group. The selection and in-depth examination of such a representative sample allowed some extrapolation of the team's findings to the adequacy of all safety-related construction, preoperational and startup work controls and testing.

The examinations discussed above were conducted by:

- (1) physical inspection of systems and components,
- (2) examination of testing and maintenance procedures and documentation, and
- (3) private interviews and discussions with over 50 craft and inspection personnel.



The inspection involved 819 hours by 13 NRC inspectors.

Results:

Of the areas inspected, one violation was identified in the area of training for Bechtel project engineers.

2. Background

During a previous team inspection, conducted in the fall of 1983, Region V made a finding that the basic construction at U-1 appeared to be generally satisfactory. This conclusion has been supplemented by on-going NRC staff inspections and special reviews conducted by the licensee (in such areas as personnel qualifications, control of vendors, control of design activities, etc.). The major findings of the last team inspection were in the area of the Startup Test Group. The Startup Test Group is responsible for preoperational testing after the systems are turned over from construction and before the systems are turned over to the Operations Department. In November 1983, after the team inspection, APS performed an audit to verify RV's findings and assess the generic implication of the findings. At the conclusion of the audit, APS stopped all preoperational testing in order to effect certain corrective actions. Therefore, the areas selected for this inspection primarily focused on systems under the control of the Startup Test Group.

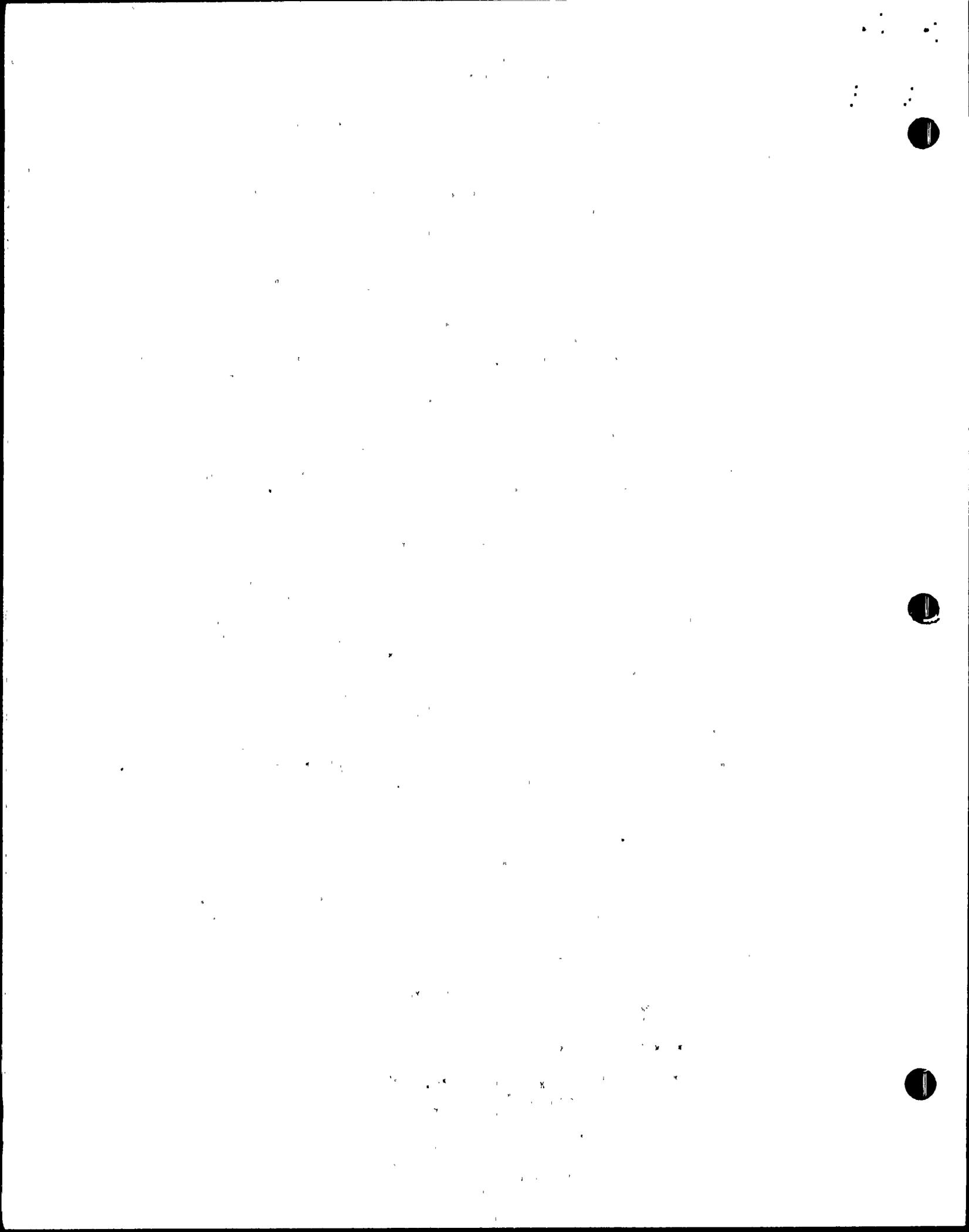
3. Design Control for and Implementation of Modifications to the AFWS

The objectives of this portion of the inspection were to assess the effectiveness of administrative controls regarding the verification of design modifications and changes to the auxiliary feed water system (AFWS). These modifications and changes to the AFWS have normally resulted from problems that were found during acceptance walkdowns and testing of the AFWS, performed by the startup test group. In order to accomplish these objectives the inspector evaluated: the licensee's design control procedures; examined various design process documents; inspected, in the field, certain modifications and changes to the AFWS; conducted a walkdown of the AFW system; reviewed QC records for modifications to the system; and examined QC inspector qualification records.

A. Review of Design Control Procedures

The inspector reviewed the following startup and construction group procedures to establish how design control and verification is accomplished:

- (1) Procedure No. 90GA-0ZZ19 Revision 8, "Startup Field Reports."
- (2) Procedure No. IP-4.34, Revision 13, "Design Change Package."
- (3) Procedure No. IP-4.12, Revision 13, "Drawing Change Notice."
- (4) Work Plan Procedure (WP/P) No. 3.0, Revision 18, "Field Control of Design Documents."



- (5) Work Plan Procedure (WP/P) No. 20, Revision 20, "Field Change Request."
- (6) Procedure No. 90GA-OZZ08, Revision 13, "Pre-requisite/Preoperational Startup Work Authorization."

These procedures provide the administrative controls and processes for making technical inquires and reporting problems identified during startup activities, which require resident engineering resolution to assure proper disposition (redesign, modification etc.) to existing systems as required, and for the accurate recording of all dispositions of such inquires and problems. The following reports and documents are vehicles for accomplishing design control and verifications:

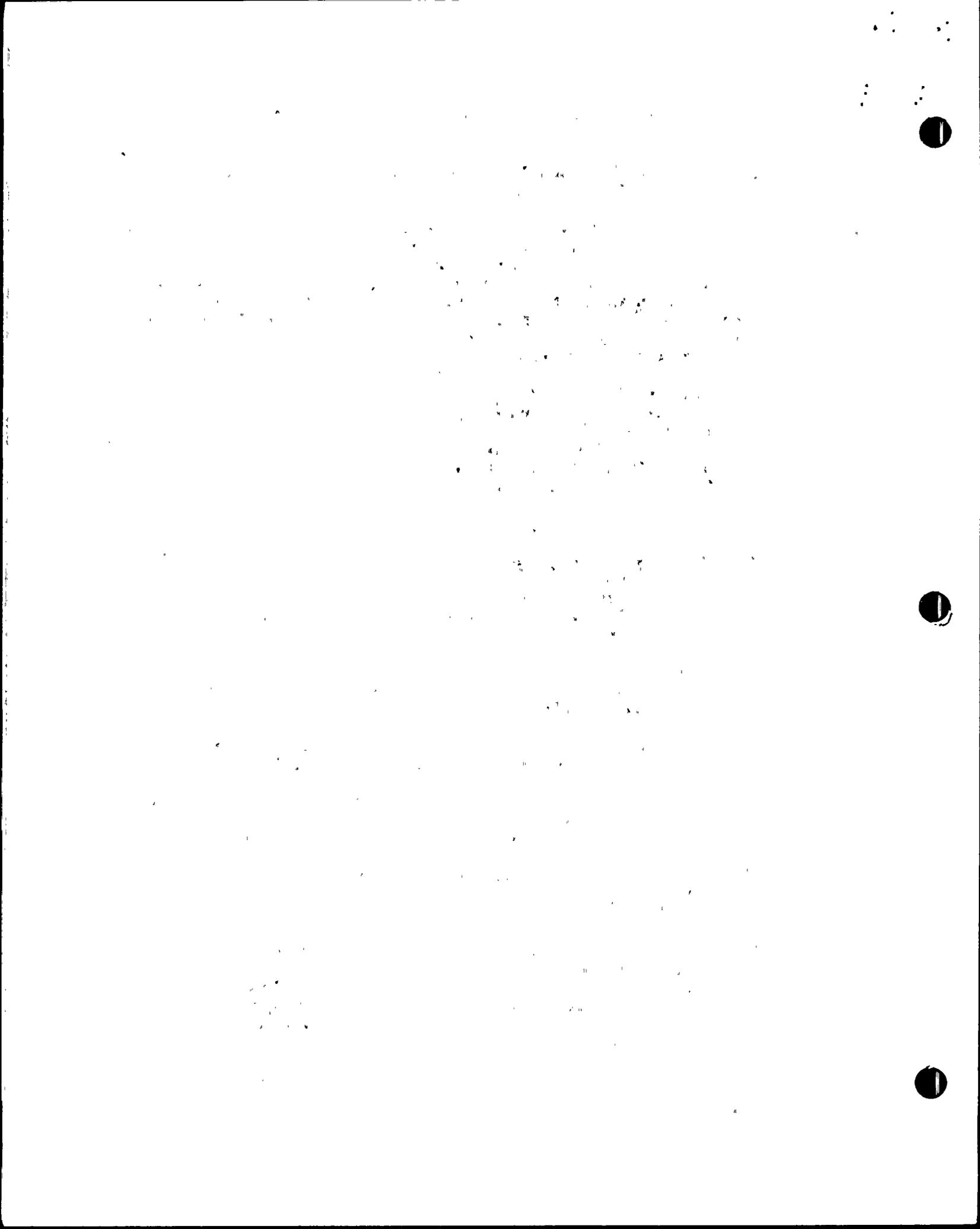
- Startup Field Report (SFR)
- Nonconformance Report (NCR)
- Field Change Request (FCR)
- Drawing Change Notice (DCN)
- Design Change Package (DCP)
- Startup Work Authorization (SWA)

No violations of NRC requirements were identified.

B. Review of Design Control Reports and Documents

The inspector reviewed the following listed reports and documents to assess the implementation effectiveness of the licensee's design control procedures.

- (1) Fifty-five SFRs, of a total of 402 SFRs closed-out to date, for the AFWS were examined to evaluate the resident engineer's resolutions of SFR's.
- (2) Twenty-three NCRs, resulting from the 55 SFRs of item (1), above, were examined to evaluate the dispositions of NCRs.
- (3) Twenty-one DCPs, of a total of 52 completed to date, applicable to the AFWS were examined to evaluate project engineering's control of design changes to existing plant installations.
- (4) Eighteen FCRs were reviewed to evaluate the controls for integrating field changes into design documents, such as DCPs and DCNs.
- (5) Forty-one DCNs, which resulted from DCPs and FCRs, were reviewed in conjunction with seventeen drawings, including the piping and instrument diagram, piping isometric drawings of the AFWS, piping hanger drawings and vendor drawings. This review evaluated the thoroughness of the program for revising and updating the AFWS drawings.



- (6) Fourteen SWAs were reviewed to evaluate the controls for coordinating these documents with other design control reports and documents, such as NCRs FCRs, DCNs etc.
- (7) The field revision log (FRL) and daily notification list (DNL) were examined to evaluate their effectiveness in controlling the receipt and distribution of design documents in the field.

No violations of NRC requirements were identified.

C. Field Inspection of Modifications and Walkdown of AFW System

The inspector visually examined, in the field, modifications and changes made to the AFW system under the following design change packages:

ISS-AF-019, Installation of Nine Pipe Supports
 ISP-AF-027, Turbine Drain/Steam Trap Piping
 ISM-AF-062, Remove AF Pump Full Flow Recirculation Valves
 ISP-AF-065, Modify Pipe Hanger 13-AF-011-H-001

The inspector examined the quality control records for modifications and changes made by the following design change packages:

ISP-AF-021, Shorten Piping Vents and Drain Lines
 ISP-AF-046, Changes to Limit-Torque Valves (2)
 ISM-AF-062, Remove AF Pump Full Flow Recirculation Valves
 ISP-AF-065, Modify Pipe Hanger 13-AF-011-H-011

The field inspection included a walkdown of the auxiliary feedwater system piping to check the configuration against that depicted by the piping and instrumentation diagram, 13-M-AFP-001, Revision 16. The AFW system was walked-down from the condensate storage tank to where it tapped into the main feedwater piping adjacent to the steam generators. The pull and termination cards for 13 cables associated with the AFWS were examined in conjunction with the walkdown of this system.

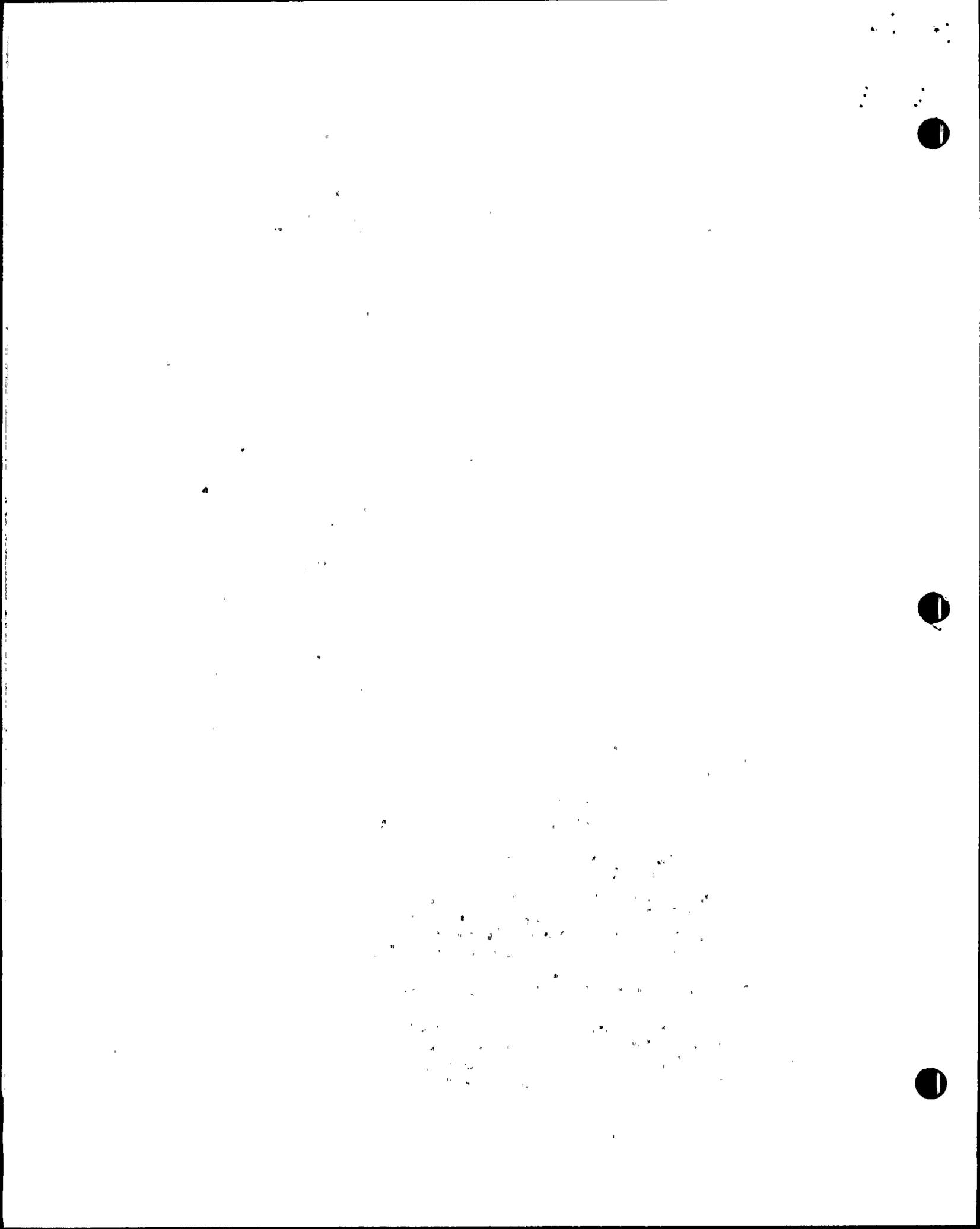
No violations of NRC requirements were identified.

D. QC Inspector Qualifications

The inspector examined the qualifications of 15 mechanical and electrical QC inspectors. Seven of these inspectors had performed QC inspections of the modifications for which the QC records were examined by this inspector and identified above in paragraph C.

No violations of NRC requirements were identified.

The inspector concluded that the licensee's system for control and verification of design modifications and changes to the AFW system, while under the jurisdiction of startup test group, does function properly to accomplish the objectives. It appears that there is adequate design control and verification.



4. Licensing Commitment Tracking System

The inspector met with key management staff to discuss the licensee's program for identifying and tracking licensing related items. The program is comprised of a main listing of commitments extracted from such documents as the Safety Analysis Reports, Fire Protection Report, Safety Evaluation Report, the TMI Lessons Learned Report and APS correspondence with the NRC. Other subprograms exist which identify matters related to NRC inspection report findings, Deficiency Evaluation Reports and Operating Experience Reports. The main program is managed and maintained by APS licensing staff.

Based on discussions with staff members and review of documents dealing with commitment tracking systems, the inspector learned that the basic commitment data was extracted from the referenced documents by a team of people who compiled the information into a master list. Subsequent to the establishment of the basic list, a program was implemented to require that every document, issued to the NRC by APS, be reviewed by a responsible APS engineer to identify licensing commitments.

The program also requires, in addition to the identification of the commitment, the review of the commitment by the organization responsible for its disposition and the entry of the item on the list by coordinators dedicated to the maintaining the list current. These coordinators are assigned to the various project organizational units. Additionally, individuals have been assigned in the different organizations to follow the progress of item disposition and interface with the APS licensing organization.

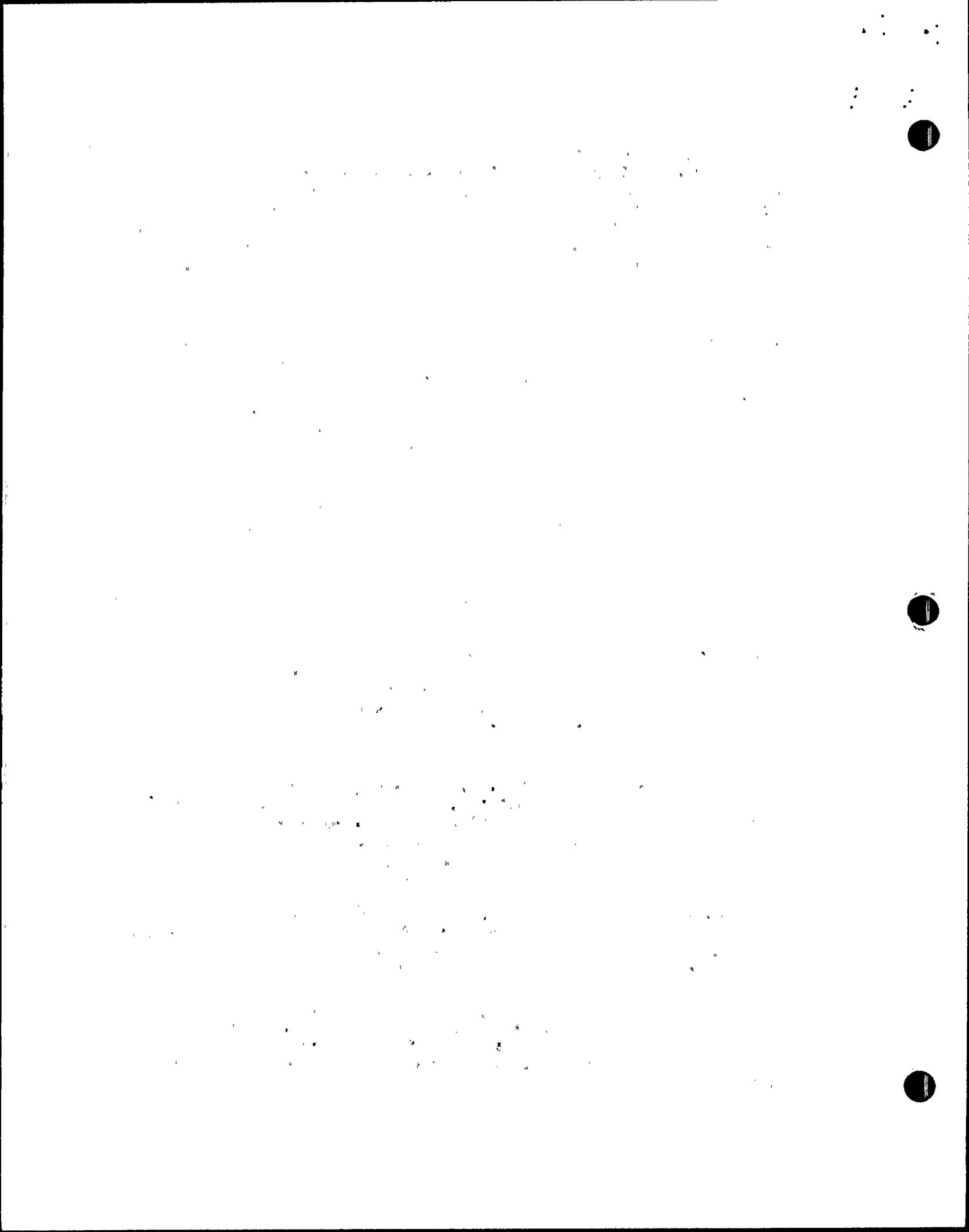
The commitments are tracked on computer lists. The information associated with each item includes the source document and paragraph, responsible department, item number, due date, completion date, reference documents, disposition documents and item description. The listing is maintained current by the completion of input forms which are processed into the computer by the coordinators.

In order to assess the quality of information on the lists, the inspector reviewed the program for commitments, documented in the testing section (Chapter 14) of the C&SSAR, the TMI lessons learned report, and recent violations identified in NRC inspection reports.

No discrepancies were noted.

While confirming the identification of the commitments, the inspector was informed that the tracking system included only the "software" as program type items. Hardware or installation type items were encompassed in the plant design program.

The licensee is currently developing documents to describe the program. To date a company policy has been written which addresses the total Action Tracking System (ATS). A procedure describing the Licensing Commitment Tracking System (LCTS) is in draft and is expected to be finalized in two weeks.



The licensee was informed that in addition to finalizing the LCTS procedure, that subprogram such as the NRC Inspection Finding Program should be proceduralized in a timely manner. The inspector also discussed the matter of including an "overdue" statistic in the monthly report which documents the number of open, closed and totals count of commitments. APS responded that it would initiate actions to finalize necessary program procedures by October 8, 1984, and include the overdue statistic in its reporting system.

Based on discussions with plant staff and a review of program documents, the inspector concluded that a program was being implemented to identify and track licensing commitments, although the program has not yet been fully proceduralized.

No violations were identified.

5. Operating License Open Item Tracking System

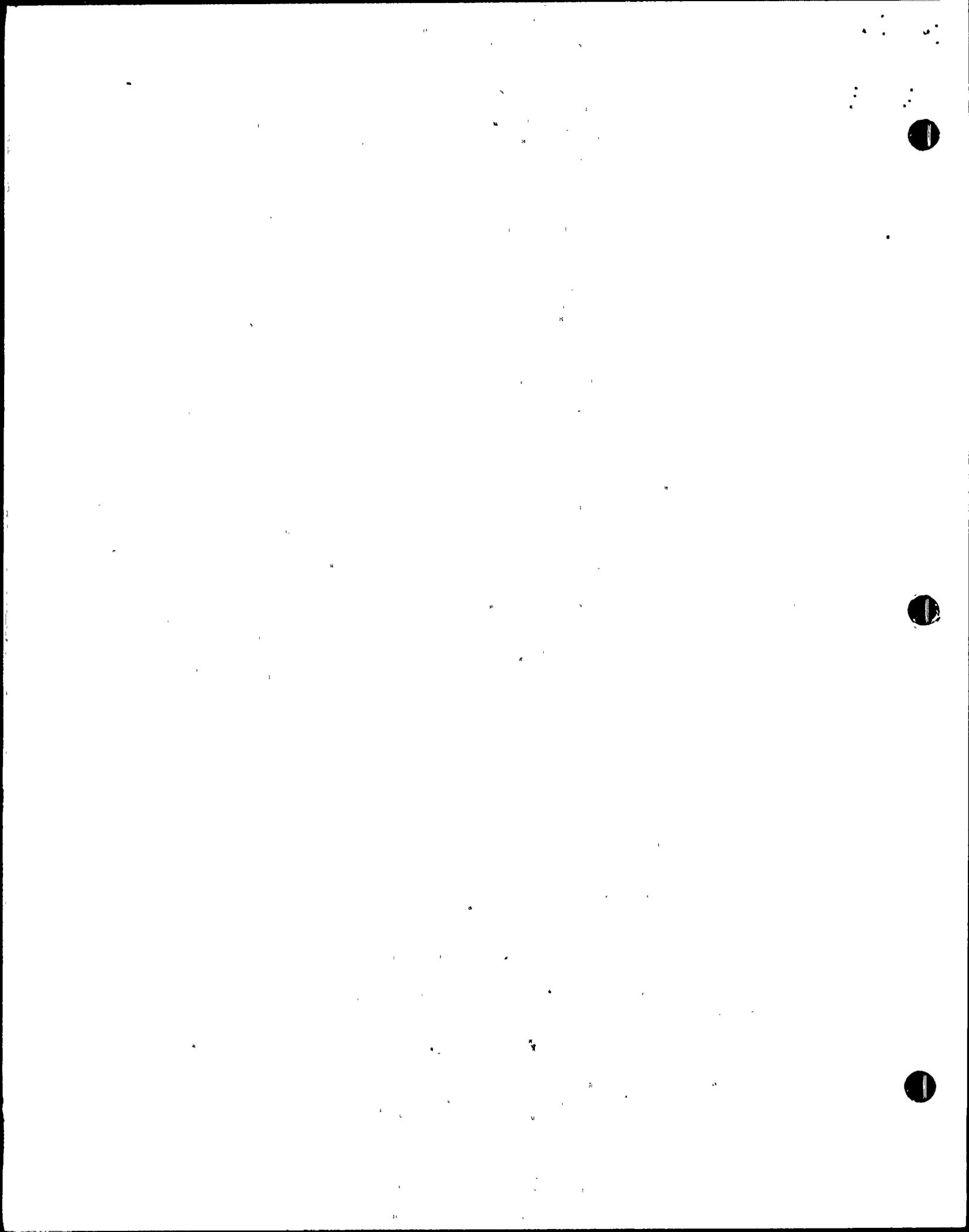
The inspector met with key management personnel to discuss the program used by APS to identify and track the status of completion of Unit 1 items requiring resolution prior to the receipt of an operating license. The program involves the identification of open items by all Unit 1 project organizations. The coordination of the overall list is accomplished by the APS licensing organization. Overall cognizance of status and schedule, as well as the coordination of APS management efforts to support resolving the items, is carried out by the Transition Manager. Each of the project organizations has an assigned staff member who serves as a central contact and follows the activities associated with the tracking and statusing of the items under their jurisdiction. Knowledge of the progress of schedules is maintained through weekly meetings between the Transition Manager and the various Project Managers.

The category of items which are on the lists appeared comprehensive and included such types as:

- a. Licensing Commitments
- b. NRC Inspection Findings
- c. Deficiency Evaluation Reports
- d. Bulletins and Notices
- e. Allegations
- f. Startup Open Items
- g. Operations Open Items
- h. Nonconformance Reports
- i. Test Exceptions

The listing of items requiring disposition prior to licensing is undergoing final review. Resolution of the items which obviously need closure is ongoing. APS has identified the criteria which it intends to use in determining which open items must be resolved prior to licensing. This criteria has just recently been formulated and it is APS's intent to procedurally apply the criteria consistently throughout the project.

The consistent application of criteria, by all project organizations, to identify and prioritize open items was stressed with APS management. In



addition, management was informed that since several organizational units were developing lists of open items, falling within their responsibility, it was important that such lists have project cognizance and coordination. The licensee indicated agreement with this philosophy.

While the program to manage the resolution of items requiring disposition prior to licensing has essentially been developed and is being implemented, the description of program activities, responsibilities and interface controls has not yet been written. Management was advised that the completion of this document should be expedited. This matter was discussed with APS management who committed to the development of necessary program and procedures documents by September 24, 1984. APS also plans to apply the criteria consistently and maintain project cognizance of all lists. The open items list is to be finalized by October 1, 1984.

A spot check of known problems with the Auxiliary Feedwater System were confirmed by the inspector to be on the startup open items list.

Based on discussions with plant staff and document reviews, it was concluded that programmatic efforts to identify, resolve and track the status of items requiring resolution prior to licensing is in place and being implemented. Verification that appropriate items have been identified, along with program description implementation, will be addressed during future inspection efforts.

No violations were identified.

6. Reactor Vessel Overfill

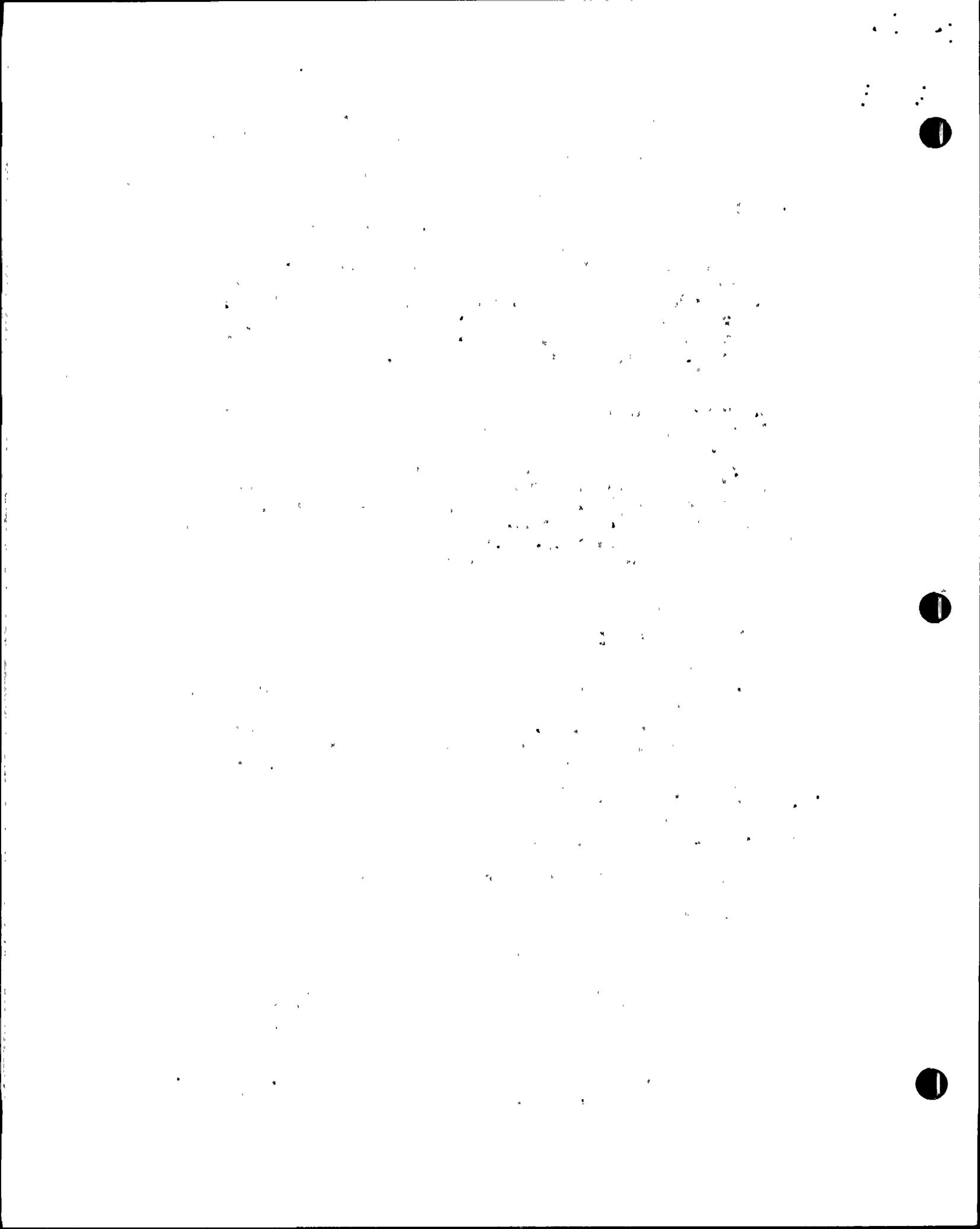
On August 27, 1984, an unplanned overfill of the Unit 1 reactor vessel occurred because of an incorrect valve lineup. This event was one of a series which occurred due to ineffective controls governing equipment operations carried out to support startup testing activities. Details of the event, which is considered a violation of regulatory requirements, as well as references to previous operating errors are documented in NRC Inspection Report 50-528/84-28. Corrective actions taken by the licensee are documented in Inspection Report 50-528/84-33. Because of NRC's concerns for incidents of incorrect equipment alignment, this topic was discussed with APS management during the exit meeting.

7. Measuring and Test Equipment (M&TE)

A. Program Review

The quality assurance program for Control of Measuring and Test Equipment (M&TE) is described in Section 17.2.12 of the PVNGS FSAR and in Section 12 of the PVNGS Operations Quality Assurance Manual. The inspector reviewed the following procedures contained in the Station Manual in order to establish whether the licensee had established a program consistent with commitments.

- (1) Procedure No. 34PR-OZZ01 Rev. 3, "Measuring and Test Equipment (M&TE) Control Program."



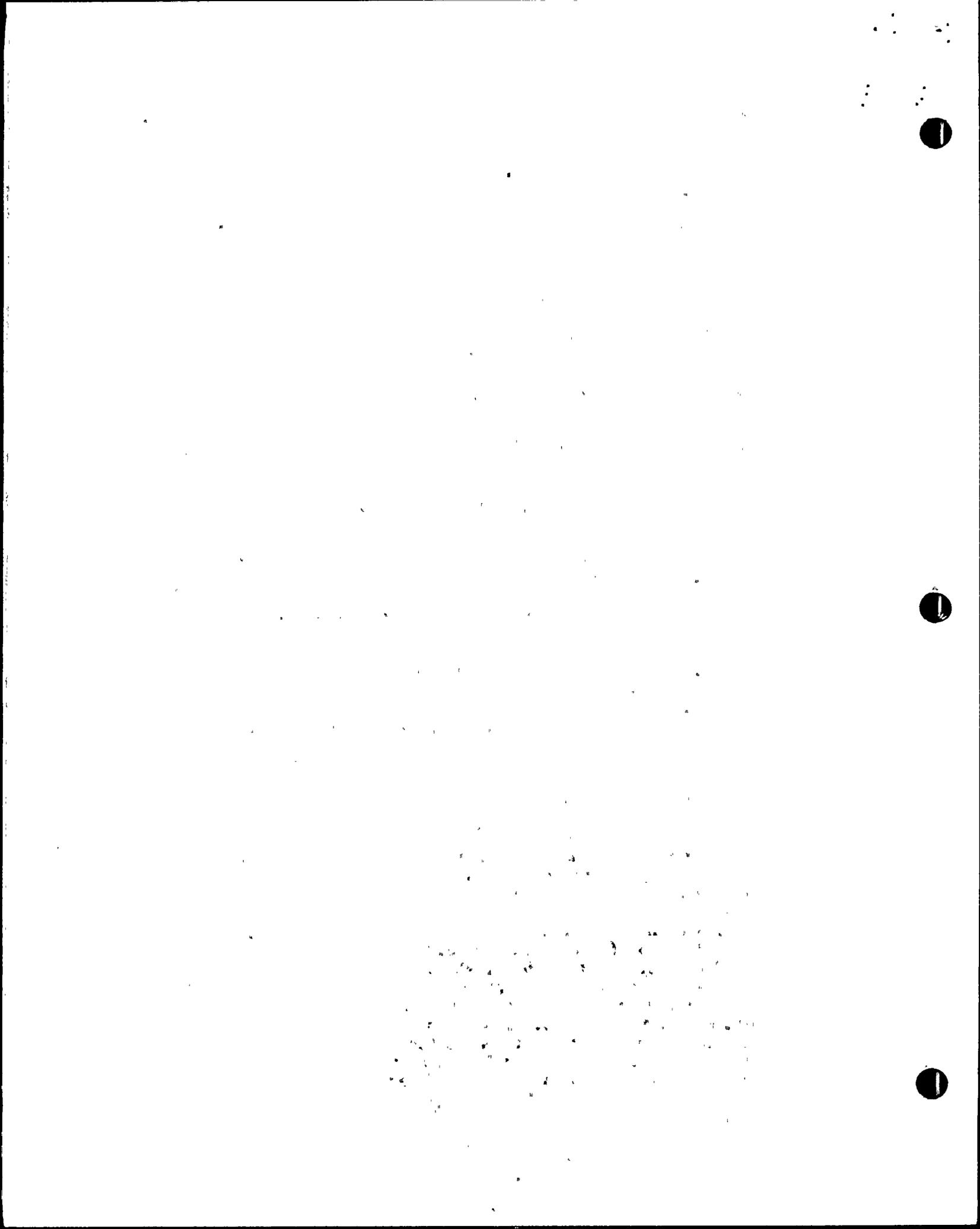
- (2) Procedure No. 34AC-OZZ03 Rev. 6, "Control of Nonconforming Measuring and Test Equipment (M&TE) and Calibration Standards."
- (3) Procedure No. 34AC-OZZ06 Rev. 4, "Calibration Requirements for Measuring and Test Equipment (M&TE) and Calibration Standards."
- (4) Procedure No. 34AC-OZZ07, "Measuring and Test Equipment (M&TE) Users Administrative Requirements."
- (5) Procedure No. 34AC-OZZ08 Rev. 0, "Measuring and Test Equipment (M&TE) Work Control."

In addition to the above procedures contained in the Station Manual, the inspector also reviewed Metrology Laboratory Instruction No. 01, "Control of M&TE Interval and Inaccuracy Change, "Rev. 0, which provides a method for evaluation and control of calibration interval and equipment accuracy revisions.

The inspector concluded that the applicant's QA Program for M&TE established:

- responsibility assignment to assure calibration and control of M&TE,
- requirements for marking M&TE with calibration data, due dates and calibration status,
- a system to assure that M&TE is recalled and calibrated before the calibration period has expired,
- controls to preclude inadvertent use of M&TE for which the calibration period has expired,
- out-of-calibration controls assuring evaluation of cause of out-of-calibration status and the acceptability of items previously tested or measured using this equipment,
- criteria and responsibility for assignment of calibration frequency, and
- requirements that calibrations be performed in accordance with procedures, manufacturer's specification or written instructions.

The inspector found that Procedure No. 34AC-OZZ08, "Measuring and Test Equipment (M&TE) Work Control" was approved by the Plant Review Board on July 9, 1984, then lost for about a month. The procedure was being used during this period of time even though it had not yet officially been approved by plant management. The procedure was made effective August 28, 1984. This apparent lapse in administrative controls implementation was found to be of minor safety significance since only minor differences between the old and new work control procedure for M&TE were found to exist.



B. Implementation

The inspector reviewed work order records for calibrations of M&TE accomplished from August 1 to August 28, 1984. Of the 584 calibrations performed, 535 (92 percent) were performed in accordance with approved station procedures, 28 (five percent) were performed using the manufacturers' specification or a vendor's manual, eight (one percent) were performed using other written instructions, and 13 (two percent) were performed by an outside source.

The inspector choose at random a work order in which the calibration of a Hewlett Packard Model 334A Distortion Analyzer (Equipment No. SL2017) was to have been performed in accordance with manufacturer specification, Tech Manual No. EIM290. Completed data sheets were reviewed against the requirements in the Tech Manual. Not all data specified in the manual had been taken. The licensee provided the inspector with technical justification for not performing certain steps in the vendor manual. The observation that on the work order did not identify those specific steps in the vendor's manual which were to be performed, or were exempted, indicates an apparent weakness in administrative control of calibrations of M&TE performed in accordance with a manufacturer's specification or vendor's manual. The licensee committed to corrective action in this area. (84-38-06)

The inspector's review of 15 out of tolerance notices (OTN's) issued for M&TE resulted in the following findings.

- ° OTN 84-460, issued against megger EM 1065, was found to be dispositioned by verifying only the last use of the megger. This instrument was used for preventive maintenance on a number of motor operated valves in the safety injection and auxiliary feedwater systems. Procedure No. 34AC OZZ03 "Control of Nonconforming Measuring and Test Equipment (M&TE) and Calibration Standards" specifies that one method of determining the acceptability of tests when a piece of M&TE used is found out of tolerance, is by verifying only the last test performed with that instrument. It is conceivable that a satisfactory verification of the last performed test may not be sufficient reason for acceptance of other tests.
- ° The licensee stated their practice is to evaluate all tests to determine the necessity of additional verifications. The licensee committed to revising the administrative controls to bring these into line with actual practice.
- ° Both OTN 84-675, issued against pressure gage GU-0008, and OTN 84-692, issued against micrometer MM 1021, indicated that these pieces of M&TE had not been used in the interval for which the OTN's had been written. Review of the usage logs for the micrometer and pressure gages indicated the devices had been used. Review of the work orders listing usage of these two pieces of M&TE did, however, establish that the micrometer

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had not been used in making any critical measurements and that the pressure gage had been used in a non-safety related application.

- In reviewing OTN 84-690 and OTN 84-691, no usage cards were found to exist for the pieces of M&TE affected, crimp tool EM 4170 and digital ammeter EM 1313, respectively. Although usage cards were not created in these two cases, the licensee stated it is their practice to create a usage card when a piece of M&TE is received at its place of issuance.

Although none of the above findings represent violations of NRC requirements, the problems identified in the small sample of OTN's reviewed indicate possible weaknesses in the evaluation of out of tolerance notices. The licensee committed to perform additional in-depth reviews in this area. This area will be evaluated during a subsequent inspection (84-38-06).

8. Surveillance Testing and Calibration Control

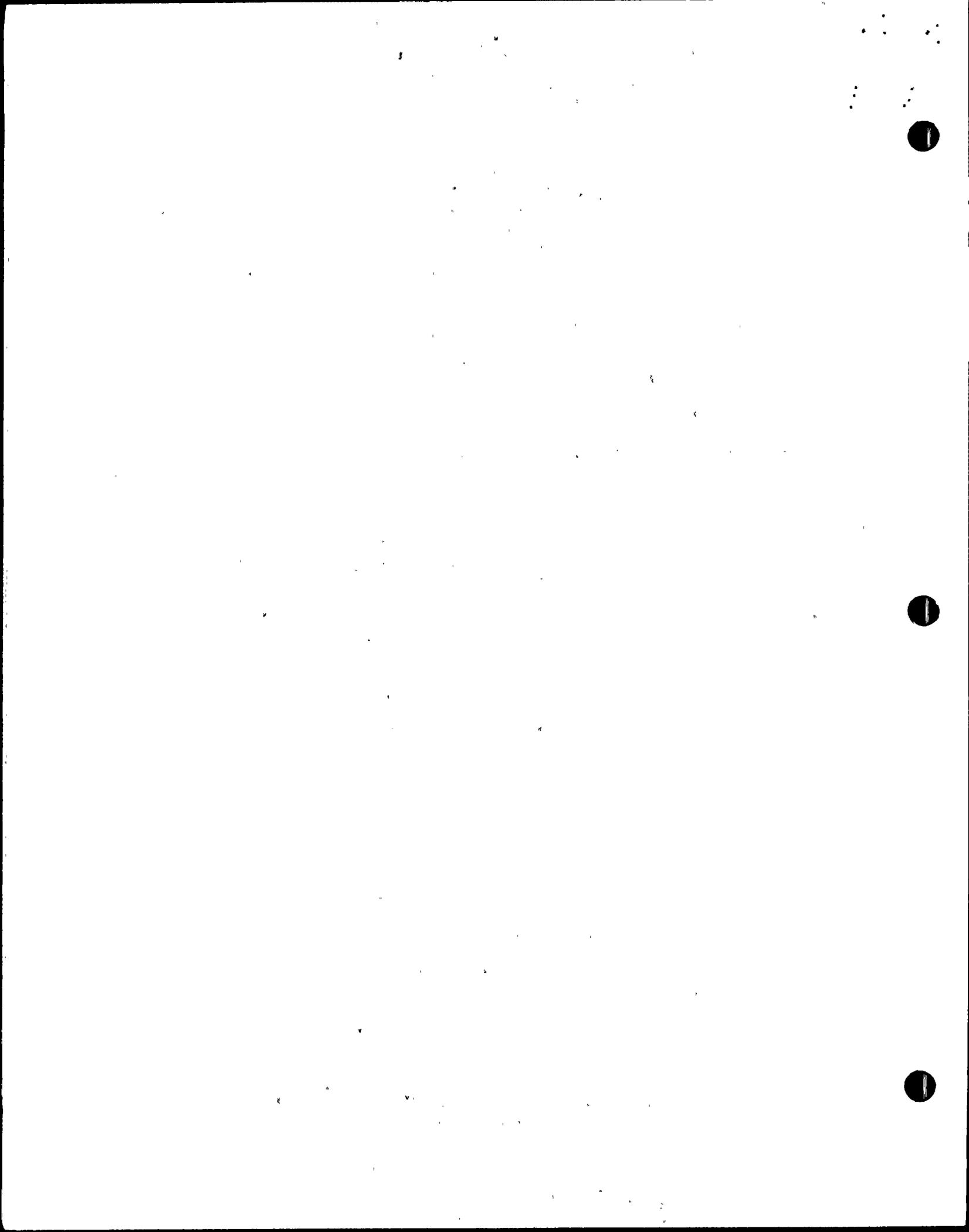
A. Program Review

The inspector examined the following procedures to assure that a program had been developed to accomplish the surveillance testing, calibrations and inspections required by the proposed Palo Verde Unit 1 Technical Specifications and the ASME B&PV Code Section XI with regard to pump and valve testing:

- (1) Procedure No. 73AC-0ZZ10 Rev. 0, "ASME Section XI Inservice Inspection"
- (2) Procedure No. 73AC-9ZZ04 Rev.0, "Surveillance Testing"

Based upon the above review and discussions with licensee personnel, the inspector concluded that the licensee had established or was in the process of establishing:

- a comprehensive listing of required surveillances including, Tech Spec paragraph surveillance frequency, and modes in which surveillance is required,
- assignment of responsibility for the accomplishment of each surveillance requirement to a particular licensee organization,
- procedures for the performance of each surveillance test,
- assignment of responsibility for review of surveillance data to assure Tech Spec compliance,
- a system to ensure that each required surveillance is scheduled and tracked, and
- a system to assure compliance with the pump and valve section (IWP and IWV) of the ASME B&PV Code Section XI.



The inspector determined that the licensee is tracking open items in this area. These open items include: completion and incorporation into the station manual of the cross-reference relating technical specification requirements to surveillance procedures or other implementing instructions; assignment of responsibility for performance of Tech Spec surveillance requirement 4.3.3.9, Table 4.3-8 Gaseous Radwaste System Explosive Gas Monitoring System channel checks, and Tech Spec surveillance requirement 4.11.2.6, quantification of radioactive material contained in Gaseous Radwaste System storage tanks; and completion of a comprehensive list of hydraulic and mechanical snubbers subject to surveillance requirements of Tech Spec 4.7.9.

The inspector also determined that the licensee was planning to use printouts from the non-safety related plant computer system as a means of accomplishing certain required safety-related channel checks in lieu of using qualified instrumentation. The inspector discussed the philosophy and intent of a channel check, described in section 1.5 of the Tech Specs (i.e., a channel check is intended to be a qualitative assessment of channel behavior during operation by observation). The licensee committed to perform channel checks using the plant computer system only when direct indication from qualified safety-related instrumentation is not otherwise available.

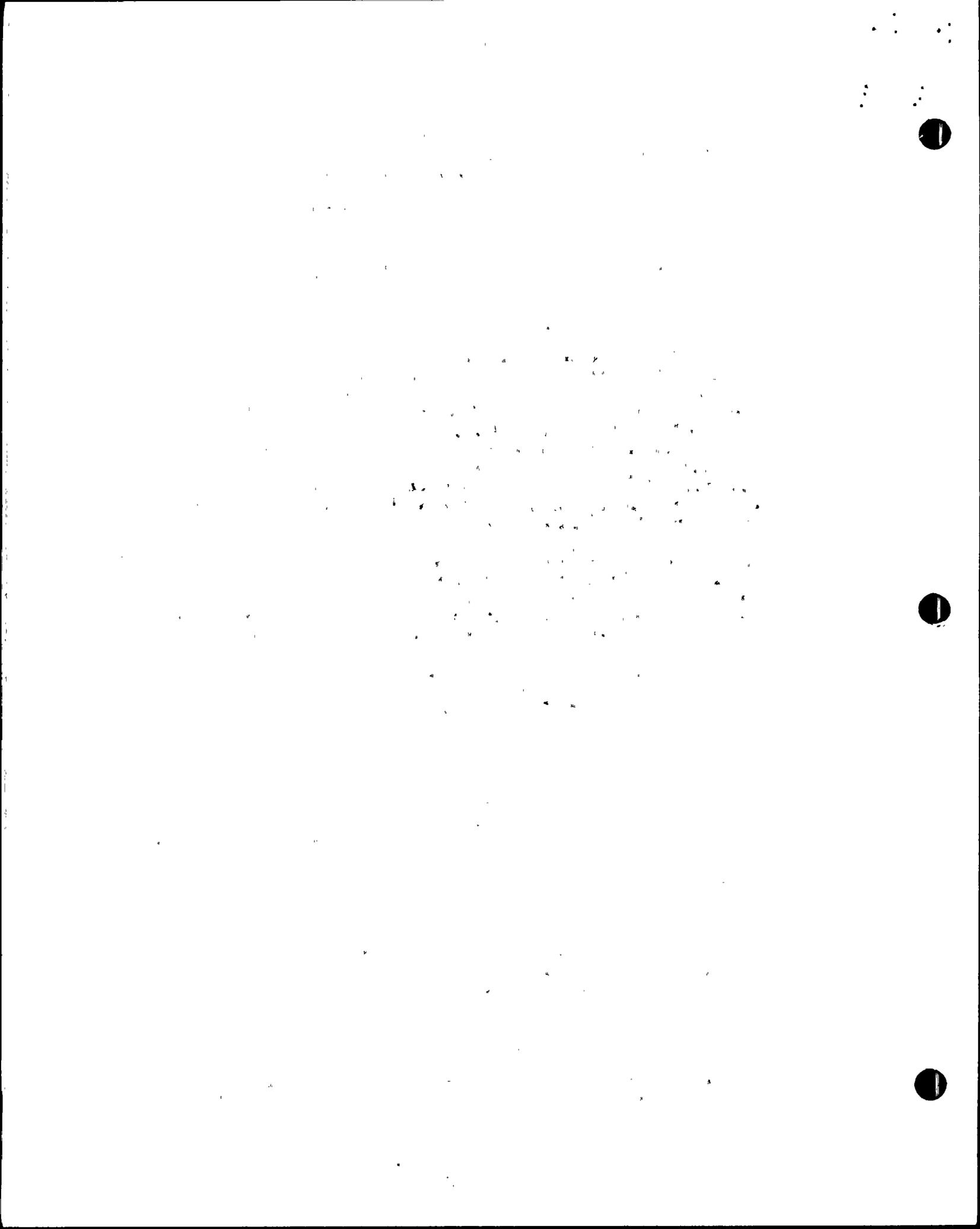
In addition, the inspector discussed with the licensee the requirement of Section 4.7.9i of the Tech Specs regarding the need to ensure that the service life of both hydraulic and mechanical snubbers is not exceeded between surveillance inspections. The inspector noted that no preventive maintenance program for mechanical snubbers had been defined nor did the licensee provide sufficient justification for the absence of such a program. This will be carried as an open item and examined during a future inspection (Open Item 50-528/84-38-01).

B. Implementation

The licensee has identified 261 surveillance test implementing procedures to be required for performance of all surveillance requirements. The licensee indicated that 96 of these were required for entry into Mode 6. Of the total required for all modes, the licensee stated that 69 percent were ready for use. Of the 96 required for Mode 6, 81 percent were said to be complete. Implementing procedure review will be the subject of future inspection effort.

The inspector did discuss with the licensee the need to perform surveillances, using the proposed surveillance test implementing procedures, prior to their actually being required in order to verify procedure adequacy. The licensee indicated they were doing this to some extent and would consider increasing their efforts in this area.

No violations or deviations were identified.



9. Maintenance Performed on the AFWS

The inspector examined selected preventative and corrective maintenance actions performed on the AFWS while the system is under control of the Startup Group. The sample consisted of 22 completed SWA/NCR packages, 23 work orders and two Startup Turnback Work Orders. The packages were reviewed for technical adequacy, proper review and approval, proper equipment classification and proper initiation, disposition and documentation. The packages examined appeared adequate in the above areas.

No violations of NRC requirements were identified.

10. Thermal Expansion Testing of AFWS

The inspector reviewed test procedure 91HF-1ZZ08 (BOP Piping Thermal Expansion Test) and test guideline PETG-6-XX-1 (Piping Vibration, Thermal Expansion, and Dynamic Effect Verification) as they apply to thermal expansion testing of the AFWS. The inspector discussed the testing program with licensee representatives and reviewed the test results on all pipe hangers tested on the AFWS. All hangers were tested successfully and no discrepancies were identified.

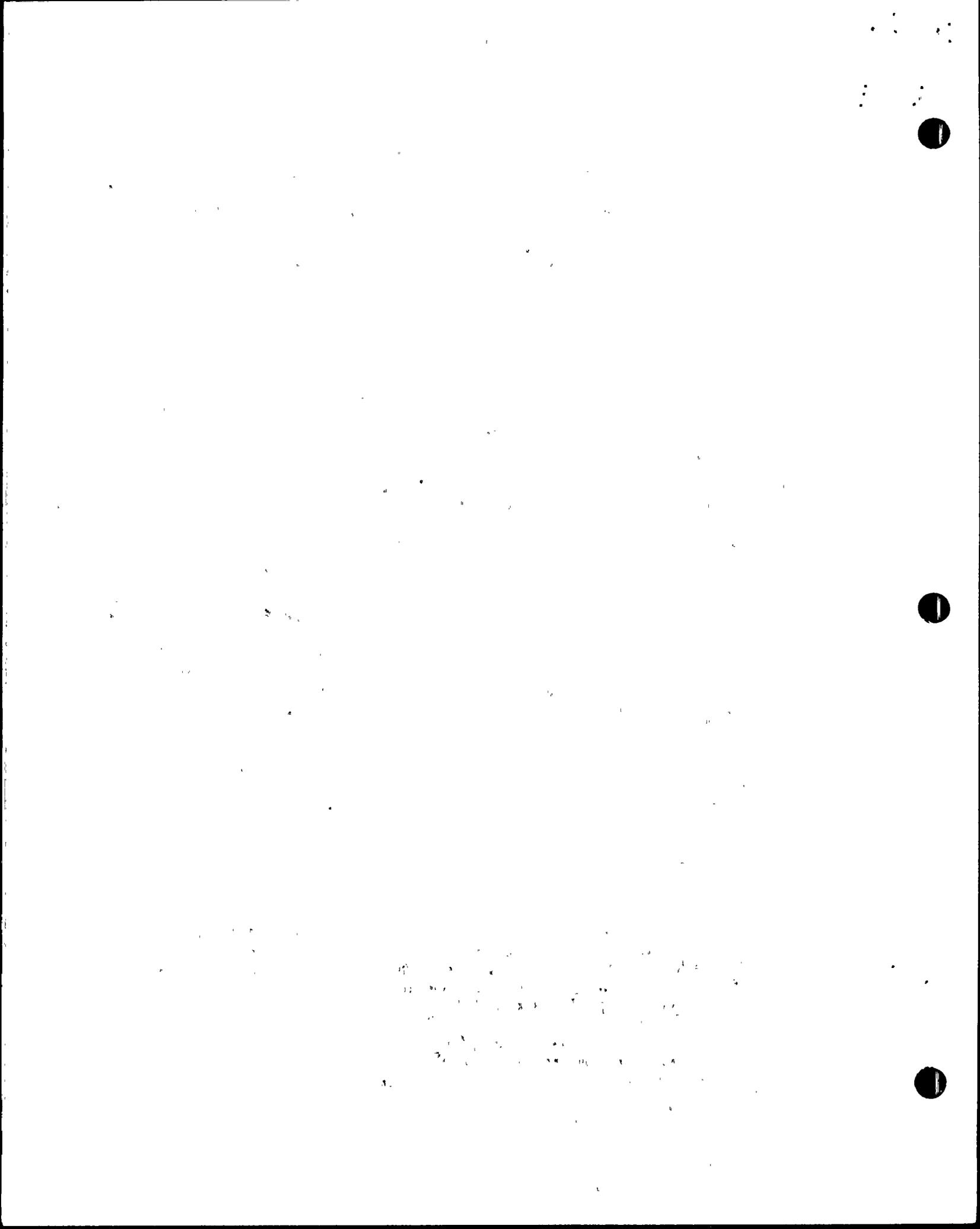
No violations of NRC requirements were identified.

11. Design Change and Modifications during Plant Operations

A. Program Review

The quality assurance program for design control is described in Section 17.2.3 of the PVNGS FSAR. The requirements for plant and corporate safety committee (Plant Review Board) review of design changes and modifications are defined in Section 6.5 of the PVNGS Unit 1 draft Technical Specifications. The inspector reviewed the following procedures contained in the Station Manual in order to determine whether the licensee has established a design control program consistent with his commitments as described in these documents.

- (1) Procedure No. 73AC-0ZZ12, "Plant Change Request (PCR)," Revision 2, of May 25, 1984. This procedure establishes the method for controlling and processing all design change requests, including modifications, associated with the PVNGS.
- (2) Procedure No. 73AC-0ZZ15, "Plant Change Package (PCP)," Revision 1, of June 25, 1984. This procedure provides the method to develop, review, implement and closeout plant change packages (PCPs). The PCP package contains the PCR and the Design Change Package (DCP).
- (3) Procedure No. 79AC-9ZZ07, "Nuclear Safety Review and Evaluation," Revision 0, of February 14, 1984. This procedure describes how safety evaluations are performed to evaluate



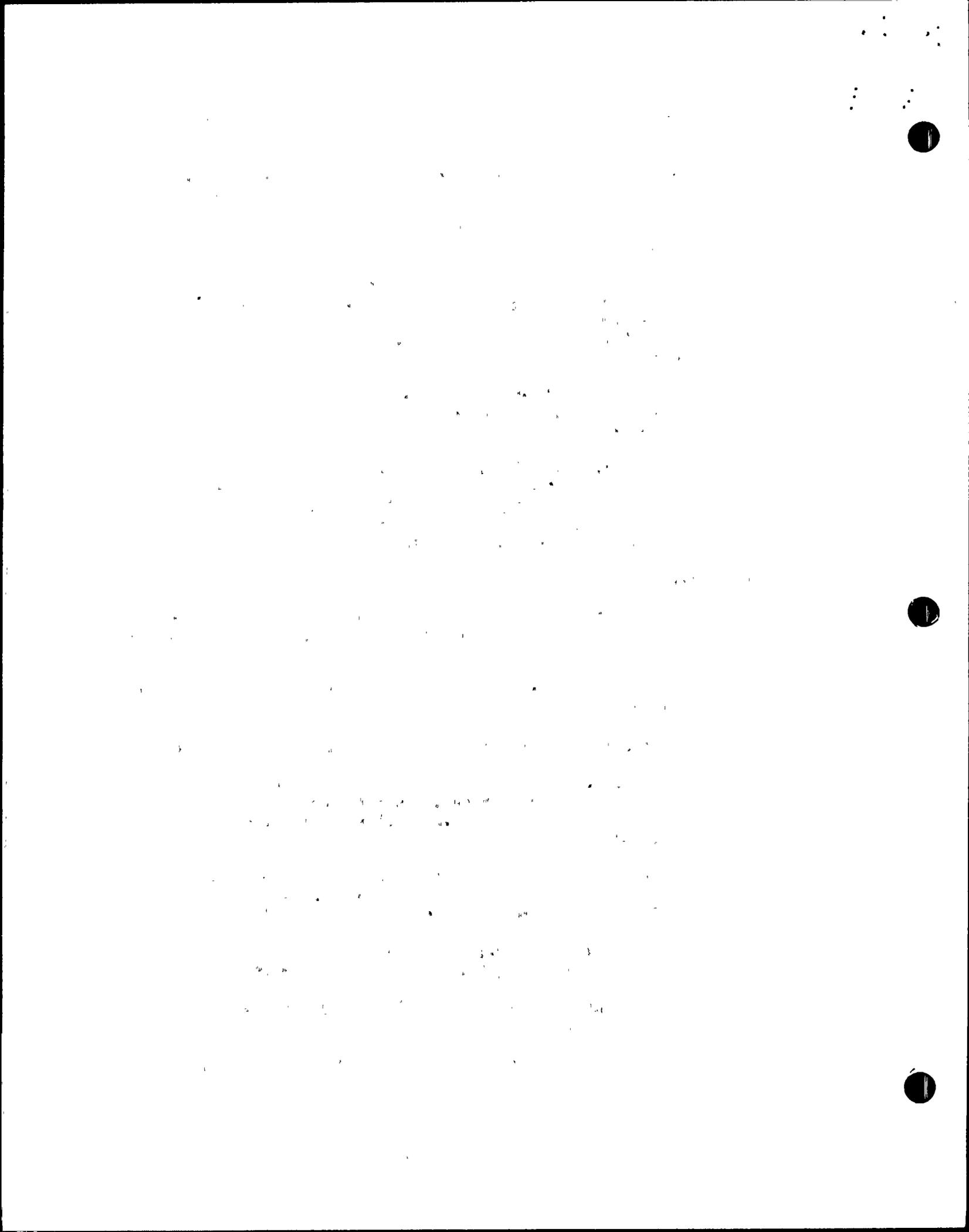
proposed design, procedural and operational changes according to the criteria set forth in 10 CFR 50.59.

- (4) Procedure No. 73AC-OZZ17, "Detailed Design Development," Revision 0, of June 29, 1983. This procedure establishes and describes the methods used for the development of a detailed design, in accordance with ANSI N45.2.11, for plant modification.
- (5) Procedure 73AC-OZZ27, "Change Control Process," Revision 0, of July 5, 1984. This procedure establishes administrative controls for the request, processing, review and approval of design changes, including closeout and tracking of all plant changes.
- (6) Procedure No. 73AC-OZZ24, "Field Change Requests," Revision 0, of April 5, 1984. The purpose of this procedure is to control the use of Field Change Requests.
- (7) Procedure No. 73AC-OZZ26, "Impact Review and Transmittal of Design Change Documents (Prior to Acceptance)," Revision 0, of June 19, 1984. This procedure establishes a method, including documentation, for review of design changes for impact on licensing documents, procedures, programs and activities.

B. Procedure Review

The above procedures were reviewed to establish whether the quality program for design and modification change contained the following attributes:

- (1) procedures establishing controls for design and modification change request, including:
 - (a) method for initiating a design or modification change.
 - (b) design change request control form, or equivalent, with provisions for documenting completion of required reviews, evaluations, and approvals prior to implementing the change.
 - (c) method for assuring that proposed change does not involve an unreviewed safety question, as described in 10 CFR 50.59, or a change in the technical specification.
 - (d) method for assuring that applicable guidelines for fire protection are included in design documents.
- (2) procedures and responsibilities for design control have been established including:
 - (a) identification of organizations responsible for performing design work.

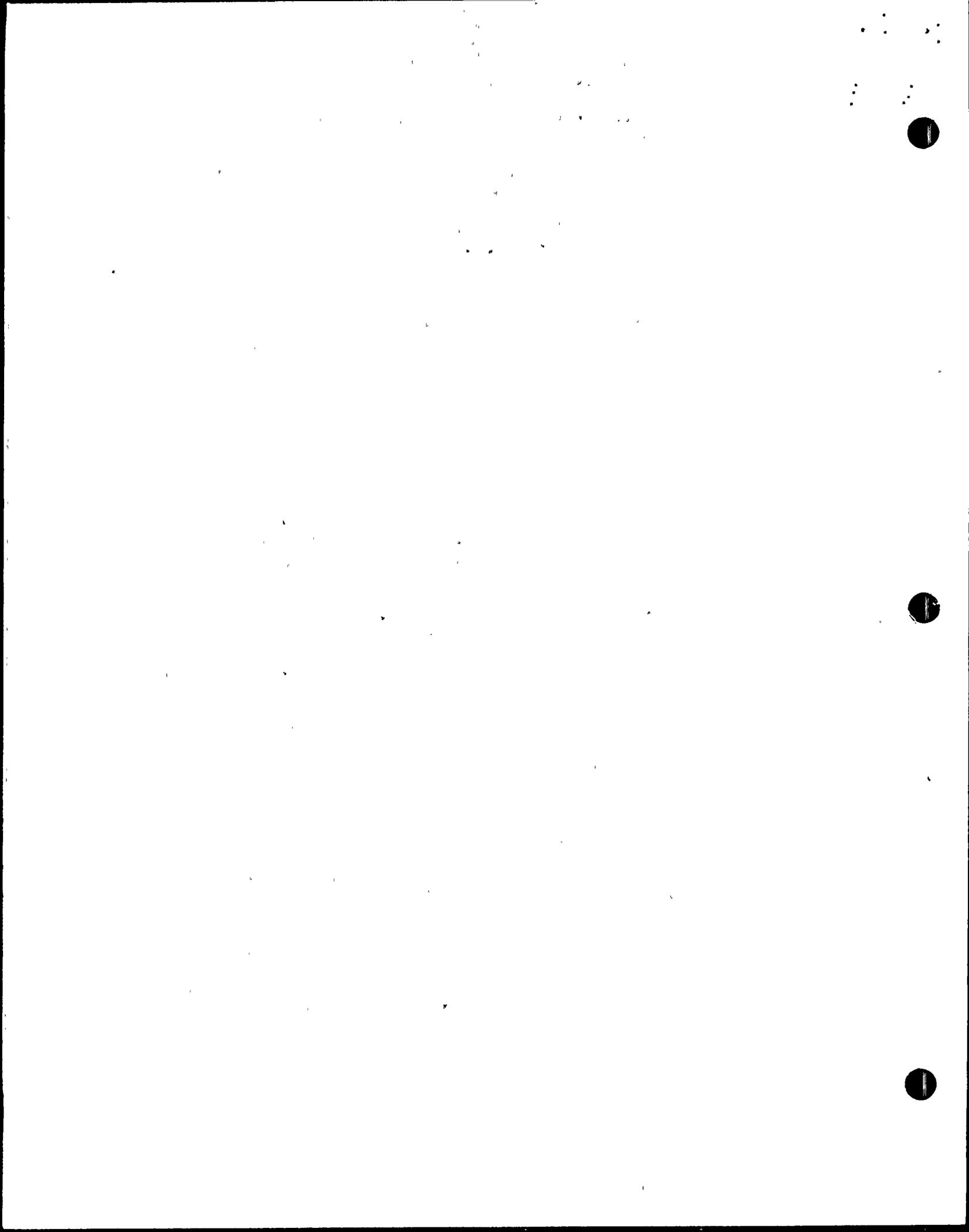


- (b) responsibilities and methods for conducting safety evaluations.
 - (c) procedures and responsibilities for identifying, reviewing, and approving design input requirements.
 - (d) methods, procedures, and responsibilities for performing independent design verifications.
 - (e) responsibilities for final approval of design documents.
 - (f) procedures and responsibilities for assuring proper inclusion of fire protection/prevention requirements.
- (3) Administrative controls for design document control have been established for the following:
- (a) controlling changes to approved design change documents.
 - (b) release and distribution of approved design change documents.
- (4) administrative controls require that design documentation and records, which provide evidence that the design and review process was performed, be collected and transmitted to records storage.
- (5) controls require that implementation of approved design changes be in accordance with approved procedures.
- (6) responsibility and method for reporting design changes/modification to the NRC in accordance with 10 CFR 50.59.
- (7) program provided for periodic management reviews and audits of the activities in this area in order to appraise the effectiveness of the program.

C. Audit Review

The procedures satisfactorily addressed all of these program controls. In order to assess the management appraisal of the design program, the inspector reviewed audits performed by the Quality Audits and Monitoring Group. The following evaluations and audits were reviewed.

- (1) Evaluation of Operations Readiness (performed April 25 - May 6, 1983). This activity was conducted to evaluate the operations readiness of departments within APS to support operation of PVNGS. The design control portion of the evaluation was to assure the overall effectiveness and ability of APS to control design and design configuration. It should be noted that this activity was performed in the early stages of operations. Therefore, draft procedures were audited and all findings were then presented to Corporate QA as program recommendations. The



audit report identified nine major recommendations which were responded to by APS management.

- (2) Operations Readiness Audit (performed February 14 - April 18, 1984) of Design Control. No major problems identified.
- (3) Operations Readiness Audit (performed July 5-25, 1984). Resolution of problems identified are in process.

D. Implementation

This portion of the inspection was intended to verify that the licensee's program for control of design changes and modifications was adequately implemented. However, at this earlier stage of operations, no safety-related design change or modification record packages have been turned-over to the licensee. Therefore, inspection of program implementation will be performed during a future inspection.

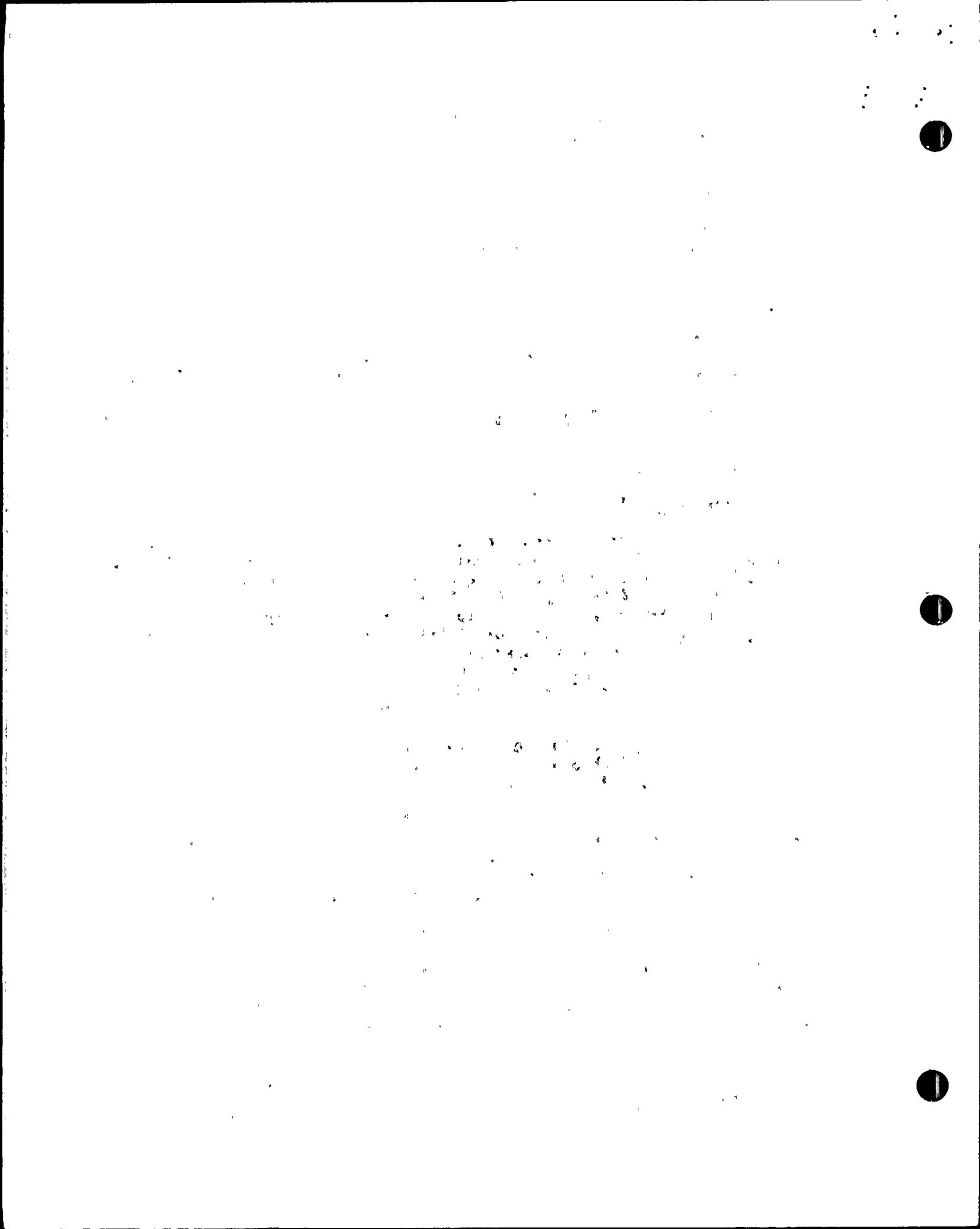
No violations or deviations were identified.

12. Startup Work Control

To determine the scope and depth of work controls associated with the Startup Program of Palo Verde for Unit 1, the inspectors examined documentation associated with test activity. Included in this examination were 304 Startup Work Authorizations (SWAs), 221 Startup Field Reports (SFRs), and 71 Nonconformance Reports (NCRs) for the testing done under the portions of 91PE-1SI08 (Safety Injection System Full Flow Verification Test) associated with the Low Pressure Safety Injection System. For procedures 91PE-1AF01 (Auxiliary Feedwater System) and 91HF-1AF01 (Precore Emergency and Auxiliary Feedwater System Test) the inspectors examined 407 SFRs, 430 SWAs, and 140 NCRs.

An area of concern regarding the depth of NCR resolution review during examination of NCR's SM-3567 (initiated January 17, 1984), and SM-4201 (initiated April 18, 1984). NCR SM-3567 identified a rumbling sound phenomena in the suction piping associated with Low Pressure Safety Injection Pump B. The disposition of the NCR was to keep the flow below 2200 gallons per minute, as the phenomena was observed in the range of 3000 gallons per minute. The cause was thought to be due to the system lineup in use, which was recirculation through the Refueling Water Tank via a recirculation line rather than the normal injection path. NCR SM-4201 identified the same phenomena, and was initiated to facilitate an investigation into the phenomena. The startup organization was fully aware of, and had extensive discussions about, the situation following the closure of NCR SM-3567. This indicates that there was considerable concern about the potential effects of the phenomena. Therefore, the closure disposition of NCR SM-3567 would appear to have been premature. It also appears that thoroughness in the review of the NCR was lacking in that no consideration was given to follow-up during later testing.

Other than the above item, the inspectors found that startup work controls were in place. And were sufficient to assure that no work



activity would take place without sufficient managerial review and involvement. SWAs and work orders, in general, controlled work activity sufficiently to a level that would prevent unauthorized work being done.

No violations or deviations were identified.

13. Test Results

To examine the processes that Test Results Reports undergo during review and approval the inspectors reviewed the following procedures:

- 90AC-0ZZ02, Startup Test Conduct
- 90AC-0ZZ09, Startup Test Working Group
- 90AC-0ZZ14, Startup Procedures Preparation, Review and Approval
- 90AC-0ZZ18, Startup Test Results Review
- 90AC-0ZZ19, Startup Field Reports

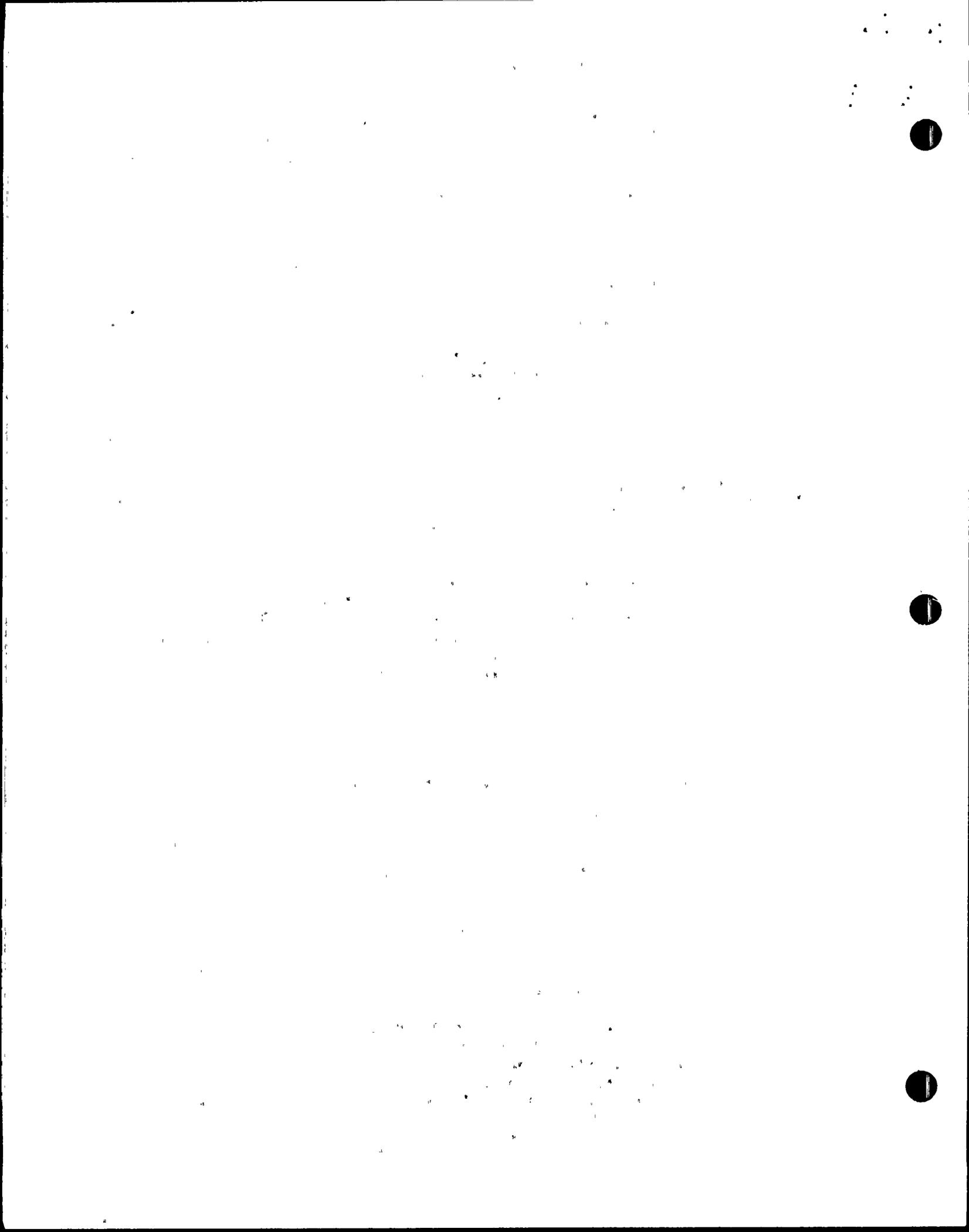
The inspectors then examined three Test Results Reports for the following preoperational tests:

- 91PE-1AF01, Auxiliary Feedwater System Test
- 91HE-1AF01, Precore Emergency and Auxiliary Feedwater System Test
- 91PE-1SI08, SI Full Flow Verification Test

The Test Results Reports were examined to determine the depth and thoroughness of the reviews conducted by the Test Working Group (TWG). The three reports chosen were in different phases of the review cycle and, therefore, presented a good overview of the processes that reports undergo during a review by TWG. Report 91PE-1AF01 had undergone a full review and had included all comments by TWG that had concurrence by the Principal Startup Engineer and the Group Supervisor. All Test Exceptions were concurred with and all SFRs resolved as to final disposition. Report 91HE-1AF01 had just undergone TWG review and was in the comment review phase where the comments made by TWG were in the process of concurrence prior to approval by the TWG Chairman. Again, except for TWG comments the Test Exceptions and the SFRs were resolved. For 91PE-1SI08, the Test Results Report was in the process of being prepared. The inspector discussed the process with the Principal Startup Engineer a Group Supervisor. All test exceptions were reviewed and fully resolved prior to submittal to TWG, as were outstanding SFRs or NCRs that would have a bearing on the acceptability of the Test Results Report. In no case would TWG accept a package without a fully successful test, or a satisfactory resolution of acceptance criteria.

In the case of the testing conducted under 91PE-1SI08 for the low pressure safety injection pumps, two SFRs that were associated with the failure to achieve a flow of 9600 gallons per minute in the combined suction header were prepared.

The flowrate was necessary to measure net positive suction head when both the containment spray and low pressure safety injection pumps are running with a common suction per CESSAR 14.2.12.1.23-3.4. The 9600 gallons per minute is minimum projected flow for both pumps, however, it could not be achieved in the configuration used for testing, which was through the



normal injection path for low pressure safety injection. The flow rates that were achieved were 8900 gallons per minute for LPSI "B" and containment spray "B" and 8600 gallons per minute for LPSI "A" and containment spray "A". The higher head of the containment spray pumps held back the flow that could be achieved from the LPSI pumps. Therefore, the desired point at which to measure net positive suction head could not be reached. The resolution for the SFRs was to extrapolate to 9600 gallons per minute and calculate the NPSH at that point. The acceptance criteria for NPSH at the suction of the LPSI pumps is 22 feet. The NPSH at 8900 gallons per minute for LPSI "B" pump was 73.7 feet, and for LPSI "A" pump at 8600 gallons per minute the NPSH was 72.2 feet. Calculations by Combustion Engineering showed that the head would only be reduced about 10 feet, in both cases, when extrapolated to 9600 gallons per minute.

Two items of interest occurred during testing of the Auxiliary Feedwater System. The first was a problem the turbine driven pump experienced in achieving multiple cold starts. The resolution was to change the configuration of the steam supply to the turbine driver, which had apparently affected the delivered pressure to the driver. The cold line apparently prevented the driver from achieving sufficient speed before an overspeed protection circuit tripped the turbine stop and throttle valve.

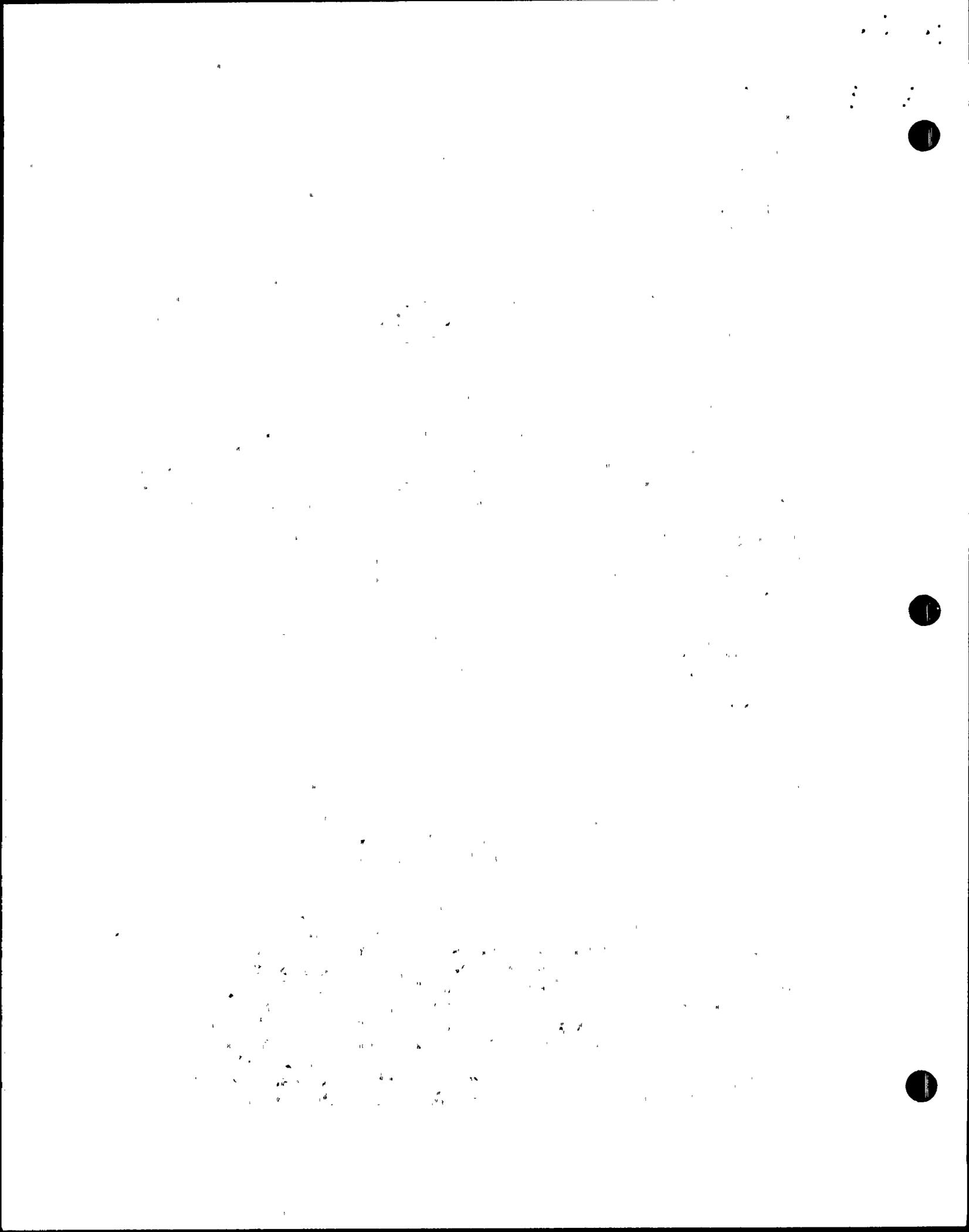
The second problem had to do with excessive piping vibration on the discharge line of the same pump. The configuration of the valves in the line led to a condition where the pump was pushing on a column of water in a fashion where the beat frequency of the pump and column were close. To resolve the problem the flow through the recirculation line was increased with a larger orifice. Combustion Engineering has done an analysis that shows the reduced flow to the steam generators will be sufficient to meet design requirements.

No violations or deviations were identified.

14. Test Working Group

The inspectors held discussions with four members of the Test Working Group (TWG), two who are permanent members, and two who are alternates. The discussions included Test Results Reviews, test procedure reviews, disposition of TWG comments, and conduct of TWG activities. One of the permanent members interviewed was the TWG Chairman.

At present the process for review of test procedures is such that the proposed procedure is routed to a sub-TWG review group. Sub-TWG is a group of level III startup engineers reporting to the TWG Chairman (there are 29 members in various disciplines). The procedure is review by this group, any comments generated are sent back for incorporation into the body of the procedure. After all comments are resolved the procedure is routed to the TWG for review. This provides a two tier review, of substantial depth and scope, for a test results report. The results are summarized in a report attached to the procedure and data. This receives a review by each member of TWG prior to the report being scheduled for a meeting of the TWG. Each member is responsible for assuring the discipline area he represents thoroughly reviews the report. It then



goes to a meeting and any comments are gathered, a comment sheet is filled out, and the package routed back to the Principal Startup Engineer. After resolution of the comments the report can be approved. This conforms to the procedures governing the review process.

No violations or deviations were identified.

15. Records and Document Control during Plant Operations

A. General

The licensee's program for documents and records control was evaluated against commitments contained in Sections 17.2.6 and 1.8 of the licensee's Final Safety Analysis Report, Regulatory Guide 1.88 (Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records), and licensee implementing procedures. Inspection emphasis was directed to the licensee's operational phase records and document control programs.

B. Document Control

(1) Procedural and Administrative Controls

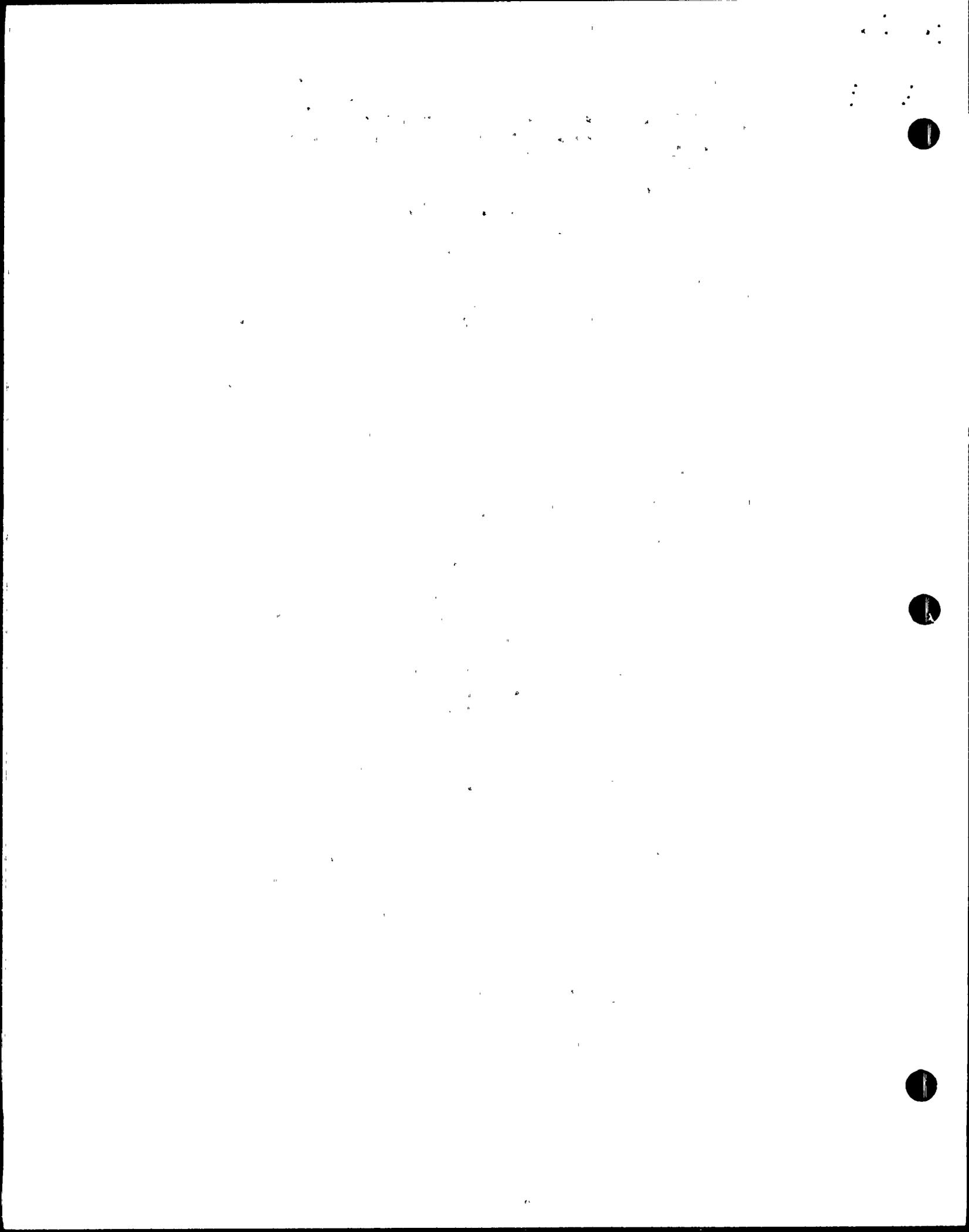
The inspector reviewed the following licensee operational phase document control procedures.

78PR-0ZZ01 Rev. 1, PVNGS Document/Record Control
 78AC-0ZZ01 Rev. 1, Nuclear Operations Document & Manual Control
 78AC-0ZZ01 Rev. 1, PVNGS Document/Record Control
 78AC-0ZZ04 Rev. 1, Control and Issuance of Design Document
 78AC-0ZZ06 Rev. 1, Document/Record Turnover Control
 78AC-0ZZ07 Rev. 1, Document/Record
 78AC-0ZZ11 Rev. 0, Control and Issuance of Field Change Request
 78AC-0ZZ12 Rev. 0, Control and Issuance of Plant Change Package
 78AC-0ZZ13 Rev. 0, Control and Issuance of As-built Drawings
 and Drawing Amendments
 Bechtel Internal Procedure 4.12, Drawing Change Notice

(a) Administrative Controls

Review of these procedures indicated that the licensee had established administrative controls which:

- assure As-built design documents are provided to the plant in a timely manner, (Bechtel IP 4.12, 78AC-0ZZ04).
- provide for control of obsolete drawings (78AC-0ZZ04).
- establish master indices of controlled documents, including dates and revision. (78AC-0ZZ04, 78AC-0ZZ01, 78AC-0ZZ04, 78AC-0ZZ13)

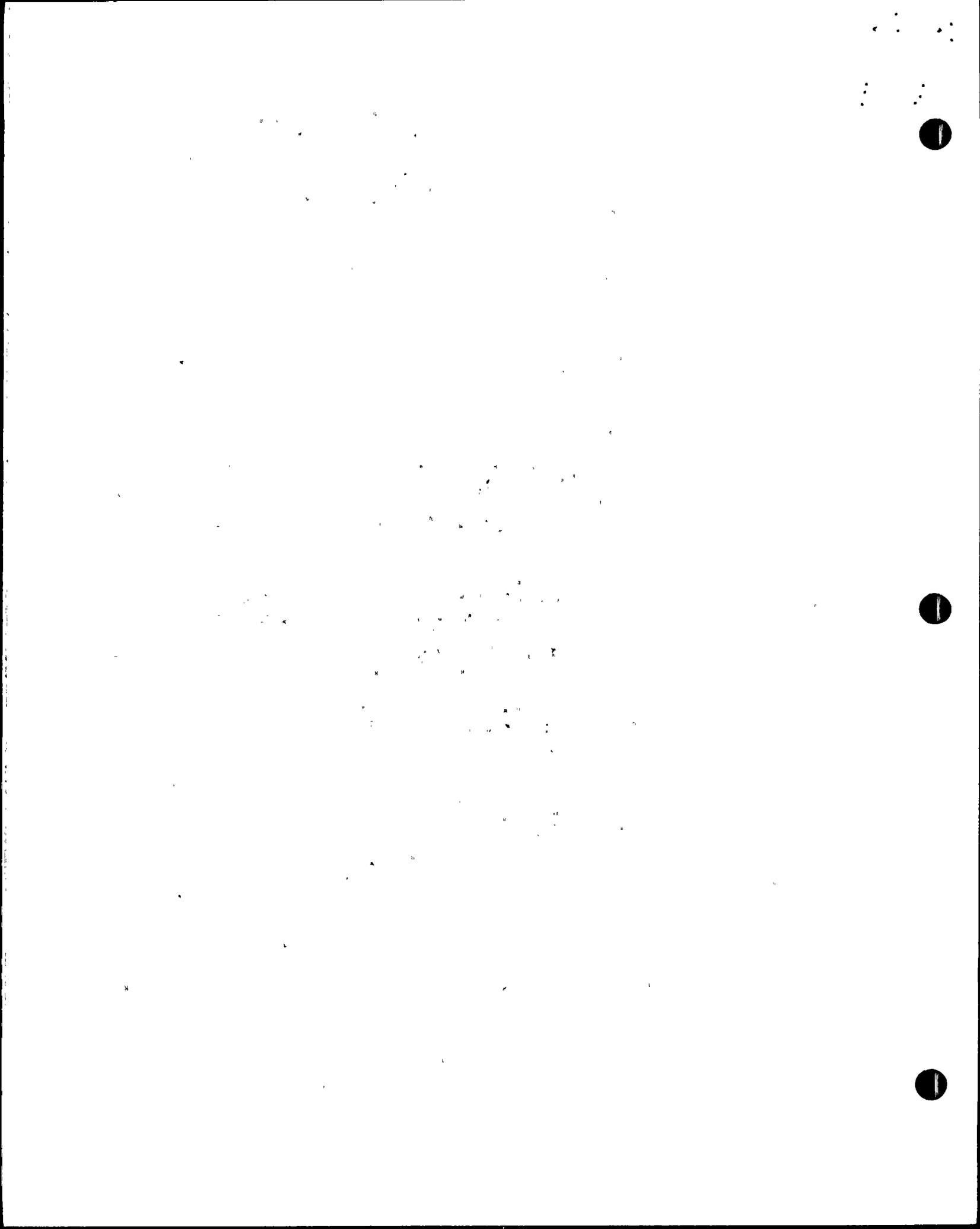


- ° provide for issuance, distribution and control of Design Documents, Technical Specifications, and Final Safety Analysis Report. These include marking design documents as Controlled, Uncontrolled or Controlled by User. (78AC-OZZ01, 78AC-OZZ04, 78AC-OZZ06, 78AC-OZZ07, 78AC-OZZ11, 78AC-OZZ12, 78AC-OZZ13, 78PR-OZZ01).
- ° provide for receipt Controls by DDC-PV (78AC-OZZ06, 78AC-OZZ07).

(b) Procedural Controls

The inspector verified compliance with selected procedural controls, including but not limited to:

- (1) Procedure 78AC-OZZ04, Control and Issuance of Design Documents
 - ° paragraphs 3.1.1.1 through 3.1.1.4 (Stamping of drawings).
 - ° paragraph 5.2.1 (Use of drawing/transmittal document)
 - ° paragraphs 5.2.2 and 5.2.3 (Use of Design Document Distribution Matrix and System 38 to track document transmittals and status).
 - ° paragraphs 5.2.6 and 5.8.3 (Verification of controlled document updates within 2 days)
 - ° paragraph 5.7.1 (Use of Controlled Drawing Transmittal Acknowledgement Form and Tickler File)
 - ° paragraph 5.8.1 (Stick files were identified by a unique number to the Design Document Distribution Matrix).
 - ° paragraph 5.8.2 (Stick files cover sheets show station and drawings contained)
 - ° paragraph 5.8.6 (Physical removal of superseded design documents by DDC-PV) (Refer to report Section B,a,A for additional discussion).
- (2) Procedure 78AC-OZZ01, Nuclear Operations Document and Manual Control
 - ° paragraph 3.1.5 (Use of "Information Only" copies of procedures)



- paragraphs 3.1.6 and 3.1.7 (Use of the Procedure Distribution Matrix and Procedure Index).
 - paragraph 3.1.7.1 (Distribution and use of Daily Change List)
 - paragraph 3.1.8 (Use of Procedure Change Notices, PCNs)
 - paragraph 5.1.3 (Use of DDC-PV Receipt Log)
- (3) Procedure 78PR-OZZ01, PVNGS Document/Record Control
- paragraph 3.1.f.2 (Use of Field Revision Log)
 - paragraph 3.1.f.3 (Use of Daily Notification Log)
 - paragraph 3.1.f.5 (Use of System 38 to reflect as-built conditions at PVNGS)

The inspector found that the definition of responsibilities for distribution of controlled documents, contained in procedure 78AC-OZZ01 (Nuclear Operations Document and Manual Control), needs revision to reflect the actual practice of As-built Records Management Group performing the actual distribution and update of procedures. Discussions with licensee representatives indicated that this change in responsibilities had taken place on August 13, 1984, and that the licensee was already evaluating how these procedures should be revised.

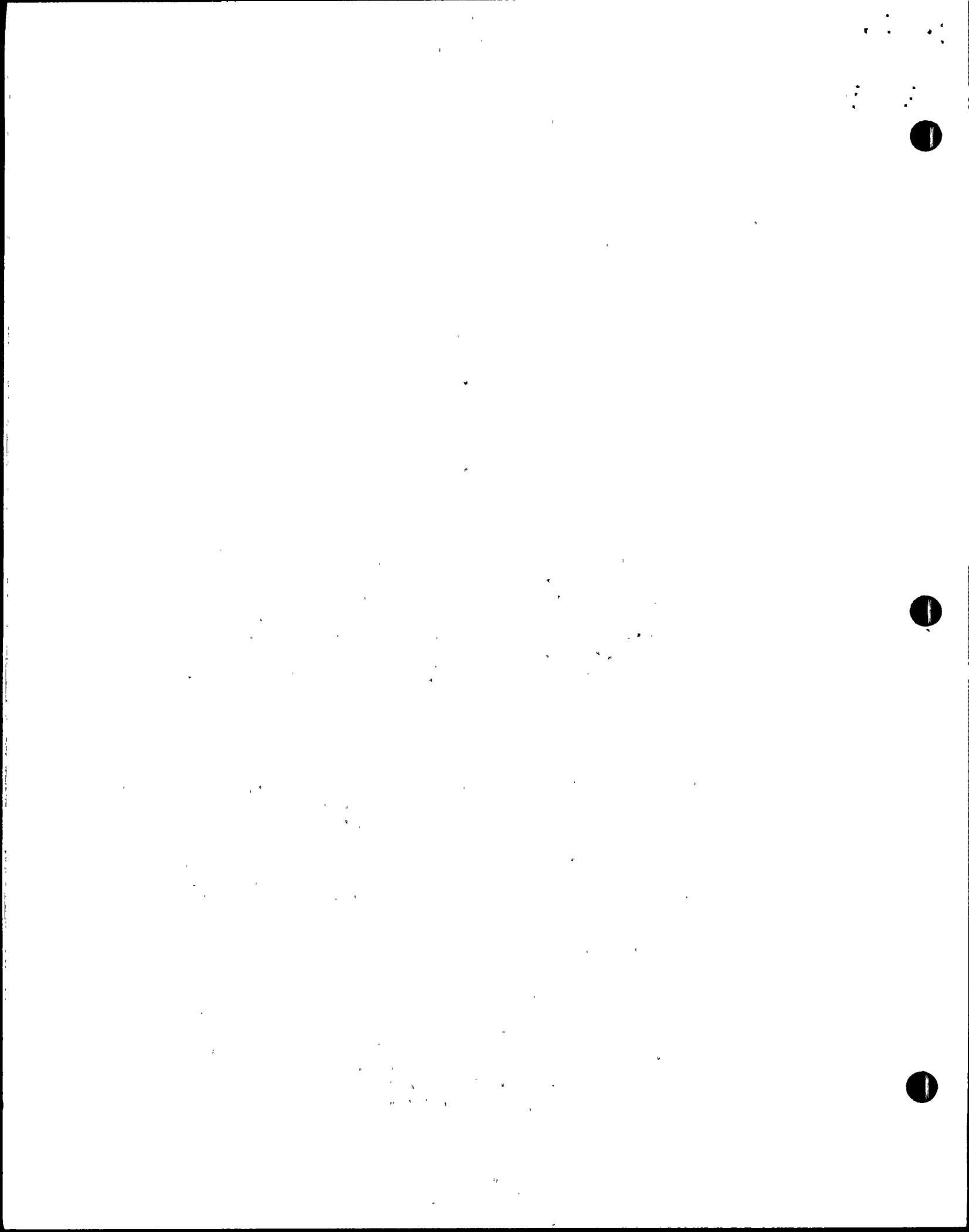
No violations of NRC requirements were identified.

(c) Document Control Verification

The inspector verified that the licensee had established master indices to control document distributions and an index to reflect current revisions. To evaluate program effectiveness, current revisions of procedures, technical specifications and design drawings were evaluated at multiple locations onsite. Controls over the Final Safety Analysis Report were also reviewed at several locations although this is presently controlled by Bechtel from Norwalk, California.

(1) Design Drawing Verification

Design drawings were evaluated at eight locations onsite (NSSS-Trailer 10, Unit 1 Operators-Trailer 8, Unit 2 Startup Manager-Trailer 29, Quality Control Manager-Trailer 30, Unit 1 Technical Support-Trailer 2, Unit 1 Control Room, Administrative Library, and the Unit 2 Control Room). At each location four safety-related Piping and Instrumentation Diagrams and



associated Design Change Notices were evaluated against the current revision maintained by As-built Records Management. Drawings utilized to verify licensee document control effectiveness included: 12-M-CHP-003 Rev. 9, Chemical and Volume Control System P&ID with 19 Design Change Notices (DCNs); 13-M-IAP-003 Rev. 6, Instrument and Service Air System P&ID with 18 DCNs; 13-M-SGP-001 Rev. 13, Main Steam System P&ID with 6 DCNs; and 13-M-SGP-002 Rev. 10, Main Steam System P&ID with 4 DCNs. Thus, total of 32 controlled drawings and 376 DCNs were inspected. Based on this review the following observations were noted:

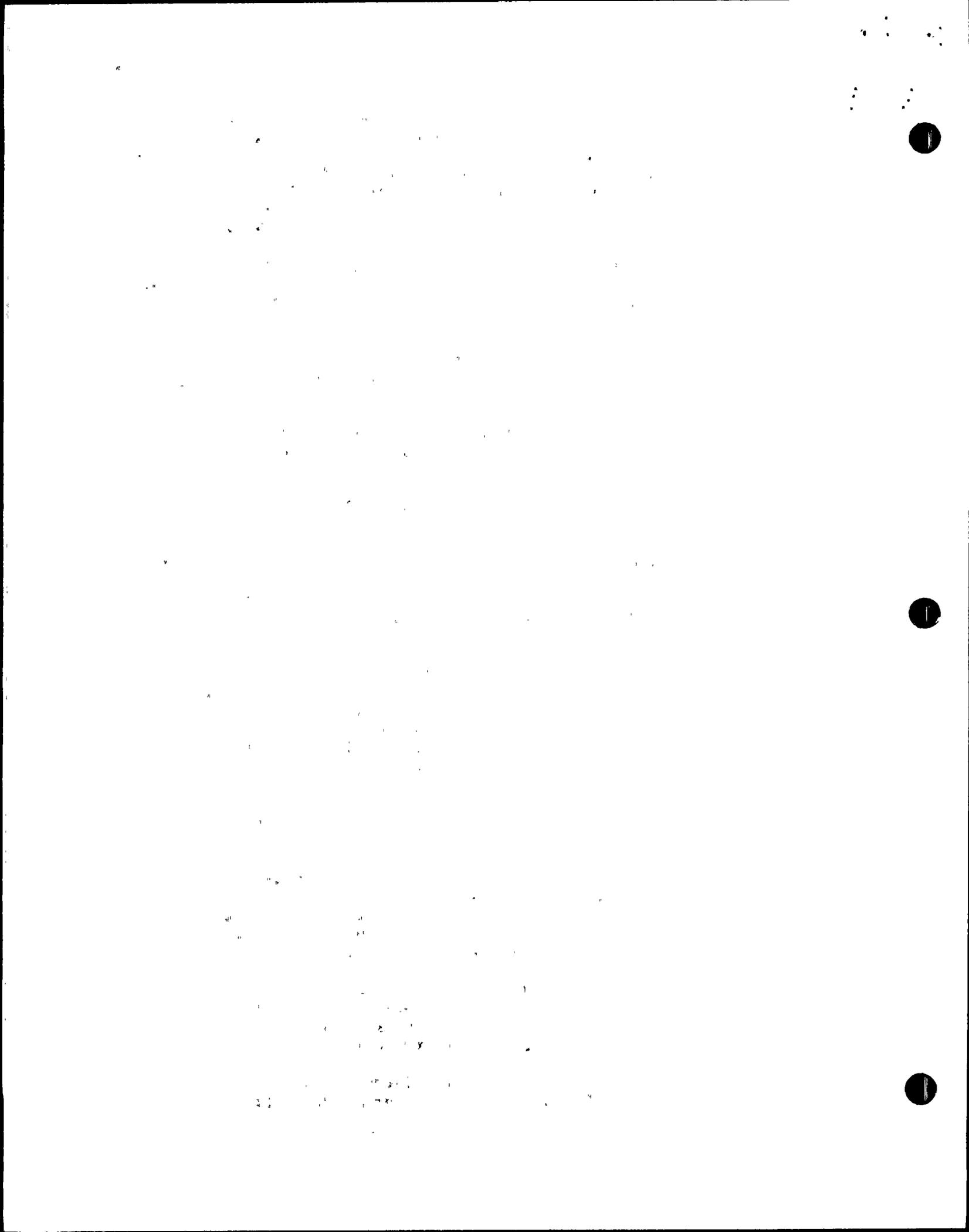
- Drawing 13-M-IAP-003 Rev. 6, Instrument and Service Air P&ID, at the Quality Control Managers Trailer 30, was missing DCN No. 128.
- Drawing 13-M-IAP-003 Rev. 6, Instrument and Service Air P&ID, at the Administrative library, was missing DCN No. 128.
- Drawing 13-M-SGP-002 Rev. 10, Main Steam System P&ID, at the Administrative Library was missing DCN No. 51.

Thus, two out of eight locations with controlled drawings were found to not have a fully up-to-date DCN status. Of the 376 DCN's reviewed as part of this inspection, only three problems were observed. This represents a problem rate of less than one percent.

- Drawing 13-M-SGP-001 Rev. 13, Main Steam System P&ID, at the Quality Control Manager, Trailer 30 location still had superseded DCNs Nos. 64, 65, 66, 67, 68, 69, 70, 71, 75 present in the Nuclear Projects Records Managements (NPRM) DCN's folder. The Unit 2 Control Room also had superseded DCN No. 75 present in the NPRM DCN folder. It was, also, noted that the drawing revision which incorporated these DCNs correctly reflected their incorporation.
- Drawing 13-M-SGP-002 Rev. 10, Main Steam System P&ID, at the Quality Control Manager Trailer-30 had superseded DCNs 41, 50 and 52 through 57 present in the DCN folder. It was, also, noted that the drawing revision which incorporated these DCNs correctly reflected their incorporation.

Since a revised drawing was present at these locations, the presence of the superseded DCNs was not considered to be a significant safety concern. The licensee corrected this problem during the inspection.

The inspector identified discrepancies in the DCN status of two "Controlled by User" drawings at the Unit 1



Technical Support-Trailer No. 2 location. These included: 6 missing DCNs to piping and instrumentation drawing 13-M-SGP-002 Rev. 9; and 2 missing DCNs to piping and instrumentation drawing 13-M-IAP-003 Rev. 6. Previous licensee internal reviews of the controlled drawings in the Unit 1 Technical Support Trailer had identified similar problems including missing DCN's and wrong revisions of drawings. Since the licensee had already identified similar problems with the drawings at this location, the need to provide improved controls over user updated drawings was noted at the exit interview.

Two drawings (13-M-CHP-003, Rev. 9, Chemical and Volume Control System, and 13-M-IAP-003, Rev. 6, Instrument and Service Air System) were identified to have 19 and 18 DCNs issued to these drawings, respectively. The lack of a specific limit in Bechtel Internal Procedure 4.12 (Design Change Notice) to control the number of DCNs outstanding against a drawing, prior to revision of the drawing, during the construction/startup phase was discussed with licensee representatives. Licensee representatives stated that controls had been established over the number of outstanding DCNs allowed during operations.

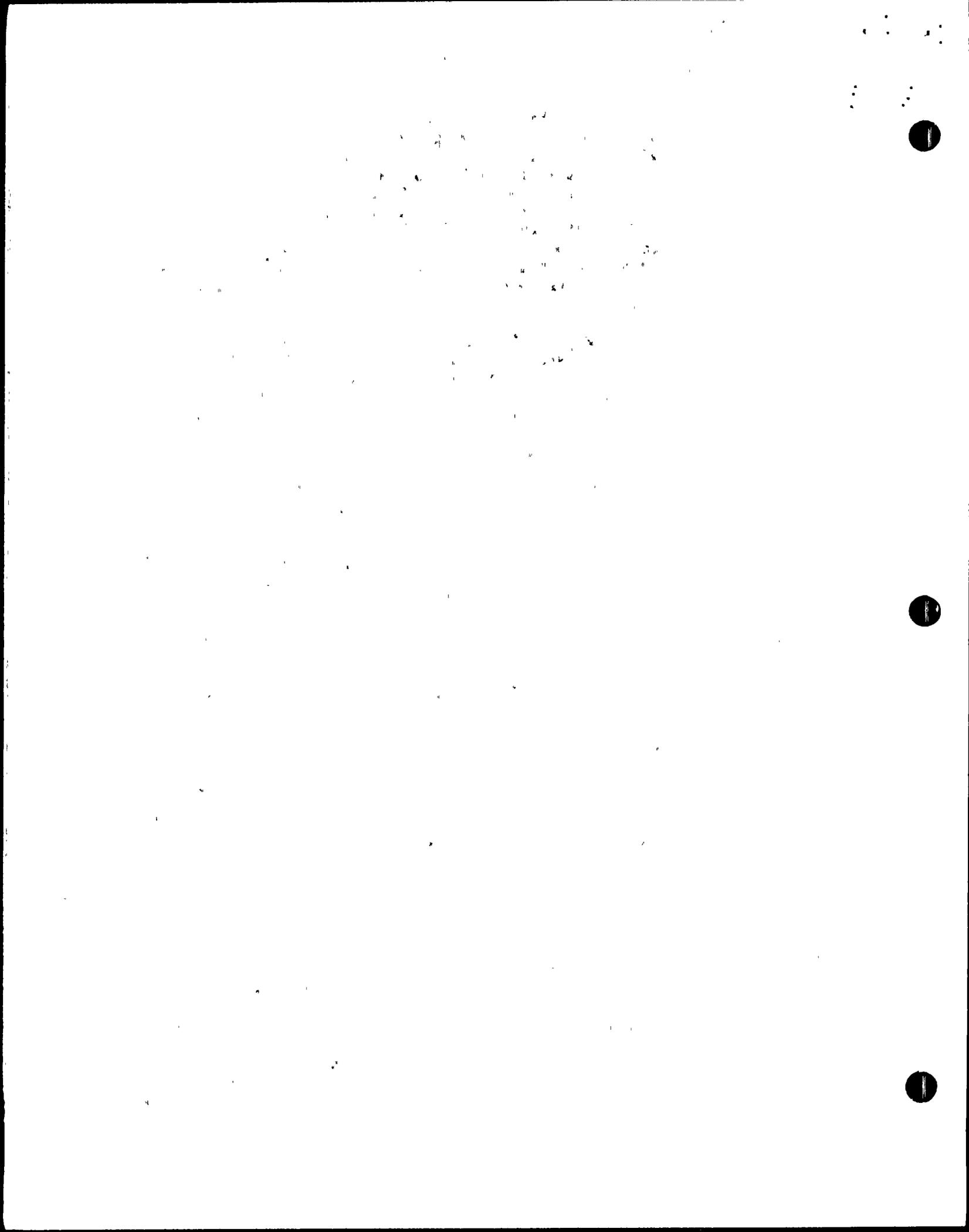
Based on the above observations, although isolated in nature and of minor safety significance, the inspection team leader requested that the licensee commit to an audit of their document control program to determine whether additional controlled drawings have not been maintained. The licensee agreed to perform this audit at the exit interview. Pending evaluation of the licensee's audit findings, this is considered to be an unresolved item (84-38-02).

(2) Control of Station Procedures

Control over Station Manual procedures was evaluated by comparing the latest revision of procedures, identified by DDC-PV from the Station Manual Procedure Index and Daily Change List (DCL), with the revision status four procedures at five locations. No discrepancies were identified.

(3) Controls over Technical Specifications and the Final Safety Analysis Report

As an additional check on document controls, the inspector randomly selected several locations where distribution of Technical Specifications was controlled by As-built Records Management. All locations were found to have the latest draft revision of June 21, 1984. Although distribution of the Final Safety Analysis Report is presently controlled by Bechtel, the inspector verified that current copies (Amendment 13) were present at four



locations. No problems were noted with the control of either of these documents.

No violations of NRC requirements were identified.

C. Records Storage and Control

(1) General

The licensee was in the process of transferring records from multiple onsite groups to Nuclear Projects Records Management (NPRM). Licensee implementing procedure 78AC-OZZ07 Rev. 1, (Document/Record Vault Storage and Maintenance) Section 5.1.1, states that "Records generated prior to issuance of an operating license are to be turned over to Nuclear Projects Records Management Drawing and Document Control, Palo Verde location (NPRM-DDC-PV) upon completion, within 24 months". Review of licensee Nuclear Projects Records Management monthly status report of document and record turnover, dated August 1, 1984, indicated the majority of licensee records are yet to be transferred to DDC-PV for archival storage. Licensee implementing procedure 78AC-OZZ06 Rev. 1 (Document/Record Turnover Control) describes the licensee's program for individual and bulk transfers of quality related records. Inspection emphasis was directed toward licensee procedural controls which would be utilized during operations. The scope of records maintained by Bechtel during construction and by the startup group was not emphasized during this inspection since this had been evaluated during previous inspections. The inspector reviewed the licensee's DDC-PV vault design documents to verify that the permanent records storage facility was designed to meet the National Fire Protection Association (NFPA) two hour rating.

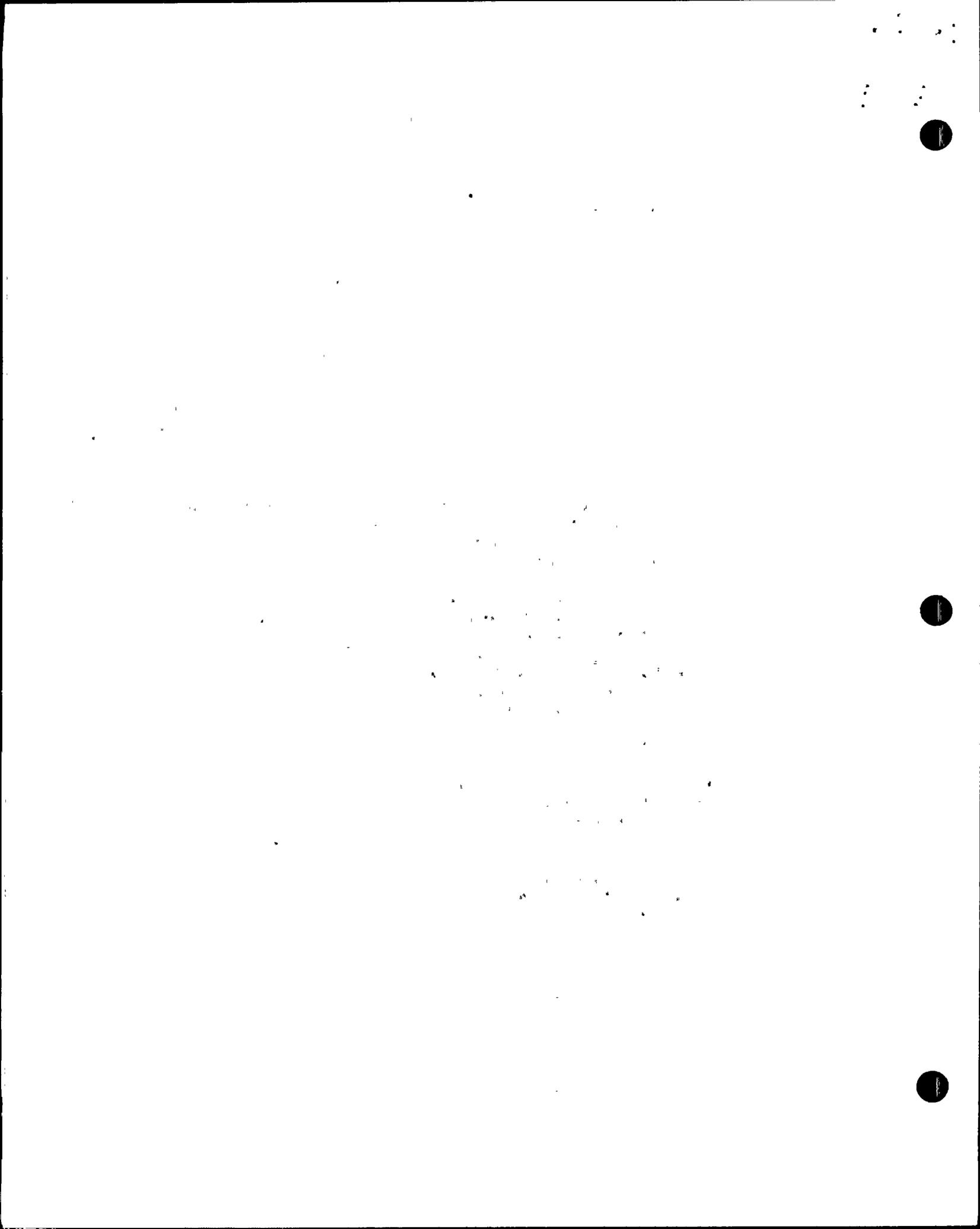
(2) Administrative and Procedural Controls

The following licensee procedures, evaluated by the inspector, were the principle procedures utilized to evaluate records storage and handling controls which would be in place during operations:

78PR-OZZ01 Rev. 1, PVNGS Document/Record Control
 78AC-OZZ06 Rev. 1, Document/Record Turnover Control
 78AC-OZZ07 Rev. 1, Document/Record Vault Storage and
 Maintenance
 Plant Policy 20 PVNGS Generated Documents/Records

(a) Administrative Controls

The inspector verified that administrative controls had been established which:

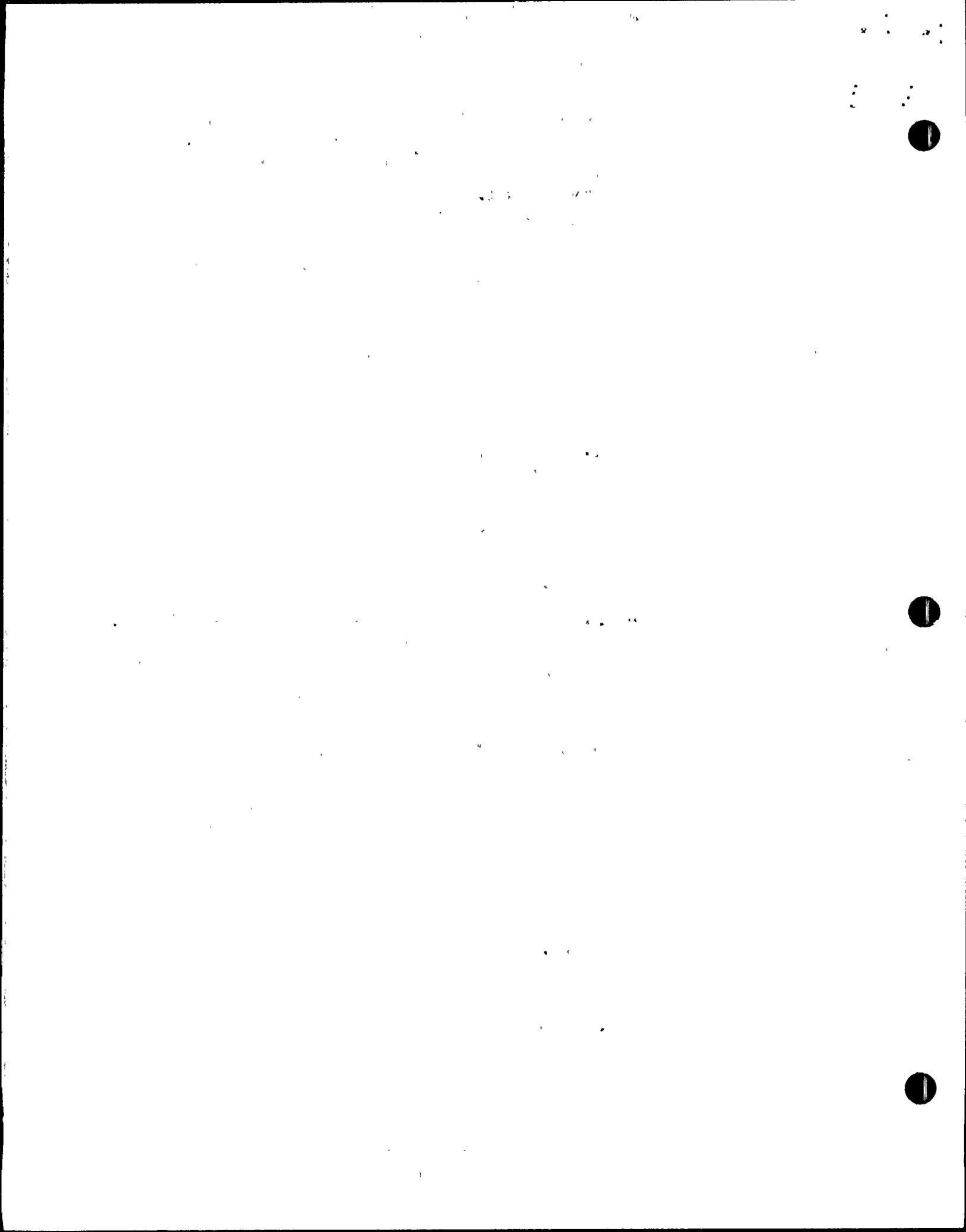


- define responsibilities for records storage and transfer including designation of records custodians (78PR-0ZZ01, 78AC-0ZZ06, 78AC-0ZZ07).
- provide verification that records received are in agreement with transmittal documents. (78AC-0ZZ06, 78AC-0ZZ07)
- control access to and distribution of records. (78AC-0ZZ07, 78PR-0ZZ01)
- assure that the records storage facility/storage conditions meet regulatory requirements. (Plant Policy 20, 78PR-0ZZ01, 78AC-0ZZ06, 78AC-0ZZ07)
- controlled transfer of records to archival storage. (78PR-0ZZ01, 78AC-0ZZ06, 78AC-0ZZ07)
- records retention provided in accordance with regulatory commitments. (78AC-0ZZ06)
- perscribe actions necessary when lost or damaged or illegible documents are identified. (78PR-0ZZ01, 78AC-0ZZ06, 78AC-0ZZ07)

(b) Procedural Controls/Implementation

The inspector also reviewed licensee compliance with the following procedural requirements and controls.

- The licensee was stamping documents as required by Section 3.1.1.3 and 3.1.1.4 of 78AC-0ZZ04 as "CONTROLLED BY USER", and "CONTROLLED". The licensee was observed to be stamping reproduced documents as "Information Only", as required by Section 5.5 of 78AC-0ZZ07.
- The inspector randomly selected several documents from the licensee's Receipt Log to evaluate document retrievability. All documents were provided in a timely manner.
- Procedure 78AC-0ZZ07, Document/Record Vault Storage and Maintenance
 - paragraph 5.2.3 The licensee is maintaining a document receipt log as required by procedure.
 - paragraph 5.3.1.1 Documents were observed to be kept in folders or envelopes and not stored loosely.



paragraph 5.4 Access lists were observed to be posted at the DDC-PV vault, which were signed by Nuclear Projects Records Manager.

paragraph 5.7.1 Temperature and humidity controls were observed to be monitored in the DDC-PV vault, a maximum humidity reading of 74% was noted. The licensee has initiated a plant change request, dated August 22, 1984, to improve humidity/temperature controls in the DDC-PV vault.

- o Procedure 78AC-0ZZ06, Document/Record Turnover Control Document. Transfers of individual and groups of records are performed in accordance with 78AC-0ZZ06 and 78AC-0ZZ07. The inspector discussed the requirements contained in Sections 3.2.2 and 5.3(2) of ANSI N45.2.9 with licensee representatives during the inspection. Licensee representatives agreed to review the clarity of how these requirements are proceduralized.

No violations of NRC requirements were identified.

16. Inspection of Technical Activities Related to Startup Field Reports and Nonconformance Reports - Unit 1

A. Objective

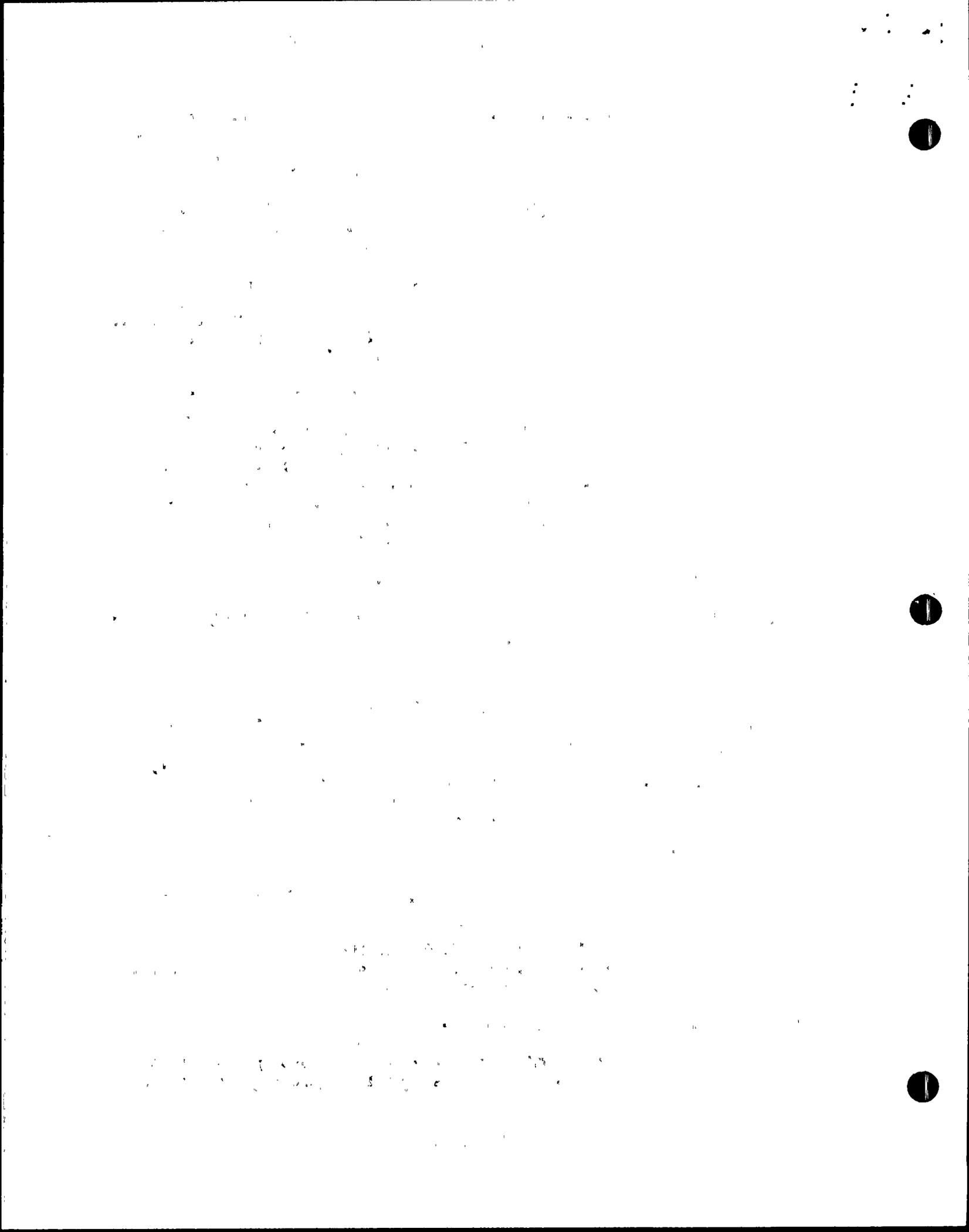
The inspector examined the site administrative programs and documentation related to startup field reports (SFRs), startup nonconformance reports (SFR/NCRs) and Arizona Public Service Company (APS) nonconformance reports (NCRs) issued against the auxiliary feedwater system (AFWS) installation in Unit 1, to assess the effectiveness of the startup test group in maintaining the quality of the AFWS while under their control.

B. Technical Approach to Inspection

- (1) Review and obtain applicable copies of SFR, SFR/NCR and NCR administrative procedures used onsite.
- (2) Review available SFRs, SFR/NCRs and NCRs issued against the AFWS installation in Unit 1, to assess such things as technical adequacy, documentation and disposition.

C. Inspection Activities and Findings

- (1) The AFWS was turned over to the startup group approximately March 9, 1983 and as of August 29, 1984, approximately 400 SFRs

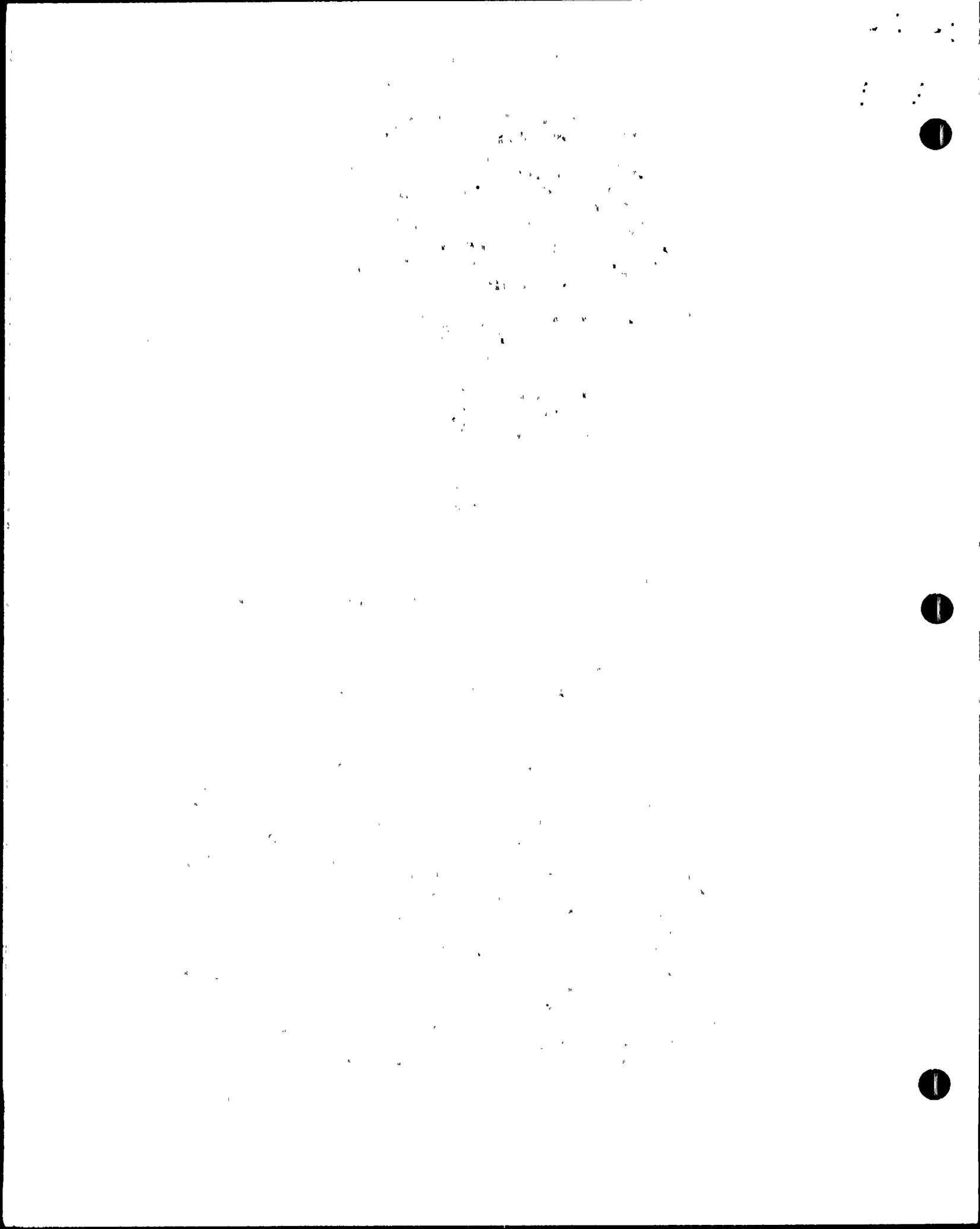


had been issued against the AFWS by the startup test group, along with various NCRs, per the startup test group records.

- (2) The inspector obtained copies of the following site documents listed below to identify the SFRs, SFR/NCRs and NCRs issued against the AFWS.
- (a) Report Number:10; Definition Number:01 Report title: Unit 1, all items for AF-S/S sort. [from the master tracking system (MTS), as of August 31, 1984].
 - (b) Report Number:05; Definition Number:NC, Report Title: All open and closed APS NCRs, NCR No. Sort-Unit 1 [from the MTS, as of August 30, 1984].
 - (c) Report Number:04; Definition Number:CR, Report Title: all open and closed BPC NCRs, NCR Sort-Unit 1 [from MTS, as of August 30, 1984].
 - (d) Special Run:
File: Activity tracking master, Unit 1 all NCRs for system AF [from MTS, as of August 28, 1984].
- (3) Using the documents identified above and available site records, the inspector examined essentially all identified SFRs, SFR/NCRs and NCRs issued and/or dispositioned against the AFWS by the startup test group as of August 30, 1984. The number of applicable documents examined by the inspector are listed below.

400	SFRs
102	SFR/NCRs [SFRs assigned NCR numbers]
46	NCRs
12	APS NCRs

- (4) Examination of SFRs, SFR/NCRs and NCRs identified that additional clarifications would have been desirable for some documents in the initial write up of the reported condition, information, deficient condition, etc., to aid evaluation/disposition of the applicable documents in an effective manner. Also, some dispositions of SFRs, SFR/NCRs and NCRs could have used additional information to clarify/document the justification for the final disposition. For example, NCR No. SE-1830 (issued April 4, 1983) and NCR No. SJ-1842 (issued April 8, 1983) were dispositioned and stamped 'INVALIDATE' on April 13, 1983, without detailed clear documentation of the justification for the final disposition. The two NCRs noted in the example above were identified August 30, 1984, to the APS group representative assisting the inspector in his document examination. The APS representative notified the inspector on August 31, 1984 that information would be added to the above two NCRs to provide additional clarification of the final disposition. This was typical of the types of problems identified by APS during the QA audit



after the CAT inspection in November 1983, which required APS to stop all preoperational testing. No documentation problems of this nature were identified after testing was resumed.

D. Conclusions

- (1) The examination of available SFRs, SFR/NCRs and NCRs issued and/or dispositioned by the startup test group for the AFWS installation in Unit 1, as of August 30, 1984, did not identify any violation of NRC requirements. However, weakness in initial documentation of descriptions of reportable conditions and dispositions were noted.
- (2) Examination of the startup test group administrative programs for SFRs, SFR/NCRs and NCRs, did not identify any problems in maintaining the quality of the AFWS installation in Unit 1 while under the startup test group control, as of August 30, 1984.

17. QA/QC Administrative Controls and Audits

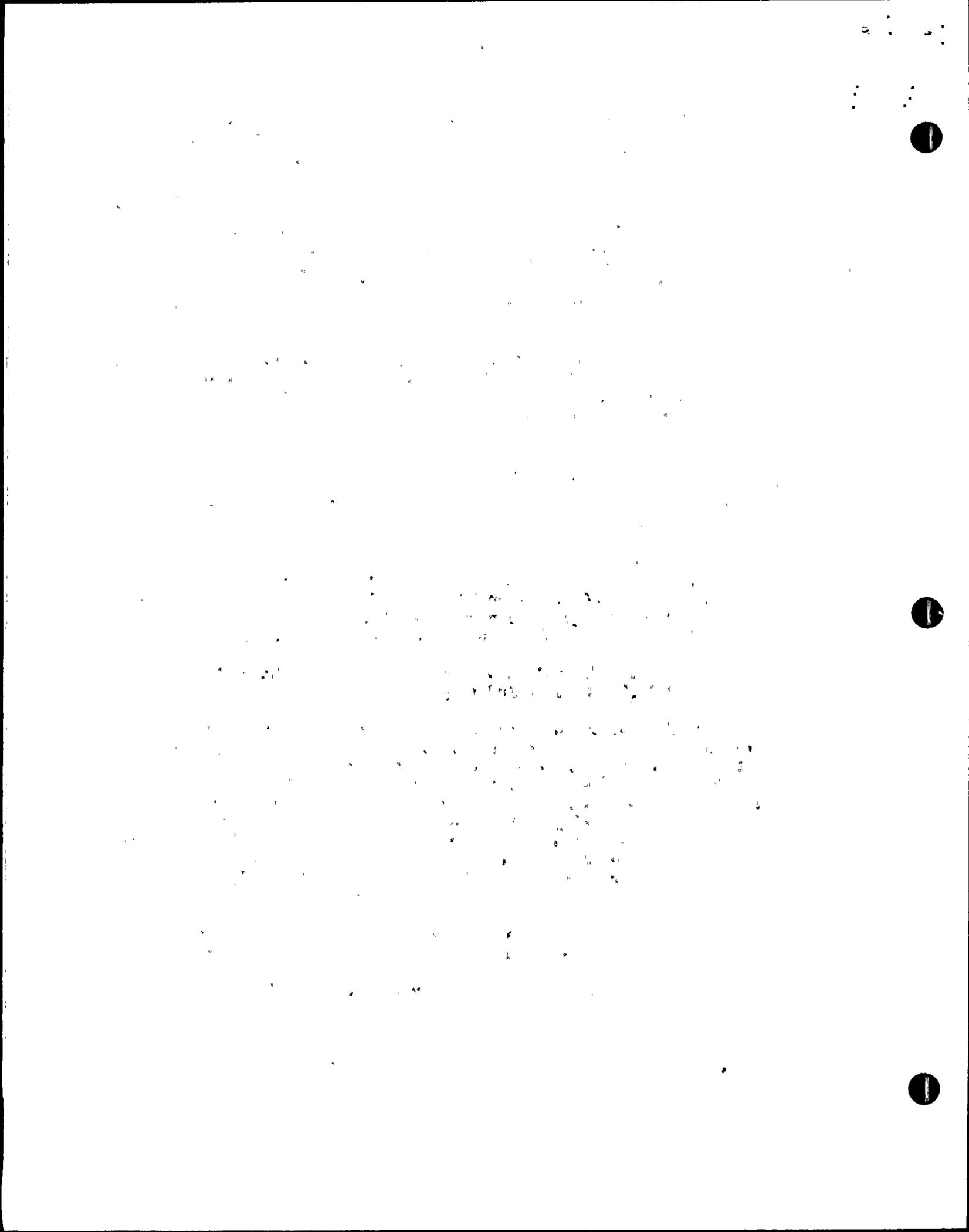
The inspector reviewed the following Operations QA Criteria and Corporate QA Department Procedures (QADP):

- Operations QA Criterion 2, "Quality Assurance Program"
- Operations QA Criterion 6, "Document Control"
- Operations QA Criterion 18, "Audits"
- QADP 1.0, "Organization and Responsibilities"
- QADP 6.0, "Control of Corporate Quality Assurance Department Procedures"
- QADP 6.1, "Control of Operations QA Criteria Manual"
- QADP 18.0, "Quality Auditing"

The reviews were conducted to evaluate the licensee's administrative controls and audit program in general, and to: (1) verify implementation of FSAR and proposed Technical Specification commitments for administrative controls and audits; (2) verify that administrative controls and responsibilities exist for review of the effectiveness of the QA program; (3) verify that administrative controls exist to modify the program and its procedures and that responsibilities exist for review and approval of such modifications; and (4) verify that the master audit schedule meets the requirements of Regulatory Guide 1.33, "Quality Assurance Program Requirements," and associated commitments.

The inspector concluded that the administrative controls were in accordance with commitments and the audit program was well established.

The inspector reviewed a sample of the audits (scheduled and unscheduled) completed by the Quality Audits/Monitoring Section to verify implementation of the audit program. The inspector also reviewed the training and qualification records of the auditors to verify their qualifications to perform quality audits. The licensee appears to be correctly implementing the audit program with qualified personnel.



No violations or deviations were identified.

18. Review of Maintenance Program

The inspector reviewed numerous Station Manual Procedures including the following primary documents:

- 30AC-9ZZ01, Rev. 1, "Work Control"
- 30AC-9ZZ02, Rev. 1, "Preventive Maintenance"
- 30PR-9ZZ01, Rev. 1, "Maintenance Program"

Procedure reviews and discussions with maintenance personnel were conducted to verify that a maintenance program had been developed in conformance with proposed Technical Specifications, regulatory requirements, and commitments to industry standards.

The inspector concluded that the maintenance program was in accordance with requirements and documented appropriately.

Implementation of the maintenance program was not inspected due to the recent turnover of responsibilities for review of work packages. This will be examined during future inspections.

No violations or deviations were identified.

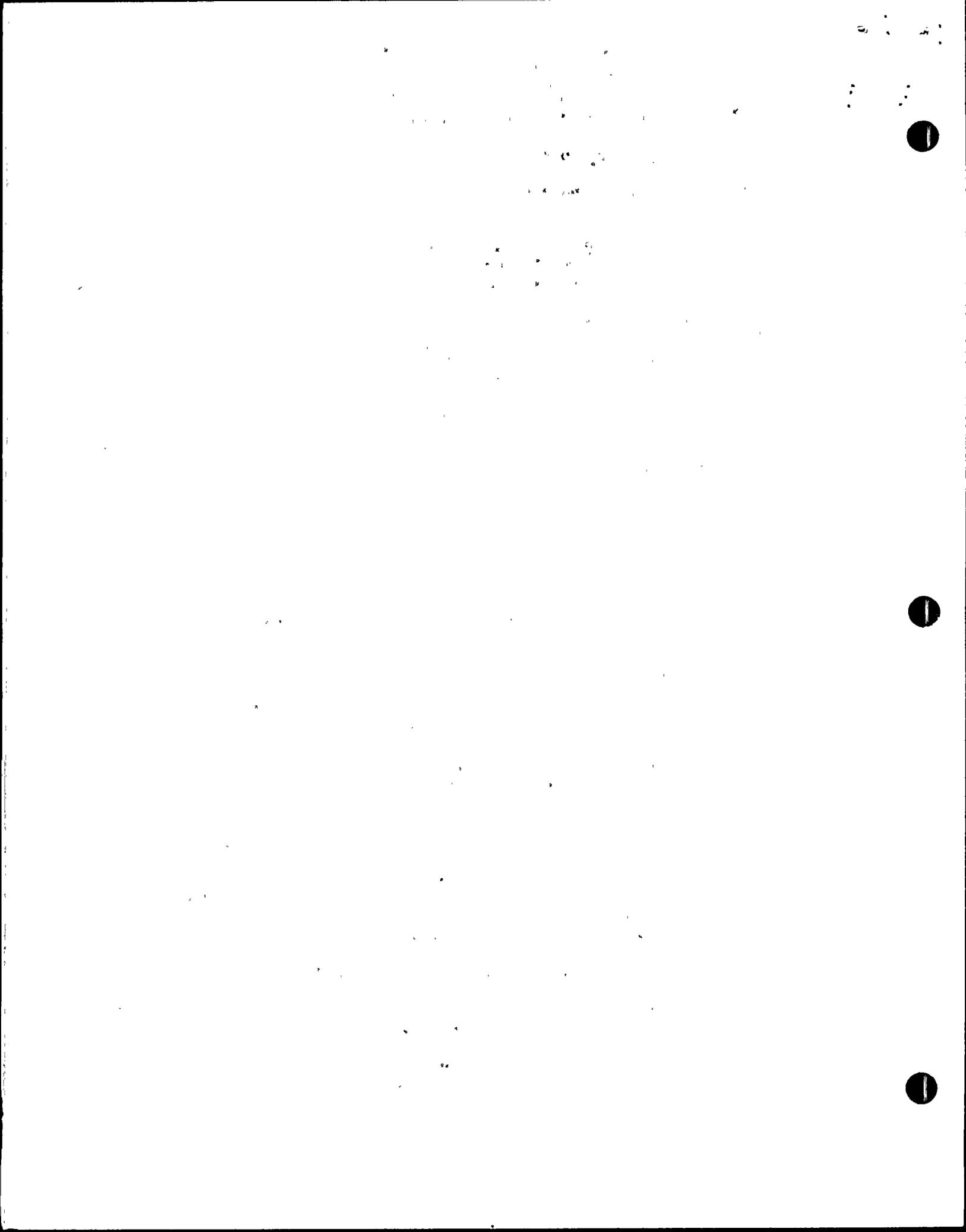
19. Maintenance Training

The inspector reviewed the following Station Manual Procedures to evaluate the maintenance training and qualifications program in effect at the site:

- 80PR-0ZZ01, Rev. 3, "Training Program"
- 83TR-0ZZ04, Rev. 0, "General Employee Training Pathway"
- 83TR-9ZZ01, Rev. 0, "Maintenance Specialty Training"

Based upon discussions with maintenance superintendents for the mechanical, electrical, and I&C disciplines and a review of procedures, the inspector noted that the process to establish the qualifications for maintenance personnel was incorporated into written procedures. Station Manual Procedure No. 83TR-9ZZ01, Rev. 0, (Maintenance Specialty Training), defines the pathway for training of maintenance personnel and their trainees. However, the licensee is presently hiring only journeyman level personnel to perform maintenance functions and this procedure is not being used. The program for establishing the qualifications consists of numerous telephone and personal interviews, a written exam, and a "hands-on" practical test. This program is not included in procedures and the test records are not a part of the individual training files. In addition, the inspector found that the licensee had not established criteria by which an individual maybe deemed fully qualified to perform his job function and duties.

The inspector found the program currently in use for establishing the qualifications of maintenance personnel needs to be revised to reflect actual practice, including definition of records storage requirements.



Upon notification of this finding at the exit meeting, the licensee committed to draft a procedure outlining the basis for the qualification of maintenance personnel.

Maintenance training remains an open item to be followed up during a future inspection. (84-38-03)

20. Training Records for Resident Engineers

A. Bechtel Engineers

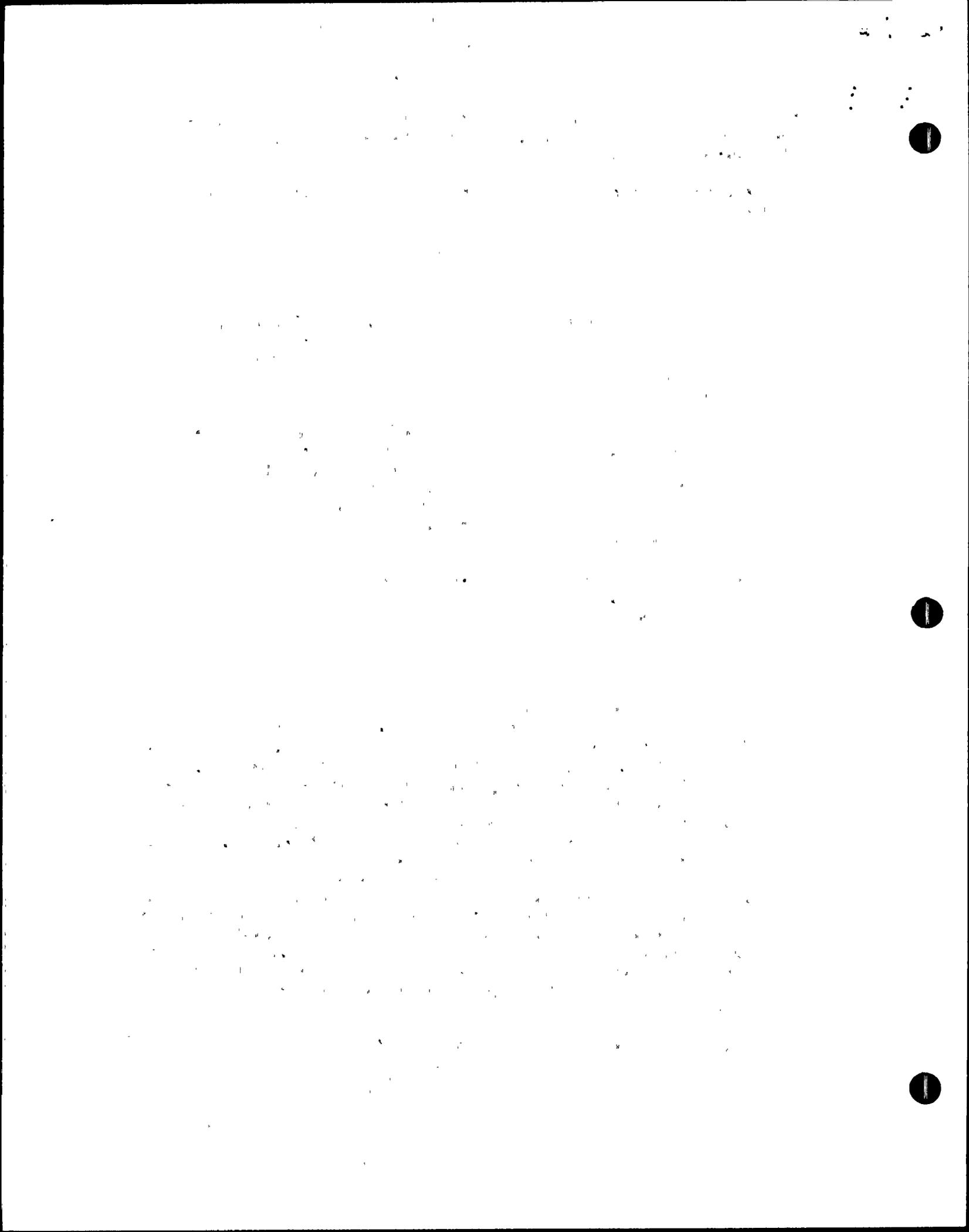
The inspector examined the training records for Bechtel project engineers assigned to the Palo Verde site for conformance to Bechtel Engineering Department Procedure No. 5.34, "Engineering Indoctrination and Training." The inspector found that contrary to the procedure, the records indicated that about 30 engineers had not received the required training. Additionally, an Interoffice Memorandum, dated October 18, 1983, indicated that management had become aware that many engineers were not returning their training sheets and, therefore, were not in compliance with the procedure requirements. Apparently, sufficiently high levels of licensee and Bechtel management were not advised of the discrepancy with the result that the identified discrepancy was still not corrected almost eleven months later.

The failure to comply with training requirements as specified by procedure is considered an apparent item of noncompliance.
(50-528/84-38/04)

B. APS Engineers

The inspector examined the training records for APS resident engineers assigned to the corporate office in Phoenix, Arizona, for conformance to APS Nuclear Projects Procedure No. NS-5, "Indoctrination and Training." The inspector found that APS Audit No. S-84-002 had determined that a considerable disparity existed among the training records of the three engineering discipline groups. As a corrective action, a responsible group was created to establish parameters for consistency in procedures, syllabi, and required training documents. At present, the licensee has revised their training procedure to comply with this commitment. Nevertheless, the inspector reviewed the training records of the engineers to assure conformance to the previous revision of NS-5, to establish that all engineers received training in a timely manner after being assigned to the project and that all training requirements had been complied with as specified by the previous revisions of the procedure. The inspector found that the records examined complied with the previous revision of the training procedure.

No violations or deviations were identified.



21. Audits

The inspector reviewed two licensee audits of Bechtel design activities conducted in 1983 and 1984. The following two audits were reviewed.

<u>Audit No.</u>	<u>Audit Date</u>	<u>Topic</u>
S-83-029	August 4, 1983	Design Control
S-84-002	April 26, 1984	Design Control

The audits were reviewed to assure that the audits were comprehensive, that items were closed out in a timely manner, that sufficient documentation was reviewed to assure that an item had been properly addressed and resolved before closure, that items were followed up as necessary, and that audit checklists were retained as part of the permanent record.

The audits reviewed were found to be comprehensive and of sufficient depth to identify and correct problems found in the area audited. However, one NRC concern was identified and this item is further described in paragraph 22, below.

22. Radwaste System

During the review of APS Audit No. S-84-002, dated April 26, 1984, the inspector noted that a Corrective Action Report (CAR) No. CA-84-0138, had been written indicating that the Bechtel Design Criteria was out of date relative to the requirements of Regulatory Guide 1.143. The licensee stated in Amendment No. 4 to the FSAR, dated May 1981, that they complied with Regulatory Guide 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light Water Cooled Nuclear Power Plants," Revision 0, dated July 1978. The CAR is still open and is currently being processed by the licensee's system for resolving these issues. However, due to the late stage of construction and the proximity of the licensee's targeted fuel load date, the NRC is concerned whether the Radwaste and Steam Generator Blowdown Systems are constructed and designed in accordance with the Regulatory Guide's requirements, including the Quality Assurance requirements stated therein.

Discussion with the licensee indicated that the systems are constructed and designed in accordance with the project's Class "R" requirements. The licensee further states that Class R components are under a Quality Assurance Program consistent with the requirements of Regulatory Guide 1.143.

This issue was referred to NRR for evaluation and resolution.

23. Interview with Workers

In order to assess the receptiveness of supervision to worker's safety concerns, 50 interviews of both APS and Bechtel craftsman and first line supervision were conducted. Additionally, 43 of those interviewed were

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specifically asked if they felt intimidated or harassed. The interviewees indicated that they have not felt intimidated, harassed or restricted in the performance of their jobs. Two individuals, however, acknowledged that there was a high degree of schedular pressure and mandatory overtime requirements. Even so, these persons could not point out instances where these pressures had caused improper quality situations. These issues were already known to the NRC and will be followed up during subsequent inspection activities. All but three workers interviewed said they felt their supervision is receptive to their work related concerns.

An area of potential concern, which was noted during the interviews and subsequently discussed with licensee management, involved a need for APS to review and reassess the use of required overtime and the impact of schedular pressures to assure they do not impact on safety. APS management acknowledged the comment. A second area of potential concern dealt with the thoroughness of training (general administrative and maintenance related). This area will be evaluated during a subsequent inspection (84-38-05).

Workers Interviewed

<u>Discipline</u>	<u>No. Interviewed</u>
<u>Arizona Public Service</u>	
QA/QC Inspectors and Engineers	11
I&C Technicians	6
Electricians	4
Mechanics	4
Resident Design Engineers	7
<u>Bechtel</u>	
QC Welding Inspectors	3
Electricians	2
Pipe Fitters/Welders	5
Resident Design Engineers	8

24. Exit Meeting

On August 31 and September 15, 1984, an exit meeting was conducted with the licensee representatives identified in paragraph 1. The inspectors summarized the scope of the inspection and findings as described in this report. The licensee acknowledged the violation identified in the area of project engineer training record completion.

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