U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-528/84-39, 50-529/84-28 and 50-530/84-19

Docket Nos. 50-528, 50-529 and 50-530

License Nos. CPPR-141, 142 and 143

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

Facility Name: Palo Verde Nuclear Generating Station - Units 1, 2 and 3

Inspection at: Palo Verde Construction Site, Wintersburg, Arizona

Inspection conducted: September 4 - October 26, 1984

Inspectors: PDNarbut — 12/3/84
P. P. Narbut, Reactor Inspector — Date Signed

Kenneth D. Ivey, Jr. — 12/3/84
K. Ivey, Reactor Inspector — Date Signed

J. D. Burdoin — 12/3/84
J. Burdoin, Reactor Inspector — Date Signed

Approved By: J. M. Miller — 12/3/84
L. F. Miller, Jr., Chief — Date Signed
Reactor Projects Section 2

Summary:

Inspection on September 4 - October 26, 1984 (Report Nos. 50-528/84-39, 50-529/84-28 and 50-530/84-19)

Areas Inspected: Special unannounced inspection by regional based inspectors of allegations regarding system turnover, documentation improprieties and engineering errors. This inspection involved 161 inspector hours onsite by one NRC inspector. These allegations were also examined partially during other routine inspections starting in February 1984. (The inspector-hours involved in those earlier partial examinations were captured in the respective reports issued. The total onsite inspection hours for this allegation is therefore 267 inspector hours).

Results: No violations were identified in this inspection. However, peripheral information as a result of the allegation led to the issuance of a violation in an earlier report as explained in the body of this report.

DETAILS

1. Persons Contacted

a. Arizona Public Service Company (APS)

*W. Ide, Director, Corporate QA/QC
*L. Souza, Assistant Manager, Corporate QA/QC
*R. Hamilton, Quality Monitoring Supervisor
*C. Russo, Manager, Quality Audits and Monitoring
*N. W. Lossing, Quality Investigation Group Supervisor

Due to the extended period of time covering the full examination of these allegations, February 27 through October 26, 1984, an extensive number of licensee and contractor management, engineering, quality assurance and quality control personnel were contacted. These personnel will not be listed here, but pertinent interviews are documented in the NRC files.

*Denotes those present at the exit interview conducted October 26, 1984.

2. Allegations Regarding System Turnover, Documentation Improprieties and Engineering Errors (Ref: RV-84-A-028)

Background:

The allegations were received in the following chronological sequence:

- On February 17, 1984, a telephone call was received from the Palo Verde Intervention Fund (PVIF) naming an individual (Mr. "A") who was alleged to be reviewing design change packages and changing them improperly. The fund also stated they had a separate affidavit from a different source (Mr. "B") which would show that documentation is improperly changed to match hardware.

- On March 6, 1984, the inspector received an anonymous call from an individual who was later determined to be Mr. "B". Mr. "B" called regarding the problems with Mr. "A" and also related alleged problems with system turnover and engineering errors.

- On March 9, 1984, the inspector received an affidavit of allegations from PVIF. The affidavit was dated February 6, 1984, but the name of the individual making the affidavit had been removed. It was later determined the affidavit was from Mr. "B".

- On April 4, 1984, the NRC Received a letter dated April 2, 1984 from the PVIF. The letter forwarded employee evaluations for Mr. "B". Mr. "B" name had been removed from the documents in all but one place. Thus, Mr. "B"s identity became known to the NRC.

- On July 6, 1984, the inspector called Mr. "B" to provide inspection status and to request a meeting to clarify points. Other telephone conversations ensured in the next several days without a meeting taking place.

° On July 16, 1984, at the request of Mr. "B", a conversation was held with the Government Accountability Project (GAP). GAP was legally representing Mr. "B". This conversation is documented in an NRC to GAP letter dated July 27, 1984. The conversation results essentially preclude the inspector from further contact with Mr. "B" pending release by GAP.

Inspections have been conducted of Mr. "B"s allegations, using the information available, as part of the inspections conducted during the following weeks:

February 27 - March 9, 1984
April 9-20, 1984
July 9-13, 1984
August 20-31, 1984
September 4-14, 1984
September 24 - October 5, 1984
October 15-26, 1984

Pursuit of the allegations led to other areas of concern which were not directly related to the allegations. These areas of concern are described in this report.

The general activities conducted to resolve the allegations were personnel interviews, procedure and records review and hardware examinations.

Summary:

As detailed in the following report, the inspector generally found that documentation changes had been made properly, system turnover had been conducted properly and although engineering errors had occurred, which resulted in an increased number of changes, these changes received proper final resolution.

Allegation No. 134

ATS No: RV-84-A-0028

Characterization

Piping systems were turned over to APS that were not complete and were revised or changed after they were accepted.

From February 6 Affidavit

"7. During the time I worked at Palo Verde as (job deleted), I witnessed systems that were turned over to APS that were not complete and were revised and changed after they were accepted. The systems I can recall most accurately include the fire protection system, demineralized water systems (DW), and cooling water systems (CW)."

As an example of a change he states:

"8. Some NCR's and FCR's were initiated to change or correct welding documents that had either been lost or that had duplicate line numbers. In other words, if a line number was unaccounted for or if a particular line number had already been used and was not duplicated, an NCR or FCR was written and initiated to correct those deficiencies."

He explains the impropriety of this change as:

"9. In order for a (job deleted) to disposition that NCR or FCR we were instructed to go to the Welding Department and they would supply us with a new weld number and the individual welder that had done the welding. The project had a high turnover of welders but we were never instructed to check the qualifications or certifications of the welders that were given to us by the Welding Department. We would write the new weld number on the FCR and send it to Bechtel headquarters in Downey, California."

From the March 6, 1984 Telecon

"B. The alleger then talked about the N-5 data packages:

- Weld numbers had been changed.
- Quite a few cases where the certification number of the welder was involved
- If they had duplication of the weld number they changed the weld number.

The inspector asked about specifics on the above. The alleger said to talk to:"

Note: Four persons were named; the names have been deleted from this report.

"He said they could provide specifics. He said CAR's were written as a result of these N-5 reviews."

Implied Safety Significance

° System revision after turnover - there would be no safety significance to system revision after turnover if such system revisions were properly controlled and documented.

° NCR's written to change or correct welding documents - there would be no safety significance if document discrepancies were properly recorded and resolved.

- The welding department would provide new weld numbers and the name of the welder to the Resident Engineer (RE) for NCR resolutions - there would be no safety significance provided the information provided was accurate.

Approach to Resolution

Interview the personnel identified by Mr. "B" for the specific information Mr. "B" stated they would have. Determine the procedural requirements for system turnover (in an incomplete status) and determine if the procedures were violated. Determine if actions taken on NCRs dealing with weld documentation was proper.

Assessment of Safety Significance

Turnover

Portions of completed systems are "turned over" at various times to various groups at Palo Verde. The procedure that applies is WPP/QCI No. 31.0, "Subsystem Transfer/Area Release." The inspector examined two versions of the procedure: the one in effect when Mr. B was employed (Revision 12 of February 24, 1983) and the current revision (Revision 14 of February 17, 1984).

The procedures address the process and requirements for transferring subsystems from Construction to Startup and a release from Startup to Operations. The procedures require walkdowns of the subsystems to identify incomplete and/or discrepant work and require that work to be listed on a Incomplete Item List (IIL) or a nonconformance report (NCR).

The procedures require a documentation package for the subsystem and require that a documentation review be performed.

The procedures allow work to be performed on a component after final acceptance and also allow, when mutually agreed, unresolved documentation items at the time of transfer.

The Revision 12 version of the procedure includes "Exhibit 31.0-18", which is the form used to record a specific list of "open" documentation during transfer. NCR's, Design Change Packages (DCPs), and Modification Change Notices (MCNs) are the types of documentation to be included in the documentation package at the time of subsystem transfer or release.

Therefore, the inspector concludes that Mr. "B"s statement that systems were turned over incomplete does not constitute a violation of the licensee's procedure and is not, by itself, an impropriety.

The inspector interviewed the parties named by Mr. "B" to determine if they had knowledge of any improprieties in the turnover process.

Mr. "C", named by Mr. "B" as a person who could provide some specific examples, had participated in the turnover process in two ways. First he had performed the subsystem walkdowns for turnover to ensure all incomplete items were listed. Secondly, as an agent of APS, he performed

a turnover package documentation review. APS does not perform a 100 percent re-review of documentation packages (100 percent is reviewed by Bechtel). Rather, the APS procedure QAD 17.1, "Review of Construction Quality Records" requires a sample of those records be reviewed to test the accuracy of the Bechtel review. Mr. "C" indicated subsystems were turned over incomplete for purposes of getting testing done but the incompletions were included on the "IIL" (incomplete items list) required by procedure. He stated changes were made after turnover, but these were done under Startup work controls, per procedure. He knew of no specific problems with the fire protection, demineralized water or cooling water systems. He stated that, during the transfer walkdowns, problems were identified, but were documented for correction.

In regard to duplicate line numbers, Mr. "C" had noted these in his document reviews. He stated that these had been observed during the Bechtel review and they had written the appropriate documents to rectify the problem (MCNs and FCRs). He considered these minor administrative errors which were properly caught in final review.

Mr. "C" was not aware of any missing weld documentation problems. Mr. "C" stated he had identified problems in the Bechtel review process when he overviewed it for APS. The problems he identified were documented on Corrective Action Requests (CARs) and concerned missing signatures and missing QC stamps on some inspection documentations primarily in the piping area. These had been satisfactorily resolved.

In summary, Mr. "C" had no specific information which would indicate improprieties in the turnover process, nor improper use of NCRs and FCRs for welding documents. He indicated there had been duplicate line numbers identified in the review process but these had been documented and corrected.

Mr. "D" was also named by Mr. "B" as an individual who could provide specific examples of problems. Mr. "D" was not heavily involved in the turnover process and had a position on the Resident Engineer's staff.

Mr. "D" stated that RE's had not been directly involved in the turnover process, but he knew turnover was permitted with incomplete items and he was not aware of improprieties in this area.

Regarding weld documentation, he had been involved in the resolution of some problems with duplicate weld numbers or in some cases two weld numbers for the same weld. These were primarily for small bore pipe and concerned problems like "FW-001" listed as "W-001." He considered the problems as administrative numbering problems and not falsification issues.

Regarding changes to the systems after turnover Mr. "D" stated these were done by Startup and were changes like adding drains and drain valves for water traps in lines. He stated he understood these additions by Startup had been done after subsystem transfer to Startup but had not been properly reflected in design documents initially. However, he stated they were caught in the walkdowns performed after the NRC Construction Assessment Team (CAT) inspection and recorded on proper documents (FCRs).

Mr. "D" referred the inspector to another individual, Mr. "E", who was heavily involved in the post-CAT inspection walkdowns.

Mr. "E" was interviewed and stated the walkdowns performed after the CAT inspection did identify certain problems. He stated the walkdown found such things as a valve operator off the valve and tubing lines re-routed. The walkdown results were recorded and resolved by such documents as nonconformance reports and field change requests.

The inspector examined the procedure used for the engineering walkdown; I.P.-5.26, Revision 1, dated April 30, 1984. The procedure required a walkdown against design drawings and modifying documents such as nonconformances and Field Change requests.

The inspector examined the piping walkdown results for the Unit 1 Auxiliary Feedwater System (subsystems AFW-01, 02, 03). There were seven valid findings as a result of the piping system walkdown. Three dealt with Startup caused items such as caps removed and temporary hose connections installed without proper tagging. The records show that these were documented on nonconformances and corrected. Four other walkdown findings dealt with minor as-built discrepancies such as drafting errors on the P&ID (improper symbol for a reducer), and a valve hand wheel orientation 90° different than shown. These four conditions were recorded on FCR's and appropriate action taken. No hardware changes were required as a results of the walkdown other than the removal of temporary test equipment installed by startup.

In summary, the results of the inspector's review of the Auxiliary Feedwater System walkdown results showed the piping configuration met the design drawing requirements with some minor exceptions, identified and corrected by the licensee. The review also showed some startup work control problems which had been pointed out during the CAT team inspection. The corrective action for Startup work controls was addressed in response to the CAT inspection and need not be addressed further here.

The inspector also interviewed Mr. "F", another individual named by Mr. "B" who would have specific examples of problems. Mr. "F" stated he had been involved in the turnover process from Construction to Startup. He was aware of incomplete systems turned over but this was done properly with an incomplete items list required by procedure. He stated there were individual problems identified with some welding documents in the review process but these had been recorded on corrective action reports and properly resolved. He stated there was an instance where a response to a CAR dealing with the welding of dissimilar metal socket welds was initially answered to rework the items in Units 2 and 3 but to accept the items for Unit 1. He considered that answer improper for Unit 1. The answer was appealed and eventually changed to rework Unit 1 as well. The item was subsequently reported to the NRC as DER 83-32. Mr. "F" suggested the inspector talk to Mr. "G" who was heavily involved in weld document issues at the time of the turnovers.

The inspector interviewed Mr. "G" who stated that he too had worked the turnover process as a turnover package reviewer. He was not aware of any incomplete work which had not been properly identified on the incomplete items list. He was familiar with welding deficiencies identified in the turnover process. There were problems with duplicate spool numbers primarily due to the fact that the onsite small bore pipe fabrication shop had made assemblies for vent and drains, and instrument root valve assemblies. This was done properly and proper documents were generated. However, in some cases when the shop fabricated assembly was delivered to the unit, it was no longer needed because the field had constructed the assembly, probably for schedular reasons. The field assembly was also proper with proper documentation. However, there now existed two sets of documentation showing different fabrication dates and welders for the same assembly.

He stated these instances had been documented on a CAR and properly resolved.

Another similar problem he described involved small bore vent and drain assemblies, which when originally built, had the attached piping given a pipe spool number, which was specified on the drawing. Later, engineering revised the method of numbering spools on the drawing. When installed, the assembly spool number no longer matched the (revised) drawing spool number. This too was addressed on CAR's and properly resolved. One additional area he identified was the case where a piping line was continued from one drawing onto another drawing. In some cases the same weld number (e.g., Weld "A") was specified twice (once on each drawing) for different welds on that line. This was not a significant problem, he stated, since weld documentation shows the weld number, line number and drawing number and, therefore, the weld could be differentiated by the different drawing numbers. However, the problem was recorded on MCNs (modification change notices) to renumber the duplicate weld numbers.

Weld Documents

In regards to Mr. "B"s concerns regarding the dispositioning of NCRs by going to the welding department to get a new weld number or to identify, the welder that had done the welding, the inspector solicited examples of such documents from the individuals named by Mr. "B". One individual provided a list of NCRs which concerned weld problems.

Review of the NCRs on this list led to several conclusions on the part of the inspector. One conclusion, which was aside from Mr. B's concerns, had to do with after-the-fact welder qualification which resulted in a violation (Reference Report 50-528/84-15).

A second conclusion was that generally the resolution to NCRs provided by the Welding Department appeared to be well founded and well documented. The fact that Mr. "B" was not instructed to check welder qualifications or certifications was not in violation of any procedures. The fact that the N5 package reviews by the review group did identify and document certification problems indicates that there was no attempt to hide such problems. The inspector, therefore, concluded that although Mr. "B" was

not instructed to check welder qualifications, this did not indicate a violation or impropriety had occurred. It simply wasn't Mr. "B's" job to perform that check.

Staff Position

- The alleger's concern that systems were turned over to APS that were not complete and were revised or changed after they were accepted appears to be true; however, the processes employed to accomplish these activities were responsibly provided for and controlled by management. The inspector determined that these processes were apparently effective. The persons the alleger indicated could provide specifics stated that any incomplete items were properly listed in the turnover documentation.

- The alleger's concern that NCRs and FCRs were initiated for welding documents that were lost or had errors appears to be true; however, this was accomplished in a well controlled process and, thus, does not constitute a violation or impropriety.

- The alleger's concern that he was not instructed to check welder qualification is true but does not constitute a violation or an impropriety. It was not Mr. "B's" job to perform these checks and the licensee had other measures in place to accomplish these checks.

Action Required

None.

Allegation No. 135

ATS No: RV-84-A-028

Characterization

The design field engineers were responsible for bringing the prints up to date to match the as-built condition of the plant.

From the February 6, 1984 Affidavit

"10. The Design Field Engineers (DFE) at Palo Verde were responsible for ensuring that all the changes made to a particular system and all the paperwork on that system matched both the prints and the specified construction of that system before it was turned over to APS. These paperwork packages that accompanied each system were termed N-5 packages. Thus, the DFE were responsible for bringing the prints up to date to match the as-built condition of the plant."

From the March 6, 1984 Telecon:

"E. Regarding the N-5 review, the alleger stated the RE, (name deleted) did reviews. He found "Y" valves not installed per plan. A CAR was

written. The impropriety he worried about was if the CAR was bought off improperly - he didn't know."

Implied Safety Significance

Bringing prints up to date to match the as-built condition of the plant

There would be no safety significance to this item if final review discrepancies between documentation and hardware were properly documented and resolved.

"Y" Valves not installed per plan. There would be no safety significance if the CAR was written (as stated) and properly resolved.

Approach to Resolution

Determine the types of hardware vs documentation discrepancies identified during the N-5 reviews. Determine how they were documented and resolved. Interview the individual who identified the "Y" valve problem. Review the CAR and CAR resolution.

Assessment of Safety Significance

The inspector interviewed the "Codes and Standards" individual responsible for the N-5 data reviews and reviewed the applicable procedure WPP/QCI 26.4 Revision 4, "Preparation of the N-5 Code Data Package."

The N-5 code data report is applicable to ASME Code Piping and Components. The procedure requires that the applicable drawings be identified and all documents that affect the as-constructed condition be listed in the report. The procedure required that the Codes and Standards Group prepare the N-5 package and coordinate (problem resolution) with QC, DFEs (Discipline Field Engineer), and the RE. QC and the Field Engineer certify that each system described by the N-5 package has been constructed as described. The RE certifies the design is complete and is reconciled with all modifications shown in the package.

The responsible Code and Standards individual described the N-5 review process in the following manner: All applicable documentation was gathered including material certifications, weld records and installation records. The review was totally a documentation review for consistency and completeness. For Unit 1, the review started in December 1982 and completed in July of 1983. When problems were encountered, such as the recording of different heat numbers for a pipe spool or missing weld documentation, the reviewer made an informal problem list. The problem lists were passed to the applicable action party (the field engineers or QC) to resolve the problem. If the problem was resolved by finding the proper documentation (e.g., weld record) the problem was considered resolved. If the record could not be found, a nonconformance or other document was generated to obtain corrective action.

The inspector concluded the "N-5" data review was a documentation review and does not lead to concerns stated by the alleger that the DFEs brought prints up to date to match the as-built condition.

The DFEs are responsible to confirm that systems conform to the latest issue of applicable drawings and design modification documents such as NCR and FCRs. This confirmation is required in procedure WPP/QCI 31.0, "Subsystem Transfer/Area Release" which was discussed in Allegation No. 134. The procedure applies to the transfer of subsystems from Construction to Startup and from Startup to Operations. The procedure required a walkdown to confirm the subsystem being transferred conformed to the latest drawing and amending documents and required the listing of incomplete items. It also requires documenting any nonconformance found.

The transfer package also included documentation for the subsystem but allowed documentation exceptions to be listed as incomplete.

The inspector concluded that no impropriety was suggested by this allegation. The DFEs are responsible to ensure that the as-built hardware is in agreement with the design documents which include the prints and modifying documents such as NCRs and FCRs. They were also responsible to record any discrepancies discovered during the transfer walkdown as nonconformances. These nonconformances may be "accepted as-is" and thereby become part of the as-built record, but this is not improper. A potentially related issue, is that the field engineers did not follow the procedure requirement to record discrepancies on NCRs, but rather used FCRs. This subject is discussed in Allegation No. 137.

The inspector also interviewed the individual that Mr. "B" stated had found "Y" valves not installed per plan. The individual, Mr. "H", stated he had been temporarily assigned to the N-5 reviews for valves, and had also been involved in the resolution of those problems as the resident engineer expert in valves. He stated he had no knowledge of any problems concerning "Y" valves. From his background in valves he stated that "Y" valves are acceptable alternatives to straight valves and often both types are listed on Material Classification List. He stated he did identify problems in his N-5 reviews but these were properly resolved by NCRs or FCRs. He stated "Y" valves and straight valves are functionally equivalent.

The inspector also interviewed Mr. "C", "D" and "E", regarding the "Y" valve problem. Mr. "C" had no recollection of Y valve problems. Mr. "D" stated he did not remember any "Y" valve problems. He did recall that "R" class (non-safety valves) had been installed in a "Q" class system but this had been reported on a nonconformance and resolved. Mr. "E" stated he was not aware of any "Y" valve problems.

The only item identified concerning "Y" valves was noted by the inspector in his review of the Auxiliary Feedwater System engineering walkdown package discussed in allegation No. 134. This package contained some FCRs which dealt with Y valves, however, the problem identified was a drafting detail, specifically that where Y valves were installed, the isometric drawing depicted straight stem valves. The inspector does not

consider this technically significant (ordinary drafting convention does not demand the "Y" valves be depicted differently).

In regards to the alleger's concerns regarding "Y" valves, the inspector was unable to identify any problems related to "Y" valves.

Staff Position

The inspector concludes that no impropriety is suggested by the DFEs recording discrepancies during their transfer walkdown. No "Y" valve problems were identified.

Action Required

None.

Allegation No. 136

ATS No: RV-84-A-028

Characterization

The prints do not reflect the as-built conditions. FCR's are not attached to clarify the drawings.

From the February 6, 1984 Affidavit:

"11. The DFE were also responsible for ensuring that the prints for Units 2 and 3 matched the as-built prints for Unit 1. However, when they went to Unit 2, systems had been installed differently so the as-built prints for Units 1 and 2 no longer matched the prints for Unit 2. As a result the prints were changed again for Unit 2 as-built. The FCR's for Units 1 and 2 are attached to the prints to clarify the drawings. Also, these changes cannot be Design Change Notifications unless the FCR is for all three units."

As an example he states:

"12. The fire protection system is different for Units 1 and 2. There are systems where all three units are different but the drawing does not represent this because the FCR's are not attached to the drawing. (Name deleted) has the as-built file for the plant on a computer in Downey, California."

Implied Safety Significance

If the as-built hardware is not in substantial agreement with engineering drawings and amending documents, then a loss of engineering control may have occurred. This could invalidate the engineering analysis performed to ensure design requirements were met.

Approach to Resolution

Determine how as-built conditions are required to be documented and whether the as-built procedures are being followed.

Assessment of Safety Significance

The project requirements for as-built records are described in procedure IP-4.33, "As-built Records". The procedure requires the as-built condition of a system in a unit to be contained in a computerized Design Document Register, which will list the applicable design drawing and modifying documents (such as NCRs and FCRs) that are applicable to that drawing.

The procedure does not require "as-built" conditions for a system in a unit to be reflected on a single specially prepared as-built drawing. Therefore, the inspector had difficulty in understanding the alleger's concerns. Specifically there are no "as-built prints" as he indicates initially in his statement. Secondly, in the NRC inspections conducted of as-built hardware during September 1983, the inspectors found that to inspect a system in a unit the inspector would determine the applicable drawing and then go to the Design Document Register to obtain a list of the modifying documents that applied to that drawing. Obtaining copies of the modifying documents was reasonably efficient through document control. The alleger's statement that FCRs are not attached to the drawing is true, but identification and assembly of applicable FCRs did not prove to be a problem.

The alleger's statement that the fire protection system for Units 1 and 2 are different, may well be true, but would be acceptable if the as-built condition were properly reflected on modifying documents such as FCRs and NCRs.

Note: As reported in 50-528/84-10, the licensee had identified and was resolving problems with the subcontractor installation of fire protection system. Specifically, installations were not found to be in full conformance to design drawings.

Staff Position

Individual prints are not required to reflect as-built conditions and do not. Unique as-built conditions are specified by amending documents. FCRs are not attached to drawings, they are not required to be. The applicable FCRs are readily identifiable and retrievable.

Action Required

None.

Allegation No. 137

ATS No: RV-84-A-028

Characterization

During N-5 data package reviews DFE's wrote FCR's when they should have written NCR's (nonconformances).

From the February 6 Affidavit

"13. In some cases the N-5 package for a particular system did not match the actual construction of that system so the DFE's wrote FCR's so that the N-5 package would match the construction of the system. Myself and another (job deleted) turned down some of these FCR's because they should have been processed as MCR's since there may had to have been pipe class changes or other modifications."

As as example he provides:

"14. Myself and (name deleted) were processing an average of 500 FCR's a month. When we received an FCR we would go back and check the valve designation list, the line list or the weld numbers, depending on the nature of the change request. Many of these FCR's were not approved by us because the system needed to be modified."

Implied Safety Significance

None. Field change requests (FCRs) and nonconformances (NCRs) both result in a review by engineering for any changes. Procedurally, however, if the item had been accepted by QC an NCR should be written, not an FCR. Although, in the ideal case, final reviews should not identify any discrepancies the purpose of the N-5 documentation review and the transfer walkdowns were to identify any previously missed discrepancies.

Approach to resolution

Interview the individual named by the alleger. Determine if FCRs were written in lieu of NCRs.

Assessment of Safety Significance

The inspector interviewed the individual named by the alleger. He indicated that he questioned some "as-built FCRs" which should have been NCRs. He suspected they were written as FCRs because of "image." The individual did not provide any specific examples. The inspector then reviewed the Auxiliary Feedwater System walkdown package, which included all applicable as-built FCRs, and selected those FCRs indicated as "as-built" which were generated during the time of the Unit 1 N-5 package review.

This review of all FCRs applicable to Unit 1 AFW system identified four FCRs that were called out as "as-built" FCRs and warranted detailed review. The four FCR reviews, and findings as to whether they should have been NCRs, are detailed below:

FCR 59,624 dated April 15, 1983, authorized deletion of a drawing callout for 3-inch nipples. The work had been accepted by QC on March 29, 1982 and April 14, 1982 to revision 2 of drawing 13-P-AFF-134. Revision 2 to the drawing had already deleted the pipe spool numbers for these nipples but had failed to delete the words "3-inch nipples". The inspector considers the FCR appropriate in this case (as opposed to an NCR) since the change appears to be editorial and would have been satisfactory without either an NCR or FCR.

FCR 60506 written April 27, 1983, addresses non-safety steam drain piping. See the FCR 66,699 (next) for an analysis of this FCR since they apply to the same non-safety steam drains.

FCR 66,699P dated August 11, 1983, dealt with non-safety steam line drains and depicted an as-built condition which differed from the design drawing. The types of differences were, for example, an as-built length of run dimension of about 8 feet (vs the drawing dimension of about 5 feet), whereas the specification (13-PM-205) allows only a ±4 inch tolerance. The FCR had been generated as a result of the turnover walkdown for configuration. The piping assembly as installed had been accepted on April 30, 1982. Since this was non-safety piping, only the Field Engineer signs for configuration per drawing, QC is not involved. However, because the piping assembly was final accepted prior to discovery of the out of tolerance installation dimension, the problem should have been reported on an NCR rather than an FCR. If the subject piping had been safety piping this would have been a violation of NRC regulations for the failure to follow procedure.

The inspector attempted to interview the field engineer who had originally approved the installation and the resident engineer who had prepared the FCR (in lieu of NCR). Neither engineer was employed at the site at the time of inspection.

FCR 53,605 dated January 12, 1983, was written as a result of a field report by the Startup Organization (SFR 1CT-007 dated January 3, 1983). Both documents describe the fact that 1-inch valve 1PCTB-V029 is required by drawing to be a gate valve but a globe valve is installed instead. The FCR was approved to change the drawing to show a globe valve rather than change out the valve. The inspector considers the technical resolution is satisfactory. However, two administrative errors occurred.

First, the original construction installation should not have been accepted by construction QC, and secondly, upon discovery of the original error (later) by startup, a nonconformance should have been written, not an FCR. The valve's original construction installation was approved in error by construction QC on December 10, 1981.

The valve installation card is the document which tells the craft, and QC what specific valve is to be installed. In this case, the valve installation card shows a "Mark 115" valve is required (which is the proper 1" gate valve) but a Mark 374 valve had been installed. The inspector requested the licensee to remove the valve insulation and examined the valve. The inspector verified that the installed valve is a Mark 374 1" globe valve of the proper quality class, material size and ASME Code Class. The valves, Mark 374 and Mark 115, are physically similar, and are both used in the piping runs in the immediate area.

The inspector interviewed the QC inspector who had approved the installation. He stated that he must have missed the Mark number of the valve but his practice, as required by procedure, was to check the mark number, serial number material, quality class, flow direction orientation, size and cleanliness of the valve.

The inspector reviewed other documentation of the installation. The N-5 Code Date Report (package 1CT01-1) properly shows the serial number of the globe valve actually installed. The accompanying vendor data and certifications are for the globe valve actually installed. The licensee's "Valve Designation List," a computerized method of identifying installed components, properly shows a Mark 374 globe valve installed in 1PCTB-V029. Likewise the "System 38" computer listing for the valve properly shows a Mark 374 globe valve installed.

Regarding possible violations it has not been the NRC policy to issue violations in the construction area for problems identified by the licensee's QA system. In the case of this valve, the problem was discovered by the licensee as a result of a test engineers observation during system flushing, resulting in the SFR on January 3, 1983. The system was transferred to startup on February 11, 1983 and the transfer walkdown properly did not have to again identify the already documented problem. The second walkdown, the design verification walkdown, (conducted in 1984 as a result of the CAT inspection) properly did not have to identify the already documented and accepted problem. It appears the licensee identified the problem and took appropriate corrective action, therefore, a violation is not warranted.

In regards to the administrative problem, writing FCRs rather than an NCR's, the SFR on the globe vs gate valve was inappropriate in that an NCR should have been written. The SFR was eventually resolved with an FCR as would have been done if an NCR had been written. Therefore, proper engineering reviews were performed. However, an NCR would have been trended and reviewed for reportability. In the case of this valve, the condition would not be reportable since, if the condition were undiscovered and uncorrected, no safety hazard would exist.

Further, the inspector found that the licensee had written a large number of corrective action requests (CARs) dealing with this issue: use of FCRs where NCRs were the appropriate document.

The inspector examined these APS/Bechtel CARs dealing with the misuse of FCRs/SFRs in lieu of NCRs. CAR CA84-0161, dated May 30, 1984, deals with several SFR problems, one of which is the use of SFRs where NCRs are required. The corrective action included a sampling program which determined the extent of this problem to be that approximately 1.5% of the SFRs written should have been NCRs. CARC83-50N, dated March 18, 1983, deals with weld numbers changed by FCR which should have been NCRs. CARC83-64D, dated April 4, 1983, describes an FCR written for a nonconforming pipe support CAR CA-83-0076 dated October 26, 1983. CAR C83-25N, dated February 15, 1983, deals with deletion of drain valves by FCR which should have been by NCR. The disposition of the CAR includes a "memorandum of reinstruction" dated March 22, 1983 addressed to the resident engineers who process FCRs.

The above collection of CARs demonstrated that the licensee QA was aware of the NCR/FCR/SFR problem and has attempted to correct it.

Since it is not NRC's policy to issue a violation for a licensee identified problem, which does not have great safety significance, the inspector does not consider FCRs/SFRs used in lieu of NCRs to be a violation. At the exit interview held October 26, 1984, the licensee management committed to assess the current use of FCRs and SFRs and determine if the corrective action taken as a result of the CARs was effective (Followup item 50-528/84-39-01).

The inspector interviewed a named individual to determine what types of technically improper FCRs were submitted and how many. The individual stated there were no more than half a dozen and they concerned dimensional errors or a series of issues on pipe class changes. The pipe class change issues were described on several FCRs (57,186P, 48,241P and others) and concerned whether the pipe class change in a run of pipe should be at a weld (which is normal practice) or can be at an arbitrarily defined point (such as 3-inches from the weld). Technically, the issue has no significance. The issue is one of code interpretation. The inspector concurs in the licensee's final disposition that the Code (which allows the code break point to be defined by the owner) has not been violated.

The issue was surfaced through an NCR (WT-708 dated March 14, 1983) which stated a weld a code break point was made to the lower code class contrary to procedure. A CAR (C83-52N) was generated, as a result of the NCR on March 24, 1983, and the issue defined to be moving the code break point to an arbitrary point rather than at a weld. The issue was well aired and included management personnel from APS QA and Engineering. The inspector considers the allegation regarding pipe class changes to be properly resolved.

Staff Position

The allegation that FCRs were improperly used in lieu of NCRs was verified but did not have safety significance from a hardware standpoint. The error was administrative in nature.

The fact that FCRs or NCRs were required for completed work indicates errors were made and accepted at the time of construction completion. Although it is true that errors should not be made, the licensee's post-construction reviews and walkdowns appear adequate to identify and correct those construction errors.

The allegation that some FCRs were submitted with errors and were rejected by engineering is not a statement which indicates improper action. The rejection of FCRs through engineering review is a proper action.

Action Required

None for the allegation. Follow the open item identified.

Allegation No. 138

ATS No: RV-84-A-028

Characterization

Some of the Resident Engineers issued FCRs with errors which violated specifications.

From the February 6, 1984 Affidavit

"15. Several times Field personnel would rush through several FCRs late on a Friday afternoon when there was not an adequate amount of time to check them. If we did not sign these FCRs they were taken to Trailer 5 on Saturday and someone else would sign and approve them. (Name deleted) was the Resident Engineer in Trailer 5 that usually signed these FCRs."

"16. Trailer 5 did not go through the regular paperwork process which was to notify the Resident Engineer in main construction about what changes had been processed and which FCRs had been approved. As a result several of these FCRs would backfire and problems would arise. This occurred several times with FCRs approved by Trailer 5."

"17. Myself and (name deleted) were assigned to correct FCRs that had been rejected by (Bechtel) Downey due to errors that caused them to violate specifications, some of these FCRs had been approved by Resident Engineers in Trailer 5."

"18. As a result of reoccurring problems with FCRs that had been signed and approved, (name deleted) plant design lead man in Downey, refused to look at any FCR written or approved by (name deleted) and (name deleted) or (name deleted) and I believe there were others, unless they had been cleared by Downey, myself or (name deleted). (Name deleted) also spoke with (name deleted) about this problem."

"19. During the time (name deleted) and I were processing these FCRs and NCRs we would have difficulty in getting cooperation from the DFE or the construction supervisors so we would turn the problem over (under the table) to a (name deleted) or (name deleted) in Quality Assurance and let them take care of the problem. If necessary, (name deleted) or (name deleted) would initiate a Corrective Action Request (CAR) that was sent to Bechtel management. (Name deleted) would answer the CAR. If (name deleted) or (name deleted) were unsatisfied with the answer they would send it to Downey saying they could not accept it and Downey would either institute the necessary changes or send it back "use as is," so Downey was then responsible for the change."

From the March 6, 1984 Telecon

"F. The alleger did find some improper "answers." He explained there were two RE groups. (Name deleted) took over one RE group. (Name deleted) and (name deleted) will know (about these answers)."

"G. A lot of changes (FCRs) would come in at quitting time. The consensus was the field did this on purpose to rush the answers."

"H. Of the two RE groups the other branch would sign off the FCRs. The mechanical group would sign off piping (name deleted group)."

"I. Bechtel Downey would turn down a lot of these RE approved FCRs and got on (name deleted) group. Work got done even though Downey disapproved the FCR. Work was done improperly, some of it was left, some was changed."

"J. At that time three engineers caused a lot of the trouble:

(Names deleted).

(Name deleted) (at Downey) told (name deleted) that they would not approved FCRs from those guys (or any others in the group) unless Downey approved it first. (The inspector) asked for examples of bad work. The alleger stated (the inspector) should look at:

- Fire Protection
- The battle of vents and drains, not on prints

This he stated could have contributed to the RCP problems by water hammer. He said it tore the cooling water line out. Narbut said he was getting confused, there have been no incidents of RC line failure. The alleger stated it was the HPSI pump, earlier; one line failed. It had water hammer. They added vents. He said to see (name deleted) he'd know. He said there were vents and drains added to Unit 2, not in Unit 1."

"L. The alleger stated there was a third RE group under (name deleted) which has the Water Reclamation Facility. This group is weak also."

"M. The alleger stated he's not trying to nail anybody."

"N. As an example, regarding the pumping station, the alleger discussed (name deleted) who worked under (name deleted). (Name deleted) has a foreign accent and is difficult to understand. When the Intake Structure pipe lining peeled, the lines were replaced but bad valves were reinstalled because APS didn't have any money to replace them. They purchased $35,000 worth of valve gaskets ($800 gaskets). Some of the gaskets were reusable - this was a waste of money. The valves were bad because their linings peeled also, and part of the valve seat came out. The DCP coordinator (name deleted) knows about this. Also the buyer (name deleted) knows about this. (Name deleted) was fed up because he had to purchase and repurchase because of (name deleted). Another fellow knows (name deleted) the subcontracts coordinator. He knows these valves are back in. He fought it also."

"O. The alleger stated "If I was smart I would have kept a record."

"S. The alleger stated this was the worst plant he's worked at in regards to attitudes and work. Bechtel is bringing in younger people like (name deleted) working specifications, specifying valves. He hasn't been there a year."

"T. The alleger said to talk to (name deleted) about the demineralized water lines that rusted and were leaking. They were installed before the cathodic protection system. They could have blocked Unit 1 out. QA, (name deleted) and (name deleted) can fill in on specifics."

"U. (Name deleted) can fill in on FCRs which had to be changed. (Name deleted) is a smart mouth and probably won't be honest with the NRC but he told (name deleted) he wouldn't approve anymore FCRs."

Implied Safety Significance

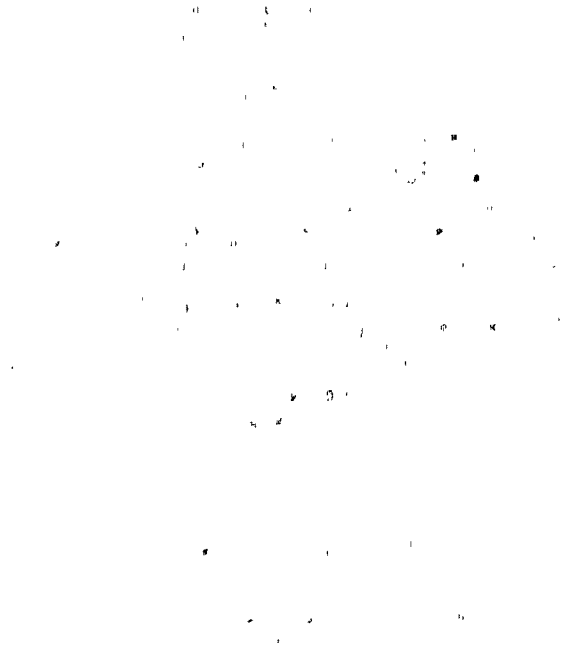
Errors in engineering approved field changes could result in installations not meeting design criteria.

Approach to resolution

Interview the named individuals. Determine the nature of FCRs that "backfired." Determine the nature of the CARs written by QA as a result of "under the table" notification. Determine if they were properly resolved. Determine the issue in the "battle of vents and drains." Determine if it was properly resolved.

Assessment of Safety Significance

The inspector interviewed the persons named by the alleger with some exceptions. The exceptions were taken because the situations described became clear after several interviews.



Rushing FCRs through on a Friday afternoon

The implication is that FCRs were submitted by the field in order to get improper requests approved by Trailer 5 engineers who are alleged to be less competent.

The interviews indicated that it was reasonably common for a slightly larger number of FCRs to be submitted on Friday afternoon. The presumed reason for submittal to Trailer 5 was that there were two resident engineer groups. Trailer 5 was the Startup group. The other group was in the Construction office. The Trailer 5 group worked weekends generally and the construction group did not. Therefore, the field could get FCRs approved by Trailer 5 over the weekend to support resumption of work on Monday. No impropriety was identified by using Trailer 5 in lieu of the construction resident engineers. Both groups were authorized to approve FCRs. No impropriety is suggested by the licensee's actions to meet schedule.

Several FCRs backfired because they violated specifications

The personnel interviewed confirmed that the FCR review process did identify FCRs with errors that had been approved. They indicated the errors were discovered primarily by "Downey" (Bechtels Norwalk California office). They indicated the errors were normally minor (line number errors, spool number errors) but in some cases hardware had to be reworked. The Bechtel FCR procedure allows FCRs to be approved at the site by resident engineer but also requires that all approved FCRs be reviewed for accuracy and calculations performed by the main office engineers in Norwalk. Primarily, Norwalk identified the errors. The head of Trailer 5 indicated the problem was one of a learning curve for the new people in Trailer 5. The individual who reviewed the FCRs at Norwalk stated all FCRs were reviewed after issue, and superseded when in error. He considered the problem one of waste and cost, not an issue regarding the final product. One involved individual considered that it was probable that at least some errors and perhaps most errors were not caught. Examples of errors were requested. The only example provided was a series of seven superseding FCRs dealing with the drain piping for the steam driven Auxiliary Feedwater Pump, which had to do primarily with as-built dimensions. In this group one FCR (56319) erroneously defined a code class change on the wrong side of a valve. This was an apparent drafting error and did not affect the already constructed hardware. The error was caught and corrected in the superseding FCR 56427-P.

The inspector assessed the possibility that some significant FCR errors were not caught by having all FCRs applicable to the Unit 1 Auxiliary Feedwater System reviewed for adequate design. This effort was done in conjunction with the design verification inspection performed by NRC contractors to be reported in Inspection Report 50-528/84-48. The preliminary results of that review did not reveal problems induced by the site Resident Engineering staff. Thus, the implication that most FCR technical errors were probably not caught was not substantiated by the inspectors review.

In summary the inspector concludes that FCRs were issued with errors but that these FCRs were reviewed by the Bechtel home office and the errors were properly corrected.

Problems turned over to QA under the table

The inspector interviewed the identified QA personnel to determine the nature of the "under the table" problems identified to them. The inspector also interviewed the other engineer who was named as having identified problems under the table.

Note: The connotation "under the table" is considered somewhat misleading by the inspector. The typical situation at a construction site is that there are differences of opinion regarding resolutions to problems. The condition described, wherein QA personnel respond to apparent problems brought to their attention by others, document them and obtain resolution, is considered an indication of a well functioning QA program.

The individuals identified four issues which were:

- the elimination of vents and drains from instrument air lines
- welder qualification after the fact
- the improper use of modification change notices (MCNs) to perform engineering changes
- code piping breaks made at an arbitrary point.

The four issues are discussed below:

Elimination of Vents and Drains

The issue of elimination of vents and drains was recorded and resolved on CAR C83-25N dated March 15, 1983. The issue arose because vents and drains are specifically shown on isometric drawings and the field installs to the drawings. However, there are also general specification notes which require drains at all low points. The CAR was written from the standpoint that FCRs had been written after the fact to correct nonconforming conditions by eliminating the drawing requirements for drains that had never been installed. The response to the CAR was reasonable and stated that the instrument air piping had been properly installed to the isometric drawing requirements of 1979 and 1980. A design change (DCP-1SN-JA-041) was issued in January 1983 to add additional drains. However, the DCP was not implemented until disagreements between the field and engineering had been worked out. The result was a modification to the DCP issued in February 1983 to waive the requirements for certain of the not-yet-added drain valves for Unit 1.

Although the drain valves will be installed in Units 2 and 3, the decision not to install the valves in Unit 1 was on the basis of the fact that any inadvertent condensate in the instrument air lines would be blown out periodically by the use of the other already installed

valves at other low points. The inspector considered that the response to the CAR provided a reasonable rationale for acceptance.

The inspector examined the licensee's evaluation of the potential for instrument air degraded by contamination performed in response to NRC IE Notice 81-38, "Potentially Significant Equipment Failures Resulting from Contamination of Air Operated Systems."

The APS evaluation states that the instrument air problems cited are not applicable to Palo Verde due to the design at Palo Verde which includes:

- continuous monitoring of instrument air dewpoint with alarms
- automatic regeneration of air dryer desiccant
- periodic inspection of filters
- nitrogen system backup to the air system
- periodic blowdown of instrument air lines by Operations personnel during routine maintenance.

The inspector determined, however, through discussions with the Maintenance Manager and the Operations Manager, that there were no planned actions to periodically blowdown the instrument air lines to remove entrapped water. Apparently the A/E engineers assumed blowdown of the lines would be done because of the other drain valves at other low points. The licensee's analysis of IN 81-38 also apparently assumed blowdown of air lines would be done periodically.

The Operations Manager committed to have an engineering study performed to determine the need to perform periodic blowdowns of instrument air lines. He indicated that because the system has such features as alarmed continuous monitoring of dew point there may not prove to be a need to periodically blowdown instrument air lines or low points in those lines.

The performance of the engineering study to determine the need to perform periodic instrument air line blowdowns and the implementation of corrective actions, if any, identified by that study is considered a followup item (Followup Item 50-528/84-39-02).

Welder Qualification After-the-fact

CAR C83-153N dated October 4, 1983, was written on the subject. The inspector examined this issue and reported the results in report 50-528/84-15. A violation was issued in that report for a departure from ASME Code requirements, which require prequalification of welders or qualification concurrent to production work but do not allow post qualification of welders. The involved personnel had properly reported these qualification problems on nonconformance reports. The specific problems identified were typically expired qualifications and welding beyond the qualified thickness. The problems identified were not blatant examples of work performed by unskilled welders.

The ultimate acceptability of the licensee's approach is currently under evaluation and will be reported in a followup to the violation identified in report 50-528/84-15.

In regard to this allegation, however, the inspector considers that although the issue of after the fact welder qualification was properly documented by the QA organization, and properly elevated to a management level for a decision, the ultimate decision (that ASME Code requirements were met) was in error. The error is primarily one of Code compliance rather than of the technical adequacy of the welds made.

Improper Use of MCN's to Perform Engineering Changes

The Palo Verde Bechtel work plan procedure/quality control instructions manual section No. 32.0, "Modification Change Notice," states, "A MCN is a document that may be generated as a communication and notification "tool" when modifications or changes to construction work must be made. Only changes (already) authorized or allowed by (engineering approved) project documents such as installation specifications, drawings, and procedures may be made using an MCN. The MCN is also used to document the acceptable completion of the work it describes, and it shall become a permanent record in the appropriate file." The MCN cannot be used for engineering changes because it is not reviewed and approved by engineering.

This problem has been addressed in many corrective action reports (CARs) written against MCNs by the APS Document Review Group. The Document Review Group performs a sampling review of each system when it is transferred from the construction phase to the operations phase. This review includes a partial walkdown of the system against design documents and a sampling of the documentation for each system. Only the MCN's included in the sampling are reviewed (i.e., perhaps not all improper MCNs had been documented on CARs).

The inspector reviewed CAR's written against MCNs. The issue identified was that MCNs were being used to make changes which could be considered design changes. Since MCNs are neither subject to control measures commensurate with those applied to the original design, nor approved by the organization that performed the original design, their use for implementing design change is improper. The CARs reviewed, and their initiating dates, that address this problem were:

C83-117D (7-29-83)	D84-003 (2-24-84)
D84-003 (2-24-84)	C84-163N (10-18-83)
D84-019 (4-16-84)	C83-124D (8-9-83)
D84-017 (4-6-84)	C83-098D (7-15-83)
D84-016 (4-6-84)	C83-091D (7-1-83)
D84-018 (4-5-84)	C83-120D (7-29-83)
D84-011D (3-29-84)	C83-115N (7-29-83)
C84-045N (3-5-84)	C84-0164 (6-13-84)

The inspector examined the licensee's corrective action and found that all problems identified in the CARs are in the process of being corrected

by the licensee on an MCN-specific basis (as a result of the corrective action performed for the each CAR).

In order to eliminate recurrence of these problems, the licensee initiated procedure change notices (PCNs) to strengthen MCN procedures and conducted training sessions to better familiarize personnel with the appropriate procedures.

The corrective action for CAR No. C83-78N, accepted August 19, 1983, added a space to the MCN form to require the entry of an authorizing document for each MCN written. PCN No.9 to WPP/QCI 3.7, implemented July 6, 1983, and PCN No. 41 to WPP/QCI 32.0, implemented August 30, 1983, clarify the authorizing documentation requirements. This new requirement is intended to eliminate the possibility of using MCNs for design changes since the authorizing document should either change the design itself or state that design is not being changed and an MCN may be used alone.

The licensee considers that the current revised procedures are adequate to avoid future misuse of MCNs.

The inspector concludes that MCNs were being used improperly. However, the licensee has identified the deviations and strengthened procedures to avoid recurrence of these problems. Not all of the CARs were dispositioned at the time of the review and the licensee is still reviewing these for corrective actions. Because the deviations in the open CARs are the same as those in the dispositioned CARs, the general procedures should not have to be changed again to solve these problems.

In the course of present transfer reviews, the document review group is still finding these problems in older MCNs (i.e., nine of the reviewed CARs were written after the effective date of the new procedure changes whereas the MCNs they address were all issued prior to the effective date). The licensee considers that these transfer reviews are adequate enough to catch all old MCN errors. However, a transfer review only encompasses a sampling of the documentation involved for a system and all MCNs are not required to be reviewed. Accordingly, MCNs that contain errors could be overlooked.

The licensee expanded the corrective action being taken in June 1984 in CAR C83-98D (regarding MCNs used for design changes). The expanded action includes a review of all MCNs affecting safety-related piping (N-5 packages) using a special procedure SP 567.0. The procedure requires the identification of all MCNs used for engineering changes and corrective action to be taken.

The inspector reviewed the type of design changes identified in the various CARs written. Primarily, the changes involved were the addition or deletion of welds, the use of socket weld couplings in lieu of butt welds for small bore pipe, and use of elbows rather than pipe bends for small bore pipe. While these changes were improper, they do not represent major design modifications that are technically significant.

At the request of the inspector, the licensee agreed to expand their review of MCNs to include a sample of disciplines (other than piping) to determine if similar misuses of MCNs had occurred. The results of that review of other disciplines indicate that the problem is isolated to the piping area.

In summary, it appears that, overall, the licensee's QA program has functioned responsibly in identifying the misuse of MCNs for design changes. The inspector cannot be certain that the licensee decision to expand the corrective action to review all MCNs was made independent of NRC involvement in the question. For example, one of the CARs dealing with the subject (CAR C83-163N) was closed out March 19, 1984, by the APS Assistant QA Manager stating "no trend exists".

NRC initiated examinations of CARs dealing with MCNs in April 1984. The licensee's decision to review all piping MCNs was not made until June 29, 1984, as documented in a supplemental response dated July 6, 1984 to the still open CAR C83-98D dated July 15, 1983.

No further NRC action in response to the misuse of MCNs is considered warranted based on the lack of major technical significance of the design changes improperly implemented by MCNs and based on the current licensee corrective actions which are considered adequate to resolve the issue.

Code Piping breaks made at arbitrary points

This issue was addressed in CAR C83-52N and primarily involves the engineering decision to establish code breaks (changes in code classification) at arbitrary points along a pipe rather than at physical break points such as weld joints. This issue was discussed earlier in this report as part of allegation No. 137 and was determined to be satisfactory.

Fire Protection

In the March 6, 1984 telephone conversation the alleger directed the staff's attention to Fire Protection for examples of bad work. The inspector interviewed the personnel named by the alleger in regards to bad work in fire protection. The issues discussed were generally those dealing with fire protection loop corrosion issues which are documented in report 50-528/83-36 and followup reports 50-528/84-04 and 84-10.

Another fire protection issue, brought to the inspector's attention through interviews, was a concern about weld joints made with backing rings in CO2 systems. Bechtel interoffice memorandums IOM-E-9610, dated March 11, 1983, and IOM-C-4655-P, dated April 2, 1982, address the subject. The CO2 equipment supplier did not recommended the use of backing rings. The Bechtel position concluded that the use of backing rings in the CO2 systems was satisfactory based on a radiographic sample of welded joints for complete weld penetration.

The inspector examined the applicable code for CO2 systems, NFPA 12, and noted there were no restrictions against the use of backing rings in welded joints.

A licensee engineer in charge of fire protection engineering provided APS Letter ANPP-20836, dated April 28, 1982, in which APS accepted Bechtel's position on the acceptability of the backing ring welds. The basis for this acceptance was a test of the CO2 system which demonstrated that the system could provide the required CO2 concentration in the required time and backing rings did not become loose.

The inspector considers the licensee's actions regarding backing rings in the CO2 system to be satisfactory.

In regards to other fire protection problems, another interviewee stated there had been a number of design changes to the Fire Protection system for a period of about two years, but there were no improper actions. An additional number of problems were identified and resolved during the startup walkdowns. The type of problem described was a manual valve located fifteen feet high without adequate access for manual operation.

The inspector concludes that the alleger's indication that there were problems in the fire protection system was true; but the types of problems identified through interviews do not indicate a safety concern. The inspector does not consider that further staff examination is warranted.

Water Hammer

The inspector interviewed the personnel named by the alleger. None could recall water hammer events in safety-related systems. The only water hammer event revealed in the discussion occurred on the condensate pumps, which are not safety-related, and was stated to be due to the piping configuration, which was rectified. No further action on the water hammer statement of the alleger is considered warranted based on reasonable certainty that such an event on a safety system would have been brought to the NRC's attention in the reportability system and because of the alleger's uncertainty in his statement.

Non Safety Items

The alleger's telecon statements paragraph L and N were provided to APS for their followup since these items deal with non-safety related areas (the Water Reclamation Facility and the Intake Structure) and since the indicated issues are duplicative of those already examined in safety areas.

Staff Position

The inspector found that the central theme of the allegation was true; that some FCRs were issued with errors. However, the errors were identified by a proper review process. Additionally, the errors were not of major technical significance.

Action Required

None for the allegation. Followup the technical open items identified.

Allegation No. 139

ATS No: RV-84-A-028

Characterization

Unit 1 completed N-5 data packages were not made available to the alleger who was processing changes to Unit 2.

From the February 6, 1984 Affidavit

"21. When the N-5 packages were supposedly cleared and had been determined complete they were placed in a vault. When I was in Unit 2 processing changes I attempted to go back and check to see what was done on Unit 1, however, I was told that the N-5 package for that system was unavailable for inspection. When I asked why I was told they were for the NRC and could not be examined or that APS wouldn't release these for examination."

From the March 6, 1984 Telecon

"D. The alleger stated that about last June the N-5 packages were frozen, they were not open to the R.E. staff. He was told this was an agreement between the NRC, APS and Bechtel."

Implied Safety Significance

None.

Approach to Resolution

Interview responsible personnel, determine if a freeze was applied to the N-5 packages, why, and what effect that would have on Unit 2 engineering work.

Assessment of Safety Significance

The personnel interviewed agreed, and the inspector had personally experienced, that during the time the N-5 package reviews were being conducted (in the spring of 1983) there were informal restrictions placed on using the Unit 1 records being assembled and reviewed for the N-5 packages. This restriction was applied to allow the reviewers to function effectively since the review process is complex, requires constant cross checking and any documents removed or signed out by others would slow the process and could result in confusion. Therefore, site personnel were asked not to interrupt the review process unless there was an overriding need to do so.

The NRC inspector and the NRC resident inspector did not enter into any agreements to freeze the packages and would not have a need to do so.

The personnel interviewed indicated that if a Resident Engineer had required access to the Unit 1 records they would be made available or

access would have been temporarily defered, dependent on the relative priorities of the N-5 review versus resident's job. A resident engineer also stated that Unit 2 work should not require access to Unit 1 records.

Staff Position

The inspector concluded from the above that no impropriety had been committed regarding the access to Unit 1 N-5 packages.

Action Required

None.

Allegation No. 140

ATS No: RV-84-A-028

Characterization

Rusted and corroded valves were reinstalled in the intake structure of the Water Reclamation Facility.

From the February 6, 1984 Affidavit

"20. In September or October of 1983 the entire intake structure of the Water Reclamation Facility was pulled out so the corrosion could be examined and evaluated. The Butterfly valves and the Pratt and Reed valves were rusted and corroded. The pipes were relined with a placate lining but the corroded valves were reinstalled. APS gave the orders to put the system back together with the corroded valves because they said they did not have the money to spend on the system at that time but they would take them out two at a time and have them replaced or repaired. To my knowledge, when I left the project, this had not been done."

Implied Safety Significance

None; the water reclamation facility is not important to safety.

Approach to Resolution

Identify this allegation to APS Management.

Assessment of Safety Significance

None. The inspector gave a copy of this item to APS management personnel on September 13, 1984. No NRC followup is required due to the lack of safety significance.

Staff Position

This allegation, whether true or not, has no effect on plant safety.

Action Required

None.

Allegation No. 141

ATS No: RV-84-A-028

Characterization

A page of a DCP ISN 1A-041 Rev. 0 was provided with the February 6, 1984 affidavit. The significance of the page is not explained in the affidavit.

Resolution

The DCP page had to do with the elimination of vents and drains in instrument air systems. The issue is discussed in allegation No. 138 in this report.

Action Required

None.

Allegation No. 142

ATS No: RV-84-A-028

Characterization

A welding engineer, (name deleted), was assigned to do electrical documentation and is improperly changing documents.

From February 17, 1984 Telecon

(The PVIF representative) stated her source, a (name deleted), is a (job deleted) for Bechtel, (maybe APS) who has been assigned to do electrical documentation. He is unhappy about it. He is reviewing electrical design change packages and changing them to make numbers match.

From March 6, 1984 Telecon

"A. The alleger called regarding (name deleted) the (job deleted) working on the documentation of electrical DCP's. This work is part of the N-5 package reviews. The alleger worked with (name deleted) under (name deleted) the Bechtel Resident Engineer."

"C. Again, regarding (name deleted) the alleger said that (he) was not in a position to quit. He was a young man with bills. (The inspector) asked if (name deleted) was involved. The alleger stated he didn't know for sure, (name deleted) tries to keep clean. The alleger stated that what (name deleted) said made him believe it. (Name deleted) said "what he was told to do wasn't right." This was about 3 weeks ago. (Name deleted) questioning was "how do I get out of this." The alleger's reaction is that they're looking for a scapegoat. He wondered why they transferred (name deleted) to electrical."

Approach to Resolution

Interview the named personnel. Sample documentation prepared by the named individual.

Assessment of Safety Significance

The supervisor of the named individual was interviewed by the inspector on March 8, 1984.

The supervisor was interviewed to determine the type of work to which the named individual had been assigned. The supervisor stated that the individual had been reviewing design change packages (DCPs) returned from the field following completion of the work. The individual was to determine whether the DCPs contained all the required documents and were ready to be filed. This work was closely supervised by the supervisor who made the final review of the packages. The supervisor certified the packages to be completed by signing the packages before transferring them to the vault for filing. The supervisor, a QC inspector (electrical) Level II, stated that the individual did not sign-off any design change packages.

The inspector reviewed the following design change packages the named individual had processed:

No.	Description
1SMRI994	Replace (one) A283XAXC relay
1SEZM009	Relocate four conduits, too near to hot pipe
1SESE010	Shorten cable in cabinet
1SNSQ030	Shorten cable on hi-range detector
1SJHC031	Relocate temp. elements on HVAC (Unit 1 containment)
1SEZT091	Relocate raceway, too near to hot pipe
1SEZA107	Install support for tri-axial cable in penetration
1SEZA108	Install hi-temp. insulation in 9 MOV's
1SEZA109	Rework rubber (flexible) DX fitting in dead space between auxiliary and control buildings
1SMRC116	Install RTD thermowells
1SEZC152	Relocate terminal block box at personnel access to containment

These packages, where required, contained cable pull cards, cable termination cards, and other documentation. The packages and contents appeared to be in order.

The inspector also interviewed the named individual on two occasions. First on February 28, 1984, utilizing the information provided by the PVIF on February 17, 1984, and secondly on April 10, 1984, utilizing the information from the March 6, 1984 telecon with alleger.

On both occasions the individual explained that he was not a qualified electrical inspector and did not sign the packages reviewed. He indicated he was performing clerical type reviews as directed by his supervisor. He was checking that the proper termination cards, and that sort of documentation, were in the vault with the DCP. He would generate a problem list for his supervisor. The final review and QC signature for the DCP was performed by his supervisor. He adamantly denied that he had ever improperly changed documentation. When asked what could have led to the allegations he stated he really didn't know. He stated he was initially disgruntled about his job change (doing paperwork) and may have been misunderstood.

Staff Position

The inspector concluded from above reviews and interviews that there was no indication of improper changing of documentation.

Action Required

None.

Allegation No. 143

ATS No: RV-84-A-028

Characterization

Bechtel prevents people from raising problems.

From the March 6, 1984 Telecon

"P. We were told at Bechtel - "keep it in Bechtel." Bechtel won't furnish legal assistance if you get in trouble. "If any problem comes up say it's an APS problem."

"Q. Narbut asked why the alleger didn't use the APS hotline. The alleger stated nobody trusted it. APS people go to Bechtel people and the guy would be gone because people would recognize the issue."

"R. Bechtel had a deal which said a departing employee couldn't divulge anything about the project. This included trade secrets, patent rights or anything at the site. (PVIF representative) had this squelched, they don't do it anymore."

Implied Safety Significance

If there is a policy, which prevents employees from identifying safety concerns to organizations outside of Bechtel, then the possibility of uncorrected safety issues would exist.

Approach to resolution

Obtain the Bechtel documents which define what an employee must agree to keep secret.

Utilize the team inspection personnel interviews to provide an assessment of employee attitudes regarding the raising of safety issues.

Assessment of Safety Significance

The inspector obtained the "secrecy" agreements that incoming and departing personnel must sign.

Bechtel form 3002, "Agreement and Acknowledgement of Obligation," was provided by the site Bechtel personnel office. It is the agreement signed by incoming employees. The form prohibits disclosure of information which is the property of Bechtel or its clients. The form also addresses a typical agreement regarding inventions and patent rights.

Bechtel form 3022, is the form departing employees must sign and is a reminder "of the nondisclosure and secrecy agreements."

The forms appear to be typical industrial employment agreements intended to protect proprietary information and patent rights.

The inspector discussed the intent of the agreements with the Bechtel Project Superintendent who provided a "Notice to Employees" posted on various Bechtel bulletin boards. The notice was issued by the VP and General Manager of the Bechtel, Los Angeles Power Division. The Notice states, "The right of an employee to disclose information to the United States Nuclear Regulatory Commission on health and safety matters is not limited by the nondisclosure and secrecy agreements executed by employees."

The inspector concludes that the "secrecy" agreements required of Bechtel employees are typical of industrial employment agreements.

The results of NRC interviews of site personnel during the regional CAT inspection, in September 1983, and operational readiness inspection, in October 1984, show that the general employee perception is that safety concerns can be freely voiced. Most employees were aware of the anonymous APS "Hotline" which could be used to voice concerns but did not have a need to utilize it, since they felt their management was responsive to safety concerns.

Staff Position

Based on the above the inspector concludes that there is no substantiated indication that Bechtel policy prevents personnel from raising safety concerns outside of the Bechtel organization.

Action Required

None.

3. Exit Interview

The inspector met with the licensee management representatives denoted in paragraph 1 on October 26, 1984. The scope of the inspections and the inspector's findings as noted in this report were discussed.