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July 25, 1986

ANPP-37490-EEVBX/SGR/92411

U. S. Nuclear Regulatory Commission
Region V
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596-5368

Attention: Mr. D. F. Kirsch, Deputy Director
Division of Reactor Safety and Projects

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. STN 50-530
Response to Notice of Violation 50-530/86-03
File: 86-056-026; D.4.3.3.2

- Reference:
- (A) NRC Construction Appraisal Team (CAT) Report No. 50-530/86-03, dated April 4, 1986. Subject: PVNGS Unit 3 Inspection.
 - (B) Letter from D. F. Kirsch, NRC to E. E. Van Brunt, Jr., ANPP, dated June 16, 1986. Subject: Notice of Violation resulting from CAT Inspection.
 - (C) Letter No. ANPP-37266 to J. B. Martin from E. E. Van Brunt, Jr., dated July 11, 1986. Subject: Extension of NRC CAT Violation Response.

Dear Sir:

Attached is the ANPP response to the Notice of Violation issued June 18, 1986, as a result of problems identified during the January-February, 1986, Unit 3 NRC CAT Inspection. Attachment A reiterates these three (3) violations and Attachment B provides ANPP's response and corrective actions taken. Additionally, the response to the second violation contains the evaluation and corrective action for a deficiency concerning the seismic qualification documentation of the Diesel Generator building crane which was identified by the NRC Resident Inspector.

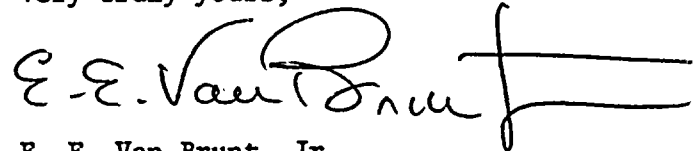
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Should you have any questions concerning these matters, please contact me.

Very truly yours,

A handwritten signature in dark ink, appearing to read "E. E. Van Brunt, Jr.", with a stylized flourish extending to the right.

E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVBJr/SGP/ldf

cc: A. C. Gehr (All with Attachments)
R. P. Zimmerman
R. C. Sorensen
L. F. Miller

Attachment A

NOTICE OF VIOLATION

Arizona Nuclear Power Project
P.O. Box 52034
Phoenix, AZ 85072-2034

Docket No. 50-530
CPFR-143

As a result of the inspection conducted between January 13-24 and February 3-14, 1986, and in accordance with the General Policy and Procedures for NRC Enforcement Actions (10 CFR Part 2, Appendix C), the following violations were identified (Section references are to the detailed portion of the Inspection Report 50-530/86-03):

1. 10 CFR 50, Appendix B Criterion III, as implemented by Arizona Public Service (APS), Palo Verde Nuclear Generating Station Final Safety Analysis Report (FSAR) Section 17.1A.3, requires that measures shall be established to assure that applicable regulatory requirements and design basis are correctly translated into specifications, drawings, procedures and instructions.

Contrary to the above, at the time of this inspection, the licensee's program was not adequately implemented in that masonry block walls were incorrectly classified as Quality Class S for which no special quality requirements beyond industry standards are needed. Partially due to the "S" quality classification, in-process inspections were not accomplished. As a result, reinforcing steel was found to be located not in accordance with the design drawings and also inspection records were not available to support design analysis assumptions. Therefore, masonry walls may not meet their design intent. (Section V.B.1)

This is a Severity Level IV Violation (Supplement II).

2. 10 CFR 50, Appendix B, Criterion VII, as implemented by the APS FSAR Section 17.1A.7, requires in part that measures shall be established to assure purchased material, equipment and services conform to purchase documents.

Contrary to the above, at the time of this inspection, the NRC CAT inspectors found several deficiencies in vendor supplied components as follows:

- a. Several installed Class IE components exhibited poor workmanship and inadequate vendor product quality. These include inadequate solder connections in the dc battery chargers and damaged and broken terminal lugs in the diesel generator control panels. (Sections II.B.2.b(4) and II.B.3b(6))

- b. Instrument racks had various weld deficiencies such as incomplete fusion, missing or undersized welds, and weld spatter. (Section IV.B.5)
- c. Some vendor supplied radiographs did not have the required film quality. (Section IV.B.11)
- d. Discrepancies exist between input provided by the vendor and those required by the design specifications for seismic calculations of the five ton diesel generator building crane. (Deficiency 2d was requested to be included by Roy Zimmerman, Senior NRC Resident Inspector, during his monthly exit for the month of June, 1986.)

This is a Severity Level IV Violation (Supplement II).

- 3. 10 CFR 50, Appendix B, Criterion X, as implemented by the APS FSAR Section 17.1A.10, requires that a program for inspection of activities affecting quality be established and executed to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity.

Contrary to the above, at the time of this inspection, the licensee's inspection programs were not effectively implemented in the following cases.

- a. Four instances of undersized beam attachment load pins were identified on two ASME Class 1 pipe supports and two Class R pipe supports contrary to design drawings and vendor catalogs. (Section III.B.2)
- b. Improper bolting materials were identified on flange connections in piping installations. (Section III.B.1)
- c. Six of 11 pieces of QC accepted Class IE equipment mounted by welding had mounting configurations which were not in accordance with the applicable design or specified installation requirements. In addition, 5 of 32 QC accepted cable tray hangers were found with welded connection configurations that were not in accordance with the applicable installation requirements. (Section II.B.1.b(3), II.B.3.b(4), (6), and (7))

This is a Severity Level IV Violation (Supplement II).

Pursuant to the provisions of 10 CFR 2.201, Arizona Public Service Company is hereby required to submit to this office within thirty days of the date of this Notice, a written statement or explanation in reply, including: (1) the corrective steps which have been taken and the results achieved; (2) corrective steps which will be taken to avoid further items of noncompliance; and (3) the date when full compliance will be achieved. Consideration may be given to extending your response time for good cause shown.

ATTACHMENT B

Response to Notice of Violation 50-530/86-03

RESPONSE TO VIOLATION NO. 1

I. CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

A. Design Background

1. Rationale and Design Criteria for Classification

The PWNGS Control Building masonry walls and the associated drawings and specifications were classified as Quality Class "S" at the time of wall design and construction. Intended as non-load bearing partitions, the masonry walls were designed to withstand lateral seismic loads due to their own weight. Classification as quality class "S" required that the walls be built and inspected to specified industry standards and thereby, allow Engineering to define the necessary design parameters. Design of the walls ensured that the walls would withstand a seismic event and not impair the function of adjacent safety related equipment and structures. The standards to which the walls were built include:

- ° American Concrete Institute, ACI 531R-79, 1978
- ° Uniform Building Code, UBC, 1976
- ° Bechtel Specification AM-014

As stated in the CAT Report, three of the four drawings used for construction of the masonry walls are classified as Quality Class "S", while the fourth drawing (13-C-ZJS-172, Rev. 7) is classified as Quality Class "Q". This is consistent with the Project Drawing Control System for the following reason:

Drawing 13-C-ZJS-172, Rev. 7, consists of several construction details, some of which are safety related (Quality Class "Q"). It is the Project's practice to classify drawings to the highest quality class detail shown. Therefore, drawing 13-C-ZJS-172, is classified as Quality Class "Q". If the Quality Class "Q" details were not shown on the drawing, the drawing would reflect the wall classification "S".

Based upon the above, the walls, drawings, and specifications are consistent with the intended design classification.

2. Inspection of Wall Construction

Bechtel Specification AM-014 defined the special requirements for inspection by the subcontractor. The inspection was to verify that the design requirements had been met. This special inspection is consistent with industry standards. Per the QA Program, there was to be no involvement by Quality Control since subcontractor conformance for the work is the responsibility of the Field Subcontract Administrator.

Uniform Building Code (UBC) "Special Inspection" allowables were used in the original design. As discussed in ANPP letter ANPP-36153, dated April 16, 1986, E. E. Van Brunt to G. Knighton, the use of "Special Inspection" allowables is valid.

B. Construction Background

As identified by the NRC CAT Inspectors, the masonry subcontractor failed to provide the required installation documentation. In lieu of "Special Inspection" documentation, the subcontractor submitted "Certificates of Compliance" to the design requirements. The Bechtel Subcontracts Administrator misinterpreted this document submittal as meeting the specification requirements.

Specifically, the missing documentation was:

- ° Masonry unit placement
- ° Reinforcement placement
- ° Inspection of grout space, during operations and prior to closing of cleanouts

C. Post Construction Investigations

Upon identification of the NRC CAT concern with masonry wall adequacy, ANPP/QA issued Corrective Action Report No. CA86-0023. An investigation and an engineering evaluation, to determine the adequacy of the walls, were performed in response to the CAR.

The project's investigative efforts included the following:

- ° An in-depth review of available documentation to determine if the inspection was adequate.
- ° Selective inspections of the concrete masonry walls in Units 1, 2 and 3 to determine the spacing location and size of rebar in the walls and to verify proper grout fill and general soundness of the block wall construction.
- ° Additional engineering analysis of the concrete masonry walls based on the results of the reviews and inspections.

1. Results Of Documentation Review

The construction of the subject walls was performed by Bechtel and a subcontractor. A review of the jobsite records was conducted to verify that the materials used and the as-built installation conform to the design requirements. The following summarizes the results of the documentation review:

- ° Proposed design for mortar and grout are on file and acceptable.
- ° Certificates of compliance for the masonry units certifying conformance to ASTM C-90 Grade N-1 are on file.
- ° Test results for the grout are on file and acceptable or properly evaluated.
- ° Reinforcing bar was supplied to the subcontractor by the contractor as Quality Class "Q". Applicable documentation for the rebar is on file.
- ° A review of nonconformance reports for the presence of voids indicates that the grout fill is adequate.

2. Results of Selective Inspection

ANPP and Bechtel conducted inspections to demonstrate that the Units 1, 2 and 3 masonry block walls were constructed in accordance with the design requirements. Results of these investigations are discussed below.

- ° Grout fill was found to be acceptable by inspecting grout inside wall openings.
- ° Rebar size, location, and spacing were verified and documented during post-construction inspection. The results are tabulated below.

<u>UNIT NO.</u>	<u>TYPE INSPECTION</u>	<u>ELEVATION</u>	<u>DEGREE OF INSPECTION</u>	<u>RESULTS INSPECTION</u>
3	Magnetic Rebar Locator - Face of Wall	100	Extensive	No deviation from design drawings detected.
3	Magnetic Rebar Locator - Face of Wall	74	Spot Check	Showed rebar continuity

<u>UNIT NO.</u>	<u>TYPE INSPECTION</u>	<u>ELEVATION</u>	<u>DEGREE OF INSPECTIONS</u>	<u>RESULTS OF INSPECTION</u>
3	Visual at Penetration Openings	100	Extensive	Transverse location of some rebar within the block cell not in accordance with design.
3	Visual at Penetration Openings	74	Extensive	Some rebar not located within the block in accordance with design.
2	Magnetic Rebar Locator - Face of Wall	100	Selective	Some areas noted with staggered splices and overlap out of specification.
2	Magnetic Rebar Locator - Face of Wall	74	Selective	Some areas noted with staggered splices and overlap out of specification. Some inconclusive results were noted (See Radiograph).
2	Radiograph	74	Specific limited to inconclusive areas	Confirmed presence of rebar
1	Magnetic Rebar Locator - Face of Wall	74	Limited accessible area	Confirmed presence of rebar

3. Engineering Analysis and Interface With NRR

Subsequent to the NRC CAT Inspection, meetings and telephone conversations were held with the NRC to discuss the outstanding issues of lack of full in-process inspection, reinforcement location, and rebar splice length and location. ANPP letter to the NRC, dated April 16, 1986, (ANPP-36153) and its enclosure provided a summary of the significant attributes of the issues involved, a description of documentation reviews and field investigations, and a presentation of evaluation results available at that time. An April 18, 1986 letter, (ANPP-36801) stated that to resolve

the remaining issues, ANPP would provide an acceptable analysis, perform additional testing, or implement design modifications on the masonry walls, by December 22, 1986 for Units 1 and 2 and prior to initial criticality for Unit 3. Description of subsequent evaluations and studies, and a presentation of the results and conclusions associated with the recent investigations have been provided in "Report on the Evaluation of Masonry Walls," the attachment to the ANPP letter (ANPP-37062) to the NRC dated June 19, 1986. As described in the report, additional, more precise analyses show that under postulated seismic conditions the masonry compressive stresses, reinforcement tension stresses, and reinforcement bond stresses are within allowable limits accepted by the NRC and defined by Appendix A to SRP 3.8.4 (NUREG 0800, July 1981) and the ACI 531-79 Code. The computed stress levels verify the adequacy of the walls to perform their intended function and ensure that the walls will not impair the performance of adjacent or attached Seismic Category I equipment. The report concludes that the results of the most recent evaluations, along with information previously submitted to the NRC, respond to and resolve all of the outstanding NRC concerns regarding the integrity of PWNGS masonry walls.

II. CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER NONCOMPLIANCE

A. Bechtel Subcontract Administration

In response to CAR CA86-0023, two actions were taken to avoid future noncompliance. A review of all class "R" and "S" permanent plant installation subcontracts (41 total) was conducted to verify the existence of required inspection documentation. This effort was completed on May 5, 1986 and resulted in the issuance of NCR CX-5378, to identify documentation deficiencies. The NCR was subsequently dispositioned "use-as-is" since none of the identified deficiencies affected safety-related equipment or performed structural functions.

To prevent recurrence, all Subcontract Administrators and Coordinators received training on May 22, 1986 to reinforce the importance of future subcontractor work being in accordance with specification, drawing, and procedure requirements. They were also advised that all installation inspection records and certification required must be completed and submitted prior to accepting the work. The training records are on file in DDCC.

B. ANPP Actions

1. Wall Classification

ANPP Nuclear Engineering has evaluated the quality classification of the masonry walls and has determined that under the operations program masonry block walls will receive

the same safety/seismic classification: non-safety related (Class "S") and seismic category IX. This determination is based upon the fact the walls are designed as non-load bearing. Regardless of the quality class, the engineering analyses reveal the walls will not impair the function of adjacent or attached seismic category I equipment.

2. Procurement

Any future work on the walls will fall under the ANPP procurement and work control programs. The non-quality related classification identifies the block wall construction material as commercial grade items, manufactured or processed to national standards. It also includes items for which a manufacturer has published generic specifications or qualifications (such as seismic) in the product description. For non-quality related procurement activities, such as the masonry walls, the initiating department determines the technical and quality requirements. These requirements are implemented by the ANPP work control program with the Project Administrator ensuring that the requirements are in fact met.

3. Work Control (Contractor)

Subsequent to the ANPP acceptance of each Unit, all work that may be performed by an External Repair Facility (ERF) is controlled under the PVNGS station procedure No. 30AC-0ZZ09, "Contractor Work Order" (CWO).

To assure that the applicable specifications, such as those requiring special inspection and documentation, are imposed on the ERF, the CWO procedure directs that, "All quality requirements, procedures, or other documentation required to ensure quality commensurate with existing design shall be referenced on the CWO." Furthermore, a PVNGS engineer is assigned to oversee each CWO. This engineer is designated as the Responsible Engineer (RE) for the CWO and is responsible for the technical review and approval of the CWO prior to the commencement of work. The RE also provides technical support during the work performance.

Per the program, contractors are required to perform the work described in the CWO in accordance with all ANPP specified requirements and quality assurance controls.

Upon work completion, the CWO procedure requires the ERF to list and attach the originals of all documentation generated during the work performance. If "special inspection" is required, as in the case of block walls, that documentation is required to be attached.

The CWO package is then returned to the RE. Prior to PVNGS acceptance of the work, the RE performs a technical review of the work documentation. This includes a review of the CWO package for completeness, technical content, material traceability, required testing, and test results.

Should a CWO include quality related activities, additional steps are taken to ensure compliance with the ANPP QA program. Among these steps are: front-end review by Quality Systems and Engineering to ensure that all appropriate QA/QC activities are identified and QC inspection of work in progress.

III. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

All necessary project actions have been completed. Project evaluations indicate that the block walls are able to perform their design function and are structurally adequate.

RESPONSE TO VIOLATION NO. 2

I. CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

Since there is a lack of commonality between the vendors, their products and the identified deficiencies, the three (3) specific CAT items are discussed separately.

A. IE Components

During the NRC CAT Inspection, several deficiencies were discovered with vendor wiring in the battery chargers supplied by Power Conversion Products and the diesel generator control panels supplied by Cooper Energy Services. The battery charger deficiencies were documented on SWA/NCR's 6868 and 6742. The diesel generator deficiencies were documented on NCR's EG-7194, -7195, -7196, and -7197. All CAT identified deficiencies have been reworked.

As a result of the above deficiencies, during the CAT Inspection, ANPP issued Corrective Action Reports CA86-0006 (battery chargers) and CA86-0007 (diesel generator panels). As a result of these CARs, a 100% Unit 3 inspection of IE panels supplied by the two vendors was performed. Bechtel performed the inspection under Special CIP's 696.0 and 698.0. As a result of the inspections, 7 NCR's were issued identifying additional deficiencies. The rework required by these NCR's has been completed. All corrective action and inspection documents have been closed.

As a result of the identified deficiencies, which initially appeared to be safety significant, DER 86-06 and DER 86-07 initiated. Further investigation as a result of the DERs indicated that several of the deficiencies in the battery chargers and diesel generator panels were deemed to be safety significant and reportable under 10CFR50.55(e) and 10CFR21. A final report to DER 86-06 (which combined both DER's 86-06 & 07) was issued on June 24, 1986, addressing these issues. A sample of IE chargers and panels in Units 1 and 2 was walked down and evaluated under EER's 86-PK-008 and 86-DG-024. No safety significant deficiencies were discovered in either unit.

As an additional effort, Bechtel QA performed a random surveillance of vendor terminations in equipment furnished by three other vendors. Minor deficiencies were noted and documented on CAR S-86-25. Subsequently, DER 86-13 was issued, and none of the identified deficiencies were deemed safety significant.

B. Instrument Racks

As a result of the NRC CAT inspection, deficiencies were discovered on the Combustion Engineering (CE) supplied Instrument Racks. The weld configuration of the as-built racks was not in compliance with the CE certified rack drawings. The discrepancies included incomplete fusion, weld spatter, omitted welds and undersized welds. The evaluation of the nonconforming items, determination of implications to plant safety, identification of root cause and actions required to preclude recurrence were documented on DER 86-05 and ANPP CAR CA86-0017.

As a result of the DER, CE performed a 100% reinspection of instrument rack welds in all three units. Based upon the results obtained, CE performed a seismic requalification through test and analysis of a worst-case prototype. The test and analysis results indicate the racks are acceptable as-is. The DER evaluation indicates no safety significant condition exists.

CE has furnished ANPP with revised "Certificates of Equipment," associated "Deviation of Contract Requirements" documents and supporting procedures and analysis. Project drawings have been updated/revise to reflect as-built conditions.

The root cause of this condition was an apparent failure of CE Newington to conform to the structural welding required on CE drawings submitted and approved for use by CE Windsor. There was also a quality program breakdown in that the defects were not identified by CE Newington's QC Inspection Department.

CE Windsor has written CAR No. GQC-86-007 against CE Newington identifying the instrument rack welding deficiencies and requesting action be taken to resolve and preclude these deficiencies from occurring again. The CE CAR has been closed and approved by CE Windsor. The ANPP CAR (CA86-0017) and DER (86-05) have been closed.

C. Radiographs

The NRC CAT Inspectors reviewed vendor radiographs and identified several film deficiencies as follows:

- ° Heat exchanger (Engineering Fabricators Co.)
 - film artifacts in area of interest.
 - film density less than 2.0 and more than 4.0.
 - location markers missing from film.
 - film density variations greater than -15% or +30% with no additional penetrameter used.
 - missing film for one area of weld.
- ° Fuel transfer tube housing (PX Engineering Co.)
 - shim and lead numbers in weld area.

The identified deficiencies were documented on Bechtel NCR's WA-1713 (EFCO) and WF-1714 (PX Engineering Co.). NCR WA-1713 was dispositioned "use-as-is" since there were no actual weld defects noted and has been closed. NCR WF-1714 was invalidated and superceded by EER 86-PC-010. The EER was dispositioned "use-as-is", since it has been demonstrated acceptable by passing several independent pressure tests, and has been closed.

Due to the variety of deficiencies identified for EFCO film, ANPP/QA issued CAR CP86-0022. This report was issued against Combustion Engineering, to whom the material was furnished. The corrective actions accomplished by CE included a CE Level III 100% review of existing EFCO film for the shutdown heat exchangers for all 3 units. Further project actions included a Bechtel NDE Level II and ANPP QAE overview of CE efforts.

The NRC CAT discrepancies dealt totally with the quality of the radiographs and not with the quality of weldments. CE's 100% review did not reveal any weld defects, which confirmed original findings that the heat exchangers for all 3 units are acceptable. CE did undertake additional corrective action in retraining and reexamining NDE personnel in RT methods to improve their second level surveillance program.

As a result of the deficiencies noted by the NRC, and in order to ensure that the radiograph deficiencies were not a generic concern, Bechtel performed an additional overview evaluation of vendor film from Engineering Fabricators (EFCO), Struthers Wells, PX Engineering, AMETEK Straza, Control Components and CE Avery. This review started during the CAT inspection and concluded after the inspection. The following summarizes the results of film reevaluated by a Bechtel Level II reviewer and the discrepancies found.

EFCO -	Deficiencies were addressed by CE in response to ANPP CAR CP86-0022, as previously described.
STRUTHERS WELLS -	No discrepancies noted for film reviewed.
PX ENGINEERING -	Deficiencies identified on NCR WF-1714/EER 86-PC-010.
AMETEK STRAZA -	No discrepancies noted for film reviewed.
CONTROL COMPONENTS -	No discrepancies noted for film reviewed.
CE-AVERY -	One discrepancy was identified on NCR WC-1712 and was subsequently dispositioned "use-as-is."
SOUTHERN BOILER -	One discrepancy was identified on NCR WC-1745 and was subsequently dispositioned "use-as-is."

No safety significant deficiencies were identified during the review, and therefore no further reviews were conducted.

D. Diesel Generator Cranes

The NRC Resident Inspector during the month of June, 1986, identified a deficiency between vendor submittal 13-MM-066-140-1 and that required by Attachment 4-2 to Purchase Specification 13-MM-066 "Miscellaneous Cranes and Hoists".

The engineering submittal in question did not utilize the building specific seismic response curves, but rather utilized PWNGS site generic seismic response curves. The generic response curves reflect lower loading values. In addition, the method utilized by the vendor for calculating the seismic load was not as specified by the Purchase Specification.

As a result of the identified deficiency, EER 86-ZG-002 was initiated to verify the acceptability of the above mentioned cranes to meet the building specific seismic requirements.

In addition, a review was conducted to determine if other problems existed with vendor submittals under 13-MM-066. Further, a similar review was conducted of other seismic IX installations. This review was limited to seismic category IX items since "Q" related areas were previously covered by CAR PVH 8A/85-05A and 06A. During this review, four (4) other hoists/trolleys purchased under the 13-MM-066 contract were identified as missing seismic submittals. These are: Two 25-ton trolleys in the Diesel Generator Building (TAG Nos. M-ZGN-G02A and -G02B), one 1-ton electric hoist (M-ZCN-G09), and one 2-ton electric hoist (M-ZCN-G08), both hoist are for the Containment Building. No other missing or improperly statused engineering submittals were identified.

The root cause for the initial problem of the seismic calculation not meeting the purchase specification was an oversight by HECO, the crane vendor. HECO failed to transmit the building specific response spectra curves to Eaton who performed the seismic analysis for the cranes. Eaton failed to comply with the specification requirement because of the inherent conservatism in the crane design. Upon submittal to Bechtel the engineer responsible for reviewing the vendor submittal misclassified it as "S" (non-safety related) instead of "R9" (non "Q" but seismicly analyzed). The error precluded the normal seismic evaluation by Bechtel's Civil Seismic Analysis Group. Had the submittal been reviewed by the seismic group, the incorrect method and seismic spectra curves utilized by the vendor would have been detected.

The root cause for the lack of seismic calculation submittals for the additional hoists and trolleys identified is attributed to Specification 13-MM-066 being rather unique in that it covered both Category "R" and "S" items. This situation was further compounded by the continual evaluation in plant maintenance meetings as to whether cranes, trolleys and hoists would remain permanently in place or be removeable. Permanent installations would necessitate reclassification of an item from "S" to "R9".

The engineer responsible for Specification 13-MM-066 failed to specify to the vendor in Attachment 4-2 the specific response spectra curves and consequently the Seismic IX calculations for the four trolleys/hoists were not provided.

EER 86-ZG-002 contains calculations substantiating the acceptability of the 5-ton Diesel Generator Crane to meet seismic requirements. The vendor has stated that the four (4) additional identified trolleys and hoists have a safety margin of five and would not fail during an SSE. This position has been concurred with by Project Engineering. Specific calculations for these trolleys/hoists are being generated and will be submitted by HECO to document seismic qualification by August 15, 1986.

II. CORRECTIVE STEPS WHICH WILL BE TAKEN TO AVOID FURTHER ITEMS OF NONCOMPLIANCE

A. Steps Taken Prior To CAT To Avoid Future Deficiencies

The PVNGS Project became particularly aware of vendor equipment deficiencies in 1983. This awareness was brought on by several problems the Project had experienced during startup and testing of Unit 1 and as a result of the active on-going supplier audit program by Bechtel Procurement Supplier Quality/Technical Services. These startup and testing problems, documented on DERs and various Audit Finding Reports (AFR's), clearly established that some delivered materials and components were not properly documented or inspected and were potentially deficient.

Additionally, NRC IE Information Notice No. 84-52, dated June 29, 1984, documented generic concerns with regard to purchased equipment and materials. At this stage of the Project most of the equipment, including that which was reviewed during this 1986 CAT Inspection, had already been delivered to the site; however, the program for monitoring vendor supplied equipment was strengthened. The following improvements were incorporated:

- ° In the qualifying of vendors, more emphasis was placed on hardware and quality documentation review.
- ° Bechtel QA audit and supplier quality checklists were upgraded.
- ° Engineering specialists have been added to the vendor audit teams, as necessary.

Furthermore, during the same year (1984) that the IE Information Notice was issued, ANPP conducted an audit of Cardinal Industrial Products (CIP). DER 84-41 was eventually issued as a result of this audit.

In response to DER 84-41, Bechtel improved its supplier quality control program. Field requisition procedures were improved, providing more specific guidance in specifying codes and standards. QA reviews were better defined. Extensive training was provided to Field and Quality Assurance Engineers.

The receipt inspection program was also upgraded. More emphasis was placed on inspecting material to applicable codes and standards, with QC Inspectors receiving appropriate training in these areas. User's tests were also initiated for certain types of bulk material.

B. ANPP Procurement Program To Assure Continued Compliance

As of May 9, 1986, all quality assurance functions involving the procurement of items at ANPP (with the exception of limited amounts of ASME Section III material to finish construction) were assumed by the ANPP Procurement Quality Department. As a result of this change, the following program elements should ensure that these deficiencies do not occur in the future:

1. The ANPP Department Initiating a purchase order is responsible to determine if the item/service to be purchased is quality related. For ANPP intended procurement documents it is ANPP Nuclear Engineering's responsibility to determine the technical and quality requirements and to review and approve the technical adequacy of quality related material procurement documents.
2. All quality related purchase orders are reviewed by ANPP Procurement Quality Department prior to issue to the vendor. Quality related purchases include all Safety Related (SR) equipment and Important to Safety (ITS) equipment.

The review activities are conducted in accordance with detailed checklists by a Procurement Quality Engineering staff member whose sole function is to review purchase documents and generate appropriate source and/or receipt inspection plans/checklists.

3. The Procurement Quality Engineer develops a detailed inspection plan at the time that he reviews the purchase document. This inspection plan takes the form of a Quality Receiving Checklist and/or a Vendor Inspection Plan. These plans include those attributes considered to be critical and necessary to ensure the item will meet its intended form, fit, and function.

4. The vendor audit/surveillance program has been upgraded to include the following:
 - ° Biennial audits of vendors with moderate to heavy procurement activity.
 - ° Audits of ASME Certified Vendors.
 - ° Reviews of hardware attributes and not just program audits.
 - ° ANPP Engineering personnel have been included as audit team members, or observers for those audits of a highly technical nature.
5. Receiving Inspection has been upgraded to include a more detailed hardware inspection. An example of this is the user's test program for fastener materials.

C. Vendor Engineering Submittals

1. Bechtel

At the time the identified vendor submittals were received, supplier documents were processed in accordance with Bechtel Internal Procedure (IP) 4.15. This procedure provides requirements for processing, revising and controlling supplier engineering documents. It also supplements and is used in conjunction with Engineering Department Procedure (EDP) 5.16, the Supplier Document Register (SDR) User's Manual, and IP 4.34 for control of supplier documents used with DCP's.

Subsequently, the vendor submittals review process had been strengthened by the issuance of Bechtel Internal Procedure IP 5.12 and IP 5.22. These procedures provide specific instructions for the review of equipment qualification documents submittals for approval. The procedures require various project disciplines review of the documents, including the Stress and Civil-Structural Groups and the Off-Project Seismic Evaluation Group.

The implementation of the vendor document submittal process has been continually audited since 1974 by the Design Office Quality Assurance Department. During the audit of January, 1985, two (2) Corrective Action Requests (CARs), PVH 8A/85-05A and PVH 8A/85-06A were issued which specifically addressed concerns with the receipt and status of supplier documents. These audits did not include reviews of the R9 classification and therefore, would not have identified problems in this area. An extensive engineering/procurement effort was undertaken to assure that the required supplier documents were received and statused into the project records. Final acceptance of CAR PVH 8A/85-05A included an independent assessment by

off-project personnel and establishing a corrective action reverification program to assess on-going compliance for availability and retrievability of selected technical supplier documents. The results of the audits demonstrated that the "Q" program which was not included in Engineerings review previously mentioned, has been effectively implemented.

The engineering review performed as a result of the NRC concern has confirmed that items identified are unique and that appropriate documentation exists to substantiate the acceptability of the design and installation. Hence, it is concluded that there is no safety concern with any Seismic Category IX equipment and installations. Therefore, no additional corrective actions are necessary. However, to assure a final check for the submittal of vendor documents for future work, IP 4.15 will be revised to clearly state the engineers responsibility to verify vendor submittals prior to applicable project milestones. In addition, the audit program will be expanded to include the R9 classification.

2. ANPP

Engineering submittals are reviewed by ANPP in accordance with 7I414.01.16. The review includes the following areas:

- ° Conformance to specification requirements
- ° Verification of dates, revisions, identifications, appropriate approvals, and/or certifications
- ° Legibility
- ° Unique identity and traceability of drawings

This review serves as the basis for allowing work controlled by the vendor engineering submittal to continue unimpeded, continue with modifications, or stop work until modifications are made.

III. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

A. Class IE Components

All rework under the NCR's generated by DER 86-06 has been completed. DER 86-13 was deemed not reportable.

B. Instrument Racks

All necessary corrective actions required from CE have been completed and CE documentation approved on June 2, 1986. CE has issued Deviation from Contractor Requirements (DCRs) for the racks. Project drawings have been updated to reflect the as-built condition.

C. Radiographs

All necessary corrective actions have been completed.

D. Cranes

All seismic analyses have been confirmed for the cranes in question. Formal submittal of the missing seismic analyses is scheduled for August 15, 1986. Bechtel project procedures will be reviewed by September 30, 1986. All other Corrective Actions have been completed.

RESPONSE TO VIOLATION NO. 3

I. CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

Since there is a lack of commonality in the hardware, construction discipline, and inspection attributes, the three specific CAT items are discussed separately.

A. Undersized Beam Attachment Load Pins

1. Action To Be Taken to Correct Identified Deficiencies

The four cases of undersized beam attachment load pins identified by the NRC were documented on NCR's PC-12209 (Q) and PC-12235 (Q) and PC-12124 (R). All three NCR's were evaluated and dispositioned "use-as-is." It should be noted that the bolt/load pins were correct for the beam brackets installed, but not for the pipe hanger rod, as discussed in Section A.3.

2. Reinspection Effort

To determine the extent of the problem, all Q class variable spring and rod hangers in Unit 3 were reinspected. The following summarizes the findings:

Seven (7) "Q" supports were found deficient and NCRs were initiated for undersized beam attachments:

NCR	Pipe Support No.
PC-12252	3-RC-017-H016
PA-12257	3-SI-144-H012
PA-12258	3-HP-003-HOAG
PA-12260	3-SG-407-H00D
PC-12261	3-NC-137-N001
PC-12328	3-SI-088-H034
PA-12259	3-CH-028-H00P
PA-12262	3-SI-112-H002

(Subsequently, NCR PC-12270 was written to record that PC-12252 indicated the incorrect support number - the correct support number was 3-RC-017-H026. Additionally, NCR-PC-12591 was written to report that 3-SI-112-H002 [PC-12262] had the correct beam attachment, but that the undersized element was the load pin. Finally, NCR PA-12257 was invalidated since a later determination was made that the correct beam attachment and load pin had been installed.)

Although a total of eight (2 from the NCR CAT and 6 from the above) beam attachments in "Q" class supports were found undersized, none of the installations resulted in a safety significant problem. In all cases, the operating and faulted loads of the affected supports are less than the maximum allowable loads of the installed undersized beam attachments per the vendor's load capacity data sheets. The additional case of the undersized load pin, NCR PC-12591, was also determined not to result in a safety significant condition, although the existing pin was replaced by the correct sized pin.

Since the eight "Q" class installations with undersized beam attachments were acceptable as-is, it was determined that additional inspections of "R" class variable spring and rod hangers were not necessary.

3. Root Cause

The root cause of the undersized beam attachments being installed is the manner in which the beam attachment size is specified on the design drawings. Beam attachments are specified by the diameter of the rods that are connected to the variable spring and rod hangers. The diameter of the bolt/load pin must be taken from the vendor catalog for the given size beam attachment called out on the design drawing. This catalog specified bolt/load pin diameter is slightly larger than the rod diameter. For example, a 1/2" type 66 beam attachment with bolt and nut requires a 5/8" bolt. In the case of the undersized beam bolt/load pin, the bolt diameter was apparently equated to the specified rod size. In this situation, the rod connection was made and no apparent discrepancy was discerned during the Field Engineering or Quality Control inspection, i.e., the installation was accepted based on the rod size as per drawing.

The one undersized (5/8" in lieu of 3/4") load pin installed is considered to be an isolated installation and inspection error.

4. Corrective Action Taken

a. Bechtel

In order to prevent the installation of undersized beam attachments in future installations of both "Q" and "R" class variable spring and rod hangers, documented training sessions have been conducted with both QC and Field Engineering personnel relative to the selection of the proper pin and bracket size. The training was completed by May 28, 1986, and is filed in DDCC for Field Engineering and in QC for the QC Engineers.

b. ANPP

Under the Operations Program ANPP Quality Control will perform required inspections of beam attachment and load pin installations. To ensure that proper information is used in performing these inspections, 6N417.11.00 Attachment C "ANPP Inspection Handbook" will be revised to refer the QC Inspector to the appropriate vendor manual for specific material criteria applicable to load pins and beam attachments. Additionally, QC inspectors will attend training on proper load pin and beam attachment inspection and on the revised Inspection Handbook. The Inspection Handbook will be revised by September 30, 1986 and the training will be completed by October 30, 1986.

B. Improper Bolting Material

The NRC finding identifies three cases where improper bolting materials were identified on flanged connections in piping installations.

1. Action Taken to Correct Identified Deficiencies

Immediate action was initiated to correct the findings identified.

- a. SWA/NCR 6631 was issued to document the nonconforming bolting on the charging pump discharge pipe. The incorrect bolting was replaced with stainless steel material.
- b. The piping to the RCP Seal Nozzle Weldments, as installed, is in accordance with CE drawings and specifications. The Bechtel piping material classification is applicable only to piping designed by Bechtel. Therefore, no construction or installation deficiency existed.
- c. NCR's PG-12136 and PG-12138 were issued to document the two flanged connections on the Diesel Generator piping assembled with high strength structural steel hex head bolting. The incorrect bolting was replaced with alloy steel bolting as specified in the piping material classifications.

2. Reinspection Effort

- a. The extent of the improper use of alloy steel bolting on piping systems containing borated water, e.g., the charging system, was investigated on ANPP CAR CA86-0002. The CAR documents the inspection of

thirty-five pipe flange connections in borated piping systems. No further nonconforming installations similar to the condition documented in SWA/NCR 6631 were found.

- b. ANPP Nuclear Engineering has evaluated the RCP item and determined that the use of carbon steel as an external, non-wetted fastener on borated systems is generally considered an acceptable nuclear industry practice. The general industry approach has been to evaluate leaks on a case-by-case basis to determine if material replacement is necessary. This is the case for the RCP nozzle weldment to seal housing bolts which were changed to stainless steel based on the Unit 1 gasket leakage problem. The nozzle weldment to piping flange bolts have not been changed out since this joint has not and should not experience leakage. Thus, the continued use of carbon steel in this application is acceptable.
- c. To determine the extent of improper bolting on the Diesel Generator Building system, 100% of the Bechtel designed ASME flanged connections in the Unit 3 Diesel Generator Building were inspected. Three nonconforming conditions were identified on NCRs PG-12151, PG-12160, and PG-12172. The nonconforming bolting was replaced. This condition was also addressed in the Corrective Action response of ANPP CAR CA86-0002.

An inspection of the bolting materials on the flanged connections supplied by Cooper Energy Services (CES) as part of the diesel generator package was made by Quality Control. QC was unable to determine if the material was acceptable and NCR MG-2976 was initiated to document the indeterminate condition. The CES supplied bolting was later determined to be acceptable, and the NCR was dispositioned "use-as-is."

In general, ASME bolting materials may be segregated into two groups: 1) Bolting material larger than one inch (1") diameter; and 2) Bolting material one inch (1") diameter and smaller.

Bolting material larger than one inch (1") requires heat number traceability. The heat number for bolting material of this size is documented on a Flange Bolt Torquing Data Sheet to meet the requirements of Bechtel WPP/QCI 202.0 and the ASME Code. The heat numbers are reviewed during the preparation of Bechtel's N5 Code Data Report. Any discrepancies in material would be identified and corrected.

Bolting material one inch (1") and smaller does not require heat number traceability. To determine the extent of the use of improper bolting material and if further action was required for bolting in this size range, Special Construction Inspection Plan (SCIP 700.0) was initiated. SCIP 700.0 documented the inspection of a ten percent (10%) sample (100 of 1000) of the "Q" class flanged connections in PWNGS Unit 3 which utilize one inch (1") and smaller bolting materials. One nonconforming condition was identified on SWA/NCR 7320. The NCR identified one nut of indeterminate material. The NCR disposition required the nut to be replaced with the proper material. Based on the total number of studs and nuts inspected per the SCIP (1288 nuts/644 studs) the one indeterminate nut found was considered an isolated case and it was determined that no further inspection was required.

3. Root Cause

- a. For alloy steel bolting on one flange in the charging pump system, the apparent cause is attributed to lack of attention to detail on the part of the Craft, Field Engineer and the Quality Control Engineer involved with this installation.
- b. The piping to the RCP Seal Nozzle Weldments is in accordance with CE drawings and specifications. The Bechtel piping material classification is applicable only to piping designed by Bechtel. Therefore, no construction or installation deficiency exists.
- c. The NCR's generated due to improper bolting materials in the Diesel Generator Building, are limited exclusively to hex head cap screws or machine bolts one inch and smaller installed into vendor supplied components. The root cause is attributable to lack of attention to detail by Field Engineering and Quality Control on this infrequent type of installation as compared to a Bechtel furnished standard flanged connection, utilizing stud bolts.

4. Corrective Action

In addition to the above specific remedial actions, preventative actions were taken as identified in the response to CAR CA86-0002. All Quality Control Engineers involved with ASME flange bolting material verification received training on the issues of this finding. In addition, the subject was discussed with Bechtel personnel on the Project, including Area Field Engineers, in a "Quality Talk" on March 4, 1986.

C. Electrical Equipment And Tray Support Welding

Since there are two different areas of interest under this item, they will be discussed separately.

1. Electrical Equipment Mounting

a. Background

In response to the 1983, Unit-1, CAT inspection, which identified similar equipment mounting concerns, ANPP issued Deficiency Evaluation Report (DER) No. 83-84. An investigation of equipment tie-downs was performed on installed equipment in all three units. Some additional tie-down deficiencies were noted. All identified deficiencies were analyzed and evaluated, and it was concluded that, if left uncorrected, the affected equipment would still perform their safety functions satisfactorily during a seismic event.

As a result of the above efforts and evaluations, ANPP determined that no safety significant conditions existed and that no further efforts were warranted.

A review of approximately 20% of the electrical equipment mountings in Unit 3, conducted as part of DER 83-84, did not disclose any conditions in electrical equipment mountings that could affect equipment qualification, plant safety or which required repair or rework.

b. Action Taken To Correct Identified Deficiencies

To address the concerns of the 1986 NRC CAT inspectors, NCR's WJ-1705, WJ-1706, WJ-1704, WJ-1716, WJ-1715, WJ-1723, WJ-1717, WJ-1722, WA-1720, WA-1719 and WA-1718 were initiated to document the discrepant equipment mounting welds. Subsequently, the nonconforming conditions were evaluated and dispositioned "use-as-is."

c. Reinspection Effort

As a result of the CAT identified deficiencies and to further verify the results are conclusions of DER 83-84, ANPP issued CAR CA86-0005. In response to the CAR, Bechtel issued SCIP 694.0 on January 26, 1986 to reinspect the attachment welds on 10% of the class IE electrical equipment. This overview identified no safety significant problems. However, the NRC Inspector recommended that a larger sample be reinspected. Therefore, SCIP was amended to include

the attachment welds on 100% of all class IE electrical equipment. Reinspections were performed and subsequent NCR's were issued documenting the discrepant items. SCIP 694.0 is now closed. Forty-three NCR's were generated with all dispositioned "use-as-is".

Although NCRs were generated during reinspection, engineering evaluation indicated that, in the majority of instances, discrepancies were the result of unique field conditions and had no impact on structural integrity of installation. None of the identified deficiencies were considered safety significant, substantiating DER 83-84 conclusions.

Since no Class IE electrical equipment remains to be installed, no further action is required.

d. Root Cause

As determined for DER 83-84 and CAR CA86-0005, the apparent cause is a lack of attention to detail on the part of Field Engineering and QC.

e. Corrective Action

All welding inspectors have received training regarding attention to detail.

Additionally, QC effectiveness inspections have been increased to provide added assurance that daily inspections are being performed properly. This reinspection of a QC accepted installation is performed by the immediate discipline Supervisor or the Lead QC Engineer. The objective of this program is to isolate problems and address them before they become an overall discipline inspection problem.

2. Tray Support Welding

a. Action Taken To Correct Identified Deficiencies

NRCs WJ-1700, WJ-1707, WG-1708 and EC-7182 were initiated to document the raceway deficiencies identified by the NRC CAT Team. NCR WJ-1700 was dispositioned Rework and closed January 22, 1986. NCRs WJ-1707, WG-1708, and EC-7182 were dispositioned "use-as-is."

b. Reinspection Efforts

Immediately after the CAT Inspection ANPP Quality Assurance compiled and analyzed the inspection and raceway support weld deficiency data. Using individual welds as a unit of inspection, QA determined that electrical conduit support welds showed a high enough percent defective to warrant further inspection from Bechtel. Conduit supports were found deficient 5.6% of the time whereas tray supports were deficient 1.8%.

Bechtel was directed to conduct an additional sampling of 100 conduit supports. A large percentage of the specific items sampled were utilized to support cable tray as well. Attributes, criteria and inspection techniques are identical with regard to all electrical raceway supports. All inspectors involved in electrical raceway support welding inspections have been trained to apply this criteria to all support inspections regardless of the type of raceway attached.

SCIP 709.0 was initiated to document this activity. As a result of this reinspection, one discrepancy was identified and documented on NCR EJ-7897. The NCR was dispositioned "use-as-is," and the SCIP was closed on May 1, 1986. An Engineering review of results determined that no additional sampling was required.

The combination of the NRC inspection for thirty-two supports, with five areas of concern, and Bechtel's reinspection of one hundred supports, with one area of concern, totals one hundred and thirty-two supports with six areas of concern.

Of the six areas of concern, only one physically affected the hardware and required rework. Therefore, it was concluded that the Project inspection program has been implemented satisfactorily.

c. Root Cause

The cause is attributed to a lack of attention to detail by Craft, Field Engineering and Quality Control Personnel.

d. Corrective Action

Corrective actions are the same as previously stated under the electrical equipment mounting deficiency.

II. CORRECTIVE ACTION WHICH WILL BE TAKEN TO AVOID FUTURE ITEMS OF NONCOMPLIANCE

A. Bechtel Construction Program

The Quality Control Department has initiated formal documented training by the Lead QC Engineer in each discipline. This formal training and discussion of procedural changes, problems, or potential problems leads to a more uniform application of inspection criteria and a clear understanding by all QC Engineers in attendance. Any misunderstanding of requirements can be corrected immediately through direct feedback and guidance by the immediate supervisor. Included in this training have been specific items identified by the CAT Team, as well as general subjects, such as paying more attention to detail. This training has been on-going since problem identification by the CAT inspectors.

The Quality Control Department has also increased emphasis on the existing QC Effectiveness Program. The primary objective of this activity is to provide QC supervision with an overview of the adequacy of completed inspection tasks. Immediate supervisors will take recently completed inspection records, or simultaneously accompany an inspector, and perform a reinspection of the completed work activity. This provides added assurance that as-built conditions meet the design requirements. An additional benefit to this program is the ability to assure uniform application of inspection tasks and provide timely corrective action if required. The frequency of this review/inspection activity has been increased since the February, 1986 CAT inspection.

In addition to these actions, a "Quality Talks" program is presented to all Bechtel crafts, non-manual and subcontract personnel. The subjects include the need to get problems identified to the proper authority, the necessity of doing the job right the first time, and emphasizing the Project priorities of Safety and Quality.

B. ANPP/PVNGS Program

1. General

An integral element in the PVNGS Quality Assurance Program is the qualification of the project staff. All project employees participate in an indoctrination program designed to orient the individual to the special requirements associated with working at a nuclear project.

ANPP Management, through the indoctrination program, has stressed to all employees its commitment to implement a Quality Assurance Program during the conduct of PVNGS quality-related activities. Also stressed is the fact that quality assurance encompasses activities associated with doing a job correctly as well as verifying and documenting the satisfactory progress and completion of the work. The correct performance of work, in accordance with approved procedures and drawings, is the most fundamental aspect of quality assurance.

Plant personnel receive training designed to provide the requisite skills to safely and efficiently support plant operation. Currently, this program is being developed into an INPO accredited program. This accreditation should be achieved in 1987.

2. Work Control

Upon construction completion and system acceptance by ANPP/PVNGS, all work inspection activities are controlled by the PVNGS Station Manual and ANPP procedures. Future work on plant equipment will be accomplished either by PVNGS under procedure 30AC-9ZZ01, "Work Control" or by a contractor under procedure 30AC-0ZZ09, "Contractor Work Order". Accordingly, QC inspections will be performed either by ANPP QC or by the contractor's QC. Following is a discussion of the two methods.

a. Work Order (WO)

All quality related work performed by PVNGS is subject to inspection by ANPP QC. Inspection, hold, and witness points are initially established prior to issue by the Maintenance Planner Coordinator (PC) who controls the WO. ANPP Quality Systems and Engineering (QS&E) reviews the WO prior to issue to assure that QC requirements have been properly specified. After issuance of the WO, QC has the authority to add additional inspection requirements.

In establishing the inspection requirements for work activities, QS&E considers prior work history. This is obtained through previous inspection results, quality trends, and results of audits and monitoring of similar activities. Known problem areas receive additional QC attention.

To ensure QC inspection effectiveness, ANPP has developed a qualification and certification program that conforms to ANSI N45.2.6. Inspectors receive indoctrination, training and evaluation, and are certified upon successfully passing an exam or demonstrating their ability. Certification is reviewed annually.

To further enhance QC effectiveness, ANPP QA/QC has established a QC supervision overview program. Through this program, a QC Lead Inspector or designee observes the inspection efforts of a Level II or I on a periodic basis. QC supervision, through this program, assesses the effectiveness of each inspector on a yearly basis.

Work order and QC Inspection programs are also audited and monitored by ANPP QA.

b. Contractor Work Order (CWO)

Contractors performing quality-related work under the CWO procedure will do so in accordance with their own procedures, approved by PVNGS, or in accordance with existing ANPP/PVNGS procedures. Contractor procedures are reviewed for conformance to PVNGS program requirements.

In addition to acceptable procedures, contractors are evaluated prior to contract issuance. The ANPP Contract Administration procedures require the responsible Contract Manager (CM) to ensure all required technical and quality details are included in the contract. The CM is also required, via PVNGS procedures to monitor the work performances.

Futhermore ANPP Procurement Quality is required to review and approve all quality related contracts prior to issuance. This review ensures that the necessary QA program requirements, such as QC inspection, have been properly addressed by the contractor. After issuance, ANPP QA reviews the contractor QA/QC compliance during work performance.

The contractor performs the work only in accordance with an approved CWO.

Prior to issuance to the contractor, quality-relates CWOs are reviewed and approved by ANPP QS&E. This review is to ensure all QC inspection requirements are properly specified. In order to assure that work and inspections are adequately accomplished, ANPP QA audits the contractor's program and monitors the on-going work and inspection activities. Audits and monitoring emphasize physical activities in addition to programmatic controls.

Upon work completion, the external repair facility is required to list and attach the originals of all documentation generated during the work performance. If "special inspection" is required, documentation of that inspection is also required to be attached.

III. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The ANPP Inspection Handbook will be revised by September 30, 1986 and the load pin/beam attachment training will be completed by October 30, 1986. All other necessary corrective actions in the identified areas have been accomplished.

