

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-528/82-31
50-529/82-13
50-530/82-14

Docket No. 50-528, 50-529, 50-530 License No. CPPR -141, -142, -143

Licensee: Arizona Public Service Company Safeguards Group _____
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: November 15-19, and December 2, 1982

Inspectors: PP Narbut 12/6/82
P. P. Narbut, Reactor Inspector Date Signed

PP Eckhardt 12/6/82
J. H. Eckhardt, Reactor Inspector Date Signed

Approved by: T. Young Jr. 12/7/82
T. Young, Chief, Reactor Projects Date Signed
Section No. 2

Summary:

Inspection during the period of November 15-19, and December 2, 1982

Areas Inspected: Routine, unannounced inspection by regional based inspectors of activities associated with licensee action on previous inspection findings, heat treatment of Reactor Coolant Pressure Boundary piping, and IE Bulletins and Circulars. The inspection involved 58 inspection hours on site by two NRC inspectors.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

a. Arizona Public Service Company (APS)

- *E. E. Van Brunt Jr., Vice President, Nuclear Projects Management
- *J. A. Roedel, Corporate Quality Assurance Manager
- *W. E. Ide, Site Quality Assurance Supervisor
 - D. Wittas, Quality Assurance Engineer
 - S. Pennick, Quality Assurance Engineer
 - P. J. Moore, Quality Assurance Engineer
- *B. S. Kaplan, Quality Systems and Programs
 - S. Frost, Nuclear Operations Support, Supervisor
 - J. Provasoli, Nuclear Operations Support
 - J. Barrow, Supervisor Electrical Engineering

b. Bechtel Power Corporation (Bechtel)

- *D. R. Hawkinson, Project Quality Assurance Supervisor
- *R. M. Grant, Project Quality Control Supervisor
 - J. Donaldson, Field Engineer Welding
 - S. Griggs, Lead Piping Quality Control Engineer
 - J. Chapman, PWHT Coordinator
 - W. Bingham, Project Engineer
 - D. Hackney, M&QS Division

c. Western Stress Inc.

T. Bunting, Site Supervisor

* = Present at the exit interview on November 19, 1982 which was also attended by L. Vorderbrueggen, Senior Construction Resident Inspector.

2. Site Tour

The inspectors examined the progress of construction in Units 1, 2 and 3. In addition, the steam separator region of one steam generator in unit 2 was examined.

3. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (50-528/82-17/01): Acceptance of arc strikes based on visual inspection criteria.

The inspector examined the applicable procedures which specify the visual acceptance criteria for arc strikes. The procedures examined were:

- . Welding Standard ED-1 Revision 2 dated June 16, 1981
- . Procedure QCI 101.0 Revision 20 dated July 1, 1982

The inspector also performed a code search of the ASME B&PV Code and referenced standards including typical piping and material specifications for requirements regarding arc strikes. The inspector verified that ASME and the referenced standards are silent regarding specific instructions dealing with arc strikes.

The licensee's representative identified two examples of arc strikes which had been accepted using the visual acceptance criteria. Only one was accessible for inspection at the time of inspection. The inspector verified the QC personnel had examined and dispositioned the arc strike in accordance with the applicable procedures and acceptance criteria. The arc strike appeared to have copper inclusions in the edges of the remelt puddle. The arc strike is located in Unit 2 pipe spool S-001 26 inches above weld W-002 shown on drawing 13-P-SIF-151 (3).

The inspector reviewed the Bechtel rationale for arc strike acceptance provided by the licensee. This was a memorandum Leichter to Poser dated January 18, 1980 from the M&QS division of Bechtel in San Francisco.

The memorandum establishes the acceptance criteria for arc strikes which are implemented in the Palo Verde procedures, that is, arc strikes without cracks which do not infringe on minimum wall requirements are acceptable.

The Bechtel position states that in most cases the arc strikes are cosmetic discoloration, that applicable codes, with the exception of AWS D.1.1 do not address arc strikes, and that arc strikes are not significant except on hardenable high alloy steels.

The field personnel interviewed stated that the number of arc strikes evaluated to the criteria and accepted was minimal, estimated to be on the order of one half dozen per unit.

At the exit interview the inspector requested the licensee to establish a meeting between Bechtel M&QS personnel and the inspector to further discuss the criteria in particular the area of remelt considered and the possibility of foreign metal inclusions. The licensee management arranged the meeting which was conducted at the Region V Offices on December 2, 1982.

At the meeting cognizant Bechtel engineering personnel presented the rationale for acceptance of arc strikes including area and inclusion considerations. Basically the presentation showed that area considerations are inherently included in the depth criteria and that inclusions are not metallurgically significant if cracking is not experienced (and cracks are checked for).

Based on the above, this item is considered closed. No items of noncompliance or deviations were observed.

4. Pipe Welding Activities - Unit 3

Pipe welding activities in Unit 3 containment were examined to ascertain compliance with ASME B&PV Section III, applicable Bechtel welding specifications, and Bechtel Post Weld Heat Treatment Procedure WPP/QCI-103.0. The activities observed included in-process welding and post weld heat treatment, and are as follows:

a. In-Process Welding

The in-process welding of the following safety injection system welds (isometric 13-P-SIF-103) was observed:

- . Weld W002 for pipe SI-E-203-BCAA-12".
- . Weld W003 for pipe SI-E-207-BCAA-14".
- . Weld W002 for pipe SI-E-206-GCBB-14".

Portions of the activities over a two day period were observed and included filler material control, welding, grinding, determination of interpass temperature, and final passes. Also, the field welding check lists and filler material withdrawal records for the these welds were reviewed.

b. Post Weld Heat Treatment (PWHT)

The PWHT of weld W001 for the 30 inch diameter reactor coolant cold leg pipe RC084 was examined. The inspector examined the installed electric resistance heaters, insulation, and thermocouple location. The thermocouple location and heating width was as specified. The inspector then observed the actual heating and temperature recording from below 800^oF to the soak temperature of 1150^oF, portions of the soak, and commencement of cooldown. The heatup rate, soak temperature and time, and cooldown rate were within the limits specified and agreed with the ASME Section III requirements.

The recording equipment (SN IR80-1537-00305) appeared to be connected and operating properly, and was affixed with a valid calibration sticker. The inspector reviewed the certificates of calibration and post test calibration check records for this machine and found the records to be in accordance with WPP/QCI-103.0.

No deviations or items of noncompliance were identified.

5. Examination of Licensee Action on IE Circulars and Bulletins

The inspectors examined PVNGS Construction QA/QC Audit Report Number C-82-4 dated June 1 through September 15, 1982 which was performed to determine if documented evidence was available to support licensee commitments made to resolve issues identified in IE Bulletins and Circulars. The audit results noted three items which were in process of resolution to provide an effective system to track commitments.

The inspectors also interviewed certain key staff personnel in the Nuclear Operations Support (NOS) Department. The NOS department had been recently assigned the responsibility for control of commitments for NRC Bulletins, Circulars, and Information Notices. The inspectors examined the NOS procedure number 12.02, Revision 0 dated September 1, 1982 entitled "Control of NRC Inspection and Enforcement Bulletins, Circulars, Information Notices, and Operations Inspection Reports". No items of noncompliance or deviations were identified.

- a. The inspector examined licensee action on applicable IE Circulars for the year 1979. The closure status of the circulars and any applicable comments are provided below:

. (Closed) Circular 79-02 Failure of 120 Volt Vital AC Power Supplies

The inspector examined the evaluation of this circular reflected in Bechtel letter B/ANPPE42370 MOC 79618, of March 3, 1979 and reviewed the SAR diagram of vital AC power with the cognizant licensee engineer. This circular is closed based on the information provided.

. (Open) Circular 79-04 Loose Locking Nuts on Limitorque Valve Operators

The inspector examined the information provided in Bechtel letter B/ANPP-E-46036, MOC-87240 dated June 28, 1979.

This circular remains open pending licensee action to verify committed actions have been accomplished and two additional actions. The two additional actions were:

- . Determine if CE valve operators were surveyed per the circular requirements.
- . Determine if APS Maintenance procedures included the information recommended by the circular.

(Open) Circular 79-05 Moisture Leakage in Stranded Wire Connectors

The inspector examined associated correspondence including Bechtel letters B-ANPP-E-45278, MOC 85806 of June 12, 1979 and B/ANPP-E-91682, MOC 208279 of July 16, 1982 and discussed the status of actions with the responsible licensee engineer. This circular remains open pending licensee verification of completion of committed actions.

(Closed) Circular 79-08 Attempted Extortion - Low Enriched Uranium

The circular was issued for information only and no actions were required. The circular is consider closed on that basis.

(Closed) Circular 79-10 Pipefittings Manufactured from Unacceptable Material

The inspector examined Bechtel letter B/ANPP-E-48235, MOC-92289 of August 4, 1979. This circular is closed on the basis of the information provided in that letter which states that no safety related hardware was affected.

(Closed) Circular 79-11 Design/Construction Interface Problem

The inspector examined APS memorandum ANPP-13437 JMA/TFQ of July 6, 1979. The circular is closed based on the action taken by the licensee described in the memorandum and based on the normal inspection program in the area described by the circular.

(Closed) Circular 79-12 Potential Diesel Generator Turbocharger Problem

The inspector examined Bechtel letter B/ANPP-E-46347, MOC 88574 of July 19, 1979. The circular is closed based on the information provided therein which states that Palo Verde doesn't use the diesel generators described by the circular.

(Closed) Circular 79-13 Replacement of Diesel Fire Pump Starting Contactors

The inspector examined Bechtel Letter B/ANPP-E-48329, MOC-92384 of August 28, 1979. This circular is closed on the basis of the information provided therein which states that the replacement of the contactors has been verified.

. (Open) Circular 79-17 Contact Problem in SB-12 Switches on General Electric Metal clad Circuit Breakers

The inspector reviewed applicable correspondence in the APS file regarding replacement of the subject switches. This circular remains open pending APS verification of commitments.

. (Closed) Circular 79-18 Proper Installation of Target Rock Safety-Relief Valves

This circular applies only to BWR facilities but was evaluated by the licensee for potential applicability. The evaluation was presented in Bechtel Letter B/ANPP-E-49668, MOC 94799 of October 1, 1979. This circular is considered closed.

. (Closed) Circular 79-19 Loose Locking Devices on Ingersoll-Rand Pump Impellers

The inspector reviewed Bechtel letter B/ANPP-E-49712, MOC 94910 October 2, 1979 which states the improved locking devices were installed on the Palo Verde pumps and that the pump technical manuals had been revised. This circular is considered closed.

. (Closed) Circular 79-20 Failure of GTE Sylvania Relay, Type PM Bulletin 7305, Catalog 5U12-11-AC with a 120V AC Coil.

The inspector examined Bechtel Letter B/ANPP-E-51669, MOC 99113 of November 16, 1979 and CE TWX V-CE-9779 of February 8, 1980 which state the subject relays are not used at Palo Verde. This circular is considered closed.

. (Open) Circular 79-21 Prevention of Unplanned Releases of Radioactivity.

The circular recommended three actions, basically; procedure review, periodic tests and a design review. The inspector examined Bechtel letter B ANPP-E-52707, MOC 101132, of December 7, 1979 which covered the subject relative to design review. This circular remains open pending APS verification of commitments for the other two actions.

. (Closed) Circular 79-22 Stroke Times for Power Operated Relief Valves.

This circular is closed on the basis that the CE design at Palo Verde does not include PORV's.

(Closed) Circular 79-23 Motor Starters and Contactors Failed to operate.

The inspector examined Bechtel Letter B/ANPP-E-53447, MOC 103004, of January 4, 1980 which states the contactors addressed in the circular are not used at Palo Verde. The Bechtel letter included the CE scope of supply. This circular is considered closed.

(Closed) Circular 79-25 Shock Arrestor Strut Assembly Interference.

The inspector examined Bechtel Letter B/ANPP-E-54623, MOC-105547 of January 31, 1980 which states the strut assemblies addressed by the circular are not used at Palo Verde by Bechtel or CE.

(Closed) Circular 79-25 Supplement A Shock Arrestor Strut Assembly Interference.

The supplement identified an additional problem with an additional model of shock arrestor. The APS file correspondence indicates the Bechtel letter for the original circular applies, that is, Palo Verde does not use the particular parts addressed in the circular.

The circular supplement is considered closed.

b. The inspector examined licensee action on the following IE bulletins:

(Closed) Bulletin 79-02, March 8, 1979

79-02, Rev. 1, June 21, 1979

79-02, Rev. 1, Supplement 1, August 20, 1979

79-02, Rev. 2, November 8, 1979

"Pipe Support Base Plate Design Using Concrete Expansion Anchors" - The licensee's response to these Bulletins indicates that no expansion anchors are used for Seismic Category I pipe supports at Palo Verde. Generally, all supports are welded to plates embedded in the concrete. In specific cases where embeds do not exist, either a structural member is welded across existing embeds, through bolts are placed in the wall with plates on each side of the wall, or rock bolts are used to attach the pipe support plate.

(Closed) Bulletin 79-03, March 12, 1979 "Longitudinal Weld Defects in ASME SA-312 Type 304 Stainless Steel Pipe Spools Manufactured by Youngstown Welding and Engineering Company" -

This Bulletin resulted from a Palo Verde 50.55(e) report submitted November 17, 1978. This Bulletin is closed based on the licensee's actions concerning the 50.55(e) report which was previously closed.

(Closed) Bulletin 79-04, March 30, 1979 "Incorrect Weights for Swing Check Valves Manufactured by Velan Engineering Corporation" - The licensee's response to this Bulletin indicates that no Velan check valves are used at Palo Verde; the response included input from both Bechtel and CE.

(Closed) Bulletin 79-07, April 14, 1979 "Seismic Stress Analysis of Safety Related Piping" - The licensee's response indicated that the seismic analysis methods identified in the Bulletin are not used at Palo Verde. The response included input from both Bechtel and CE.

(Open) Bulletin 79-09, April 17, 1979 "Failure of GE Type AK-2 Circuit Breakers in Safety Related Systems" - The licensee's response indicated that no AK-2 type circuit breakers are used at Palo Verde. Subsequent to their response, a Bechtel letter to APS indicated that reactor trip switchgear supplied by CE have AKR-30 type circuit breakers that use the same under voltage trip device as the AK-2 type. An additional licensee response was submitted to the NRC discussing the AKR-30 type and committing to develop a preventive maintenance program to assure satisfactory performance of the AKR-30 type circuit breakers. This Bulletin will remain open until it is verified that the preventive maintenance program includes the appropriate instructions.

(Closed) Bulletin 79-11, May 22, 1979 "Faulty Overcurrent Trip Device in Circuit Breakers for Engineered Safety Systems" - The licensee's response indicated that the circuit breakers identified in the Bulletin are not used at Palo Verde.

(Open) Bulletin 79-14, July 2, 1979
79-14, Rev. 1, July 18, 1979
79-14, Supplement 1, August 15, 1979
79-14, Supplement 2, September 7, 1979

"Seismic Analysis for As-Built Safety-Related Piping Systems" - The licensee's response summarized the program to ensure that the as-built conditions are included in the seismic analysis for safety related piping systems. Bechtel Project Engineering Internal Procedure IP-4.37 was written to cover the unique requirements of the Bulletin. Recently, during a Bechtel engineering walkdown inspection, four NCRs were written for Unit 1 pipe hangers where certain deficiencies were identified. Deficiency Evaluation Report (DER) 82-52 dated October 20, 1982 was written by Bechtel covering these NCRs. The inspectors will continue review of the action pertaining to this Bulletin during a future inspection.

(Closed) Bulletin 79-15, July 11, 1979 "Deep Draft Pump Deficiencies" - The licensee's initial response to this Bulletin identified essential spray pond pumps (two per Unit) supplied by Bingham-Willamette Company as deep draft pumps. The required information available at that time was submitted. Subsequently, based on further information supplied by Bingham-Willamete and Bechtel, the licensee has determined that the pumps should not be considered as deep draft pumps as defined in the Bulletin.

6. Exit Meeting

On November 19, 1982 the inspections met with the licensee representatives identified in paragraph 1 and summarized the scope of the inspection activities and findings as described in this report. On December 2, 1982 the licensee was advised, by telephone, of the results of the meeting with Bechtel Engineering personnel.