U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-460/82-02, 50-513/82-02 (CON)

Docket Nos. 50-460/513 License Nos. CPPR-134/174

licensee: Washington Public Supply System

P. O. Box 968

Richland, Washington 99352

Facility Name: Washington Nuclear Project No. 1/4 (WNP-1/4)

Inspection at: WNP-1/4 Site, Benton County, Washington

Inspection conducted: February 1-28, 1982

Inspector: PPNaiut for 3/22/82
A. D. Toth, Senior Resident Inspector Date Signed

Approved by: R T Dodds 3/23/82
R. T. Dodds, Chief Date Signed
Reactor Construction Projects Section 2

Unit #1 Summary: Inspection February 1-28, 1982 (Report No. 50-460/82-02)

Areas Inspected: Routine, unannounced inspection of reactor coolant loop piping and welding, pipe supports, areas mentioned in allegations to NRC, and status of previous inspection findings.

The inspection involved 46 inspection hours on-site by the senior resident inspector.

Res lts: No items of noncompliance were identified.

Unit 4 Summary: Inspection February 23, 1982 (Report No. 50-513/82-02)

Areas Inspected: Routine, unannounced inspection of the status of the program development for maintenance of facilities and equipment during the project termination activities.

The inspection involved 4 inspection hours on-site by the senior resident inspector.

Results: No items of noncompliance were identified.

DETAILS

1. Persons Contacted:

Washington Public Power Supply System

*D. W. Mazur, Program Director WNP-1/4
*C. R. Edwards, Project Quality Assurance Manager
*M. J. Farrell, Quality Assurance Specialist
*F. C. Hood, Manager of Construction & Industrial Safety
R. F. Lewis, Resource Manager
*C. B. Organ, Assistant Program Director, Engineering
*M. E. Rodin, Quality Compliance Senior QA Engineer
M. F. Rogers, WNP-4 Termination Team Site Representative

United Engineers and Constructors

R. D. Bennett, Quality Assurance Engineer
G. L. Faust, Field Superintendent, Quality Assurance
J. Feil, Quality Assurance Engineer
E. C. Haren, Project Quality Assurance Manager
M. D. Lasota, Field Project Engineer (Piping Supports)

Bechtel Power Corporation (BPC)

W. R. Clayton, Quality Control Supervisor, Mechanical
*E. W. Edwards, Project Manager
*J. B. Gatewood, Project Field Quality Assurance Engineer
D. R. Johnson, Manager of Quality
J. C. Kotler, Contracts Coordinator
M. A. Macondray, Lead Contract Coordinator (Mechanical)
*J. L. Rudd, Quality Assurance Engineer
D. K. Webb, Preventive Maintenance Supervisor

J. A. Jones Construction Company

C. Anderson, Assistant Project Quality Assurance Manager
J. Bott, Welding Engineer, Containment
C. Brooks, Grouting Foreman
M. Bughi, Field Engineer
R. Cauble, Foreman, Containment
J. Cortez, Project Manager
J. Dale, Quality Verification Lead Inspector, Containment
D. Fitzgerald, Quality Verification Inspector
C. Fueston, Supervisor, Welding Record Preparation
R. Harrington, Supervisor, Work Package Control, GSB Area
D. Higginbotham, Senior Quality Assurance Supervisor
C. Hoover, Quality Verification Lead (GSB Equipment)
D. King, Senior Quality Assurance Supervisor
D. Plowman, Field Engineer
W. Roweley, Field Engineer, Containment
J. Stannard, Lead Welding Engineer
R. Tanner, Engineering Manager
H. Wellenbrock, QA Supervisor, Special Projects

R. Wilson, Quality Assurance Manager
P. Zaludil, Field Engineer, Containment
J. Zizak, Quality Verification Supervisor

Hartford Steam Boiler Inspection and Insurance Company

J. L. Densley, Authorized Inspector and Coordinator
D. Howland, Authorized Inspector

Other General Contacts and Notes

In addition to the persons identified above, the inspector interviewed many other personnel from the construction, engineering, and quality control site contractor organizations. He interviewed various craft and supervision who were present in the work areas during the inspector's activities, or who had visited the inspector's office.

*Denotes personnel present at the exit management meeting.

2. General

The resident inspector was on-site February 1-5, 8-12, 19, 22-26. During this period, the inspector performed routine examinations of activities, including plant tours, record reviews, and interview of personnel. He interviewed several craft and inspection individuals regarding their quality concerns and the applicability of NRC regulations. No significant issues were identified which were not already being addressed by the Hotline program or contractor management internal corrective actions programs.

Three NRC regional office inspectors and two investigators were on-site the week of February 1-5. Their activities are documented in separate inspection/investigation reports.

One NRC regional office inspector and two investigators were on-site the week of February 21-25. Their activities are documented in separate inspection/investigation reports.

3. Significant Personnel Changes Noted

Mr. M. Rogers has assumed the duties of WPPSS Site Representative for the Unit #4 termination activities.

The Johnson Control Incorporated field office has been mobilizing for instrumentation piping work, and has staffed its senior management positions with personnel who have, until recently, been working in similar positions in the extensive corrective action programs at the WNP-2 site. Such personnel include the Project Manager (T. Bastyr), Quality Assurance Manager (S. Y. Young), and Engineering Manager (W. Morris).

4. Unit #4 Status

On January 22, 1982 the WPPSS Board of Directors approved termination of the WNP-4 project. A draft management plan was approved by the Board on January 29. A participants committee (oversight committee) has yet to be formed, its role in the termination proceedings defined and incorporated into the management plan, and its approval of the plan obtained. In the interim, the facilities/equipment management is governed by the approved draft management plan. Future inspection activities at the WNP-4 facilities will be established following reviews of any WPPSS plans to utilize equipment/materials at that site for other NRC licensed facilities.

The WNP-4 site has been fenced and locked, with limited access, but routine inspection and patrols are being accomplished. Equipment not stored in-place in the facility is stored in on-site steel temporary buildings and at the commercial warehouses at Pasco, Washington. (WPPSS craft and QA personnel are assigned to these facilities, as part of the overall WNP-1/4 project activities.)

5. Unit #4 Layup Quality Assurance Implementing Procedures

The inspector examined the draft termination plan, interviewed the termination site representative and the Bechtel preventive maintenance supervisor and staff, and examined program implementation documents and records. The inspector considered these activities relative to the key elements of the mothball plan previously submitted to the NRC Region V office.

The draft plan includes a Phase I, currently in-progress, which provides for preservation of the integrated facilities/assets for disposal to any potential buyers. The Phase II portion includes preservation of equipment for individual component sales. The inspector found that the Phase I portion includes the essential elements of the mothball plan. The draft plan is general for both the WNP-4 and WNP-5 facilities. A site specific plan is targeted for completion by March 15 and the QA program description by April 1. At this time, organizational structure and QA personnel have been assigned via the February 1, 1982 meeting minutes of the Termination Team. A Termination Program Director (R. DeLorenzo), a QA representative (R. Simon), and a WNP-4 site representative have been assigned.

Until work orders can be issued for specific activities, the existing Bechtel preventive maintenance program has been retained for WNP-4; this invokes the Bechtel site quality assurance program provisions, as applicable, such as for organizational structure and personnel training/qualifications, audits, identification and status control, work/inspection procedures, handling of corrective actions, and document control. The application of this program to WNP-4 was temporarily suspended February 1-19, as funding clarifications were

being made. The inspector reviewed the preventative maintenance work-cards remaining to be done for the month of February, and interviewed the quality control personnel and determined that the monthly maintenance activities would be achieved during the last week of the month. Although some weekly/bi-weekly preventive maintenance tasks were missed, these involved principally checks of penetration assembly pressures/covers. Subsequent weekly checks provide some assurance that irrecoverable loss of equipment integrity did not occur. WPPSS has developed a punchlist to monitor development of the details of the site specific termination program. This includes plans for a specific QA program, preventive maintenance, receipt inspection of items still to be delivered, vendor surveillence for items yet to be shipped, document receipt/control (including partial ASME data sheets), and identification/ tagging of controls. Also included are decision points for reports to NRC for start of Phase II, and for Phase I activities.

The inspector observed that the WNP-4 facility was in-fact fenced and locked, that the preventive maintenance office was staffed with quality control personnel who stated their cognizance of their WNP-4 duties, that the WNP-4 preventive maintenance computer printed work/inspection cards were available for January and February, and the completed cards were ready for computer entry and incomplete cards were assigned to and in possession of individuals who claimed responsibility for their achievement by the end of the month.

No items of noncompliance were identified.

6. Allegations Regarding Cable Tray Support Welds

On January 21, 1982 the NRC Region V office received anonymous correspondence which included a description of corrective actions in progress to resolve cable tray support weld undersize problems, (identified by NRC, item number 460/80-07). The letter asserted that the engineer/contractor may have accepted an area-of-weld criteria for accepting the welds, inconsistent with AWS criteria. This matter was considered during routine NRC followup of item 460/80-07-01, (see paragraph 16.a, below). The assertion was not substantiated.

7. Allegations Regarding Welding by the Mechanical Contractor

On December 14, 1981 an ex-employee of the mechanical contractor contacted the NRC and advised of questionable welding practices. The individual had previously also contacted the senior management of the mechanical contractor, and subsequently the WPPSS hotline, regarding these matters. The NRC investigation is summarized in report number 50-460/81-11. Subsequently, the individual contacted the NRC Region V office on January 21, 1982, to repeat some of his concerns and cite additional concerns. Two of his concerns may also have been common to safety related work, and these were investigated on-site during this report period:

a. The first item involves welding of teflon-lined valves.

The alleger stated that although he was familiar with the necessary precautions and had always taken them, he was unaware of any procedure addressing requirements to maintain the temperature of the valve bodies below 200-degrees. He stated that special measures, such as wrapping the valve body in wet burlap, were required in order to keep the temperature low enough to continue welding. He recited his belief that other welders may not have complied with the criteria in the Quality Class II areas, and possibly in the Quality Class I areas. He did not identify any specific valves where he knew this to have occurred.

The inspector confirmed that a 200-degree welding precaution was documented in JAJ procedure WI-016.0 part 6.15.4. Also, each teflon-lined valve contains a manufacturers green tag, securely wired to the valve, with a prominent "WELDING PRECAUTION - WARNING" which clearly states that the welder shall take precautions to maintain the valve body temperature below 200-degrees during welding. The inspector observed several fully installed valves which still had their tags attached. The inspector also interviewed several quality verification inspectors and welders, who independently demonstrated familiarity with this requirement. The tagging appeared to be at least as effective as the requirement within the procedure. The contractor's procedures show that, until recently, the welding interpass temperature was also a quality verification hold point for Quality Class I welding. The inspector found no basis to conclude that the inspection personnel and/or welders ignored the procedures and/or tags.

No items of noncompliance were identified.

b. The Second item involves welding of 2-1/4% chromium alloy steel.

The alleger stated that some valves/fittings have been installed which are made of alloys containing 2-1/4% Chromium or above, and that the mechanical contractor had no weld procedure for this type material.

The inspector confirmed that this is true. The contractor's weld history records provide space for identifying base material to be welded. This information is entered by the weld record clerk, who makes out the weld records. For the non-safety-related work the weld records had been prepared based upon the assumption that the material class number of the piping line noted on the erection drawings also applied to the valves and fittings. However, referral to the vendor data from valve manufacturers shows this to not always be valid.

It is noted that the NRC received the allegation a week or more after the contractor had already initiated corrective actions to resolve the issue. Since at least January 13, 1982, the mechanical contractor has had an effort underway to identify each valve which may have been welded without the appropriate procedure. This effort has only encompassed Class-II and G valves (non-safety related) to date. The initial limited effort is based upon the contractor welding department's view regarding the individuals and the attention given to Class I weld records in comparison to class-II and G. The inspector interviewed the lead welding clerk, who had been involved in the Class I weld record preparations for the last 1-1/2 years; she stated that she has always referred to the vender "foreign prints" for material identifications and could not recall an occasion where her referral to a vendor drawing identified a 2-1/4% Chromium material. However, the contractor engineers stated that a review of Quality Class I records will be conducted to confirm absence of a Quality Class I issue.

For immediate future work, the contractor engineering manager issued instructions (ENG-82-008) that the welding clerks shall verify mating base material during preparation of weld records. He notes that a weld procedure is now in-preparation for 2-1/4% Chromium welds. The matter will be reviewed further as the Quality Class I review progresses. Followup item: (460/82-02-01). No items of noncompliance were identified.

8. Allegation Regarding Pipe Support Stop Work Order Override

The NRC received an anonymous letter which claimed that the quality assurance organization "...wanted a stop work on all class I hangers but as usual were overridden by their construction or Bechtel QC manager..."

The inspector considered that this opinion was based on the J. A. Jones actions associated with their Corrective Action Report #21 (November 1981 NRC inspection report item 460/81-10-06). The construction department's initial reply to this CAR included a statement that work package cleanup would be done, and that if re-audit by the QA department showed that the previously identified control problems still existed, then the erection work would be stopped until the matter could be resolved. The QA department did conduct a subsequent audit and reported that the problem was not resolved, and recommended that the initially declared action (stop work) be implemented. The contractor held several meetings, including site top management, to discuss the re-audit findings and their significance. The contractor finally determined that the problems being identified were not so significant as to warrant work stoppage.

At that time, the construction department work package control personnel and field engineering personnel reviewed the re-audit findings in detail, and took issue with many of them. During the course of these activities the inspector routinely checked on the audits in-progress, the tentative findings, the reactions of the work package control personnel in the containment area, and the Bechtel quality surveillence personnel review findings. Following the decision to not stop work, the inspector interviewed the quality assurance department personnel relative to their current views; they did not consider that the problems warranted immediate stop work action, but were expecting construction corrective action plans to improve the work package control.

The inspector did not identify cause for immediate stop work action, nor did any site personnel identify circumstances/facts which would suggest a need for such action. Accordingly, the allegation of "overridden stop work order" may have been a time-dependent perception on the part of the alleger, rather than a reality. No noncompliance with NRC regulations was identified, however, the follow-up of CAR-21 will continue to be monitored by the inspector, as part of the previously identified NRC open item 460/81-10-06.

9. Grouting of Equipment and Pipe-Support Plates

The inspector examined activities of the J. A. Jones quality verification (QV) inspectors and supervision at the general services building dispatch area at elevation 455-feet. Availability of work procedures, method of dispatch to ongoing work, availability of personnel were considered. The inspector interviewed the grouting inspector and co-workers, including the grouting supervisor.

The QV inspectors were recently trained to the newly approved and issued procedure (WI-001), which provides for sign-off of hold-points by either the QV inspector or a field engineer; it also requires that the QV inspector sign that work was done in strict conformance with manufacturer's instructions. The QV inspectors were concerned over remarks made by the construction forces that they would call the field engineers to sign off all the in-process hold points and then call the QV inspector only for the bottom-line sign-off. The QV inspectors stated that they were not comfortable in signing off the final acceptance without having witnessed many of the hold points; however, they were told by their supervisor that the QA manager had instructed that they sign the bottom-line of the individual inspection records (steps 32, 33 and 34 of Exhibit B of WI-001) "...or pick-up two pay checks and go out the gate" (employment termination).

In a joint meeting the inspector interviewed the J. A. Jones QA Manager, Assistant Manager, and Verification Supervisor, in addition to the Bechtel surveillence QC mechanical lead and inspector. The Bechtel personnel had not detected the very recent contractor unrest in this area due to their assignment to other quality activities (documentation review). The QA manager stated that the QV inspectors were to sign the various hold points whenever they witnessed them, even though the option was provided in the procedure for sign-off by either QA or field engineering representatives. He stated that a new surveillence procedure was in preparation and would supplement procedure WI-001 to clarify the extensive surveillence work expected of the inspectors as conditions to such bottom-line signatures on the inspection records. In the interim, he had agreed with the construction department and had instructed the QV inspection force that three specific hold points be signed, particularly by the QV inspectors as a basis for and a condition for their final acceptance signatures. The absence of a written interim instruction to this effect appeared to accent the individual QV inspectors' reservations. Subsequent interview of the grouting foreman indicated that no grouting had been performed under the new procedure since this issue was raised on February 26. This matter will be further reviewed pending resumption of grouting work. Followup item: (460/82-02-05)

10. Safety-Related Pipe Supports and Restraints

The inspector examined a saddle support structure (#NSW-141-SG-1) for the ASME Section NF Class 3 nuclear service water system piping at elevation 404' of the general services building. He examined the geometry and dimensions, the pipe-to-support clearances, the weld sizes and appearance, and the contents of the process control and inspection record work package. He interviewed the welder (symbol TR) and the pipe-fitter who were completing the structure. The inspector also interviewed the lead piping engineer for UE&C, relative to clearance criteria and tolerances.

The records and interviews showed that the piping had arrived slightly oversized, which caused the prefabricated pipe-support to not meet a 1/16th-inch clearance criteria. A top-piece 8-inch beam needed to be replaced with a piece 3/16-inch longer. (This appears to be a common problem at this site.) The records showed that the support had been initially partially installed and then removed for rework. The records showed that anchor bolts had been re-tightened and re-inspected, and that replacement material had been controlled. Retightening of bolts also resolved a nonconformance report CNCR-257-3407, involving an out-of calibration torque wrench. (This item was further investigated by the inspector as described in paragraph 16.c. below.) Particular documents noted by the inspector included weld rod slip with heat number 422N5841, inspection report IR-4721, PCP-01Q08848A, Material Withdrawal Slips #33428 and #45152 (with QV verified material heat number transfer notation), and weld procedure number P1-13-revision 6.

No items of noncompliance were identified.

11. Reactor Coolant Loop Piping Welding Activities

The inspector observed activities in progress, interviewed personnel, and examined in-process and completed records for work on the decay heat removal system 12-inch diameter stainless steel ASME Class-2 pipe line (isometric drawing No. 412029) inside the containment building. This particularly involved one original design weld No. FW-007, one redesigned weld No. FW-301, and one cutout weld numbered FW-006C1, and one repaired/cutout weld FW-005C1R1. Weld repair in progress was witnessed for FW-005C1R1.

The inspector considered the weld identification/location, weld history record and procedure control at the work location, weld procedure, ER308 electrode for the TIG process, purge and shielding gas use, preheat and interpass temperatures of 60/250F, weld equipment condition and tool availability to the welder, repair record control, welder identification, quality control inspection performance and documentation, and general appearance of the completed and in-process welds. He witnessed configuration of the repair excavation, record of liquid penetrant test acceptability, QC inspection of the purge adequacy, and qualification of the welder W4 for the WP-P8-3 weld procedure and material thickness. The repair grinding opened a 1-inch long gap in the original weld root and the inspector examined the appearance of the root through this opening, noting no discrepancies.

The observed weld repair was being made by the welder who made the original weld, the repair being called for on the basis of X-ray results. The inspector noted that welder performance (reject data) is maintained by the J. A. Jones welding department, is posted in that area, and is reported to senior management levels of Bechtel and WPPSS. Performance of individual welders is being monitored by both the welding and quality verification departments to permit corrective action on significant trends.

The inspector reviewed the work package in detail with the responsible foreman in the work area. The cutout/redesign welds arose from failure to have inspection of identification number transer on a cut "pup-piece", welding by an individual whose qualification test qualified him for thickness up to .375-inches (whereas actual pipe wall nominal thickness was .406 inches), excessive weld bead width by a previous welder, and presence of a pipe wall thin-spot on a pipe-spool. These conditions were all fully documented with inspection findings, engineering evaluations, dispositions, and direction to the field.

The inspector also interviewed the pipe-fitter regarding his sketches and notes regarding various weld joint fit-ups, machining, and pipe wall thickness measurements. He identified the particular NDE technician from the quality verification organization who performed the measurements, which are classified as "information only" measurements associated with machining the pipe. He stated that he knew of no case where such information-only measurements have been made by other than an NDE technician. (Such measurements are not normally documented in the work packages.) The fitter showed that a thin spot noted near weld FW-007, after weld preparation machining, was no longer relevent since the entire spool piece had been replaced due to a thin spot measured elsewhere on the spool. The work package fully documented this identification and replacement. The fitter described the compensations made to off-set the weld-end-preparation machine to account for the low points on piping which is out-of-round, or not concentric.

No items of noncompliance were identified.

12. Reactor Coolant Loop Piping Weld Records

The inspector examined decay heat removal system work package No. DHR-412028, and the specific weld records for original weld FW-016 and replacement welds FW-302 and FW-500. These are all 2-inch stainless steel welds. The inspector also examined the work package file folder for DHR-412029.

The records show that quality inspection hold points were established and implemented, inspection results affirmed the acceptability of the work, and the records appeared to be essentially complete in accordance with the status of work and the prior company policies.

Weld FW-500 was a cut and reweld of a pipe spool, to facilitate installation at penetration #74. A separate weld record documented this weld. The request to cut the spool and the disposition appeared to be properly documented.

Weld FW-016 records involved visual and liquid penetrant inspection records attesting to acceptability; documentation of 250F interpass temperature check; appropriate weld procedure WP-P8-3 for P8/P8 material combination; fillet weld size specified to be 1/4-inch; filler material E308-16; and weld filler material slips with heat numbers and welder identification shown.

The Piping Weld/NDE Record for FW-016 included changes which had been appropriately dated and initialled by a field engineer and a quality assurance engineer representing the departments associated with the original record preparation. The weld interpass temperature maximum had been changed from 350F to 250F, and weld procedure from WP-P8-2 to WP-P8-3.

The changes were dated following the date of original concurrence by the ASME authorized nuclear inspector (ANI). Interview of the lead ANI revealed that he had given blanket concurrence for these changes. (The P8-2 procedure has been voided since the original preparation of many weld records. It was a GTA process procedure. The revised P8-3 has been qualified for GTA and a combination GTA/SMA process. The ANI did not consider it necessary to recycle all the work control documents through him for the changes.) Although this ANI concurrence is not recorded in any manner on the individual weld record, the QA department has retained the ANI initialled transmittal notices which show that the ANI had the opportunity to review the records.

The current work instruction JAJ-WI-020.1 part 5.3 requires the QA department to present the original weld record to the ANI for review. Also, the procedure POP-N-709W part 6.4.6.2 requires the person making the changes to initial and date the change. It also requires that changes altering the technical content of a quality document shall be subject to the same review as the original record. These requirements appear to have been met for the above noted changes. Although the absence of the ANI concurrence on the individual weld record changes constitutes a potential source of future confusion during record reviews, the JAJ QA department is confident that the associated records review can satisfactorily resolve such issues.

The inspector noted inspection report No. 1428 in work package DHR-412029. This documented that an arc strike had been identified and removed from pipe spool 412029-2 near weld FW-302. An attached liquid penetrant inspection report supported the QA action-complete acceptance of the removal. The inspector examined the area, which appeared smooth and with no evidence of wall thinning. However, the work package contained the original, undispositioned copy of the inspection report No. 1428. The corrective action specified on this included "...perform UT on excavated area to determine acceptability". The dispositioned copy of the report read "...perform VT and PT on excavated area to determine acceptability". The "VT" was obviously penned over the prior "UT". The changes were not initialled nor dated, and it was not clear whether the dispositioning engineer, the accepting QA person, or an unidentified individual had made the change. The employees were not available on-site for interview. Review of the ASME Code, the project specification and the JAJ procedure WI-030 showed that a minimum wall thickness measurement (UT) would be necessary only if there had been evidence of wall thinning. This appeared to be an isolated record discrepancy of no material consequence, except for the implications that both the QA inspector and the field engineer were apparently insensitive to the record change (initial and date) procedural requirements. The JAJ training coordinator stated that excerpts from the governing procedure POP-709M would be incorporated into the training activities which will be underway for at least 30-days, for recently

revised JAJ procedures, and would be incorporated into new-employee indoctrination sessions. The WPPSS QA representative stated that QA surveillence would be performed to assure that this is accomplished.

No items of noncompliance have been identified.

13. Reactor Coolant Pressure Boundary Piping Work Activities

The inspector toured the containment building in the areas where principal piping work activities were in progress. In addition to general observations, the pipe run for the 2-1/2 inch diameter letdown line from the primary system pump suction pipe to the letdown heat exchangers was inspected. The routing of this make-up system line (isometric drawing No. MUS-F-412121) was compared to the flow diagram in the FSAR. The line was apparently complete except for the final spool piece to the reactor coolant line and the installation of shutoff valves near the letdown heat exchanger cubical.

The inspector measured the location of the pipe supports relative to that specified on the drawings, and as allowed by installation tolerances of the procedures WI-10.1 and 16.1. The piping and the supports were visually examined for any obvious surface discrepancies and fillet weld size consistent with the thickness of the material members.

The procedure WI-10.1 revision 3A Exhibit "B" includes tables of axial tolerances for deviation of pipe support location shown on the fabrication and erection isometric drawings. The tolerances are given as functions of pipe line size. Table 2 allows 3-inch axial tolerance for a 2-inch line and 6-inch axial tolerance for a 3-inch line size. There are no entries for 2-1/2 inch line size. The inspector could identify no supplementary criteria in the governing procedures or the work package to clarify this matter for the MUS system piping size. The inspector measured 3-1/2 inches deviation from the specified 5-feet distance from a piping-tee for hanger RCS-49-SG-7. In the absence of applicable acceptance criteria, the inspector could not at this time determine acceptability of the observed conditions. Also, since the ends of the piping run are not complete and welded, it is possible that the piping could yet be shifted on the pipe supports, to change relative locations of the supports. It was not clear what documentation would eventually be available to attest to the proper location of the pipe supports relative to the prescribed locations and tolerances.

The inspector interviewed three quality verification inspectors who have inspected piping and supports in the containment and general services buildings. They stated that they do not verify the location of pipe supports relative to the dimensions on the piping isometric drawings. They stated that they may make some limited checks of dimensions from walls and survey marks, for support details shown on hanger detail sketchs. They discussed the hanger inspection record, which includes inspector preliminary acceptance (prior to hydrotest) and the final acceptance (after hydrotest); they noted that dimensional checks against the isometrics are not specified by procedure for either of these acceptance points.

The inspector discussed this with the J. A. Jones Project Manager, Quality Assurance Manager, and Quality Verification Supervisor. They stated that pipe support locations are initially determined by the survey crews, and the quality verification inspectors are not required to verify, evaluate, or duplicate these measurements. They stated that a final walkdown or as-built activity will verify pipe support locations, but the organizations, timing, details or procedures have not yet been established. They acknowledged that this activity would need to be accomplished prior to the hydrotesting of individual lines, but this has not been made a factor in the quality verification inspector preliminary acceptance of associated pipe supports.

The pipe support location verification activities will be the subject of future inspections to provide assurance that the bases for confirmatory stress analyses are valid. At the current time, the details for the as-built program have not been established. Followup item: (460/82-02-02)

14. Quality Review of Specifications

In early 1981 an engineering task force reviewed the sections of the piping/mechanical specifications to eliminate inspection and testing requirements which represented over-commitments beyond the basic requirements of codes and standards. These involved specification sections 15A, 15B, 17A, 17B, 52A, 52B, 52F and 52G, which are standard sections usually referenced by other sections of the various site specifications. Specification No. 211 revisions 388 and 390 were results of this review.

The inspector interviewed the QA engineer who had signed the specification review sheet for the QA department. The QAE stated that he had not reviewed any specification changes recently, and that for such reviews he does not review to ascertain compliance with PSAR requirements. The QA engineer could not identify the procedure governing QA review of specifications, when asked for this information. The

applicable procedure FQS-3-1 part III.B.3 requires that "The QAE will review the change document to assure: a. The proposed change does not violate any necessary quality requirements or deviate from the PSAR quality commitments or applicable codes/ standards."

Subsequent interview of the UE&C QA site supervision clarified their intent that the QAE is only expected to review the specifications relative to the general quality assurance program requirements commitments made in the PSAR; consideration of PSAR technical requirements and codes and standards requirements is considered by UE&C to be the responsibility of the engineering group. For the case of the task force review, the inspector examined records which referenced specific PSAR sections and indicated that a review of requirements therein had been performed.

The inspector examined revision No. 388 and identified that Section 17A of the specification specifically deletes a paragraph which specified that visual inspection of welds should be made in accordance with Section V of the ASME Code. Other sections of the specification require that visual examinations shall be made in accordance with Section 17A. The QAE and his supervisor stated that neither the specification nor its revisions include directions as to where visual inspections are required, confirming the inspector's observations. They noted that the ASME Code does not specifically describe visual inspections, although it establishes requirements which are verifiable (if desired) by visual inspection. They stated that specification 52A requires contractors to submit their procedures to UE&C for review, and at that time UE&C may require that matters implied by the Code (such as visual inspections) be included in those procedures. The appearance of visual inspection requirements in the current J. A. Jones procedures appears to support the existance of this policy, at least at some time in the past.

The specific specification revisions noted above have not been issued to the contractor for implementation in the form of a contract change, although the contractor has had a copy of the changes for use during the recent round of procedure revisions in progress.

At the exit meeting the licensee representative stated that it was WPPSS intent to meet the code minimum requirements by imposing these requirements on the contractors, but not specifying how the contractors were to meet the requirements. However, the licensee stated that the current approach will be reviewed to assure that the implementation will meet the objectives. The licensee's review of the current approach of eliminating overcommitments will be reviewed during a future inspection. Followup item: (460/82-02-03)

15. Plant Tour

The inspector toured the general services building and the containment building at various times during this report period. Particular noteworthy items, relative to implementation of the quality assurance program and attention to associated corrective actions, are described below:

a. The inspector noted activities at a 10-inch diameter stainless steel ASME Class 2 pipe-to-elbow weld on spool CSS-411829-2. It was being prepared for weld repair. Backside argon purge was being set up, and the piping was properly rigged. The pipefitter in the area expressed his intent to clean the surface area with acetone prior to welding. The 5-inch by 1/2-inch deep excavation was properly contoured for access of the electrode.

b. The inspector inspected the general service building hanger material storage area, interviewing the foreman and noting the several craft in the work area. Material was neatly placed, heat numbers were visible, the area was clearly posted with requirements for obtaining proper material requisitions for obtaining material, and the foreman was clearly conversant with the requirements for heat number transfer and quality control inspector verification of the transfer. Subsequent interview of the inspector for the area indicated that corrective action has been taken when unidentified material had found its way into this area.

c. The inspector noted that the painting contractor was sandblasting and repainting restraint steel in the in-core monitoring tunnel, due to inadvertant dripping of liquid penetrant material on the primer coat.

d. The inspector interviewed welders and foremen in the main steam isolation valve area. He checked the qualifications of a welder with the foreman, relative to material thickness restrictions of the weld procedure. He checked the fit-up gap and high-low offset for a typical steam line, and ascertained that the welders had gages available for their own checking of this parameter.

e. The inspector checked the work package for pipe support MUS-412052/ MUS-140-SG, and ascertained that the new checklist for skew welds was included as required.

f. The inspector examined the control documents and interviewed the field engineer for the J. A. Jones first Code hydrotest, CPN-31. This was for a vendor supplied 1-inch diameter pipe spool which had been cut to facilitate installation, and thus required hydrotest of the new field weld FW-31A of the nuclear sampling system sample line SAN-142-1-1. The weld was to be

pressure tested at 1853 psi for 10 minutes. Test equipment included a calibrated pressure gage and a pressure relief valve. The test plan had been approved by the ASME authorized nuclear inspector. Work instruction WI-023 was applied to the test preparations. Later interview of the field engineer indicated that the test had been completed with acceptable results.

g. The inspector interviewed the welder working on pipe support RCS-115-RG-111 in the containment building. A subsequent check of the qualifications book verified the qualification status of this welder (#AG).

h. The inspector observed the post weld heat treatment in-progress for the reactor coolant system field weld FW-16 at the east steam generator. He interviewed the contractor field engineer who had been monitoring the temperatures each half-hour, to assure compliance with rates of increase/decrease and holding temperature/times. The holding temperature had been approached, but the temperature uniformity requirement of 25 degrees Fahrenheit could not be maintained, in spite of steps which had been taken, such as blocking off the pipe ends to reduce air flow and the application of exterior insulation. The inspector encountered this operation after the contractor field engineer had already made and implemented his decision to reduce temperature to permit installation of internal heaters. The temperatures were on a down ramp and were being closely monitored. The inspector observed the current arrangement, and noted that there were multiple spare thermocouples installed for the contingency of thermocouple failure.

No items of noncompliance were identified relative to the above activities.

16. Licensee Action On Previous NRC Inspection Findings

The inspector reviewed licensee actions taken to resolve issues identified during previous NRC inspection activities. This involved review of records, examination of work, and interviews of personnel.

a. (Open) Noncompliance Item (460/80-07-01) - Cable tray support structure welds which had been accepted by FWB quality control inspection had undersize fillet welds exceeding 10% of the weld length, contrary to weld specifications. This item was identified in April 1980 (Report 80-07), and its status reviewed April 1981 (Report 81-04).

engineer and ascertained that two engineers have been temporarily assigned to the site from the home office, to review loading factors for pipe support skew designs. These engineers are assuming that the longest leg of the skew welds is only as great as the perpendicular height which a quality control inspector may have measured with a standard fillet guage. (This appears to be a conservative assumption.)

The lead engineer stated that UE&C did not consider that this issue extended to shop welds. The inspector identified the following installed apparent shop welds which contained questionable sizes: NSW-57-A-4, FPC-25-RG-6A, and NSW-11-SG-8. The lead engineer later advised the inspector that the UE&C home office is reviewing current fabrication controls at HUICO (fabricator) to ascertain adequacy for future/current work. Also, shop welds for installed supports are being reviewed the same as for field welds as described below.

The inspector interviewed the two home office engineers who are temporarily assigned to the field to review the 292 supports which have been identified to include skew welds. One engineer walked through the process of obtaining the detailed drawing, the applicable design changes (FCN's and PCP's), and the original and any revised calculations. The engineer also worked through the current case on her desk (support No. CSS-51-RG-12B, with reference calculation #1062). She showed how the load capacities are reduced and compared to the most recent design calculations. She stated that 323 supports have been analyzed thus far, with few indicating further field inspection. Checking of calculations has not yet been performed. The process appears to be well controlled and consistent with the commitments in the WPPSS reply to the NRC notice of violation.

This matter remains open pending review of the remaining corrective actions discussed in the licensee's 10 CFR 50.55(e) report.

c. (Closed) Followup Item (460/80-16-01) - The procedures for controlling calibration of measuring and test equipment appeared to have some potential for errors, relative to monitoring calibration due-dates based upon date-of-issue versus date-of-last-calibration. Also, individual calibration records did not include identification of the particular reference standard which was used for the calibration work.

The inspector examined the WPPSS QA Department tracking list and followup file relative to this item. The WPPSS QA staff considered this item closed based upon the fact that Revision 7 of the J. A. Jones control procedure POP-N-704W now includes section 5.2.1 requirements that "The calibration interval shall be based on the actual calibration date and shall begin on the actual date of calibration." Also,

During the current inspection the inspector reviewed the contractor's nonconformance report NCR-218-557, and its subsequent revisions (through number 2). He also interviewed two of the six quality control personnel who were currently performing reinspection of the welds.

The initial NCR stated that the contractor had measured a sample of welds and had calculated the weld throat area, and had compiled reject statistics based on that data. The UE&C disposition of the NCR stated that this was unacceptable, and that all welds would need be reinspected using throat size and length assessments in accordance with criteria provided in the NCR. The criteria in some cases allows 1/16-inch undersize for up to 25% of the weld length, but also requires compliance with AWS D.1.1 welding code. The welding code section 8.16.1.6 allows 1/16-inch undersize for only 10% length. The inspector interviewed two of the FWB quality control inspectors who are engaged in the reinspection, and they stated, as did their supervision, that any undersize is being rejected and corrected. Each of the six inspectors signed a statement on February 5, 1982, to the effect that they have not been nor plan to use the 15%-25% criteria identified in the NCR disposition. Also, contractor engineering has initiated action to clarify the NCR itself, regarding this point.

Data provided to the licensee by the contractor shows that 416 welds have now been reinspected, with 135 showing under-size or insufficient length. However, a new consideration has been identified to the WPPSS hotline, regarding possibility of other types of defects in the welds, other than undersize. This matter is under review by the licensee and contractor. This item remains open pending review of licensee final corrective actions.

b. (Open) Noncompliance Item (460/81-09-05) - In the absence of specific ASME requirements, the contractor failed to define inspection criteria and techniques for assessing adequacy of weld sizes of skew joints on pipe supports. The licensee has subsequently identified this as a potentially reportable occurrence under 10 CFR 50.55(e), on November 16, 1981, and has replied to the notice of violation by letter dated January 15, 1982.

The resident inspector has interviewed crafts and inspectors of the mechanical contractor and ascertained that further work on skew joints has been stopped pending issuance of engineering inspection guidance (Project Change Proposals) and training of personnel. The inspector interviewed the UE&C pipe hanger lead

part 6.5.1 now requires that "The Reference Standard used for the calibration of MT&E shall be recorded on the Calibration Record Card" (for the particular equipment calibrated). The WPPSS close-out file also contained examples of implementation of the new requirements, including reference standards shown on three Calibration record cards (MT Yoke, Outside Micrometer Caliper, Torque Wrench).

The inspector visited the J. A. Jones MT&E calibration laboratory, and interviewed the attendents and examined applicable records. The attendents appeared to be familiar with the new requirements, and maintained an orderly, clean, and environmentally controlled area for calibration activities.

The inspector examined the calibration records for torque wrench #356. This wrench had been found out of calibration when it was returned from use in late 1981. The file showed that QV memorandum TDH-81-036 was issued to require a review of all work upon which the wrench had been used since the previous calibration (August 27 to September 28, 1981). The file also included copies of the nonconformance reports written for the twenty-six pipe supports which had been identified as a result of the review. Included in this series was pipe support NSW-141-SG-1, which is a support which the inspector had reviewed this month, and which also included a copy of the related nonconformance report (CNCR-257-3507). The documented actions were appropriate.

No items of noncompliance were identified. This item is closed.

d. (Closed) Unresolved Item (460/79-11-06) - Construction run-off water had found its way into the reactor pressure vessel. Swipe tests were to have been taken to determine the need for any special cleaning prior to installation of reactor internals.

The WPPSS QA file shows that conditional release #653 had been issued for nonconformance report 1-NCR-211-07, to permit work within the reactor vessel (on nozzles), with a condition that the swipe tests be completed prior to installation of reactor internals. It was noted that the vessel will be cleaned to cleanliness level B following construction activities within the vessel. The swipe tests were conducted and March 25, 1981 Analytical Report (Hanford Engineering Development Laboratory) showed at most 1.54 micrograms of chloride per square inch. This was noted to be less than the 1000 micrograms per square foot criteria prescribed by the vessel supplier in B&W field Specification FS-II-2, VIII-2.7.1.

Record Note: This item in Report 79-11 is improperly numbered as 79-10-06.

This matter is closed.

e. (Closed) Followup Item (460/80-11-03) - Insufficient recognition was given to quality trends, due to licensee staff apparently discounting the observed trends as to-be-expected for increased construction activities. The inspector suggested that the licensee should consider the "CNCR frequency of occurrence with compensation for the increase in work activity" (or other measures) to better monitor significance of observed contractor quality trends.

This matter arose as part of the inspection followup to items identified in enforcement and quality assurance inspection reports 460/78-04, 78-05, and 79-02.

Since this item was identified, there have been major reorganizations of the project, including institution of Bechtel as Construction Manager, establishment of a Program Director for each project, and increased emphasis on both financial, progress, and quality trend reported to senior WPPSS project management. This is illustrated in the December 1981 monthly report to the Program Director, which includes CNCR trend data, CNCR aging data, critical problems (including quality matters), weld reject rate data, and quality audit findings. Status of major items such as hold point violations, procurement document reviews, work package reviews, skew weld joint reinspections (items particularly highlighted by NRC inspection findings) are included as a major part of the report.

NRC has expressed continued interest in the licensee management attention to the quality assurance program, as discussed in the NRC inspection report 50-460/81-10 (paragraph 5.c.(5)), and the licensee has shown increased responsiveness to this area. With Bechtel acting as the Construction Manager, in lieu of the previous WPPSS-UE&C combined organization, the WPPSS cognizance of details of quality trends appears to be served by the current activities described above. As a separate matter, the previous question of WPPSS review of trend analysis of CNCR's is closed.

However, during this review, and in conjunction with other inspection activities, the inspector identified a closely related issue regarding the UE&C approach to disposition of contractor nonconformance reports. Discussion with the QA review staff and review of some CNCR's showed that the engineers prescribe a corrective action specific to the particular problem identified on the CNCR, but do not consider the quality system aspects which led to the situation, nor do they direct corrective action associated with the more general situation. The engineers stated that such generic type action is outside their purview, and would be the responsibility of the construction manager (Bechtel) to detect and correct, possibly via CNCR trend evaluations. However,

the construction manager does not approve the contractor procedures for implementation of the quality assurance program; this is the UE&C engineer responsibility to assure adequate incorporation of the UE&C specification requirements.

During this report period, the inspector was unable to establish the point of responsibility for consideration of the CNCR's relative to adequacy of the contractor procedures. An example is CNCR-257-3589, which involves the failure of the J. A. Jones procedures to assure that a site subcontractor (Isaacson Steel) had a reviewed and approved quality assurance program for site work under PCP-01010558. Another case is CNCR-211-1436, which involves J. A. Jones weld planning and execution activities which resulted in welding to a penetration on which another contractor had undispositioned material nonconformances. The construction manager program in this regard will be reviewed during future inspections. Followup item: (460/82-02-04)

f. (Open) Followup Item (460/82-01-05) - The J. A. Jones quality assurance department has identified multiple deficiencies in quality records for supplementary structural steel installed by J. A. Jones.

This period the inspector interviewed the J. A. Jones team which is mobilizing to review all the work packages for the supplementary steel. At this time the team includes a field engineer team leader, a general foreman, two quality verification inspectors, and a QA representative. The team has the advantage that one QV inspector had been the QA manager for the site structural steel contractor prior to 1979, and could facilitate identification and interpretation of relevent drawings which were supplied by that contractor.

The team has compiled the previous copies of work/inspection instructions used since the original assignment of this work to J. A. Jones. The team has also compiled the original contract direction and has attempted to determine the applicable specification provisions imposed by the contract. The inspector examined their copy of the contract modification issued by UE&C on August 2, 1978 (UEJA-78-5067-257). This included no specification technical requirements, and the J. A. Jones historic file shows that work instructions appeared to be delayed, but eventually issued.

Only the recently issued contract modification issued August 8, 1982 (BEC-257-82-0084) has now defined relevent technical requirements. Although the supplementary steel work is over 90% complete, the contract modification does not appear to address the backfit applicability of the new technical requirements. This matter must eventually be addressed to resolve the quality assurance staff observations that the new changes include items which did not previously appear in the J. A. Jones procedures which were used in the past.

The contractor has not yet issued a nonconformance report, corrective action report, or other controlling document to formally notify the construction manager of this situation. Additionally, the review team has not received a documented management directive to define the scope of their effort, nor an instruction defining a checklist of items to be considered in the review process. It appears that this activity is not yet in an auditable status. The inspector advised the licensee that at a future date it will be necessary to demonstrate what was done by the team to adjudge each work package as acceptable.

g. (Closed) Followup Item (460/82-01-02)

The inspector identified local oxidation on the root of a stainless steel ASME Class 3 pipe shop weld. The licensee agreed to explore this item.

The Bechtel quality control department inspectors looked at the weld, but found that additional piping had already been installed so as to limit access to the interior of the weld in question. However, they discussed the item with the field welder and fitter, who stated that they had ground out the oxidation prior to installing the additional piping. They stated that the condition appeared to be on the surface only, and had been fully removed. The inspector interviewed the same craft personnel who again affirmed this same action. The observed conditions did not appear to warrant further action to assess the condition. No items of noncompliance were identified.

17. Management Meeting

The inspector met with the licensee quality assurance manager approximately weekly to discuss the status of inspection findings and other inspector activities relating to this project. On March 4, the inspector met with the WPPSS QA and construction management and representatives of some of the contractor organizations. Persons contacted who attended this meeting are so noted (*) in paragraph 2 of this report.