

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 50-460/80-09
50-513/80-09

Docket No. 50-460, 50-513 License No. CPPR-134, CPPR-174 Safeguards Group -

Licensee: Washington Public Power Supply System
P. O. Box 968
Richland, Washington 99352

Facility Name: Washington Nuclear Projects Nos. 1 and 4 (WNP 1 & 4)

Inspection at: WNP 1 & 4 Site, Benton County, Washington

Inspection conducted: May 1-30, 1980

Inspectors: *R. C. Toth*
for A. D. Toth, Resident Reactor Inspector

7/7/80

Date Signed

Date Signed

Date Signed

Approved By: *R. T. Dodds*
for R. T. Dodds, Chief, Engineering Support Section

7/7/80

Date Signed

Summary:

Unit 1 Inspection on May 1-30, 1980 (Report No. 50-460/80-09)

Areas Inspected: Routine announced inspection by the resident inspector of construction activities relating to: equipment storage and preventive maintenance, welding material and tool control, water storage tank foundations, containment concrete, containment structural steel, structural steel outside containment, reactor coolant pressure boundary piping erection, safety related piping erection, containment penetrations, containment welding, reactor coolant pressure boundary welding, safety related piping welding, control of construction drawings, and licensee action on previous inspection findings.

Results: No items of noncompliance or deviations were identified.

Unit 4 Inspection on May 1-30, 1980 (Report No. 50-513/80-09)

Areas inspected: Routine announced inspection by the resident inspector of construction activities relating to: equipment storage and preventive maintenance, welding material and tool control, containment concrete forms and embeds, containment concrete, containment structural steel erection, structural steel and supports, containment penetrations, containment steel welding, and safety related piping welding.

Results: No items of noncompliance or deviations were identified.

RV Form 219 (2)

8008010/00

DETAILS

1. Persons Contacted

Washington Public Power Supply System

- *M. C. Carrigan, Construction Manager
- *T. J. Houchins, Project QA Manager
- *G. D. Dyekman, Engineering Manager
- *J. P. Thomas, Deputy Project Manager

United Engineers and Constructors

- *E. C. Haren, Deputy Project QA Manager
- *G. E. McIntosh, Assistant Deputy Project Manager
- *R. H. Bryans, Field Project Engineering Manager

J. A. Jones Construction Company

W. Roe, Quality Assurance Manager

G. F. Atkinson, Wright, Schuchart/Harbor (AWSH)

- T. Canning, Assistant QA Manager
- M. Field, Assistant QC Supervisor
- M. Anderson, Assistant QC Supervisor

Pittsburgh-Des Moines Steel Company

- C. Bauer, Site QA Manager
- L. Gana, QA Supervisor

University Mechanical Engineers and Constructors

- J. Stewart, Project Manager
- D. R. Larkin, Project QA/QC Manager
- E. L. Adamson, Assistant Project QA/QC Manager

Royal Insurance Company (ANI)

- K. Collins, Authorized Inspector
- W. Kemp, Authorized Inspector

J. L. Manta Company

R. Valentine, QC Inspector

*Denotes personnel in attendance at one or more of the management meetings on May 2, 12, 27 and June 2, 1980.

2. General Construction Inspection Information - Units 1 and 4

The inspector observed ongoing work activities and completed work, examined in-process records and completed records, and interviewed craft, management and quality inspection personnel relative to the plant construction. Principal management personnel contacted are listed in paragraph 1 above. Personnel were generally interviewed at their normal work area.

Inspection activities involved audits of specific work activities and frequent plant tours and associated observations of equipment and construction processes. During the various inspection activities the inspector noted the number of QC inspectors for the work, the demonstrated knowledge of the QC inspectors in their assignment, their awareness of governing procedural and technical requirements, their effectiveness in identifying and acting on apparent quality discrepancies, the relationship between craft personnel and the QC inspection effort, and adequacy of preplanning and QC coverage for important work activities. The inspector also observed activities of the licensee/architect-engineer joint QA organization site surveillance engineers and their interface with the various contractor QC staffs.

3. Licensee Action on Previous NRC Inspection Findings

a. (Closed) Unresolved Item (460/79-12-02): Verification of valve orientation prior to welding

The weld fitup inspection procedure, JAJ-NDE-007 Revision 1C, includes requirements for the Quality Verification (QV) inspector to verify correct flow direction for valves as a part of fit-up inspection. Drawing (FP) 50881 is the vendor design for valve MUS-141B; it shows that this gate valve has no flow direction limitations. The inspector had no further questions regarding this item.

b. (Closed) Unresolved Item (460/79-13-01): Welding of valves with valve closure-parts on the valve seat

The licensee contacted the manufacturer of stop-check valve No. MUS-V68 and ascertained that the vendor supports the welding of the valve with the stem up and the floating plug in contact with the valve seat. Nonconformance reports Nos. CNCR-257-363/378 and CNCR-211-032/036, and vendor correspondence No. NIUE-80-002 document contractor and license action relative to this item. The inspector had no further questions on this matter.

4. Licensee Action on Unusual Event - Volcano Eruption

On Sunday morning, May 18, 1980, Mt. St. Helens erupted. The mountain is about 150 miles west-northwest of the WNP-1/4 site. The WNP-1/4 site was on the fringe of an eastward plume of volcanic

ash and the ash fallout collected to a depth of about 1/16 inch over the period May 18-19, 1980.

On the morning of May 19, senior licensee and architect-engineer site management personnel developed an action plan to assess the significance of the powdery but abrasive fallout and outlined plans to cope with it. Plans included analyzing the material for acidity and sulfur/halogen content, and ways to clean site-stored materials and equipment. Welding and concrete placement activities were temporarily suspended until management inspected each work area and established cleanliness controls. Consideration was given to concrete aggregate contamination, water sources, surfaces of stainless steel and other metals. Leachability of chemicals and contingency plans for rain were established. Special inspection of equipment covers was initiated.

The licensee's action appeared to be prompt and responsive to the conditions.

Such initial actions are documented in WPPSS/UE&C documents:
Meeting Notes on Clean-Up of Volcanic Ash dated May 19, 1980
Contingency Fallout Washdown Plan dated May 20, 1980
Quality Class I Welding dated May 20, 1980
Chemical Composition of Volcanic Ash dated May 20, 1980
Nonconformance Report (Aggregate Stockpiles) No. 4-NCR-36-30
Nonconformance Disposition Report No. 4-NCR-36-30
Surveillance Report No. 36-C-187
WPPSS Letter to AWSH (Stop Work) dated May 19, 1980 (UEAC-80-5071)

No items of noncompliance or deviations were identified.

5. IE Circular 79-25: Shock arrestor strut assembly loads

The licensee procedures QAP-27 and EDP-8.5 describe processing of NRC issued IE Bulletins and Circulars. For Circular 79-25, an architect-engineer action letter, No. UEWP-80-492, was issued which includes a copy of a vendor letter which affirms that the questionable part has not been, nor will be, incorporated into parts delivered to the WNP-1/4 project. Site QA personnel had been advised.

The inspector had no other questions on this item.

6. IE Information Notice No. 80-05

Consistent with the intent of this notice, the inspector reviewed activities relative to fireproofing coatings for structural steel. The contractor has a quality assurance program, a site quality control inspector, material test equipment and related procedures. The material in use is United States Mineral Calcote - "H", having chloride levels of 12 ppm according to the vendor's data.

The inspector had no further questions on this item.

7. Storage and Preventive Maintenance - Units 1 and 4

The inspector audited work activities for storage of material and equipment at warehouses, outside enclosures, lay-down areas, and in the plant. This involved examination of reactor vessels and reactor vessel internals, mechanical equipment, electrical switchgear and motors, general fire protection and housekeeping. The inspector toured the containment buildings and general services buildings.

The acceptance criteria was based on the applicable codes, standards and quality requirements described in PSAR Sections 17 and 3.12 (Regulatory Guides 1.38 and 1.39) and plant procedures numbered FGCP-9 and 16.

Observations, examination of records, and interviews of personnel were conducted relative to: identification of items, presence and integrity of covers and caps, indicator status for desiccants, activation of heaters, inert gas blanket pressure, handling of items being received, adequate dunnage for air-circulation/structural support/protection from water-pools, prevention of damage from dirt-dust-debris or adjacent construction activity, records of contractor surveillance activities, evidence of ongoing preventive maintenance. The inspector also noted availability of fire extinguishers, control of combustibles and ignition sources, and continued surveillances by site safety inspectors.

No items of noncompliance or deviations were identified.

8. Welding Material and Tool Control - Units 1 and 4

The inspector audited work activities for the storage and issuance of welding material and calibrated tools. This involved inspection of field tool rooms of the containment liner fabricator/erector (Pittsburgh, Des Moines Steel Company), the piping contractor (J. A. Jones Construction Company), the electrical contractor, and the ventilation system contractor. Each contractor has issued approved procedures for weld material control and tool calibration. Observations, examination of records, and interviews of personnel were conducted relative to: weld material identification, segregation, cleanliness, and container integrity (for low hydrogen electrode); low hydrogen weld electrode storage oven temperatures; weld material issue record approvals/dates/weld location; electrode identification relative to heat number and weld joint number; handling practices relative to returned weld electrode; calibration evidence for torque wrenches, oxygen analyzer, and temperature devices; availability of various equipment required for proper performance of work; maintenance of records; and availability of procedures.

The inspector selected four weld rod heat numbers (E7018--#92013 and #412J4861; ER308--#464390 and #462747) from welding material in

the piping contractor's tool rooms, and examined the associated records relating to purchase requirements, receiving, certifications, and site records audits. The inspector considered the mechanical and chemical test values, impact test values, heat treatment parameters, delta ferrite tests to Regulatory Guide 1.31, Revision 3, and general conformance to ASME Section II-C and Section III criteria, as shown by the purchase orders and certified material test reports. In each case, the records demonstrated that JAJ and/or UE&C auditors had been performing their audits.

No items of noncompliance or deviations were identified.

A craftsman directed the inspector's attention to the embed plates for a reactor pump restraint which exhibited a hollow sound when struck with a light hammer. The inspector referred the question of possible underlying concrete voids to the licensee's QA and engineering organizations. They produced a memorandum (QJ90615) stating that "hammer sounding is not an acceptable technique for determining absence or presence of voids and should be discontinued as past experience has indicated subject method yields erroneous results." Reference to document No. 1-NCR-205-46 is indicated as data to support their position.

The inspector took the information under consideration to determine if further review is warranted. (460/80-09-01)

9. Tank Foundations - Unit 1

The inspector audited work activities for placement of the mat type foundations for the demineralized water and the borated water storage tanks to be erected west of the general services building.

Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.8.5, and job specification No. 254.

Observations, examination of records, and interviews of personnel were conducted relative to: placement of concrete, compaction of soil, surveyor activities for confirming line and grade. The inspector had previously observed (IE Inspection Report No. 50-460/79-11) compaction and compaction verification tests for this area. Current activities involved placing a mud mat in preparation for the future 5-foot thick concrete base. Vibrators were used to assure consolidation of the mud mat concrete and surveyors ascertained proper elevations.

No items of noncompliance or deviations were identified.

10. Containment Concrete Forms, Embedments and Reinforcing Steel - Unit 4

The inspector audited work activities for placement of forms and steel for placement No. C102 of the containment wall. This included visual examination of several completed and marked cadweld splices, examination of forms prior to and during concrete placement, and general observations of the installed steel to be embedded in this concrete pour.

Applicable codes, standard and quality requirements are described in PSAR Sections 17 and 3.8.1., job specification No. 253, and contractor procedures Nos. (AWSH) QCCP-12, 14-1, and 21.

Observations, examination of records, and interviews of personnel were conducted relative to: cleanliness and leak tightness of forms and clearance from nearest reinforcing steel, continuity of waterstop to be embedded, general cleanliness of rebar (including removal of volcanic ash fallout from the May 18-19, 1980 Mt. St. Helens eruption), and rebar spacing clearance commensurate with aggregate size.

No items of noncompliance or deviations were identified.

11. Containment Concrete - Batch Plant Operations Units 1 and 4

The inspector audited work activities for the on-site concrete batch plant operations. This involved inspection of the operating equipment, observation of control room activities and records, interview of the contractor's QC inspector, and examination of aggregate storage and handling. Observations were made regarding presence and impact of volcanic ash fallout.

Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.8.1., job specifications Nos. 253 and 36, and contractor procedure No. (UEC) FQS-10-6.

Observations, examination of records, and interviews of personnel were conducted relative to: accuracy of material control, temperature control, generation and control of batch records, presence of test laboratory inspector to comply with water-cement ratio monitoring and to specify batches to be sampled for tests, equipment cleanliness and working condition, aggregate handling and segregation, moisture compensation, tests and adjustments, mix proportion control and monitoring.

The coarse aggregate piles were washed by sprinkler and the sand piles swept to reduce contamination by the volcanic ash fallout. Conveying and scale equipment were checked for unacceptable contamination levels.

No items of noncompliance or deviations were identified.

12. Containment Concrete Delivery, Placement, and Curing - Unit 4

The inspector audited work activities for concrete placement No. C102 of the containment wall. He examined the area prior to placement, interviewed the ASME authorized nuclear inspector and contractor QC personnel, observed activities during placement, inspected the concrete consolidation in various areas and subsequently observed curing conditions. He noted special efforts to clean the area prior to placement subsequent to volcanic ash fallout.

Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.8.1.2., job specification No. 253, and contractor procedures QCCP-13, 21 and 11.

Observations, examination of records, and interviews of personnel were conducted relative to: contractor and licensee and ASME preplacement inspections completion prior to placement, preparation of construction joints, delivery of specified concrete mix (No. 415), duration of mixing/transport for various batches, piping material, temperature control, tests and test equipment calibration, vibrator calibration checks, crew/equipment/techniques utilized, concrete free-fall and chute control, assignment of carpenters and QC for continuous checks of form tightness, availability of support crafts, and performance of QC inspection.

The construction joint had been prepared and inspected by the contractor with particular attention to four void areas adjacent to the liner plate at the surface of placement No. C-101. The voids are identified in contractor nonconformance reports Nos. 4CNCR-253-152, 153, 154, 157. The largest was 6' by 12" by 14". The voids had occurred during placement No. C-101 in spite of the contractor's assignment of six QC inspectors to work within the reinforcing steel network to assure proper consolidation (reference: IE Inspection Report 50-513/80-07). For placement No. C-102 the contractor did not assign QC inspectors to work within the reinforcing steel network on the basis that they tended to interfere with the laborers working in cramped quarters. To compensate, the contractor installed improved lighting for the placement and issued mirrors mounted on short and long poles for QC inspectors to use while working from without the reinforcing steel network. The long handled mirrors appeared to have limited usefulness in assuring proper consolidation adjacent to the liner plate. Reinforcing steel congestion near the liner precluded effective use of mirrors in many areas. Notwithstanding these difficulties, the placement and consolidation crews utilized reasonable placement techniques and the inspector observed no improper consolidation activities during his observations.

The ASME Code Section III Division 2 CC-4226.2 discusses use of mortar where conditions make consolidation difficult or where reinforcement is congested. The UE&C engineer considered that consolidation and congestion were not so difficult as to warrant

such mortar, but rather relied upon a workable 3/4-inch aggregate mix design. The ASME authorized nuclear inspector found this to be an acceptable designer prerogative.

The inspector observed that a containment penetration sleeve weld end-preparation was not covered at the 200° azimuth during placement No. C-102. The AWSH inspection checklists (including QCP-14-1 "Embedded Item Checklist) did not include requirements to ascertain protective covers and none of the inspectors identified the exposure as unacceptable. Protection of containment penetration ends was identified as an issue by the licensee in November 19, 1979 (Reference: memoranda Nos. DCL-79-033 and UEAT-79-5489). Then the contractor was required to provide weld prep protective devices where they were missing and give written notification if protective devices need to be temporarily removed. Consequently, it is not clear why the AWSH and UE&C personnel did not provide for protection of the containment penetration weld prep prior to the placement. On May 23, 1980, the UE&C site QA organization issued a surveillance/contractor-notification report requesting action on missing penetration covers. The effectiveness in achieving corrective action in this area will be reviewed during subsequent inspections. (513/80-09/01)

13. Containment Structural Steel Erection - Units 1 and 4

The inspector audited work activities for erection of containment steel liner plate for the Unit 4 containment dome. This involved observation of plate support arrangements and weld joint preparations and interview of the contractor (PDM) quality control inspector relative to ultrasonic examinations of plate segments and disposition of rejected laminations. The inspector observed that at Unit 1 no liner work and only minor steel erection work was in progress. Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.8, job specification No. 213, and contractor procedures Nos. (PDM) WDP-1004 and EIS-14693.

Observations, examination of records, and interviews of personnel were conducted relative to: removal of temporary attachments from liner plate, basis for selecting areas for field ultrasonic tests, handling of identified defect areas, testing personnel qualifications, preheating of plates for fit-up attachments, QC inspection and material identification and mapping.

The inspector also examined procedures EIS-14693, Revision B, WDP-1004 Revision O, and drawings E41 Rev. A and E48 Rev. C. These documents appeared to be current, properly approved and no discrepancies from ASME code requirements were noted.

No items of noncompliance or deviations were identified.

14. Structural Steel and Supports - Units 1 and 4

The inspector audited work activities for erection of structural steel in areas outside the reactor containment building. This involved inspection of stud installation at Unit 4 general services building, and bolt torquing of Unit 1 general services building, elevation 500 (6.5-to-9.2, W-to-U lines).

Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.8.4 and job specification No. 207.

Observations, examination of records, and interviews of personnel were conducted relative to: installation of welded studs through Q-deck to structural steel, use of proper (ASTM A325) bolts for structural steel, calibration of bolt torque-verification wrench, torque verifications by independent test laboratory wrench inspectors, maintenance of inspection records, QC inspector familiarity with inspection criteria and techniques, corrective actions for loose bolts, inspection sampling plans and corrective actions for defective studs.

The contractor had experienced difficulties with installation of studs through Q-deck and had implemented an increased frequency of testing studs. Adequate corrective actions included manual SMAW weld repairs and cut-out of Q-deck at local spots where studs are to be installed. The inspector observed extensive evidence of the implementation of these activities at the Unit 4 general services building.

No items of noncompliance or deviations were identified.

15. Reactor Coolant Pressure Boundary Piping Erection - Unit 1

The inspector observed work activities for primary system piping erection. This involved observation of five typical activities, including contractor monitoring of the levelness of the primary pump during field weld No. 4 installation, storage of valves with Limatorque motor operators, protection of primary pump restraint anchor bolts, support of stainless steel DHR system piping and control of procedures/records in the work areas.

Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.2, job specifications Nos. 257 and 211, and contractor procedures (JAJ) PCS-RCS-211-1, WI-004 and WI-005.

Observations, examination of records, and interviews of personnel were conducted relative to: compliance with pump levelness monitoring requirements during welding, protection of valve operators and internals in accordance with vendor instructions, use of non-metallic straps to support piping, strength of support points and availability of latest revision to applicable procedures at work locations.

Reactor coolant pump levelness criteria were exceeded during welding of weld No. FW-3. Although millwrights were present during welding

to monitor the pump position, corrective action was not initiated in time to prevent exceeding the criteria of PCS-RCS-211-1. The quality control inspector did not have this parameter as an inspection attribute. The weld was partially ground out to permit addition of weld metal with associated thermal contraction effects which would compensate and bring the pump to within the levelness criteria. Although the criteria were exceeded, the licensee/contractor process control system identified the matter and corrective steps were initiated.

No items of noncompliance or deviations were identified.

16. Safety Related Piping Field Erection - Unit 1

The inspector observed work activities for handling and installation of piping. This involved observations of five activities, including maintenance of pipe caps on stored and partially installed pipe spools, rigging of stainless steel piping to avoid gouging by carbon steel, cutting and weld end preparation for pipe spool FWA-411854-3 (and QC action regarding an apparent defect on a shop weld root), QC action regarding two four-inch gouges on a make-up system pump-suction line pipe spool, and installation of valve MSS-V44B.

Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.2, job specifications No. 257, and contractor procedures Nos. (JAJ) POP-N-707W, WI-006, and WI-004.

Observations, examination of records, and interviews of personnel were conducted relative to: protection of piping material, QC identification and action on discrepant conditions not specifically identified on process travelers or weld records, proper orientation of valves, weld joint fitup hold point adherence and presence of QC inspectors.

The inspector interviewed two contractor (JAJ) quality verification (QV) inspectors relative to an observed gouge on pipe spool MSS-411499, Spool 3. The inspectors took action to obtain an evaluation whether repairs were warranted. During discussions of grinding of piping defects and welds, it appeared that criteria have not yet been established for QV inspectors to determine when wall thickness measurements should be made. This will be reviewed during subsequent inspections. (460/80-09-02)

No items of noncompliance or deviations were identified.

17. Safety Related Piping Erection - Unit 1

The inspector audited work activities for installation of stainless steel piping of the decay heat removal system. Most of the piping spools are in the general services building on temporary and permanent

supports and hangers, but few welds have been completed. The tie-line between the decay heat removal pump discharges (valve V37A to valve V88B) was examined.

Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.2 (figure 3.2.4), job specification No. 257 part 15A, and contractor procedure No. JAJ-WT-016.1.

Observations, examination of records, and interviews of personnel were conducted relative to: anchorage methods for temporary support of pipe spools, prerequisite permanent set of equipment prior to piping connections, prevention of cold spring, valve positions prior to welding, maintenance of pipe caps on pipe spools and valves, identification of pipe spools, and line routing per PSAR figure 3.2.4.

No items of noncompliance or deviations were identified.

18. Containment Penetrations - Unit 4

The inspector audited work activities for installation of the personnel airlock assembly. This involved examination of installation records and procedures, observation of the in-process welding, survey of the attachment to the containment liner and observation of supports arrangements.

Applicable codes, standards and quality requirements are described in PSAR Sections 17, 3.8.1 and 6.2.4, job specification No. 213, contractor procedure Nos. WDP-INST-0002, WDP-INST-0005, WPS-75-55, WDP-1511, WDP-1512, drawings E41 and E48 and fabrication checklists FCL-L1 and FCA-L1-001.3.

Observations, examination of records, and interviews of personnel were conducted relative to: current revision and approval of applicable drawings (E41 and E48) and procedures, provisions in procedures to support and brace the airlock and to monitor its alignment during welding, ultrasonic testing of attachment plates and cutout/repair/retesting, installation and inspection checklists identifiable to the work, presence and performance of QC inspections and protection of the components from damage.

The inspector noted that exterior cap-screws and hardware were rusting; however, no deteriorating of the sealing surfaces was noted. The inspector brought the condition to the attention of the site QA organization. It did not appear that the rusting had adversely affected the airlock.

No items of noncompliance or deviations were identified.

19. Containment Steel Welding - Unit 4

The inspector audited work activities for welding steel liner plate sections for the Unit 4 containment dome and for welding the Unit 4 airlock insert-plate to the liner structure. This involved inspection of welds in-progress and seams identified as 20V6, PAL-HI, PAL-V2 and weld repair at seam identified as 19V1.

Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.8.1; job specification No. 213 section 3A; contractor procedures Nos. (PDM) WPS-75-55, WPS-75-26 and WVT-1; fabrication checklists FCL-G2-003, FLA-G2-002.20/.21 and FCA-L1-001.3.

Observations, examination of records, and interviews of personnel were conducted relative to: preparation of weld joints and weld repair excavations, liquid penetrant examination of weld repair excavation, thoroughness of exploring for defects identified by radiography, cleanliness of weld joint, appearance of weld metal deposits, weld and weld repair identification, qualifications of welders, use of specified weld material, activities and records of QC inspectors, provisions for and records of checks of welding electrical parameters, monitoring of airlock position during welding, preheat and interpass temperature control, availability of required preheat/grinding/monitoring equipment, control of used weld electrode and new electrode, and presence of quality control inspectors at in-process surveillances and for designated hold points.

No items of noncompliance or deviations were identified.

20. Reactor Coolant Pressure Boundary Welding - Unit 1

The inspector audited work activities for welding the piping to the reactor coolant pump suction (weld No. FW-3) and to the steam generator (weld No. FW-4).

Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.2, job specification No. 211, and contractor procedure No. (JAJ) PCS-RCS-211-1.

Observations, examination of records, and interviews of personnel were conducted relative to: utilization of an applicable weld data sheet, availability of governing procedures/drawings, applicability of the identified weld procedure, use and control of E-7018 electrode (FW-4), condition of weld equipment, removal of weld metal for rework of FW-3, presence of QV inspectors, monitoring of welding parameters and adherence to QV hold points.

No items of noncompliance or deviations were identified.

21. Safety Related Piping Welding - Unit 1

The inspector audited work activities for field welding of piping in the general services building for the decay heat removal system (12" pipe spool to valve V37A, weld DHR-39-1-FW-008) and the makeup and purification system (pipe repair weld No. MUS-185-1-6-FW-002 R1). The inspector also observed general activities of other work areas.

Applicable codes, standards and quality requirements are described in PSAR Sections 17, 5.5 and 6.3, job specification No. 257, contractor procedures (JAJ) WPS-P8-3, WI-030 and NDE-007.

Observations, examination of records, and interviews of personnel were conducted relative to: availability of drawings and weld data sheets at the work location, identification of the weld joint relative to piping isometric drawings, welding procedure compliance with requirements for the material being welded, weld repair controls comparable to initial welding and including liquid penetrant examination of the excavation, presence of argon purge and shield gas and oxygen monitoring equipment, weld electrode and bare rod as prescribed by the weld procedure, identification of the welder and welder qualifications, control of interpass temperature and interpass cleaning/grinding, cleaning of the stainless steel weld joint with acetone prior to welding, preparation of weld ends, availability of fitup and cleaning/grinding equipment, and presence of QC inspectors and documentation of their activities.

The inspector particularly noted the activities and records for a special weld repair crew which was assigned the routine repair work on welds which did not pass NDE tests. The inspector also noted activities preparatory to field assembly/welding of cavitating venturi for DHR-46-2-10.

No items of noncompliance or deviations were identified.

22. Safety Related Piping Welding Units 1 and 4

The inspector examined the documented Random Radiography Program (Revision 4) of ASME-III Class 3 and ANSI B31.1 pipe welds. The ASME-III class 3 effort is beyond that required by the PSAR commitments and represents licensee additional efforts to assure quality of welding on safety related systems. The program assures that a 3%-10% sample is taken from each of fluid systems of the WNP-1/4 facilities. The program does not encompass class 1 or 2 systems for which 100% weld joint radiography is already planned in accordance with the ASME-III code. Modification "FCC" of Contract 9779.257 authorizes such radiography of 1000 butt-welds at Unit 1 and 920 butt-welds at Unit 4. The UE&C construction organization site welding has been compiling record packages to select the welds to be examined.

No items of noncompliance or deviations were identified.

23. Control of Site Construction Drawings - Units 1 and 4

The inspector interviewed construction management department QA/QC liaison personnel and drawing auditors, and examined drawing audit logs and graphs relative to the various site contractors. The inspector also examined 18 drawings for reinforcing steel installation (F-112150 thru 112161, 11218, 112177, 112180, 112181, 112184 and S-101235) and ascertained that these were current with the latest tracing revision in the central file.

The construction management auditors examine thousands of contractor drawings each week and the discrepancies noted are compiled for each contractor and plotted on a graph for trending. An action point of 1% discrepancies has been established and the statistics show generally effective corrective action results. The auditors used the latest revision (supplied by the contractor document control group) to audit the same 18 drawings reviewed by the NRC inspector.

No items of noncompliance or deviations were identified.

24. Quality Assurance Indoctrination and Training

The inspector examined the procedures and instructions relating to training of the site personnel including the licensee's activities relating to site contractor personnel training and certification of QA/QC personnel. The inspector also examined records of training and training audits. This was a general review to ascertain the current implementation of a program identified in PSAR Section 17.1.2 and 17.2.2.3.

Applicable site-related procedures included:

a. WPPS Training Policies

QAP-23-R6 Indoctrination and Training

b. United Engineers Training Policies

QA-2-1-R5 Indoctrination and Training

c. WPPSS Engineering Personnel Training

EDI-3.1-R1 Division Training
EDI-3.3-R0 Division Indoctrination
EDI-7.6-R1 Engineering Staff Development and Training
EDI-7.7-R1 Initial QA Indoctrination and Training

d. Construction Management Personnel Training

FGCP-10-R5 Indoctrination of Field Personnel

e. Project Management Personnel Training

PMP-4-103-R3 Indoctrination and Training

f. Quality Assurance Surveillance Personnel Training

FQS-2-2-R2 Indoctrination and Certification
FQS-2-3-R1 Training

The inspector concluded that the licensee is implementing extensive indoctrination and training of all levels of project personnel and is engaged in continuous monitoring, surveillance and auditing of the training activities. Training materials and resources appear to be liberally provided to the site contractors to augment their in-house programs required by their contracts/specifications. The following observations were particularly noted:

- . Licensee QA organization, augmented by the architect-engineer, reviews certification/qualification of QA/QC senior personnel and each QC inspector of each contractor involved in safety related work.
- . A training coordinator has been assigned within each contractor's organization, and complete sets of training reference material have been provided to each contractor.
- . Video-tape training aids have been developed and training sessions for contractor personnel have been and are continuing to be conducted for personnel selected by the contractors. Training topics include both QA/QC administrative and technical subjects. Resource material from other licensees and contractors have been obtained and made available to the site contractors.

No items of noncompliance or deviations were identified.

25. Exit Interview

The inspector met with licensee management personnel approximately weekly (May 2, 12, 27 and June 2, 1980) to discuss the inspector's findings. Attendees at these sessions are so designated in Paragraph 1 of this report. The inspector summarized the scope of his activities and reviewed his findings as discussed in detail in this report.