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

REGION V

Report Nos. 50-361/81-21
50-362/81-05

Docket Nos. 50-361, 50-362 License No. CPPR-97 and 98 Safeguards Group ____

Licensee: Southern California Edison Company

2244 Walnut Grove Avenue

Rosemead, California 91770

Facility Name: San Onofre Nuclear Generating Station Units 2 and 3

Inspection at: Construction Site, San Dieno County, California

Inspection Conducted: September 1-4 and 21-25, 1981

Inspectors: T. W. Bishop for — 12/23/81
J. H. Eckhardt, Reactor Inspector — Date Signed

T. W. Bishop — 12/23/81
T. W. Bishop, Section Chief — Date Signed

W. J. Wagner — 12/23/81
W. J. Wagner, Reactor Inspector — Date Signed

J. F. Burdoin — 12/23/81
J. F. Burdoin, Reactor Inspector — Date Signed

Approved by: T. W. Bishop — 12/23/81
T. W. Bishop, Chief, Reactor Projects Section No. 1 — Date Signed

Summary:

Inspection on September 1-4 and 21-25, 1981 (Report Nos. 50-361/81-21 and 50-362/81-05)

Areas Inspected: Routine, unannounced inspection by regional based inspectors of construction activities involving licensee action on previous inspection findings, IE Bulletins and Circulars, and 50.55(e) items; as-built drawings; preservice examination; spent fuel storage racks; electrical and instrumentation components; pipe welding; procurement; and fire protection. The inspection involved 164 onsite inspection hours by four NRC inspectors.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

a. Southern California Edison Company (SCE)

*J. M. Curran, Manager, Ouality Assurance
*+P. A. Croy, Project QA Supervisor
*+T. O. Gray, Construction QA Supervisor
+C. R. Horton, Startup QA Supervisor
*+C. R. Hover, Engineering
*D. B. Schone, Site Project Engineer
+J. A. Morales, Construction
+N. M. Ferris, QA Engineer
+G. A. Chavez, Startup
+J. E. Raniere, QA Engineer Trainee
+P. J. Konkoleski, QA
S. Dziewit, QA Engineer
R. Sarouhan, QA Engineer
V. A. Gow, QA Engineer
R. T. Cantrell, QA Engineer
C. Balog, Engineer

b. Bechtel Power Corporation (Bechtel)

+L. W. Hurst, Project QA Manager
*+J. W. Sheppard, Project QA Supervisor
+J. H. McCarty, Project QC Manager
H. F. McCluskey, Project Management
R. F. Ashe-Everest, Nuclear/Mech. Group Supervisor
A. M. Maisu, Field Engineer (Instrumentation)
J. Newbrough, Lead Civil Engineer
K. Groom, Piping Field Engineer
K. Edmisten, Civil Field Engineer
B. O. Faber, QC Engineer Supervisor

*Denotes those attending exit interview on September 4, 1981.
+Denotes those attending exit interview on September 25, 1981.

2. Licensee Action on Previous Inspection Findings

The inspector examined the action taken by the licensee on the following item:

a. (Closed) Item of Noncompliance (50-361/80-18/01): Pipe cleaning, condition and inspection prior to insulating.

To verify the effectiveness of the corrective action specified by the licensee in their response to the item of noncompliance, the inspector examined the revised procedures and piping in

the field. Specifically, the insulating installation contractor was notified of requirements and methods for cleaning foreign material from pipes. Also, the WPP/QCI for piping was revised to establish a cleanliness and mechanical defects inspection program for quality class I and II stainless pipe. The revision details the cleaning, inspection, and documentation requirements and specifies that insulation must be installed within five working days of release to the insulation contractor or a new inspection must be performed. The inspector examined a 17 foot section of containment spray piping that had previously been insulated (Bechtel removed the insulation from this piping to facilitate the examination) and did not identify any cleanliness or mechanical defect problems.

This item is closed.

3. Licensee Action on IE Bulletins and Circulars

The following IE Bulletins and Circulars were reviewed by the inspector to determine the promptness and thoroughness of licensee actions to correct or avoid those known or potential deficiencies:

a. (Closed for Units 2 and 3) IE Bulletin 79-23: Potential failure of emergency diesel generator field exciter transformer.

This bulletin identified a failure at another facility which resulted from circulating currents due to grounding of the neutral of the "wye" connected D-6 field exciter transformers. The licensee had determined that the SONGS 2 and 3 diesel generator field exciter transformers are connected in a "delta" configuration. A connection of this type has no ground connection, thus eliminating the possibility of circulating currents. The failure described in the bulletin cannot occur at San Onofre Units 2 and 3.

b. (Closed for Units 2 and 3) IE Bulletin 79-25: Failure of Westinghouse BFD relays in safety-related systems.

The licensee determined that Westinghouse BFD relays are not used or planned for use at San Onofre Units 2 and 3.

c. (Closed for Units 2 and 3) IE Bulletin 80-09: Hydra-motor actuator deficiencies.

The licensee has determined that only two such actuators, supplied by the NSSS vendor (CE), are used at San Onofre Units 2 and 3. These two actuators are used in the spray chemical addition system. ITT General Controls (ITT-GC) has provided an evaluation of these actuators with regard to the concerns of the subject bulletin. The evaluation has identified that the concerns of the bulletin are for actuators with a stroke of greater than three inches while the units at the San Onofre Site are 1 1/8 inches. Additionally, the evaluation concluded that the condition stated in Paragraph B of the bulletin will have no adverse affect on the operation of the valves; i.e., factors other than the nomograph were utilized in determining the sizing for the subject hydramotors in use at San Onofre. Further, the actuators and valves were functionally tested prior to shipment and exhibited no adverse operating defects. Both ITT and CE state that utilization of the subject hydramotors in their present function is adequate and replacement is unwarranted.

d. (Closed for Units 2 and 3) IE Bulletin 81-02: Failure of gate type valves to close against differential pressure.

It has been determined from a PWR safety and relief valve testing program that certain gate type motor-operated valves failed to fully close under approximated intended service conditions.

The licensee determined that only two of subject valves (one per unit, supplied by Westinghouse) have been utilized at SONGS 2 and 3. The corrective action, replacement of motor actuator and yoke with an assembly capable of meeting SONGS 2 and 3 requirements, has been completed.

e. (Closed for Units 2 and 3) IE Bulletin 81-03: Flow blockage of cooling water safety system components by Corbicula sp. (asiatic clam) and Mytilus sp. (mussel).

The Pacific Ocean serves as both the source and receiving water body for San Onofre Units 2 and 3. It is known that Mytilus sp. exists in the sea water at the station site while Corbicula sp., a fresh water clam, does not.

The potential for intrusion of Mytilus sp. is limited to the sea water sides of the circulating water system (condenser and turbine plant cooling) and salt water cooling system (component cooling water system cooling). The source for the fire protection system is fresh water tanks on the plant site which are supplied by domestic water treated by the City of San Clemente. As such, the potential for plugging of the fire protection system by Mytilus sp. or Corbicula sp. is considered to be non-existent.

The licensee, as a result of operating Unit 1 on the same site as Units 2 and 3 since 1968, has develcped measures for controling marine growth at San Onofre Unit 1 which consist of treatment with chlorine and heat.

Control measures for marine growth at San Onofre Units 2 and 3 will also consist of both heat treatment and chlorination. Chlorine will be used principally for the control of slime in the main condenser and on the heat transfer surfaces, but will also provide the additional effect of inhibiting the growth of Mytilus sp. Heat treatment will be conducted on a frequency determined by an empirical equation (based on mussel growth) in order to prevent Mytilus sp. from growing to a size that could cause equipment plugging. San Onofre Units 2 and 3 are also provided with a separate chlorination system which injects downstream of the salt water cooling (SWC) pumps and upstream of the component cooling water (CCW) heat exchangers for the express purpose of preventing bio-fouling of these heat exchangers.

San Onofre does not considered it necessary to conduct a monitoring program for Mytilus sp. since it is well known that this genus exists in the station environment and the possible effects of Mytilus sp. on the salt water cooling and circulating water systems have been successfully counteracted at Unit 1 with a well established and successful control program. This item is closed.

f. (Closed for Units 2 and 3) IE Circular 80-04: Securing of threaded locking devices on safety-related equipment.

The licensee has demonstrated to the inspector's satisfaction that the modifications to various pieces of equipment required by the circular have been accomplished or procedures have been established to insure they will be completed prior to fuel load.

g. (Closed for Units 2 and 3) IE Circular 81-05: Self-aligning rod end bushings for pipe supports.

This circular identifies generic deficiencies in pipe support sway struts which involved the clamp end of the sway strut becoming loose and possibly being disengaged from the bushing.

The inspector examined records that demonstrated that the licensee has reviewed the snubber bushings at San Onofre Units 2 and 3. Appropriate corrective measures included re-staking loose bushings. With regard to ineffective corrective action, the licensee has confirmed that assembly procedures used would preclude recurrence and assembly clearances would prevent loose bushings from working out far enough to cause complete disengagement.

h. (Closed) IE Circular 80-05: Adding lube oil to diesel generator during normal operation.

The inspector reviewed Maintenance Procedure Number MPMS112 (issued by the licensee September 2, 1981) which details the addition of lube oil to the diesel generators during operation. The procedure is considered satisfactory. This item is closed.

i. (Closed) IE Bulletin 79-01A: ASCO solenoid valves.

Station Maintenance Procedures SO23-I-6.78 through 87 incorporate a four year replacement interval for the valves. This was evaluated by Bechtel, CE, and SCE and is closed.

4. Licensee Action on 50.55(e) Items

The following 10 CFR 50.55(e) items were examined to determine the adequacy of the licensee's corrective action:

a. Incorrect Pressure Rating of Component Cooling Water System Valves

The licensee's final report, dated April 22, 1981, was reviewed. The inspector verified the corrective action specified by reviewing corrective action requests sent to the valve supplier and Bechtel procurement; the nonconformance report dealing with removing, sending to the vendor for rehydrostatic testing, and reinstallation; vendors's data report certifying the valves to 1500# class; and the welding records for reinstallation of the valves (eight welds each unit). The review indicated that specified actions were properly completed. This item is closed.

b. Lack of Nondestructive Examination of Weld Repair Excavation Cavities Prior to Rewelding

The licensee submitted a final report July 15, 1980 summarizing the corrective action which including reviewing all weld repair documentation packages. Requirements of ASME Section III Code Case N274 and N275 were used to either accept or repair the welds. A total of 366 welds were accepted by utrasonic testing (UT) per Code Case N274, 123 welds were accepted per Code Case N275 (defect removal involved removal of the weld root), and five welds were rejected by UT and repaired. Paragraph 5.2.1.2 of the FSAR was amended July, 1981 (amendment number 25) to include the two code cases as applicable for San Onofre-2/3 piping welds. The actions taken by the licensee are considered adequate. This item is closed.

c. ITE-Gould 480 Volt Air Circuit Breakers with Damaged Trip Coil Wiring

The licensee's final report dated January 12, 1981 specified modification of the wiring arrangement so that the wiring is routed away from the teeth of the gear reducer. Wire number 68 in circuit breaker 2B0410 was replaced and the wires installed in a spiral wiring harness to remove them from the proximity of the gears. Startup work permits 13053 and 19569 document the inspections and corrective action for Units 2 and 3 respectively. The work was completed February 3, 1981 for Unit 2 and July 11, 1981 for Unit 3. The actions taken by the licensee are considered adequate. This item is closed.

d. Miniflow Isolation in Response to Recirculation Actuation Signal

The final report concerning this item was submitted by the licensee February 3, 1981. The specified corrective action resulted in issuance of Design Change Package 232-E, which moved valve 2HV9303 from motor control center 2BE to 2BY making the power source on Train A analogous to Train B. The work was completed June 27, 1981. The actions taken by the licensee are considered adequate. This item is closed.

e. Incorrect Sloping of Pressurizer Relief Valve Piping

The licensee's final report dated May 1, 1981 specified reworking the pressurizer relief piping to assure a net positive slope in all horizontal sections to preclude collection of condensation. The inspector visually examined the reworked lines and reviewed the NRCs, FCRs, and survey data associated with the work. The examination indicated that the work was properly performed. This item is closed.

f. Failure of Expansion Joints in Saltwater Cooling and Component Cooling Water Systems

The corrective action specified in the licensee's final report dated June 27, 1980 included replacement of the failed expansion joints and installation of flow liners as specified. The procurement documents, NRCs, and hydrostatic testing reports dealing with this completed work were reviewed and found satisfactory. This item is closed.

g. Deficiency in Mounting of Component Cooling Water Pumps

The licensee's specified corrective action in their final report of August 21, 1980 provided for a design revision which added horizontal pins at the interface between the pump and pedestal to maintain alignment between the pump and drive motor. This design change was completed and the pumps satisfactorily retested. The records associated with the work were reviewed and found satisfactory. This item is closed.

h. Y-Pattern Globe Valves in the Safety Injection Tank Fill Lines

The nitrogen fill valves to the safety injection tanks are solenoid operated unidirectional Y-pattern globe valves manufactured by Target Rock. The licensee determined that if the nitrogen supply header (seismic category II) failed during a seismic event, the safety injection tanks would simultaneously depressurize due to a pressure differential in the direction opposite to the normal direction of flow unseating the nitrogen supply valves. The corrective action in the licensee's final report of May 28, 1981 specified the addition of seismic category I check valves upsteam of the supply valves to prevent depressurization through these valves. The inspector examined the installed check valves and reviewed the governing design change package, DCP-23N. The actions taken by the licensee are considered adequate. This item is closed.

i. Low Pressure Safety Injection Valve Failure

During preoperational testing of the reactor coolant system, the 8-inch globe LPSI valves (manufactured by Target Rock) failed. The cause was attributed to fatigue failure of the stem due to excessive flow-induced vibration while the valve was in a partially open position. The valves (four in each unit) were removed and returned to the manufacturer for modification and testing. The modified valves have subsequently been reinstalled. The actions taken by the licensee are considered adequate. This item is closed.

j. Unqualified Soldering Process in Thermon Heat Trace System Installation

The licensee determined that certain resistance temperature detectors (RTD) in the heat tracing systems were installed with termination lugs of improper size, crimping, and soldering process. The failure of the RTDs could result in the heaters turning off and causing the fluid temperature to drop below the boric acid crystallization point. This could cause fluid blockage in delivery lines and result in delivery of less boron to the reactor coolant system than required. The corrective action specified in the licensee's final report of June 19, 1981 included reworking all improperly crimped and soldered lugs using the proper lug and crimping tool. The inspector examined a portion of the reworked terminations and considered the work satisfactory. This item is closed.

k. Use of Nonconforming Washers on ITT-Grinnel Shock Suppressors

The licensee's final report of June 29, 1981 identified ITT-Grinnel mechnical shock suppressors sizes 1/4 through 10 that were supplied with washers not in compliance with ASME Section III, Subsection NF, Paragraph NF-4724. The affected washers in the identified shock suppressors have been replaced with hardened steel washers as required by the ASME Code. The inspector examined a portion of the shock suppressors in the field, where the washers had been replaced, and observed that the proper washers (which are color coded red) were in fact installed. This item is closed.

l. Use of Non-Self Locking Stem Threads or Gear Sets in Limitorque Valve Operators

During the startup test program, the licensee determined that certain Limitorque valve operators contained non-self locking stem threads and gear sets. The identified valves are part of the containment isolation boundary. A sustained containment isolation signal induced a hammering effect on the valves resulting in valve seat leakage. The licensee's final report of July 20, 1981 specified self locking gear sets to be installed in the limitorque actuators on valves HV-5803 and HV-7512 to avoid valve seat leakage. The inspector examined the actuators of valves 2HV-5803 and 3HV-5803 for which the work had been completed and observed the self locking gear sets being installed in the actuator of valve 2HV-7512. The actions taken by the licensee are considered adequate. This item is closed.

m. Omission of Locking Devices on the Fasteners of Certain Mechanical Shock Arrestors

The licensee's final report of August 5, 1981 specified the installation of lockwires on threaded fasteners for Pacific Scientific snubbers to comply with ASME, Section III, Subsection NF. The inspector reviewed the nonconformance reports covering this work and examined a portion of the lockwires installed in the field. The record review and work examination indicated that proper corrective action had been taken. This item is closed.

n. Diesel Generator High Crankcase Pressure Signals

During preoperational testing, diesel generator tripping occurred due to spurious high crankcase pressure signals. The licensee's corrective action as specified in their final report dated September 21, 1981 included installing different model pressure switches, and a larger rerouted pressure sensing line. The inspector examined this work and found it satisfactory. The diesel generators successfully completed a 24 hour full power test July 28, 1981. This item is closed.

o. Safety Related Lines in Proximity to Non-Seismic Category I Tanks

On May 29, 1980 SCE issued a final report describing the deficiency and the corrective actions taken. The report describes design deficiencies related to a potential interaction between three safety related lines and the non-safety related seismic category II condensate storage tank T-120. Corrective action included the issuance of a design change package (DCP) which defined the physical changes necessary to: (a) protect the three safety related lines from Tank T-120 due to any postulated failure mode, and (b) provide upgrading of existing seismic category II piping to meet seismic category I requirements.

The inspector reviewed DCP No. 23-M Revision 0 dated April 28, 1980 for proper approvals and content. Utilizing the DCP, field change requests (FCR's) and design drawings, the inspector physcially examined the changes made to the following three safety related lines in the Tank T-120 enclosure building:

(1) Line 047-8"-D-LLO, Auxiliary Feedwater Pump Suction Line.

(2) Line 048-2"-D-GEO, Auxiliary Feedwater Pump Miniflow Line.

(3) Line 068-24"-C-LLO, Refueling Water Tank Crosstie Line.

The inspector verified that a concrete bumper was added around tank T-120, and is satisfied that this bumper will provide adequate protection to prevent impacting of tank T-120 on these lines. In addition, metal barriers were added in accordance with the DCP to prevent line 013 from puncturing line 068.

The inspector also examined tne following four non-safety related seismic category II lines which were upgraded to seismic category I:

(1) Line 014-8"-R-LLO, Condensate Supply to Turbine Building.

(2) Line 035-2"-R-LLO, Condensate Transfer Pump Miniflow Line.

(3) Line 012-6"-T-LLO, Sluice Water Pump Discharge Line.

(4) Line 018-6"-R-LL1, Condensate Transfer Line between Units 2 and 3.

All of the above seven lines were inspected to verify that the design changes specified in DCP No. 23M were made. This includes providing tornado missile protection within the tank building.

Five plant changes (FCR's) not yet incorporated into as-built drawings were examined. The inspector verified that the reviews and approvals were performed by appropriate personnel. The inspector also confirmed that the structural configuration, location and dimensions for lines 068-24"-C-LLO and 018-6"-R-LL1 conform to the final design.

The inspector reviewed the pertinent work and quality records associated with DCP No. 23 M. Specifically, this pertains to the structural steel material installed to provide a protective barrier. Documents reviewed included material certification records, material receiving report, installation and inspection records. The inspector also reviewed the qualification records of the inspection personnel and found them to conform to the requirements of Regulatory Guide 1.58 and ANSI N45.2.6 "Qualification of Inspection, Examination and Testing Personnel for the Construction Phase of Nuclear Power Plants".

In addition, the inspector discussed with Bechtel engineering, the input to the seismic analysis and the subsequent conformance of the as-built condition to the analysis. Review of the stress calculations showed the design basis earthquake (DBE) loads were used in upgrading the seismic II lines to meet seismic I criteria.

The inspector is satisfied that appropriate corrective action was taken to provide adequate physical protection for the three safety related lines in proximity of the seismic category II condensate storage tank. Therefore this item is closed.

5. Review of As-Builts

a. Review of Procedures

The Bechtel Project Internal Procedures Manual, Section 8, "Drawing Preparation" and the 800 series of the WPP/QCIs were reviewed to determine the method used to ensure the final drawings reflect the actural as-built condition of the plant. The procedures require design change notices (DCN) to be incorporated into applicable drawings when a maximum of ten DCNs have been issued or a period of 60 days have elapsed since the first DCN was issued against the drawing. This is to ensure the drawings reflect the as-built condition with a minimum number of DCNs. The procedures also detail system turnover from construction to startup and change control after system turnover.

No items of noncompliance or deviations were identified.

b. Piping System As-Builts

The inspector selected the final isometric drawings for five piping runs, identifying pipe size, location and configuration and weld location and identified. Installed piping was compared with the actual installations. Piping supports and restraints were not identified on the piping isometric drawings. Accordingly, sample support drawings for each piping segment were selected and support location, type, and configuration verified. The piping runs examined are identified below:

(1) CVCS-S2-1208-ML-001

(2) CVCS-S2-1208-ML-026

(3) SI-S2-1204-ML-065

(4) RC-S-1201-ML-022

(5) CONT. HVAC-S2-1212-ML-125 (internal piping)

(6) CS-S2-1206-ML-004

No items of noncompliance or deviations were identified.

c. Electrical Cables and Raceways

The inspector selected sections of five cable and raceway runs to verify the as-installed condition conformed to the drawings and construction records relative to location/routing, support, separation/isolation, loading (for trays and conduit) and identification. The proper terminations were verified for one termination set of two cables ((1) and (4) below). The runs examined are identified below:

(1) Auxiliary feedwater control run no. 2AA04040A (cable/tray)

(2) Containment spray control run no. 2AA04030A (cable/tray)

(3) Standby Diesel control run no. 2ABD070A (cable/conduit)

(4) Control Room HVAC control run no. 2ABQ040A (cable/conduit/tray)

(5) Feedwater control run no. 2AD042701 (cable/conduit)

No items of noncompliance or deviations were identified.

d. Structural As-Builts

The inspector selected the protective structure around the safety injection piping in the vicinity of the seismic category II condensate storage tank to verify that the as-built condition is reflected in appropriate drawings. The details of this examination are given in paragrpah 4. of this report.

No items of noncompliance or deviations were identified.

e. Change Control

The inspector selected eight change documents to verify status of licensee design change review and approval. Three of the change documents had not been incorporated into final drawings (FCR-090-P; IDCN-I-4 for drawings No. 4011; DCP-4N, Revision 1). The remaining change documents had been finalized (FCR-S-4392; FCR-18079-S; FCN-S-583; FCR-24657-S; FCN-S-2524).

No items of noncompliance or deviations were identified.

6. Preservice Inspection (Baseline) Data Review and Evaluation

a. Class I Components

The inspector examined the ultrasonic testing (UT) records for three vertical welds and one girth weld in the middle shell segment (beltline region) of the Unit 2 reactor pressure vessel (RPV). This region was selected because of the current concern of the affects of pressurized thermal shocks in the beltline region of the RPV. Although this reactor has not been in service and the affects of thermal shocks are of no immediate concern, the establishment of a good baseline examination in this region is important. Consequently, the results of inservice examinations can then be meaningfully compared to the original (baseline) condition to determine if changes have occurred, and to evaluate what affect these changes have on the overall integrity of the RPV. The inspector examined the UT records to ascertain whether the following documents were provided: examination results and data sheets, examination equipment data, calibration data sheets, examination evaluation data, extent of examination, disposition of findings and identification of NDE material. Selected records were examined from the following three areas:

(1) Reactor Pressure Vessel

Area Designation	Area Description
02-001-012	Lower Shell-to-Middle Shell Girth Weld
02-001-013	Middle Shell Longitudinal Weld at 90^{o}
02-001-014	Middle Shell Longitudinal Weld at 210^{o}
02-001-015	Middle Shell Longitudinal Weld at 330^{o}

(2) Steam Generator No. 1

02-003-020	Primary Side Stay Base-to-Stay Cylinder Weld

(3) Pressurizer

02-005-005	Lower Shell-to-Upper Shell Girth Weld
02-005-006 (90^{o}Side)	Upper Shell Longitudinal Weld at 45^{o} Location
02-005-008 (270^{o} Side)	Upper Shell-to-Top Head Girth Weld

No items of noncompliance or deviations were identified.

b. Pressure Retaining Pipe Welds

The inspector examined the preservice inspection records of two pressure retaining pipe welds in each of three piping systems, two of which were in the reactor coolant pressure boundary. This was to ascertain whether the following requirements were met: Initial and final calibration show no major deviations; examination data properly reported, evaluated and documented; evaluation of data performed by a Level II or Level III examiner; procedural compliance of evaluated data; and evaluation of indications in compliance with NDE procedure and ASME Section XI requirements. The following piping systems and associated pipe welds were examined:

(1) Reactor Coolant Piping Hot Leg

Area Designation	Weld Description	Examination Method
02-006-008	Surge Nozzle-to-Pipe	UT
02-006-012	RTD Nozzle-to-Pipe	Hydro

(2) Safety Injection Piping Inside Containment

02-019-065	8" Sch 140 Reducer Tee-to-Pipe	UT
02019-80	3" Sch 160 Elbow-to-Pipe	UT

(3) Shutdown Cooling Piping Inside Containment

02-021-007	18" Sch 160 Reducer-to-Pipe	UT
02-021-063	Valve-to-3" Sch 160 Pipe	UT

The inspector reviewed Pressure Test Record No. 2-1201-0018 on which the above hydrostatic test was recorded. The test results showed that the test pressure (3106 psig) exceeded the design pressure (2485 psig) without any visual leaks. This test was witnessed by the Authorized Nuclear Inspector.

The NDE examination records indicated that no significant indications were reported. The organization, filing, and ease of retreaving preservice inspection records is satisfactory.

No items of noncompliance or deviations were identified.

7. Spent Fuel Storage Racks

The inspector examined the spent fuel storage racks and related documents for Units 2 and 3 to ascertain compliance with the FSAR and applicable specifications. The items examined are identified below:

a. Bechtel's procurement Specification Number S023-207-6 dated May 4, 1976 and the supplier's (Nuclear Energy Services, Inc.) Specification Number 80A2057 for the spent fuel storage rack were examined for material aspects, required design and fabrication codes, critical dimensions, and special commitments.

b. Receiving Inspection Data Reports 10072, 10228, 10567, 10589 and 10600 were examined to ascertain compliance with receipt and storage procedures WPP/QCI-008, Revision 14, "Material Receiving, Pre-installation Storage and Handling."

c. Construction Inspection Data Report 25433 for the installation of Unit 2 spent fuel storage racks were examined to ascertain conformance with Installation Procedures WPP/QCI 119 Revision 1, "Miscellaneous Stainless Steel Equipment Installation."

d. Work activities were inspected for proper location and orientation, appearance and size of welds, cleanliness, obvious defects, and apparent damage to racks or spent fuel pool.

e. Quality assurance records were examined to determine if applicable requirements and commitments have been met for material certification, installation, shop fabrication, nonconformance reports, and QA audits.

No deviations or items of noncompliance were identified.

8. Electrical Components and Systems - Unit 2

The installations were inspected and quality records were reviewed for selected electrical components to determine compliance with the FSAR and applicable construction specifications. The selected electrical components are:

a. Containment Ventilation Fan Motor, E-400.

b. Valve Operator, Containment Sump, 2HV9304.

c. Valve Operator, LPSI Loop 1A, 2HV9322.

d. Valve Operator, ECCS Injection Tank, 2HV9340.

e. Valve Operator, RWST Suction, 2HV9301.

f. Class IE Inverter and Instrument Panel, 2Y001.

The installations of the electrical components were inspected for: receipt inspection/acceptance requirements; identification control, receipt through installation; implementation of installation procedures WPP/QCI-605, "Cable Connections" and WPP/QCI-606, "Electrical Installation"; implementation of construction inspection procedures; segregation and identification of nonconforming components and materials; protection and cleanness; and location, separation and redundancy requirements.

The quality records for the electrical components were inspected for: receipt inspection/material certification; construction installation control and QC inspection; and nonconformance/deviation actions.

No deviations or items of noncompliance were identified.

9. Instrument Component and Systems - Unit 2

The quality records were reviewed for selected instrumentation channels/components to determine compliance with the FSAR and applicable Construction Specifications. The selected instrumentation components are: steam generator level (two channels), utilized in the atmospheric steam dump system; steam generator pressure (two channels), utilized in the auxiliary feedwater system; neutron flux (four channels), utilized in determining linear power; rate of change of neutron flux (two channels), utilized in the reactor trip system; pressurizer pressure (two channels), utilized in the engineered safety features; and pressurizer level (two channels), utilized in plant process monitoring.

The quality records for the instrumentation channels/components were inspected for: receipt inspection/material certification; construction installation control and QC inspection, and calibration and instrument setting data.

A number of minor errors were found in the calibration records. These included; wrong calibration due dates, calibration cards not signed, and calibration manuals not identified on the calibration record. The deficiencies identified were brought to the attention of the licensee who agreed to take corrective measures. This area will be further examined during a future inspection (50-361/81-21/01).

No deviations or items of noncompliance were identified.

10. Pipe Welding

a. Observation of Work

The piping from the Unit 2 pressurizer to the safety relief valves was being modified to eliminate relief valve instabilities. The inspector examined the modified piping installation and the following in-process welding to ascertain compliance with ASME Code requirements:

(1) Weld H and J in line S2-1201-ML-032-6" from the pressurizer to valve 2PSV-0200. The second pass after the root pass was in progress for these welds. The field weld checklists and rod withdrawal records for these welds were reviewed. Cleanliness and fitup inspection had been performed, and argon purge, preheat, and interpass temperatures were specified as required.

(2) Weld K in line S2-1201-ML-033-6" from the pressurizer to valve 2PSV-0201. Fitup and tacking was complete for this weld. The field weld checklist and rod withdrawal records were in order.

No deviations or items of noncompliance were identified.

b. Review of Quality Records

The following field piping weld records were reviewed for documentation content (weld history, weld metal control, NDE and inspection records) to ascertain compliance with NRC requirements and FSAR commitments:

Drawing No.	Weld No.	System
S2-1204-ML-003	SBA	Safety Injection
S2-1201-ML-304	B	Reactor Coolant
S2-1203-ML-275	DC	Component Cooling
S2-1208-ML-093	D(c)	Chemical and Volume Control

The inspector reviewed the performance qualification records for the four welders who performed the welds. All were qualified for weld procedures and positions used. The qualification records of the quality control inspectors were also reviewed and found to be satisfactory.

No items of noncompliance or deviations were identified.

11. Procurement

The licensee's procurement program was reviewed to ascertain compliance with 10 CFR 50 Appendix B requirements. The following items were examined:

a. Purchase Order Number V4109402 (April 1, 1981) for Temp Flex quality class II nuclear service expansion joints used in the salt water and component cooling water systems. The applicable specification was S023-409-10.

b. Receipt Inspection Data Report (RIDR) Numbers 14508, 14509, and 14424 applicable to the above mentioned expansion joints. This included material receiving reports, certificate of compliance, production travelers including welding records, liquid penetrant and hydrostatic test reports, material certifications, and heat treating records.

c. Storage conditions in the level B warehouse in the Mesa. These conditions were compared to the requirements of ANSI N45.2.2.

No deviations or items of noncompliance were identified.

12. Fire Protection

A walkdown of the permanent fire protection system was performed to ascertain compliance with the system described in paragraph 9.5.1.6.6 of the FSAR. The Unit 2 portion of the system was complete except for the hose equipment house which was under construction. Testing was approximately 60 percent complete. The walkdown was of the halon, CO_2, and water systems and included examination of major components and system configuration.

No deviations or items of noncompliance were identified.

13. Exit Interviews

The inspectors met with licensee representatives (denoted in paragraph 1) on September 4 and 25, 1981. The scope of the inspection and findings as detailed in this report were discussed.