U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-312/85-17

Docket No. 50-312

License No. DPR-54

Licensee: Sacramento Municipal Utility District
P. O. Box 15830
Sacramento, California 95813

Facility Name: Rancho Seco Unit 1

Inspection at: Herald, California (Rancho Seco Site)

Inspection conducted: June 24-28, 1985

Inspector: Talbert Young Jr. for 7-22-85
K. D. Ivey, Jr., Reactor Inspector Date Signed

Consultants: P. Chan, Engineer, LLNL
R. White, Project Manager, Nuclear System Safety Program, LLNL

Approved By: Talbert Young Jr. 7-22-85
T. Young, Jr., Chief, Engineering Section Date Signed

Summary:

Inspection during the period June 24-28, 1985 (Report No. 50-312/85-17)

Areas Inspected: An unannounced, safety inspection by an NRC regional based inspector and two NRC consultants for the follow-up of Generic Letter 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events", TI 2515/64 Rev. 1, "Near-Term Inspection Followup to Generic Letter 83-28", and IE Bulletins.

The inspection involved 38.5 hours by one NRC inspector and 73 hours by two NRC consultants.

Results: No violations or deviations were identfied.

DETAILS

1. Persons Contacted

*R. Lawrence, Acting Plant Superintendent
*J. Irwin, Senior I&C Engineer
R. Columbo, Regulatory Compliance Supervisor
*J. Delezenski, Licensing Engineer
*N. Brock, Electrical/I&C Superintendent
*B. Dieterich, Manager, Licensing
*S. Crunk, Regulatory Compliance Engineer
*J. Willfong, Principle Engineering Technician
*R. Roehler, Licensing Engineer
*B. Speight, Licensing Engineer
*B. McQuade, Quality Assurance Engineer
*D. Marsh, Nuclear Engineer
*J. Wheeler, Electrical Engineer
*J. Field, Technical Support Superintendent
H. Canter, Quality Assurance Operations and Surveillance Supervisor
T. Tucker, Scheduling Supervisor
D. Yount, Electrical Maintenance Supervisor
C. Buchannan, Site Document Center Supervisor
D. Wilds, I&C Foreman
J. Elliott, I&C Foreman
J. Dowson, Quality Control Coordinator
M. Caldwell, Records Management Supervisor
A. J. Rainey, Electrical Technician, Supervisor

*Denotes those individuals attending the exit meeting on June 28, 1985.

The NRC Resident Inspector, Glen Perez, was also in attendance at the exit meeting.

The inspectors also held discussions with other licensee personnel during the inspection including, technicians, electricians, and plant staff engineers.

2. Background

In February 1983, during startup of the Salem Nuclear Power Station Unit 1, the Westinghouse Type DB-50 reactor trip system (RTS) circuit breakers twice failed to open automatically upon receipt of a valid trip signal. The failure to trip was attributed to a binding within the undervoltage trip attachment (UVTA) located inside the breaker cubicle. Due to the failures at Salem and similar failures at other plants, and as a result of its investigations and reviews of the failures, the NRC Office of Nuclear Reactor Regulation issued Generic Letter (GL) 83-28 to all licensees and applicants on July 8, 1983. This letter required all affected utilities to furnish the status of current conformance to the Generic Letter and their plans and schedules for any needed improvements. Four of the items in GL 83-28 are identified for Region-Based post-implementation review. They are:

- Item 3.1 Post-Maintenance Testing (Reactor Trip System Components)

- Item 3.2 Post-Maintenance Testing (All Other Safety-Related Components)

The inspection is to address the adequacy and completeness of the Post-Maintenance Testing (including modifications) of safety-related components.

- Item 4.1 Reactor Trip System Reliability (Vendor Related Modifications)

- Item 4.5.1 Reactor Trip System Reliability (System Functional Testing)

The inspection is to ensure that vendor-recommended modifications and RTS changes are completed in PWRs and that on-line functional testing of the RTS diverse trip features is performed on all LWRs.

On February 2, 1984, the NRC Office of Inspection and Enforcement issued Temporary Instruction (TI) 2515/64, "Near-Term Inspection Followup to Generic Letter 83-28", for Region-Based inspection to identify immediate licensee actions to various items in GL 83-28 and associated licensee programs that were in place. Revision 1 to the TI was subsequently issued April 4, 1985. Items from the TI to be inspected by the regions are identified as follows:

- Equipment Classification (Response to Items 2.1 and 2.2.1 of GL 83-28)

- Vendor Interface (Response to Items 2.1 and 2.2.2 of GL 83-28)

- Post Maintenance Testing (Response to Items 3.1 and 3.2 of GL 83-28)

- RTS Reliability (Response to items 4.2 and 4.5.1 of GL 83-28)

3. General

The licensee's initial response to GL 83-28 was made per a letter on November 4, 1983. The licensee stated that it was actively participating in the Babcock and Wilcox Owner's Group (B&WOG) activities to develop a generic response to the Generic Letter and submitted the B&WOG response as an attachment to the letter.

Rancho Seco Unit 1 utilizes the B&W Reactor Trip System design and General Electric (GE) AK-2-25 reactor trip breakers (RTB). This design consists of six RTBs (see figure 1) which must operate in a one-out-of-two-twice logic to scram the plant (i.e., remove power from the control rod drive mechanisms (CRDMs) and release all rods into the core). There are two AC breakers and four DC breakers. Breakers A and B are AC breakers and control all the three-phase primary power to the rod drives; breakers CB2 and CB4 are DC breakers and control the dc power to safety rod groups 1 through 4; and breakers CB1 and CB3 are DC breakers and control the dc power to safety rod groups 5 through 8. When any

2-out-of-4 protective channels trip, all reactor trip module logics trip, commanding all control rod drive breakers to trip.

The RTB's utilize both a undervoltage trip attachment (UVTA) and a shunt trip device to trip. Automatic actuation of the shunt trip was added as a response to GL 83-28. A trip signal interrupts power to the UVTA and simultaneously applies power to the shunt trip device. During a loss of power or a low control voltage condition, the UVTAs would trip the breakers and scram the plant. The UVTAs are used to meet the overall system design criterion of General Design Criterion 23 to "fail safe" when power is lost.

The B&W design also utilizes a silicon controlled rectifier (SCR) system to diversely remove power from the CRDMs and cause the plant to scram (see Figure 2). Power to each of the regulating rod groups is provided through two separate sets of SCRs. This power may be interrupted by two separate methods: (1) open the two upstream AC RTBs that supply holding power to the rods via the SCRs; or (2) cut off the control power necessary for the SCRs to conduct holding power to the rods.

4. Licensee's Procedures and Documents Reviewed

Administrative Procedures (AP)

- AP.1, "Responsibilities and Authorities", Rev. 15
- AP.2, "Review, Approval and Maintenance of Procedures", Rev. 19
- AP.3, "Work Request", Rev. 30
- AP.27, "Internal Auditing", Rev. 19
- AP.42, "Maintenance Information Management System (MIMS) Procedure", Rev. 5
- AP.45, "Modifications Test Program", Rev. 1
- AP.46, "Nuclear Operations Technical Manual Control Procedure", Rev. 2
- AP.50, "Operating Experience Assessment Program", Rev. 2
- AP.51, "Maintenance Instructions", Rev. 0
- AP.301, "Maintenance Procedure Description and Format", Rev. 3
- AP.302, "Special Test Procedures", Rev. 8
- AP.303, "Surveillance Program", Rev. 11
- AP.650, "Preventive Maintenance Program", Rev. 4

Quality Assurance Procedures (QAP)

- QAP 3, "Quality Assurance Classification", Rev. 1
- QAP 6, "Inspection Planning", Rev. 0
- QAP 7, "Configuration Control", Rev. 1
- QAP 12, "Testing Inspection", Rev. 0
- QAP 13, "Maintenance Inspection", Rev. 0
- QAP 24, "Procedure Requirements", Rev. 0

Electrical Maintenance Procedures (EM)

- EM.105, "Station Battery I.C.V., Specific Gravity and Temperature Test", Rev. 13

- EM.134, "CRDM Testing and Checkout During Overhaul", Rev. 5
- EM.169, "Electrical Testing of Control Rod Drive Stators", Rev. 5
- EM.175, "Control Rod Drive Low Voltage Power Circuit Breaker Maintenance", Rev. 3

Instrument Procedures (I)

- I.103, "Power Range Calibration", Rev. 6
- I.108D, "RPS Channel D Test", Rev. 23
- I.111, "RPS Channel Calibration", Rev. 15

Other Documents

- Surveillance Procedure (SP) 200.08D, "Monthly RPS Channel D Surveillance Test", Rev. 7
- Special Test Procedure (STP) 944, "CRD Breaker Operation Assurance"
- Letter from R. J. Rodriguez (SMUD) to H. L. Thompson, Jr., (NRC) on District's response to GL 83-28, dated November 4, 1983
- Subsequent responses and answers to requests for additional information.

5. Item 3.1 Post-Maintenance Testing (Reactor Trip System Components)

The maintenance program is controlled by AP.3, "Work Request". This procedure outlines the flow of authorizations for Corrective Maintenance Work Requests. These Work Requests are routed through engineering where a determination is made on whether or not post-maintenance testing will be required. AP.3 requires post-maintenance testing on Class 1 components or systems removed from service for maintenance but does not require QC inspection of the post-maintenance testing. Engineering determines if QA inspection is needed for a work request. At present QC inspection is not typically used on any preventative maintenance procedure unless a problem is identified. At that time a Work Request would be written and engineering would have the option of requiring QC inspection. The inspectors noted in the exit meeting that this procedure could better identify when QC is to be used to inspect maintenance procedures and to verify post-maintenance testing.

The licensee reviews their procedures on a two year cycle based on AP.27, "Internal Audit," Rev. 19. The licensee has reviewed vendor recommendations pertaining to the RTS, and incorporated new sections on post-maintenance testing into their procedures. In the instrumentation area of the RTS, the licensee has revised the six pertinent Instrumentation Procedures I-103, I-108A, B, C, D, and I-111. The licensee has initiated dual signature verification in procedures I-108A, B, C, D, and I-111, and has retrofitted the RTS circuit breakers with automatically initiated shunt trips.

Based on B&WOG recommendations, the licensee has updated their list of reference documents in the instrumentation procedures. Based on the licensee's review, the inspector finds that the implementation of vendor and B&WOG recommendations has satisfied the requirements of GL 83-28.

No violations or deviations were identified.

6. Item 3.2 Post-Maintenance Testing (All Other Safety Related Components)

Post-maintenance testing requirements and procedures are the same for all safety-related components as they are for the RTS (see paragraph 5). AP.2 "Review, Approval and Maintenance of Procedures" is the controlling procedure for establishing guidelines for providing technical and administrative review and approval for all procedures pertaining to maintenance. This procedure is the instrument for assuring vendor information is added to plant procedures. An enclosure to AP.2 Enclosure 4.11, contains checklists to evaluate "Written Corrections and Procedure Adequacy". Group supervisors are held responsible for reviewing procedures within their respective organizations.

For the review of all safety-related system procedures, the licensee has taken their experience from the RTS system review and extrapolated their confidence in the reliability of functional testing of the RTS to cover all other safety-related systems. The licensee is committed by their response of June 21, 1985, to GL 83-28, to revise the Supplemental Review Checklist in procedure AP.2, Enclosure 4.11. This committment is due for completion by August 1985. The revised Supplemental Review Checklist will require a review of post-maintenance test requirements for all safety-related system. The inspectors consider that the above actions satisfy the requirements of GL 83-28.

The inspectors reviewed several work requests as an audit on procedures followed, proper signatures, and data recorded. The following Work Requests were reviewed:

Work Request Number	Equipment
91774	RPS Cabinets A and B
94083	RPS Hi Power Trips
97005	Loop "A" DHR Isolation From RB Emergency Sump
97391	B-Normal Battery Charger
99268	RSP-46 RB Isolation Valve Inside Aux. Bldg.
97283	"B" Containment H2 Analyzer
93454	RPS Channel C Surveillance

No discrepancies were noted in the review of these Work Requests.

From the review of procedures, the inspector noted that Quality Assurance Procedure 13, Rev. 0, page 3, item 6, calls for Maintenance Inspection Data Reports (MIDR) to be routed to Quality Assurance for approval. A flow chart for the MIDR found in AP.3, page 13 does not indicate this step for processing a MIDR. This apparent difference between procedures was pointed out to the licensee during the exit meeting. The licensee stated they would look into the apparent discrepancy (85-17-01).

The inspectors observed a monthly maintenance service on batteries. The equipment being serviced was the battery bank "C" located in Battery A&C Room. The work was being performed under a work request and the electricians doing the work were following procedure EM-105, "Station Batery I.C.V., Specific Gravity and Temperature Test."

The inspector noted that the electricians did not follow the procedure in the chronological order as shown in the procedure. The electricians started with the performance of Section 6.3.5, "Cleanliness and Physical Condition of the Battery" followed by the performance of Sections 5.2, "Electrolyte Level," and 6.2 "Temperature". The electricians went on to perform Section 5.1, "Specific Gravity," and lastly performed Section 6.3, "Cell Voltage". The inspector reviewed the procedure and noted that the steps in the procedure need not be followed in a chronological manner. However, the procedure should be followed in a step-by-step manner for thoroughness and as a means of conforming to the sequence delineated by the test procedure itself. Should a better or preferred sequence of performing the procedure be identified, it should be implemented after the procedure is changed accordingly. The licensee stated, at the exit meeting, that they would review the procedure for the proper sequence and implement changes as necessary.

The inspectors noted that the yellow caution sign on CO2 protection located on the door between the two battery banks had been removed. Furthermore, one of two Chemical Burn First Aid Stations did not have a full bottle of Bullard PH 6-9 Sterile Solution. The 32 fl. oz. (1 quart) bottle was about 35% full. Upon informing the licensee of these conditions at the exit meeting, the licensee stated that the door between the two rooms was not a dedicated fire barrier and they would look into the low level of the solution bottle.

No violations or deviations were identified.

7. Item 4.1 RTS Reliability (Vendor-Related Modifications)

The licensee's response to GL 83-28 stated that, "There have been no vendor-recommended field modifications for the Reactor Trip Breakers".

Subsequent to the response, the B&WOG learned that certain RTBs were manufactured with a defect. The B&WOG also stated, however, that they had verified that all affected breakers had been corrected either in the field or by B&W. In February 1984, the B&WOG undertook a program to determine long term actions to improve the reliability of the RTBs. One recommendation of the program was for each utility to replace trip shaft and latch roller bearings (in existing RTBs) with bearings lubricated with Mobil 28. In addition, the B&WOG recommended that Mobil 28 lubricated bearings be used exclusively in GE AK RTBs. The recommendations were the result of a March 21, 1984 service advice letter (Tab 175, No. 9.20) from GE recommending refurbishment of RTBs over eight years old containing Lubriko packed bearings. Mobil 28 is the new standard lubricant for GE AK breakers and has been shown to withstand high temperatures and aging better than the Lubriko brand lubricant. The licensee contracted with B&W (contract no. A-310) to upgrade and requalify the RTBs. The upgrade was performed by GE and included

replacement of the bearings and installation of an automatic trip signal to the shunt trip device. The RTBs have been upgraded by GE, requalified by B&W, and returned to the licensee for reinstallation.

On June 5, 1985, while testing the undervoltage trip attachment (UVTA) on one of the refurnished RTBs, a failure to trip was observed. Preliminary evaluation indicated that the failure was caused by a mis-positioned UVTA. All other RTBs functioned as required. The failed breaker was replaced in the plant with a spare breaker. Since the June 6 failure represents a new problem that will require attention from the licensee and/or vendor, it will not be addressed in this report. This new problem was reported as a LER and is on the OIL.

This item is complete for the GL 83-28 review.

No violations or deviations were identified.

8. Item 4.5.1 RTS Reliability (System Functional Testing)

The licensee's reactor trip system utilizes GE AK-2 circuit breakers for the reactor trip function. The scheme of the breaker installation and associated circuitry is such that routine on-line preventative maintenance and testing is possible. There are four RPS channels providing the logic for trip capability of the RTBs.

AP.3 "Work Request" is the controlling procedure for establishing maintenance work. This procedure is used to outline the steps to be followed to initiate, schedule, and record maintenance functions including post-maintenance testing. A work request is the form used to set in motion maintenance operations. Work requests identify the responsible orgranizations and personnel for approval of maintenance and post-maintenance testing as well as identifying the work to be completed.

The RPS channels are tested monthly, 1 channel each week, in accordance with Surveillance Procedure 200.08 (A, B, C or D). SP 200.08D contains the requirement to verify calibration and trip capability of RPS Channel D on a monthly basis. This procedure provides a RPS Channel D Test Verification form to be completed by technicians performing the work and reviewed by engineering. It also identifies the specific procedure to be followed for conducting the surveillance (Instrument and Control Procedure I.108D). This procedure is used to conduct the surveillance on Channel D and itemizes the steps to be followed for the control logic and breaker surveillance.

The inspectors reviewed I&C Procedure I.108D and noted that the procedure has steps and verification for independent testing of the reactor trip system's diverse trip features. The procedure details the tests for the circuit logic of the undervoltage trip and shunt trip. The procedure also has required steps for performing surveillance testing of the silicon-controlled rectifiers.

The inspectors observed a scheduled surveillance test of RPS Channel D. The I&C technicians conducting the test were following Instrumentation Procedure I.108D "RPS Channel D Test," Rev. 23. The technicians conducted the inspection and testing properly and in a professional

manner. They did bring to the attention of the inspectors a numbering error in the procedures steps on page 45 of Procedure I.108D, Rev. 23. They also pointed out on page 4 of Procedure I.108D, Rev. 23, the use of confusing nomenclature for terminal board TB D2-10-1. The inspectors conveyed the technician's comments to appropriate licensee engineers and learned that changes to correct these items were presently in progress. A note was also made at the exit meeting of the technician's comments. With the exception of these minor editorial change requirements, the inspectors find that the procedures were properly followed and provide an adequate surveillance program for the RPS channels.

No violations or deviations were identified.

9. TI-2515/64 Rev. 1 (Closed), "Near-Term Inspection Followup to Generic Letter 83-28"

This TI was written to provide near-term followup on the licensee's response to GL 83-28 in the areas of equipment classification, vendor interface, post-maintenance testing, and RTS reliability. Post-maintenance testing and RTS reliability are documented elsewhere in this report.

The inspectors held discussions with licensee personnel and reviewed associated procedures and correspondence to obtain the following findings:

° Equipment Classification

Quality Assurance Procedure (QAP) 3 Rev. 1, "Quality Assurance Classification", outlines the criteria for classifying systems and related components so as to establish the degree of quality assurance activity related to selection, procurement, manufacture, erection, installation, maintenance, or inservice inspection. The following three categories are used:

a. QA Class I: A nuclear system, structure, subassembly component, or design characteristic which, as a result of being defective, could cause or increase the severity of a nuclear incident that imposes undue risk to the health and safety of the public.

b. QA Class II: Those plant structures, systems, subsystems, components or equipment, which are not QA Class I, that as a result of being defective could cause a safety hazard, an unscheduled reduction in unit output or major equipment damage.

c. QA Class III: Those items not included in, nor subject to the requirements of, QA Class I and QA Class II categories.

AP.42 "Maintenance Information Management System (MIMS) Procedure", identifies the processes for classifying systems and components for

the plant. MIMS is the computerized method of listing, tracking, and retrieving maintenance information on plant equipment. It is comprised of individual subsystems; including the Master Equipment List (MEL) and Work Request System. The Nuclear Engineering Department specifies the classification of systems and changes in classification. The Quality Assurance Department must concur with the classificatons. This information is then entered into the MEL.

The Preventive Maintenance program is implemented by the MIMS system which assigns the equipment classification to the work requests using the MEL information. Per AP.3 "Work Request", the scheduling office assigns the equipment classification to work requests for corrective maintenance using the MEL. The classification is then reviewed by the Engineering Department before the work is done. A post-maintenance review is also performed to ensure that all materials used on Class I equipment are properly qualified and the appropriate documentation was used.

The inspectors reviewed the following work requests for equipment classification:

Work Request	Discrepancies Noted
91823	None
91820	None
100876	None
97291	None
88957	None
88530	None
88529	None
88531	None
91824	None
99638	None

Preventive Maintenance work requests #P19291 and #P19336 were also reviewed with no discrepancies. The inspectors, however, noted that work request #89949 on the reactor trip breaker CRD-A was initiated as a QA Class 1 work request but later changed and worked as a QA class 2 request. The licensee, at the exit meeting, committed to review this matter further. This item remains an open item for future NRC inspection (85-17-02).

As part of their response to GL 83-28, the licensee received a list RTS Components that were categorized as Class I from B&W (based on the B&W Class 1 criteria). The licensee committed to review and possibly modify this B&W list. The licensee compared the B&W list with the MEL and discovered 18 items that B&W identified as Class I to be noted as Class II on the MEL. Two (2) of the items were identified as typos which the licensee readily changed to Class I. The licensee plans to "upgrade" the classification of the other 16 components to the Class I level rather than attempt to justify them as Class II components. Upon completion of these actions, the licensee's MEL list should be consistent with the B&W list.

The inspectors reviewed procedures QAP 19, "System Auditing", and QCI 13, "Trend Analysis Program", which identify programs for auditing and trending activities impacting equipment that is designated as safety related. From the reviews and discussions with personnel the inspectors find that programs exist to audit the operation, maintenance, repair, and modification of equipment and to identify trends which could be detremental to the safe operation of the equipment or the plant.

° Vendor Interface

AP.46, "Nuclear Operations Technical Manual Control Procedure", defines the methods for controlling technical manuals that pertain to the operation and maintenance of plant equipment. The Technical Manual Library is responsible for the numbering, filing, and distribution of technical manuals. Vendor information that is received by the plant is distributed to the appropriate supervisors for a review of the applicability to the plant. Once the review has been completed, the information is added to the associated technical manual. Changes to vendor drawings are made in accordance with ECP-1, "Rancho Seco Configuration Control Procedure".

The licensee has been an active member of the Nuclear Plant Reliability Data System (NPRDs) Users Group and has been participating in the NPRDs and Significant Event Evaluation and Information Network (SEE-IN) Programs. The NPRDs is an industry wide system managed by INPO for monitoring the performance of selected systems and components at nuclear power plants. The objective of the SEE-IN program is to ensure that the cumulative learning process from operating and maintenance experience is effective and that lessons learned are reported and corrective action taken. AP.50, "Operating Experience Assessment Program", describes the licensee's participation in the INPO SEE-IN program.

In their initial and subsequent responses to GL 83-28, the licensee stated that they were participating in the INPO/Nuclear Utility Task Action Committee (NUTAC) Vendor Equipment Technical Information Program (VETIP). VETIP is a program that enhances information exchange and evaluation among utilities constructing or operating nuclear power plants and provides for more effective vendor interface. This program consists of two phases. Phase 1 is a review and possible revision of existing programs and was due for completion by July 1, 1985. Phase 1 was nearing completion with minor procedure reference changes due for final closeout at the time of this inspection. Phase 2 is an enhancement to the existing programs based on changes to the NPRDs and SEE-IN programs by INPO. The licensee has committed to implement phase 2 by July 1, 1986.

As part of their response to GL 83-28, the licensee committed to review a list of the most current vendor information (supplied by B&W) including B&W originated Site Instructions and Service Bulletins for each item on the list of RTS Components categorized as Class I (discussed in the previous section "Equipment Classification"). The licensee has completed the review of the

vendor information and has stated that all but one vendor technical manual for the Class I RTS Components are on file in the Technical Manual Library. The missing manual has been ordered from the vendor and will be filed in the library upon receipt. The inspectors reviewed the vendor manual list and verified that four (4) of the manuals were filed in the library.

On June 5, 1985, the licensee notified the Headquarters duty officer that the channel "C" RTB failed to open during surveillance testing of the undervoltage trip attachment (UVTA). As a result of the reviews conducted on this failure; breaker refurbishment by GE; and service advice from GE and B&W; the periodic maintenance procedure for RTBs is being revised. EM.175, "Control Rod Drive Low Voltage Power Circuit Breaker Maintenance", is the procedure used for preventive (periodic) maintenance. STP.944, "CRD Breaker Operation Assurance", was written after the failure and used to assure that all RTBs had been properly refurbished, adjusted, and ceritified by the repair vendor prior to reinstallation. The licensee is presently rewriting EM.175 to be all inclusive of the steps to be performed (i.e. no referral to vendor manuals required). The new procedure will also incorporate service advice from GE and B&W on cleanliness, lubrication, and armature movement.

Trending of parameters from maintenance of the RTBs is being performed by the B&WOG reliability monitoring program. Data is collected on UV response time, trip shaft torque, and UV device pick-up and dropout voltage. Data from these parameters is trended and analyzed by the B&W Owner's Availability Committee and the results provided to the licensee semiannually. The results will be used to determine acceptable maintenance intervals. The licensee presently performs maintenance on the RTBs every six months. At the next shutdown the licensee intends to prove the reliability of the breakers to justify extending the maintenance period to a yearly schedule.

The inspectors observed a demonstration of maintenance procedures on a General Electric type AK-2-25 low voltage power circuit breaker. The procedure being used and followed for this maintenance demonstration was STP 944. STP 944 listed steps that the electrician should take in performing maintenance on a CE type AK-25 breaker. The steps included Quality Control (QC) hold points, maintenance tests and tolerances for specific readings and measurements. The inspectors noted two items during the maintenance demonstration that should be considered in the preparation of a new procedure. The first item was that the electrician performing the demonstration noted that the undervoltage relay could be tied down with a tie-rap or other restraining device during testing of the shunt trip. The procedures being followed did not appear to have a checkoff item later in the document where the tie-rap or other restraining device would be removed. The second item was that STP 944 was written for both AC and DC controlled breakers. This combination of instructions for two different kinds of breakers resulted in some momentary confusion on the part of the electrician over which terminals should be used for connecting a test voltage.

This could result in an inadvertent application of voltage on the wrong terminal. The above two items of note were pointed out by the inspectors in the exit meeting. The licensee stated it would consider these items when writing the new procedures.

The emphasis of the Regional inspection of TI-2515/64 is on immediate actions taken by the licensee in response to GL 83-28 and on associated licensee programs that are in place. This inspection is complete.

No violations or deviations were identified.

10. NUREG/CR-3791 "Closeout of IE Bulletin 79-09"

IE Bulletin 79-09, "Failures of GE Type AK-2 Circuit Breakers in Safety-Related Systems", was issued for response and specific actions by all licensees and construction permit holders on April 17, 1979. The bulletin was closed for Rancho Seco Unit 1 in NRC/IE Inspection Report 50-312/79-11.

Additional problems with GE Type AK-2 circuit breakers have resulted in the issuance of later bulletins, circulars, and information notices and Generic Letter 83-28. NUREG/CR-3791 suggested followup inspection to verify that the latest GE Service Advisory Letter (SAL) recommendations pertinent to GE AK-2 circuit breakers are incorporated into the licensee's maintenance procedures.

The inspector verified the licensee's actions on GE SALs as identified in paragraph 7 under "Item 4.1 RTS Reliability". This item has been resolved.

No violations or deviations were identified.

11. IEB 83-08: Electrical Circuit Breakers With An Undervoltage Trip Feature In Use In Safety-Related Applications Other Than The Reactor Trip System

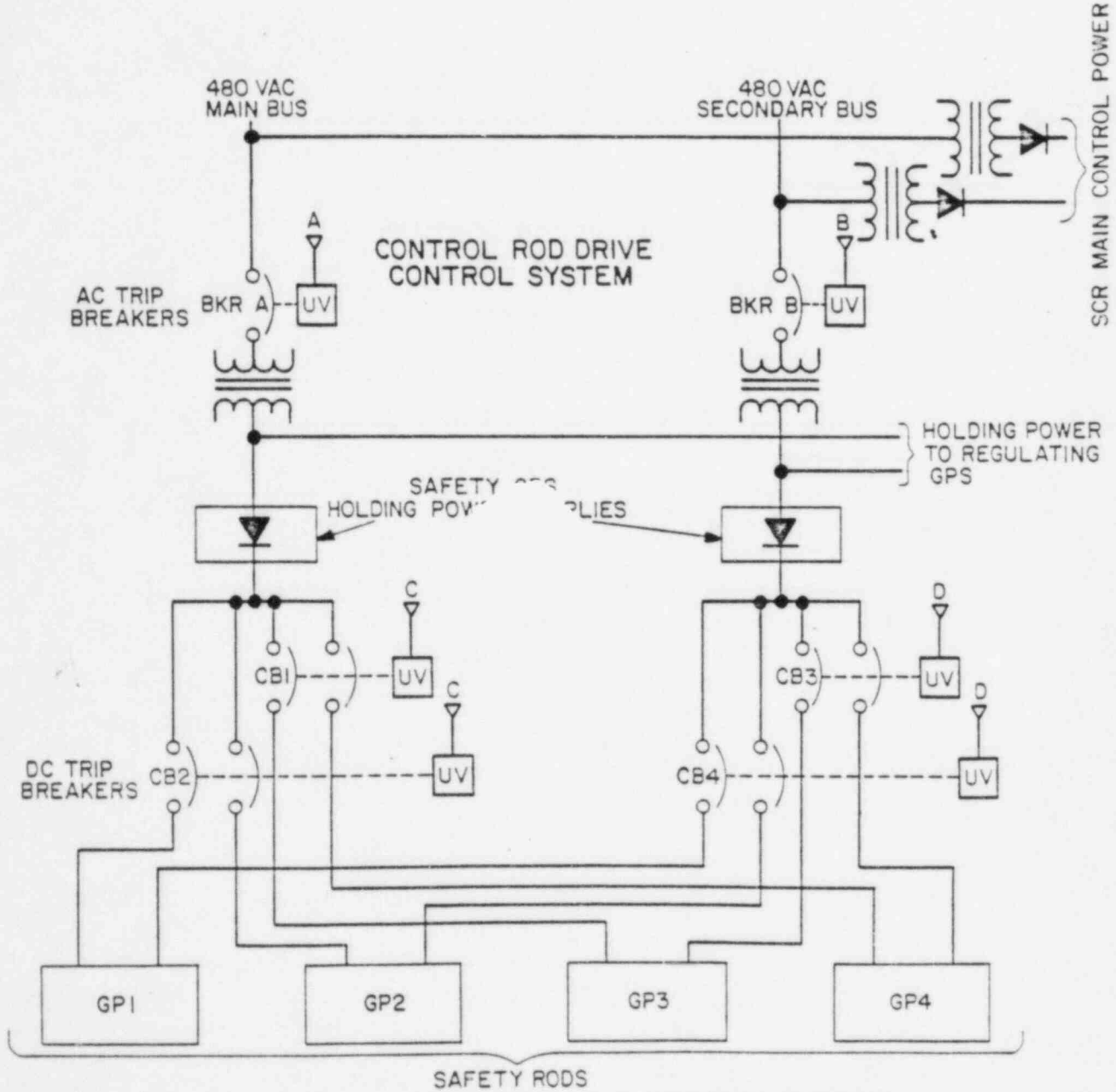
In a letter dated March 22, 1984 (Rodriguez, SMUD to Martin, NRC), the licensee stated that they reviewed the electrical system at the Rancho Seco Plant and determined that no Westinghouse type DB or DS breakers or General Electric type AK-2 breakers are in use in safety-related functions other than the Reactor Trip Breakers. Six (6) GE AK-2 breakers are used in the Reactor Trip System. This item is closed.

No violations or deviations were identified.

12. Exit Meeting

On June 28, 1985, an exit meeting was held with the licensee representatives identified in paragraph 1. The scope and findings of the inspection, as noted in this report, were discussed.

FIGURE 1



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SC. NTS	DWG. SIZE A
DR. BY J. STANGL	DATE 2/84
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DESIGN ENGR.	SUPV. ENGR. PROJ. ENGR. ENGR. MGR. RELEASE DATE

TITLE: RANCHO SECO
REACTOR TRIP SYSTEM

LOCATION: RANCHO SECO NUCLEAR GEN. STATION UNIT NO.1

SMUD
SACRAMENTO MUNICIPAL UTILITY DISTRICT

INVT. NO. | DWG. NO. | REV.
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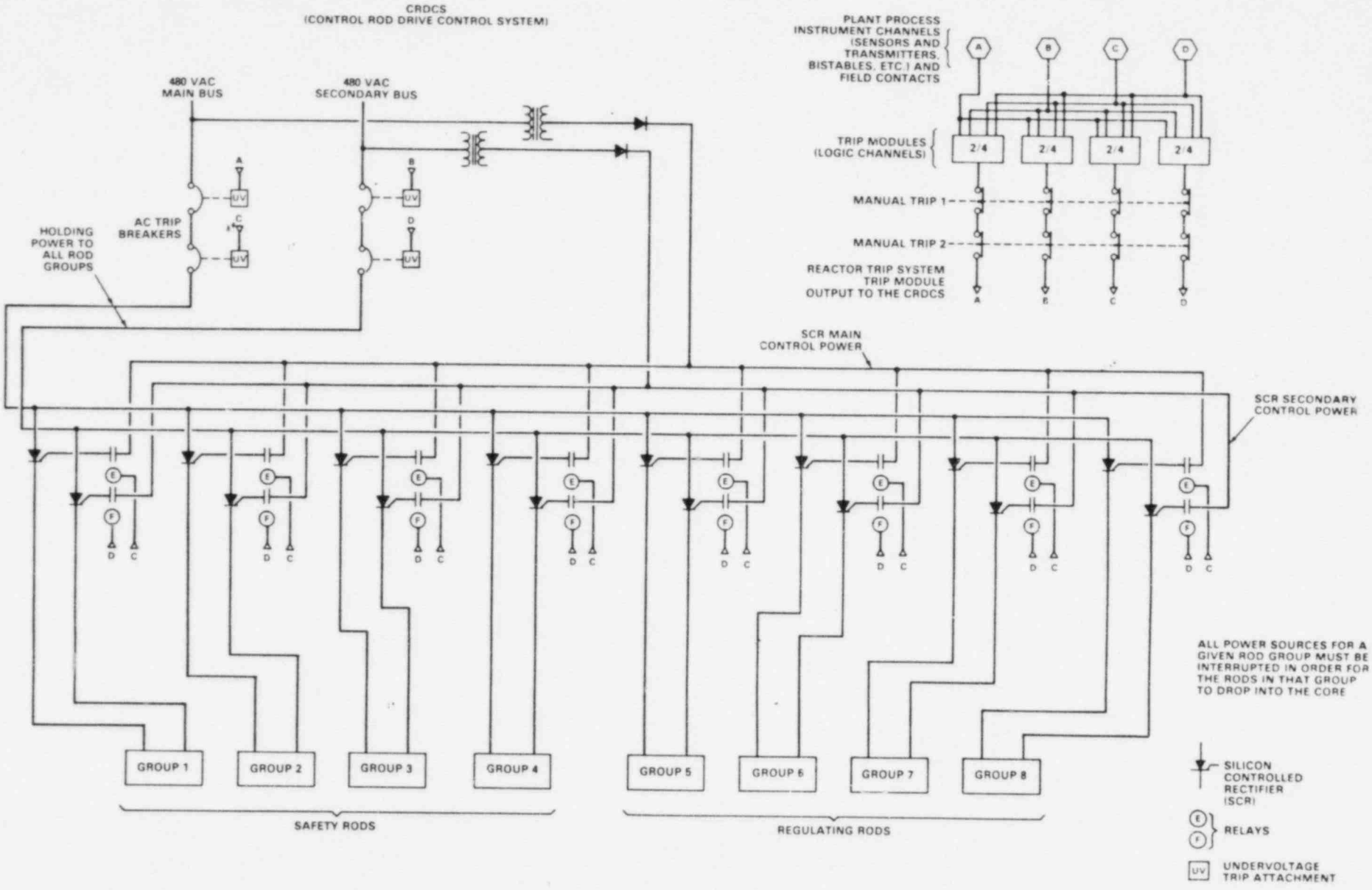

FIGURE 2

Figure 3.5 Babcock & Wilcox Reactor Trip System