

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

Region I

Report No. 50-317/ 81- 09
50-318/ 81- 09

Docket No. 50-317
50-318

License No. DPR-53 Priority -- Category C
DPR-69

Licensee: Baltimore Gas and Electric Company
P. O. Box 1475
Baltimore, Maryland 21203

Facility Name: Calvert Cliffs Nuclear Power Plant, Units 1 and 2

Inspection At: Lusby, Maryland

Inspection Conducted: April 6 - May 3 , 1981

Inspectors: R. E. Architzel April 7, 1981
R. E. Architzel, Senior Resident Reactor Inspector date signed

_____ date signed

_____ date signed

Approved By: E. C. McCabe, Jr. 6/5/81
E. C. McCabe, Jr., Chief, Reactor Projects date signed
Section 2B,

Inspection Summary:

Inspection on April 6-May 3, 1981 (Combined Report Nos. 50-317/81-09 and 50-318/81-09)

Areas Inspected: Routine, onsite regular and backshift inspection by the resident inspector (17hours, Unit 1; 18hours, Unit 2). Areas inspected included the control room and the accessible portions of the auxiliary, turbine, service, and intake buildings; radiation protection; physical security; fire protection; plant operating records; surveillance testing; maintenance; licensee action on previous inspection findings and reports to the NRC.

Noncompliances: Two. Failure to adequately calibrate seismic monitoring instrumentation (paragraph 8), Inadvertant release of caustic and acid (paragraph 7).

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DCS Nos.

50317-81-04-23
50317-80-05-20
50317-81-04-05
50317-81-04-08
50317-81-03-09
50317-81-03-11
50317-81-03-20
50317-81-03-24
50317-81-03-17
50317-81-04-04
50317-81-04-01

50318-81-04-19
50318-81-04-12
50318-81-03-03
50318-81-03-19
50318-81-03-17
50318-81-04-14
50318-81-04-02

DETAILS

1. Persons Contacted

The following technical and supervisory level personnel were contacted:

E.R. Bauer, Modifications Supervisor
D.E. Buffington, Fire Protection Inspector
J.T. Carroll, General Supervisor, Operations
S.M. Davis, Senior Engineer, Operations
R.E. Denton, General Supervisor, Training/Technical Services
C.L. Dunkerly, Shift Supervisor
W.S. Gibson, General Supervisor, Electrical & Controls
J.E. Gilbert, Shift Supervisor
R.P. Heibel, Principal Engineer, Technical Support
J.R. Hill, Shift Supervisor
L.S. Hinkle, Supervisor, Instrument Maintenance
J.F. Lohr, Shift Supervisor
R.O. Mathews, Assistant General Supervisor, Nuclear Security
J.A. Mihalick, Senior Engineer, Fuel Management
N.L. Millis, General Supervisor, Radiation Safety
J.E. Rivera, Shift Supervisor
P.G. Rizzo, Assistant General Foreman, Maintenance
L.B. Russell, Plant Superintendent
R.P. Sheranko, General Foreman, Production Maintenance
G.W. Siegel, Kinematics Vendor Representative
J.A. Tiernan, Manager, Nuclear Power Department
D. Zyriek, Shift Supervisor

Other licensee employees were also contacted.

2. Licensee Action on Previous Inspection Findings

(Open) Inspector Follow Item (317/81-07-03); CSR Halon Flooding Test. The licensee retested the CSR Halon system (see paragraph 8). Although the system will put out a fire, personal safety considerations (high concentrations) remain. The licensee is investigating additional modifications and testing.

(Closed) Inspector Follow Item (317/80-22-01; 318/80-18-01); Reactor Cavity Drain Valves. The inspector reviewed CCOM Change 80-192, dated December 24, 1980 to OI-1D, Reactor Coolant System Fill and Vent. This change added a requirement (by addition to the valve checklist) to verify the proper lineup of the reactor cavity and reactor plenum drains prior to start up from a refueling outage.

(Closed) Unresolved Item (318/78-12-02); Evaluation and Corrective Action on Dropped Rods. The licensee has completed modification FCR 78-72, Add Redundant Power Supplies to Coil Power Programmer. In addition, during the recently completed refueling outages (both

units) the licensee followed the vendor's recommendation to vent all the CEDM's prior to start up. As a result no control rod drops were experienced during the start up test program for either unit (Unit 1 Unresolved Item previously closed).

(Closed) Noncompliance (317/80-16-03); Failure to Follow Procedures during a Plant Emergency. The licensee responded to this item in a letter dated February 9, 1981. The inspector reviewed the licensee's actions including discussions with the Shift Supervisor involved, a General Supervisor-Operations Notes and Instruction entry on October 10, 1981 bringing this event to the attention of operations personnel with particular emphasis on failure to sound the emergency alarm and make appropriate announcements.

(Closed) Noncompliance (318/80-15-02); Failure to make an ENS Report following a Manual Plant Trip. The inspector reviewed the licensee's actions as stated in the response letter dated February 9, 1981. The Shift Supervisor involved was counseled by the General Supervisor-Operations. A GSO Notes and Instructions entry (November 4, 1980) brought this failure to comply with prompt notification requirements to the attention of all licensed operations personnel. CCI 118 Reporting Requirements specifically direct such a report following manual RPS actuation.

(Closed) Noncompliance (317/80-06-05, 06 and 07); Inoperability of the Auxiliary Feedwater System (AFWS), Failure to Report the Inoperability, and Failure to Log the Inoperability in the Shift Supervisor's and Operator's Logs. The licensee responded to these items in a letter dated August 13, 1980. Associated Civil Penalties were not contested. The following actions committed to by the licensee were verified completed by the inspector.

- a. OI-32, "Auxiliary Feedwater", revised (Rev. 13, 9/25/80) to include a checklist which must be used when realigning Auxiliary Feedwater pump suctions. This checklist requires a two-man verification, one of whom must hold a Senior Operator License (SOL).
- b. The administrative controls (CCI 300 D, Calvert Cliffs Operating Manual) for repositioning all locked valves have been revised to require a two-man verification that such valves are properly returned to their locked position. At least one person making such verifications must hold a Senior Operator License.
- c. A partial system diagram depicting the Auxiliary Feedwater suction header valves and their relationship to the Auxiliary Feedwater pumps and the Condensate Storage Tanks was posted in the vicinity of each such valve.
- d. The GSO issued a memorandum to all Shift Supervisors and all Senior Control Room Operators. The memo stressed the importance of keeping the Control Room Operator aware of evolutions affecting

his plant being conducted outside the Control Room, emphasizing the SCRO's responsibility to assist the Shift Supervisor in determining reportability of events, and the necessity of proper log keeping.

- e. The guidance provided for operating personnel by the General Supervisor-Operations Standing Instruction 80-06 was expanded. Specifically, the loss of Auxiliary Feedwater capability as well as any disabling of both redundant trains of safety features was addressed. This was subsequently incorporated into CCI 118 D, Reporting Requirements.
- f. The various reporting and notification requirements which were contained in several General Supervisor-Operations Standing Instructions and Calvert Cliffs Instructions were consolidated into a single document CCI 118 D (latest change 2/23/81).
- g. The checklist for "Non-Routine Technical Specification Reports Requiring Timely Reporting" (CCI 118 Attachment 1) has been revised to include a signoff for "10 CFR 50.72 Notification."
- h. Copies of 10 CFR 50.72, Notification of Significant Events, have been posted at the Shift Supervisor's and Senior Control Room Operator's desks in the vicinity of the dedicated telephones.
- i. CCI 114 B, Plant Logs, approved March 18, 1981 has been revised to require that events such as the Auxiliary Feedwater isolation be logged as soon as possible following their discovery, recognizing that subsequent clarifying entries may be appropriate as investigation continues.
- j. Attachment (3) to CCI 114 Plant Logs was further revised to provide guidance to the Shift Supervisors as to what type of events should be logged as unusual occurrences.
- k. All licensed Operations personnel have been required to read and sign the Notice of Violation contained in Combined Inspection Report 50-317/80-06 and 50-318/80-06, and the licensee's commitments and measures to prevent recurrence.
- l. The Shift Supervisor and Senior Control Room Operator on duty May 21, 1980 were counseled by the licensee.

(Closed) Unresolved Item (317/80-26-03; 318/80-22-02); Safety Related Classification of Various Components. NRC:IE Headquarters reviewed the particular items for which the inspector had questioned the licensee's safety-related designation. The NRC has identified problems with "Safety Related" Classifications as a generic problem to all licensees and is pursuing resolution under Three Mile Island Action Plant Item I.F.

(Open) Unresolved Item (317/81-04-01; 318/81-04-05); 10 CFR 50.72 Reporting Requirements. The NRC's Office of Nuclear Reactor Regulation sent the licensee a letter (dated March 23, 1981) detailing differences with the licensee's reporting guidelines (CCI 118 D). This item remains open because CCI 118 D does not conform to the NRR position. The licensee stated that CCI 118 D was in the process of being revised.

(Open) Unresolved Item (317/80-02-01; 318/80-02-05); Ensure Facility Radiation Monitoring Devices are Repaired in a Timely Fashion. The licensee responded to this item, along with other NRC concerns, in a letter dated May 9, 1980. The licensee stated that they felt that repair efforts made at the time were reasonable. The inspector has continued to examine the status or repair of various facility Radiation Monitoring Devices. The following items were noted during the current inspection.

- Unit 2 Main Vent Gaseous and Particulate Detectors were made inoperable on April 10, 1981 about 11:00 p.m., when the sample pump failed. The inspector reviewed maintenance activity (MR O-81-1592 initiated 4/10/81) to repair the pump. Although a priority 2 had been assigned, the system was not tagged out until April 14, 1981. Repairs were completed on April 15, 1981. Technical Specifications require this effluent path to be continuously monitored and recorded, but allows indefinite grab sampling of the effluent (5 out of 7 days) in the event of instrument inoperability.
- The computer hourly peak log value for Unit 1 and 2 Main Vent Gaseous activity appear suspicious, tracking continuously at 12 counts for Unit 1 and 13 counts for Unit 2. Investigation revealed that improper impedance matching had been performed when a signal take-off was provided for the Technical Support Center. The FCR was still in progress and the licensee stated that correction would be pursued with the FCR.
- Unit 1 Blowdown Tank Radiation Monitor operability was questioned and an MR issued (MR O-81-1371) on March 25, 1981. The licensee first examined the detector on April 27, 1981. The detector was operable but the check source and shield needed replacement.
- New Fuel Storage Radiation Monitor local indication was downscale and meter face broken when examined on April 27, 1981 (no MR). Remote readout and alarm were operable.
- Unit 2 Condensor Off Gas Monitor continues out of service (since construction). Because Technical Specifications require this effluent flow path to be continuously monitored and recorded, the licensee has been taking at least 5 grab samples every 7 days. A recently completed modification on Unit 1's system is apparently successful and the licensee stated that equipment has been ordered to implement the modification (refrigeration unit to remove in line moisture) on Unit 2.

The licensee agreed with the inspector that more timely repair of radiation monitoring devices was appropriate and stated that action would be taken.

3. Review of Plant Operations

a. Plant Tour

At various times the inspector toured the facility, including the Control Room, Auxiliary Building (all levels, no High Radiation Areas), Turbine Building, Outside Peripheral Buildings, Security Buildings, Health Physics Control Points, Deaerator Generator Room, Service Building and Intake Structure.

b. Instrumentation

Control room process instruments were observed for correlation between channels and for conformance with Technical Specification requirements.

c. Annunciator Alarms

The inspector observed various alarm conditions which had been received and acknowledged. These conditions were discussed with shift personnel who were knowledgeable of the alarms and actions required. During plant inspections, the inspector observed the condition of equipment associated with various alarms.

d. Shift Manning

The operating shifts were observed to be staffed to meet the operating requirements of Technical Specifications, Section 6, both to the number and type of licenses. Control room and shift manning was observed to be in conformance with Technical Specifications and site administrative procedures.

e. Radiation Protection Controls

Radiation protection control areas were inspected. Radiation Work Permits in use were reviewed, and compliance with those documents, as to protective clothing and required monitoring instruments, was inspected. Proper posting of radiation and high radiation areas was reviewed in addition to verifying requirements for wearing of appropriate personal monitoring devices.

f. Plant Housekeeping Controls

Storage of materials and components was observed with respect to prevention of fire and safety hazards. Plant housekeeping was evaluated with respect to controlling the spread of surface and airborne contamination.

g. Fire Protection/Prevention

The inspector examined the condition of selected pieces of fire fighting equipment. Combustible materials were being controlled and were not found near vital areas. Selected cable penetrations were examined and fire barriers were found intact. Cable trays were clear of debris.

h. Control of Equipment

During plant inspections, selected equipment under safety tag control was examined. Equipment conditions were consistent with information in plant control logs.

i. Instrument Channels

Instrument channel checks recorded on routine logs were reviewed. An independent comparison was made of selected instruments.

j. Equipment Lineups

The inspector examined the breaker position on switchgear and motor control centers in accessible portions of the plant. Equipment conditions, including valve lineups, were reviewed for conformance with Technical Specifications and operating requirements.

k. Review of Operating Logs, Records

Logs and records were reviewed to identify significant changes and trends, to assure required entries were being made, to verify proper identification of abnormal conditions, and to verify conformance to reporting requirements and Limiting Conditions for Operation. The following records were reviewed for the report period:

- Shift Supervisor's Log
- Unit 1 Control Room Operator's Log
- Unit 2 Control Room Operator's Log
- Nuclear Plant Engineer-Operations Notes and Instructions.
- Unit 1 and 2's Control Room Daily Operating Logs (sampling review).

The inspector also discussed all Shift Supervisor turnover notes (very long term, long term and current) with the General Supervisor-Operations. No unacceptable conditions were identified.

4. Review of Events Requiring One Hour Notification of the NRC

The circumstances surrounding the following events requiring prompt (one hour) notification on the NRC via the dedicated telephone (ENS-line) were reviewed.

- At 4:05 p.m. on April 5, 1981, improper restoration of power to an ESFAS cabinet (Channel B Logic Cabinet) caused a partial actuation of Engineered Safety Features (Unit 1). The unit was in Cold Shutdown at the time. Although No. 13 HPSI pump started, no injection occurred because the discharge valve remained closed. Equipment was restored to normal within three minutes.
- About noon, April 8, 1981, a brush fire started in the upper laydown area of the site. It was under control by 2:30 p.m. The Calvert County Fire Department responded. The protected area and off site power lines were not affected. Approximately 70 acres of open field (tall grass) burned.
- At 10:43 a.m. on April 19, 1981 Unit 2 tripped from Mode 2 (start-up). The cause of the trip was a failure of No. 21 Steam Generator Feedwater Regulating Bypass Valve Controller, resulting in a low steam generator level. The faulty controller was replaced and startup was resumed.
- At 9:41 a.m. on April 12, 1981, power (Unit 2) was being increased to 100% after a reduction because of condenser tube leakage. All rods were out. Power was being leveled by boration when an overpower alarm was received. The operator, believing he had secured borating, went to tend the alarm. Boration continued for about two minutes (direct to the charging pump suction) and reactor power decreased rapidly to about 60%. The feedwater system could not handle the transient, resulting in a High Steam Generator level turbine trip followed by reactor trip. The inspector reviewed traces of Steam Generator Water level and reactor power immediately prior to the trip. Pressurizer pressure dropped below the DNB parameter (2225 psia) to about 1900 psia. Technical Specification 3.2.6 action statement allows two hours to restore pressure above this limit, however, the pressure immediately returned to normal following the reactor trip. The licensee counseled the operator concerning attentiveness to duties and will notify all licensed operators of the details of this event. LER 81-021 will remain open pending completion of the licensee's actions.

5. Plant Maintenance

During the inspection, the inspector observed various maintenance and problem investigation activities to verify: compliance with regulatory requirements, including those stated in the Technical Specifications; compliance with the administrative and maintenance procedures; compliance

with applicable codes and standards; required QA/QC involvement; proper use of safety tags; proper equipment alignment and use of jumpers; personnel qualifications; radiological controls for worker protection; fire protection; retest requirements and reporting in accordance with Technical Specifications. The following activities were included.

IC-87-37, Seismic System. Perform PM on SMA-3 CFT, Rev. E, started 4/27/81. Found O-YE-004, Vertical Accelerometer out of service due to salt water leakage, replaced entire unit.

MR-81-893, Replace SRW Heat Exchanger SW Valve, 1 CV 5212 (FCR 80-17), observed April 28, 1981.

MR-81-141, No. 12 SRW Heat Exchanger, Clean, Change Zincs, observed April 28, 1981.

MR O-91-1693, Regenerative Heat Exchanger Outlet Temperature Alarm Hanging, initiated 4/21/81; observed 4/24/81.

No unacceptable conditions were identified (timeliness of repair of radiation monitoring devices is addressed in paragraph 2).

6. IE Bulletin Followup

The inspector reviewed licensee actions on the following IE Bulletins (IEBs) to determine that the written response was submitted within the required time period, that the response included the information required including adequate corrective action commitments, and that licensee management had forwarded copies of the response to responsible onsite management. The review included discussions with licensee personnel and observations and review of items discussed below.

-- IEB 81-01: Surveillance of Mechanical Snubbers. The licensee responded to this bulletin in a letter dated February 19, 1981, stating that no mechanical snubbers are used in safety-related applications. The inspector discussed the response with the licensee. No unacceptable conditions were identified.

7. Review of Licensee Event Reports (LER's)

a. The inspector reviewed LER's submitted to the NRC:RI office to verify that the details of the event were clearly reported, including the accuracy of the description of cause and adequacy of corrective action. The inspector determined whether further information was required from the licensee, whether generic implications were indicated, and whether the event warranted onsite followup. The following LER's were reviewed:

<u>LER No.</u>	<u>Date of Event</u>	<u>Date of Report</u>	<u>Subject</u>
<u>Unit 1</u>			
81-18/3L	03/09/81	04/08/81	DURING TEST ON #11 DIESEL GENERATOR SMOKE BEGAN FROM EXHAUST MANIFOLD INSULATION.
81-19/3L	03/11/81	04/10/81	ONE OF TWO CONTAINMENT HYDROGEN ANALYZERS INOPERABLE.
81-20/3L	03/20/81	04/16/81	DURING ROUTINE TEST CNTMT NORMAL SUMP DRAIN EXCEEDED MAXIMUM CLOSING TIME.
81-21/3L	03/20/81	04/16/81	DURING NORMAL POWER #12 CCP WAS STARTED FOR MAINTENANCE TEST; THE DISCHARGE RELIEF VALVE LIFTED AND STUCK OPEN.
81-22/3L	03/24/81	04/23/81	ESFA'S DEGRADED VOLTAGE RELAY INOPERABLE.
*81-23/3L	03/17/81	04/16/81	DURING ACCEPTABLE TEST VENTILATION EXHAUST DAMPER IN CABLE SPREADING ROOM DID NOT SHUT (INSPECTION REPORT 317/81-09)
**81-24/3L	04/04/81	05/01/81	#12 MSIV CLOSING TIME EXCEEDED MAXIMUM
81-25/3L	04/04/81	05/01/81	OUTER PERSONNEL AIR LOCK DOOR OPERATING MECHANISM FAILED.
*81-28/3L	04/23/81	05/04/81	INADVERTENT RELEASE OF NON-RADIOLOGICAL WASTE INTO CHESAPEAKE BAY.
81-29/3L	04/01/81	04/30/81	SUPPORTS IN #12 SRW SUBSYSTEM DID NOT MEET CRITERIA OF ESTABLISHED PROGRAM DEVELOPED IN RESPONSE TO IE BULLETIN 79-14.

*selected for onsite followup.

**This LER to remain open pending additional NRC review

<u>LER No.</u>	<u>Date of Event</u>	<u>Date of Report</u>	<u>Subject</u>
<u>Unit 2</u>			
81-09/3L	03/03/81	04/03/81	SALT WATER SYSTEM MOTOR-OPERATED ISOLATION VALVE INOPERABLE.
81-15/3L	03/19/81	04/17/81	BORIC ACID CONCENTRATION GREATER THAN ALLOWED BY T.X. AT 8.1%.
81-16/3L	03/17/81	04/14/81	CIRCUIT BREAKER GROUND SENSOR TRIPPED CAUSING POWER LOSS TO MOTOR OPERATED MAIN FEEDWATER ISOLATION VALVE.
81-17/3L	04/14/81	05/04/81	DURING MODIFICATION WORK 22 ECCS PUMP ROOM COOLER EMERGENCY DRAIN LINE WAS BROKEN.
81-19/3L	04/02/81	05/01/81	WHILE PARALLELING #12 EDG TO #21 4KV BUS, EDG OUTPUT BREAKER FAILED TO CLOSE.
*81-21/3L	04/12/81	05/04/81	PRESSURE DROPPED BELOW DNB PARAMETER DURING RAPID POWER DECREASE (SEE PARAGRAPH 4)

- b. For the LER's selected for onsite review (denoted by asterisks above), the inspector verified that appropriate corrective action was taken or responsibility assigned and that continued operation of the facility was conducted in accordance with Technical Specifications and did not constitute an unreviewed safety question as defined in 10 CFR 50.59. Report accuracy, compliance with current reporting requirements and applicability to other site systems and components were also reviewed.

-- LER 81-28 (Unit 1), Unmonitored Discharge of No. 11 Waste Neutralizing Tank (WNT) at 4:50 p.m. on April 23 1981, the outside operator discovered the drain valve for #11 WNT open. The operator immediately shut the valve to terminate the discharge. The WNT had been placed in service at 2:20 p.m. to receive make-up regeneration waste. At about 3:30 p.m. the water treatment specialist started regenerating #12 make-up train. Between 3:45-4:45 p.m. approximately 75 gallons of 97% H₂SO₄ (diluted to 6% with a 27 gpm dilution flow) was discharged to the WNT. Starting at 4:30 p.m., 50% NaOH (diluted to 5% with a 21 gpm dilution flow) was being discharged to the WNT when the open drain valve was discovered.

Since the WNT drain valve was not shut, the regenerative waste sent to #11 WNT was discharged to the Chesapeake Bay, after being diluted with 1.2 million gpm circulating water flow, without ensuring that the regeneration waste was in compliance with the Environmental Technical Specification limits.

The inspector reviewed the licensee's procedures, the submitted reports (prompt and followup), corrective actions, and impact analysis. The licensee determined that the circulating water flow rates would produce dilutions of one in 960,000 parts and one in 480,000 parts for the acid and caustic, respectively, resulting in an imperceptible change in pH. Regarding procedural controls, the licensee reviewed the circumstances and determined that these were adequate, however, three separate operators failed to adequately implement the procedures. OI 23 D, Operation of the Waste Neutralizing System, requires a WNT Drain Valve to be locked shut following draining and a lineup check verified locked shut prior to placing a tank on service. The midshift Outside Operator (OSO) failed to shut the drain valve following draining of #11 WNT on his shift. The day shift OSO directed a trainee to perform the checklist lineup and place #11 WNT on service. The trainee did not verify the WNT drain valve DW-199 closed, although he initialed the On Service checklist to this effect.

The licensee took disciplinary actions against the three operators involved, including two suspensions. Although the licensee stated that it has always been the watch standers duty to complete all actions on his station and directly supervise the actions of trainees, a new GSO Standing Instruction, Plant Operators Responsibilities, was issued on April 29, 1981. (GSO Notes and Instruction 81-3). This instruction specifies that the watch standers, not trainees, are to initial and perform or directly supervise all valve lineups, checklists, and surveillance tests. The licensee also now requires that all non-licensed operators have a procedure in hand whenever performing steps of a procedure.

The inspector stated that the NRC was concerned with non-licensed operator action in this release, but agreed with the licensee's conclusion that the actual environmental impact was imperceptible. The inspector also concluded that the licensee had taken and completed adequate corrective action prior to completion of the inspection period. The inspector stated that the unmonitored release of acid and caustic was an item of noncompliance (317/81-09-01; 318/ 81-09-01).

8. Surveillance Testing

- a. The inspector observed portions of the following testing, verified that it was performed in accordance with approved procedures, that limiting conditions for operation were satisfied, that test results (of completed at time of observation) were satisfactory, that removal and restoration of equipment were properly accomplished and that deficiencies identified were properly reviewed and resolved.

The following tests were included in this review.

- TSP 53, Revision 0, dated 3/11/81, Cable Spreading Room Operational Test (Unit 1) performed 4/29/81.
- Smoke Testing of Unit 1 27' elevation Switchgear Room on 4/29/81.
- STP M460-0, Seismic Accelerometer Calibration Revision 0, performed on 4/27/81.

The inspector also reviewed the calibration curves for Cardox analyzers 79 and 36 used during the performance of the CSR Halon Flooding test on April 27. Although sufficiently high halon levels were reached in all portions of the CSR during the test, stratification of the gas did occur, resulting in potentially lethal (greater than 20% halon) levels near the floor. The licensee is investigating. Inspector Follow Item 317/81-07-03 remains open to follow resolution of this item.

STP M460 was a semi-annual seismic monitoring system channel functional test.

One vertical accelerometer was discovered non-functional (saltwater had dripped through cover in the intake structure's accelerometer O-YE-004 and damaged the unit). The entire unit was replaced. Inspector questions in this area resulted in a deeper review and an item of noncompliance as described below.

- b. The inspector reviewed the most recent channel calibration performed on the seismic monitoring system, STP-M-560-0, Seismic Instrument Calibration, Revision 2, approved August 19, 1976 and performed on October 30, 1980. In addition, the inspector reviewed the (vendor's) Kenometrics Operating Instructions for the SMA-3 Strong Motion Accelerograph System, dated July, 1971, and the Bechtel Purchase Specification for CCNPP, 6750-M-373, dated April 16, 1971. The purchase specification states a requirement for the triggers to actuate between 0.005 to 0.02g vertical and 0.005 to 0.060 inches of horizontal motion.

The licensee's Seismic Monitoring Instrumentation consists of 5 triaxial Strong Motion Accelerographs (SMA's), 2 triaxial Seismic Switches (starters), and a recording unit which records the SMA's motions following initiation of a seismic event as detected by the starters.

The starters contain a vertical starter to detect acceleration in the vertical plane and a horizontal starter with two degrees of freedom to detect radial displacement caused by an earthquake. The Triaxial SMAs each contain a vertical and two orthogonal horizontal accelerometers. Three outputs from each SMA are fed to a particular recording tape in the control room.

For calibration of the starters, the licensee's procedure (Step II, Starter Calibration) checks the calibration by verifying that the horizontal starter is level and then checks radial contact gap at 0.030 inches by a knob adjustment. No check is made of the vertical starter.

For calibration of the accelerometers, the respective amplifier electrical outputs are first checked from the steady state (0.000 +0.050 VDC). Then a test signal (12 VDC) is applied to the accelerometer to displace the coil. Following removal of the test signal the accelerometer is observed (on the tapes) to return to neutral at the particular accelerometers' natural frequency.

The inspector noted that this test demonstrates that an accelerometer is not bound and that amplification and recording circuits are functional. However, no relation can be made to the magnitude of the parameter monitored (acceleration). The test performed on the accelerometers and horizontal starters constitute functional tests. Channel calibrations, as defined in Technical Specifications, require verification that the channel response with the necessary range and accuracy to known values of the parameter monitored. The inspector noted that capabilities exist to obtain known accelerations (shaker tables, vibration stands, etc.). Failure to adequately calibrate the Seismic Monitoring System is an item of noncompliance (317/81-09-02; 318/81-09-02).

9. Observation of Physical Security

The resident inspector checked, during regular and off-shift hours, on whether selected aspects of security met regulatory requirements, physical security plans and approved procedures.

a. Physical Protection Security Organization

- Observations and personnel interviews indicated that a full time member of the security organization with authority to direct physical security actions was present, as required.
- Manning of all three shifts on various days was observed to be as required.

b. Physical Barriers

Selected barriers in the protected area (PA) and the vital areas (VA) were observed and random monitoring of isolation zones was performed. Observations of truck and car searches were made.

c. Access Control

Observations of the following items were made:

- Identification, authorization and badging
- Access control searches
- Escorting
- Communications
- Compensatory measures when required.

No unacceptable conditions were identified.

10. Verification of Suction Path for Auxiliary Feedwater Pumps

Representatives from the NRC's Office of Nuclear Reactor Regulation requested that the inspector verify adequate procedures were in place to insure a suction flow path to the Auxiliary Feedwater Pumps. This concern arose coincident with the NRC's review of the automatic initiation of the Auxiliary Feedwater System. The inspector reviewed AOP-15, Loss of Auxiliary Feedwater, Revision 1 approved November 12, 1980. The procedure requires a check of the suction and discharge lineup following receipt of indications such as Low Pump Suction Pressure Alarm or Low Pump Discharge Pressure Alarm. The outside operator is directed to examine the lineup in the vicinity of the 12 CST and the Turbine Building Operator in the AFP rooms. No unacceptable conditions were identified.

11. Review of Periodic and Special Reports

Upon receipt, periodic and special reports submitted by the licensee pursuant to Technical Specification 6.9.1 and 6.9.2 were reviewed. This review included the following considerations: The report includes the information required to be reported by NRC requirements; test results and/or supporting information are consistent with design predictions and performance specifications; planned corrective action is adequate for resolution of identified problems; whether any information in the report should be classified as an abnormal occurrence; and the validity of reported information. Within the scope of the above, the following periodic reports were reviewed by the inspector:

- March, 1981 Operations Status Reports for Calvert Cliffs No. 1 Unit and Calvert Cliffs No. 2 Unit, dated April 14, 1981.
- Revisions to the Operating Status Reports for November and December, 1980, January, February and March, 1981, letter dated April 15, 1981.

- BG&E letter dated April 15, 1981; Supplement to (1979 year) Report of Changes Tests and Experiments pursuant to 10 CFR 50.59.
- BG&E letter dated April 8, 1981, CCNPP, Unit 1 Docket No. 50-317 Report of Startup Testing for Cycle Five.

12. Exit Interview

Meetings were held with senior facility management periodically during the course of this inspection to discuss the inspection scope and findings. A summary of inspection findings was also provided to the licensee at the conclusion of the report period.

The inspector discussed the NRC's position regarding review of non-safety-related changes to the facility performed in accordance with 10 CFR 50.59. The NRC's position is that the Onsite Committee (OSRC) must review all changes made pursuant to 10 CFR 50.59 and make determinations regarding nuclear safety significance. The Plant Superintendent stated that the OSRC would follow the NRC position regarding these reviews.