U.S.NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos.:	50-317/90-29; 50-318/90-29
License Nos.:	DPR-53/DPR-69
Licensee:	Baltimore Gas and Electric Company Post Office Box 1475 Baltimore, Maryland 21203
Facility:	Calvert Cliffs Nuclear Power Plant, Units 1 and 2
Location:	Lusby, Maryland
Inspection Conducted:	October 21, 1990, through November 24, 1990
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Approved by: Robert J. Summers for — 12-13-90

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Inspection Summary:

This inspection report documents routine and reactive inspections during day and backshift hours of station activities including: plant operations; radiological protection; surveillance and maintenance; emergency preparedness; security; engineering and technical support; and safety assessment/quality verification.

Results:

One violation was identified regarding access to the protective area without proper badging (paragraph 6). A non-cited violation was identified regarding missed surveillances of offsite power supplies while one emergency diesel generator was inoperable (paragraph 2.2.b). An Executive Summary follows.

EXECUTIVE SUMMARY

Plant Operations: (Modules 71707, 93702) Unit 1 was operated successfully without any major transients or challenges. A weakness was identified regarding the status of the Auxiliary Feedwater System (AFW) cross-connect capability. Fuel handling operations and activities associated with the Unit 2 core reload were conducted in a controlled and professional manner.

Radiological Protection: (Module 71707) Routine review in this area identified no adverse findings.

Surveillance and Maintenance: (Modules 61726, 62703) Routine observations of surveillance and maintenance activities identified no noteworthy findings. A non-routine Technical Specification required surveillance of the availability of offsite power supplies was missed and resulted in a non-cited violation (paragraph 2.2.b). Preparations for testing of the No. 21 emergency diesel generator were well controlled.

Emergency Preparedness: (Module 71707) Routine review in this area identified no noteworthy findings.

Security: (Module 71707) A violation was identified regarding an individual entering the protected area without being issued the proper badge (50-317/90-29-01 and 50-318/90-29-01).

Engineering and Technical Support: (Modules 71707, 90712, 92700)
Reviews of analysis of the power operated relief valve piping response to water flow during once through core cooling resulted in no noteworthy findings. A modification of the control room air conditioning was performed in a timely manner. Weaknesses were discovered by the licensee in engineering calculations, especially in the area of thermohydraulics, as a results of the [illegible] discovered in the Low Temperature Overpressure Protection (LTOP) engineering [illegible].

Safety Assessment/Quality Verification: (Modules 71707, 30703) A weakness was identified regarding a hesitancy to formally document and evaluate problems. Two examples of problems were identified that were not promptly documented in the problem report system. These examples are discussed in paragraphs 2.1(a) and 2.3(c). Progress was noted with the implementation of a comprehensive commitment tracking system.

DETAILS

1. **Summary of Facility Activities**

Unit 1 operated at power for the entire inspection period.

Unit 2 began the period completely defueled for the extended Cycle 8 refueling outage. Fuel reload commenced at 1830 hours, November 20, 1990. Approximately 30% of the fuel had been loaded into the Unit 2 core as the inspection period ended.

2. **Plant Operations**

2.1 **Operational Safety Verification**

The inspectors observed plant operation and verified that the facility was operated safely and in accordance with licensee procedures and regulatory requirements. Regular tours were conducted of the following plant areas:

- -- control room
- -- primary auxiliary building
- -- radiological control point
- -- electrical switchgear rooms
- -- auxiliary feedwater pump rooms
- -- security access point
- -- protected area fence
- -- intake structure
- -- diesel generator rooms
- -- turbine building

Control room instruments and plant computer indications were observed for correlation between channels and for conformance with technical specification (TS) requirements. Operability of engineered safety features, other safety related systems and onsite and offsite power sources were verified. The inspectors observed various alarm conditions and confirmed that operator response was in accordance with plant operating procedures. Routine operations surveillance testing was also observed. Compliance with TS and implementation of appropriate action statements for equipment out of service was inspected. Plant radiation monitoring system indications and plant stack traces were reviewed for unexpected changes. Logs and records were reviewed to determine if entries were accurate and identified equipment status or deficiencies. These records included operating logs, turnover sheets, system safety tags, temporary modifications, and the jumper and lifted lead book. Plant housekeeping controls were monitored, including control and storage of flammable material and other potential safety hazards. The inspector also ed the condition of various fire protection, meteorological, and seismic mor g systems. Control room and shift manning were compared to regulatory req ments and portions of shift turnovers were observed. The inspectors found that control room access was properly controlled and that a professional atmosphere was maintained.

In addition to normal utility working hours, the review of plant operations was routinely conducted during evening shifts (15 inspector hours total) and also on weekend and midnight shifts (4 inspector hours total). Operators were alert and displayed no signs of inattention to duty or fatigue.

a. Equipment Status

On November 19, 1990, during a routine tour of the plant, the inspectors noticed that the Unit 2 motor-driven auxiliary feedwater (AFW) pump and motor was completely wrapped in plastic rendering it inoperable. This plastic was placed over the equipment for protection during sandblasting in the service water pump room. As detailed in NRC Inspection Report 50-317/90-25 and 50-318/90-25, the licensee decided to maintain an available motor-driven AFW pump in the opposite unit for cross-connecting in the event of certain high energy line break and AFW discharge pipe break scenarios. The Unit 1 equipment status log listed the Unit 2 motor-driven AFW pump as available at the time of this inspection. There were no control room notes, tags, or operator aids in place at the time of this inspection to alert the operator of the unavailability of the pump.

The inspectors discussed this situation with the applicable station staff. The plastic was removed following completion of the sandblasting. The following conclusions were derived from this inspection effort:

- There was no written document that recognized or authorized the wrapping of the Unit 2 AFW pump. Maintenance personnel had discussed this situation with an operations representative, yet no formal actions were initiated.

- The need for maintaining an available AFW pump in the opposite unit was not well understood and communicated throughout the planning, maintenance and operations departments.

- A problem report to document the above discrepancies was not promptly initiated as required by the applicable station administrative procedure (CCI-116). This was identified as one example of a weakness regarding prompt evaluation and documenting of problems.

The inspector discussed the above findings with the appropriate site personnel. No additional discrepancies or concerns were identified.

b. Operability of Containment Cooling Units

On November 13, 1990, during troubleshooting of a failure of the No. 24 containment cooling unit (CCU), the licensee found that the one of the fan motor overloads in the fan control logic was tripped and that the overloads were not bypassed with a jumper as indicated on the design drawing. Later inspection of the No. 22 CCU revealed that a similar jumper was not installed. Further review identified a discrepancy in the fan logic drawings in that the jumper was indicated on some drawings and not on others. This is an additional example of drawing deficiencies that have been previously discussed in NRC Inspection Reports 50-317/90-23 and 50-318/90-23 and 50-317/90-08 and 50-318/90-08.

The licensee initiated two problem reports to resolve these issues. Jumpers were subsequently installed on the No. 22 and 24 CCU's. The Unit 1 CCU's were visually inspected on November 15 and the jumpers were verified to be installed. A test to ensure that the Unit 1 jumpers functioned was also performed. The No. 21 and 23 CCU's remain to be inspected, which is an outstanding item on the problem reports. Licensee analysis of the operability of the CCU's without jumpers is also ongoing. The safety function of the containment cooling system is to limit containment pressure rise to a level below the design value in the event of a loss of coolant accident.

The inspector reviewed licensee actions to date and discussed this issue with cognizant licensee personnel. Actions to identify and resolve the problem have been adequate.

2.2 Followup of Events Occurring During Inspection Period

During the inspection period, the inspectors provided onsite coverage and followup of unplanned events. Plant parameters, performance of safety systems, and licensee actions were reviewed. The inspectors confirmed that the required notifications were made to the NRC. During event followup, the inspector reviewed the corresponding CCI-118N (Calvert Cliffs Instruction, "Nuclear Operations Section Initiated Reporting Requirements)" documentation, including the event details, root cause analysis, and corrective actions taken to prevent recurrence. The following events were reviewed.

a. **Inadvertent ESF Actuation**

On October 22, 1990, at 9:20 p.m., an inadvertent isolation of the Unit 2 containment purge system occurred when licensee personnel were de-energizing one of four engineered safety features (ESF) sensor cabinets as part of a maintenance activity. The ESF logic requires 2 of 4 channels to trip to actuate the ESF function and therefore no actuations were expected when the single sensor cabinet was de-energized. A containment radiation monitor actuation signal in one of the remaining three ESF channels was in a tripped condition due to a malfunction. When the sensor cabinet was de-energized, the 2/4 logic associated with high containment radiation signal (CRS) was satisfied and the containment purge, which was in progress, isolated as expected. A containment purge isolation is the only action that occurs on a CRS. The de-energized cabinet was restored and the isolation logic was reset. The licensee subsequently notified the NRC via the Emergency Notification System.

Licensee investigation determined that the existing malfunction in the actuation channel had been previously identified by a licensed senior reactor operator (SRO) and a maintenance request written. The SRO knew that this equipment was not required to be operable with the reactor defueled and controls were in place to ensure it was operable prior to entering a mode when it was required. The SRO thus assigned a low priority to the maintenance request and determined that this information did not need to be to communicated to operations personnel via shift turnover of plant status. As a result, the malfunction was not immediately repaired nor were the operators who subsequently de-energized the sensor cabinet aware of any system malfunctions. Additionally, the procedure for de-energizing the sensor cabinet did not require checks of the logic cabinets for actuation indication as a prerequisite.

Corrective actions include a review of the event with operations personnel, revision of the ESF downpowering procedure, and review of other operations procedures affecting logic cabinets. The inspectors concluded that the licensee's determination of the safety significance, causes, and corrective actions were adequate.

b. Missed Surveillance Requirement

On October 24, 1990, at 8:00 p.m., the shift supervisor discovered that special surveillance activities required by technical specification (TS) action statement 3.8.1.1, "Electrical Power Systems, A.C. Sources" had not been performed. Unit 1 was at 100% power throughout this event. At approximately 4:00 a.m. earlier that day, the No. 11 Emergency Diesel Generator (EDG) was made inoperable when the No. 11 saltwater header was removed from service for maintenance.

TS 3.8.1.1.b requires, in part, that with one EDG inoperable, demonstrate the operability of the remaining A.C. sources by performing surveillance requirement 4.8.1.1.1.a (which verifies correct breaker alignment of the 500 KV offsite power supplies) within one hour and at least once per 8 hours thereafter. When operators removed the No. 11 saltwater header from service, the initial surveillance was performed. However, the surveillance requirement was not subsequently performed. When the shift supervisor determined that the surveillances had not been performed, the 500 KV offsite power sources were declared inoperable. The required surveillances were performed satisfactorily and the offsite power sources declared operable at 8:30 p.m.

The licensee has determined that the cause of the event was personnel error in that operators did not adequately review the TS action statements during the shifts that the surveillances were missed. Additionally the non-routine surveillance requirements were not communicated to subsequent shifts via the shift turnover process. Corrective actions include a review of this event and an emphasis of management expectations with all operations personnel, as well as an evaluation of administrative procedures for shift turnovers and operations logs for improved communication of required surveillances.

The inspectors determined that the licensee's failure to comply with the above TS requirements represents an apparent violation. This is a severity level IV violation, however, a Notice of Violation will not be issued for this event because this violation satisfies all the conditions as set fourth in Section V.G. of 10 CFR 2, Appendix C. The following conditions were met by the licensee:

* This event was identified by the licensee.
* This event is a severity level IV.
* This event was reported as required.
* This event was corrected within a reasonable time frame, including measures to prevent recurrence.
* This event was not a willful violation and had not previously occurred.

Pursuant to the provisions of 10 CFR 2, Appendix C, this event will be classified as a non-cited violation and no response from the licensee is required (NON 50-317/90-29-02 and 50-318/90-29-02). Corrective actions to address this issue appear adequate to prevent recurrence therefore no additional inspection is required.

2.3 Unit 2 Core Reload

a. Core Reload (Refuel) Checklist

The operations department uses Procedure OP-5, "Mode 6 Checklist," to verify that essential prerequisites have been accomplished prior to refueling. This procedure was maintained by Outage Management with oversight from Operations. The inspectors reviewed this procedure during preparations for the Unit 2 core reload and concluded that the procedure was comprehensive and properly implemented. The procedure required the various site organizations to verify that their respective actions were completed to support refueling in accordance with the Technical Specifications. In addition, the inspectors reviewed the tracking of post maintenance testing and outstanding non-conformance reports for Modes 5 and 6 and discussed these items with the responsible licensee representatives to ensure items were appropriately evaluated to support refueling. The inspectors concluded that preparations for the Unit 2 core reload in general were well coordinated and controlled.

b. Containment Closure Verification

The inspectors reviewed the completed surveillance test procedure (STP-O-55A-2), "Containment Integrity Verification (Mode 6)," dated November 19, 1990 to ensure Unit 2 containment penetrations were secured for refueling activities. The inspectors also toured the Unit 2 containment on November 20, 1990 and found no discrepancies.

c. **Refueling**

On November 20, 1990, at approximately 6:30 p.m., Unit 2 entered Mode 6. The inspectors observed portions of refueling activities in the control room, the auxiliary building, and the Unit 2 containment. The activities were conducted in accordance with Fuel Handling Procedure (FH-6), "Core Refueling Procedure." The inspectors verified that all prerequisites were met and the personnel involved were familiar with the procedure.

During movement of the first fuel assembly, the licensee experienced spurious actuations of the "under-load trip" feature on the hoist of the refueling machine. The licensee's investigation determined that a lack of coordination between Operations and Electrical & Controls (E&C) during a functional test and calibration check of the under-load trip setpoints resulted in entering outdated setpoints in the refueling machine. The licensee's proposed corrective action was to reduce possible future coordination difficulties by assigning applicable portions of the functional test to the E&C section. The inspector agreed with the licensee's conclusion that this was an isolated problem.

On November 21, 1990, the licensee found a thin metal bar, approximately three feet in length, laying on top of a fuel assembly in the spent fuel pool rack. The licensee halted the refueling activities and inspected fuel assemblies in the spent fuel pool with an underwater camera. A roll of tape was found and retrieved as a result of this inspection. The licensee had inspected the fuel assemblies in the spent fuel pool approximately three weeks prior to the core reload and had not identified any foreign materials. The licensee's investigation thus far has not identified the source of the metal bar. The licensee concluded, however, that no damage was done to the fuel assembly and subsequently the fuel assembly was loaded into its designated grid in the reactor core. Prior to refueling, the licensee had increased management attention in controlling activities and materials in the spent fuel pool by assigning an engineering department individual to control and coordinate all activities in the spent fuel pool.

A review of the refueling logs indicated a problem with paint chips flaking from the spent fuel handling machine into the spent fuel pool. This problem was first identified on November 21 in the log with a note that an analysis was needed to determine any possible adverse effects of the paint. As of the end of the inspection period (11/24/90), this problem had not been entered into any formal system for resolution. This is a second example of a hesitancy to formally document and resolve problems.

3. Radiological Controls

During routine tours of the accessible plant areas including all levels of the auxiliary building and the Unit 2 containment, the inspectors observed the implementation of selected portions of the licensee's Radiological Controls Program. The utilization and compliance with special work permits (SWPs) were reviewed to ensure detailed descriptions of radiological conditions were provided and that personnel adhered to SWP requirements. The inspectors observed access controls to various radiologically controlled areas and use of personnel monitors and frisking methods upon exit from these areas. Posting and control of radiation areas, contaminated areas and hot spots, and labeling and control of containers holding radioactive materials were verified to be in accordance with the regulations and applicable licensee procedures. Health Physics technician control and monitoring of these activities were determined to be adequate. No unacceptable conditions were identified.

4. Maintenance and Surveillance

4.1 Maintenance Observation

The inspectors observed maintenance activities, interviewed personnel, and reviewed maintenance orders (MOs) and other records to verify that work was conducted in accordance with approved procedures, technical specifications, and applicable industry codes and standards. The inspectors also verified that: redundant components were operable, administrative controls were followed, tagouts were adequate, personnel were qualified, correct replacement parts were used, radiological controls were proper, fire protection was adequate, quality control hold points were adequate and observed, adequate post-maintenance testing was performed, and independent verification requirements were implemented. The inspectors independently verified that selected equipment was properly returned to service.

Outstanding work requests were reviewed to ensure that the licensee assigned appropriate priority to safety-related maintenance. The inspectors reviewed portions of the following maintenance activities:

a. Replacement of solenoid valve 2SV-1582 (MO# 200-269-385A).

b. Repair switch actuator linkage on breaker 152-2406 (MO# 200-0 i8-138A).

c. Repair of broken cable for solen id valve 2SV-1549 (MO# 200-318-381A).

d. Removal of Unit 2 Reactor Vessel Head

In preparation for fuel loading, the Unit 2 reactor vessel head was removed. It had been previously installed on the vessel but the studs had not been tensioned. In preparation to remove the head and flood the refueling pool, the licensee conducted a walkdown tour of the refueling pool to verify cleanliness and readiness for flooding. The tour was performed by personnel from plant chemistry, outage management, facilities management and radiological controls. The inspector observed that the tour was thorough and several items were identified for correction. The access to the area itself was controlled to prevent introduction of unwanted materials. The inspector reviewed the completed documentation for the head removal and noted no adverse conditions.

No deficiencies were noted.

4.2 **Surveillance Observation**

The inspectors witnessed selected surveillance tests to determine whether properly approved surveillance test procedures (STP) were in use, technical specification frequency and action statement requirements were satisfied, necessary equipment tagging was performed, test instrumentation was in calibration and properly used, testing was performed by qualified personnel, and test results satisfied acceptance criteria or were properly dispositioned. Portions of the following activities were reviewed.

a. **STP M-212B-1 "Reactor Protection System Channel B Functional Test"**

This STP has been reformatted to allow reactor protection system testing on individual channels rather than testing of the whole system as in the previous test. The technicians did not appear to have any difficulty adjusting to the new procedure. Some steps in the procedure required the use of master calibration data. The inspectors observed that the manner

in which this was transferred to the field had a potential for error. These observations were discussed with the licensee and the inspectors determined that any error would be self revealing, thus, making the testing less efficient but would not impact safety. No unacceptable conditions were noted.

b. **STP M-514-2 "Wide Range Nuclear Instrument Channel Calibration"**

Performance of this test had to be suspended to incorporate changes that were made to the same STP in Unit 1 but not included in the Unit 2 STP. The licensee initiated a problem report to determine why these changes were not made in advance. Other aspects of the STP were acceptable.

c. **STP M-212E-1 "Reactor Protection System Logic Matrix Functional Test"**

No unacceptable conditions were noted.

d. **STP 0-4-2 "Integrated Engineering Safety Features Test"**

This STP was performed to verify operability of the No. 21 emergency diesel generator (EDG) in preparation for fuel movement on Unit 2. The STP criteria was modified to only test loads placed on the bus by the shutdown load sequencer and to postpone testing of the safety injection actuation signal (SIAS) loads that were currently inoperable. The licensee based its decision to modify the test criteria on an interpretation of TS 4.0.3 which states that surveillance requirements do not have to be performed on inoperable equipment. Since SIAS equipment is not required in modes 5 and 6, it was eliminated from the test.

The licensee has determined that an unmodified test will need to be performed prior to entry into mode 4. While in modes 5 and 6, caution must be exercised to ensure that loads are not inadvertently put on the EDG for which testing was not performed. The inspectors reviewed these issues with the licensee and determined that measures were in place to adequately test the EDG and avoid inadvertent EDG loading.

The inspector observed the performance of the STP and reviewed the test results. The test was performed in a controlled manner and personnel involved were familiar with the procedure and their actions. The test results were unsatisfactory because the time intervals between the shutdown sequencer steps were out of specification. Test personnel reviewed these results and other data that indicated the times were

acceptable and presented this information to the Plant Operations Safety Review Committee (POSRC) as justification to accept the test results. The shutdown sequencer steps are timed manually and the licensee assessed that the out of specification times were the result of human factors during testing. The POSRC approved the test results as acceptable and agreed with the test personnel recommendation to review methods to eliminate timing errors.

The inspector assessed that the above actions were performed in a careful and controlled manner. No adverse conditions were identified.

5. Emergency Preparedness

The inspectors routinely toured the onsite emergency response facilities and discussed program implementation with the applicable personnel. The resident inspectors had no noteworthy findings in this area.

6. Security

During routine inspection tours, the inspectors observed implementation of portions of the security plan. Areas observed included access point search equipment operation, condition of physical barriers, site access control, security force staffing, and response to system alarms and degraded conditions.

At 1610 hours on October 22, 1990, a new region-based NRC inspector inadvertently entered the protected area (PA) without having been issued a PA access badge. The inspector proceeded directly to the Resident Inspector office where it was realized that the proper badge had not been issued. The Security Shift Supervisor was notified and the inspector was escorted out of the protected area. Subsequent discussion indicated that the access mechanical barrier was inoperable and the compensatory identification check failed to prohibit the inspector's access. The inspector was subsequently issued the correct badge and allowed to return into the protected area.

This event was discussed in an Enforcement Conference, held in Region I on November 2, 1990, in conjunction with the issues detailed in Inspection Report 50-317/90-28 and 50-318/90-28. The above event is identified as a violation of the Calvert Cliffs Physical Security Plan, Revision 22, dated September 1988 (50-317/90-29-01 and 50-318/29-01).

7. Engineering and Technical Support

The inspector reviewed selected design changes and modifications made to the facility which the licensee determined were not unreviewed safety questions and did not require prior NRC approval as described by 10 CFR 50.59. Particular attention was given to safety evaluations, Plant Operations Safety Review Committee (POSRC) approval, procedural controls, post-modification testing, procedure changes resulting from this modification, operator training, and Updated Final Safety Analysis Report (UFSAR) and drawing revisions. The following activities were reviewed:

7.1 PORV Discharge Piping Analysis

As a part of reviews regarding Low Temperature Overpressure issues, the licensee analyzed power operated relief valve (PORV) discharge piping stresses produced from water flow rather than steam flow. A concern was subsequently raised regarding the effects of water flow through the piping during once through core cooling (OTCC) in accordance with the emergency operating procedures.

The licensee determined that the subject pipe and structural supports did not need to be safety related such that they would satisfy code requirements for OTCC operations. Seismic loads are also not assumed in the analysis. The pipe needs to remain functional such that it does not cause flow blockage or cause damage to any equipment needed to bring the plant to safe shutdown. These determinations were based on factors, such as the use of OTCC (which implies multiple failures), where the plant is beyond the single failure criteria in general design criteria (GDC) GDC-34 residual heat removal and GDC-35 emergency core cooling.

The most limiting conditions for the transient were determined to be water at 500 degrees F and 2400 psia and assuming both PORVs were opened at the same time. The Unit 1 analysis was performed assuming water solid conditions in the pressurizer when the PORVs were opened. Under these conditions, the pipe was shown to remain functional.

Unit 2 pipe analysis found that the pipe would not remain functional if the pressurizer was water solid when both PORVs were opened. The difference in the results was due to the fact that the Unit 2 pipe is 6 inches in diameter while the Unit 1 pipe is 4 inches. A reanalysis was performed for Unit 2, assuming an initial bubble in the pressurizer, which demonstrated that the pipe would be

functional. As a result of the Unit 2 analysis, the licensee plans to revise its emergency operating procedures for OTCC to require initiation of OTCC prior to pressurizer level exceeding its indicating range to assure that Unit 2 remains within the analyzed condition for the PORV discharge pipe.

The inspector reviewed licensee actions to date and concluded that they show appropriate concern of the effects of OTCC.

7.2 Control Room HVAC Modification

A timer in the No. 11 control room heating ventilation and air conditioning (HVAC) unit failed and could not be repaired or replaced. This timer controls an automatic freon pumpdown of the compressor in the air conditioning unit to remove freon that may leak into the compressor while it is idle. The licensee modified the timer circuit by installing Agastat relays to perform the function of the failed timer. This modification was processed under field engineering change (FEC) 90-01-899. A similar modification is planned for the No. 12 HVAC timer circuit.

The inspectors reviewed the FEC documentation and discussed the modification with cognizant licensee personnel. The functional difference between the old design and the new is minor and does not affect the overall safety function of the system. The inspectors found that the licensee's actions to modify the circuit were timely and appropriate.

Regarding the use of Agastat relays in this modification, the inspectors reviewed the licensee's plans for future replacement of such relays at the end of their service life. The licensee had previously determined, as a result of a vendor letter regarding relay lifetimes, that these relays should be replaced. The licensee is developing the field change request to replace all Agastat relays and implement periodic maintenance to replace them in future applications. Implementation is planned for early 1991. This action is consistent with the licensee's response to NRC Bulletin 84-02 general concerns regarding service lifetimes and periodic replacement of relays.

8. Safety Assessment and Quality Verification

8.1 Plant Operations and Safety Review Committee

The inspectors attended several Plant Operations and Safety Review Committee (POSRC) meetings. TS 6.5 requirements for required member attendance were verified. The meeting agendas included procedural changes, proposed changes to the TS, Facility Change Requests, and minutes from previous meetings. Items

for which adequate review time was not available were postponed to allow committee members time for further review and comment. Overall, the level of review and member participation was adequate in fulfilling the POSRC responsibilities. No unacceptable conditions were identified.

8.2 **Review of Written Reports**

Periodic and Special Reports, Licensee Event Reports (LERs), and Safeguards Event Reports (SERs) were reviewed for clarity, validity, accuracy of the root cause evaluation and safety significance description, and adequacy of corrective action. The inspector determined whether further information was required. The inspector also verified that the reporting requirements of 10 CFR 50.73, 10 CFR 73.71, Station Administrative and Operating, and Security Procedures, and Technical Specification 6.9 had been met. The following reports were reviewed:

LER 90-25	Power Lost to Sample Pump for Gaseous Effluent Monitoring.
LER 90-26	Tilted Excore Detectors Caused by Inadequate Procedural Guidance.

No unacceptable conditions were identified.

8.3 **Problem Reports**

On November 20, 1990, the Senior Resident Inspector reviewed the results of a licensee investigation regarding "veto" authority by Quality Control management for Problem Reports. Although a Problem Report may be rejected as "non-valid", a letter is sent to the initiator that explains the reason for rejection and informs the initiator that he may pursue the issue through the Non-Conformance Report process if he disagrees with the assessment. The investigation identified that although this feedback process was apparently working, it was not formally recognized in the administrative procedure that controls Problem Reports (CCI-116). A recommendation was made by the independent licensee investigator to formalize this process.

The inspector reviewed selected Problem Reports, the applicable administrative procedures, and concluded that adequate safeguards exist in the licensee program to prevent an abuse of the "veto" authority. No unacceptable conditions were identified.

8.4 **Performance Improvement Plan (PIP)**

As a result of being placed on the NRC Watch List as a Category 2 facility in December 1988, Baltimore Gas and Electric (BG&E) Company submitted a PIP to NRC on April 7, 1989. The PIP proposes corrective actions necessary to improve performance at the Calvert Cliffs facility. Subsequently, a special team inspection (STI) was conducted in March 1989, which identified additional long-term corrective actions needed. An update of the PIP and a detailed implementation program (IP) were provided to the NRC staff on July 31, 1989, which detailed the corrective actions and their respective implementation Task Action Plans (TAPs). Two TAPs, 2.5.1, Commitment Tracking System and 2.5.2, Regulatory Commitment Management Process, were inspected to assess the adequacy of the corrective actions being taken. The inspection consisted of reviewing the supporting documentation for the plans and interviewing personnel involved in activities related to the plans.

The purpose of TAP 2.5.1, Commitment Tracking System (CTS), is to provide a centralized system to track commitments, both regulatory and non-regulatory, and to determine the proper status of activities including: priority, schedule, responsible individuals, and accountability.

Initially, an interim CTS was placed in service, which utilized the site main frame computer and existing software (FOCUS Program). Operational procedures were developed and training was provided for the system users. Performance measures were established to assist in measuring the effectiveness of the interim CTS. This system is scheduled to be replaced in mid-December 1990, with a new computer system and a software package (NUCLIS). NUCLIS is an integrated management system. Once installed, the information in the interim CTS data base will be transferred to the Action Tracking System (ATS) module of the NUCLIS.

The inspectors interviewed several users of the interim CTS to assess its effectiveness. It was noted that several hardware and software problems occurred during the initial implementation of the interim CTS. However, about 35 enhancements have been implemented based on feedback from monthly user group meetings. Those interviewed generally agreed that there has been a noted improvement in overall handling and scheduling of commitments including improved communications between the various site departments. Most of the users felt that the expanded capability of the NUCLIS will significantly improve the existing commitment tracking process and communications within the organization. The inspectors also observed a CTS project management meeting, which involved planning and scheduling of training for the new NUCLIS system. The inspectors have determined that the CTS is being implemented in accordance

with TAP 2.5.1, Commitment Tracking System and that it has been effective in addressing the root causes identified in the PIP.

The purpose of TAP 2.5.2, Regulatory Commitment Management Process, is to strengthen the licensee's ability to identify, implement and maintain regulatory commitments by establishing and using a formal process. The root causes which resulted in the need to establish a formal process were the same as those identified for the CTS. This effort was divided in four distinct tasks in order to establish the formal process.

The first task, which is scheduled for completion in September 1991, is to establish a formal process for managing regulatory commitments. The second task, which is scheduled for completion in November 1990, is to scan all NRC docketed material and optically store the information and provide a computer system for retrieving information. The third task, which is scheduled for completion in February 1992, is to review the docketed correspondence between BG&E and the NRC, and identify and record the administrative commitments contained in that correspondence. The licensee estimates that there will be approximately 11,000 commitments in the docketed correspondence. The fourth task, which is scheduled for completion in November 1992, is to review and disposition the regulatory commitments identified in Task 3, which have current or future requirements.

In addition to the interviews that were conducted as a part of the inspection, the inspectors reviewed the Regulatory Commitment Management Project Plan (RCMPP), Revision 1, dated July 31, 1990, and discussed the overall status with the assigned project manager. It was noted by the inspectors that the RCMPP tracks only administrative commitments as defined in the RCMPP and does not include Design Basis Commitments. However, the RCMPP project manager noted that commitments to install, modify, examine, or test structures, systems or components is considered as an administrative commitment; yet, the distinction is not clearly stated in the definitions section of the RCMPP.

The RCMPP is a comprehensive plan which addresses the objectives of TAP 2.5.2, Regulatory Commitment Management Process and the root causes identified in the PIP. Although this action plan is incomplete, the inspectors determined that sufficient resources are currently dedicated to ensure timely completion.

9. Followup of Previous Inspection Findings

Licensee actions taken in response to open items and findings from previous inspections were reviewed. The inspectors determined if corrective actions were appropriate and thorough and previous concerns were resolved. Items were closed where the inspector

determined that corrective actions would prevent recurrence. Those items for which additional licensee action was warranted remained open. The following items were reviewed.

9.1 (Closed) UNR 50-317/89-200-07 and 50-318/89-200-07
(Closed) NC3 50-317/89-15-02 and 50-318/89-16-02
(Closed) UNR 50-317/89-25-03 and 50-318/89-26-01

These issues concern the licensee's program to control vender technical manuals. Initial concerns were identified during the NRC Special Team Inspection and further developed in NRC Inspection Report 50-317/89-15 and 50-318/89-16. The concerns regard failures to perform technical reviews and distributing unreviewed vender technical manuals to onsite personnel.

The licensee committed to three interim corrective actions to review and control unreviewed technical manuals and tracked these actions as STI-8, STI-9, and STI-10. STI items 8, 9, and 10 were reviewed and closed in NRC Inspection Report 50-317/89-25 and 50-318/89-26.

In response to the notice of violation issued November 2, 1989, the licensee identified several corrective actions which included actions for STI items 8, 9, and 10. The inspectors reviewed the associated documentation, the revised version of Calvert Cliffs Instruction CCI-122F "Control of Vender Technical Manuals and Other Vender Technical Information", and interviewed licensee personnel. The inspectors determined that actions have either been completed or where appropriate, are adequately tracked to ensure completion. All backlogged manuals have been reviewed and new incoming information is reviewed as required. The licensee identified some minor inefficiencies in implementing the program and is considering adjustments. Additionally, the licensee had taken initiatives to upgrade existing technical manuals by organizing them into a more useable format and developing a system to identify the proper technical manual via a component identification or vice versa.

During the closeout of STI items 8, 9, and 10 a concern was identified regarding the use of interim guidelines that had not been reviewed by POSRC and approved by the plant manager to prioritize and review technical manuals. Guidelines for prioritizing reviews have been cancelled. Reviews on backlogged manuals were completed August 30, 1990. The licensee incorporated the technical manual review guidelines with very little change into CCI-122F which is reviewed by POSRC and approved by the plant manager.

Based on the above, the licensee's corrective actions are acceptable. These items are closed.

9.2 (Closed) UNR 50-317/88-14-001
(Closed) NC4 50-318/89-15-001

This issue involved the absence of clear qualification experience and training records in the certification package for individuals certified in accordance with ASME, Section XI. The licensee response to the above violation, dated July 10, 1990, was reviewed during a subsequent inspection and documented in NRC Inspection Report 50-317/90-01 and 50-318/90-01. A clarification of the issue and documentation of the final NRC review was transmitted to the licensee via letter, dated September 07, 1990. The above two items are therefore administratively closed.

9.3 (Closed) UNR 50-317/88-32-002 and 50-318/88-32-002

This issue concerned the potential adverse effects of the movement of the spent fuel cask load blocks over the fuel assemblies in the storage pool. Corrective action taken by the licensee included procedure revisions that require verification that mechanical stops are in place prior to the movement of the spent fuel cask crane. In addition, the licensee performed an analysis that concluded that the releases from a worst case load drop event would not have exceeded 25% of the 10 CFR 100 limits.

The inspectors reviewed the above analysis, procedure improvements and witnessed actual crane operation. The inspectors concluded that the procedural controls were adequate and that the licensee personnel appeared to have a good knowledge of the requirements pertaining to spent fuel cask crane operations. No additional problems or concerns were identified. This item is closed.

9.4 (Closed) UNR 50-317/89-200-10 and 50-318/89-200-10

This issue involved a concern regarding the implementation of a site-wide procedure writer's guide. At the time of the Special Team Inspection, conducted in 1989, it was unclear which site groups would be included in a writer's guide that was then under development. This concern was reviewed in August, 1990, as part of an extensive inspection of the procedure upgrade program. Inspection Report 50-317/90-23 and 50-318/90-23 documents this inspection effort and concluded that this issue was adequately resolved. This item is administratively closed.

9.5 (Closed) VIO 50-317/89-31-001 and 50-318/89-31-001

This violation involved the failure to establish adequate measures to assure that the design basis criteria for the Low Temperature Overpressure Protection (LTOP) system was implemented. The licensee in their response to the violation, dated April 6, 1990, stated in part that their corrective actions would be primarily incorporated into the site Performance Improvement Plan (PIP). This violation was identified as a significant breakdown in the licensee program for capturing and implementing commitments.

The licensee performed a short term assessment in early 1990 and concluded that they had identified, implemented and maintained commitments to the NRC that were important to safe operations. Three exceptions to this finding were identified and subsequently corrected [LTOP, post accident sampling system (PASS) and environmental qualification (EQ)]. An NRC team inspection (Inspection Report 50-317/90-81 and 50-318/90-81) was performed and determined that the results of the licensee review provided reasonable assurance that prior commitments of safety significance had been adequately addressed and that there was minimal likelihood of additional issues of high safety significance which remained unidentified.

The major long term corrective actions were incorporated into the PIP as Task Action Plan 2.5.1, Commitment Tracking System, and Task Action Plan 2.5.2, Regulatory Commitment Management Process. As detailed in section 8.4 of this report, these action plans were reviewed and found satisfactory during this inspection period. This item is closed.

9.6 (Closed) UNR 50-317/90-13-02 and 50-318/90-13-02

This issue involved the discovery by the licensee of several errors and non-conservative assumptions in the calculations supporting the development of Low Temperature Overpressure Protection (LTOP) controls. These problems involved the Power Operated Relief Valve (PORV) response time, two-phased flow through the PORVs, modeling of the Reactor Coolant Pump start transient, and assumed decay heat load. The licensee determined that these deficiencies were caused by insufficient investigation and documentation of assumptions and initial conditions and an over-reliance on the validity of previous calculations.

The discovery of these problems and the ensuing investigation were identified to the NRC via LER 317/90-022, dated August 22, 1990. The NRC reviewed this LER as documented in Inspection Report 50-317/90-23 and 50-318/90-23. In addition, the resident inspectors have attended several POSRC presentations and Startup Review Board meetings where this problem and the resulting corrective actions were discussed. The licensee performed several audits, both in-house and using outside contractors, to determine if engineering errors were pervasive throughout similar site calculations. The results of this effort determined that although the majority of engineering work was found to be acceptable, weaknesses were discovered in thermohydraulic calculations. The inspectors reviewed the results of these audits and subsequent corrective actions and find them acceptable. This item is closed.

9.7 (Closed) UNR 50-317/90-25-02 and 50-318/90-25-02

This issue involved the discovery on August 24, 1990, that two excore nuclear instrumentation detector wells on Unit 1 were tilted six degrees. The licensee determined the root cause of the tilted detectors to be inadequate procedural guidance. Specifically, the procedures which govern installation and removal of the detectors contained no drawings of the mechanism and no description of how it works. This discrepancy was identified during routine training and during a procedure review as part of the procedure upgrade program. The detectors were placed in their correct position and the procedures subsequently revised.

The licensee performed an analysis and determined that there were no safety consequences associated with this event. The results of this analysis, as documented via LER 317-90-26, dated October 22, 1990, was reviewed by the inspectors. No additional concerns or questions were identified. This item is closed.

10. Management Meeting

During this inspection, periodic meetings were held with station management to discuss inspection observations and findings. At the close of the inspection period, an exit meeting was held to summarize the conclusions of the inspection. No written material was given to the licensee and no proprietary information related to this inspection was identified.

A management meeting was held at the NRC Region I office on October 30, 1990, with representatives from Baltimore Gas & Electric (BG&E) management. The licensee presented the results of their recent self-assessment efforts and concluded that an overall positive trend continues.

The NRC meeting attendees acknowledged the results of the licensee self-assessment and agreed that the meeting was beneficial. The licensee's presentation slides and a list of meeting attendees are attached to this inspection report.

An enforcement conference was held at the NRC Region I office on November 2, 1990, with representatives from BG&E to discuss the security events as documented in NRC Inspection Report 50-317/90-28 and 50-318/90-28.

10.1 **Preliminary Inspection Findings**

A violation of security requirements was identified regarding the entry of an individual into the protected area without the proper badge (50-317/90-29-01 and 50-318/90-29-01). A non-cited violation was identified regarding a missed surveillance (50-317/90-29-02 and 50-318/90-29-02).

10.2 **Attendance at Management Meetings Conducted by Region Based Inspectors**

Date	Subject	Inspection Report No.	Reporting Inspector
11-1-90	Security	50-317/90-30 50-318/90-30	R. Albert A. Della Ratta
11-2-90	Environmental Monitoring and Radwaste Transportation	50-317/90-31 50-318/90-31	J. Jang J. Furia

ATTACHMENT 1

October 30, 1990 Management Meeting

List of Attendees

U.S. Nuclear Regulatory Commission

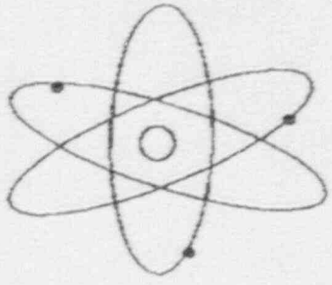
L. Bettenhausen, Chief, Operations Branch, Division of Reactor Safety (DRS)
R. Capra, Director, Project Directorate I-1, Office of Nuclear Reactor Regulation (NRR)
C. Cowgill, Chief, Reactor Projects Section No. 1A, Division of Reactor Projects (DRP)
D. Diec, Reactor Engineer, DRP
R. Gallo, Acting Chief, Reactor Projects Branch No. 1, DRP
W. Hehl, Director, DRP
M. Hodges, Director, DRS
A. Howe, Resident Inspector
W. Kane, Deputy Regional Administrator
T. Kim, Resident Inspector
D. McDonald, Project Manager, NRR
L. Nicholson, Senior Resident Inspector
S. Sanders, Assistant Project Manager, NRR
R. Summers, Project Engineer, DRP
J. Wiggins, Deputy Director, DRP

Baltimore Gas and Electric Company

T. Camilleri, Maintenance
G. Creel, Vice President - Nuclear Energy
R. Denton, Plant General Manager
G. Detter, NRM
R. Heibeel, QA
P. Pieringer, NSP
C. Poindexter, Vice Chairman
L. Russell, NS&P

State of Maryland

R. McLean, DNR



BALTIMORE
GAS AND
ELECTRIC

ATTACHMENT 2

October 30, 1990 Management Meeting

Licensee Presentation

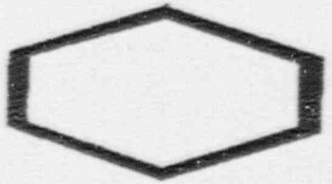
Calvert Cliffs

Self-Assessment

SLIDE1.CHT

MEETING AGENDA

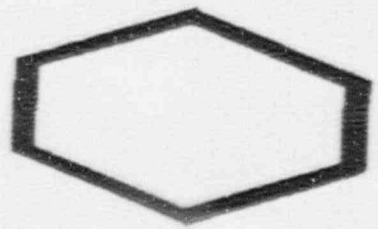
Introduction	G. C. Creel
Self-Assessment Methods	L. B. Russell
ISEU Mid-Year Assessment	P. A. Pieringer
QA Assessment/PIP Vertical Slice	R. P. Heibel
Plant Manager's Assessment	R. E. Denton
Maintenance Assessment	T. J. Camilleri
Management Overview	G. C. Creel
Conclusion	C. H. Poindexter



SLIDE2.CHT

SELF-ASSESSMENT
CATEGORIES

- Responsive
- In-Process
- Proactive

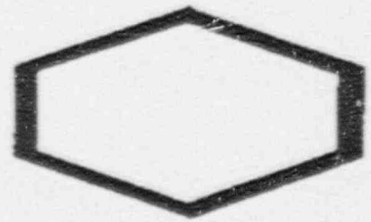


SLIDE3.CHT

SELF-ASSESSMENT

RESPONSIVE

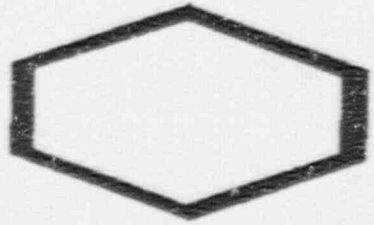
- Significant Incident Finding Teams
- Human Performance Enhancement System
- Industrial Safety Programs
  - Near-Miss Investigations
  - Supervisory Training & Observation Program
- Equipment Root Cause Evaluations
- Commitment Implementation Assessment
- Duke Engineering Evaluation



SLIDE4.CHT

SELF-ASSESSMENT
IN-PROCESS

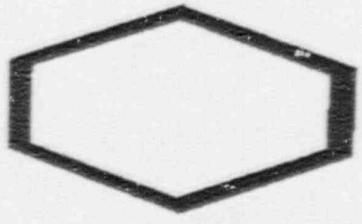
- Plant Supervisory Observations
- Quality Verification Activities
- Quality Assurance Audits & Surveillances
- Plant Operations & Safety Review Committee
- Independent Safety Evaluation Performance Assessments & Trending
- Startup Review Board
- PIP Vertical Slice Verifications



SLIDE6.CHT

SELF-ASSESSMENT
PROACTIVE

- Safety System Functional Inspections
- Industry Operating Experience Review
- Off-Site Safety Review Committee
- Visiting Other Plants/Industry Interaction
- Issue-Based Planning



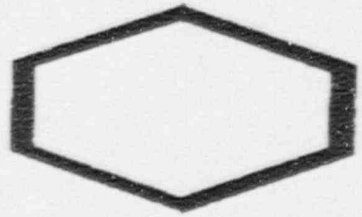
SLIDE6.CHT

INDEPENDENT SAFETY EVALUATION
SELF-ASSESSMENT

Inputs
- NRC Correspondence
- Calvert Cliffs Corrective Action Systems
- Event Investigations

Outputs
- Problems
- Potential Problems
- Strengths

The process provides a subjective assessment of plant performance in each of the SALP areas.

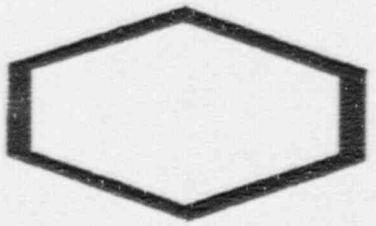


SLIDE7.CHT

NUCLEAR OPERATIONS

SELF-ASSESSMENT

- Technical Proficiency
- Procedure Compliance
- Teamwork
- Large Maintenance, Noncompliance, and Temporary Modifications Backlog

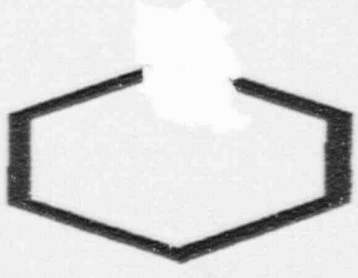


SLIDE8.CHT

MAINTENANCE/SURVEILLANCE

SELF-ASSESSMENT

- Administrative Systems Supporting Maintenance
- Maintenance Effectiveness
- STP Program
- Predictive Maintenance

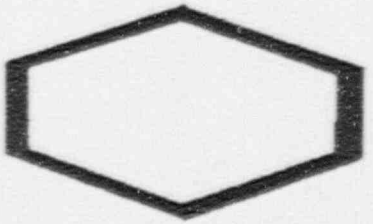


SLIDE9.CHT

QUALITY VERIFICATION/SELF-ASSESSMENT

SELF-ASSESSMENT

- OSSRC
- POSRC
- Self-Identified Problems
- Communications
- Corrective Action Systems
- Quality Assurance
- Quality Verification
- Root Cause Program
- Self-Assessments

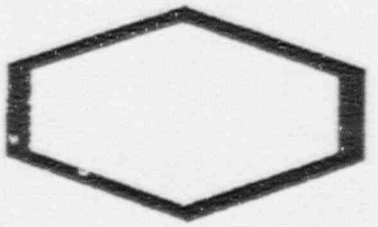


SLIDE10.CHT

PERFORMANCE IMPROVEMENT PLAN

VERTICAL SLICE ASSESSMENT

- Method/Duration of Assessment
- Structure of Team
- Use of Report

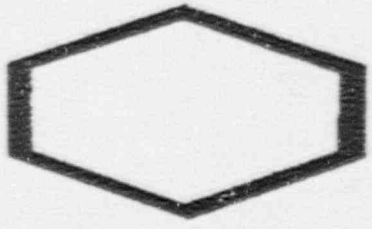


SLIDE11.CHT

SECOND PIP VERTICAL SLICE

OCTOBER 1990

- 23 of 40 Action Plans Evaluated
- 15 Action Plans Positively Contributing to Plant Performance
- 2 Plans Progress had Slowed
- 4 Plans were not Effective
- 2 Plans were too Early to Evaluate

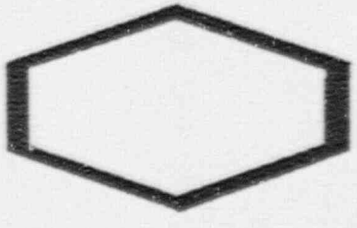


SLIDE12.CHT

SECOND PIP VERTICAL SLICE

ACTION PLAN ASSESSMENTS

- Plans Not Effective
  - Auxiliary Systems Engineering Unit
  - System Engineering Training
  - Reliability-Centered Maintenance
  - System Circles

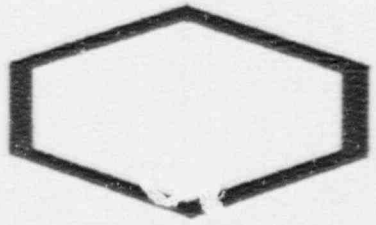


SLIDE13.CHT

SECOND PIP VERTICAL SLICE

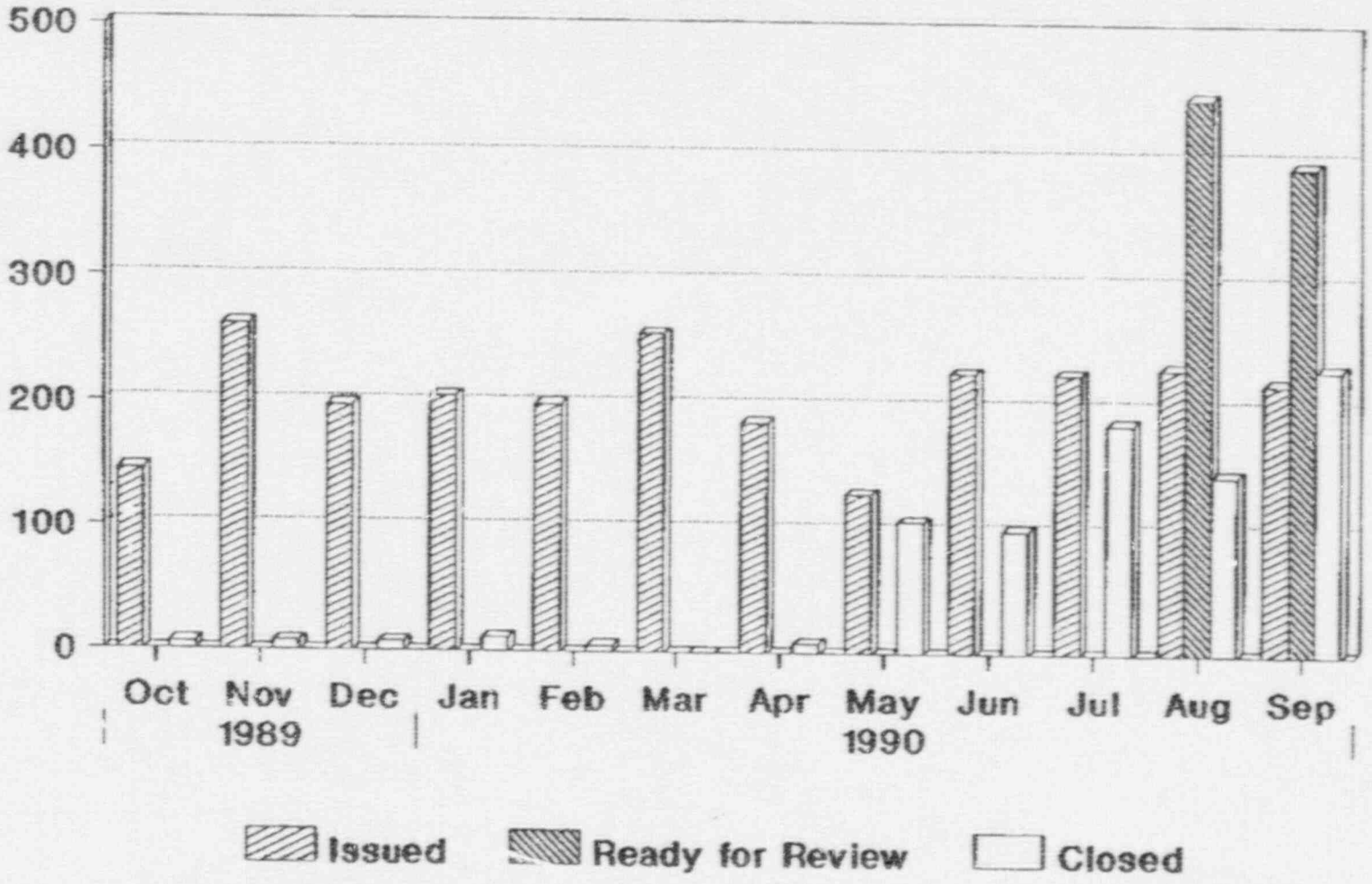
ACTION PLAN ASSESSMENTS

- Significantly Improved
  - Managing Organizational Change
  - Root Cause Analysis
  - Safety Assessment
  - Issues-Based Planning
  - Off-Site Safety Review Committee
  - Quality Circles
  - Procedures Upgrade Program



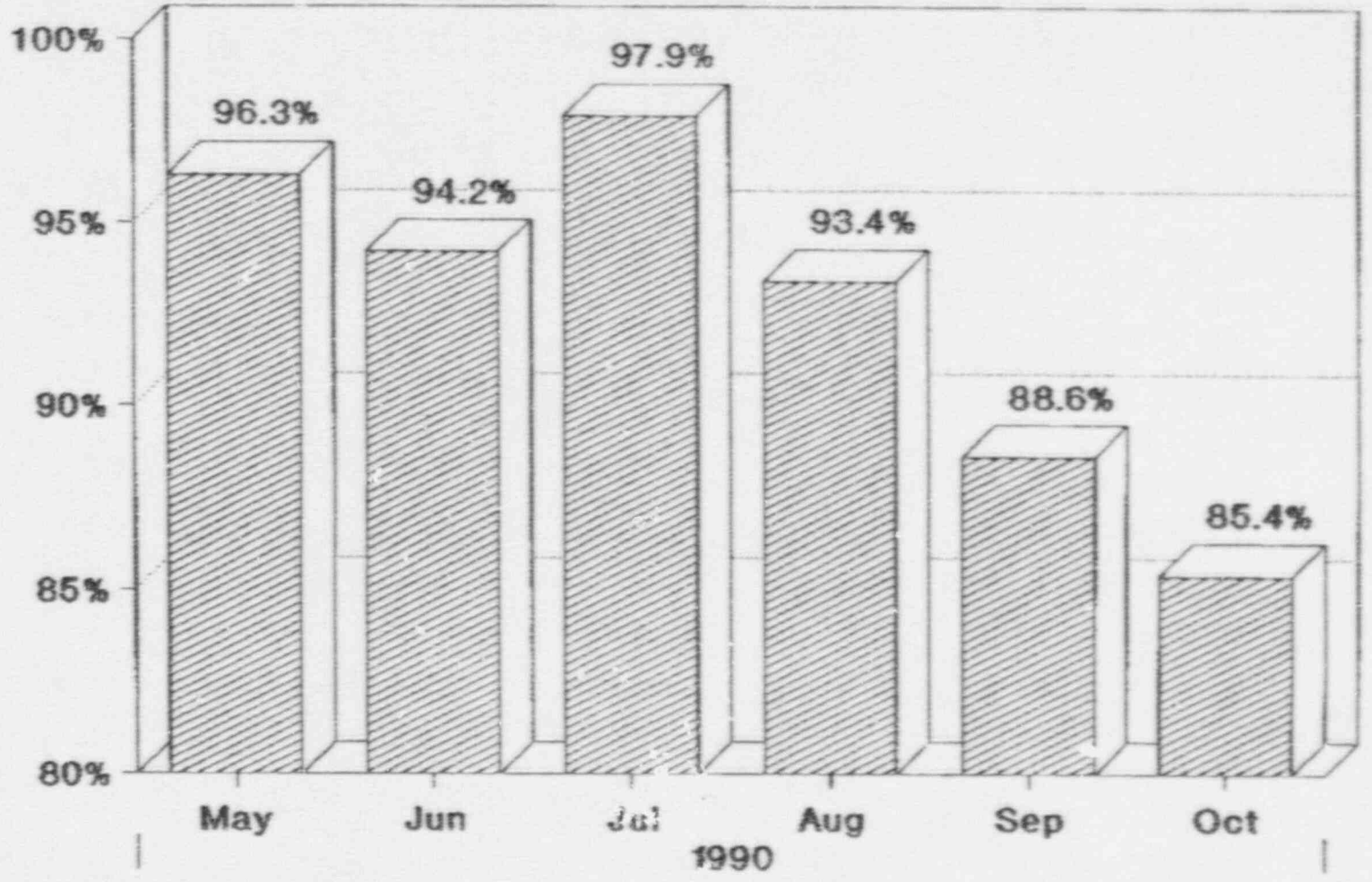
SLIDE14.CHT

NCR SYSTEM STATUS



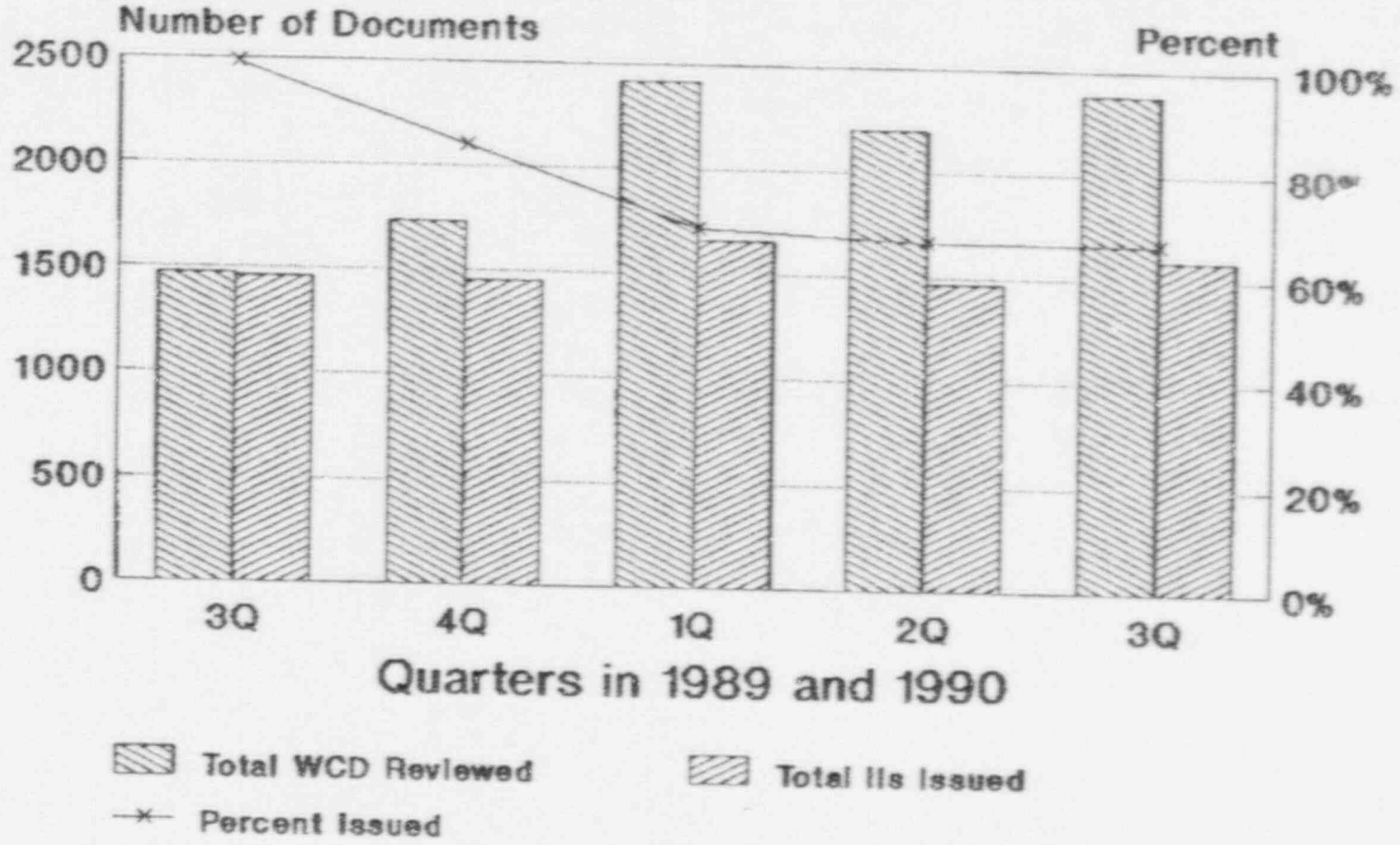
SLIDE15.CHT

PRS PROCESSED AS NCRs



SLIDE16.CHT

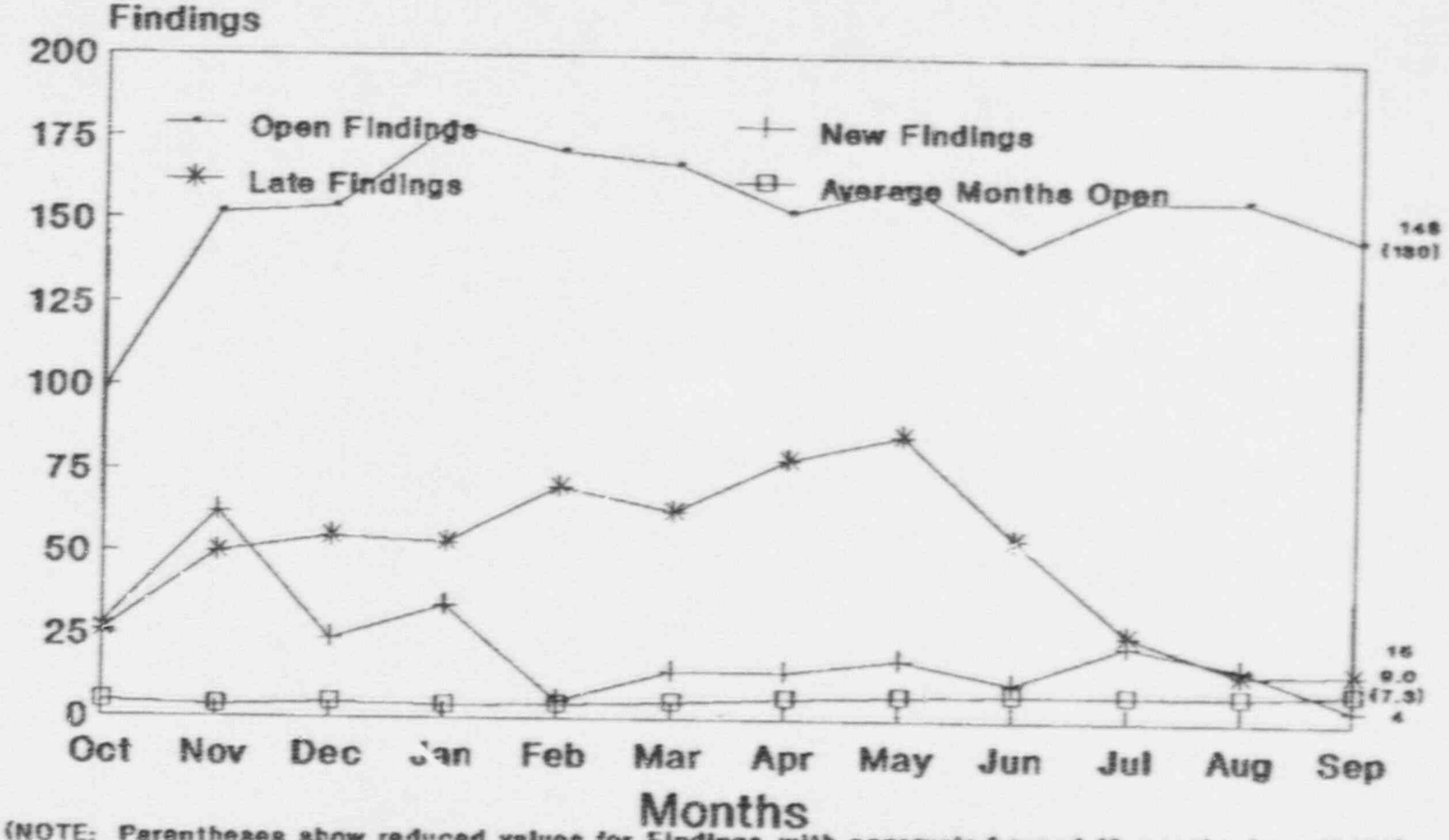
WORK CONTROLLING DOCUMENTS REVIEWED & INSPECTION INSTRUCTIONS ISSUED



SLIDE17.CHT

ALL FINDINGS

(10/01/89 - 09/30/90)

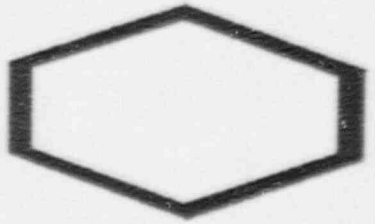


(NOTE: Parentheses show reduced values for Findings with approvals beyond 12 months from 10/90).

SLIDE18.CHT

OCTOBER STARTUP
RESULTS

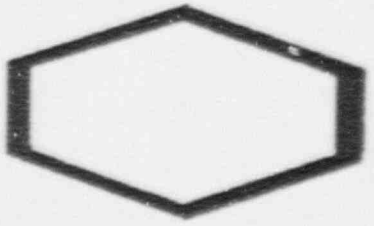
- Unit 1 reached full power October 12, 1990
- Emphasis on Safety and Quality
- Startup Review Board/Startup Plan Utilized
- Startup Review Board provided timely, comprehensive review and recommendations to Plant General Manager
- Self-Assessment of Startup provided by SURB



SLIDE19.CHT

OCTOBER STARTUP
SELF-ASSESSMENT

- Preliminary Results
- Met our Goal (Safety & Quality)



SLIDE20.CHT

UNIT 1 STARTUP, SEPTEMBER 1990
GENERAL PERFORMANCE SUMMARY

	UNSAT	NEEDS IMPROVEMENT	SATISFACTORY	SUPERIOR	EXCELLENT
Safety Perspective & Professionalism of Operations				X	
Procedural Compliance				X	
Systems & Equipment Performance			X		
Plant Material Condition			X*		
Work Control Processes: Efficiency		X*			
Work Control Processes: Safety & Compliance			X		
Personnel Safety: Compliance (Industrial & Radiation)				X	
Personnel Safety: Awareness (Industrial & Radiation)		X			
Engineering & Technical Support			X*		
Interface, Teamwork, & Communications			X*		
Identification & Resolution of Safety Issues			X*		
Supervisory Oversight & Involvement			X		

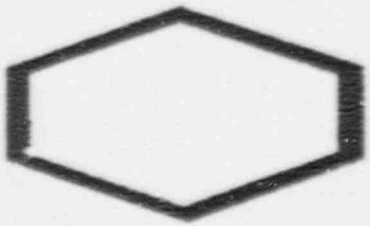
* Improving Trend

SLID621.CHT

OCTOBER STARTUP
SELF-ASSESSMENT

- Superior Performance
  - Safety Perspective and Operator Professionalism
  - Procedure Compliance
  - Personnel Safety Compliance

- Performance Needs Improvement
  - Work Process Efficiency
  - Personnel Safety Awareness



SLIDE22.CHT

OCTOBER STARTUP

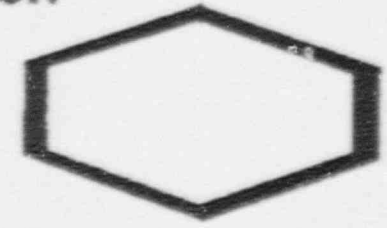
SELF-ASSESSMENT

- Conservatism Demonstrated
  - AFW Pump Governor
  - SRW Heat Exchanger
  - NI Calibration
  - Turbine Bypass Valves
  - Feed Flow Transmitter
- Improved Communications/Teamwork
  - Operations & Chemistry
  - System Engineering Ownership

SLIDE23.CHT

OCTOBER STARTUP
SELF-ASSESSMENT

- Lessons Learned
  - Single Ownership of Control Valves
  - Minimize Time in MODE 4
  - Clear Ownership of Instrument Valves
  - Start System Walkdowns Earlier
  - Develop Protocol for Startup Checklist (OP-6)
- Observations
  - SURB is Effective
  - Time Well Spent Solving Problems
  - Series of Events Need Further Evaluation

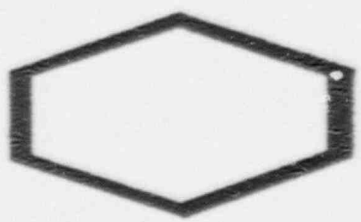


SLIDE24.CHT

OCTOBER STARTUP

SELF-ASSESSMENT

- Recent Events of Concern
  - Feedflow Transmitters
  - Spent Fuel Pool Overflow
  - Loss of Shutdown Cooling
  - 12A Reactor Coolant Pump Start
  - Control Room HVAC
  - Diesel Generator Inoperability
- Each Event Thoroughly Investigated
- None Individually Safety Significant

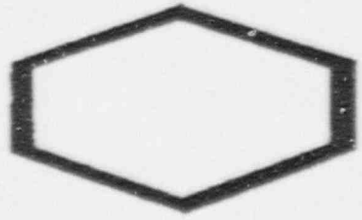


SLIDE26.CHT

OCTOBER STARTUP
SELF-ASSESSMENT

- *But!* Is there an underlying cause that must be corrected to prevent similar or more significant events?

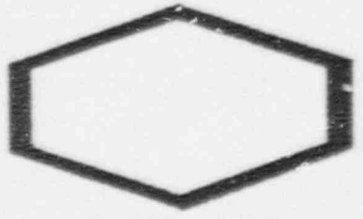
- Why are several of the events repeated over the life of the plant?



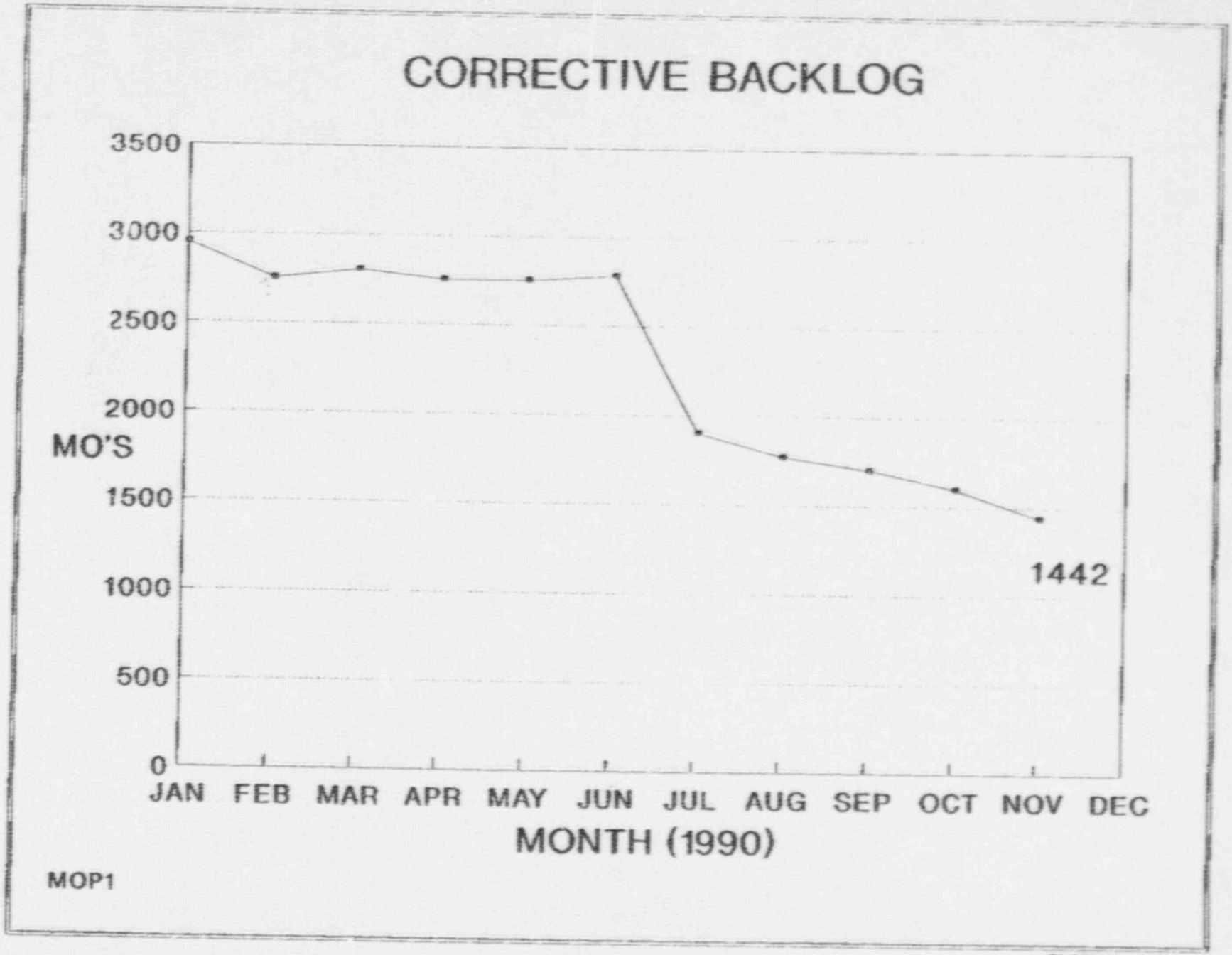
SLIDE25.CHT

MAINTENANCE ORGANIZATION
IMPROVEMENTS

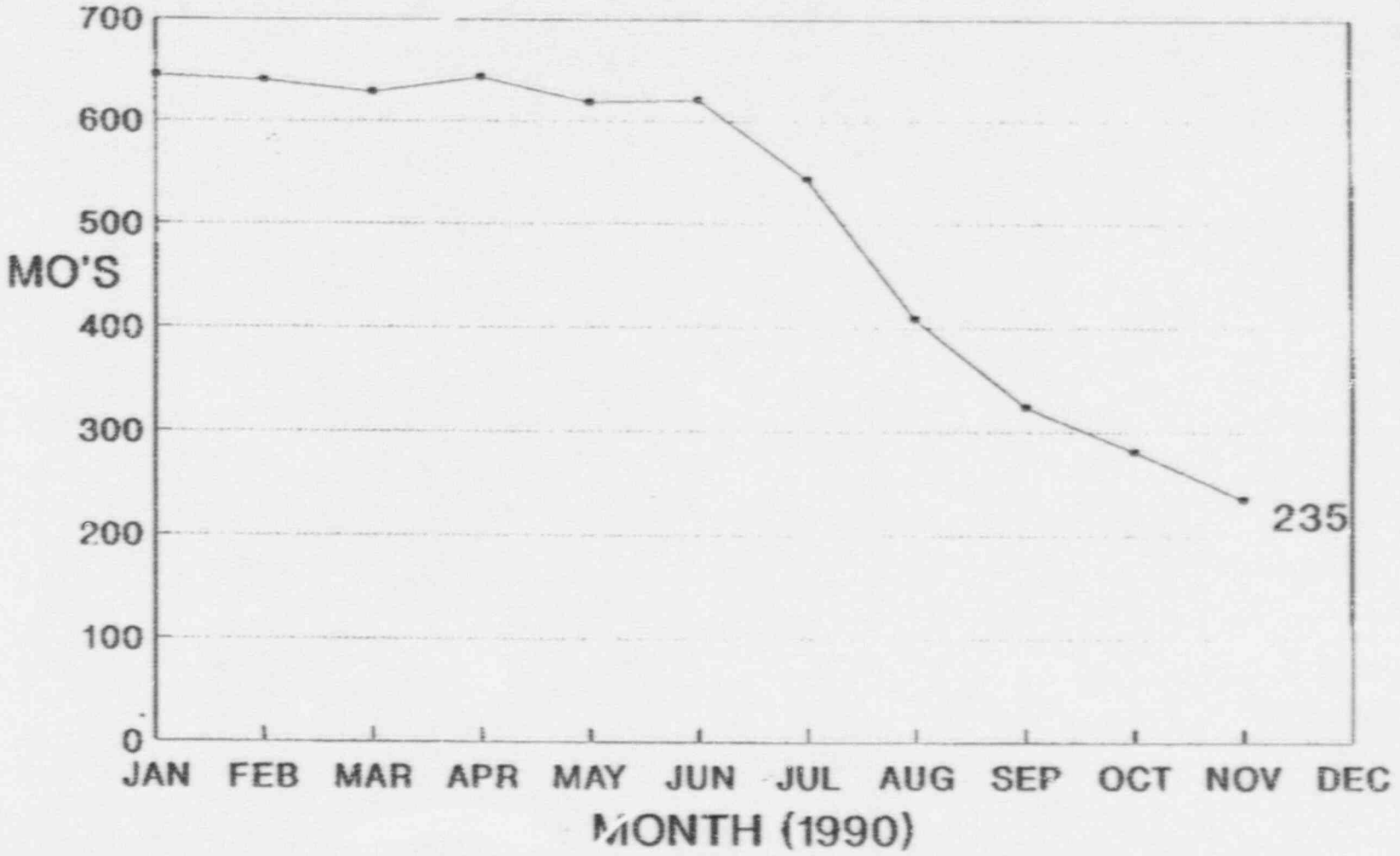
- Increased Overall Complement by 27%
- Developed Maintenance Long-Range Strategy & Goals
- Developed Maintenance Planner Qualification Program
- Supervisory Work Observations in Progress
- Improved the PMT Program
- Established a Maintenance Work Package Closure Unit
- Major Upgrade Projects in Progess



SLIDE27.CHT


CORRECTIVE BACKLOG
3500
3000
2500
2000
MO'S
1500
1000
500
0
1442
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
MONTH (1990)
MOP1
SLIDE28.CHT

CRITICAL SYSTEMS BACKLOG
(EDG, AFW, CVCS, RPS)



MOP2

SLIDE29.CHT

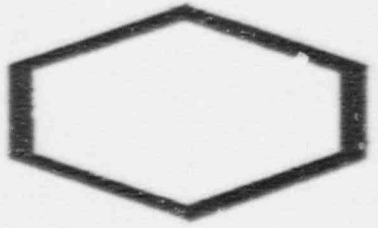
INSTITUTING A SAFETY & QUALITY CULTURE

- Consistent Reinforcement at All Levels
- Workers Remain Wary
- Actions Match Words
- Shifting to Active, Decisive Safety
- Occasional Regression

SLIDE30.CHT

ABILITY TO SELF-ASSESS

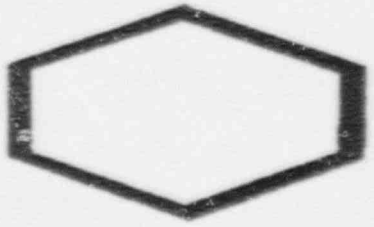
- Good Perspective on Two Startups
- Many LERs Found Proactively
- Event Investigations are Reliable and Objective
- Substantial Working Level Alertness



SLIDE31.CHT

ABILITY TO CORRECT IDENTIFIED PROBLEMS

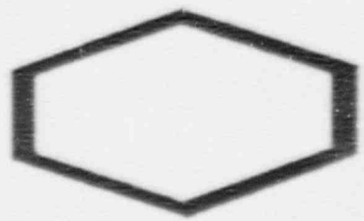
- Seeing Continued Improvement
- Processes Improving
- Backlogs Shrinking



SLIDE32.CHT

SECURITY

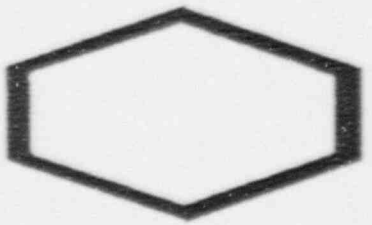
- Aggressive Corrective Actions
- Active Industry Involvement
- Substantial System Improvements
- Consistent Record of Achievement



SLIDE33.CHT

EMERGENCY PLANNING

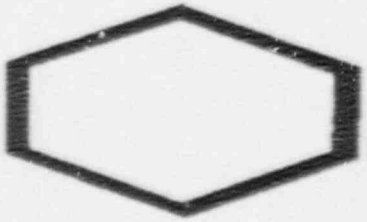
- Excellent State Interface
- Excellent County Involvement
- Solid Exercise Results
- Improved Emergency Action Levels



SLIDE34.CHT

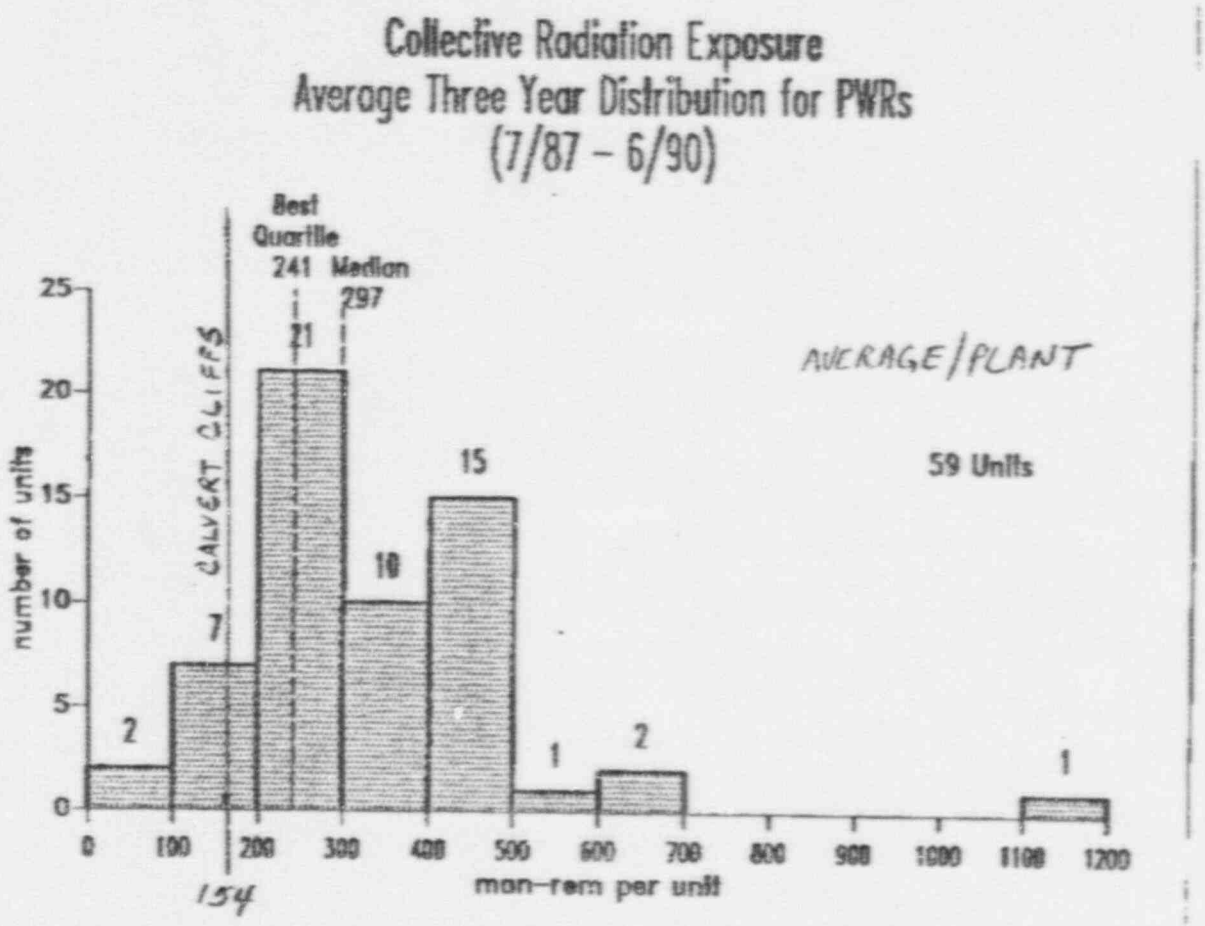
RADIOLOGICAL CONTROLS

- Excellent Exposure Control
- Excellent Solid Waste Control
- Strong PCI Record
- Aggressive Contaminated Area Reduction Program



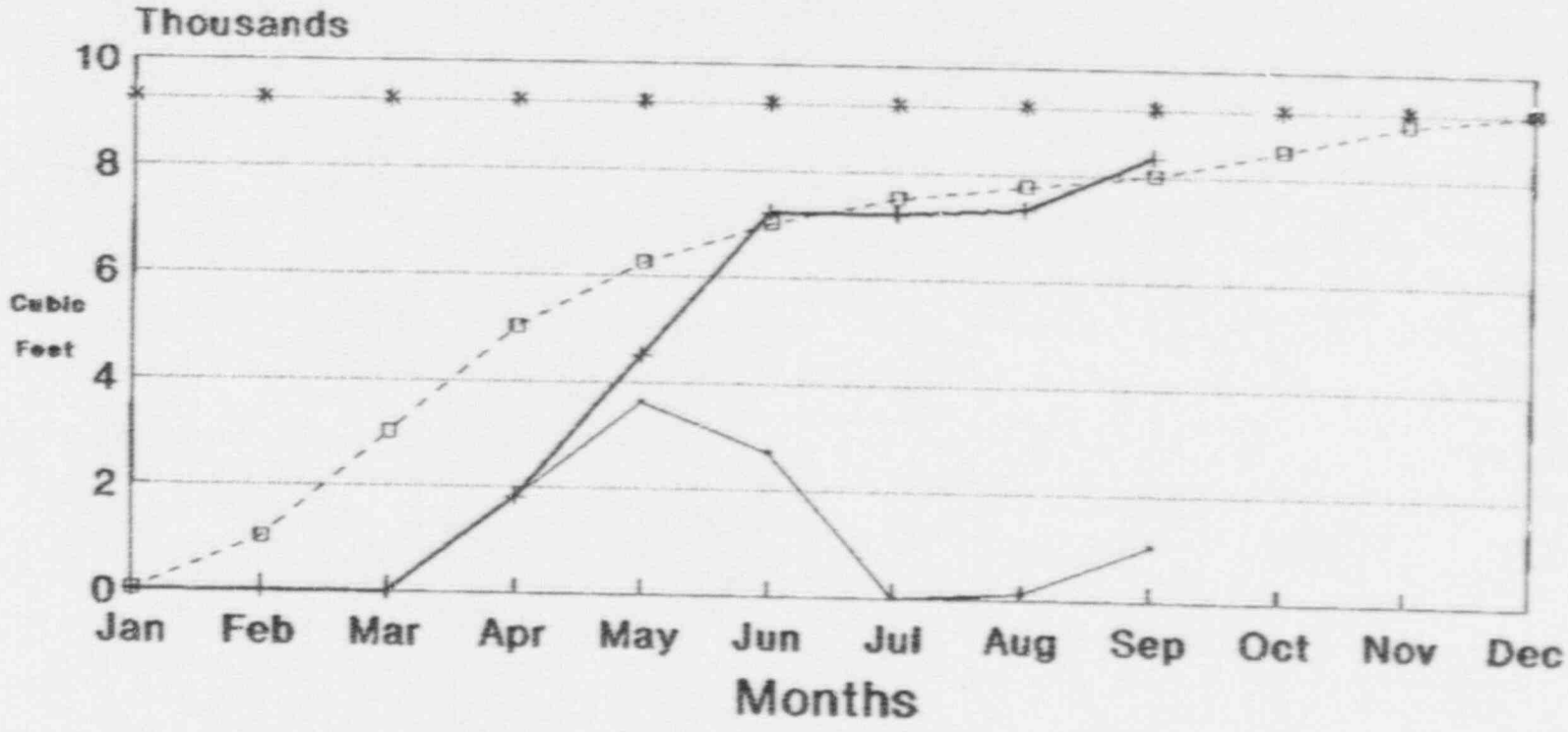
SLIDE35.CHT

INPO PERFORMANCE INDICATORS



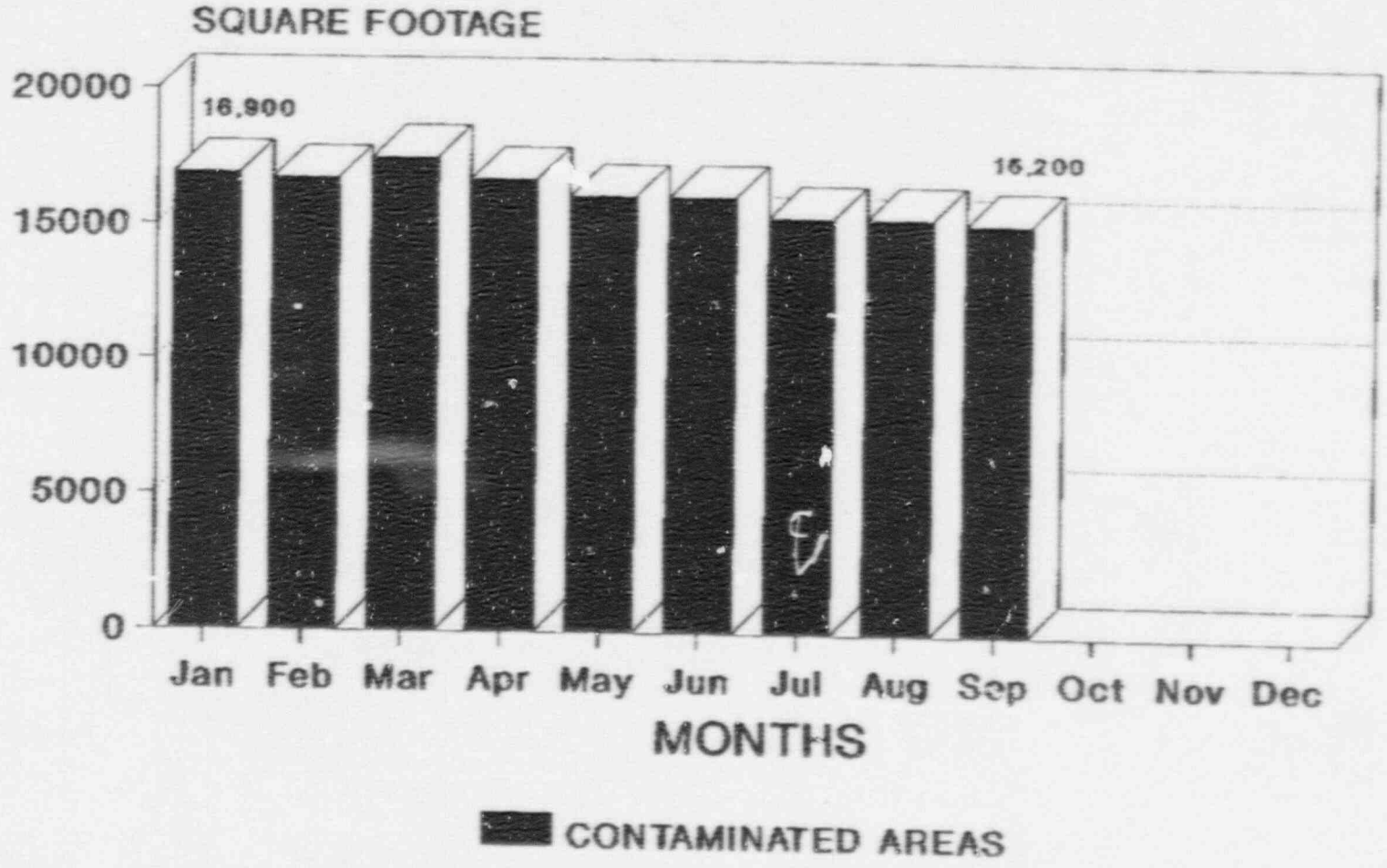
SLIDE36.CHT

1990 SOLID RADIOACTIVE WASTE
VOLUME SHIPPED



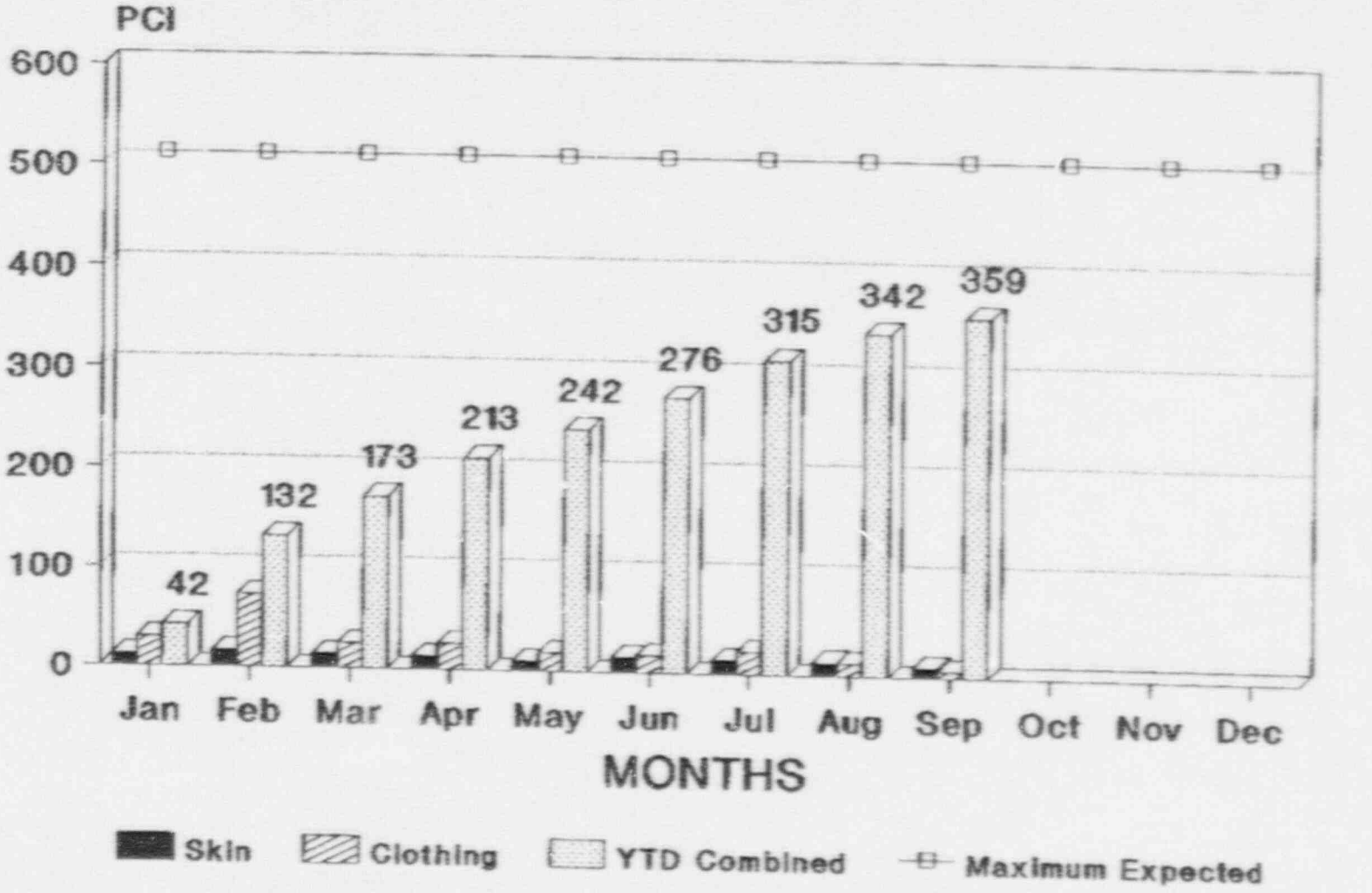
SLIDE37.CHT

UNIT 1 & 2 TOTAL CONTAMINATION
1990 PERFORMANCE INDICATOR



SLIDE38.CHT

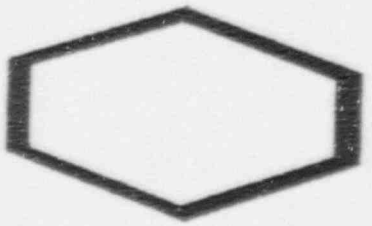
1990 PERSONNEL CONTAMINATION INCIDENTS



SLIDE39.CHT

SUMMARY

- PIP Emphasizes Self-Assessment importance
- We work hard at Self-Assessment
- Our Assessments are Valid
  - We can Recognize our Mistakes
  - We can Determine their Causes
- Our Corrective Measures are Effective
- Overall Postive Trend Continues



SLIDE40.CHT