

U. S. NUCLEAR REGULATORY COMMISSION

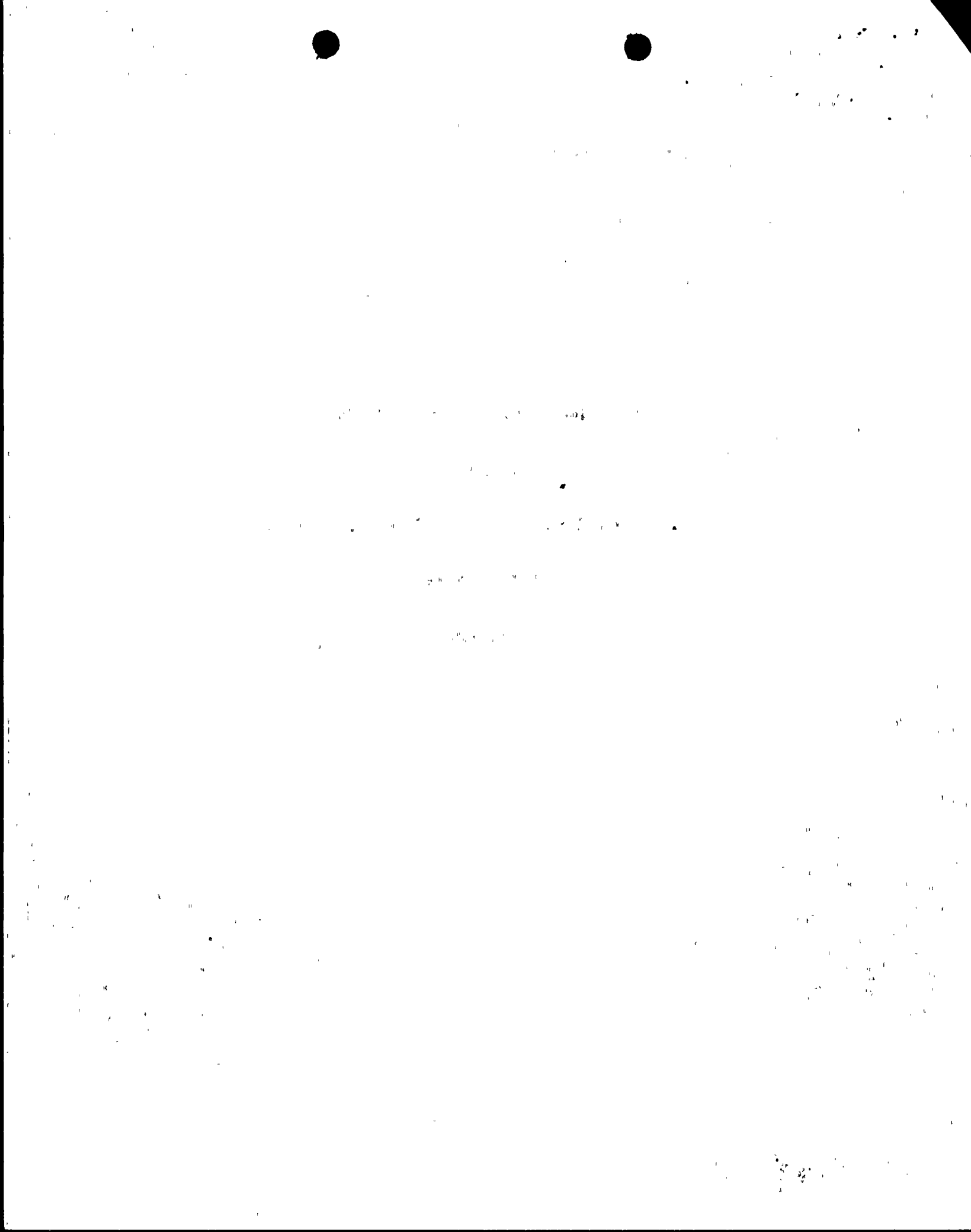
REGION V

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

PALO VERDE NUCLEAR GENERATING STATION

MAY 1984

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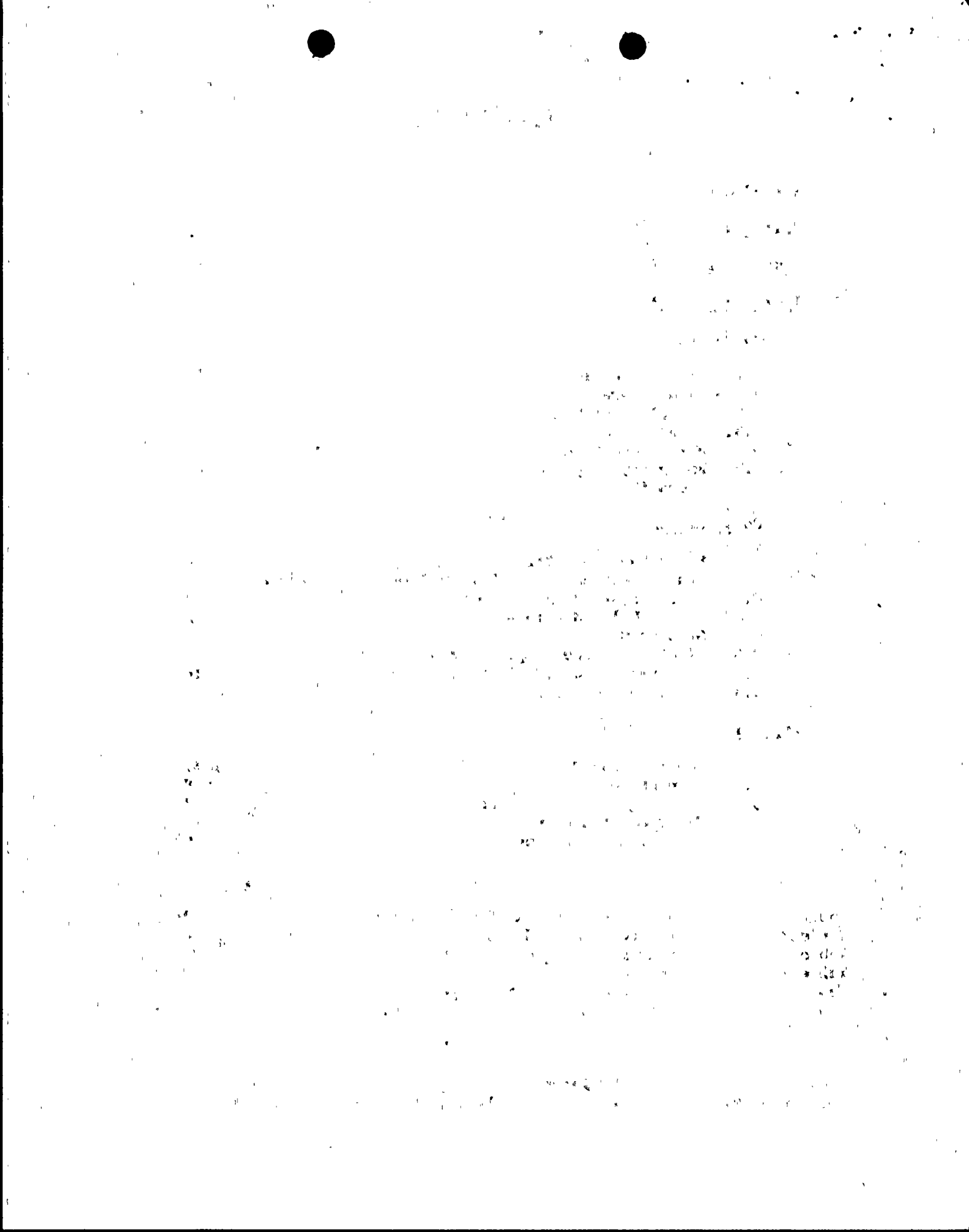
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### ENCLOSURES

Enclosure (1)	NRR SALP Input	
Enclosure (2)	OI letter dated April 13, 1984	Re: OI Investigations



## I. INTRODUCTION

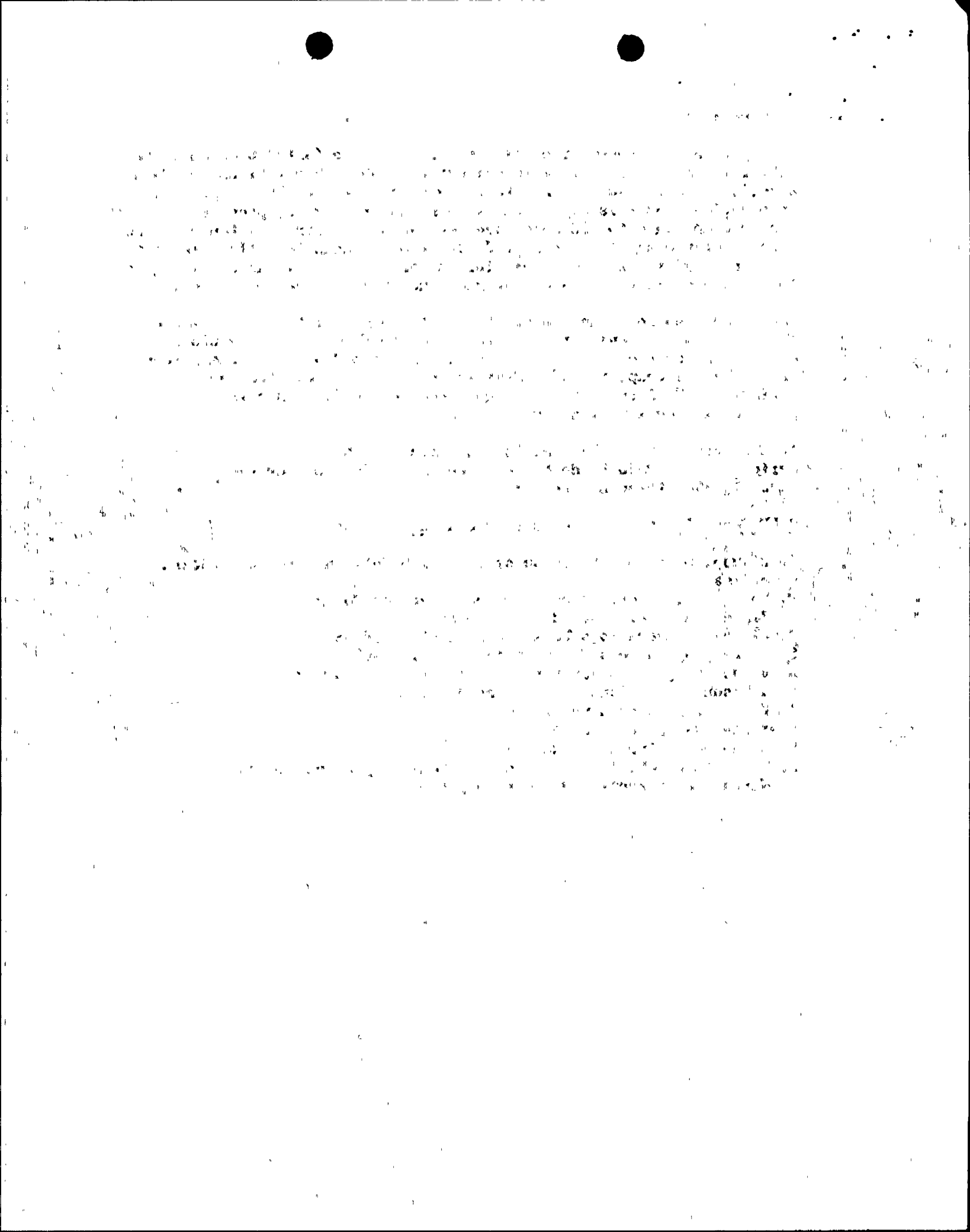
The Systematic Assessment of Licensee Performance (SALP) program is an integrated NRC staff effort to collect available observations and data on a periodic basis and to evaluate licensee performance based upon this information. SALP is supplemental to normal regulatory processes used to ensure compliance to NRC rules and regulations. SALP is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful guidance to the licensee's management to promote quality and safety of plant construction and operation.

An NRC SALP Board, composed of the staff members listed below, met on May 15, 1984, to review the collection of performance observations and data to assess the licensee performance in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance." A summary of the guidance and evaluation criteria is provided in Section II of this report.

This report is the SALP Board's assessment of the licensee's safety performance at Palo Verde Nuclear Generating Station for the period March 1, 1983 through March 31, 1984.

### SALP Board for Palo Verde Nuclear Generating Station

- T. Bishop, Director, Division of Reactor Safety and Projects (Board Chairman)
- T. Young Jr., Chief, Reactor Projects Section No. 2
- R. Zimmerman, Senior Resident Inspector
- G. Fiorelli, Operations Resident Inspector, PVNGS
- C. Bosted, Operations Resident Inspector, PVNGS
- L. Vorderbrueggen, Construction Resident Inspector, PVNGS
- P. Johnson, Operations Project Inspector, RV
- E. Licitra, Project Manager, NRR
- H. North, Radiation Specialist, Region V
- D. Schaefer, Safeguards, Region V
- L. Norderhaug, Chief, Safeguards and Emergency Preparedness
- P. Narbut, Construction Project Inspector, RV



## II. CRITERIA

Licensee performance is assessed in selected functional areas, depending whether the facility is in a construction, preoperational, or operating phase. Each functional area normally represents areas significant to nuclear safety and the environment, and are normal programmatic areas. Some functional areas may not be assessed because of little or no licensee activities or lack of meaningful observations. Special areas may be added to highlight significant observations.

One or more of the following evaluation criteria were used to assess each functional area.

1. Management involvement and control in assuring quality
2. Approach to resolution of technical issues from a safety standpoint
3. Responsiveness to NRC initiatives
4. Enforcement history
5. Reporting and analysis of reportable events
6. Staffing (including management)
7. Training effectiveness and qualification

However, the SALP Board is not limited to these criteria and others may have been used where appropriate.

Based upon the SALP Board assessment each functional area evaluated is classified into one of three performance categories. The definition of these performance categories is:

Category 1. Licensee management attention and involvement are aggressive and oriented toward nuclear safety; licensee resources are ample and effectively used so that a high level of performance with respect to operational safety or construction is being achieved.

Category 2. Licensee management attention and involvement are evident and are concerned with nuclear safety; licensee resources are adequate and are reasonably effective so that satisfactory performance with respect to operational safety or construction is being achieved.

Category 3. Both NRC and licensee attention should be increased. Licensee management attention or involvement is acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appear to be strained or not effectively used so that minimally satisfactory performance with respect to operational safety or construction is being achieved.

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### III. SUMMARY OF RESULTS

The Board finds the licensee's performance for this SALP period to have declined from the previous evaluation. This conclusion is reached based on the increased number and significance of the violations identified, the licensee's difficulty in readily identifying problems, and the lack of immediate and effective corrective action. These conditions indicate the need for improved management controls.

<u>Functional Area</u>	<u>Last Period</u>	<u>This Period</u>	<u>Trend</u>
<u>Operations</u>			
0.1.a. Startup Testing	2	3	Declined
0.1.b. Plant Operations	2	2	Same
0.2. Radiological Controls	1	2	Declined
0.3. Maintenance	2	2	Same
0.4. Fire Protection	NB*	NB	N/A
0.5. Emergency Preparedness	NB	1	N/A
0.6. Security and Safeguards	NB	2	N/A
<u>Construction</u>			
C.1. Soils and Foundations	1	1	Same
C.2. Containment and Other Safety Related Structures	1	2	Declined
C.3. Piping Systems and Supports	2	2	Same
C.4. Safety Related Components	1	2	Declined
C.5. Support Systems	2	3	Declined
C.6. Electrical Power Supply and Distribution	2	2	Same
C.7. Instrumentation and Control	2	1	Improved
C.8. Licensing Activities	1	2	Declined

\*NB = No Basis - N/A = Not Applicable

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1. The first part of the report deals with the general situation in the country. It is noted that the economy is in a state of depression and that the government is facing a serious financial crisis. The report also mentions that the population is suffering from widespread poverty and unemployment.

2. The second part of the report discusses the political situation. It is noted that the government is weak and that there is a lack of political stability. The report also mentions that there are several political parties and that the government is facing a serious challenge from the opposition.

3. The third part of the report deals with the social situation. It is noted that there is a high level of illiteracy and that the health care system is in a state of collapse. The report also mentions that there is a high level of crime and that the justice system is inefficient.

4. The fourth part of the report discusses the economic situation. It is noted that the economy is in a state of depression and that there is a high level of unemployment. The report also mentions that the government is facing a serious financial crisis and that there is a high level of inflation.

5. The fifth part of the report deals with the international situation. It is noted that the country is facing a serious international crisis and that there is a high level of international tension. The report also mentions that the country is facing a serious international challenge from the United States.

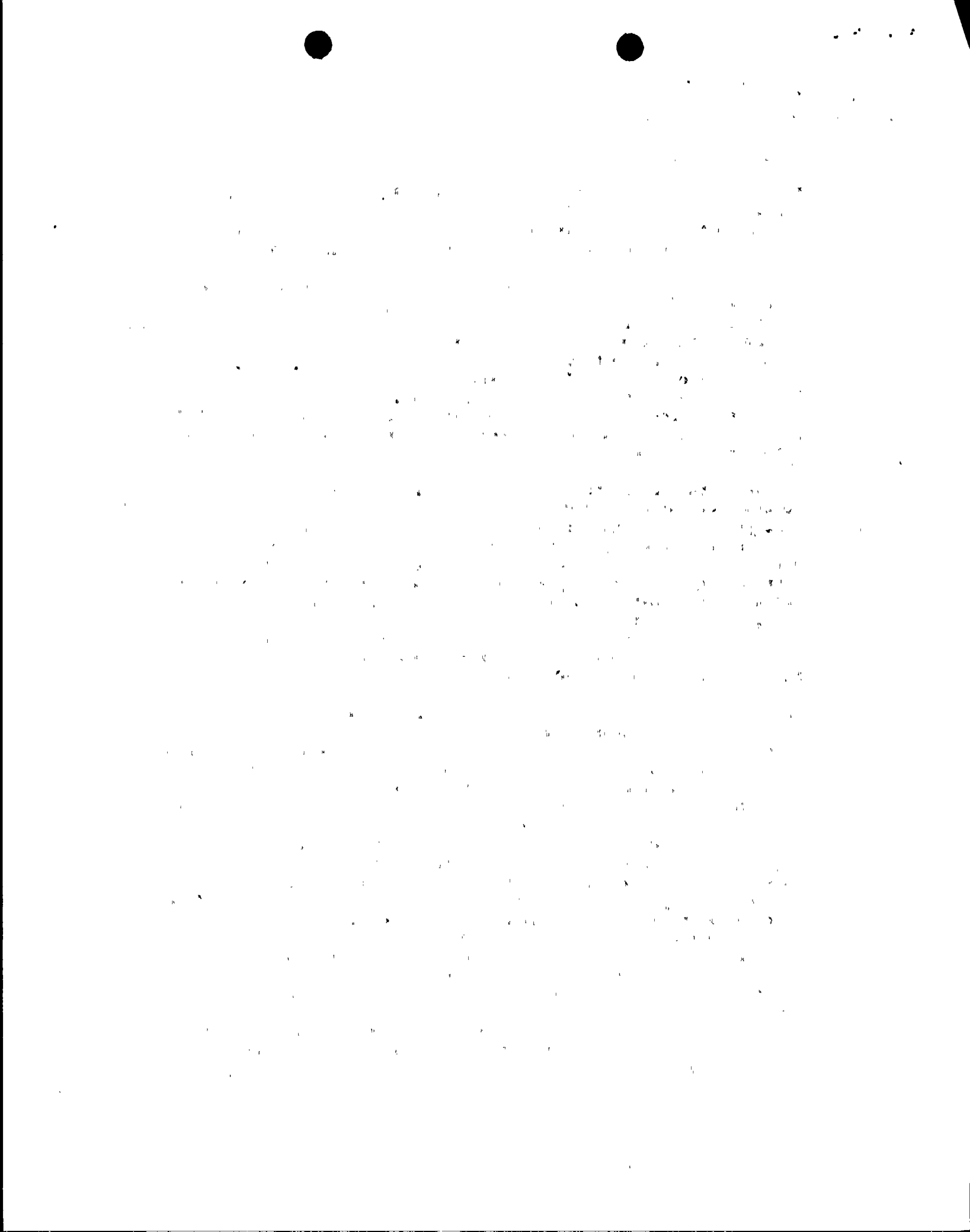
#### IV. Performance Analysis

##### 0.1.a Startup Testing

During this period approximately 1030 resident inspection hours were applied to the review and observation of prerequisite and preoperational testing activities in Units 1 and 2. These inspection activities identified four violations of NRC requirements, involving failure to complete proper prerequisite checks during prerequisite testing; improper housekeeping conditions; improper environmental controls for important equipment; and an improper steam generator valve alignment. The regional Construction Assessment Team (CAT) inspection conducted in September and October 1983 also identified one violation, partly related to preoperational test activities, for which a civil penalty was imposed. This violation involved inoperability of the two high pressure safety injection (HPSI) pump suction valves, installation of caps on the containment pressure sensing lines without controls to ensure their subsequent removal, and one matter related to construction activities, as noted in Section C.6.

Frequent changes in the licensee's organization and administrative controls during this SALP period continued to affect the stability of the test program. Several significant personnel and organizational structure changes have occurred, along with major changes in administrative control procedures governing the conduct of the test program. The number of changes required were in part the consequence of incomplete root cause analyses of problems experienced, which adversely affected communications and interface controls among organizational units involved with system completion and testing activities. These conditions were previously discussed and documented in the Plant Operations section of the previous SALP report, dated June 30, 1983.

In response to deficiencies revealed by the CAT inspection, problems identified by the startup QA/QC audit program, and APS management's interest in improving the quality and efficiency of the test program, all prerequisite and preoperational testing was temporarily suspended in November 1983. Problems prompting the suspension involved principally the control of equipment status and the quality of test documentation. A major reexamination of test documentation was conducted to give increased confidence to test results. Testing was resumed in a gradual way beginning in February 1984 after changes in organizational procedural controls had been implemented and a confirmation of the quality level of previously completed testing work had been established. More effective procedural controls and management attention earlier in the test program would have precluded the need for such an extensive test suspension and document review effort. However, the fact that they were imposed is considered to be indicative of an interest on the part of licensee management to ensure a properly documented test program. Continued improvement in these areas will still depend upon adequate management involvement, the stability of organization and program controls, implementation of established procedures, and effective communications among organizations.



In spite of the equipment control and documentation weaknesses discussed above, hot functional testing and other major preoperational tests were conducted in a controlled and effective manner. These tests and related controls were effective in confirming system performance and identifying required retesting.

### Conclusion

Performance assessment - Category 3. This represents a decline in the Category 2 rating (Plant Operations/Preoperational Testing) assigned for the previous SALP period.

### Board Recommendations

The Board recommends that the licensee consider minimizing further organizational and administrative control program changes during the balance of the test program, and that additional emphasis be placed on improved communications, more thorough understanding and implementation of existing programs, and the execution of more thorough analysis of the root causes of problems so that more effective resolutions can be implemented.

### 0.1.b. Plant Operations

A total of 149 inspection hours were applied to operations activities during four region-based inspections. These inspections involved examination of the licensee's preparations for plant operation, such as issuance of operations phase programs and procedures, establishment of management controls, and operational staffing and training. No violations were identified.

The licensee's process for preparing, reviewing, and issuing plant procedures was finalized early in the SALP period, although a deviation was cited because the governing administrative procedure was issued after the date committed to by the licensee. The licensee has been applying considerable effort toward the development of plant operating procedures and programs. The limited inspection observations to date indicate the licensee to be taking a responsible and deliberate approach in these preparations for plant operation. Management has been involved in plant operations activities and has demonstrated a positive attitude toward nuclear safety in the provision of personnel, resources, and facilities. All key positions in the plant staff organization needed for Unit 1 operation have been filled.

The licensee has been utilizing an on-site plant-specific simulator in the training of licensed operators, and a sizeable training staff has been provided. Licensed operator examination results and a special inspection late in this SALP period indicated a need for licensee actions to improve the training and pre-exam screening of operator license candidates.

THE UNIVERSITY OF CHICAGO  
DIVISION OF THE PHYSICAL SCIENCES  
DEPARTMENT OF CHEMISTRY

REPORT OF THE  
COMMISSION ON THE ORGANIZATION  
OF THE DEPARTMENT OF CHEMISTRY

FOR THE YEAR 1964-1965  
BY  
THE COMMISSION ON THE ORGANIZATION  
OF THE DEPARTMENT OF CHEMISTRY

CHICAGO, ILLINOIS  
1965

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## Conclusion

Performance Assessment - Category 2. This is the same rating as was applied in the last SALP evaluation for the combined Operations/Preoperation Test functional area.

## Board Recommendations

The licensee should continue preparation of programs and procedures for plant operation. Actions to improve the licensed operator training program should be finalized and implemented.

## 0.2 Radiological Controls

A total of 385 manhours were expended in the functional area; 364 on Unit 1 and 21 on Unit 2. Strong policy statements issued by management in the areas of Radiation Exposure (ALARA), Radioactive Waste, Respiratory Protection and Health Physics demonstrate a clear intent to assure quality in the radiological controls area.

Resolution of technical concerns identified during inspections required the issuance of deviations, from a Standard and Regulatory Guide, concerning the adequacy of the fuel building isokinetic sampling system and demonstration of the quality of samples collected from various gaseous effluent release pathways. In addition, the NRC requested the licensee to reassess the design of the high range noble gas monitors as a result of vendor and industry-identified detector energy dependence problems. The above matters had been previously identified to the licensee and further NRC action was necessary to elicit an appropriate response. In these limited areas the licensee did not demonstrate an aggressive response to NRC initiatives or to the resolution of technical issues from a safety standpoint.

No violations or reportable events were identified in this functional area. Previously identified deviations of radwaste system equipment from the FSAR descriptions were satisfactorily resolved during the SALP period.

A licensee-imposed hiring freeze and delay in approval of a revised Radiation Protection and Chemistry Organization and Staffing Plan presented the potential for an inability to meet proposed staffing and training requirements in this area by the proposed fuel load date. Management indicated shortly before the close of the SALP period, that additional attention would be given to the resolution of these concerns.

An ALARA program has been documented in procedures and implemented. Principal ALARA efforts have been directed to facility and design change package reviews. High-visibility equipment and component labels and a system of photographs were being prepared to minimize personnel exposure through job planning and prompt equipment identification.

Radiation worker and site access training is well advanced. Annual retraining in these areas has begun.

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Conclusion:

Performance Assessment - Category 2. This is a decline in the rating from that given in the previous SALP assessment.

Board Recommendations:

In view of the identified deviations and the delay in the preoperational test program APS should be sensitive to industry experience in the radiological controls areas and take appropriate measures to avoid similiar problems.

In reference to industry experience, the NRC has noted at other NTOL facilities that several licensees have not completed the preoperational test program for effluent monitoring, waste treatment and TMI action items in a timely fashion (in addition, failure to meet commitments in these areas has been frequently identified.)

0.3 Maintenance:

NRC review of the licensee's maintenance program was conducted utilizing approximately 80 inspection hours. No violations of NRC requirements were identified.

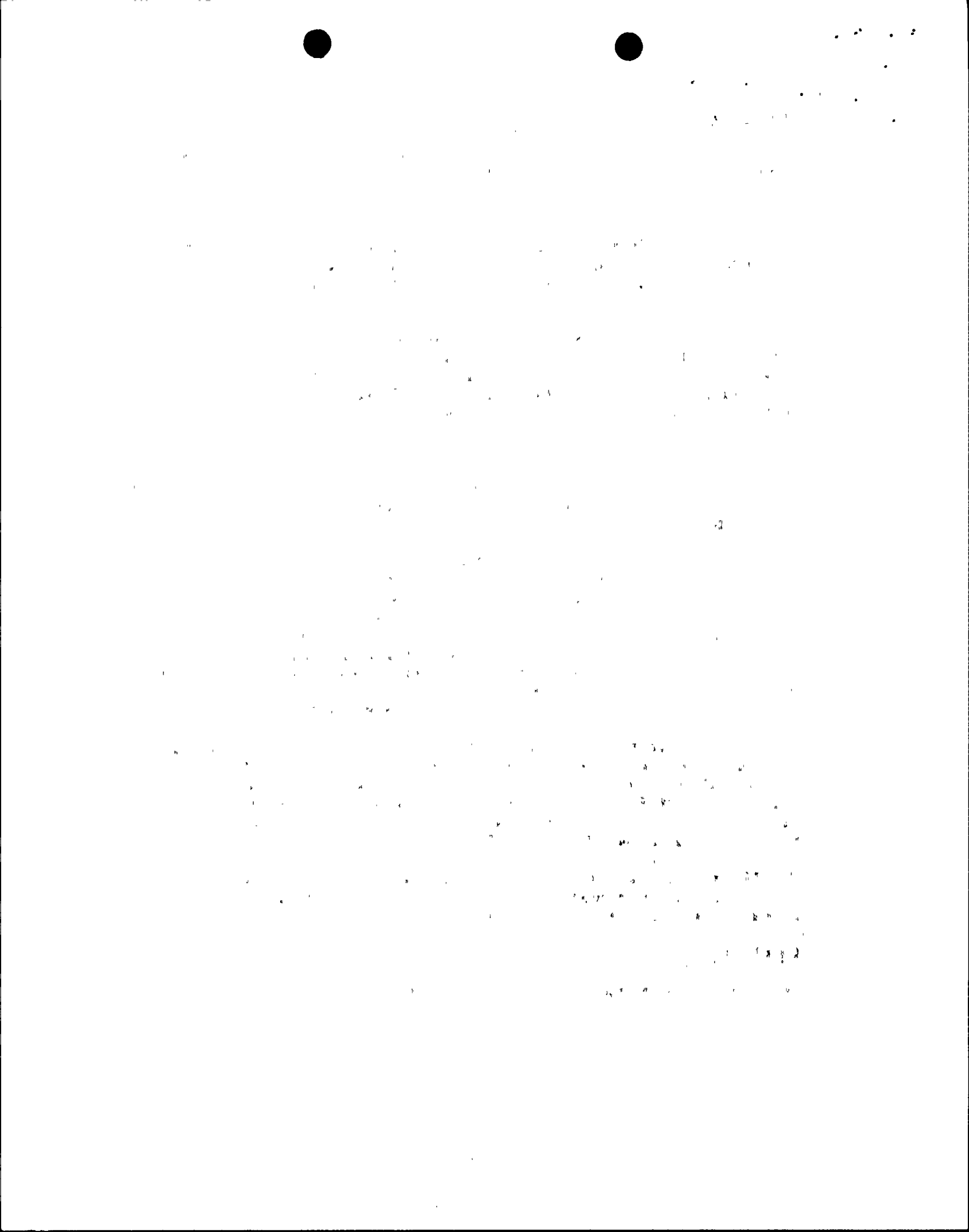
For a time, work associated with the conduct of testing was performed under two programs which prescribed different controls. This appeared to create confusion among some of the staff and had a negative effect on the licensee's ability to control work effectively. Problems identified by APS QA/QC reviews included several cases where electrical termination work was directed by uncertified individuals and numerous cases where the completion of work documentation was insufficient to close out the work activity. APS has initiated improved controls and retraining to improve the effectiveness of the maintenance control program.

Reviews of preventive maintenance (PM) activities indicated that APS maintenance was experiencing difficulties in carrying out the PM program for both Units 1 and 2. This matter was resolved by having Bechtel maintenance retain responsibility for the PM program requirements even after systems were released to APS. This plan will provide PM continuity until APS can assume the responsibility.

The licensee has installed an innovative maintenance control program utilizing a 24-hour computer-assisted maintenance control center. A sizeable maintenance staff has also been provided.

Conclusion:

Performance Assesement - Category 2. This is the same rating as was assigned to this area for the previous SALP period.



### Board Recommendations:

Continue implementation of maintenance program controls. The Board recommends that the licensee give priority attention to confirming that the recently instituted actions are effective in eliminating previously identified work control problems.

### 0.4 Fire Protection

#### Analysis:

The licensee's fire protection planning, QA and portions of completed fire protection features were examined during one inspection (35 inspector hours) by a fire protection specialist. No violations or significant issues were identified. Additional inspection remains to be conducted in this area before fuel load. (Note: Section C.5 of this report discusses construction related aspects of the fire protection system).

#### Conclusion:

Performance Assessment - none. This area was not rated due to limited inspection in this functional area.

#### Board Recommendation:

None

### 0.5 Emergency Preparedness

A preoperational inspection of the emergency preparedness program was conducted and the licensee's initial full-scale emergency preparedness exercise was observed during the assessment period. A follow-up inspection was also performed during this period. These inspections involved a detailed review of licensee management of emergency preparedness, emergency organization, training and retraining, emergency facilities and equipment, dose assessment and assessment facilities, emergency plan implementing procedures, offsite coordination, drills and exercises. No significant deficiencies, or violations of NRC requirements were identified. In February 1983, licensee management established an Emergency Planning Task Force to upgrade the emergency planning program and make recommendations for a permanent organization for emergency planning and preparedness. The follow-up inspection determined that the licensee had reduced the open items from thirty-four to fourteen. Nine of the remaining open items are associated with equipment and instrumentation that still need to be installed or operationally tested. One open item has recently been closed by a Reactor Radiation Protection Section inspection. The remaining four items relate to preparation of procedures, personnel augmentation, and training. The follow-up inspection and contacts with the licensee's staff since the initial inspection have shown the licensee to demonstrate aggressive management involvement and to be responsive to NRC requirements.



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Conclusion:

Performance Assessment - Category 1. This is the first evaluation rating given in this functional area.

Board Recommendation:

The licensee should complete the open items commensurate with the schedule for licensing the plant.

0.6 Security And Safeguards

From March 1, 1983 through March 31, 1984, Region V conducted two Safeguards Inspections at Palo Verde Unit 1 for a total of 95 hours of inspection effort. Most of this inspection effort was in the Material Control and Accounting area. No violations were identified. All of this inspection effort was routine inspection activity.

Material Control and Accounting inspection effort during this SALP period noted that Palo Verde's procedure for non-fuel special nuclear material receipts needed modification regarding startup fission sources. Fuel accountability records were on hand, but had not yet been entered into the computer record as required by the licensee's procedure. The licensee's responsiveness to NRC initiatives was acceptable and their staffing appeared to be adequate.

Physical Security inspection effort during this SALP period was directed only against the licensee's Docket 70-2949 authorizing on-site fuel storage. Further physical security inspections will be conducted 30 to 90 days prior to the loading of fuel into the reactor.

Conclusion:

Performance Assessment - Category 2. This is the first SALP period in which this functional area was assessed.

Board Recommendations:

The Board recommends licensee diligence in implementing the security and safeguards program for operations.



## C.1 Soils and Foundations

### 1. Analysis

One inspection was conducted in the area of soil compaction controls. The inspection determined that there was adequate management involvement in assuring quality, that staffing was satisfactory and that personnel were adequately trained and qualified. No violations or reportable items were identified in this functional area. No trends were identified in this area due to insufficient data since soils and foundation work is complete. There was one allegation in this area dealing with the licensee's technical evaluation of voiding under the Unit 1 and 2 Auxiliary Buildings (from a temporary water line failure). The resolution of this allegation is currently open.

### 2. Conclusion

Performance assessment-Category 1. This is the same rating as was given during the previous SALP cycle.

### 3. Recommended Action

None.

## C.2 Containment and Other Safety Related Structures

### 1. Analysis

This functional area was examined in three routine inspections and in the regional CAT inspection. Additionally the area of containment post tensioning was the subject of allegations inspections. Two violations were identified during the CAT team inspection regarding loose structural bolting and undersize welds. Although these have thus far proved to be not technically significant, the apparent QC weakness was considered significant when considered in total with similar findings in other functional areas. Likewise, the results of the allegation investigations were not technically significant but did show weaknesses in craft training records for the contractor involved. The licensee's reportable construction deficiencies in this area dealt with a concrete void and defective anchor bolts. The licensee's actions and reporting were considered to be detailed and thorough.

Therefore, although the licensee's analysis of reportable events and their approach to the resolution of technical issues is considered good, the management system for assuring quality particularly in QC effectiveness appears to have declined.



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## 2. Conclusion

Performance assessment - Category 2 - This represents a decline in performance from the Category 1 assigned during the previous SALP period.

## 3. Board Recommendation

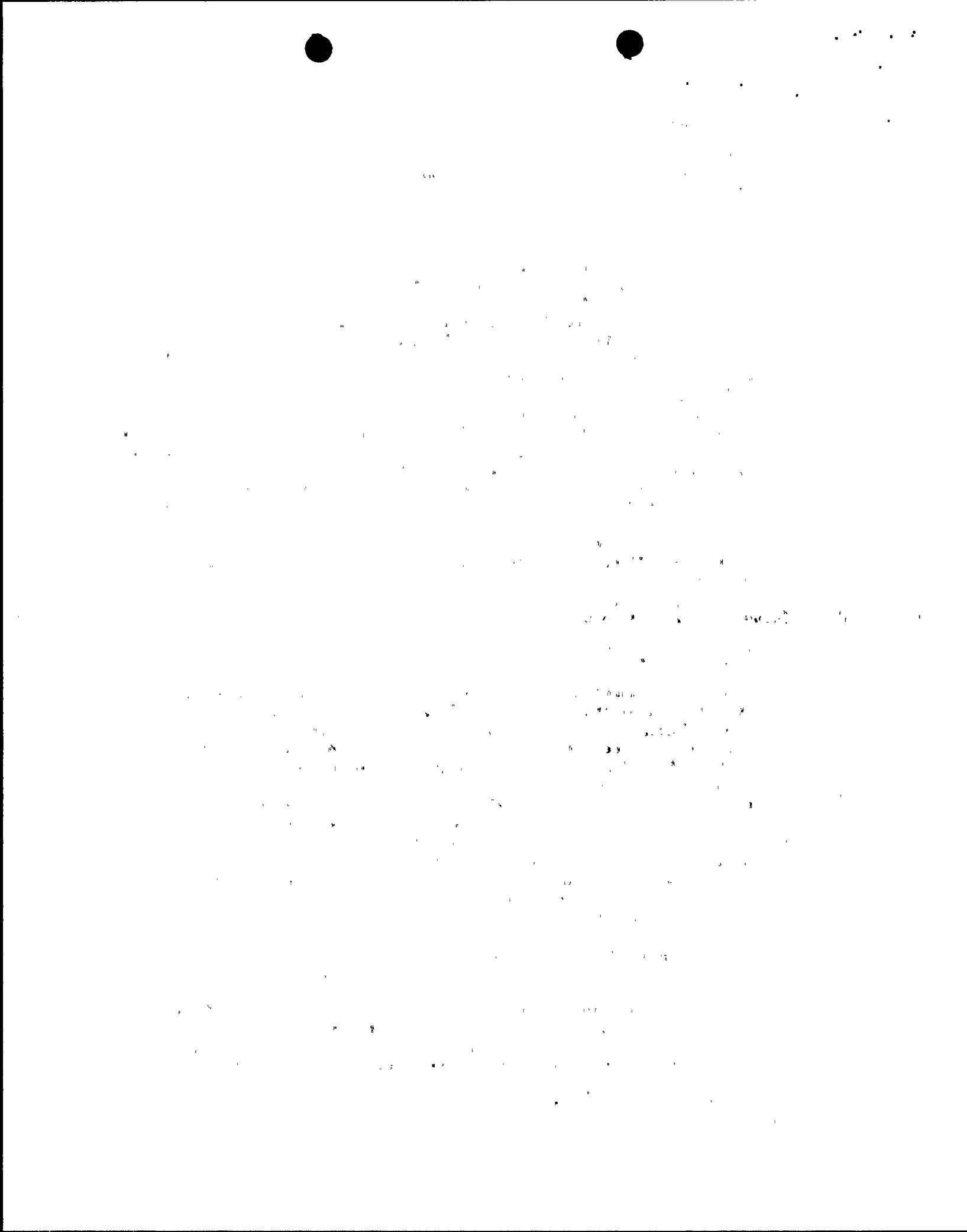
Licensee management should consider action to improve effectiveness of final QC inspections in this functional area. The management examination should consider identifying and correcting underlying causes, since the need for improvement of final QC inspections is not limited to this one area. The issue is repeated in the functional areas of piping, pipe supports, support systems and electrical. It would appear that the system of Quality checks and balances warrents assessment. For example, the licensee should consider an examination of the information available for management decisions regarding adequacy of craft work when it is submitted for QC inspection. Currently the licensee does not trend QC identified craft rework items. Another example would be assessing the adequacy of the management information provided by QA audits which, in the area of HVAC supports (discussed in C.5 below), failed to identify hardware deficiencies which were later found by the NRC. This is particularly noteworthy since the NRC, in the last SALP cycle had cautioned APS that "the HVAC installation is one of the few activities not given an in-depth surveillance".

## C.3 Piping System's and Supports

### 1. Analysis

Piping and supports were examined in three routine inspections and two allegation inspections. Additionally, piping and supports examinations constituted a major portion of the regional CAT inspection. The regional CAT inspection identified five violations in this functional area, four dealing with supports and one related to piping. Through engineering analysis, the licensee was able to demonstrate that the five violations were not of major technical significance. However, the problems demonstrated the common problem of a lack of fully effective final inspection by QC personnel. Additionally, the problems with pipe supports were a repeat issue. Similar pipe support problems had been identified in a 1979 violation and were the subject of a 1980 licensee report. Corrective action taken at that time was apparently ineffective. Eight reportable construction deficiency reports were made during the SALP period. Five of these were vendor related problems and three were a result of field personnel actions.

The two allegations dealt with excessive cold springing of pipe by craft and corrosion of buried piping. The initial licensee actions regarding excessive cold springing were found to be weak in that actions for retraining of craft were not included. The licensee action regarding pipe corrosion was extensive in non-safety areas but lacked definition regarding safety related piping.



The licensee's performance in this functional area has been mixed. For example the licensee responsiveness to the CAT inspection findings in this area were timely and comprehensive whereas the response to the corrosion issue has been slow in coming. The enforcement history is essentially unchanged with the same number of violations during this SALP period as the past. Management's attention to training and qualification effectiveness appears to have reduced as evidenced by the lack of fully effective pipe support QC inspection and the lack of fully effective management action to ensure craft training in pipe cold springing.

2. Conclusion

Performance Assessment - Category 2. This is the same performance rating as that applied in the last SALP evaluation period.

3. Board Recommendation

Licensee management should ensure that corrective action taken in response to identified problems is comprehensive, timely and effective. While this appears to have been done for the CAT findings, performance is not consistent in this functional area. Licensee actions regarding QC effectiveness were included in the Board recommendation for area C.2.

C.4 Safety Related Components

1. Analysis

This functional area was examined in six inspections and the regional CAT inspection. The CAT inspection identified significant problems related to the control of component work after construction. These have been discussed in section 0.1.a. of this report (startup testing). The regional CAT inspection also identified a violation dealing with loose bonnet studs which also reflects more on startup and operations work controls. One violation was identified as a result of an allegation. The violation dealt with an unqualified QC inspector performing acceptance inspections on rotating equipment. This was considered particularly significant in that at least first line QC supervision gave complicit approval to the practice due to the perceived desires of management. It is also significant that the improper actions occurred just after a similar finding by the Torrey Pines Technology audit in 1982.

The licensee had four reportable deficiencies in this functional area, three of which dealt with significant deficiencies in CE supplied hardware (the RCP's, SG's, and LPSI pump). The licensee's actions to resolve the technical aspects of these problems appeared comprehensive and timely. The licensee's QA overview of CE site work appeared to be comprehensive including staffing for three shift coverage for critical work.

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The licensee's performance in this functional area for construction activities is mixed. Managements involvement in the major component repair resulting from hot functional testing problems was evident, however the effectiveness of training and qualification shows a weakness in resolution of a problem identified to management by Torrey Pines.

2. Conclusion

Performance assessment - Category 2. This represents a decline in the rating which was Category 1, in the previous SALP cycle.

3. Board Recommendation

Greater licensee attention should be given to the APS/CE interface including offsite activities to identify the underlying problems that have led to the reportable deficiencies. Aggressive management action should be taken to ensure a proper and stringent adherence to QC qualification requirements.

C.5 Support Systems

1. Analysis

One inspection was conducted in this area during the period, in the construction areas of fire protection piping seismic qualifications and HVAC systems. Note: The fire protection inspection discussed in this section deals only with construction issues. See Section 0.4 of this report for fire protection planning, features and QA.

The inspection resulted in one violation regarding HVAC supports improperly accepted by QC and one deviation regarding duct sealant not being environmentally qualified and being used in an unauthorized manner. The licensee's response to these violations was not considered sufficiently comprehensive in the scope of corrective action. For example the proposed action did not seek to identify whether other unauthorized work had occurred in HVAC systems.

The licensee had one reportable deficiency in this area which dealt with non-safety HVAC instruments installed in safety applications. This particular reportable deficiency was discussed in the last SALP, even though it had not been determined to be reportable at that time, because of the NRC's concern regarding the licensee's overview of subcontracted work. The NRC expressed a specific concern regarding the licensee's overview of subcontractor work at that last SALP.



During this SALP cycle the licensee had performed subcontractor audits in the area of HVAC and fire protection piping. The fire protection audit revealed significant problems and appeared to be conducted in depth. The HVAC audits did not reveal the items found later by the NRC inspection. Recently the HVAC subcontractor identified significant problems with the engineering specification changes made by the A/E during the installation of HVAC. Specifically, the engineering approved deviations from the original specifications provided excessive latitude for installation tolerances and those deviations now have to be reevaluated and in part reworked.

Regarding the fire protection subcontractor, licensee letters and corrective action reports show repeated difficulties in having nonconforming conditions identified and documented by the subcontractor craft or the Bechtel QC involved. Recent licensee audits of this subcontractor showed that work was not installed to the engineered requirements.

Although the licensee has shown an increased attention to support system subcontractors in response to NRC initiatives, the effectiveness of the increased attention was mixed.

The recent licensee response to the HVAC violation appeared to be lacking in depth. The licensee's actions, in response to the last SALP's suggestion to increase attention to subcontractor work, did not prove to be sufficiently effective. The training and qualification effectiveness of the HVAC craft and QC has apparently not been fully effective. The fire protection audits appeared to have been performed in depth, however insufficient time has passed to assess the effectiveness of the corrective actions being taken.

## 2. Conclusion

Performance assessment - Category 3. This represents a decline from the last SALP evaluation of Category 2.

## 3. Board Recommendation

The licensee should increase management attention to subcontracted work and ensure that identified issues such as nonconformance reporting and engineering changes are properly performed.

The licensee actions regarding QC, final inspection effectiveness are discussed in Section C.2 of this SALP report.

## C.6 Electrical Power Supply and Distribution

### 1. Analysis

This area was examined in four routine inspections. The area was also examined in conjunction with seven followup inspections of allegations originally received in 1982. Additionally, a major portion of the regional CAT inspection was devoted to this area.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for ensuring the integrity of the financial statements and for providing a clear audit trail. The text also mentions that proper record-keeping is essential for identifying trends and anomalies in the data.

2. The second part of the document focuses on the role of internal controls in preventing fraud and errors. It highlights that a strong internal control system is necessary to ensure that all transactions are properly authorized and recorded. The text also notes that internal controls should be regularly reviewed and updated to reflect changes in the business environment.

3. The third part of the document discusses the importance of transparency and communication in financial reporting. It states that clear and concise reporting is essential for providing stakeholders with the information they need to make informed decisions. The text also mentions that transparency is a key factor in building trust and confidence in the organization.

4. The fourth part of the document addresses the challenges of financial reporting in a complex and rapidly changing business environment. It notes that organizations must stay up-to-date on the latest accounting standards and regulations to ensure compliance. The text also mentions that effective communication and collaboration between departments are essential for overcoming these challenges.

5. The fifth part of the document discusses the importance of ethical considerations in financial reporting. It states that organizations have a responsibility to provide accurate and honest information to their stakeholders. The text also mentions that ethical behavior is essential for maintaining the integrity of the financial reporting process.

6. The sixth part of the document focuses on the role of technology in financial reporting. It notes that the use of advanced software and tools can help organizations streamline their reporting processes and improve the accuracy of their data. The text also mentions that technology can help organizations identify and prevent fraud and errors more effectively.

7. The seventh part of the document discusses the importance of continuous improvement in financial reporting. It states that organizations should regularly review and evaluate their reporting processes to identify areas for improvement. The text also mentions that ongoing training and education for staff are essential for ensuring the highest quality of reporting.

8. The eighth part of the document concludes by emphasizing the overall importance of financial reporting in the success of an organization. It states that accurate and transparent reporting is essential for providing stakeholders with the information they need to make informed decisions. The text also mentions that strong financial reporting is a key factor in building trust and confidence in the organization.



There is a potential civil penalty violation regarding improper signing of termination cards which is held up from further action pending a release from the Department of Justice. The inspections identified three violations dealing with unsupported cables, exceeding minimum bend radius of cables, and improper storage of a motor control center. The regional CAT inspection identified five additional violations dealing with cable tray fill requirements, cable separation, tray and conduit marking and improper conduit supports. The CAT inspection also identified a more potentially significant finding regarding motor control cabinet seismic bolting, which was one of four examples in the violation for which a civil penalty was proposed (see Section 0.1.a. of this report for further discussion).

The licensee submitted seven reportable deficiencies in this area. Five were vendor related and two were field work related.

The regional construction assessment team found the basic construction to be generally satisfactory and that the majority of identified deficiencies were minor in nature. Although the CAT inspection findings did not prove to be of major technical significance the findings indicated a lack of adequate final QC inspections.

Additionally an analysis of factors contributing to the violations identified by the other NRC inspections revealed additional areas of concern:

The underlying cause of the violation regarding exceeding minimum cable bending radius was that the QC inspectors (and craft) verifying radius requirements were not supplied with suitable measuring devices even though they had requested such devices. This indicates a lack of QC support.

The pending civil penalty violation regarding improper signing of termination cards indicates a lack of understanding of QC precepts by certain craft and their supervision.

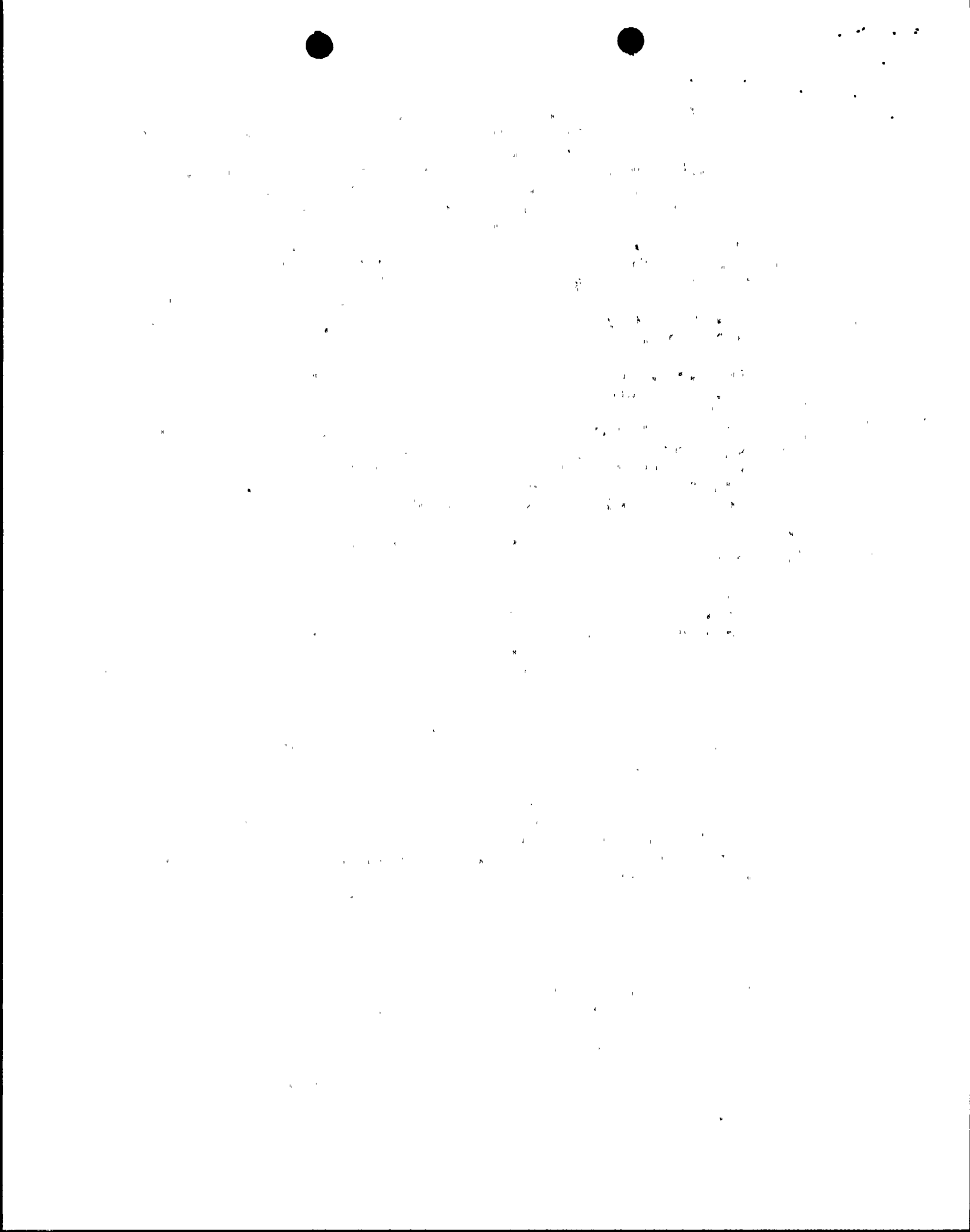
The issues regarding improper verification of termination cards and improper bending radius indicate a need to improve performance in training and qualification effectiveness. They also indicate that greater management involvement in assuring quality is required. The violations identified have not been of significant technical concern and the overall impression of achieved construction quality is adequate.

## 2. Conclusion

Performance assessment - Category 2. This is the same rating as was applied in the last SALP evaluation.

## 3. Board Recommendation

The licensee should take aggressive action to ensure that QA precepts are understood and practiced by craft, supervision and the QC organization.



The actions regarding QC final inspection adequacy are addressed in Section C.2 of this report.

### C.7 Instrumentation and Controls

#### 1. Analysis

This area was examined in one routine inspection and was extensively examined in the regional CAT inspection.

No violations were identified which are attributable to construction. The violation regarding containment pressure sensing lines being capped was previously discussed in Section 0.1.a of this report (startup testing) and is considered a post-construction work controls issue.

The licensee submitted twelve reportable deficiencies during the period. Five were wiring errors by vendors and were discovered by the licensee's aggressive program checking for vendor wire separation and crimping problems. Four of the items were discovered during through the normal process of test checkout. The remaining three were discovered as a result of engineering reviews.

Management demonstrated aggressive action in assuring quality as demonstrated by their programs success in identifying vendor wiring problems.

#### 2. Conclusion

Performance assessment - Category 1. This represents an improved rating from the previous SALP rating of Category 2.

#### 3. Board Recommendation

The licensee should maintain an aggressive program of overview of the vendor products and onsite work.

### C.8 Licensing Activities

#### 1. Analysis

See Enclosure (1), NRR SALP Input.

#### 2. Conclusion

Performance assessment - Category 2. This represents a decline from the rating in the previous SALP of Category 1.

#### 3. Board Recommendation

The licensee should apply more management attention to the remaining licensing issues so that responses are timely and sound.

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V. SUPPORTING DATA AND SUMMARIES

A. Licensee Activities

The following major construction/operations activities were performed during the appraisal period:

Unit 1

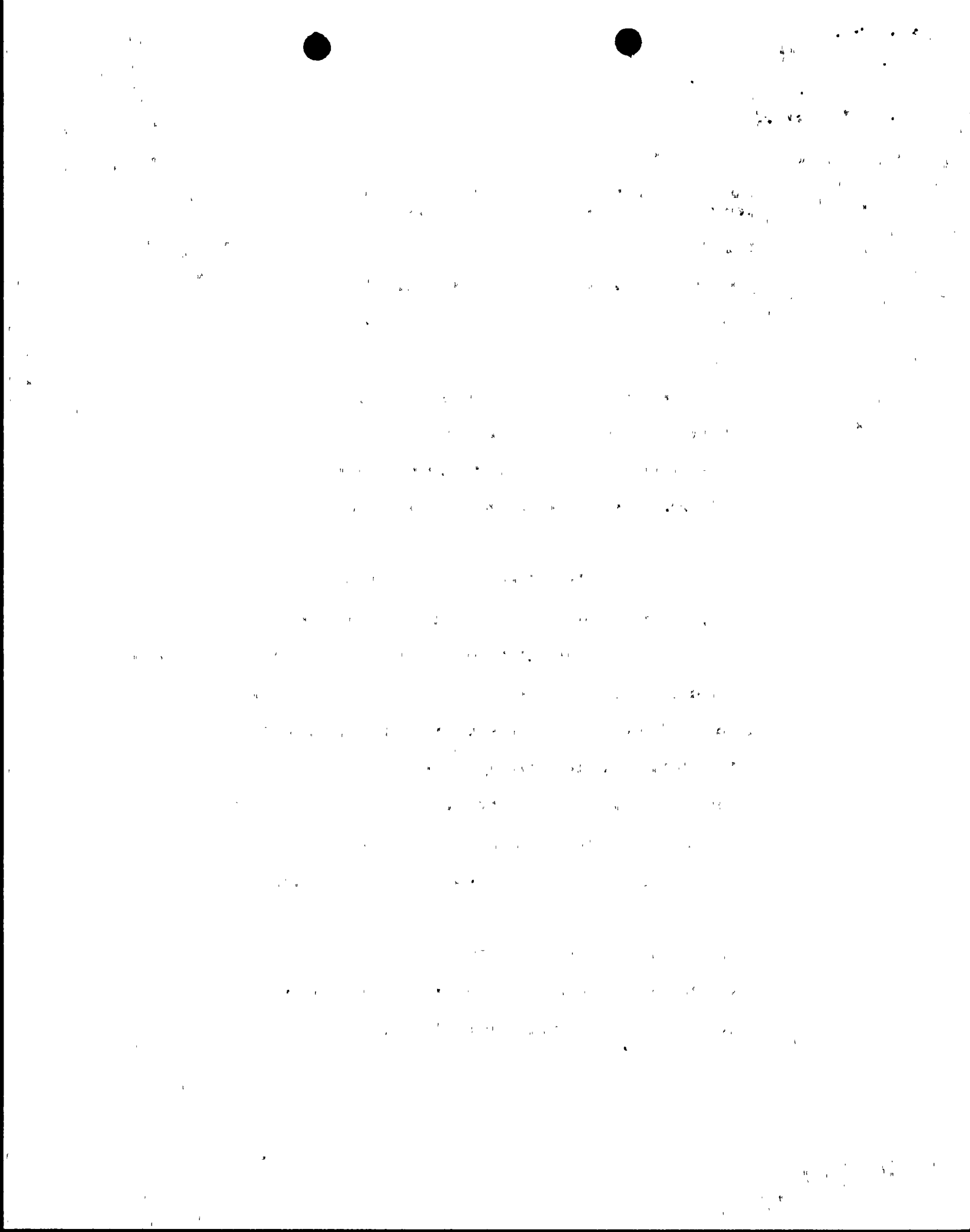
- . Completion of Hot Functional Test (HFT)
- . Analysis of RCS Component Damage During HFT
- . Thermal Sleeve Removal from RCS Safety Injection Lines
- . Thermowell Nozzle Replacement in RCS Piping
- . Reactor Coolant Pump 1A Girth Weld Repair
- . Reactor Vessel Upper Guide Structure Modification
- . LPSI Pump Testing and Drive Motor Replacement

Unit 2

- . Installation of Fuel Storage Racks in Fuel Building
- . Completion of Containment Post-tensioning System
- . Essential Completion of Piping and Electrical Cable Installation
- . Completion of ASME Section III Preservice Examinations
- . Continuing System Turnover for Prerequisite Testing
- . System Flushing for Cold Hydrotesting
- . Thermal Sleeve Removal from RCS Safety Injection Lines
- . Thermowell Nozzle Replacement in RCS Piping
- . Reactor Vessel Upper Guide Structure Modification

Unit 3

- . Completion of Containment Structure
- . Completion of Containment Post-tensioning System
- . Completion of RCS Piping Installation



- . Commencement of ASME Preservice Examinations
- . Completion of Spray Pond
- . Continuing Piping and Electrical Cable Installation
- . Commencement of Reactor Vessel Internals Installation
- . Completion of Cooling Tower Erection
- . Continuing Erection of Safety Related Water Storage Tanks
- . Commencement of System Turnover for Prerequisite Testing

Construction Completion Progress

<u>Date</u>	<u>Unit 1</u>	<u>Unit 2</u>	<u>Unit 3</u>
February 28, 1983	99%	95%	56%
March 31, 1984	99.6%	95.1%	89.4%

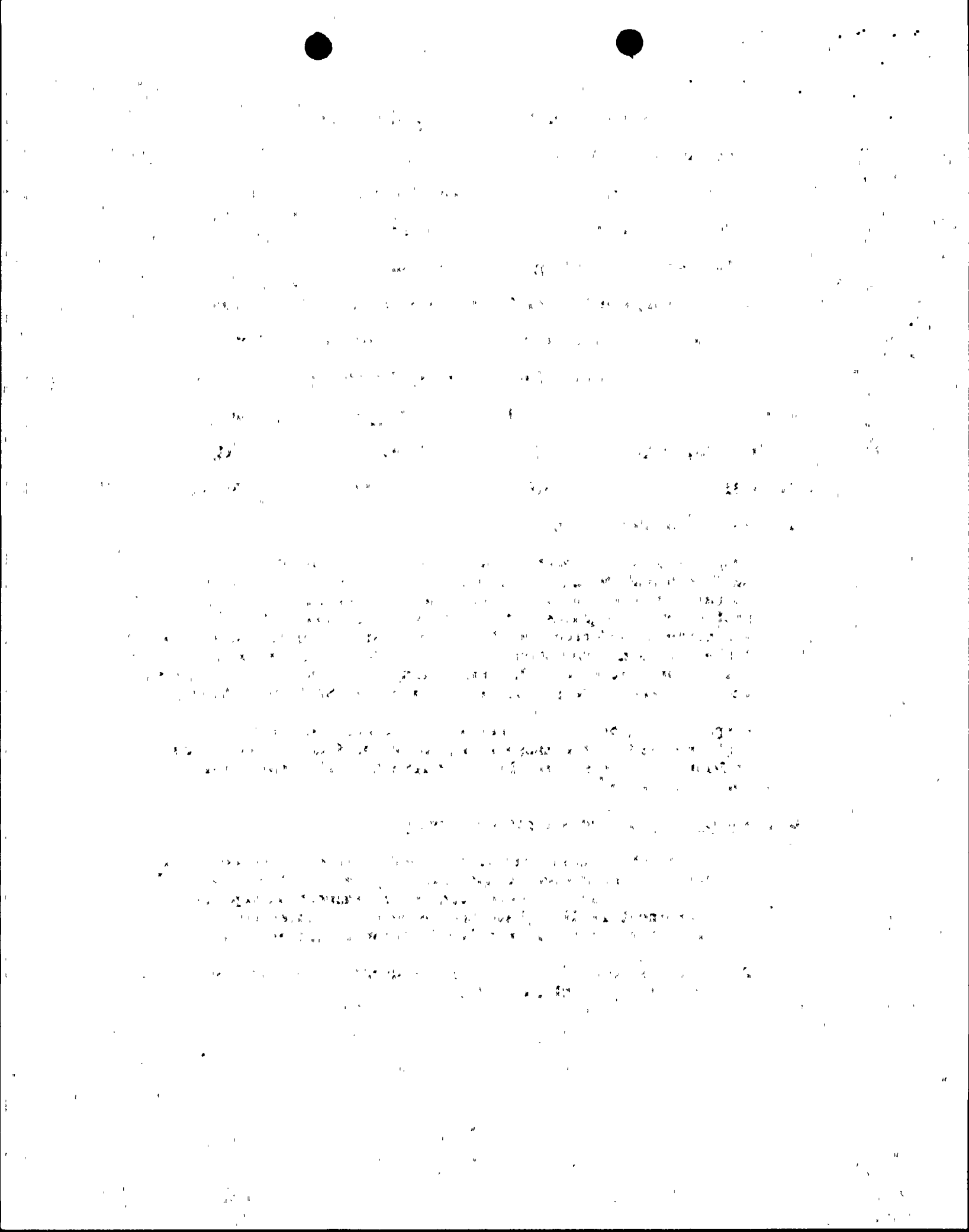
B. Inspection Activities

Inspections were conducted by the Operations and Construction Residents and by regional staff in the areas of construction, operations, operator licensing, emergency preparedness, fire protection, safeguards and radiation protection. The specific inspections conducted and the subject matter are listed in Table 2. Table 3 presents the amount of direct inspection manhours for each Palo Verde unit by each Region V group. Tables 4, 5 and 6 present the enforcement items generated during this SALP evaluation period.

A special regional CAT inspection was conducted for Unit 1 in September 1983. The inspection report and findings have been previously discussed in this SALP report in the appropriate functional areas.

C. Investigations and Allegations Review

1. Region V examinations of allegations were conducted in the areas of mechanical components, piping and electrical. All allegation actions were reported in inspection reports and pertinent findings have been previously addressed in this SALP report under the respective functional area analysis.
2. The Office of Investigations conducted five investigations as detailed in Enclosure (2).





D. Escalated Enforcement Actions

a. Civil Penalties

A civil penalty in the amount of \$20,000 was imposed as a result of the regional CAT inspection for the lack of adequate control by the QA programs of activities affecting quality.

A civil penalty of \$40,000 was proposed as the result of the examination of electrical allegations for improper signing of termination cards. This civil penalty has not been imposed pending release of the OI investigation report by the Department of Justice and response by the licensee.

b. Orders

There were no orders issued during this SALP period.

E. Management Conference Held During Appraisal Period

Three management conferences were held during the appraisal period. They were as follows:

- May 25, 1983 - SALP review meeting held in the licensee's Deer Valley office in Phoenix, Arizona. (Report No. 50-528/83-16).
- November 23, 1983 - Enforcement conference held in the NRC Region V office in Walnut Creek, California regarding the violations of regulatory requirements identified during the special inspections conducted during September and October 1983 and June 1, 1982 through March 11, 1983. (Report Nos. 50-528/83-34 and 50-528/83-10)
- March 5, 1984 - Review meeting held in the licensee's corporate office in Phoenix, Arizona for the purpose of clarifying the licensee's corrective actions taken in response to the findings of the NRC special team inspection conducted in September 1983. The meeting was open to members of the public and the local media. (Report No. 50-528/84-11)

F. Review of Licensee Construction Deficiency Reports

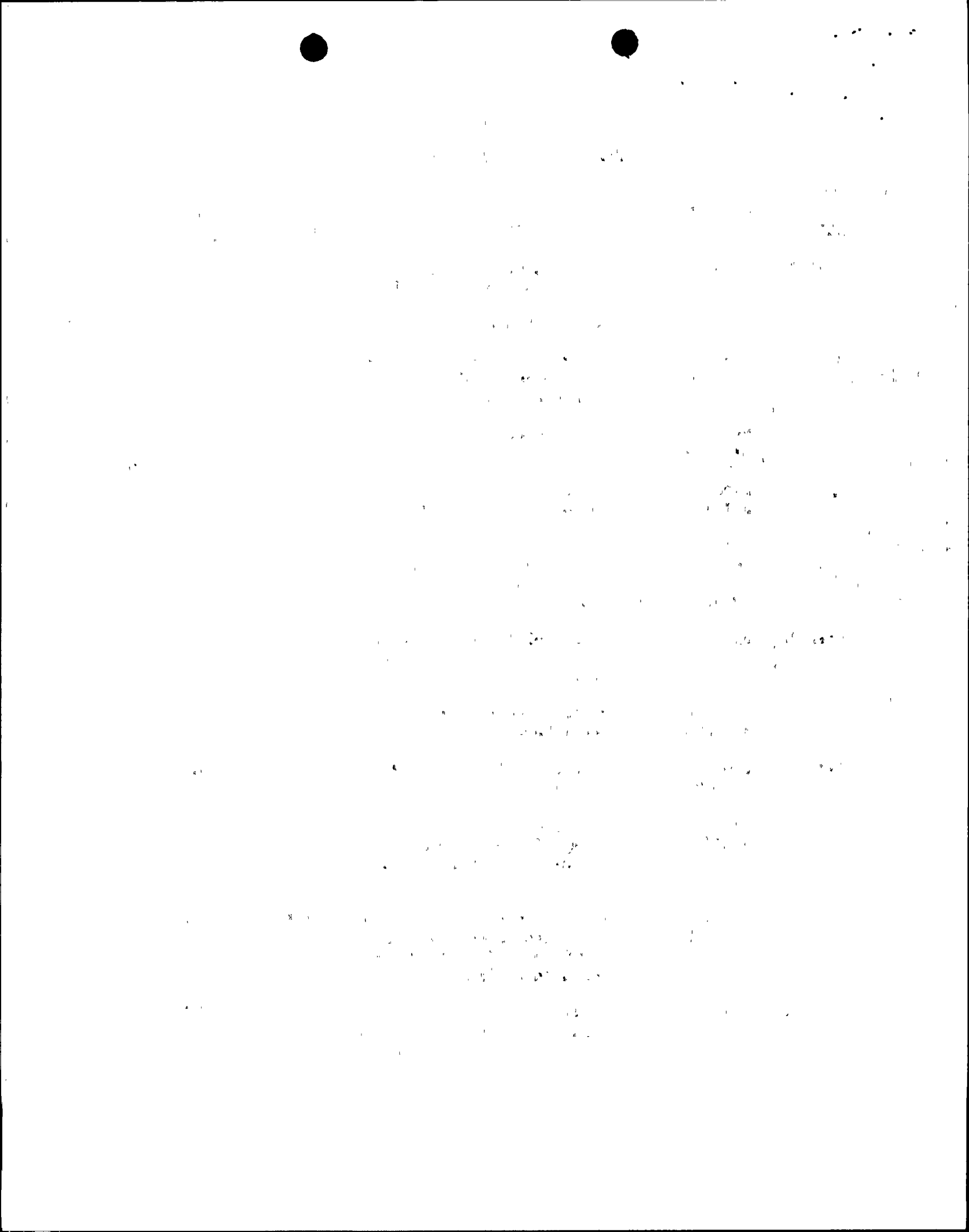
The licensee's reportable construction deficiencies are listed in Table 1. Discussions of these reports have been included in the functional area analyses of this SALP report, where appropriate.



TABLE 1

## REPORTABLE 10 CFR 50.55(e) REPORTS

<u>VERBAL NOTIF. DATE</u>	<u>WRITTEN REPORT</u>	<u>DESCRIPTION</u>	<u>APS DER NO.</u>	<u>FUNCTIONAL AREA</u>
7/9/82	Final 3/28/83	Unit 1 Reactor Coolant Pump Pressure Tap Nozzle Weld Leak due to Over- heating Stainless Alloy	82-42	C4
8/24/82	Final 3/15/84	ITT-Barton Pressure Trans- mitters supplied by CE do not meet Overpressure Requirements	82-46	C7
	Revision 3/19/84	Restates Corrective Action		
9/10/82	Final 6/17/83	Flexible Conduct Couplings may be damaged in Seismic event	82-50	C6
	Revision 3/9/84 (Reportable)	Changes Final Disposition from not Reportable to Reportable		
9/10/82	Final 1/9/84	Pullman-Kellogg Pipe Line Failure in Unit 1 Essential Cooling Water System	82-51	C3
	Revision 1/19/84	Restates Reportability under Part 21		
11/24/82	Final 6/30/83	Concrete Void in Unit 2 Containment Exterior Wall	82-72	C2
11/24/82	Final 1/31/84	ITT Grinnel Pipe Support Clamps in Unit 2 MSSS have Excess Gap, may not properly secure pipe	82-73	C3
12/17/82	Final 11/28/83	Improperly Crimped Termina- tion Lugs in Control Panels for Water Chillers by Carrier Air Conditioning	82-78	C7
12/22/82	Final 4/12/83	R-Class Instruments were Installed in Lieu of Q-Class in Units 1&2 HVAC Systems	82-81	C5



<u>VERBAL NOTIF. DATE</u>	<u>WRITTEN REPORT</u>	<u>DESCRIPTION</u>	<u>APS DER NO.</u>	<u>FUNCTIONAL AREA</u>
12/22/82	Final 1/19/83	ITT-Grinnel Mechanical Sgubbers do not permit 5 movement without binding	82-82	C3
	Revision 3/29/83	Clarifies corrective action		
1/7/83	Final 3/7/83	Harlo Relay Panels in Unit 1 Failed tests due to Supplier Error Using DC Coils in AC Circuits	82-85	C6
1/25/83	Final 3/3/83	Valve Operators Accidentally Interchanged by Posi-seal on inside and outside Containment Valves for Unit 1	83-2	C3
3/4/83	Final 3/3/83	GE 480V MCC Size 2 Starter add on Interlocks may malfunction	83-12	C6
3/16/83	Final 9/27/83	Diesel Generator Protective Relays by Westinghouse Failed due to Leaking Capacitors	83-14	C7
3/18/83	Final 9/23/83	A354 Anchor Bolt from Marathon Broke under Installation Torque after Test Acceptance	83-15	C2
3/18/83	Final 5/3/83	Diesel Generator Governor and Voltage Regulator do not Automatically Reset from Manual/Test Mode Upon Loss of Power.	83-16	C7
3/4/83	Final 7/19/83	Fire Protection Switches by ITE Gould Failed to meet the Requirements of TMI Task 18A	83-17	C6
4/19/83	Final 5/19/83	Main Steam Isolation Bypass Valves will not close in the Required Time	83-23	C3
4/21/83	Final 5/18/83	Diesel Generator Lube Oil and Jacket Water Heaters do not Maintain the Required Temperature	83-24	C4



<u>VERBAL NOTIF. DATE</u>	<u>WRITTEN REPORT</u>	<u>DESCRIPTION</u>	<u>APS DER NO.</u>	<u>FUNCTIONAL AREA</u>
5/25/83	Final 10/28/83	BOP ESFAS Electronic Modules Failed Preoperational Testing Due to Overheating	83-26	C7
5/6/83	Final 6/6/83	Two Hangers in Unit 1 Safety Injection System were not Installed as Designed	83-29	C3
5/25/83	Final 6/24/83	GE AKR-50 Breakers with EC-1 Trips may have a Generic Defect which would cause a malfunction	83-33	C6
6/7/83	Final 1/9/84	Inverters supplied by ELGAR were found to produce voltage spikes on the DC supply Bus	83-35	C6
6/28/83	Final 12/5/83	Missed Factory Operations on Unit 3 Steam Generator No. 2	83-37	C4
6/29/83	Final 2/2/84	Unit 1 LPSI and CS Pump Motors have defective welds and are leaking oil	83-40	C4
6/29/83	Final 9/21/83	Flooding in the Control Building 'B' Train Room	83-41	0.1.a
	Revision 12/5/83	Provides Additional Information		
7/8/83	Final 9/27/83	Improper Crimp Terminations in 12 Unit 1 Cabinets	83-43	C7
7/14/83	Final 8/15/83	Wiring Errors in Plant Protection System Cabinets	83-44	C7
7/7/83	Final 9/26/83	Cable Separations in Unit 1 Control Room Panels	83-45	C7
7/15/83	Final 1/9/84	Borg-Warner Valve Manually Over-Torqued During Hydrostatic Testing	83-46	C3
7/26/83	Final 10/17/83	Power Supplies may damage Instrument Conductor Penetrations	83-47	C7



The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author outlines the various methods used to collect and analyze the data. This includes both manual and automated processes. The goal is to ensure that the information is both reliable and up-to-date.

The third part of the document provides a detailed breakdown of the results. It shows that there has been a significant increase in sales over the period covered. This is attributed to several factors, including improved marketing strategies and better customer service.

Finally, the document concludes with a series of recommendations for future actions. It suggests that the company should continue to invest in research and development to stay ahead of the competition. Additionally, it recommends regular audits to ensure ongoing compliance with all relevant regulations.

The second part of the document focuses on the financial aspects of the business. It provides a clear overview of the budget and how it was managed throughout the year. The author notes that the company successfully stayed within its budget, which is a testament to the careful planning and execution.

The third section discusses the human resources department's efforts to attract and retain top talent. It highlights the success of the recruitment drive and the implementation of new training programs. These initiatives have led to a more skilled and motivated workforce.

The fourth part of the document addresses the company's environmental and social responsibilities. It details the various initiatives undertaken to reduce the carbon footprint and support the local community. These efforts have not only benefited the environment but also enhanced the company's reputation.

In the final section, the author reflects on the overall performance of the company and offers insights into the challenges faced. It acknowledges the difficulties of the current market environment but remains optimistic about the future. The document ends with a strong statement of confidence in the company's ability to overcome any obstacles and achieve its long-term goals.



<u>VERBAL NOTIF. DATE</u>	<u>WRITTEN REPORT</u>	<u>DESCRIPTION</u>	<u>APS DER NO.</u>	<u>FUNCTIONAL AREA</u>
9/2/83	Final 12/22/83	Power Supplies by Beta Products are Feeding Noise into the 125V DC Bus	83-52	C7
9/28/83	Final 1/23/84	Primary Safety Valves from CE Rusted	83-65	C3
9/28/83	Final 1/23/84	Ex-Core Detector Enclosures are below the Design Basis Flood Level	83-67	C7
9/28/83	Final 2/28/84	Battery Racks were con- structed with some nuts and bolts which do not meet the Specification Requirements	83-68	C.6
10/11/83	Final 2/28/84	Wiring in the ERF cabinets is not in conformance with IEEE-384 Criteria	83-70	C7
12/23/83	Final 1/26/84	Seismic analysis of the Shutdown Heat Exchanger did not adequately address baseplate thickness	83-86	C4

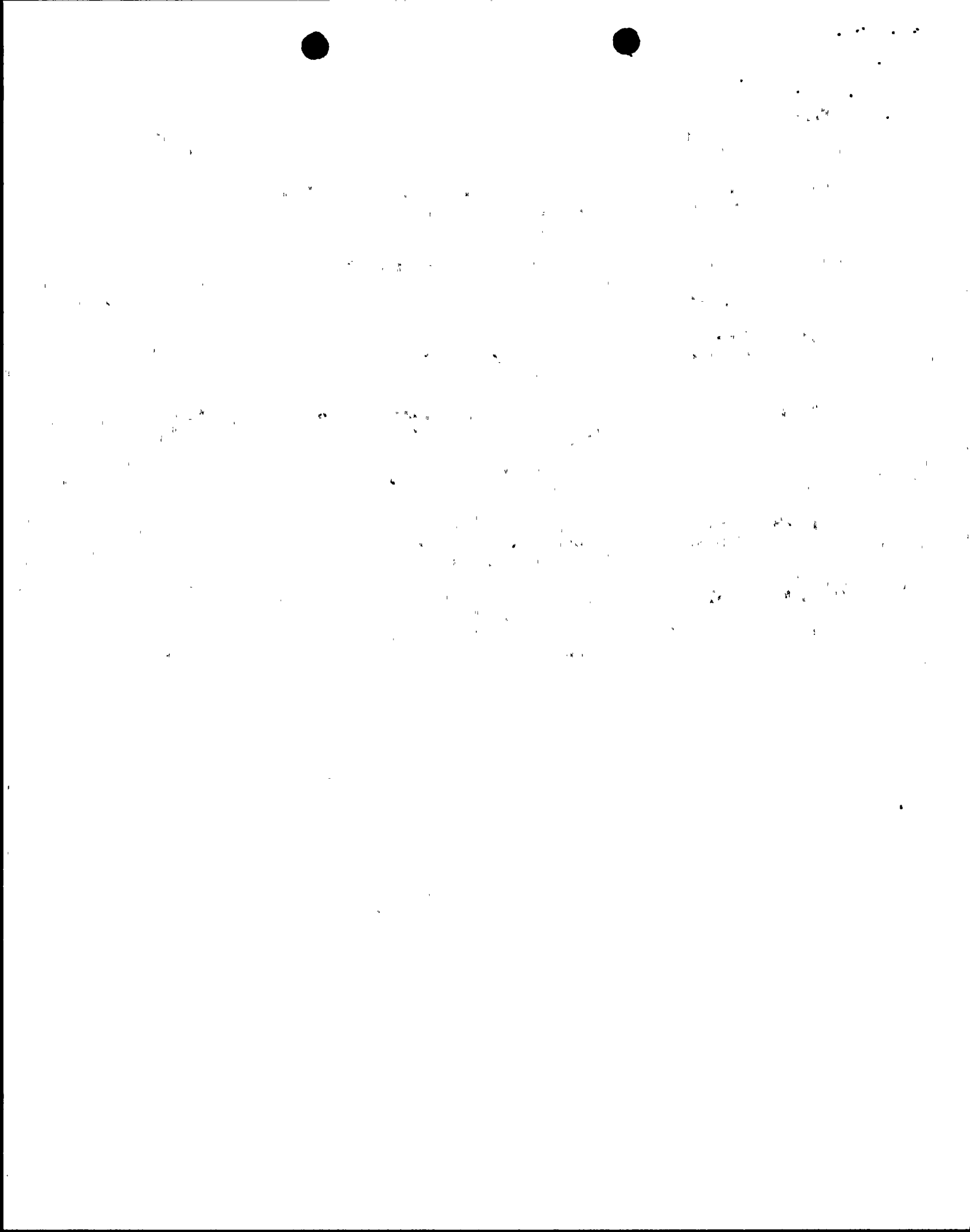
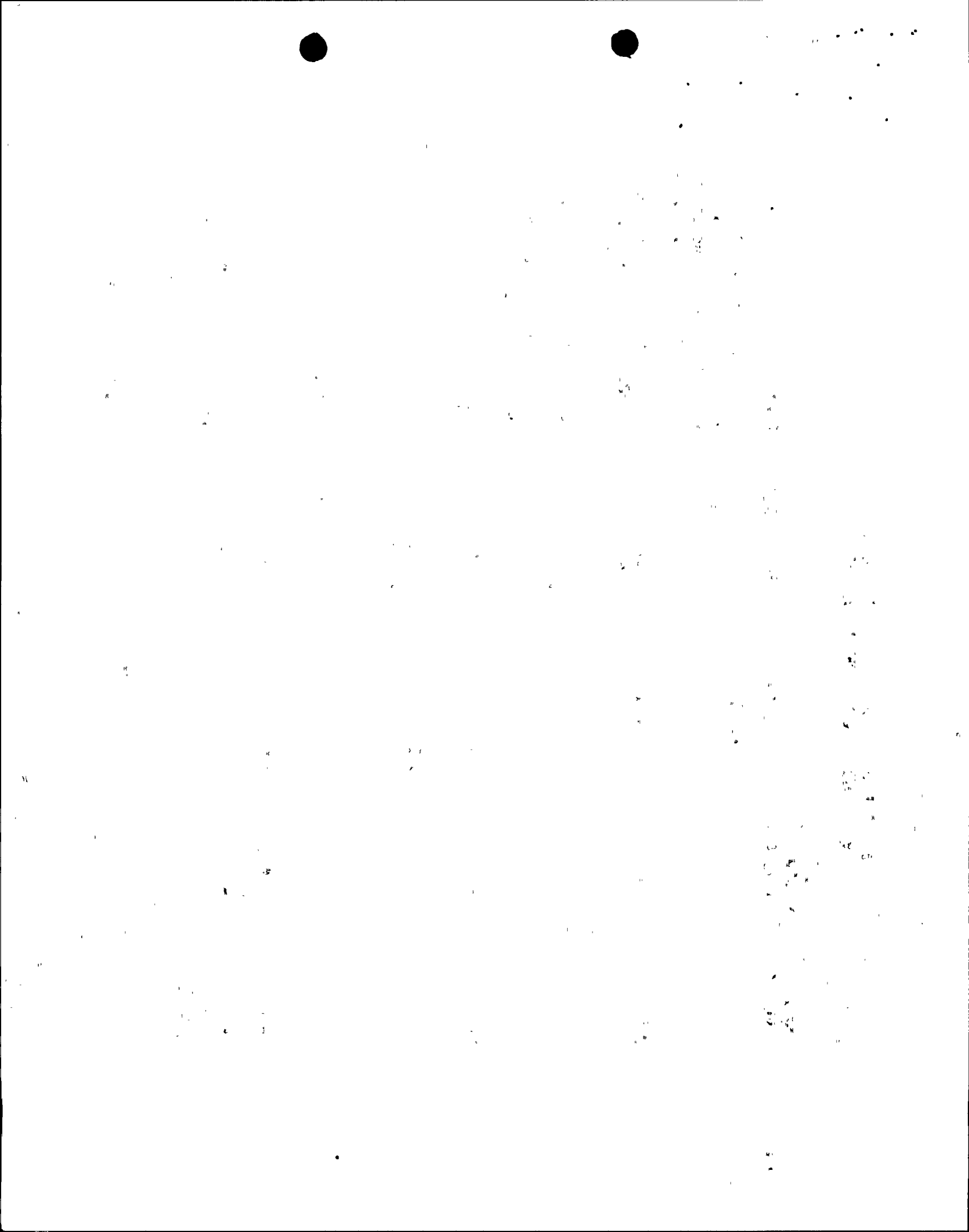


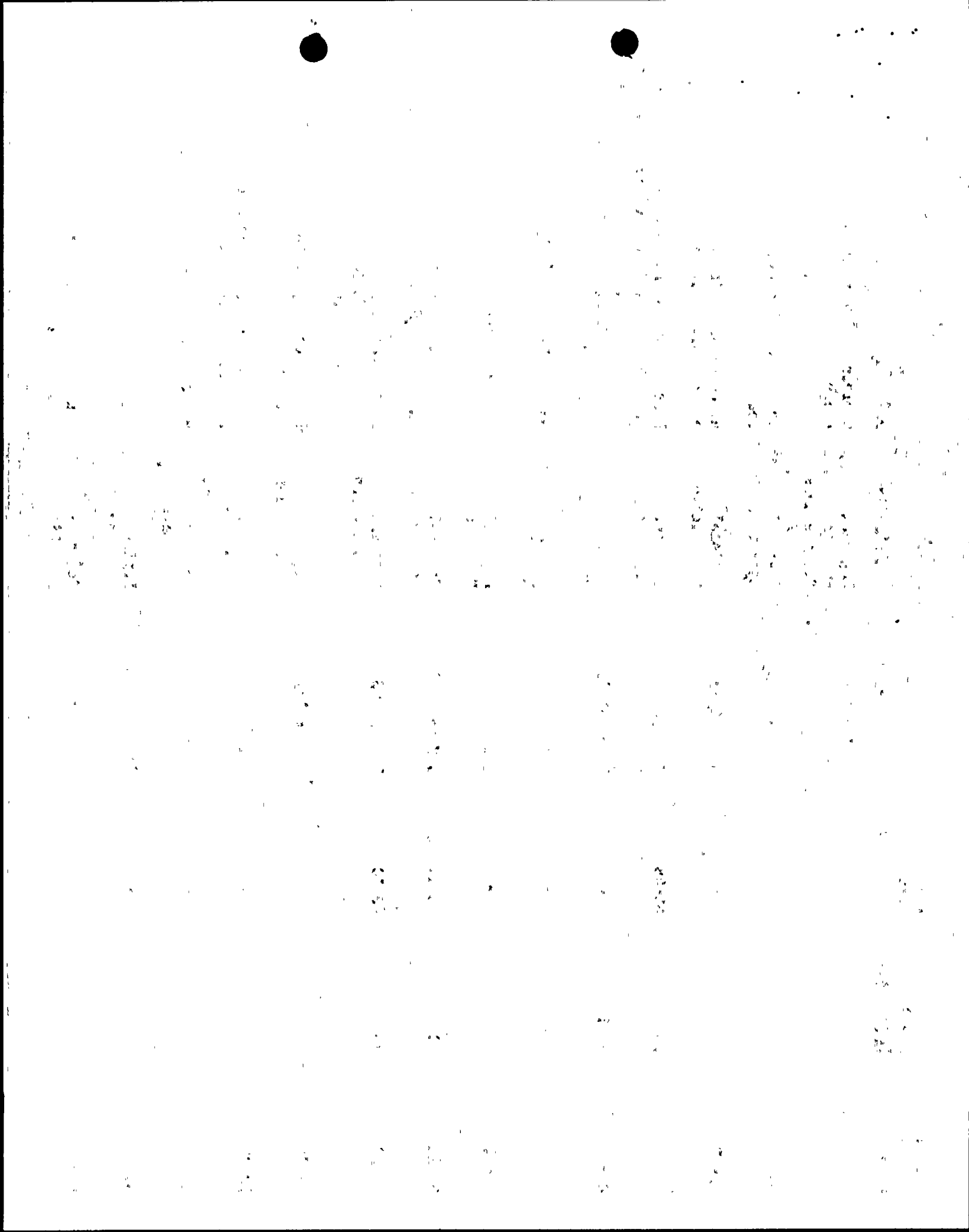
TABLE 2

INSPECTIONS CONDUCTED (3/1/83 - 3/31/84)  
PALO VERDE NUCLEAR GENERATING STATION

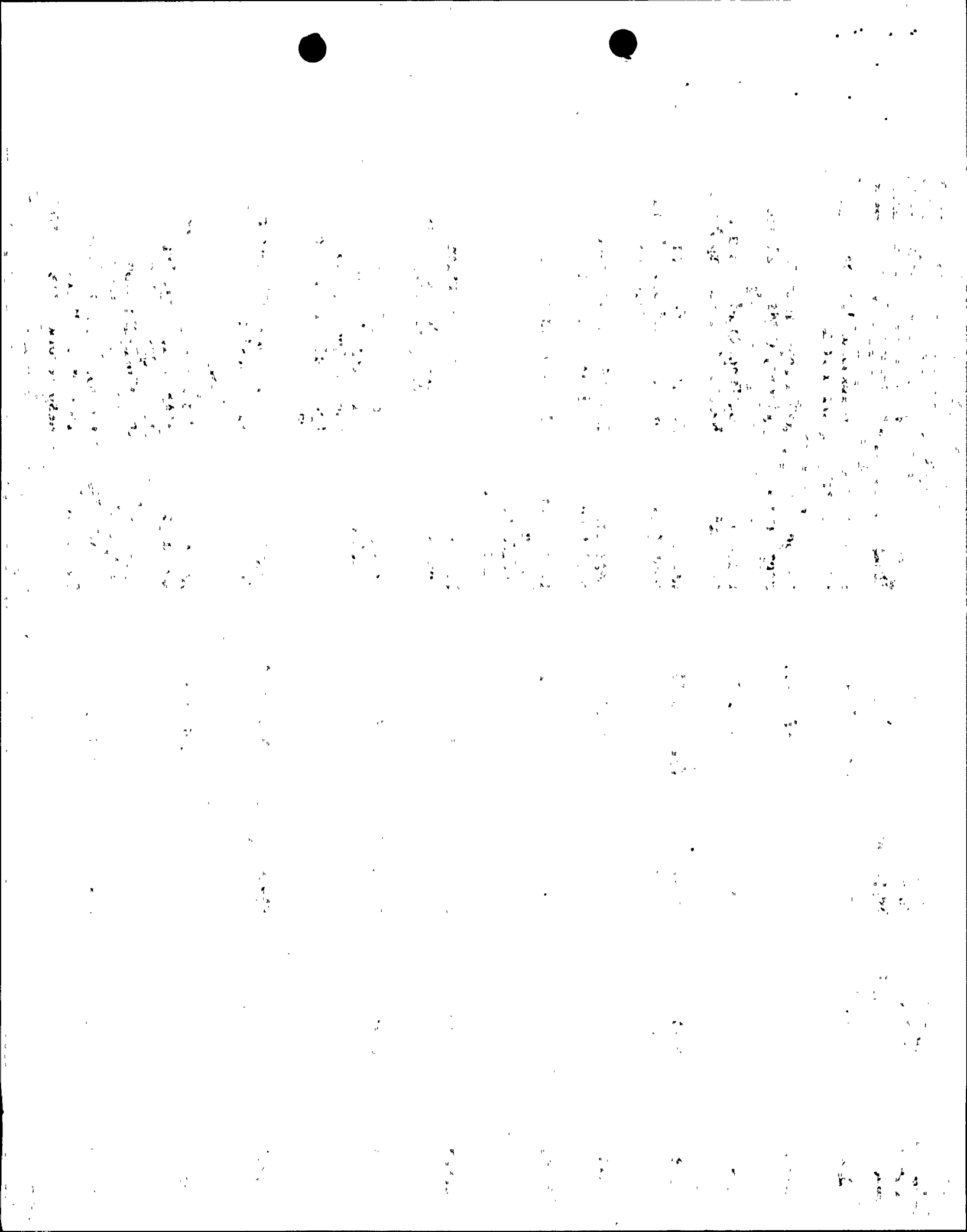
<u>Unit 1</u> 50-528 <u>Report No.</u>	<u>Unit 2</u> 50-529 <u>Report No.</u>	<u>Unit 3</u> 50-530 <u>Report No.</u>	<u>Dates</u>	<u>Inspector(s)</u>	<u>Areas</u>
83-06	-	-	3/7-3/10/83	Regional Operations	Preoperational Test Records, Plant Procedures, QA for Preop Testing and Operations, Safety Committee Activities.
83-07	83-05	-	2/21-3/18/83	Resident Operations	Startup Testing, Fuel Receipt, QA/QC, Test Procedure Review, Review of Plant Power Outage.
83-08	83-04	83-03	3/7-3/11/83	Regional Construction	Instrument Work Procedure Records, As-builts, component Support Records, Repair Welding of Piping.
83-09	83-06	83-04	4/4-4/7/83	Regional and Resident	Allegations in electrical and startup testing
83-10	83-07	83-05	6/1/82-3/11/83	Regional and Resident	Allegations, in electrical
83-11	83-08	83-06	3/28-4/1/83	Regional Construction	Concrete Placement, Soil Compaction, Equipment Storage.
83-16	83-09	83-07	5/25/83	Regional	SALP
83-12	-	-	4/25-5/12/83	Regional Radiation	Organization and Staffing, 50.55(e), Environmental Protection, Rad. Prot. Equipment, Chemistry QC.
83-13	-	-	3/21-4/29/83	Resident Operations	Startup Testing, Maintenance, Fuel Receipt, Reactor Coolant Pump Repairs.



<u>Unit 1</u> 50-528 <u>Report No.</u>	<u>Unit 2</u> 50-529 <u>Report No.</u>	<u>Unit 3</u> 50-530 <u>Report No.</u>	<u>Dates</u>	<u>Inspector(s)</u>	<u>Areas</u>
83-14	-	-	4/11-5/12/83	Regional Emergency Preparedness	Emergency Preparedness Program
83-15	-	-	5/3-5/13/83	Regional Operations	Procedures, Events, Followup.
83-17	-	-	5/2-5/6/83	Regional Construction	Allegations in piping, electrical, coatings
83-18	83-10	83-08	3/1-4/30/83	Resident Construction	Unit 2 containment post tension, cable installation, followup of 50.55(e) items
83-19	83-11	-	5/2-5/31/83	Resident Operations	Startup Testing, Allegation, Plant Cleanliness
83-20	-	-	5/24-5/25/83	Regional Radiation	Laboratory Capability
83-21	-	-	5/23-5/27/83	Regional Operations	Fire Protection
83-22	83-12	83-09	5/23-5/27/83	Regional Construction	Tendon Prestressing allegations Electrical
83-23	83-13	83-10	5/2-6/3/83	Resident Construction	Electrical Work allegations, followup of 50.55(e) items
83-24	-	-	6/14-6/17/83	Regional Construction	Preservice Inspection Program
83-25	-	-	6/1-6/30/83	Regional Operations	Startup, Piping Verification Program, Hot Functional
83-26	-	-	7/5-7/22/83	Regional Operations	Procedures
83-27	-	-	7/11-7/14/83	Regional Safeguards	
83-28	-	-	6/27-7/1/83	Regional Radiation	Organization, Monitor Calibration

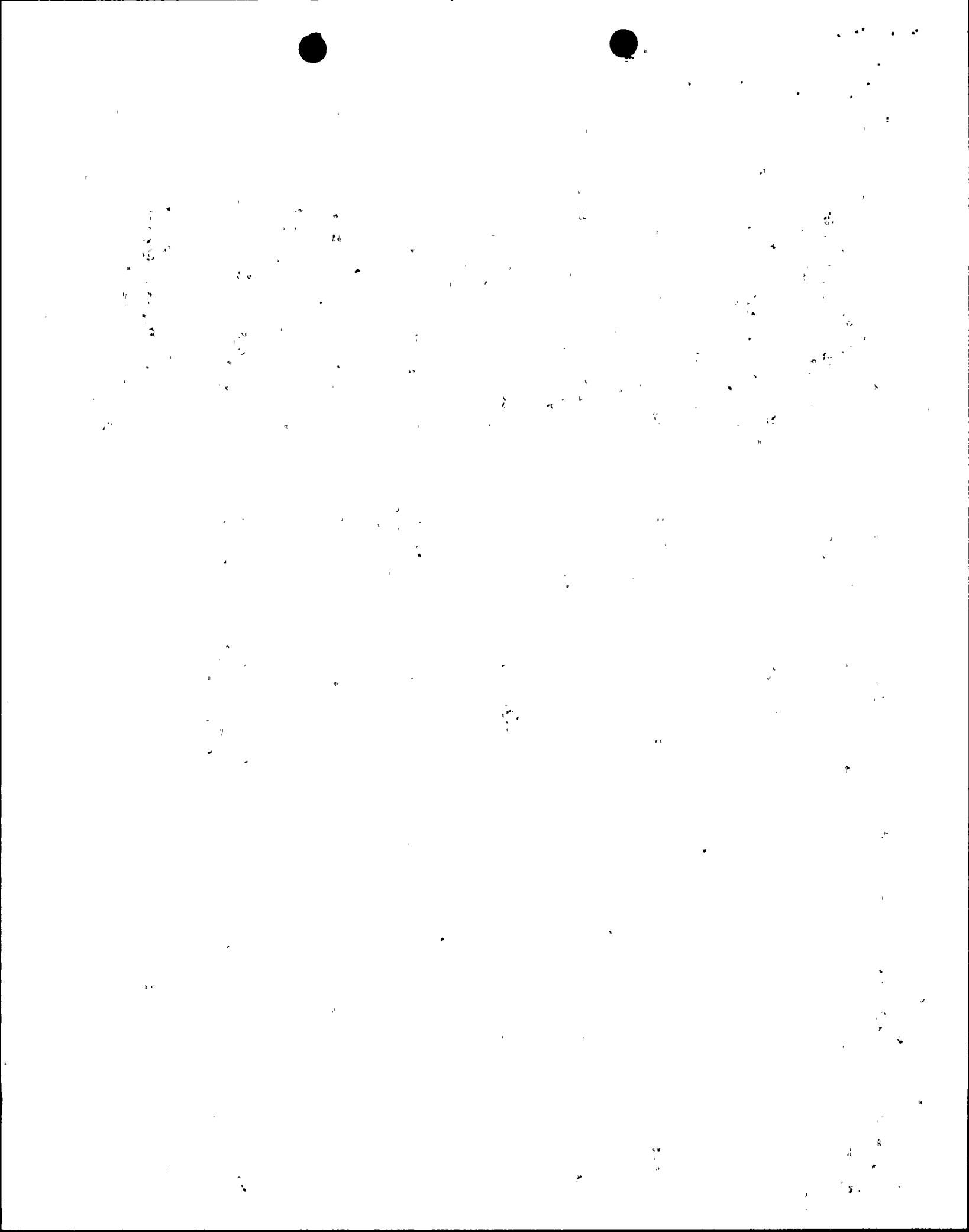


<u>Unit 1</u> 50-528 <u>Report No.</u>	<u>Unit 2</u> 50-529 <u>Report No.</u>	<u>Unit 3</u> 50-530 <u>Report No.</u>	<u>Dates</u>	<u>Inspector(s)</u>	<u>Areas</u>
83-29	83-14	83-11	6/27-7/1/83	Regional Construction	Followup on licensee Action Items
83-30	-	-	7/18-7/22/83	Regional Radiation	Radiation Monitoring Systems, Monitor Calibration
83-31	-	-	7/1-7/29/83	Resident Operations	Hot Functional Testing, Reactor Coolant Pump Damage
83-32	83-15	83-12	6/20-7/29/83	Resident Construction	50.55(e), Independent Design Verification Program, Allegation Follow-up,
83-33	-	-	8/9-8/12/83	Regional Radiation	Radiation Monitoring, Monitor Calibration
83-34	-	-	9/6/83-11/1/83	Construction Regional, Resident, Consultants	CAT Team Inspection
83-35	83-16	83-13	8/15-8/19/83	Regional Radiation	Radiation Protection, Chemistry Organization, Staffing, Training.
83-36	83-17	83-14	8/8-8/12/83	Regional Construction	Underground Piping Corrosion, Reactor Coolent Pump Damage, Upper Guide Structure Damage.
83-37	83-18	83-15	5/23-5/27/83	Regional Construction	Allegations with Tendon Prestressing
83-38	-	-	8/1-8/31/83	Regional Operations	Equipment Qualification, Startup Testing, TMI Items, NSSS Problems, Plant Modification
83-39	83-20	83-16	10/31-11/4/83	Regional Radiation	Organization Staffing, Procedures, Monitoring, Respiratory Protection.





<u>Unit 1</u> 50-528 <u>Report No.</u>	<u>Unit 2</u> 50-529 <u>Report No.</u>	<u>Unit 3</u> 50-530 <u>Report No.</u>	<u>Dates</u>	<u>Inspector(s)</u>	<u>Areas</u>
83-40	83-19	-	9/1-10/31/83	Regional Operations	Startup Testing, Startup QA/QC, Maintenance QA/QC, Plant Cleanliness.
83-41	-	-	11/7-11/18/83	Regional Radiation	Radiation Monitoring Systems, Monitor Calibra- tion, Follow-up.
83-43	-	-	11/23-11/23/83	Regional	Enforcement
83-44	-	-	11/1-11/30/83	Resident Operations	Safety Injection, Fire Protection, Plant Cleanliness
83-45	83-22	-	12/1-12/21/83	Resident Operations	Startup Testing, Personnel Certifications, Startup QA/QC.
83-46	83-23	83-18	11/1-12/9/83	Resident Construction	Unit 1 NSSS Piping Modifications, Unit 2 Internals Installation, Cable Splicing Allegations.
84-01	-	-	1/16-1/20/84	Regional Emergency Preparedness	Followup of Emergency Preparedness Preoper- ational inspection.
84-02	84-02	-	1/3-2/3/84	Resident Operations	Startup Testing Program QA, Information Notice Reviews, Components, TMI Followup, System Releases.
84-04	84-04	84-03	10/31-11/4/83 11/14-11/18/83 1/23-1/27/84	Regional Construction	Allegations in Electrical and Mechanical
84-05	84-05	-	2/21-2/24/84	Regional Radiation	Policy Statements, ALARA, Training, Preoperational Testing, Unevaluated Release Path.



<u>Unit 1</u> 50-528 <u>Report No.</u>	<u>Unit 2</u> 50-529 <u>Report No.</u>	<u>Unit 3</u> 50-530 <u>Report No.</u>	<u>Dates</u>	<u>Inspector(s)</u>	<u>Areas</u>
84-06	84-06	83-04	1/3-2/15/84	Resident Construction	RCP Hydrotest, Unit 3 Containment Post-Tensioning, Damaged Cables in Unit 3, General Activities
84-07	-	-	2/6-2/22/84	Regional Operations	Licensed Operator Training
84-08	84-07	-	2/6-3/2/84	Resident Operations	Startup Testing, Startup/ Operations Interface, Noncompliance Follow-up, LPSI Pump Problems
84-09	-	-	3/5-3/9/84	Regional Radiation	Radioactive Measurements and Chemistry
84-10	84-08	84-05	2/27-3/9/84	Regional Construction	QC Inspector Allegations, HVAC, Fire Protection Hangers, Electrical Procedures.
84-11	-	-	3/5/84	Regional Construction	Management Meeting to Discuss CAT Follow-up
84-12	84-09	-	3/5-3/30/84	Resident Operations	Operations Controls and Communications, Equipment Controls, LPSI Pump Tests Start up QA/QC.
84-16	84-13	84-08	2/20-3/30/84	Resident Construction	CAT followup, allegation electrical, piping and supports

Note:

Additionally Inspection Report No. 70-2949 for Unit 1 was conducted on August 22-24, 1983 by Regional Safeguards Inspectors regarding Part 70 (Security Inspection).

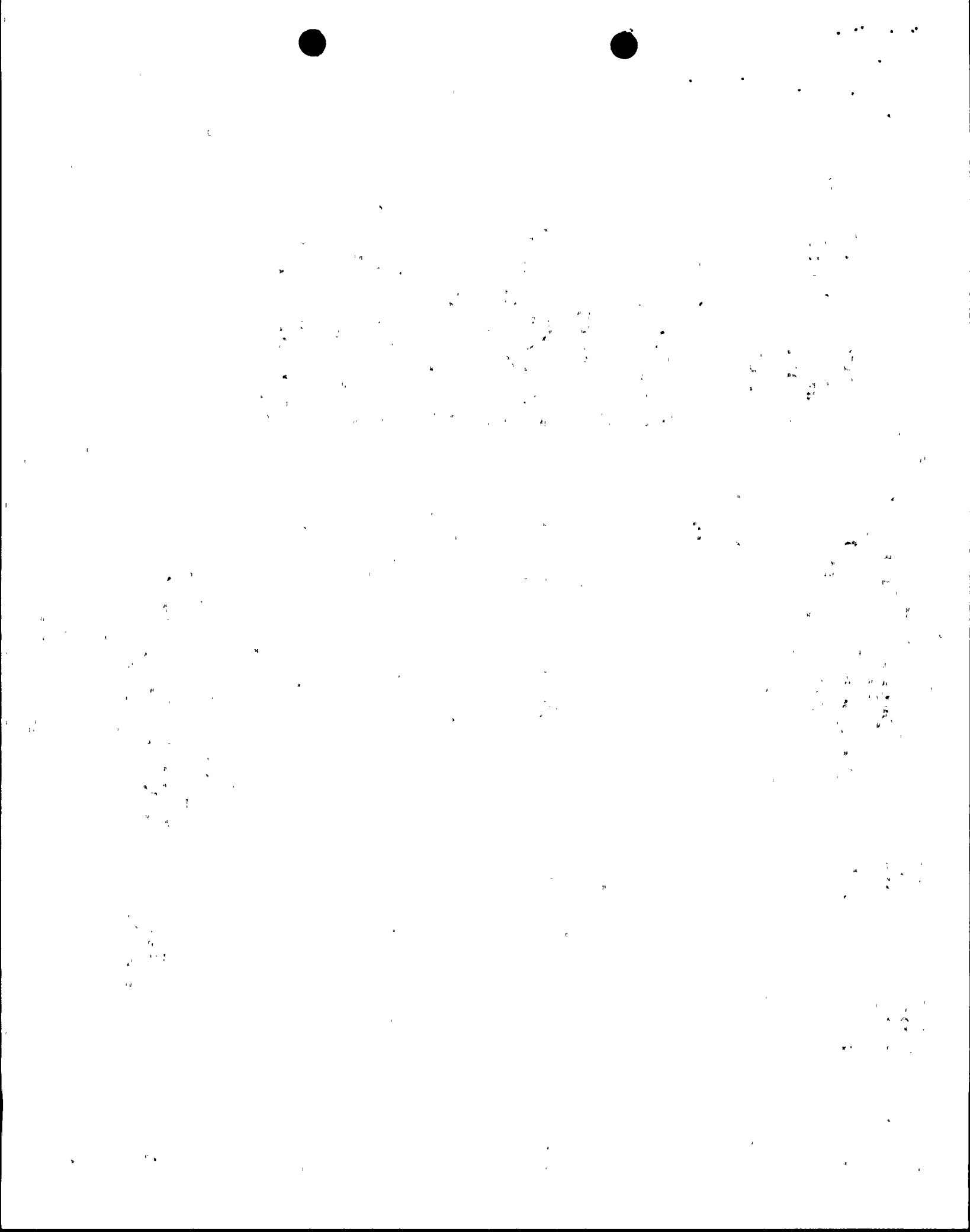


TABLE 3

## SUMMARY OF INSPECTION ACTIVITIES (3/1/83 - 3/31/84)

## PALO VERDE NUCLEAR GENERATING STATION

<u>ACTIVITY</u>	<u>MAN HOURS UNIT 1</u>	<u>MAN HOURS Unit 2</u>	<u>MAN HOURS Unit 3</u>
A. Construction			
1) Resident	298	175	171
2) Region	2,940	100	128
B. Operations			
1) Resident	1,035	106	0
2) Region	927	5	5
C. Radiological Safety	364	21	0
D. Safeguards	95	0	0
E. Emergency Preparedness	762	0	0
	<hr/>	<hr/>	<hr/>
TOTAL	6,241	407	304
TOTAL FOR THREE UNITS:	7,132*		

\*Additional manhours were expended by the Office of Investigations and the Operator Licensing Branch but are not reflected here.

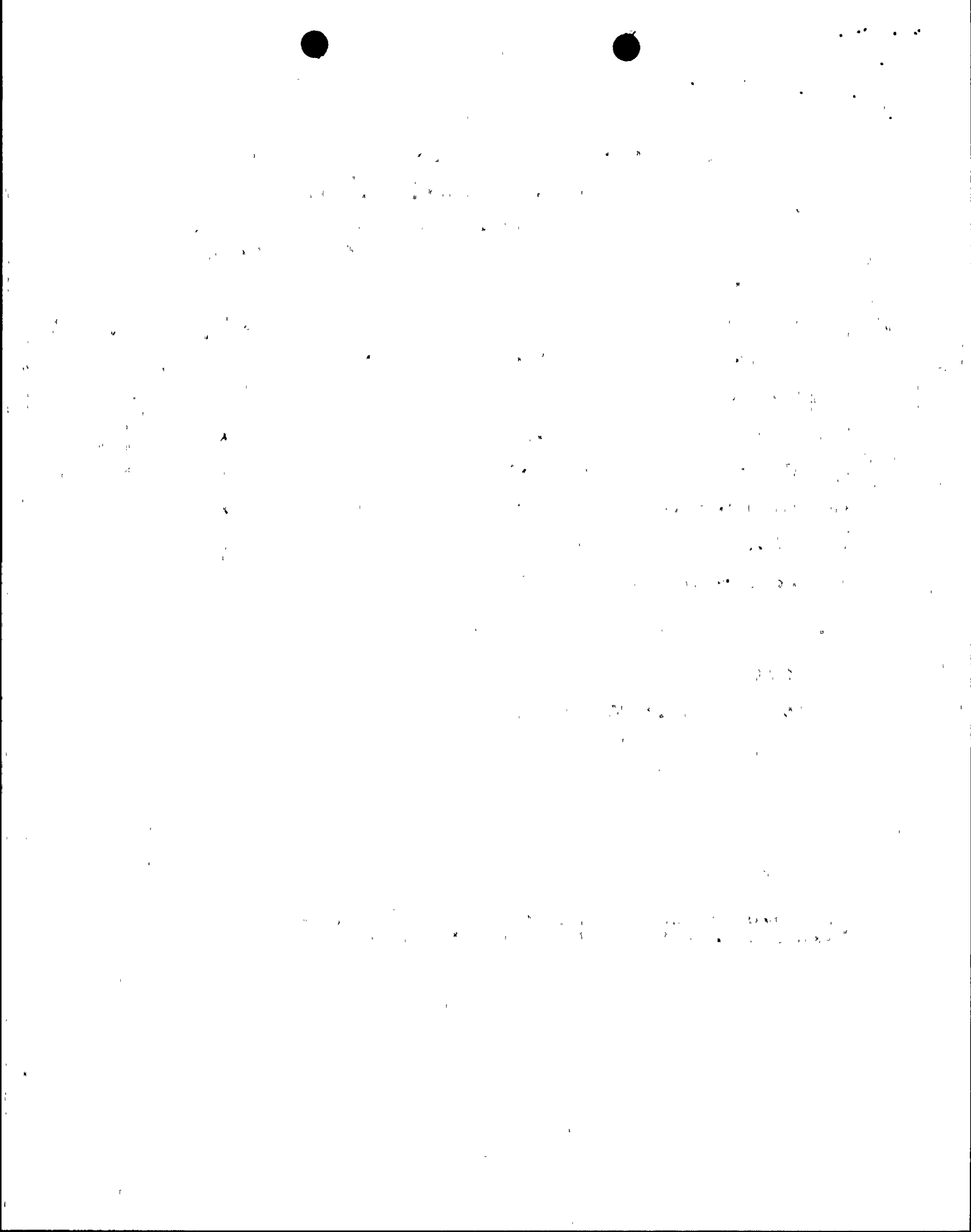


TABLE 4

## ENFORCEMENT ITEMS (3/1/83 - 3/31/84)

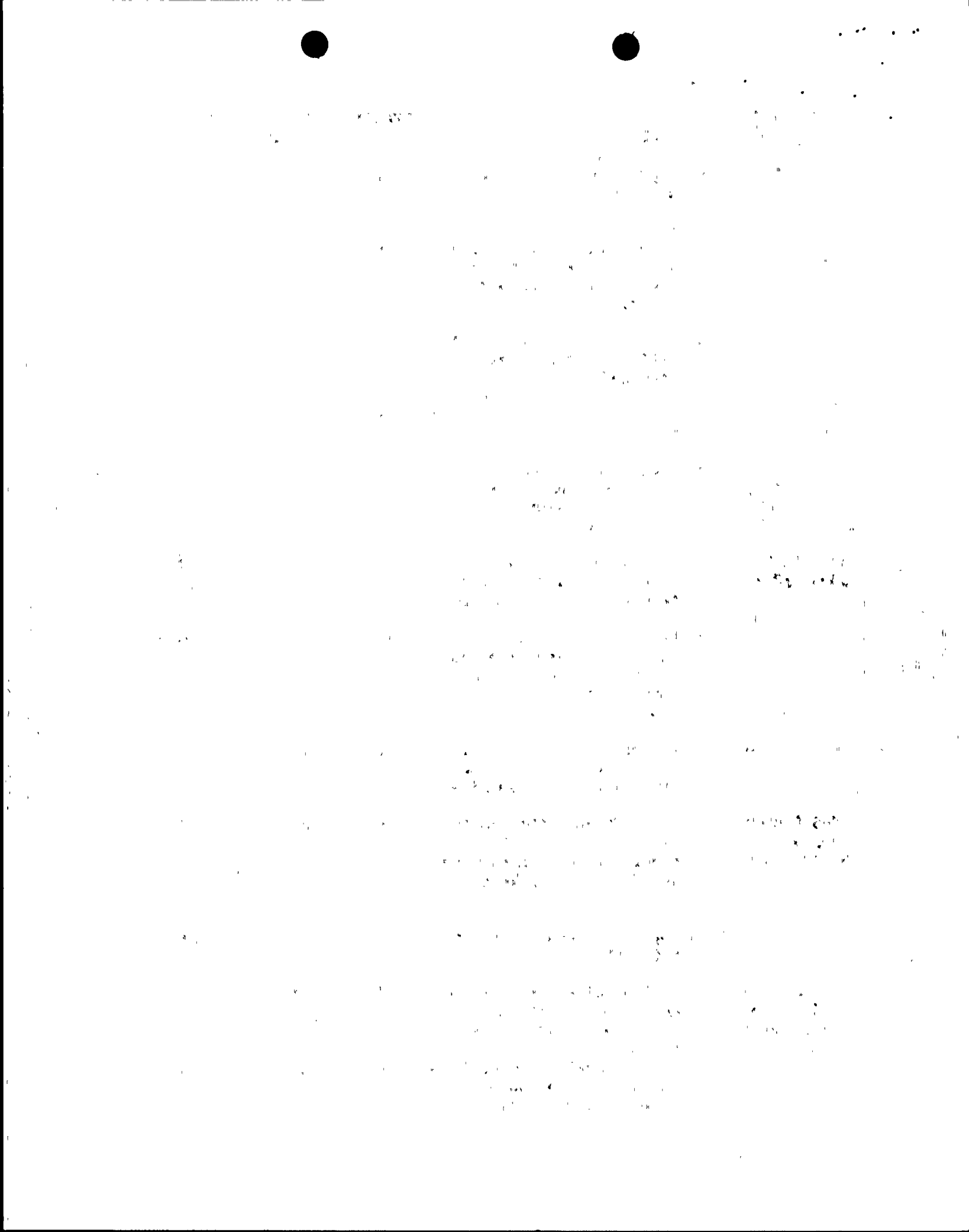
## PALO VERDE NUCLEAR GENERATING STATION

<u>INSPECTION REPORT NO.</u>	<u>SUBJECT</u>	<u>SEVERITY LEVEL</u>	<u>UNIT APPLIC</u>	<u>FUNCTIONAL AREA</u>
50.528/83-10	Unit 1 Electrical Termination installation cards do not reflect crimp tool number and signature of the installer	III	1	C.6
50-528/83-18 50-529/83-10	Containment Spray Pump Drive Motors in Units 1&2 have unsupported lengths in excess of 24".	V	1&2	C.6
50-528/83-31	Failure to remove a temporary power cable from a hot pipe	V	1	0.1.a.
50-528/83-34	1) Licensee's QA Program did not maintain adequate control over activities affecting quality	III	1	0.1.a.
	2) Cables projecting above the level of tray siderails	IV	1	C.6
	3) Cables less than one inch apart	IV	1	C.6
	4) Cable tray identification markings more than 15 feet apart	V	1	C.6
	5) Group I conduits not identified by alphanumeric markings	V	1	C.6
	6) A-325 bolts finger loose	IV	1	C.2
	7) Concrete expansion anchors were undertorqued and missing hardware	IV	1	C.6
	8) Pipe supports incorrectly installed	IV	1	C.3
	9) Pipe supports with unacceptable welds	IV	1	C.3





<u>INSPECTION REPORT NO.</u>	<u>SUBJECT</u>	<u>SEVERITY LEVEL</u>	<u>UNIT APPLIC</u>	<u>FUNCTIONAL AREA</u>
	10) Pipe support contained a miscellaneous steel member	IV	1	C.3
	11) Accepted pipe spool with unacceptable pit which violated minimum wall thickness	IV	1	C.3
	12) Size of structural steel fillet was less than required	IV	1	C.2
	13) Loose studs on Borg-Warner valve	IV	1	C.4
	14) Pipe support found with rubber seal material between the flourogold side plates	IV	1	C.3
50-528/83-40 50-529/83-19	1) Safety injection valve leaking causing Boric Acid to crystalize on the floor	V	1	0.1.a.
	2) Failure to follow procedures regarding house-keeping and documenting surveillance of preoperational testing	IV	1	0.1.a.
50-528/83-44	Steam Generator No. 2 filled to excess to the effect that water filled the steam lines	IV	1	0.1.a.
50-528/84-04 50-529/84-04 50-530/84-03	1) 5kv, 1/C-500 KCMIL cables installed in Unit 2 Diesel Generator enclosures were found with radii less than 16.08"	IV	2	C.6
	2) Improper storage for 480V MCC 3EPHAM35	V	3	C.6
50-528/84-10 50-529/84-08 50-530/84-05	1) QC inspector not certified mech/piping performed verification on rotating equipment	IV	1/2	C.4
	2) HVAC supports were verified satisfactory by QC with improper conditions	IV	2	C.5



INSPECTION  
REPORT NO.

SUBJECT

SEVERITY  
LEVEL

UNIT  
APPLIC

FUNCTIONAL  
AREA

DEVIATIONS

50-528/83-15	Licensee did not carry through commitment to NRC on procedure issuance.		1	0.1.b.
50-528/84-10	HVAC duct sealant not		1,2,3	C.5
50-529/84-08	environmentally qualified			
50-530/84-05	per R.G. 1.52			

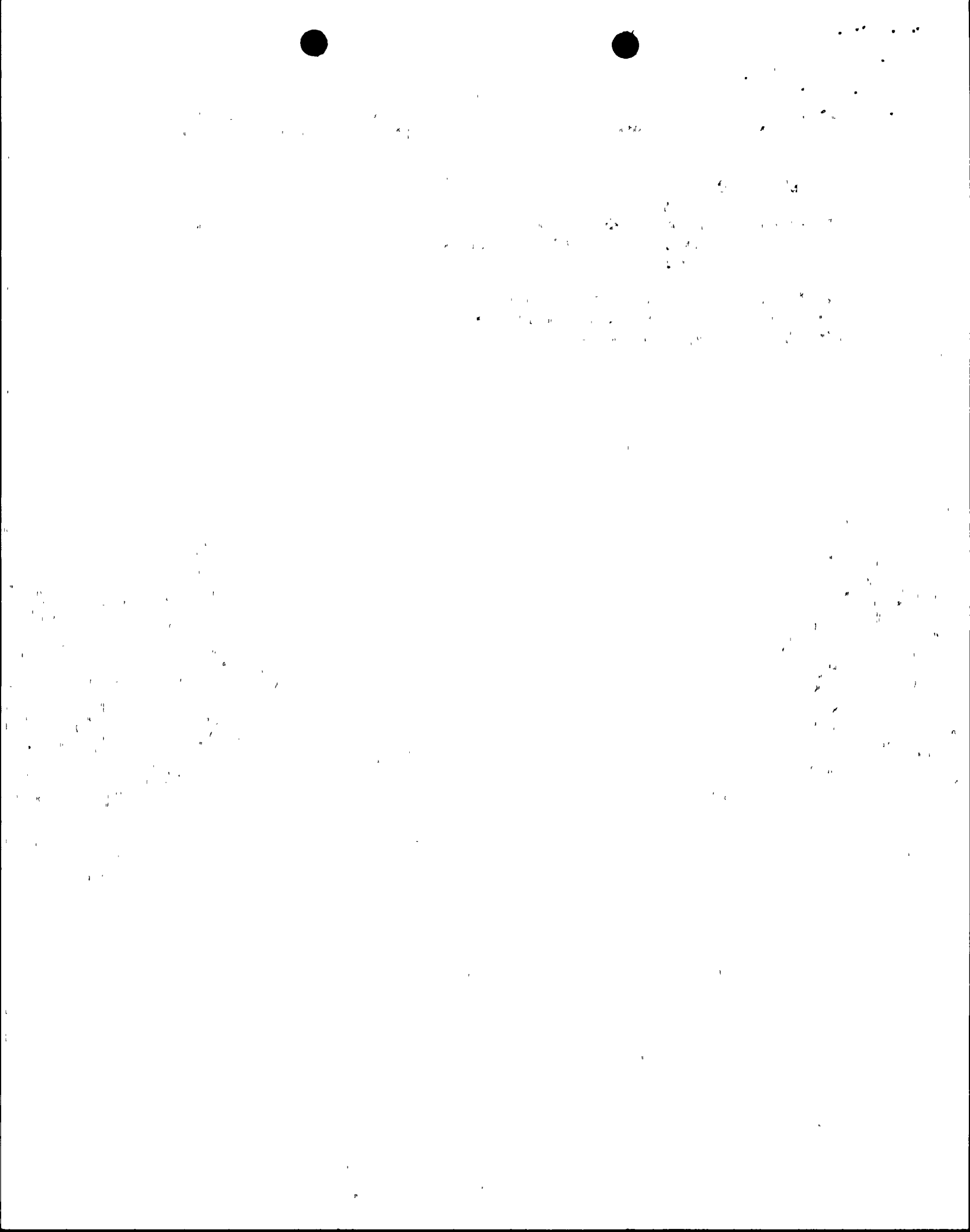


TABLE 5

OPERATIONS ENFORCEMENT SUMMARY (3/1/83 - 3/31/84)

PALO VERDE NUCLEAR GENERATING STATION - UNIT 1\*

OPERATIONS FUNCTIONAL AREA	SEVERITY LEVELS					TOTAL
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	
1.a. Startup Testing			1	2	2	5
1.b. Plant Operations						0
2. Radiological Controls						0
3. Maintenance						0
4. Surveillance						0
5. Fire Protection						0
6. Emergency Preparedness						0
7. Security and Safeguards						0
8. Refueling						0
Totals	0	0	1	2	2	5

\*Units 2 and 3 were not listed, as there were no Operational Violations.

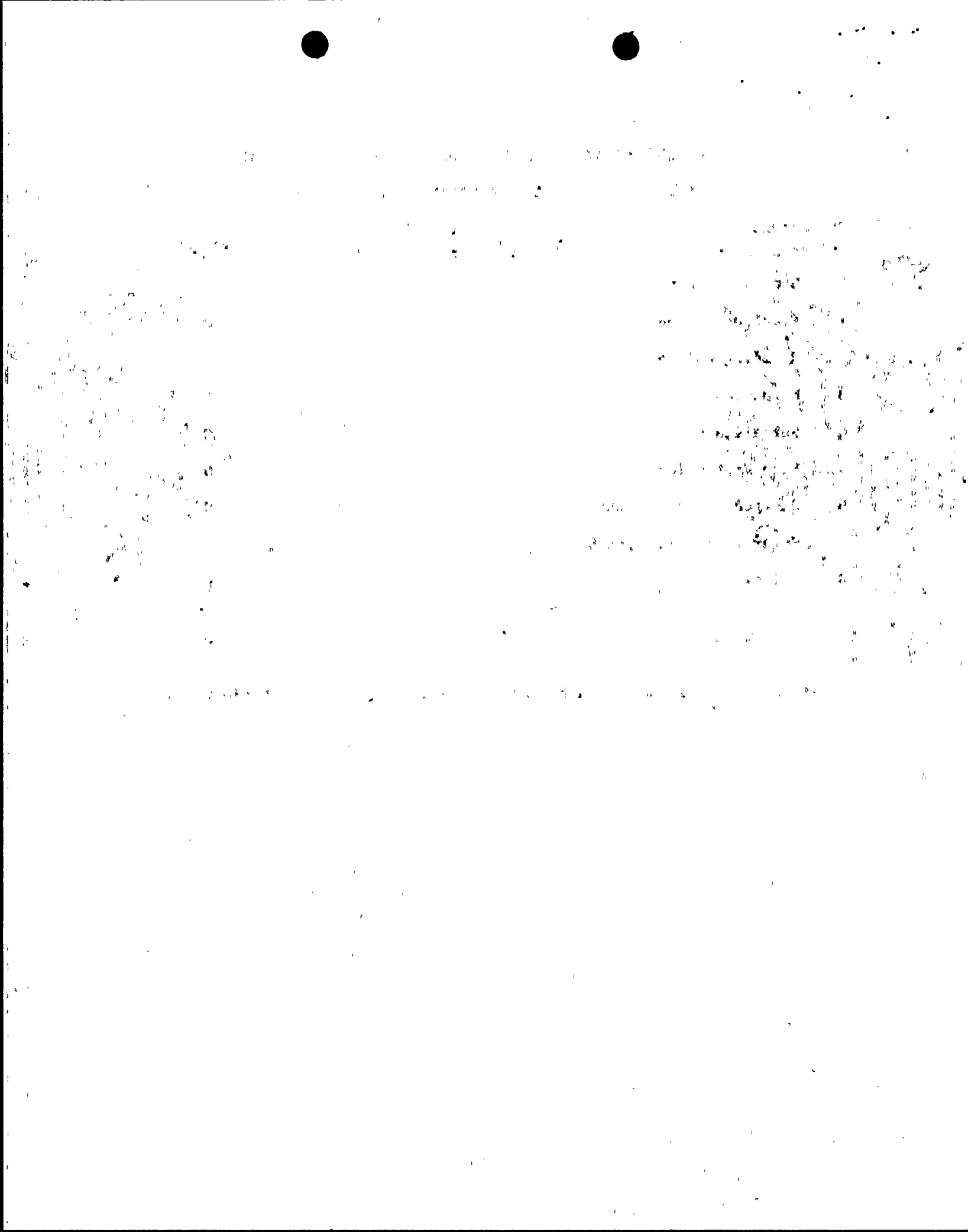
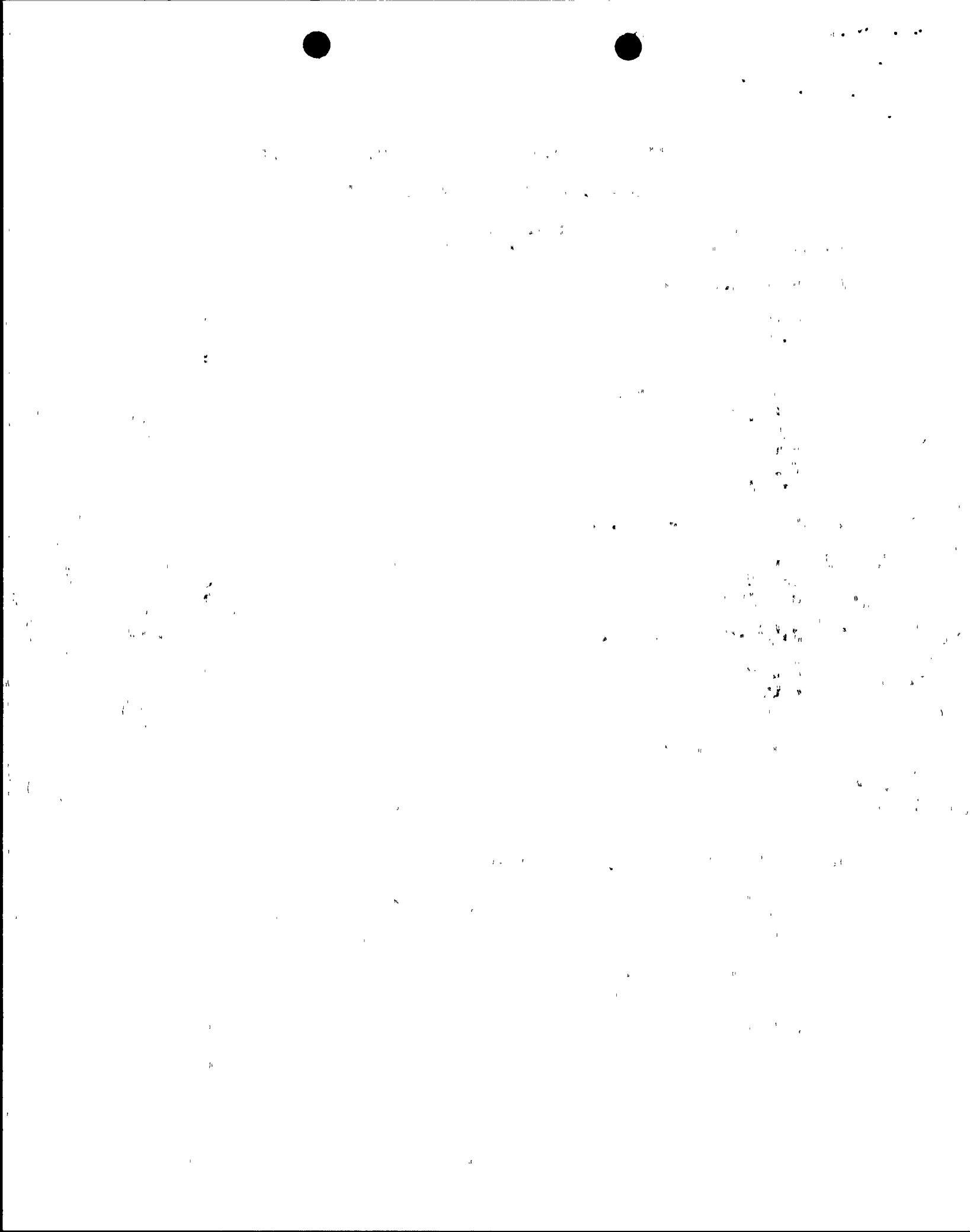


TABLE 6

## CONSTRUCTION ENFORCEMENT SUMMARY (3/1/83 - 3/31/84)

## PALO VERDE NUCLEAR GENERATING STATION

<u>Construction Functional Area</u>	<u>Severity Levels</u>					<u>Total</u>
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	
1. Soils and Foundations						
Unit 1						0
Unit 2						0
Unit 3						0
2. Containment and Other Safety-Related Structures						
Unit 1				2		2
Unit 2						0
Unit 3						0
3. Piping Systems and Supports						
Unit 1				5		5
Unit 2						0
Unit 3						0
4. Safety-Related Components						
Unit 1				2		2
Unit 2				1		1
Unit 3						0
5. Support Systems						
Unit 1						0
Unit 2				1		1
Unit 3						0
6. Electrical Power Supply Distribution						
Unit 1			1	3	3	7
Unit 2				1	1	2
Unit 3					1	1
7. Instrumentation and Controls						
Unit 1						0
Unit 2						0
Unit 3						0





Construction  
Functional Area

Severity Levels

I    II    III    IV    V

Total

8.    Licensing Activities

Unit 1

0

Unit 2

0

Unit 3

0

TOTALS

0

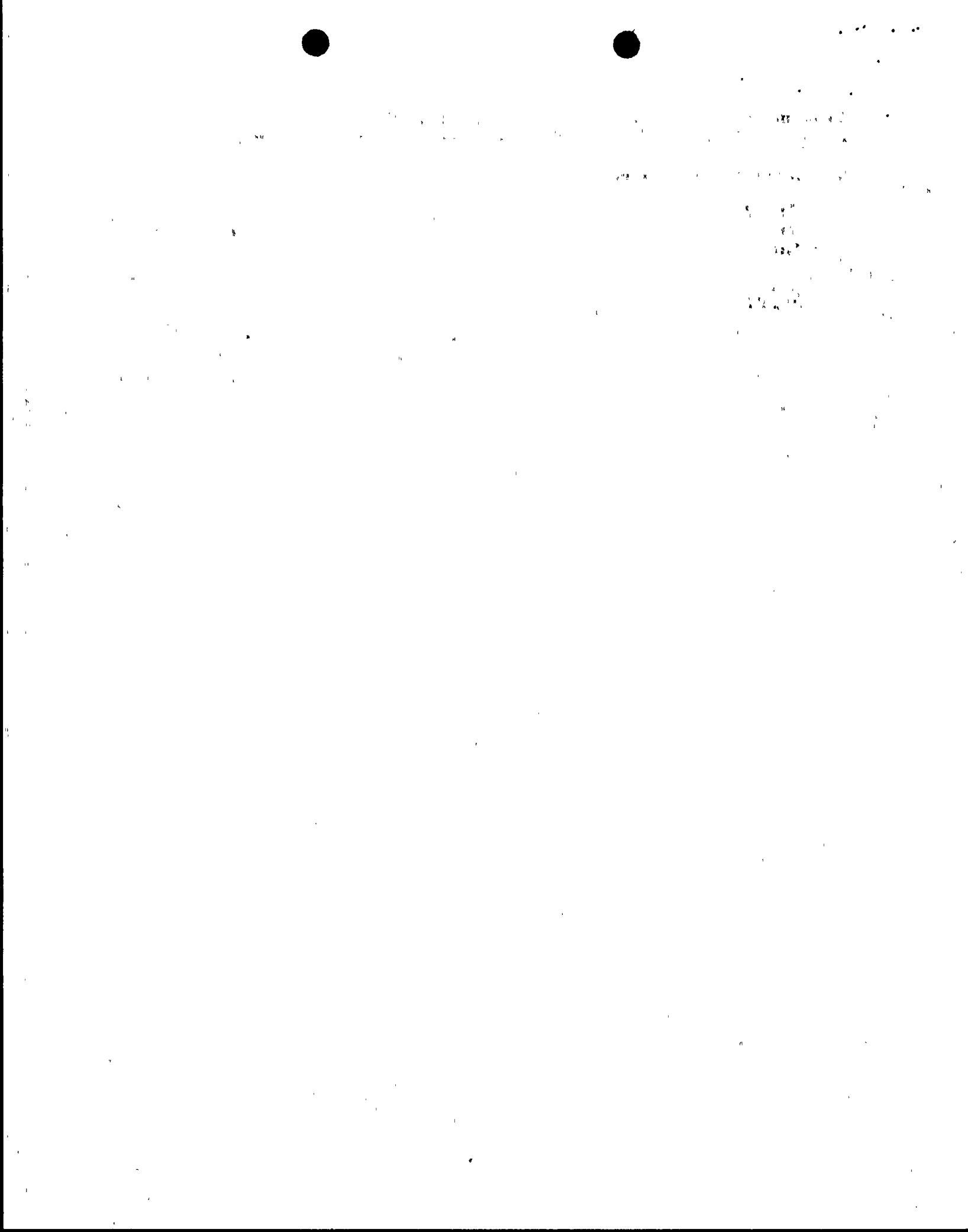
0

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NRR SALP INPUT

FACILITY: Palo Verde, Units 1, 2 and 3  
APPLICANT: Arizona Public Service Company  
REPORTING PERIOD: March 1, 1983 thru March 31, 1984  
NRR PROJECT MANAGER: Emanuel Licitra

I. Introduction

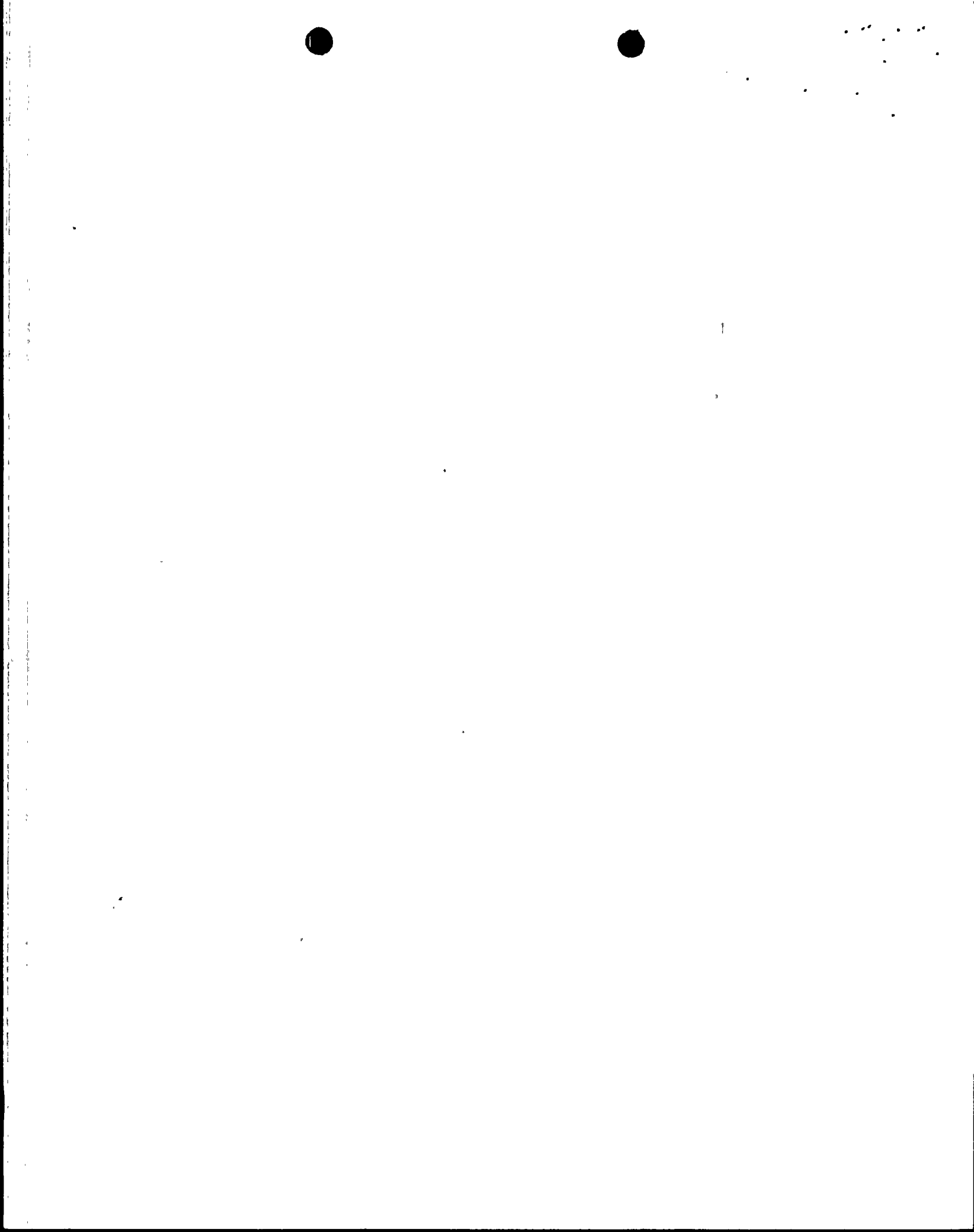
This report presents the results of an evaluation of the Arizona Public Service Company, the applicant for Palo Verde, Units 1, 2 and 3, in the functional area of licensing activities. It is intended to provide NRR's input to the SALP review process as described in NRC Manual Chapter 0516 and in NRR Office Letter No. 44. The review covers the period from March 1, 1983 through March 31, 1984 and is applicable to all three Palo Verde Units.

The basic approach used for this evaluation was to first determine the areas that were actively reviewed during the reporting period. Inputs were then requested from the technical staff in those areas. In most cases, the staff applied the evaluation criteria for the performance attributes based on their experience with the applicant or its products. Finally, the information received was assembled in a matrix which allowed an overall evaluation of the applicant's performance. This evaluation is based on staff inputs from eleven branches in four NRR divisions, as well as two branches in IE.

II. Summary of Results

NRC Manual Chapter 0516 and NRR Office Letter No. 44 specify that each functional area to be evaluated be assigned a performance category based on a composite of a number of attributes. The single final rating should be tempered with judgment as to the significance of the individual elements.

Based on this approach, the performance of Arizona Public Service Company, in the functional area of licensing activities, is rated Category 2.



### III. Criteria

Evaluation criteria, as given in Table 1 of Part II to the Appendix to NRC Manual Chapter 0516, were used for this evaluation.

### IV. Performance Analysis

The applicant's performance evaluation is based on consideration of six of the seven attributes (enforcement history was not evaluated as part of licensing activities) as given in the NRC Manual Chapter. For most of the licensing activities considered in this evaluation, only three or four of the attributes were of significance. Therefore, the composite rating is heavily based on the following attributes:

- Management involvement in assuring safety
- Approach to resolution of technical issues from a safety standpoint
- Responsiveness to NRC initiatives
- Staffing

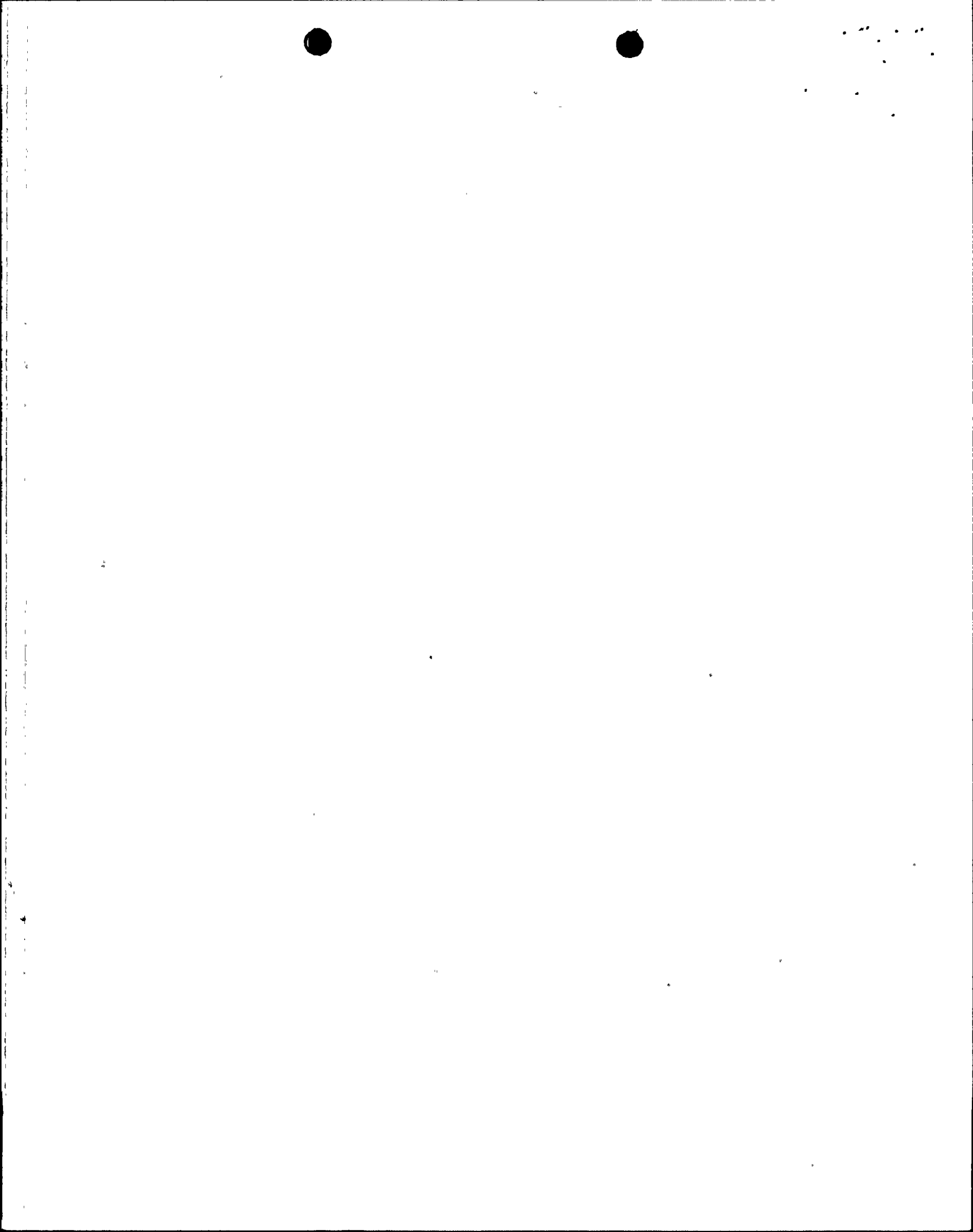
For the remaining two attributes, Reportable Events and Training, there was no basis for evaluation within NRR during the reporting period.

The evaluation was based on a review of the following licensing activities:

- equipment qualification
- materials engineering
- fire protection
- power systems
- auxiliary systems
- accident evaluation
- reactor systems
- instrumentation and control
- core performance
- procedures and systems
- quality assurance
- emergency preparedness
- human factors

#### A. Management Involvement in Assuring Quality

Management involvement in assuring quality was evident in a number of licensing review areas. Management representatives were involved in procedures program development which enhanced the quality of the Procedures Generation Package. Management was aware of the importance of fire protection and took steps to assure that issues were satisfactorily resolved. Management has also participated in the evaluations and all presentations to the staff relating to the resolution of the hot functional testing problems.



Decision making for the licensing review area is usually done at a level that ensures adequate management review and those reviews are generally timely, thorough and technically sound.

Rating: Category 2

B. Approach to Resolution of Technical Issues from a Safety Standpoint

The applicant's approaches to resolution of technical issues were viable, and generally sound and thorough. In areas, such as for fire protection and the evaluation of hot functional testing problems, the applicant exhibited a clear understanding of the technical issues. For other areas, the applicant's understanding of the issues were usually apparent. Conservatism was generally exhibited in the approach toward providing an adequate level of safety.

Rating: Category 2

C. Responsiveness to NRC Initiatives

The applicant has generally provided timely responses which are usually sound and thorough. However, there are several licensing issues for which the applicant has taken an extended amount of time to respond to, some of which are issues which are carry-overs since the last SALP evaluation period (e.g., emergency preparedness and control room design review). Also, on more than one occasion, the applicant has responded to issues with incorrect information (e.g., 11/23/83 response on alternate shutdown capabilities and the 9/13/84 response on the steam generator tube rupture accident analysis).

The applicant should apply more management attention to the remaining licensing issues so that the responses are timely and sound.

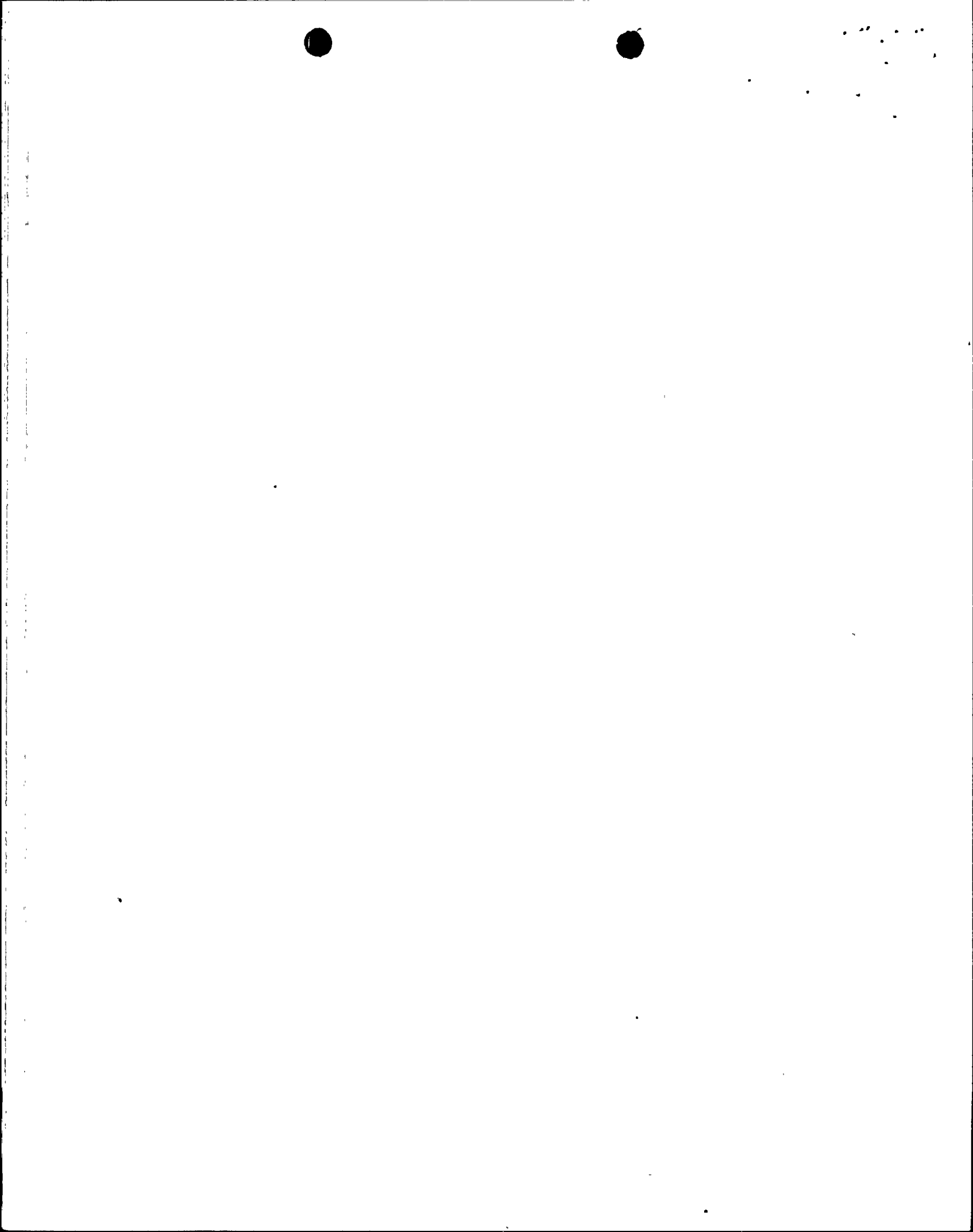
Rating: Category 2

D. Enforcement History

There was no basis for an evaluation of this criterion with regard to licensing activities.

E. Reportable Events

There was no basis for an evaluation of this criterion with regard to licensing activities.





F. Staffing

There was only a limited basis upon which to evaluate the staffing of the applicant as part of licensing activities. In the limited input received, the applicant was perceived to be adequately staffed, although to some extent the applicant does rely on the technical expertise of its A/E and its NSSS contractor. Key positions in the applicant's organization are identified, and authorities and responsibilities are defined.

Rating: Category 2

G. Training

There was no basis for an evaluation of this criterion with regard to licensing activities.

V. Conclusions

Based on the evaluation of Arizona Public Service Company's performance for a number of significant activities in the functional area of licensing with respect to several criteria, an overall performance rating of Category 2 is determined. This represents a lower rating than was determined for the previous SALP evaluation period (7/1/81 to 2/28/83). The change may be due, in part, to APS management's attention being focused more on resolving the problems encountered during preoperational testing at Unit 1. Also, there have been several organizational changes during the reporting period which could have caused some impact during transition. In any case, it appears that additional APS management attention is warranted in the area of licensing activities to improve performance in this area.



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