

**DIABLO CANYON NUCLEAR POWER PLANT  
INDEPENDENT DESIGN VERIFICATION PROGRAM**

**SEMIMONTHLY REPORT**

**IDVP - SM - SEPTEMBER**

**SEPTEMBER 23, 1983**

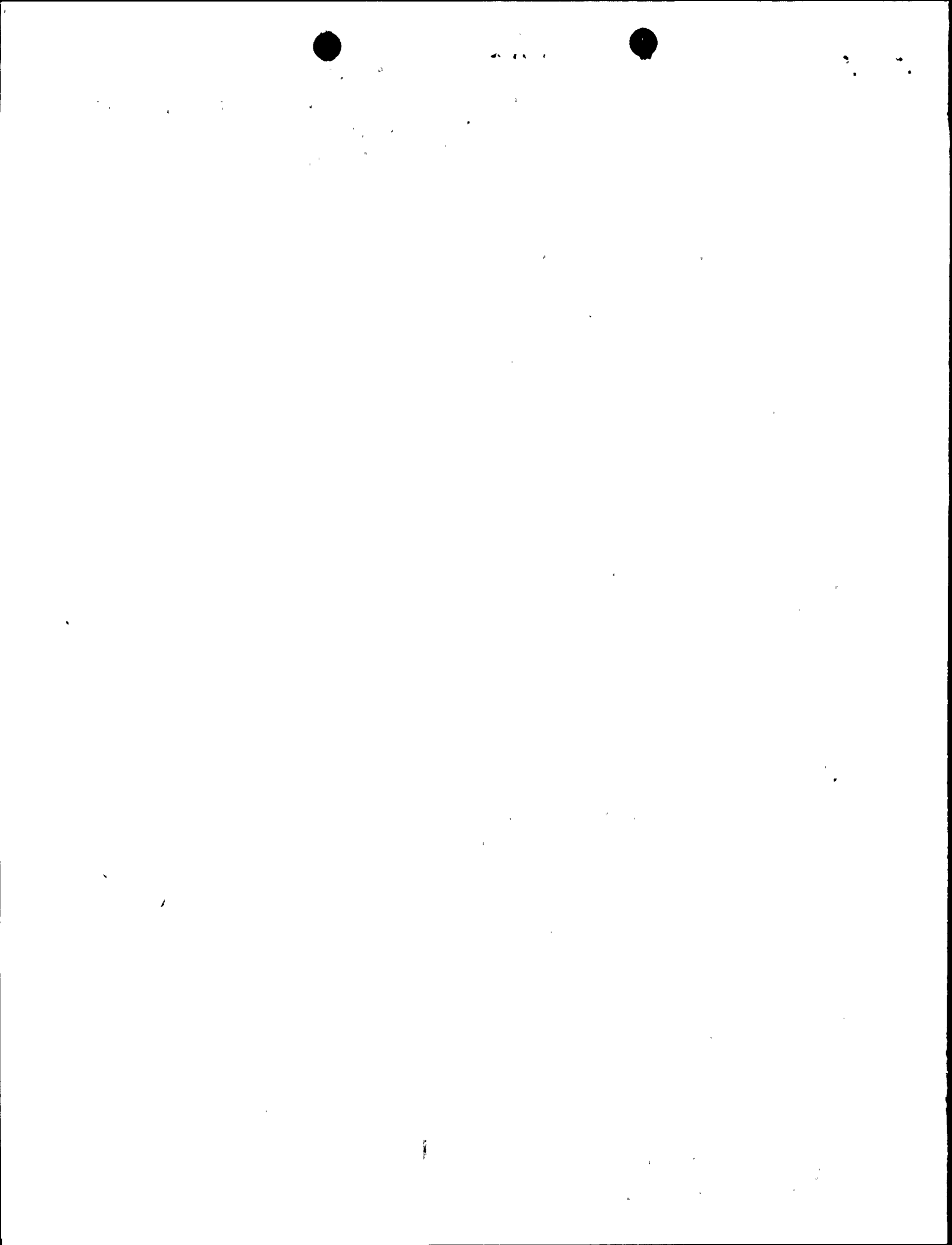
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**IDVP PROGRAM MANAGER**

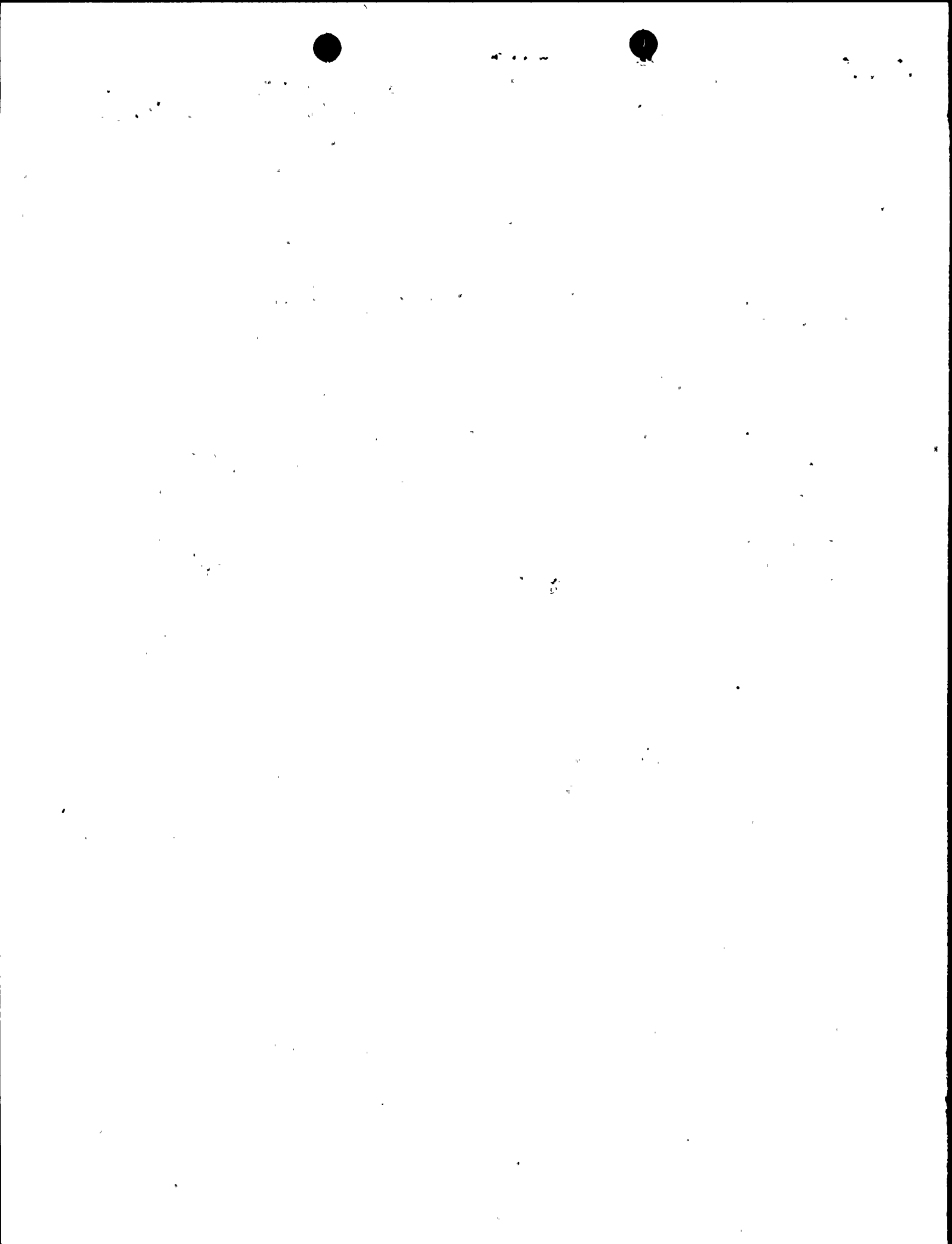
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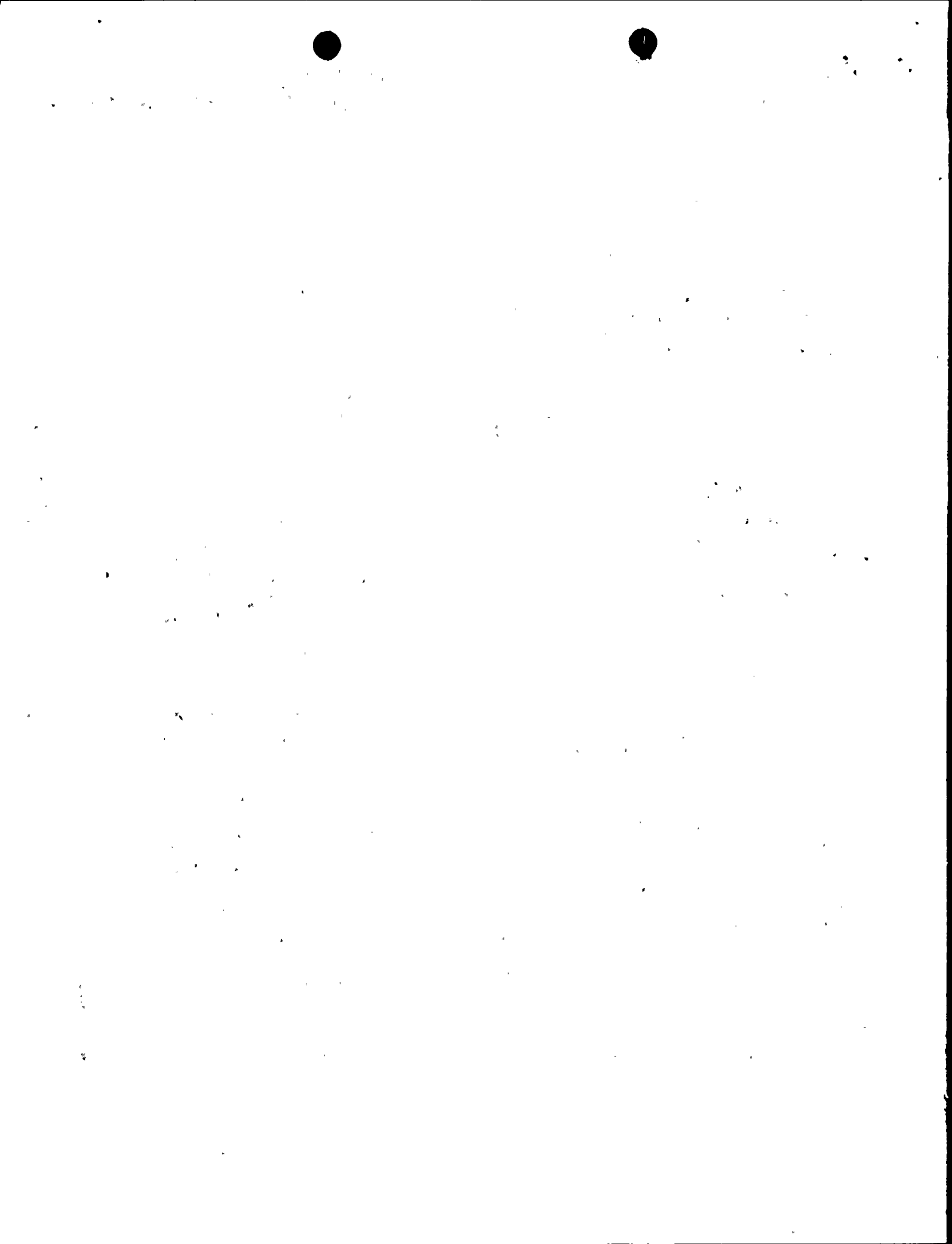
SECTION 1.0

INTRODUCTION

The Independent Design Verification Program (IDVP) for the Diablo Canyon Nuclear Power Plant (DCNPP) is responsive to NRC Order CLI-81-30 dated November 19, 1981, and an NRC letter to PGandE, dated November 19, 1981.

As required by DCNPP-IDVP-PP-005, individuals assigned by TES to the IDVP have completed an acceptable Statement Regarding Potential or Apparent Conflicts of Interest. Similar statements are included in the semimonthly reports of the other organizations participating in the IDVP. To the best of TES's belief and knowledge, all organizations and individuals assigned to the IDVP are in compliance with that procedure.

As of August 1983, the IDVP Semimonthly Reports are issued to report the status of work required to complete the NRC-approved programs. The background and the detailed results are available in the IDVP Final Report.



## SECTION 2.0

## PROGRAM MANAGEMENT

## 2.1 EOI STATUS SUMMARY

The Error or Open Item File System has been developed as a tracking system for possible technical concerns. The sequence of forms originates with an Open Item Report, which is assigned a sequential file number from the set of file numbers assigned to each IDVP participant. That file number is used to identify the subject under consideration through several revision numbers until the file is closed by issuance of an IDVP Completion Report. File actions are reported in the Semi-monthly Report issued by each IDVP participant on the second Friday of each month.

## 2.1.1 Phase I

The present status of the Phase I EOI Files is described in Appendix B. During the period covered by this Semimonthly Report, since August 26, 1983, 1 new Phase I file has been opened, making a total to date of 227 files. As of this report, 2 Phase I files (1144 and 3009) have not been closed or identified as an error. There are 16 Phase I files identified as indicating a significant error (see Table B-2 in Appendix B).

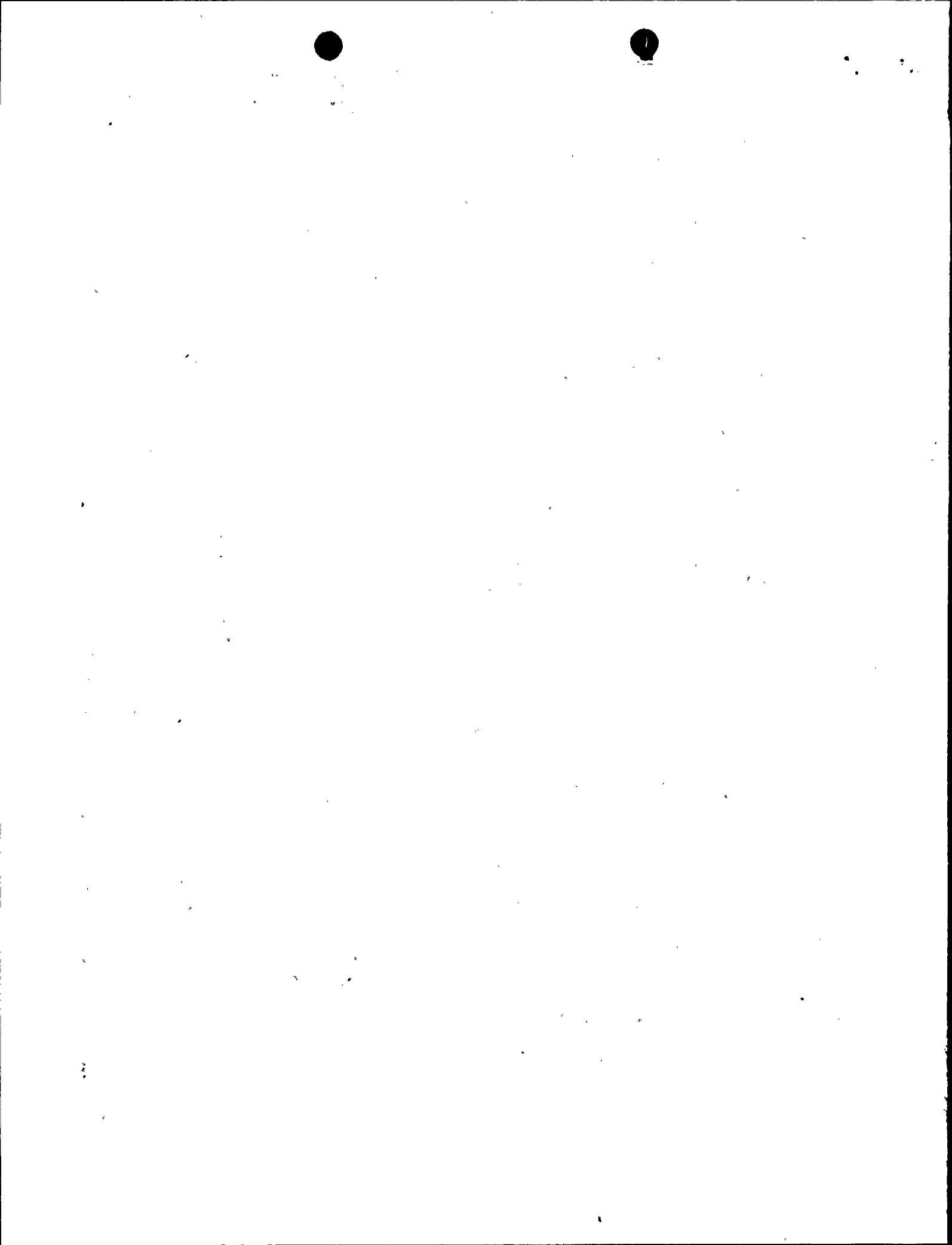
## 2.1.2 Phase II

All Phase II EOI Files have been closed, with a total of 73 files. There are 8 Phase II files identified as indicating a significant error (see Table B-2 in Appendix B).

## 2.2 ITRs ISSUED

When a program participant has completed a phase of an assigned effort, Interim Technical Reports are prepared to provide analyses and conclusions. These reports may be in support of an Error, Open Item, or Program Resolution Report; in support of the portion of the work that verifies acceptability; or in support of other IDVP action. The present status of draft and issued ITRs is described in the IDVP Final Report. The following ITRs were issued during this reporting period:

1. ITR-51, Revisions 0 and 1, "Verification of Corrective Action - Containment Annulus Structure."
2. ITR-54, Revision 0, "Verification of Corrective Action - Containment Building."





3. ITR-55, Revision 0, "Corrective Action Auxiliary Building."
4. ITR-56, Revision 0, "Corrective Action Turbine Building."
5. ITR-57, Revision 1, "Corrective Action Fuel Handling Building."
6. ITR-61, Revision 0, "Verification of Corrective Action - Small Bore Piping."
7. ITR-65, Revision 0, "Verification of Corrective Action - Rupture Restraints."
8. ITR-67, Revision 1, "Verification of Corrective Action - Equipment."
9. ITR-68, Revision 0, "Verification of Corrective Action - Soils."

### 2.3. MEETINGS

1. August 26, 1983 - Site visit to examine rupture restraints outside containment.
2. August 31 to September 2, 1983 - Site visit to verify Fuel Handling Building/Containment Structure (including Annulus) /Turbine Building modifications.
3. September 1, 1983 - NRC/DCP/IDVP Status Meeting in Bethesda.
4. September 1 & 2, 1983 - Site visit to verify electrical raceway and HVAC duct support modifications.
5. September 6 & 7, 1983 - Site visit to verify piping and pipe support modifications.
6. September 8, 1983 - Site visit to examine electrical raceways.
7. September 22, 1983 - Site visit to verify Intake Structure modifications and piping vents and drains.

### 2.4 PROJECT ADMINISTRATION

No change in status since the August 26, 1983 IDVP Semimonthly Report.

### 2.5 QUALITY ASSURANCE ACTIVITIES

There is no reportable Quality Assurance activity for this reporting period.



## 2.6 IDVP SCHEDULE

### 2.6.1 Final Report

The IDVP Final Report was issued on June 30, 1983 and has been revised through September 9, 1983. This report summarizes the IDVP efforts and presents the IDVP conclusions and evaluations in response to the Commission Order, the Staff Letter, and the Adjunct Construction Quality Assurance Program. The background of the IDVP is described in Section 1 and the IDVP Methodology is described in Section 3. The IDVP technical results which are or will be presented in a series of Interim Technical Reports (ITRs), issued as the work is completed, are summarized by Section 4. The IDVP Findings are presented in Section 5, when the term Findings is used to identify those aspects which the IDVP considered to be in violation of the DCNPP-1 license application criteria. These Findings are evaluated in Section 6 in response to the requirements of the Commission Order and Staff Letter.

The Findings and Evaluations reported in Section 5 and 6 are based upon the work completed by the IDVP by June 25, 1983, but continue to be valid. Section 7 identifies certain IDVP activities after June 25, 1983.

### 2.6.2 Lookahead Report

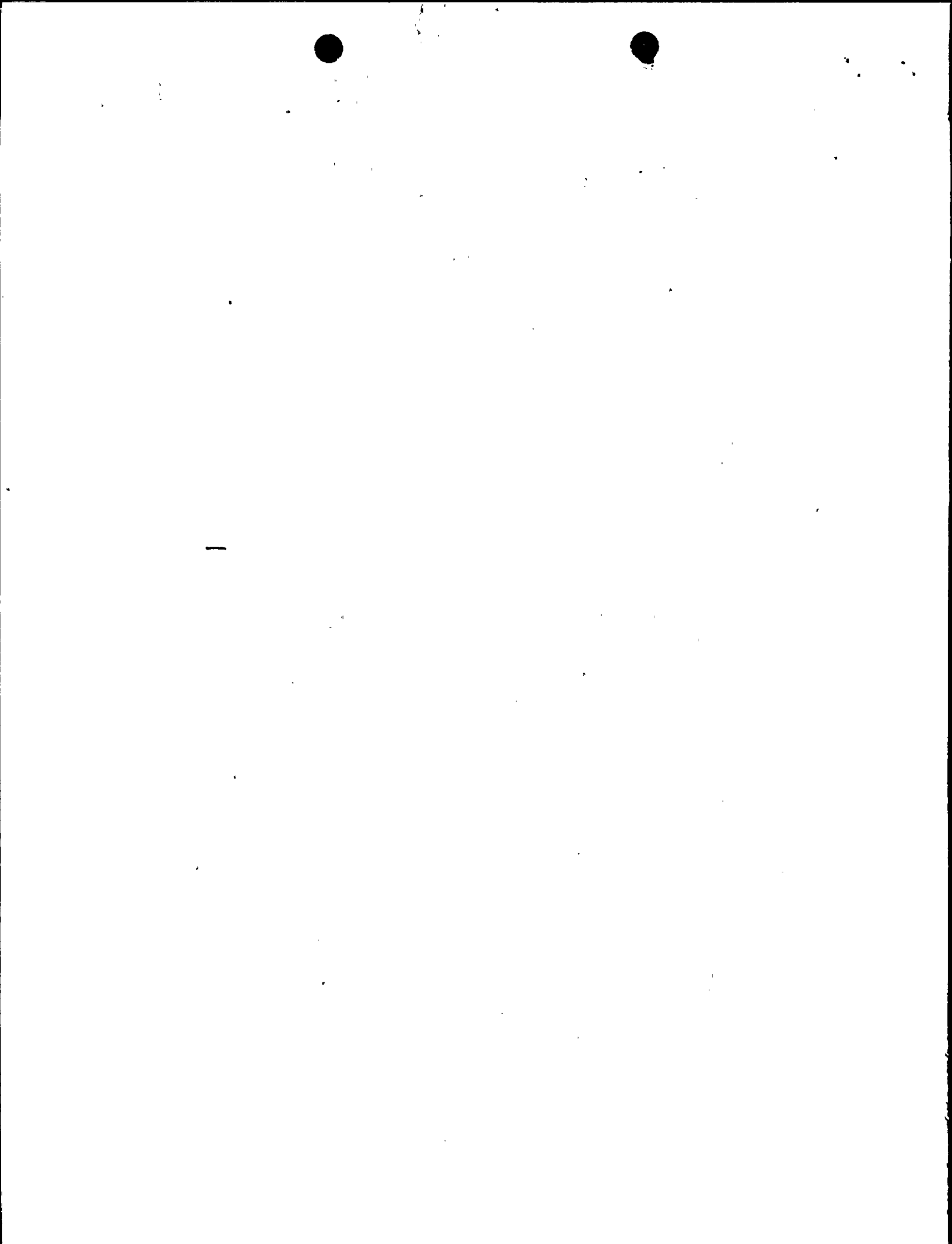
Table A-1 of Appendix A to this report contains the Lookahead Report as required by Procedure DCNPP-IDVP-PP-007, Revision 3, of May 17, 1983. This report includes the best available schedule of events due to occur before the next IDVP Semimonthly Report, for:

1. DCNPP Site visits by the IDVP Team
2. Anticipated meetings where all IDVP participants and designated interested parties have been or will be notified.

### 2.6.3 Licensing Schedule

Table A-2 reflects the Status of Incomplete Verifications defined by ITRs -8 and -35. It is an update of Table 7.4-1 of the IDVP Final Report. The first column identifies all portions of the IDVP Final Report which must be supplemented at a later date to report completion of the IDVP effort defined by ITRs -8 and -35. The second column provides a cross-reference to the PGandE Final Report sections which report on the same subject.

The third column of Table A-2 identifies those EOI Files which pertain to each of the incomplete subsections and which were unresolved as of September 23, 1983.



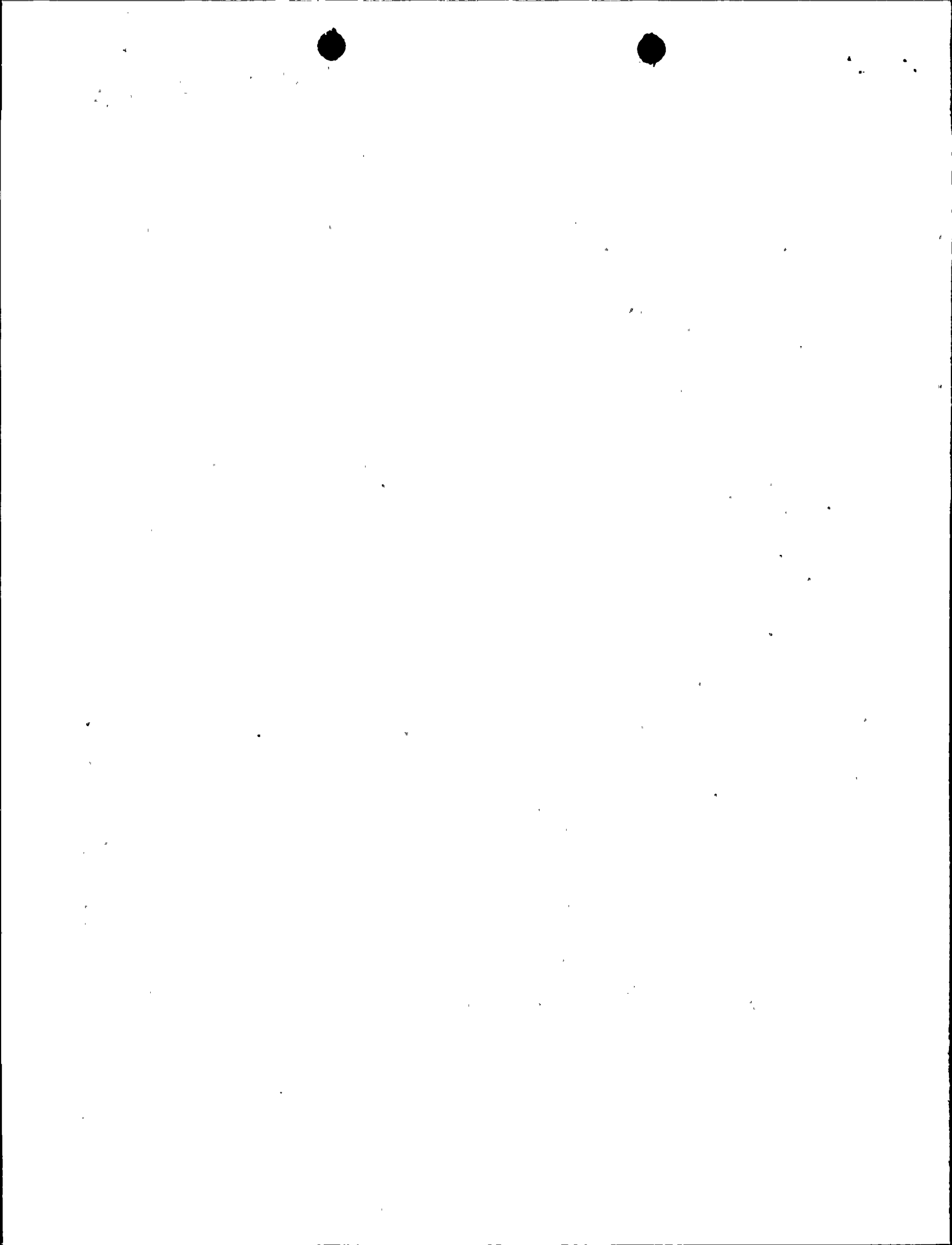
The fourth column of Table A-2 identifies the ITR which will be issued to report the details of the IDVP work summarized in the listed IDVP Final Report subsection, as well as the future efforts required to complete the IDVP.

The last three columns of Table A-2 summarize the status of IDVP verification. In all cases, the IDVP verification program is that contained in either ITR -8 or -35. The column headings are:

- o "Field" - indicates the status of field verification, not including field verification of modifications.
- o "Design" - indicates the status of verification of DCP design efforts.
- o "Mod" - indicates the status of IDVP field verification of physical modifications.

One of four terms (Yes, Part, No, or NA) is entered in Table A-2 to summarize the IDVP status.

- o In the first of these last three columns: "Yes" means that the IDVP has completed this field verification; "No" means that IDVP field verification is planned, but not yet completed; and, "NA" means that field verification is not applicable.
- o In the second of these last three columns: "Yes" means that the IDVP has completed their design verification effort except, where applicable, the field verification of modifications; "Part" means that the IDVP has completed a significant portion of their verification effort and is satisfied with the results to date, but that an additional sample is required by ITRs -8 or -35; and "No" means that the IDVP has either not completed a significant portion of their verification effort or that issues are unresolved.
- o In the third of these last three columns: "Yes" means that physical modifications were performed and have been verified by the IDVP; "No" means that physical modifications are to be performed, or that physical modifications are expected to be performed, but have not yet been verified by the IDVP; and, "NA" means that no physical modifications requiring IDVP verification have been performed, or are expected to be performed.



## SECTION 3.0

### TECHNICAL PROGRAM STATUS

#### 3.1 RLCA EFFORTS .

##### 3.1.1 Additional Verification

Based on the NRC Staff review of the issued ITRs of soils, the IDVP verification program for review of the HLA soils work was expanded. One ITR, ITR-68, is planned to report the results of the expanded verification program as well as the buried piping and tank review. Revision 1 to that ITR remains to be issued.

##### 3.1.2 Verification of DCP Corrective Action

ITR-8, Revision 0, "Verification of Corrective Action," addresses buildings and structures, large and small bore piping and supports, raceways, instrument tubing, and equipment. The plan involves examination of the DCP scope, criteria and methodology.

In addition, ITR-35, Revision 0, "Verification of DCP Activities," plans to verify the DCP activities that are applicable to Phase II (non-Hosgri structural/mechanical evaluations).

##### a. Containment Structures

RLCA has issued ITR-54, Revision 0. Revision 1 will be issued in the next report period. The revision will include disposition of EOI 3009.

##### b. Auxiliary Building

RLCA has issued ITR-55, Revision 0. Revision 1 will be issued in the next report period.

##### c. Turbine Building

RLCA has issued ITR-56, Revision 0. Revision 1 will be issued during the next report period.

##### d. Large Bore Piping

RLCA has issued ITR-59, Revision 0. Revision 1 will be issued during the next report period.

##### e. Large and Small Bore Pipe Supports

RLCA has issued ITR-60, Revision 0. Revision 1 will be issued during the next report period.





f. Small Bore Piping

RLCA has issued ITR-61, Revision 0. Revision 1 will be issued during the next report period. This revision will include the disposition of EOI 1144.

g. HVAC Ducts, Raceways, Instrument Tubing, and Supports

RLCA has issued ITR-63, Revision 0. Revision 1 will be issued during the next report period.

h. Rupture Restraints

RLCA has issued ITR-65, Revision 0. Revision 1 will be issued during the next report period.

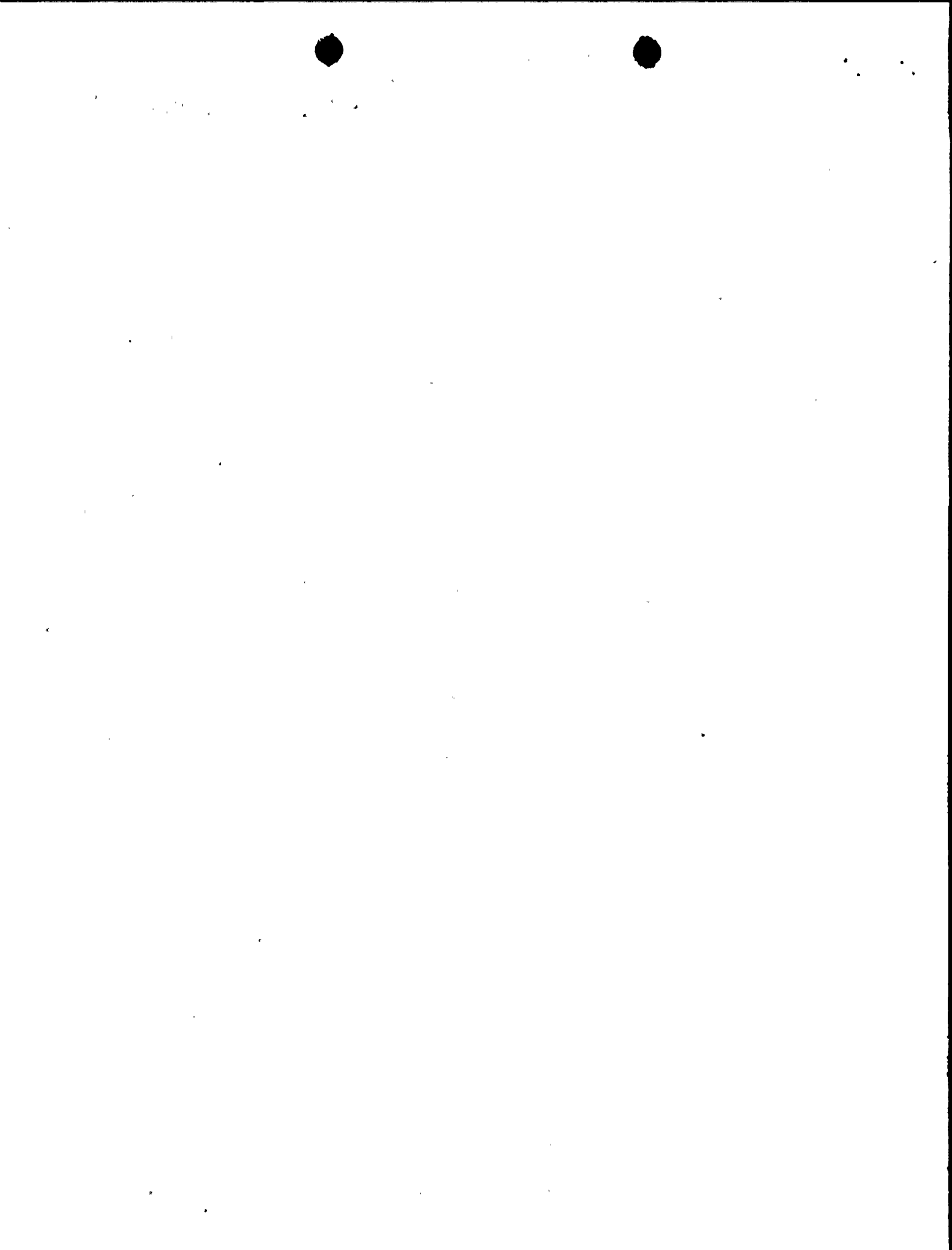
i. Equipment

RLCA has completed the verification effort on equipment and reported the results in ITR-67, Revision 1.

3.2 TES EFFORTS

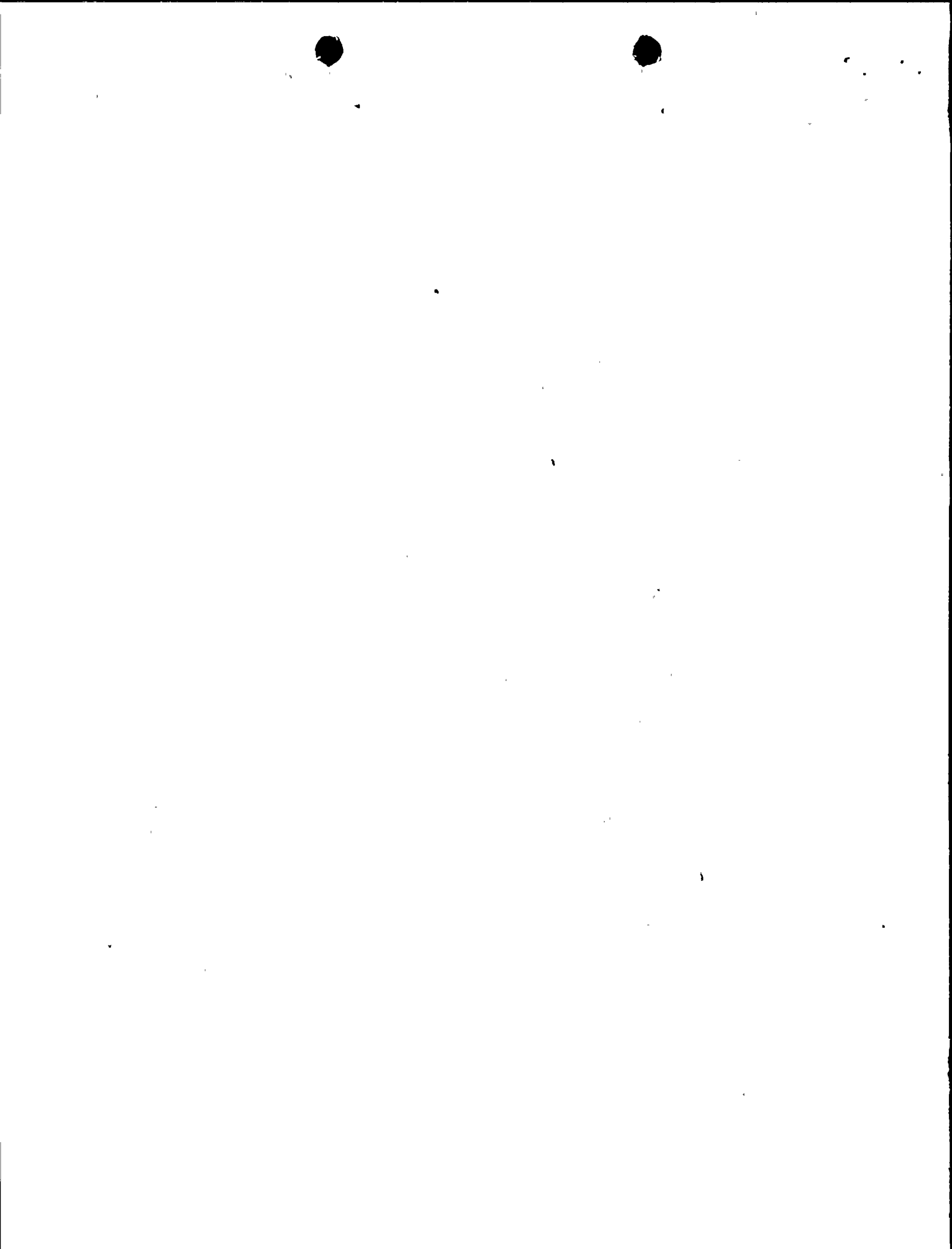
3.2.1 Containment Interior Structure

EOI 3009 was issued to identify a concern regarding the development of the horizontal response spectra, and has been resolved for elevation at or below 140'. Resolution for higher elevation will be reported in ITR-54, Revision 1.



**APPENDIX A**

**LIST OF TABLES**



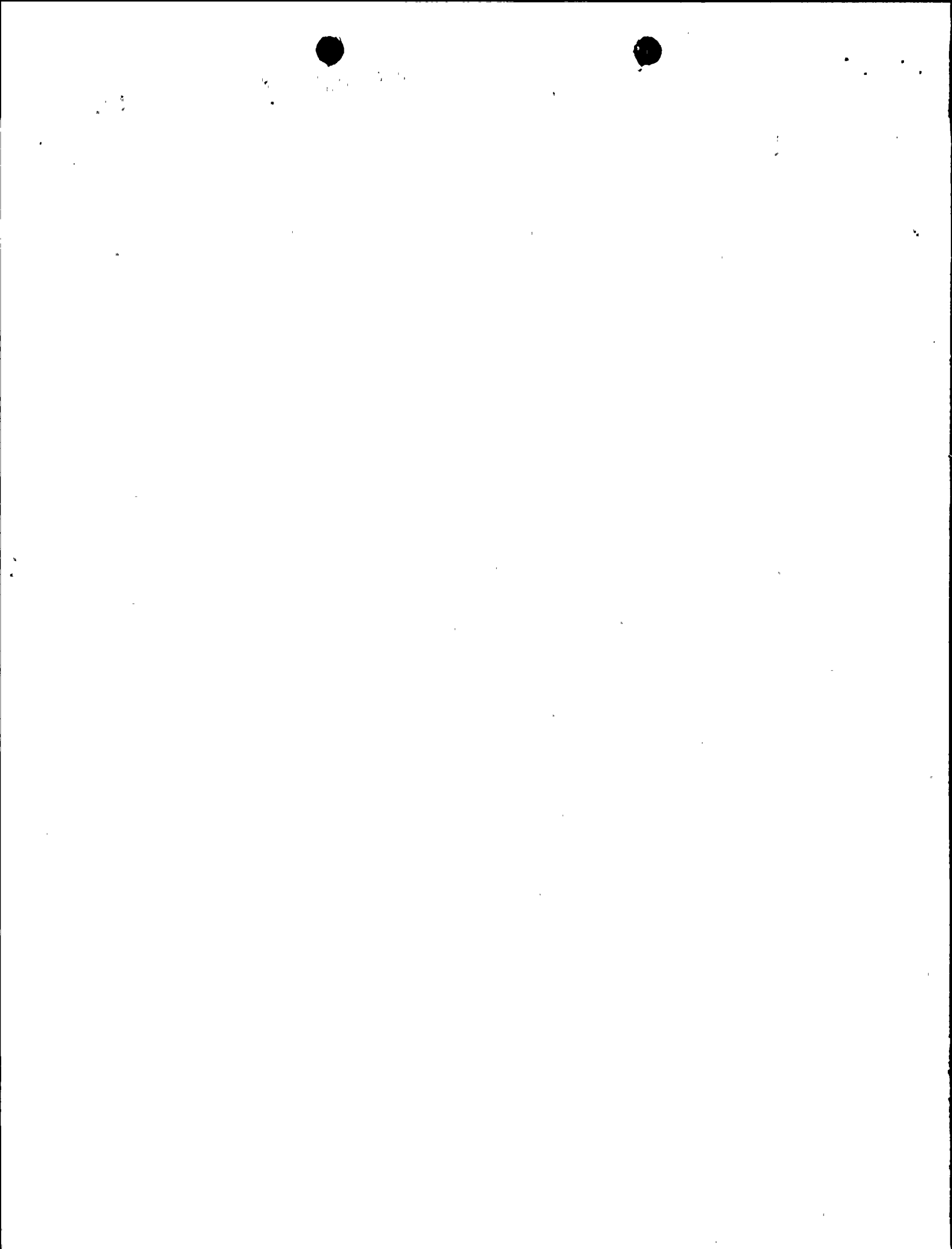
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APPENDIX A

LIST OF TABLES

- A-1 Lookahead Report
- A-2 Status of Incomplete Verifications Defined by ITRs -8 and -35



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TABLE A-1  
LOOKAHEAD REPORT  
AFTER SEPTEMBER 23, 1983

NO MEETINGS ARE PLANNED

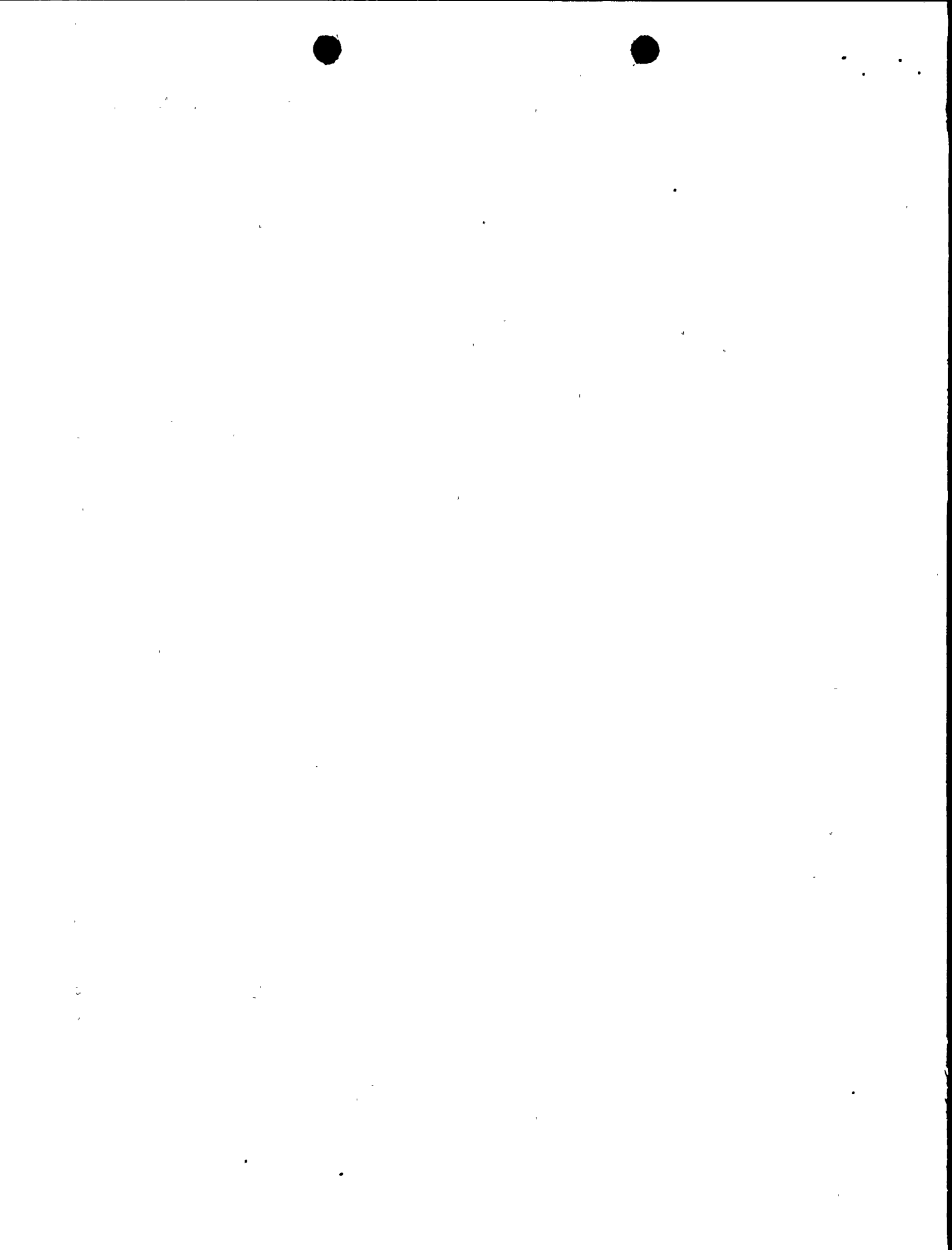


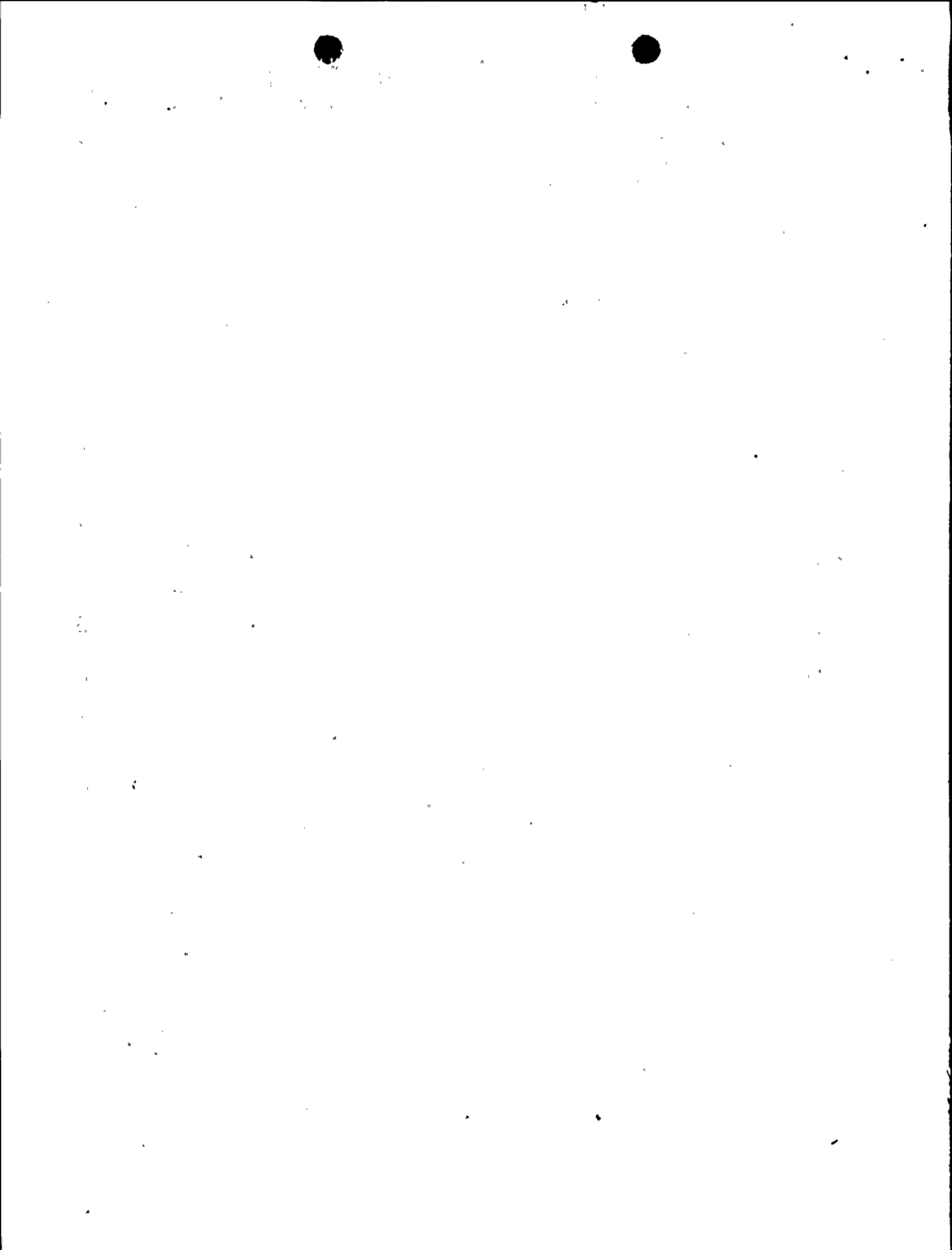


TABLE A-2

STATUS OF INCOMPLETE VERIFICATIONS DEFINED BY ITRs -8 and -35  
AS OF SEPTEMBER 23, 1983

<u>FINAL REPORT SUBSECTIONS</u>		<u>UNRESOLVED</u>	<u>ITR COMPLETE?</u>	<u>VERIFICATION</u>		
<u>IDVP</u>	<u>PGandE</u>			<u>EOIs</u>	<u>NO.*</u>	<u>FIELD</u>
4.4.2.2	2.1.2	1097	55-1	Yes	Part	NA
4.4.3	2.1.3	NA	NA	NA	Yes	Yes
4.4.4	2.1.1	1014 3009	54-1	Yes	Part	Yes
4.4.5	2.1.1.4.3	1014	NA	Yes	Yes	Yes
4.4.6	2.1.5	NA	58-1	Yes	Yes	Yes
4.4.8	2.1.4	1026	56-1	Yes	Part	Yes
4.5.2.3a	2.2.1	1098	59-1	Yes	Part	Yes
4.5.2.3b	2.2.3	1098	60-1	Yes	Part	Yes
4.5.3.2a	2.2.2	1098	61-1	Yes	Part	Yes
4.5.3.2b	2.2.2	1098	60-1	Yes	Part	Yes
4.6.2.2	2.3.1	NA	NA	NA	Yes	NA
4.6.3	2.3.1	NA	NA	NA	Yes	NA
4.6.4	2.3.1	NA	NA	Yes	Yes	NA
4.6.5	2.3.1	NA	NA	Yes	Yes	NA
4.6.6.3	2.3.3	NA	NA	Yes	Yes	NA

\*When the ITR number is followed by another number, the ITR has been issued but a further revision is expected.

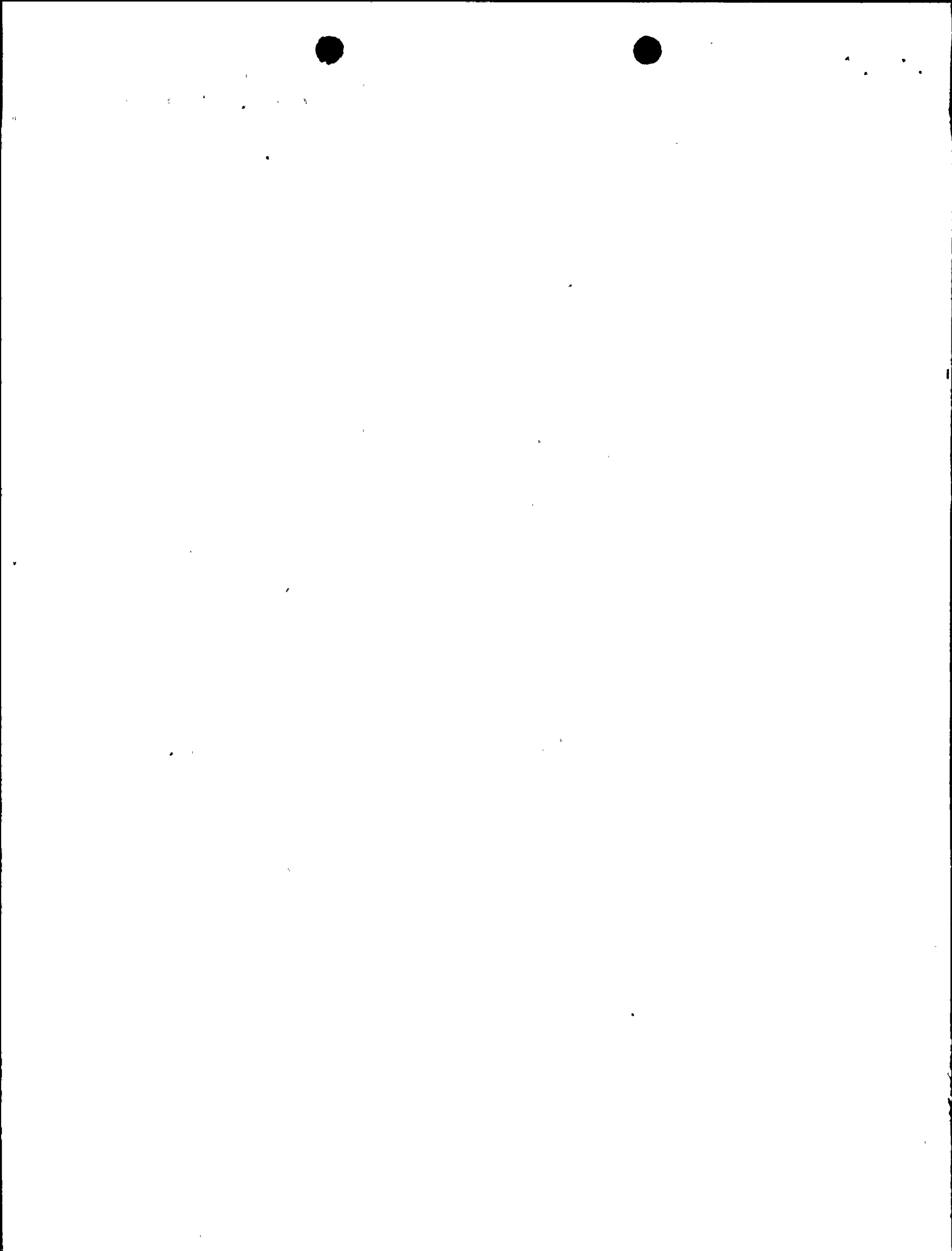


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TABLE A-2 (CONT)

<u>FINAL REPORT SUBSECTIONS</u>		<u>UNRESOLVED</u>	<u>ITR COMPLETE?</u>	<u>VERIFICATION</u>		
<u>IDVP</u>	<u>PGandE</u>	<u>EOIs</u>	<u>NO.*</u>	<u>FIELD</u>	<u>DESIGN</u>	<u>MOD.</u>
4.6.6.5	2.5	NA	63-1	No	Part	Yes
4.6.7	2.3.2	NA	NA	Yes	Yes	NA
4.6.8.1b	2.4	NA	63-1	Yes	Part	Yes
4.6.8.2b	2.6	NA	63-1	Yes	Yes	NA
4.6.9	NA	NA	NA	Yes	Yes	NA
4.9.1.4	2.3.2.3.3	NA	NA	NA	Yes	NA
4.9.2	NA	NA	68-1	Yes	Part	NA
4.9.3	NA	NA	65-1	No	Part	NA

\*When the ITR number is followed by another number, the ITR has been issued but a further revision is expected.



**APPENDIX B**

**STATUS OF EOI FILES**



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APPENDIX B

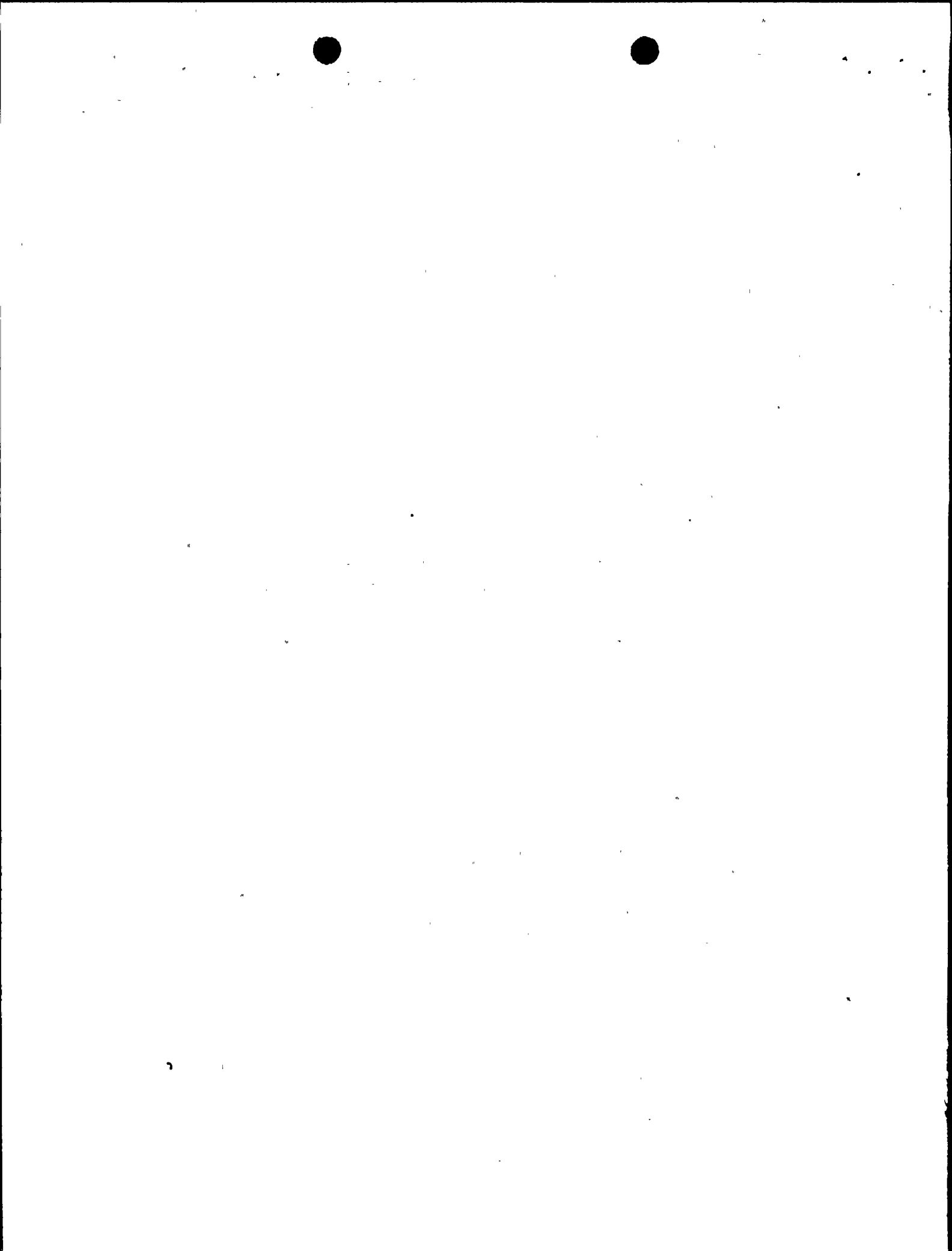
STATUS OF EOI FILES AS OF SEPTEMBER 23, 1983

The EOI File status is summarized in Table B-1. Table B-2 summarizes the status of all EOI File errors identified to date that are, in the opinion of the IDVP, significant.

The remaining tables are printouts from the TES program LISTLOG as described in Attachment 3 to the IDVP Semimonthly Report for July 1982.

The organization originally opening an EOI File may be determined from the sequence of numbers, as follows:

<u>Sequence</u>	<u>Organization</u>	<u>Subject</u>
910-1999	RLCA	Phase I
2000-2999	RFR	Phase I
3000-3999	TES	Phase I
5000-5999	TES	Phase II
6000-6999	RLCA	Phase II
7000-7999	RFR	Phase II
8000-8999	SWEC	Phase II
9000-9998	SWEC	Construction QA





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## LIST OF TABLES

<u>Table</u>	<u>Description</u>
B-1	Present Status of EOI Files
B-2	Status of Significant Errors
B-4	Error Reports Being Considered by PG&E  Lists all Files that are presently Error Reports being considered by PG&E. An IDVP Completion Report can be issued for Class C Error Files if the IDVP is informed that no modifications will be undertaken in direct response to that File. All others must be referred back to the IDVP for verification of the corrective action and modification. When PG&E informs the IDVP, an Open Item Report (OIR) will be issued by TES with the same File Number and the next higher revision number.
B-5	Deviation Reports Being Considered by PG&E.  Lists all Files that are presently Deviation Reports being considered by PG&E to determine if physical modifications will be undertaken in direct response to that File. If PG&E informs the IDVP that no modifications will be made, TES will issue an IDVP Completion Report. If PG&E informs the IDVP that modifications will be undertaken, an Open Item Report will be issued by TES with the same File Number and the next higher revision number.
B-6	Open Item Reports Requiring Additional Information from PG&E  Lists Open Item Reports transferred to PG&E because the IDVP requires additional technical information before the IDVP may resolve the File. When PG&E provides this information to the IDVP, TES will issue an Open Item Report, with the same File Number and next higher revision number, and continue with the IDVP resolution of the File.



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<u>Table</u>	<u>Description</u>
B-7	<p>EOIs that are the Responsibility of TES</p> <p>Lists the Files that are presently the responsibility of TES. In each case, the first letter in the "STATUS" column is "P" for Potential. That is, TES has received a recommended position from one of the IDVP participants and will either agree with the recommendation (indicated by issuing the next higher revision with the first "P" in the status symbol deleted) or disagree with the recommendation (indicated by issuing an Open Item Report with the next higher revision number) and sending the item back to the IDVP organization for further study.</p>
B-8	<p>EOIs that are the Responsibility of RLCA</p> <p>Lists the Files that are presently the responsibility of RLCA. These are all Open Items which RLCA will study and prepare a recommendation for TES review and approval.</p>



TABLE B-1  
PRESENT STATUS OF EOI FILES

<u>IDVP ACTION</u>	<u>PH I</u>	<u>PH II</u>	<u>CQA</u>	<u>TOTAL</u>
Open Items:	5	0	0	5
Potential Program Resolution as:				
Closed Item	0	0	0	0
Transfer to PG&E	0	0	0	0
Deviation	0	0	0	0
Potential Error, Class:				
A	0	0	0	0
A or B	0	0	0	0
B	0	0	0	0
C	0	0	0	0
D	0	0	0	0
<b>IDVP Totals</b>	<u>5</u>	<u>0</u>	<u>0</u>	<u>5</u>
<u>PG&amp;E ACTION</u>				
Program Resolution as:				
Transfer to PG&E	1	0	0	1
Deviation*	0	0	0	0
Error, Class:				
A	0	0	0	0
A or B	0	0	0	0
B	0	0	0	0
C*	0	0	0	0
D*	0	0	0	0
<b>PG&amp;E Totals</b>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>
<u>IDVP COMPLETION REPORTS</u>	<u>221</u>	<u>73</u>	<u>29</u>	<u>323</u>
<b>TOTALS</b>	<u>227</u>	<u>73</u>	<u>29</u>	<u>329</u>

\*IDVP Completion Reports can be issued for these files if PG&E informs TES that physical modifications will not be applied in direct response to the file.



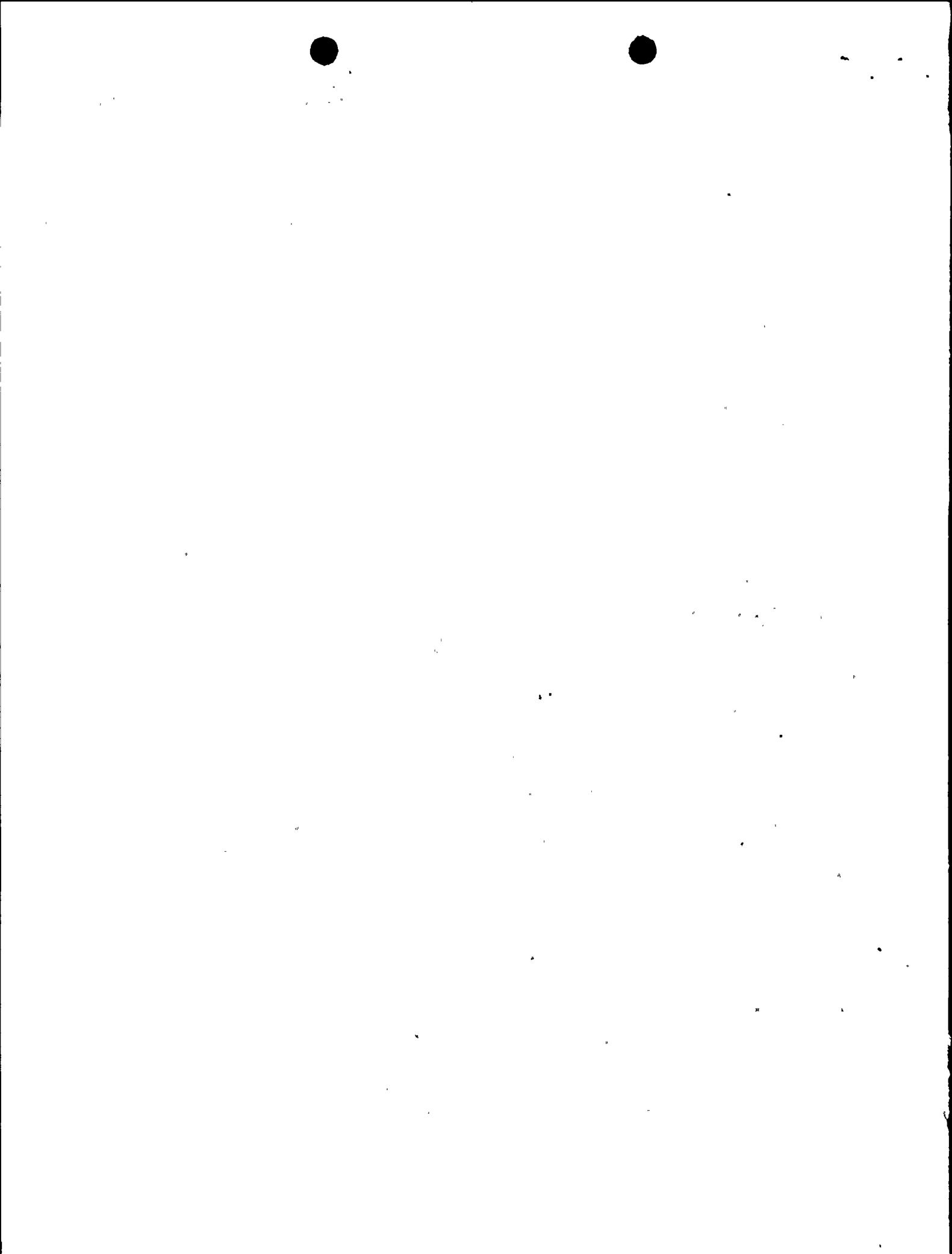
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TABLE B-2  
STATUS OF SIGNIFICANT ERRORS

The reviews to date have resulted in the following conclusions with respect to errors where, in the opinion of the IDVP, design criteria or operating limits of safety-related equipment are exceeded and physical modifications, changes in operating procedures, more realistic calculations, or retesting are required.

<u>STATUS</u>	<u>NUMBER IN ERROR CLASS</u>		
	<u>A</u>	<u>A OR B</u>	<u>B</u>
PG&E WILL ESTABLISH CORRECTIVE ACTION	0	0	0
IDVP WILL VERIFY CORRECTIVE ACTION	0	4	0
CORRECTIVE ACTION VERIFIED BY IDVP	13	6	2
TOTAL	13	10	2

The EOI File numbers preceded by an asterisk (\*) in the continuation of the table are being considered for downgrading by the IDVP and are not included in the numerical tabulation.





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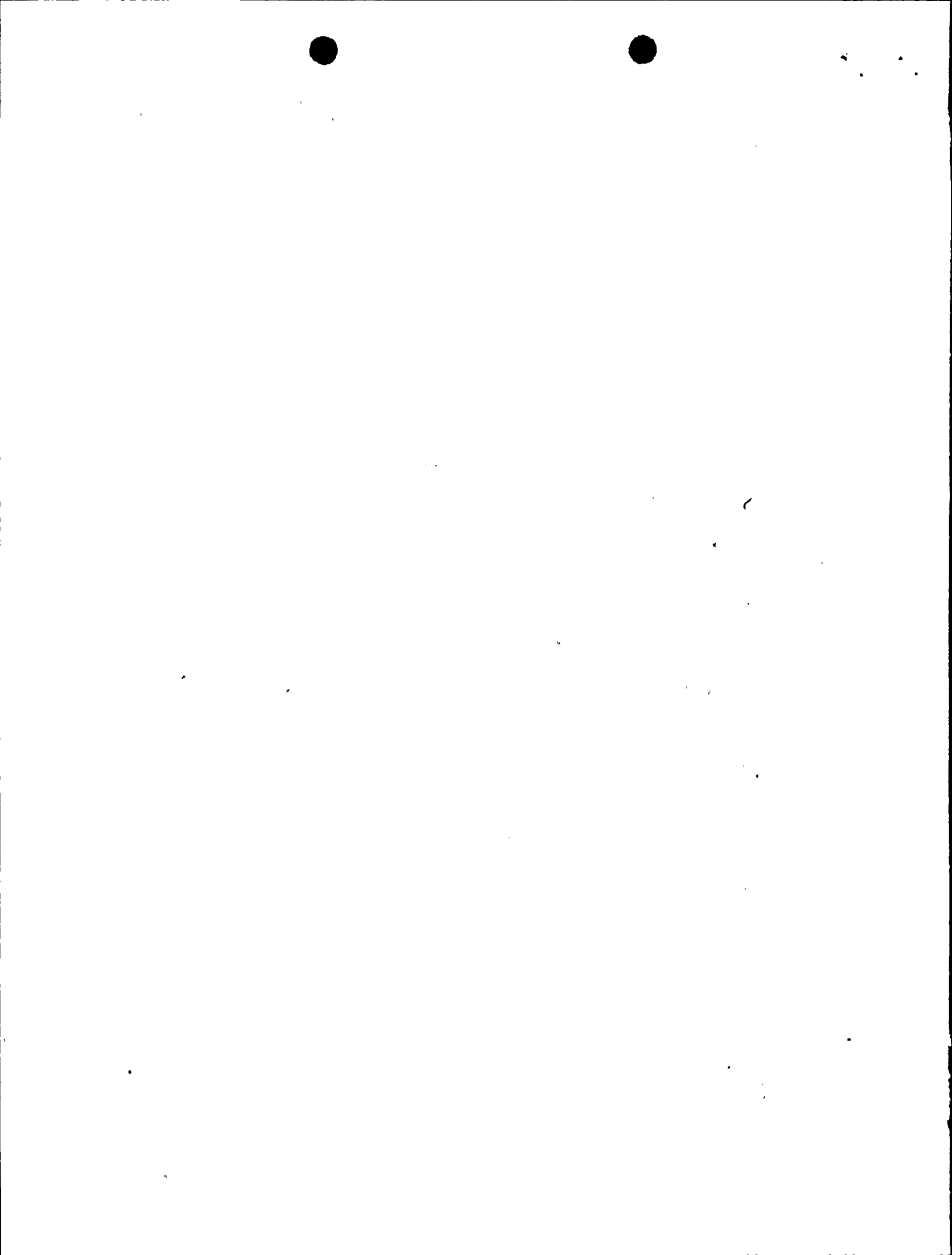
## TABLE B-2 (CONT)

ERROR CLASS A

- 932: Support 58S-23R - Containment Spray-correct to vertical from deadweight.
- 938: Valve 8805B - Line 1988 Auxiliary Building to be rotated so stem vertical per drawing requirements (includes File 1105).
- 983: Raceway Supports - 9 of 20 evaluated with incorrect spectra. Correct spectra (includes Files 910 and 930).
- 1069: Valves LCV113 and LCV115 - AFW unsupported causes pipe over-stress. PG&E adding supports and confirming acceptability to valve manufacturer.
- 1092: Fuel Handling Building - Seismic reanalysis and physical modifications (Includes Files 990, 991, 1027, 1079, 1091).
- 1107: Piping Sample 110 - One way (DW) supports, omission of valve on vent line, and SIF not considered for socket weld connections.
- 8009: Code design pressure exceeded in AFW piping.
- 8010: AFW Pump bearing coolers and piping require protection against overpressure per ANSI B31.1, 102.2.5(b).
- 8012: Portions of Class IE CRVP power supplies fail single failure criteria (includes 8016 and 8046).
- 8017: CRVP control power transfer switch failure would result in violation of separation and single failure criteria.
- 8057: AFW and CRVP Control Panels.
- 8062: Pressure Differential Across Control Valves.
- 9026: NDE of reactor coolant piping attachment removal (CQA).

ERROR CLASS A OR B

- 949: Main Annunciator Cabinet - reanalyze with correct stiffness.
- 1003: HVAC Duct Support Reanalysis (Includes File 1077).
- 1014: Containment seismic reevaluation (Includes Files 977, 1009, 3006, 3007, and 3008).



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## TABLE B-2 (CONT)

- 1022: Intake Structure seismic reevaluation (Includes Files 967 and 988).
- 1026: Turbine Building seismic review (Includes Files 982, 984, 989, 1010, 1025, and 1028).
- 1097: Auxiliary Building seismic reevaluation (Includes Files 920, 986, 1029, 1070, 1093, and 1132).
- 1098: Piping seismic reevaluation (Includes Files 961, 1021, 1058, 1059, 1060, 1104, 1115, 1126, 1141, 6001, and 6002).
- 1106: Nozzle load and valve acceleration limitations not satisfied in several piping systems (includes File 1109).
- 7002: Containment jet impingement evaluation.
- 8001: Evaluation of environment outside containment (includes Files 7004, 7005, 8003, 8006, 8033, and 8034).

ERROR CLASS B

- 963: Support 58S/32R - Containment Spray - reanalyze to determine if gap is acceptable.
- 1124: Auxiliary Building Control Room Floor Slab.

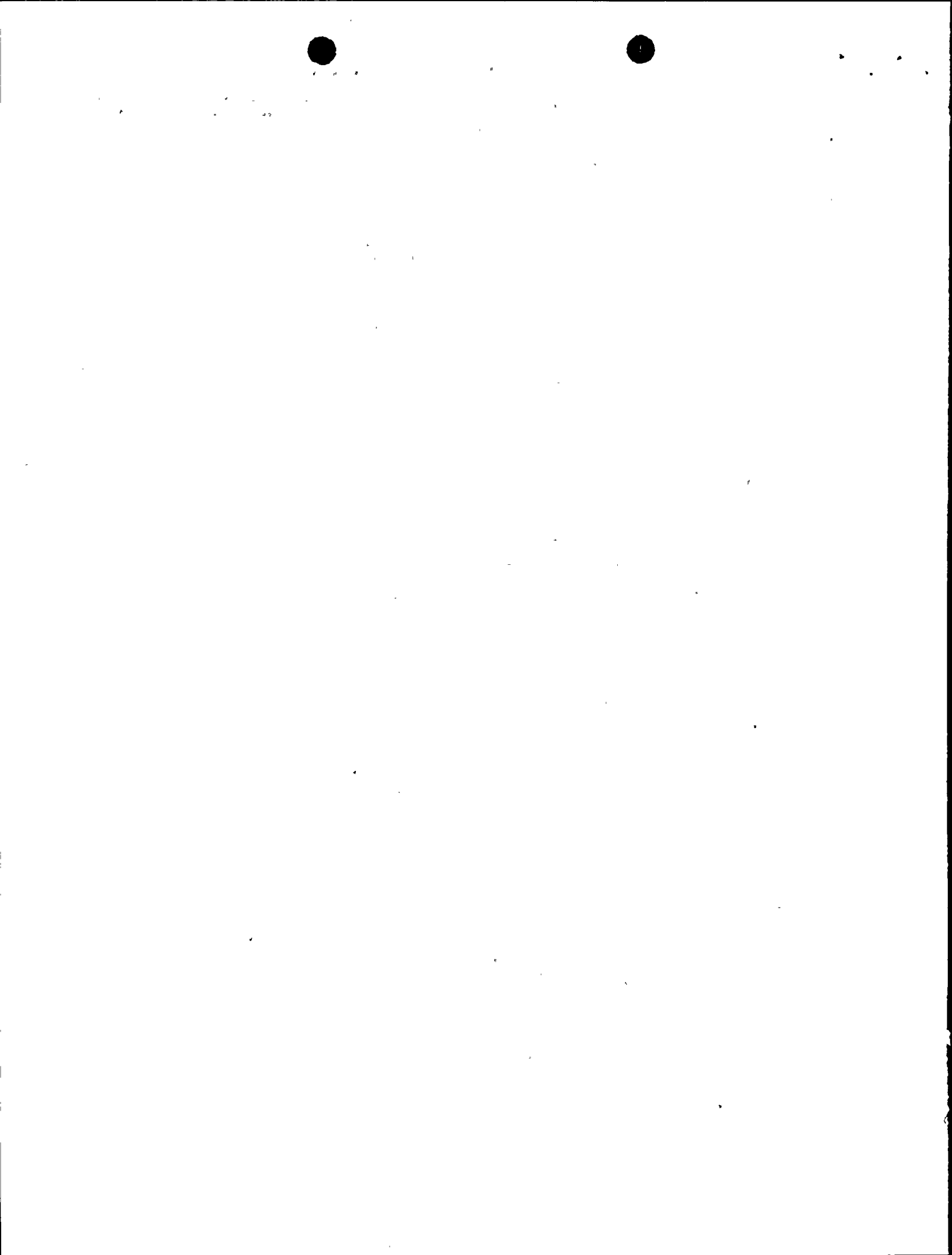


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TABLE B-4

ERROR REPORTS BEING CONSIDERED BY PGandE

No Files At End Of This Reporting Period



IDVP-SM-September 1983

TABLE B-5

DEVIATION REPORTS BEING CONSIDERED BY PGandE

No Files At End of This Reporting Period.



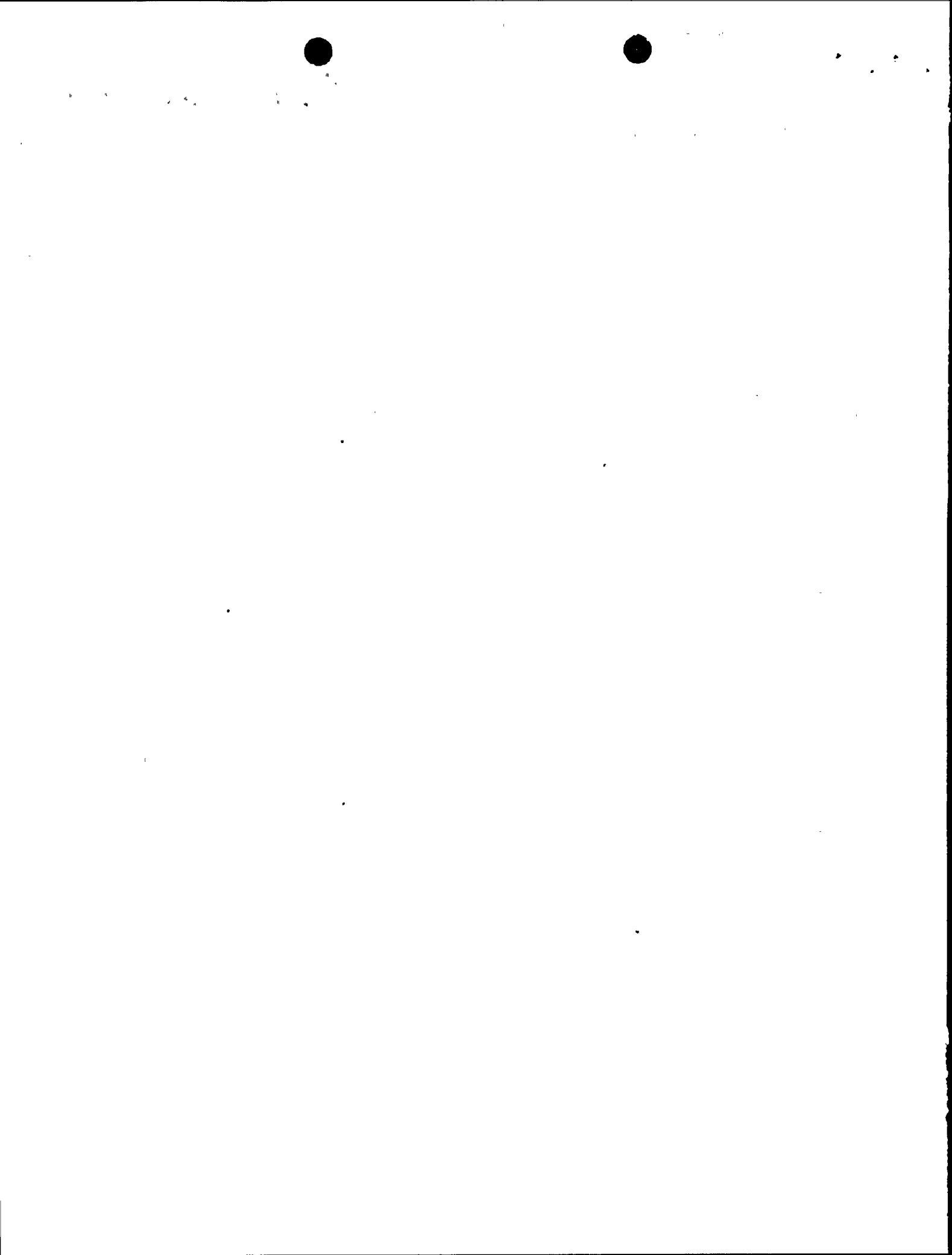


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TABLE B-6

 OPEN ITEM REPORTS REQUIRING ADDITIONAL  
INFORMATION FROM PG&E

FILE NO.	DCNPP IDVP STATUS REPORT									
	REV. 0		LATEST REV.				ACTION		PG&E	SUBJECT
	DATE	BASIS	REV.	DATE	BY	STATUS	ORG	TES	MODS	
3009	830816	OD	1	830908	TES	PRR/DIP	PG&E	RDC		CONTAINMENT INTERIOR STRUCTURE

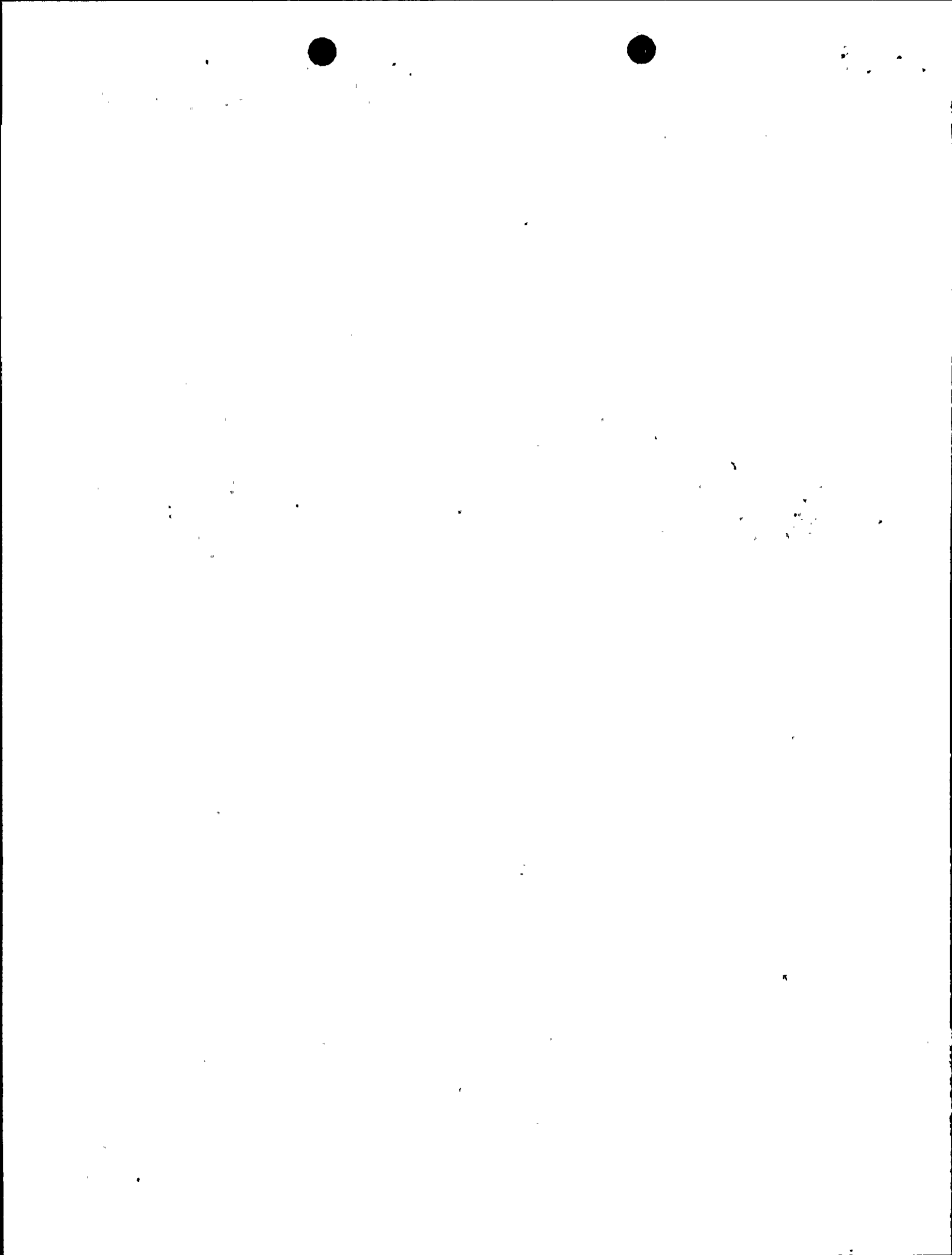


IDVP-SM-September 1983

TABLE B-7

EOIs THAT ARE THE RESPONSIBILITY OF TES

NONE



IDVP-SM-September 1983

TABLE B-8

## EOIs THAT ARE THE RESPONSIBILITY OF RLCA

## DCNPP IDVP STATUS REPORT

FILE NO.	REV. 0		LATEST REV.				ACTION		PG&E	SUBJECT
	DATE	BASIS	REV.	DATE	BY	STATUS	ORG	TES	NDDS	
1014	820209	OD	10	830908	TES	OIR	RLCA	RDC	YES	CONTAINMENT REEVALUATION, TURB. BLDG. REEVALUATION AUXILIARY BUILDING REEVALUATION, PIPING REEVALUATION, PIPING - VENTS AND DRAINS
1026	820220	SID	7	830908	TES	OIR	RLCA	RBC		
1097	820713	SID	6	830908	TES	OIR	RLCA	RDC		
1098	820714	ICD	11	830908	TES	OIR	RLCA	RDF	YES	
1144	830905	OD	0	830905	RLCA	OIR	RLCA	RDF		

