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P 105-4

October 5, 1982

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Docket No. 50-275
Diablo Canyon Unit 1
License No. DPR-76

Gentlemen:

Please find enclosed the Interim Technical Report on the Corrective Action Plan, Rev. 0, issued by Robert L. Cloud Associates, Inc. for the Independent Design Verification Program (P 105-4-839-008).

Yours truly,

Edward Denison

Edward Denison

Enclosure

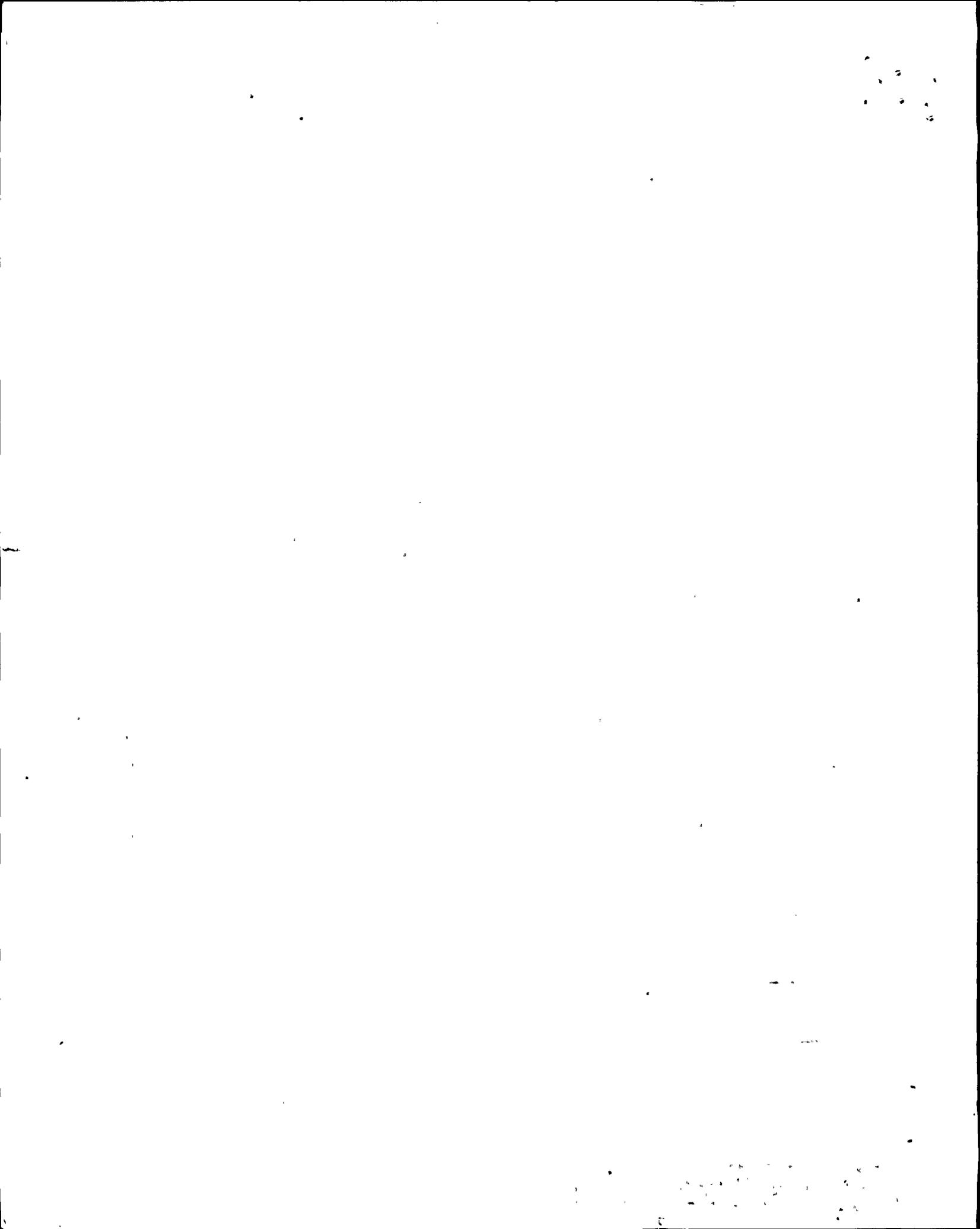
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IDVP VERIFICATION PROGRAM FOR PGandE CORRECTIVE ACTION

Table of Contents

Program Manager's Preface	ii
I Verification Program Introduction	1
II Verification Program for Phase I Structures, Piping and Components Required for Fuel Load	3
1.0 Introduction	3
2.0 Containment Structure	4
3.0 Auxiliary Building	8
4.0 Fuel Handling Building	12
5.0 Turbine Building	16
6.0 Intake Structure	18
7.0 Large Bore Piping	22
8.0 Small Bore Piping	27
9.0 Large Bore Piping Supports	33
10.0 Small Bore Piping Supports	37
11.0 Mechanical Equipment	41
12.0 Electrical Equipment and Instrumentation	43
13.0 HVAC Equipment	45
14.0 Electrical Raceways	47
15.0 Instrument Tubing and Tubing Supports	51
16.0 Quality Assurance Program Review and Audit	54
III Verification Program for the Balance of Structures, Piping and Components Required for Phase I	57
IV Verification Program for the Balance of Structures, Piping and Components for Phase II	58

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3
4
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6
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I VERIFICATION PROGRAM INTRODUCTION

BACKGROUND

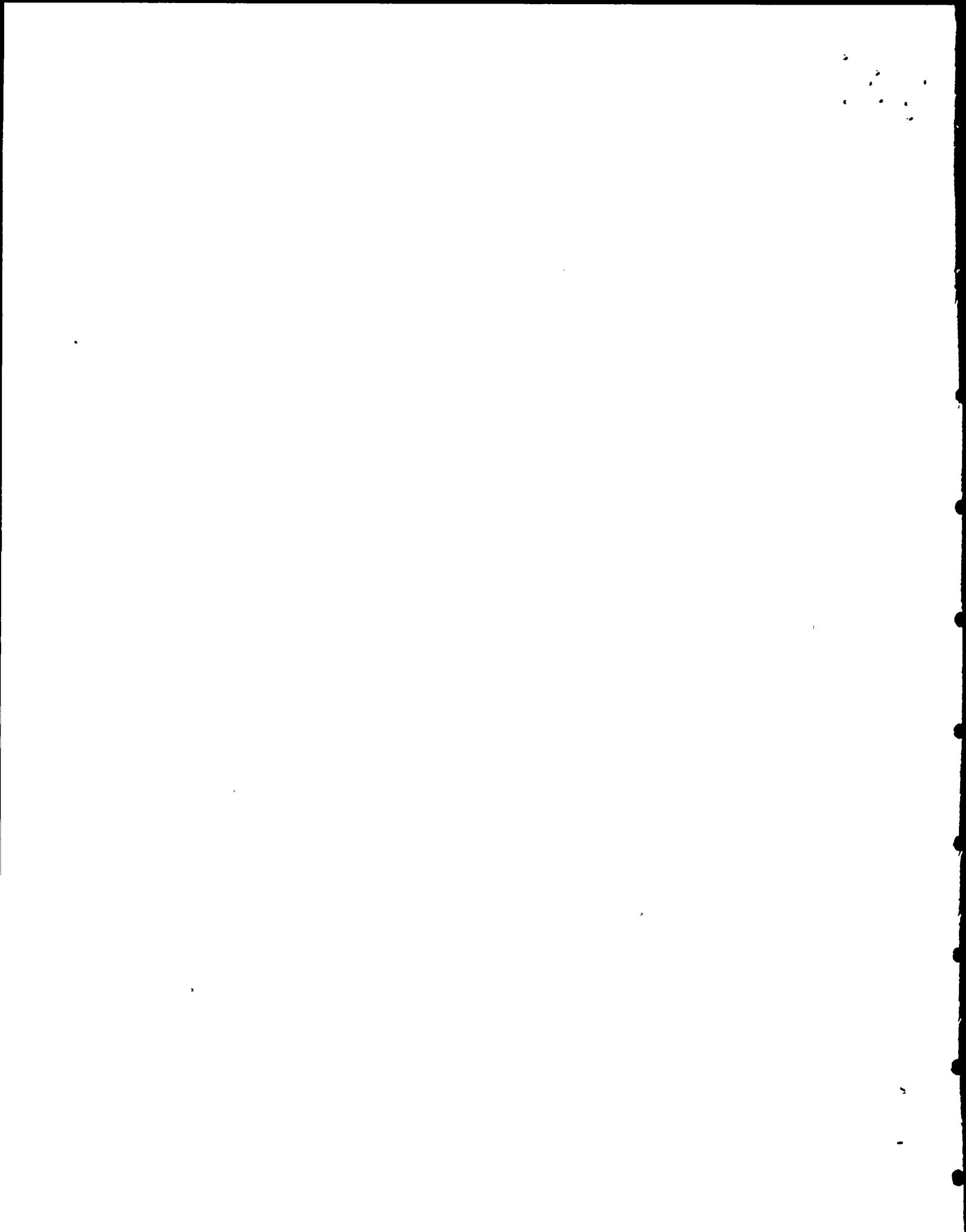
Pacific Gas and Electric Company (PGandE has presented portions of a detailed plan for corrective action in the areas of structures, piping, equipment, raceway supports and instrument tubing. The PGandE Plan includes a Phase I Report and detailed PGandE implementation procedures. In general, this corrective action addresses concerns noted in Error and Open Item Reports (EOIs) and Interim Technical Reports (ITR) issued by the Independent Design Verification Program (IDVP) and concerns identified by PGandE. All generic concerns identified by the IDVP must be addressed by PGandE and corrective action, if necessary, verified by the IDVP. As provided in the IDVP Program Plans for Phase I and II, corrective action in response to EOIs, ITRs and generic concerns must be verified by the IDVP. This document delineates the verification program that the IDVP will implement to verify the PGandE corrective action.

TECHNICAL VERIFICATION

For all of the areas noted above, a detailed IDVP verification program is presented. The IDVP verification program involves examination of the PGandE Phase I Report to ensure consistency with the licensing basis. IDVP methodology and procedures compiled for the independent analyses will also be used to evaluate the PGandE plan. In addition, detailed PGandE implementation procedures will be verified by the IDVP against the the Phase I Report. The verification plan involves examination of the planned corrective action scope, criteria and methodology for consistency with the various licensing documents. Three basic approaches will be employed by the IDVP to assure proper implementation of the PGandE corrective action.

First, in case where complete reanalysis is planned by PGandE, the IDVP will perform design verifications of the work that was reanalyzed (eg. Fuel Handling Building).

Second, in cases where a complete review by PGandE is followed by reanalysis of deficient segments by PGandE, the IDVP will perform design verifications on sample calculations and PGandE reviews (eg. Large Bore Piping).



Third, in cases where review or analysis of a sample is employed by PGandE to demonstrate conservative design, the IDVP will examine and evaluate the sample validity and perform design verifications on the PGandE sample (eg. Small Bore Piping).

In order to ensure the IDVP verification program integrity, samples for design verifications will be selected from lists of completed PGandE work. Design verifications will be performed in the offices of the IDVP participants. Sample selection may be staggered to allow the verification to proceed in parallel with the PGandE corrective action plan. In all cases, at least one sample from each category of work will be selected after PGandE completion of the entire scope.

The IDVP will also verify PGandE design office activities and "as-built" information at the site. The design office verification will include only technical interface control implementation and project indoctrination. Site verification will include both overall "as-built" modeling and specific details and dimensions. All physical modifications resulting from specific IDVP EOIs will be verified along with a sample of physical modifications resulting from the PGandE corrective action plan.

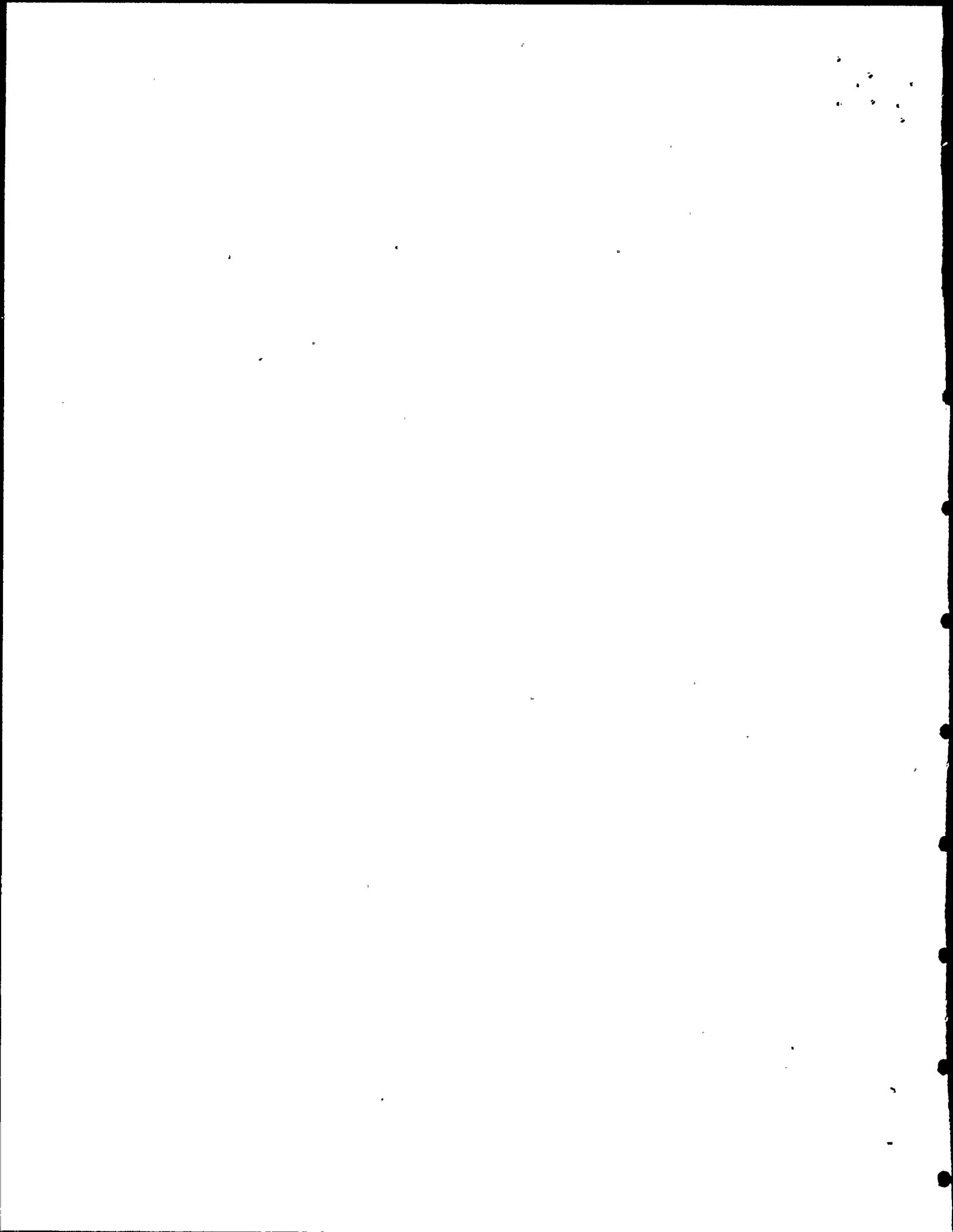
QUALITY ASSURANCE VERIFICATION

In addition to the technical verification, the IDVP will also verify the Quality Assurance procedures and implementation of design related corrective actions against the Diablo Canyon Project (DCP) QA Manual. This verification to be performed by R.F. Reedy, Inc., is discussed further in Section 16.0.

ACCEPTANCE CRITERIA

The acceptance criteria for the IDVP verification of the PGandE corrective action program is similar to that given in Phase II Engineering Program Plan, Revision 0 (pgs. 11 and 12).

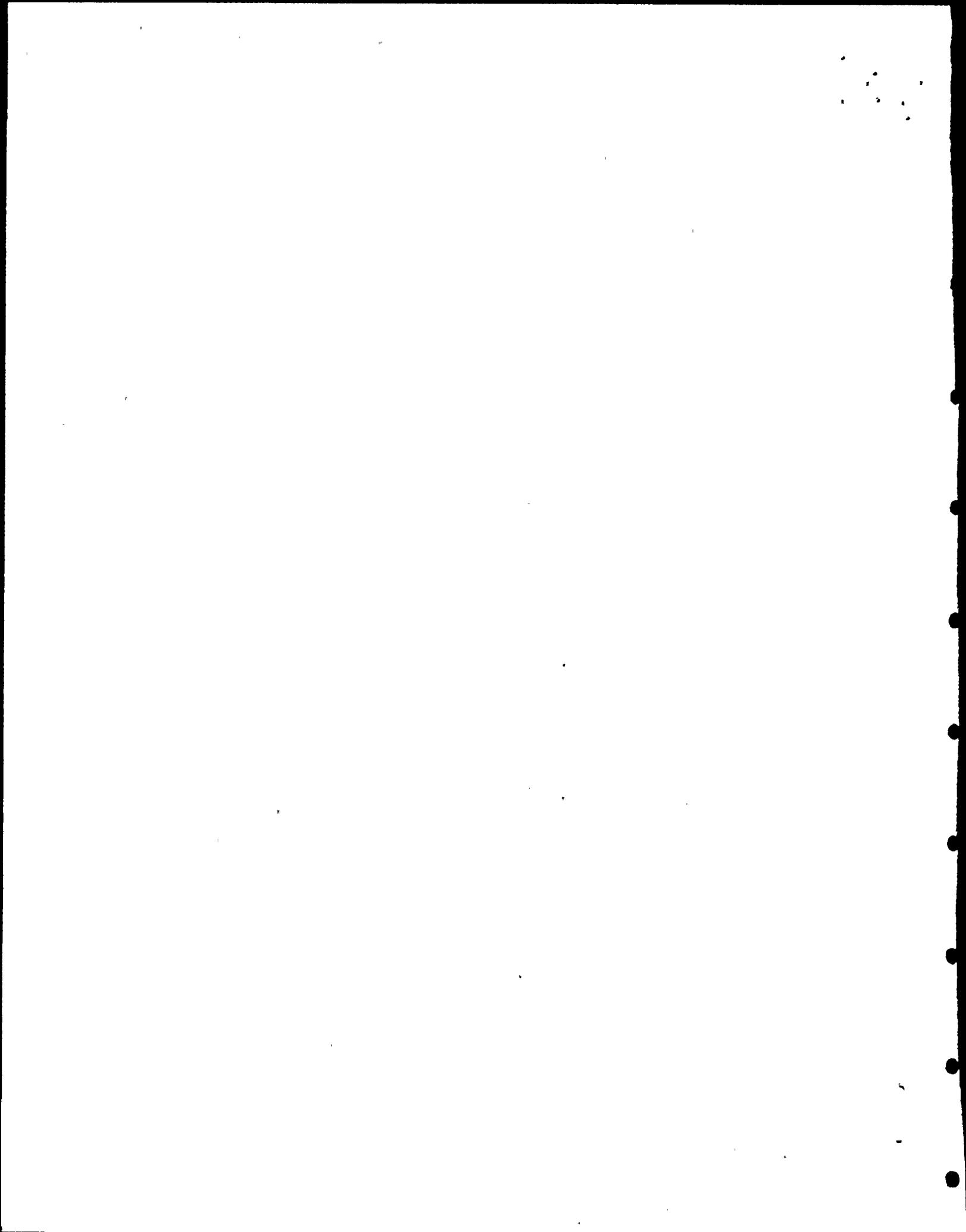
Differences will be noted by the IDVP and evaluated as to source and to significance of that source with regard to both the specific item and as possible generic concern. If it is judged that the source of the difference is of significance to either, an Open Item Report will be issued. If the final design does not meet the licensing basis, it will be identified and reported in accordance with the Program Management Plan.



II VERIFICATION PROGRAM FOR PHASE I STRUCTURES, PIPING AND COMPONENTS REQUIRED FOR FUEL LOAD

1.0 INTRODUCTION

Section II addresses structures, piping and components required for fuel load. Further definition of the fuel load requirements may result in changes to both the categories of structures, piping and components and the sample numbers listed. Final approval of both categories and sample numbers will be accomplished through the resultant IDVP Interim Technical Report prior to fuel load.



2.0 CONTAINMENT STRUCTURE

The PGandE plan for the containment structure (annulus, interior and exterior portions) specifies a complete review of the dynamic analyses and member qualifications. In cases where this review reveals deficiencies these are to be corrected by additional qualification.

The IDVP will verify the corrective action by examination of the PGandE plan and implementation. Table 1 presents the logic and tasks involved. The sections below provide further definition of the tasks.

2.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following three aspects of the PGandE containment building plan: scope, review and reanalysis.

Scope: The PGandE scope will be verified against the Hosgri Design Class 1 structural commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents. The IDVP will verify a list of qualification calculations to be reviewed by PGandE to ensure completeness.

Review: The PGandE review methodology will be verified to assure that all inputs, criteria, assumptions, modeling techniques, specific requirements, and conformance with design basis will be considered. In addition, The IDVP will verify the PGandE acceptance criteria for reasonableness.

Reanalysis: Where PGandE shows additional qualification is required, the criteria, methodology and procedures will be verified by the IDVP against the Hosgri Design Class 1 structural commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents.

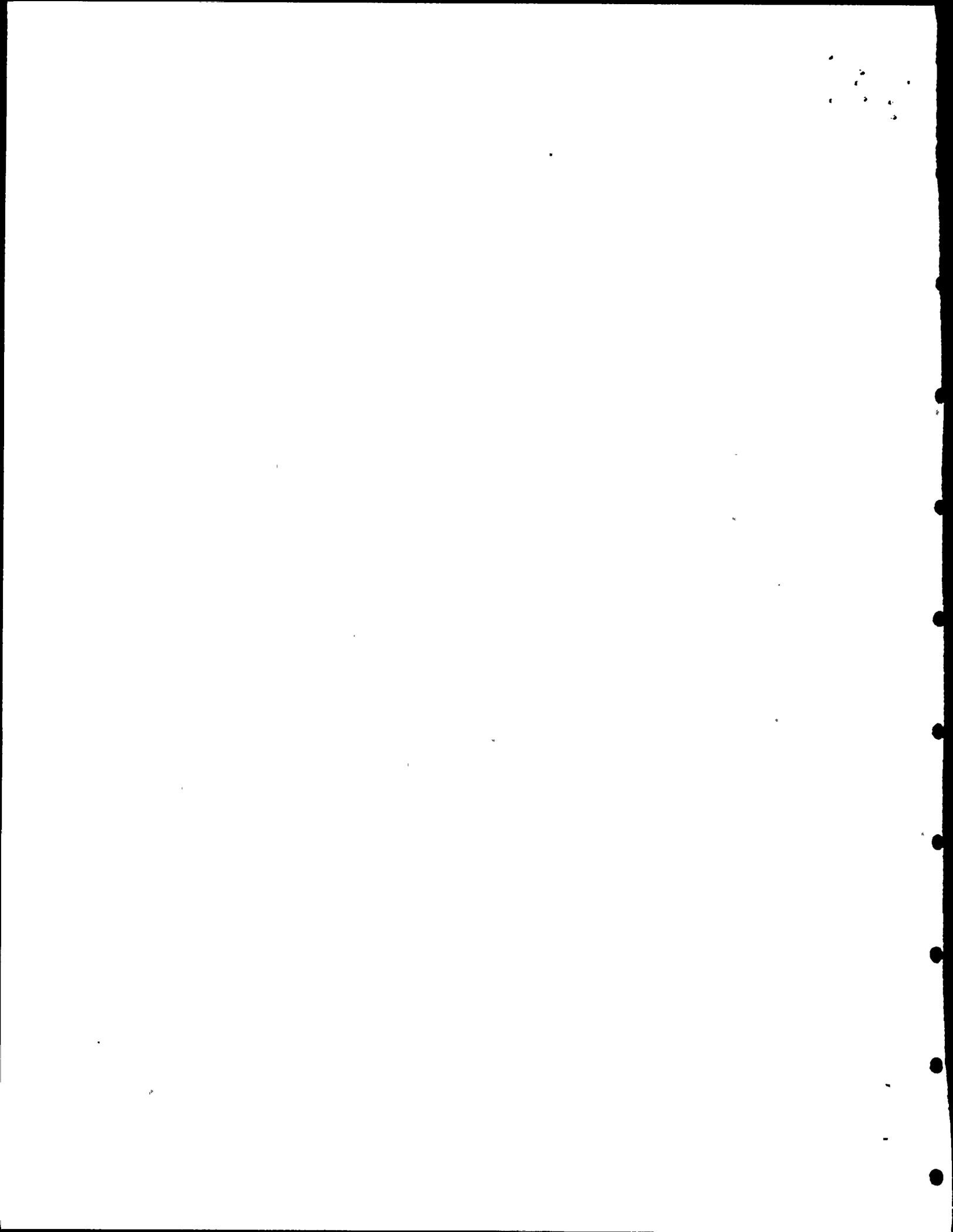
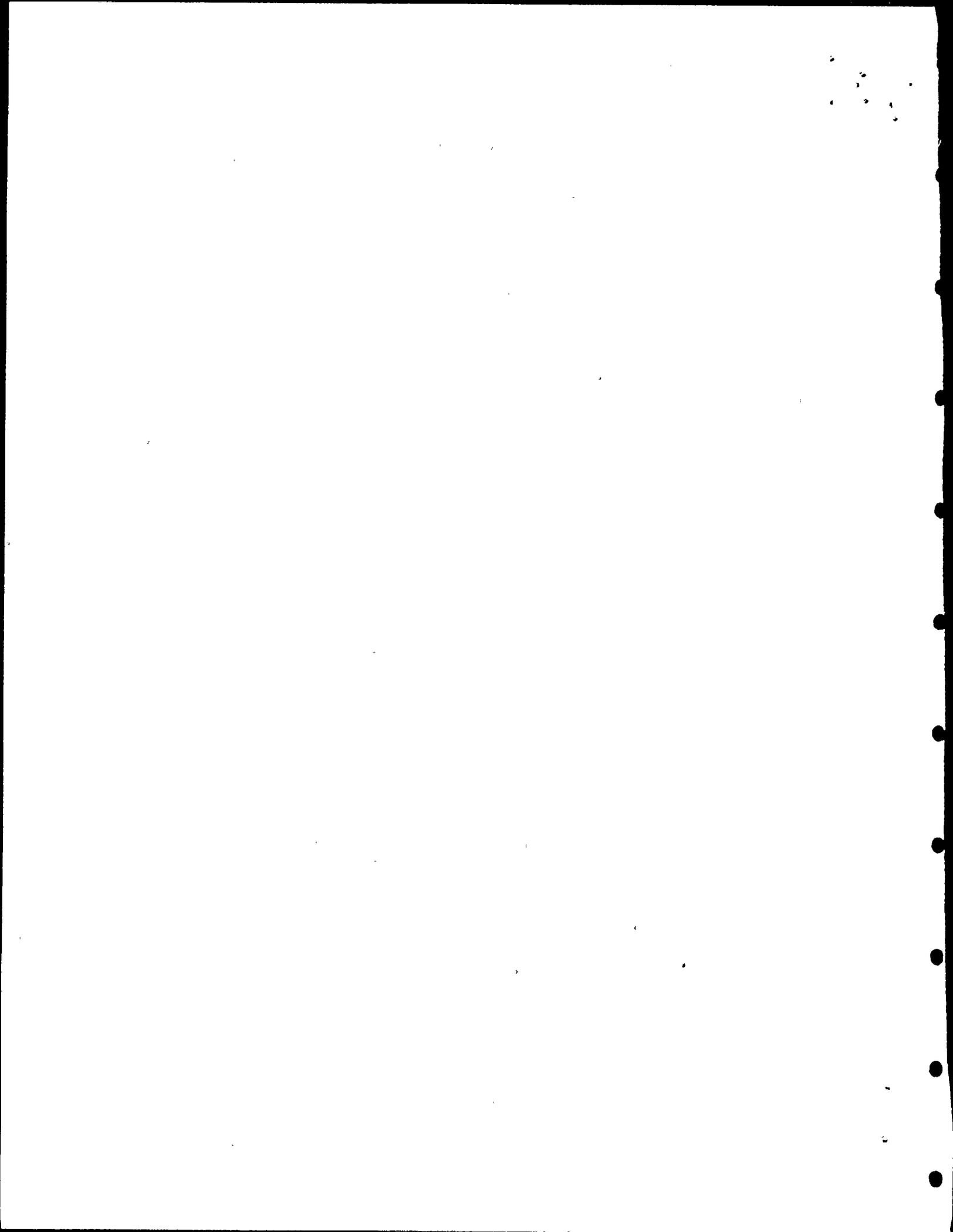


Table 1

Containment Structure

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Scope	- verify consistency with licensing documents to ensure completeness	- verify completeness
Review	- verify that all inputs affecting qualifications are included and that criteria for acceptance of existing qualifications are reasonable	- perform design verifications on qualifications judged acceptable
Reanalysis	- verify that criteria and methodology are consistent with licensing documents	- perform design verifications on additional qualifications - verify design office technical interface control - verify "as-built" conditions



2.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by scope verification, design verifications and design office and site verification.

2.2.1 Scope

The items for which the PGandE review and additional qualification has been finished will be compared by the IDVP to the scope to assure that the plan has been fully implemented.

2.2.2 IDVP Design Verifications

Two types of design verifications will be performed. One type will assess the implementation of the PGandE review and the other type will assess the PGandE analysis.

- o IDVP Design Verifications - PGandE Review: The IDVP will select a sample of original qualification analyses found to be acceptable by the PGandE review. The sample will include calculations representing every type and category of qualification for structures (eg. property calculations, models, member calculations etc.). The IDVP design verifications will check conformance to design criteria and acceptability of: "as-built" conditions, analysis methodology, inputs, interpretation and use of results. In addition, generic concerns noted in the Interim Technical Reports will be reviewed in detail by the IDVP.

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- o IDVP Design Verification - PGandE Analysis:
RLCA will select a sample of qualification analyses. This selection will include both original and additional PGandE analyses. The sample will include calculations representing every type and category of qualification for structures (eg. member qualifications, property calculations, models etc.).

The qualification analysis will be design verified in accordance with written IDVP check lists to assure compliance with the PGandE Plan. These check lists will contain specific technical items noted in accordance with the PGandE plan. The design verifications will address the following technical items.

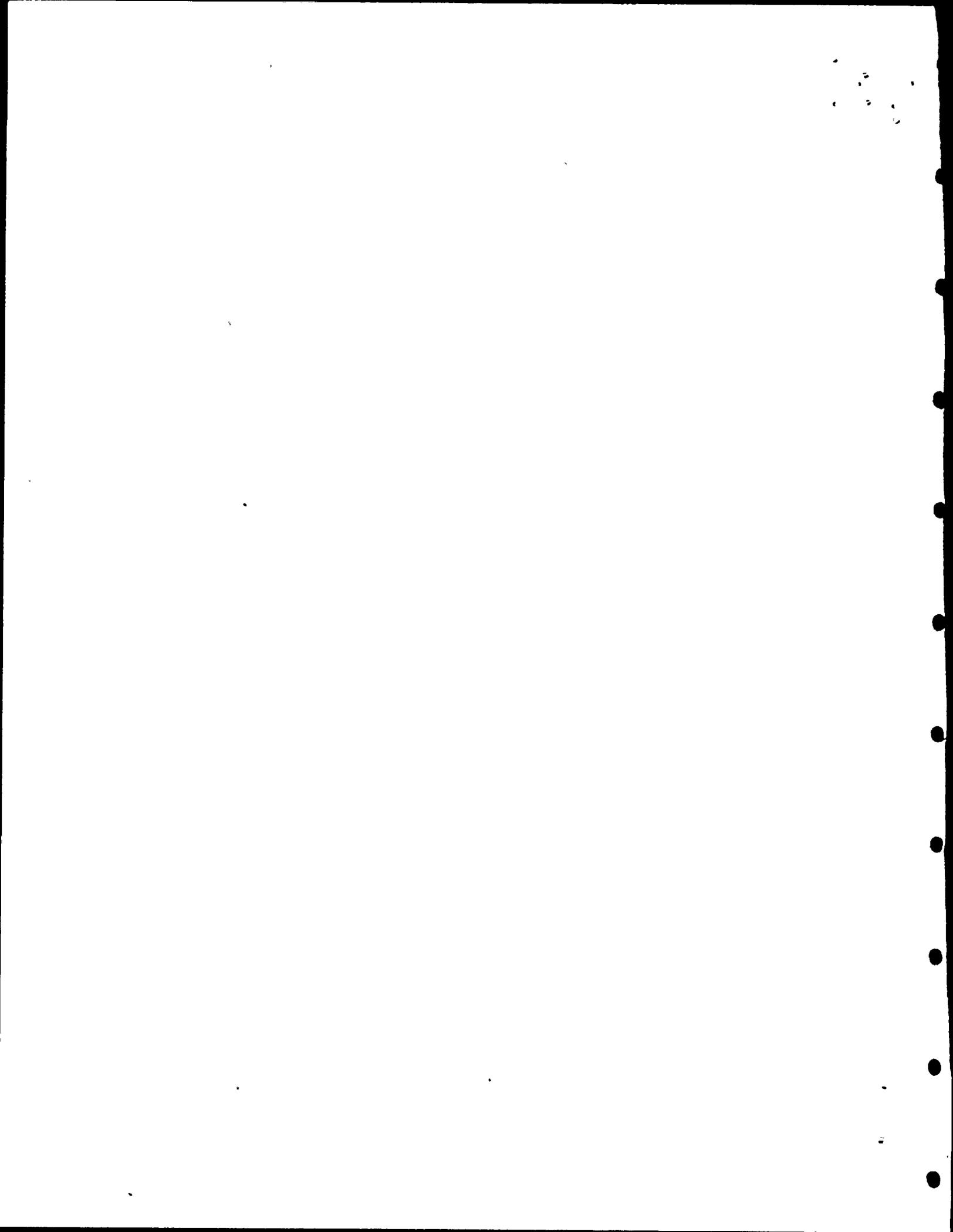
- o Establishment of design criteria
- o Establishment of scope and responsibilities
- o Establishment of design inputs
- o Reasonableness of assumptions
- o Applicability of analysis methods
- o Applicability of computer programs
- o Modeling methods and boundary conditions
- o Consistency of results based on judgement and/or simplified or alternate methods
- o Completeness of qualification
- o Satisfaction of design criteria

2.2.3 IDVP Design Office and Site Verification

The IDVP will verify PGandE design office activities and "as-built" information at the site.

Design office verifications will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.

Site verification will follow from the design verifications. Overall modeling techniques and methodology will be evaluated by the IDVP on the basis of familiarity with the site conditions. In addition, selected details and dimensions in the qualification calculations will be field verified.



3.0 AUXILIARY BUILDING

The PGandE plan for the auxiliary building (concrete shear wall portion only) specifies a complete review of the dynamic analyses and member qualifications. In cases where the review reveals deficiencies, these are to be corrected by additional qualification.

The IDVP will verify the corrective action by examination of the PGandE plan and implementation. Table 2 presents the logic and tasks involved. The sections below provide further definition of the tasks.

3.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following three aspects of the PGandE containment building plan: scope, review and reanalysis.

Scope: The PGandE scope will be verified against the Hosgri Design Class 1 structural commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents. The IDVP will verify a list of qualification calculations to be reviewed by PGandE to ensure completeness.

Review: The PGandE review methodology will be verified to assure that all inputs, criteria, assumptions, modeling techniques, specific requirements, and conformance with design basis will be considered. In addition, The IDVP will verify the PGandE acceptance criteria for reasonableness.

Reanalysis: Where PGandE shows additional qualification is required, the criteria, methodology and procedures will be verified by the IDVP against the Hosgri Design Class 1 structural commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents.

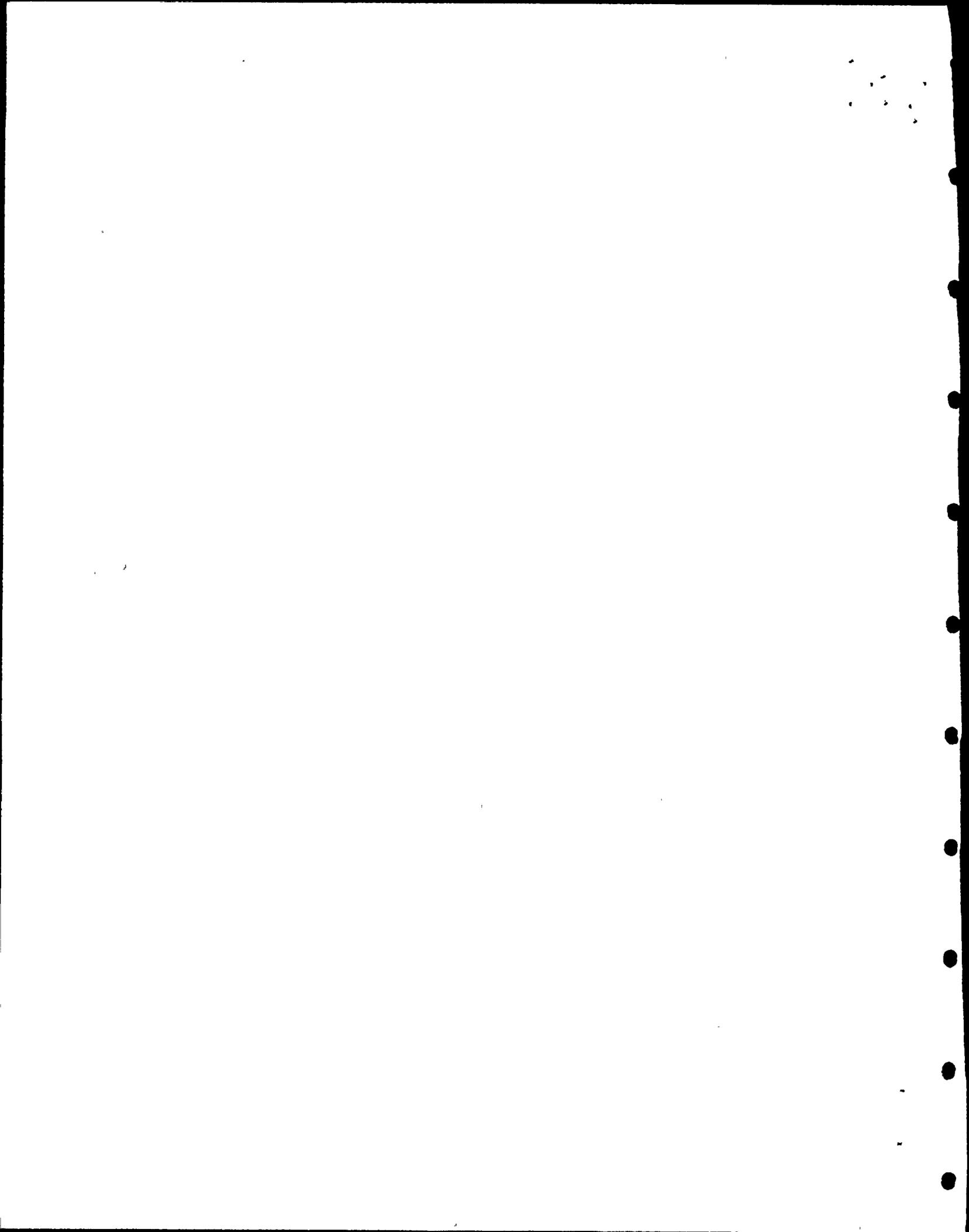
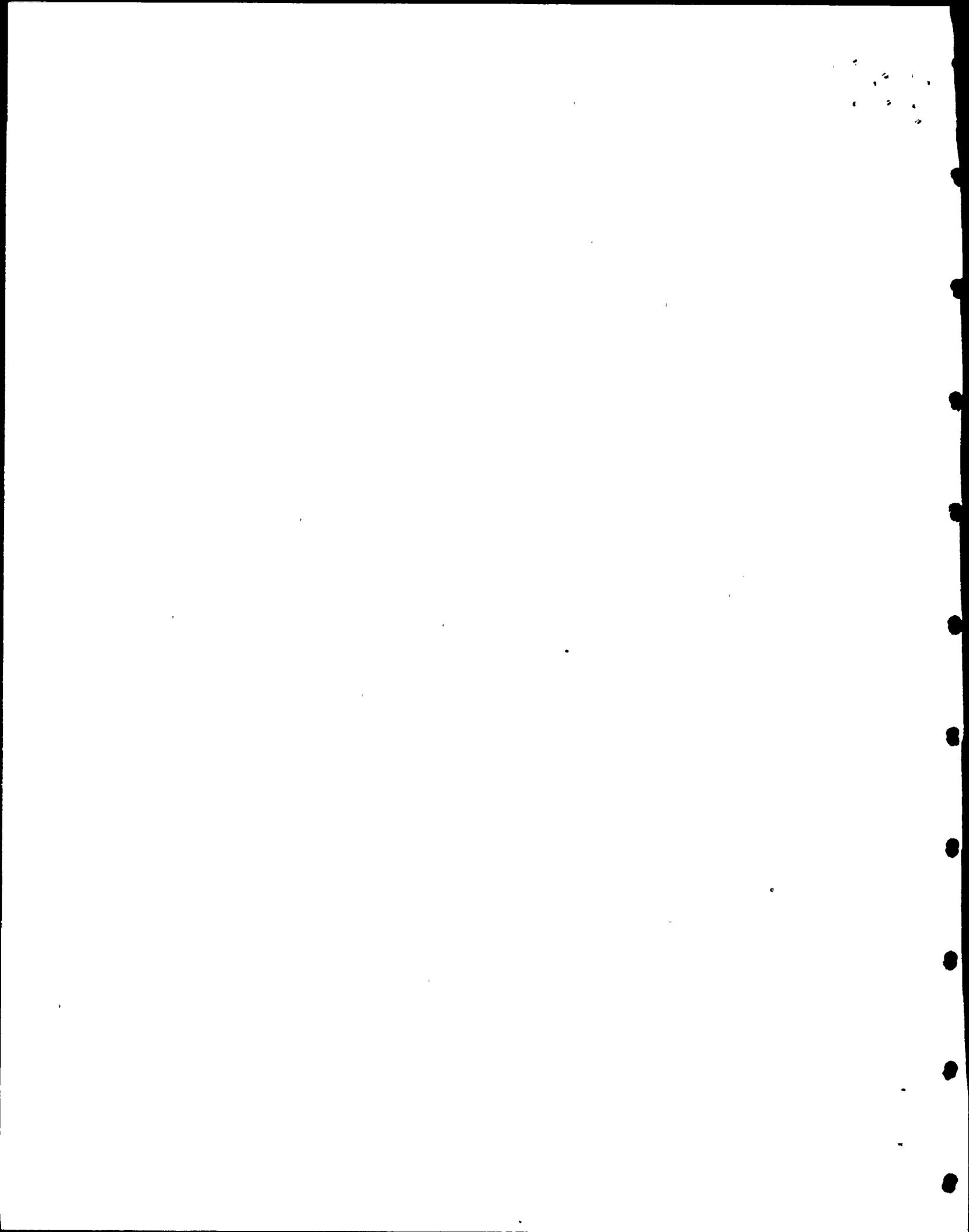


Table 2
Auxiliary Building

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Scope	- verify consistency with licensing documents to ensure completeness	- verify completeness
Review	- verify that all inputs affecting qualifications are included and that criteria for acceptance of existing qualifications are reasonable	- perform design verifications on qualifications judged acceptable
Reanalysis	- verify that criteria and methodology are consistent with licensing documents	- perform design verifications on additional qualifications - verify design office technical interface control - verify "as-built" conditions



3.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by scope verification, design verifications and design office and site verification.

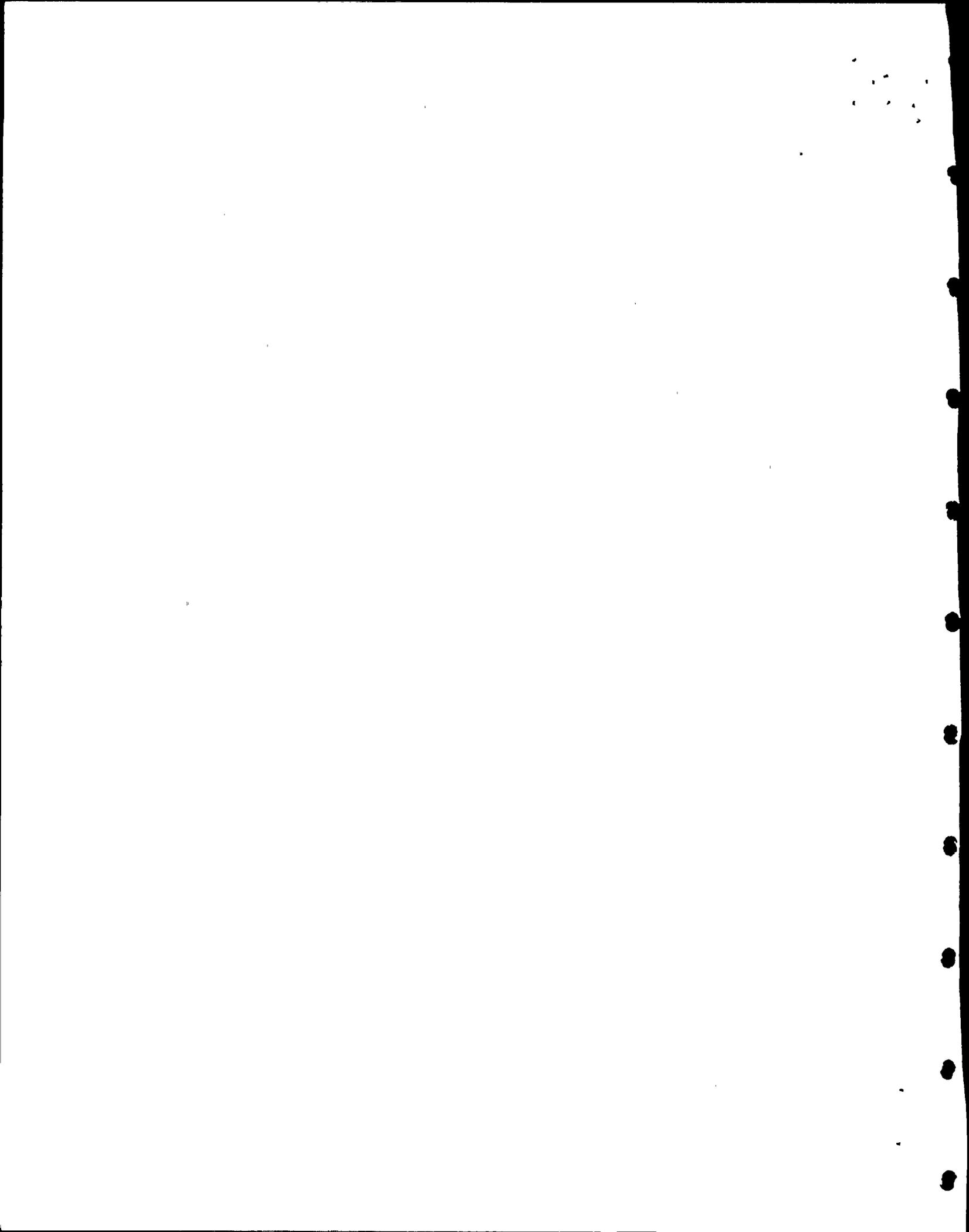
3.2.1 Scope

The items for which the PGandE review and additional qualification has been finished will be compared by the IDVP to the scope to assure that the plan has been fully implemented.

3.2.2 IDVP Design Verifications

Two types of design verifications will be performed. One type will assess the implementation of the PGandE review and the other type will assess the PGandE analysis.

- o IDVP Design Verifications - PGandE Review: The IDVP will select a sample of original qualification analyses found to be acceptable by the PGandE review. The sample will include calculations representing every type and category of qualification for structures (eg. property calculations, models, member calculations etc.). The IDVP design verifications will check conformance to design criteria and acceptability of: "as-built" conditions, analysis methodology, inputs, interpretation and use of results. In addition, generic concerns noted in the Interim Technical Reports will be reviewed in detail by the IDVP.



- o IDVP Design Verification - PGandE Analysis:
RLCA will select a sample of qualification analyses. This selection will include both original and additional PGandE analyses. The sample will include calculations representing every type and category of qualification for structures (eg. member qualifications, property calculations, models etc.).

The qualification analysis will be design verified in accordance with written IDVP check lists to assure compliance with the PGandE Plan. These check lists will contain specific technical items noted in accordance with the PGandE plan. The design verifications will address the following technical items.

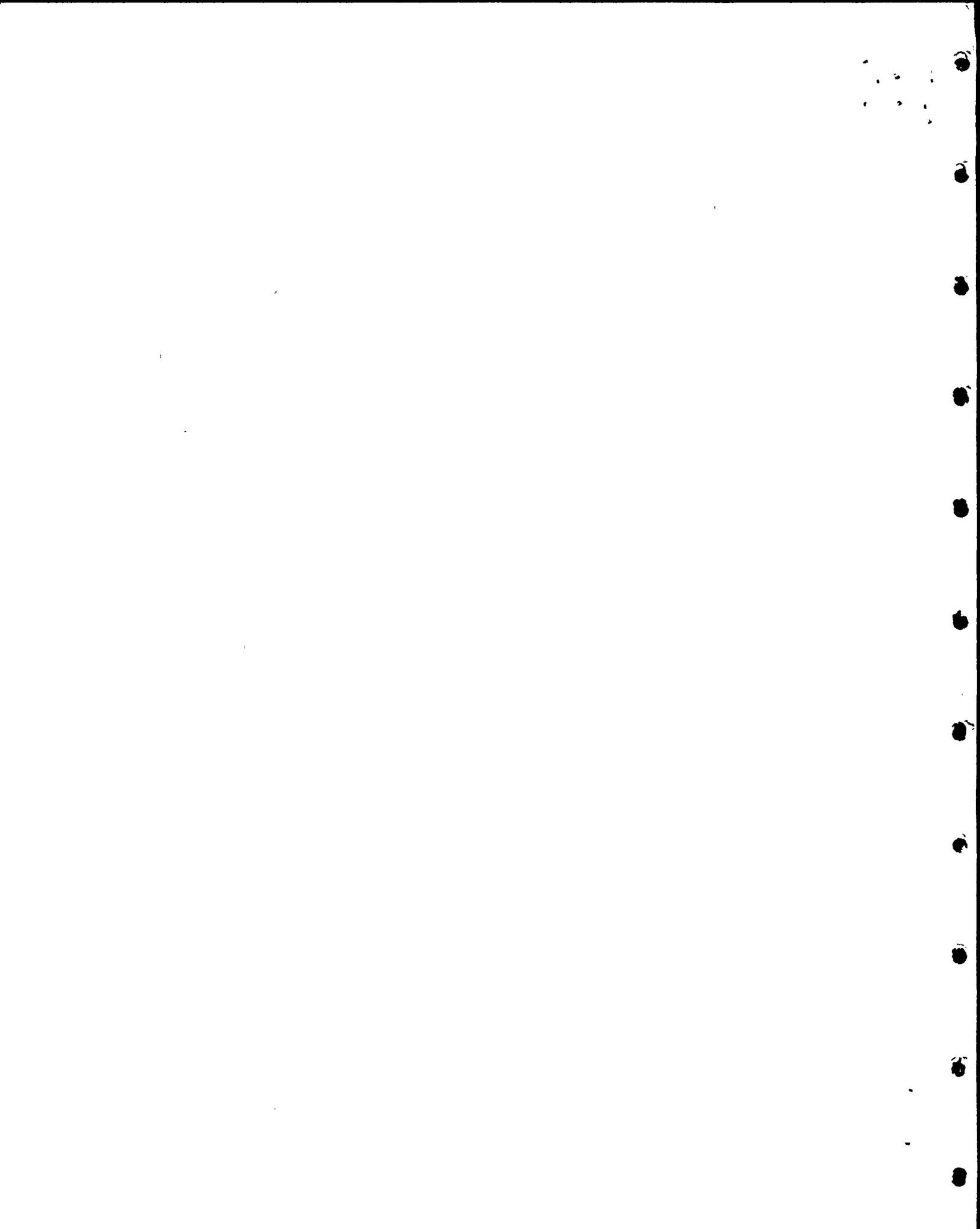
- o Establishment of design criteria
- o Establishment of scope and responsibilities
- o Establishment of design inputs
- o Reasonableness of assumptions
- o Applicability of analysis methods
- o Applicability of computer programs
- o Modeling methods and boundary conditions
- o Consistency of results based on judgement and/or simplified or alternate methods
- o Completeness of qualification
- o Satisfaction of design criteria

3.2.3 IDVP Design Office and Site Verification

The IDVP will verify PGandE design office activities and "as-built" information at the site.

Design office verifications will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.

Site verification will follow from the design verifications. Overall modeling techniques and methodology will be evaluated by the IDVP on the basis of familiarity with the site conditions. In addition, selected details and dimensions in the qualification calculations will be field verified.



4.0 FUEL HANDLING BUILDING

The PGandE plan for the Fuel Handling Building specifies a complete reanalysis of the building, requalification of structural members and preparation of an "as-built" drawing.

The IDVP will verify the corrective action by examination of the PGandE plan and the implementation. Table 3 presents the logic and tasks involved. The sections below provide further definition of the tasks.

4.1 IDVP Verification OF THE PGandE PLAN

The IDVP will review two aspects of the PGandE Fuel Handling Building plan: scope and reanalysis.

Scope: The PGandE scope will be verified against the Design Class 1 Hosgri structural commitments listed in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents. The IDVP will verify a list of qualification calculations to ensure completeness.

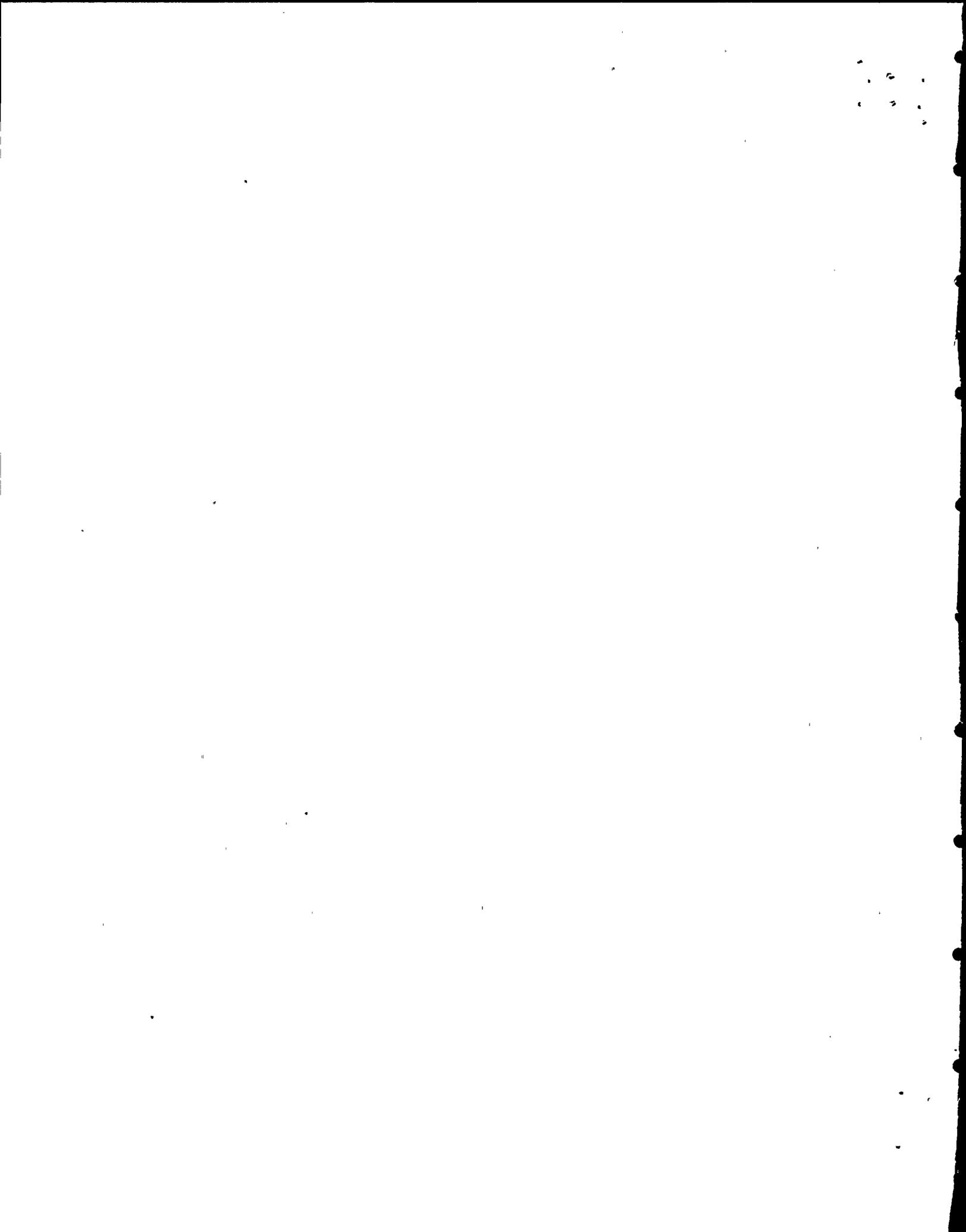
Reanalysis: The PGandE reanalysis criteria, methodology and procedures will be verified by the IDVP against the Design Class 1 Hosgri structural commitments listed in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents.

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Table 3

Fuel Handling Building

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Scope	- verify consistency with licensing documents to ensure completeness	- verify completeness
Reanalysis	- verify that criteria and methodology are consistent with licensing documents	- perform design verifications on additional qualifications - verify design office technical interface control - verify "as-built" conditions



4.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by scope verification, design verification, "as-built" drawing verification, and design office verification.

4.2.1 Scope

The scope will be compared by the IDVP to the PGandE qualification calculations to assure that the plan has been fully implemented.

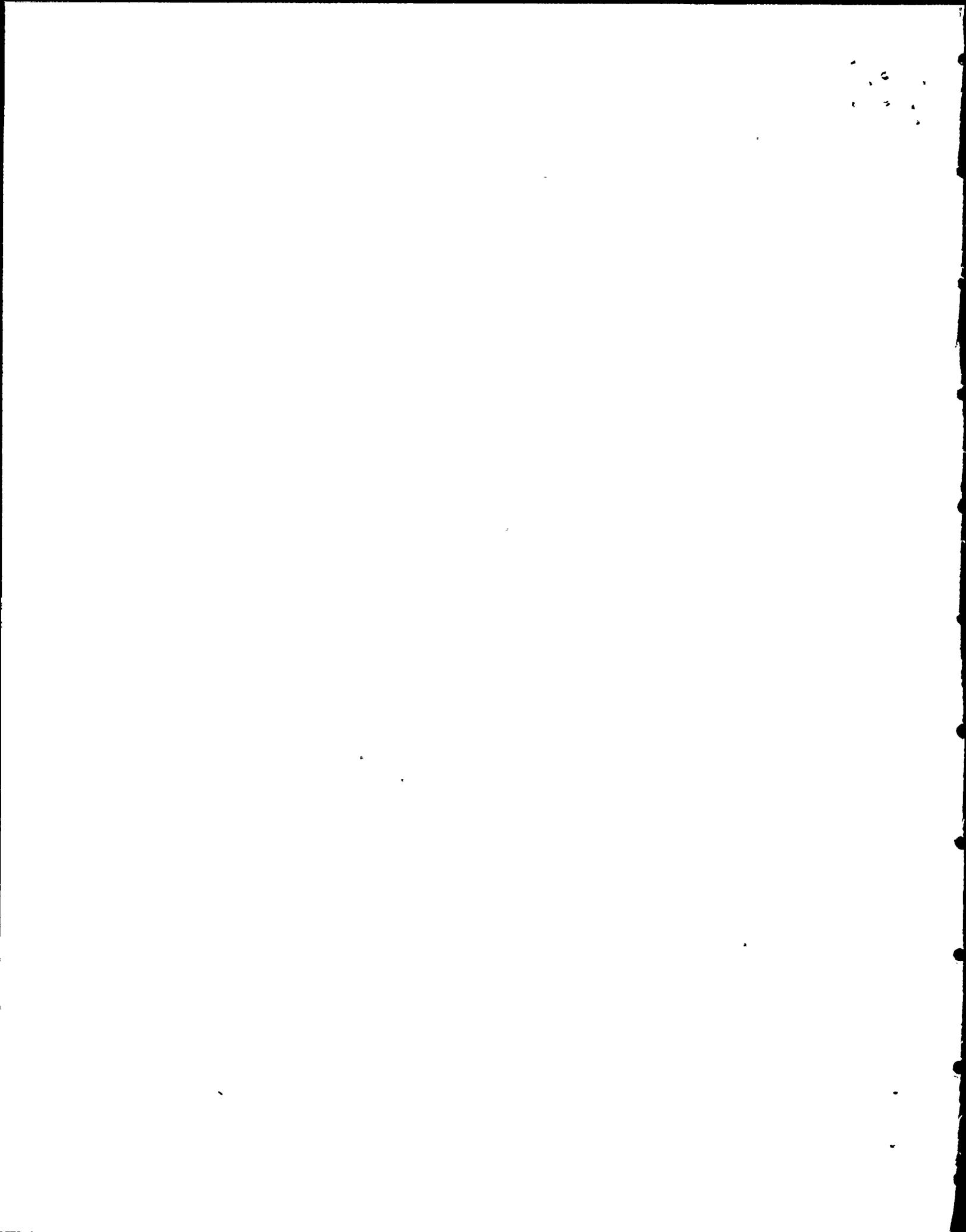
4.2.2 IDVP Design Verification

The entire PGandE qualification analysis will be design verified in accordance with written IDVP check lists to assure compliance with the PGandE Plan. These check lists will contain specific technical items noted in accordance with the PGandE plan. The design verifications will address the following technical items.

- o Establishment of design criteria
- o Establishment of scope and responsibilities
- o Establishment of design inputs
- o Reasonableness of assumptions
- o Applicability of analysis methods
- o Applicability of computer programs
- o Modeling methods and boundary conditions
- o Consistency of results based on judgement and/or simplified or alternate methods
- o Completeness of qualification
- o Satisfaction of design criteria

4.2.3 As-Built Drawing Verification

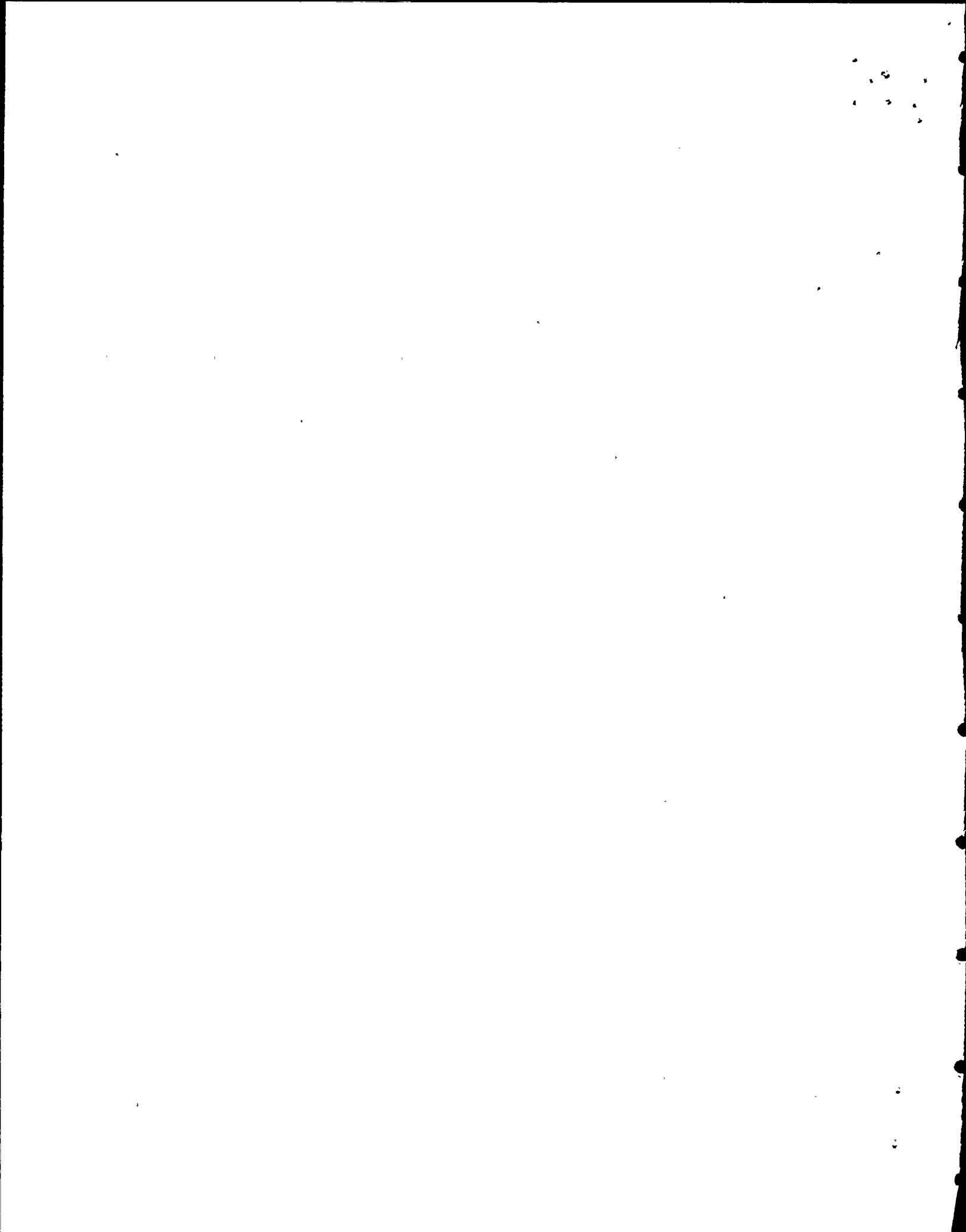
Site verification will follow from the design verifications. Overall modeling techniques and methodology will be evaluated by the IDVP on the basis of familiarity with the site conditions. In addition, selected details and dimensions will be field verified.



4.2.4 IDVP Design Office Verification

The IDVP will verify PGandE design office activities.

Design office verification will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.



5.0 TURBINE BUILDING

When details of the PGandE plan concerning this building are obtained, a review plan will be formulated.

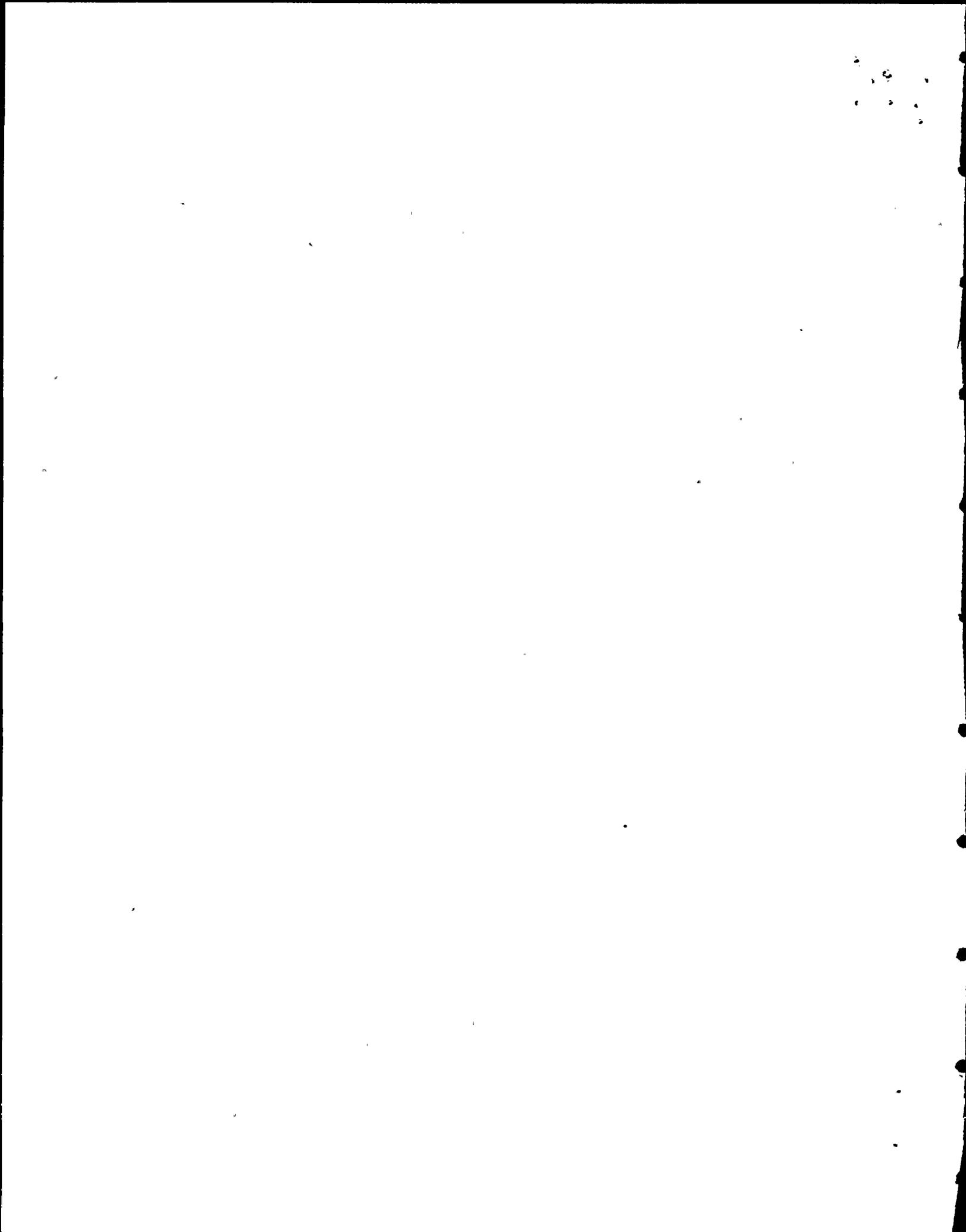


Table 4
Turbine Building

To be provided.

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6.0 INTAKE STRUCTURE

The PGandE plan for the intake structure specifies a complete review of the dynamic analyses and member qualifications. In cases where the review reveals deficiencies these are to be corrected by additional qualification.

The IDVP will verify the corrective action by examination of the PGandE plan and implementation. Table 5 presents the logic and tasks involved. The sections below provide further definition of the tasks.

6.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following three aspects of the PGandE containment building plan: scope, review and reanalysis.

Scope: The PGandE scope will be verified against the Hosgri Design Class 1 structural commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents. The IDVP will verify a list of qualification calculations to be reviewed by PGandE to ensure completeness.

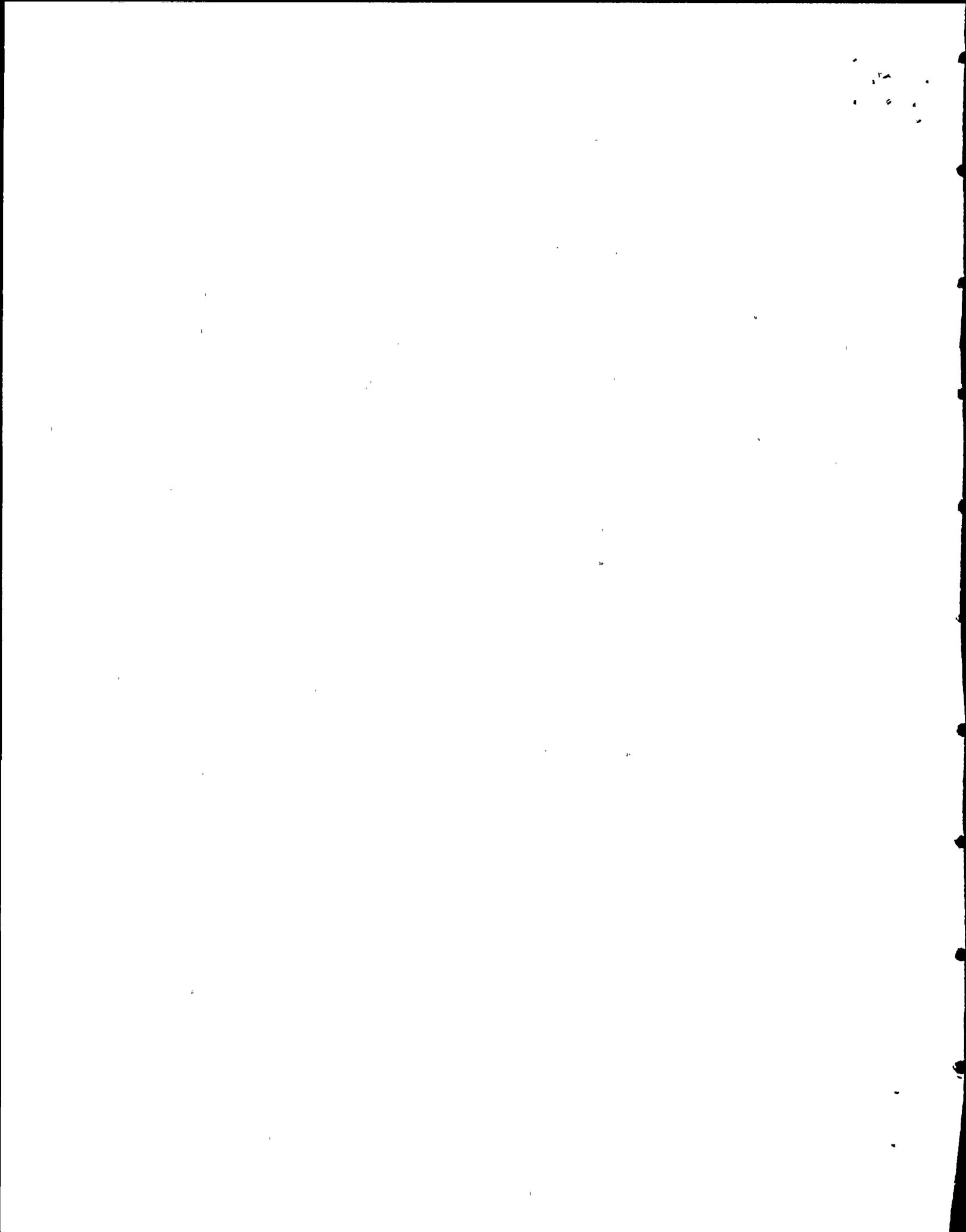
Review: The PGandE review methodology will be verified to assure that all inputs, criteria, assumptions, modeling techniques, specific requirements, and conformance with design basis will be considered. In addition, The IDVP will verify the PGandE acceptance criteria for reasonableness.

Reanalysis: Where PGandE shows additional qualification is required, the criteria, methodology and procedures will be verified by the IDVP against the Hosgri Design Class 1 structural commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents.

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Table 5
Intake Structure

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Scope	- verify consistency with licensing documents to ensure completeness	- verify completeness
Review	- verify that all inputs affecting qualifications are included and that criteria for acceptance of existing qualifications are reasonable	- perform design verifications on additional qualifications - verify design office technical interface control - verify "as-built" conditions
Reanalysis	- verify that criteria and methodology are consistent with licensing documents	- perform design verifications on additional qualifications - verify design office technical interface control - verify "as-built" conditions



6.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by scope verification, design verifications and design office and site verification.

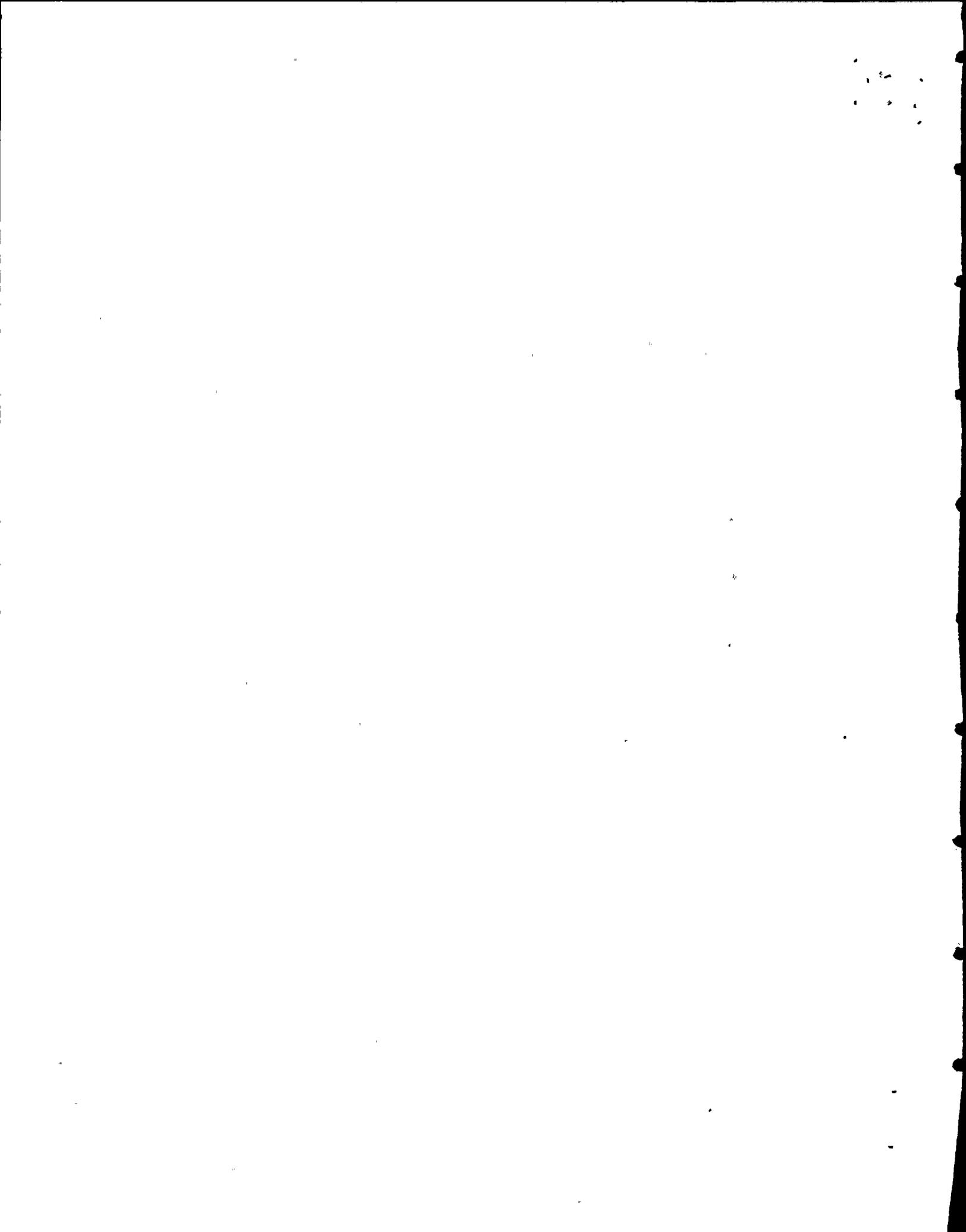
6.2.1 Scope

The items for which the PGandE review and additional qualification has been finished will be compared by the IDVP to the scope to assure that the plan has been fully implemented.

6.2.2 IDVP Design Verifications

Two types of design verifications will be performed. One type will assess the implementation of the PGandE review and the other type will assess the PGandE analysis.

- o IDVP Design Verifications - PGandE Review: The IDVP will select a sample of original qualification analyses found to be acceptable by the PGandE review. The sample will include calculations representing every type and category of qualification for structures (eg. property calculations, models, member calculations etc.). The IDVP design verifications will check conformance to design criteria and acceptability of: "as-built" conditions, analysis methodology, inputs, interpretation and use of results. In addition, generic concerns noted in the Interim Technical Reports will be reviewed in detail by the IDVP.



- o IDVP Design Verification - PGandE Analysis:
RLCA will select a sample of qualification analyses. This selection will include both original and additional PGandE analyses. The sample will include calculations representing every type and category of qualification for structures (eg. member qualifications, property calculations, models etc.).

The qualification analysis will be design verified in accordance with written IDVP check lists to assure compliance with the PGandE Plan. These check lists will contain specific technical items noted in accordance with the PGandE plan. The design verifications will address the following technical items.

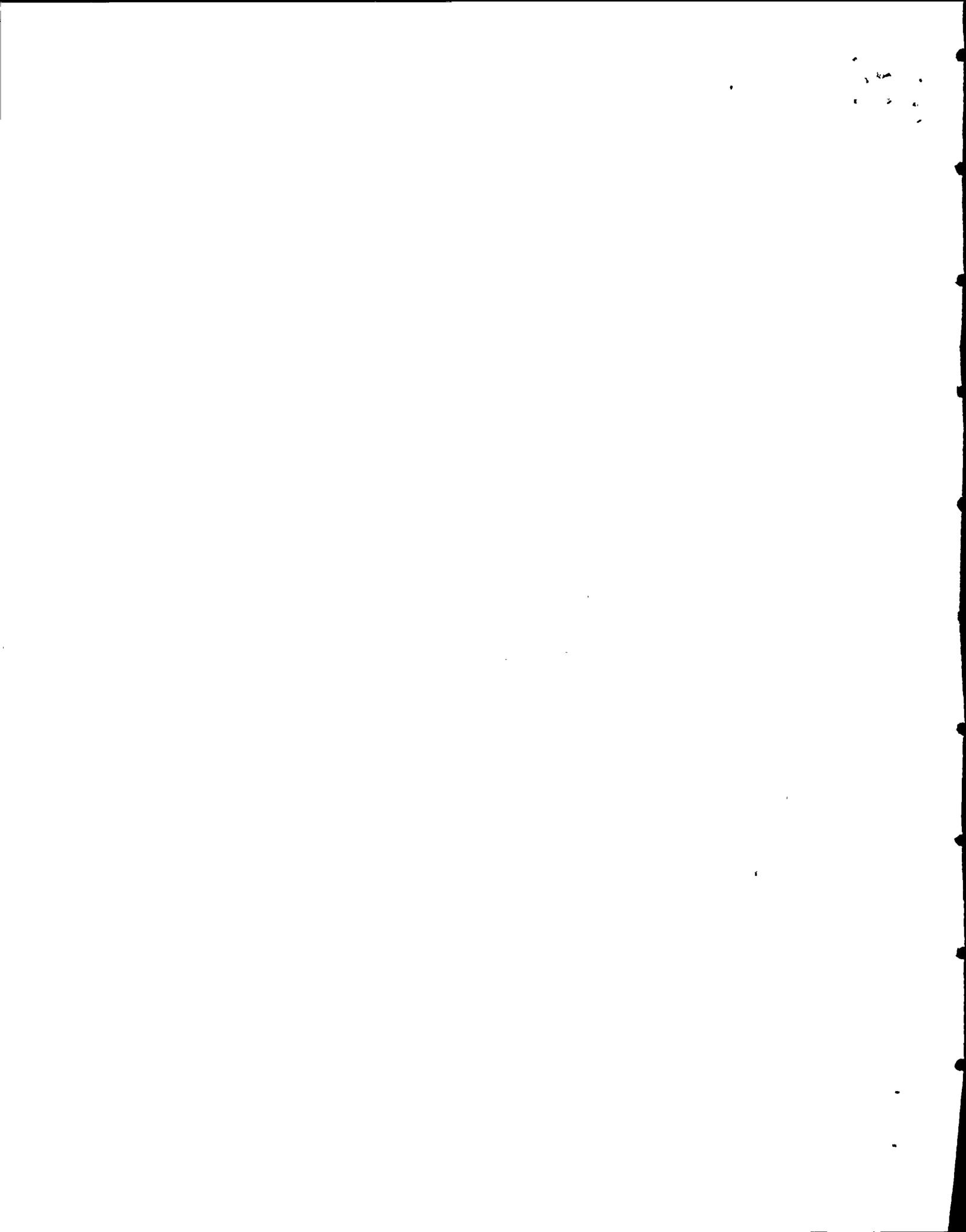
- o Establishment of design criteria
- o Establishment of scope and responsibilities
- o Establishment of design inputs
- o Reasonableness of assumptions
- o Applicability of analysis methods
- o Applicability of computer programs
- o Modeling methods and boundary conditions
- o Consistency of results based on judgement and/or simplified or alternate methods
- o Completeness of qualification
- o Satisfaction of design criteria

6.2.3 IDVP Design Office and Site Verification

The IDVP will verify PGandE design office activities and "as-built" information at the site.

Design office verifications will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.

Site verification will follow from the design verifications. Overall modeling techniques and methodology will be evaluated by the IDVP on the basis of familiarity with the site conditions. In addition, selected details and dimensions in the qualification calculations will be field verified.



7.0 LARGE BORE PIPING

The PGandE plan for large bore piping specifies a complete review of all Design Class 1 piping larger than 2". In cases where the review reveals deficiencies, these are to be corrected by additional qualification.

The IDVP will verify the corrective action by examination of the PGandE Plan and implementation. Table 6 presents the logic and tasks involved. The sections below provide further definition of the tasks.

7.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following three aspects of the PGandE large bore piping plan: scope, review and reanalysis.

Scope: The PGandE scope will be verified against the Hosgri Design Class 1 piping commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents. In particular, a list of analyses to be reviewed by PGandE will be compared by the IDVP to a complete Line List of Design Class 1 piping lines larger than 2" to ensure completeness.

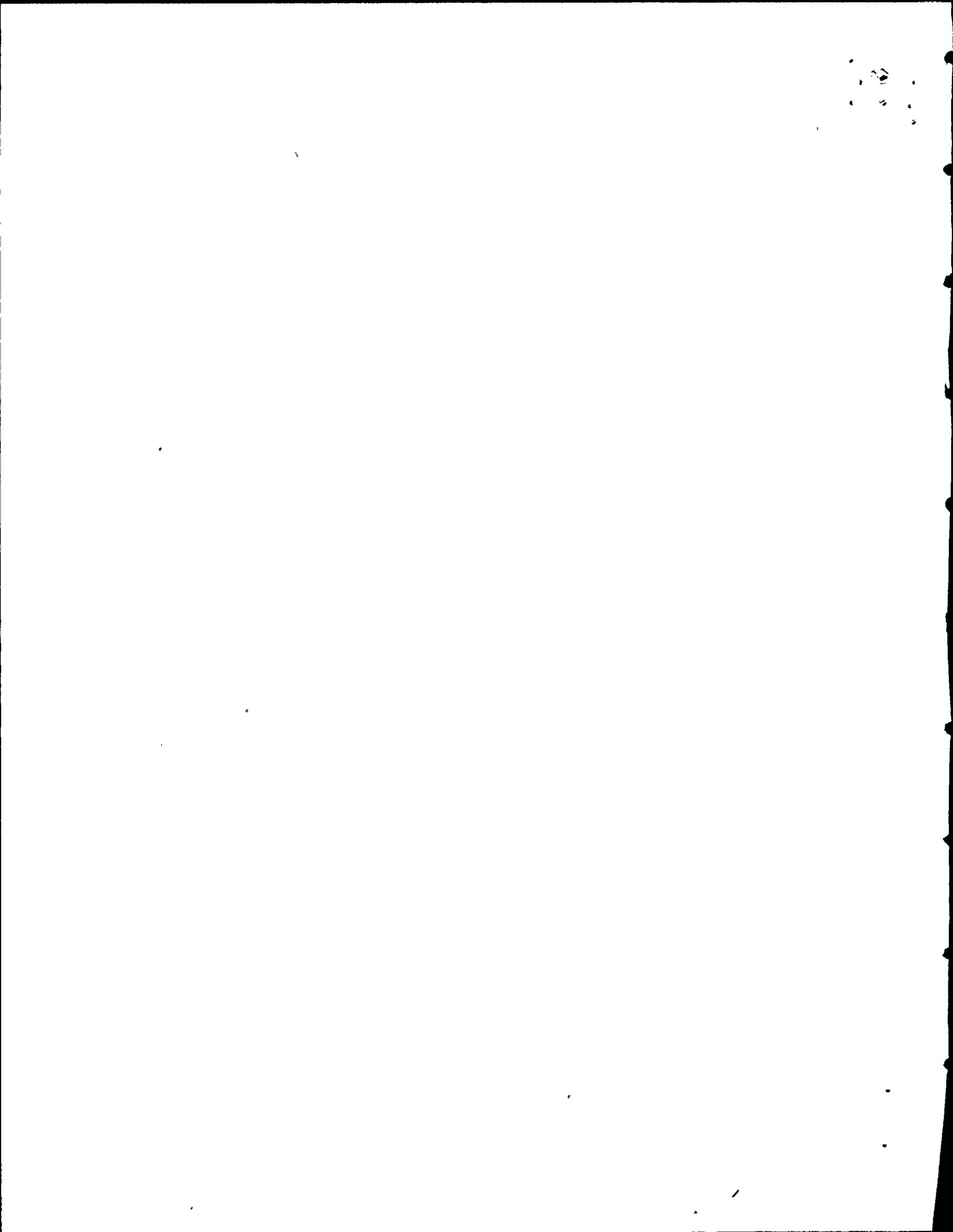
Review: The PGandE review methodology will be verified to assure that all "as-built" inputs, model geometry, support type and direction, code class, insulation, component modeling, mass lumping, response spectra, welded attachments, branch lines, model boundary conditions, pipe stresses, support loads, active valve accelerations, welded attachment local stresses, equipment nozzle loads and flued head loads are considered. In addition, the IDVP will verify the PGandE acceptance criteria for reasonableness.

Reanalysis: Where PGandE shows additional qualification is required, the criteria, methodology and procedures will be verified by the IDVP against the Hosgri Design Class 1 piping commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents.

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Table 6
Large Bore Piping

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Scope	- verify consistency with licensing documents to ensure completeness	- verify completeness
Review	- verify that all inputs affecting qualifications are included and that criteria for acceptance of existing qualifications are reasonable	- perform design verifications on 5 qualifications judged acceptable
Reanalysis	- verify that criteria and methodology are consistent with licensing documents	- perform design verifications on 10 additional qualifications - verify specific items: o 10 remote operated valves o 5 samples of non-rigid equipment o 10 new PGandE walkdown isometrics o 10 welded attachments - verify design office technical interface control



7.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by scope verification, design verifications, verification of the specific items, and design office verification .

7.2.1 Scope

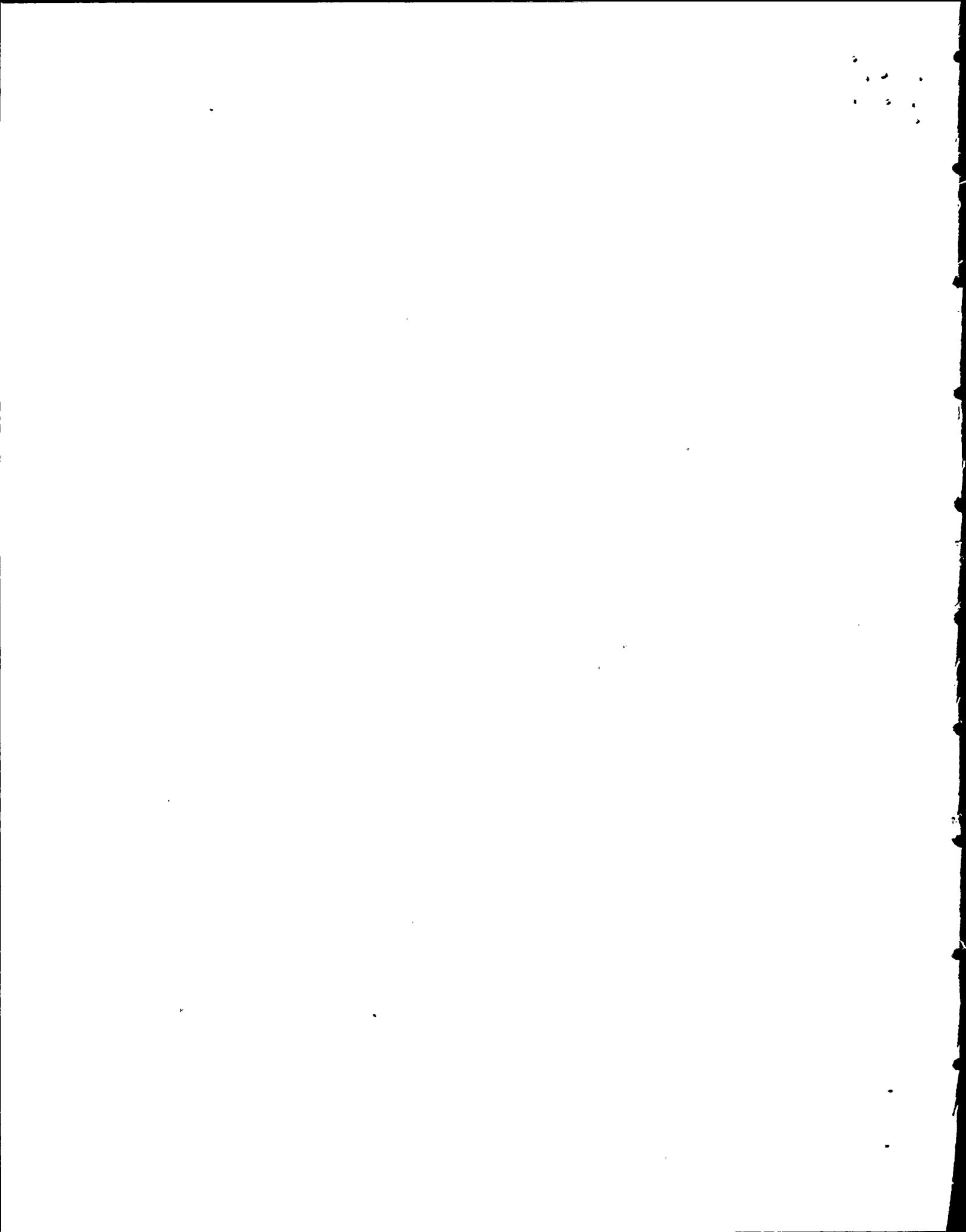
The items which the PGandE review and additional qualification has been finished will be compared by the IDVP to the scope to assure that the plan has been fully implemented.

7.2.2 IDVP Design Verification

Two types of design verifications will be performed. One type will assess the implementation of the PGandE review and the other type will assess the PGandE analysis.

o IDVP Design Verification - PGandE Review:

The IDVP will select 5 samples of original qualification analyses to be acceptable by the PGandE review. The IDVP design verifications will check conformance to the new PGandE walkdown isometrics, analysis methodology, inputs, interpretation and use of results. In addition, generic concerns noted in the Interim Technical Reports will be reviewed in detail by the IDVP. .



o IDVP Design Verification - PGandE Analysis:
RLCA will select 10 samples of qualification analyses. This selection will include both original and additional PGandE analyses.

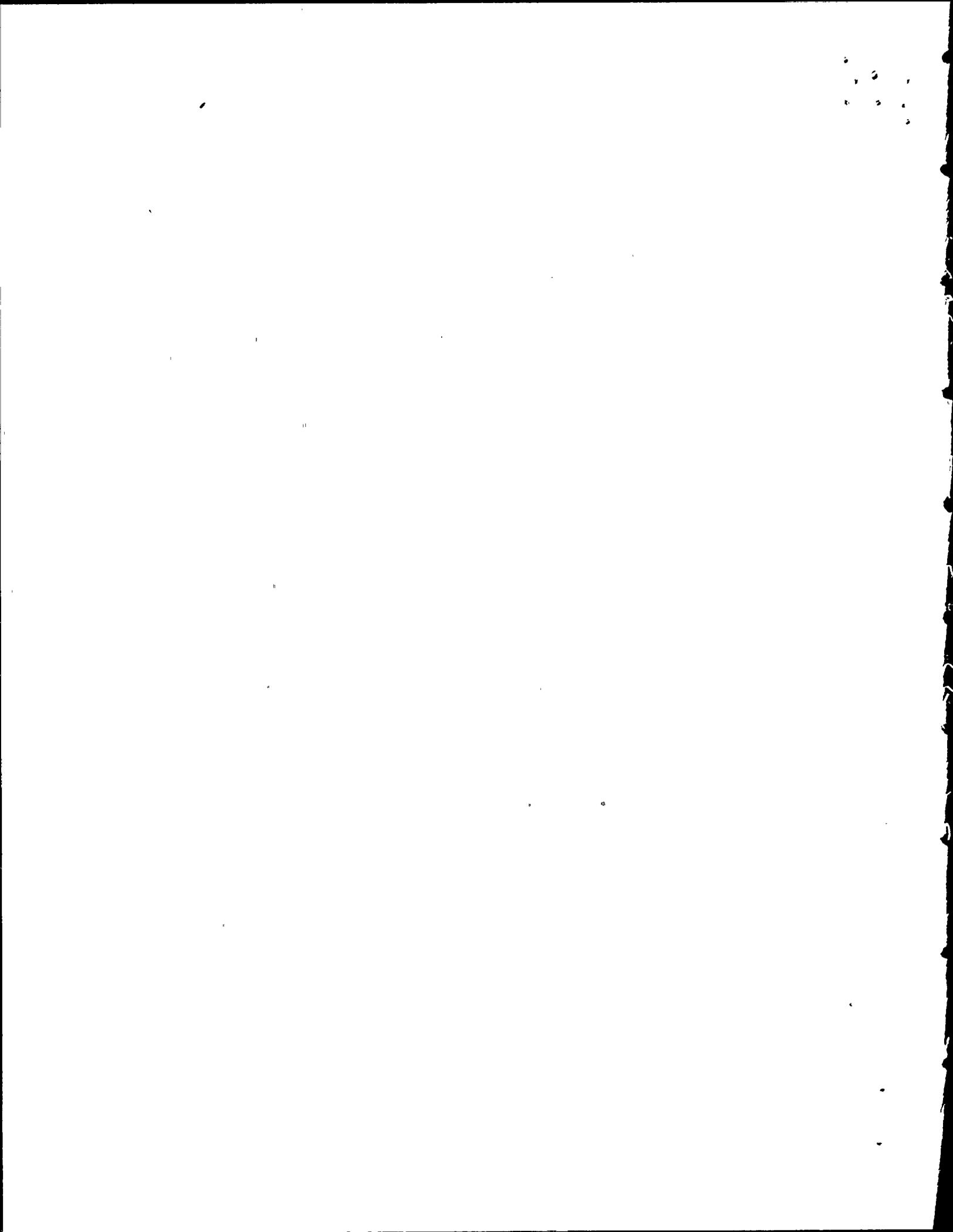
The qualification analysis will be design verified in accordance with written IDVP check list to assure compliance with the PGandE Plan. These check lists will contain specific technical items noted in accordance with the PGandE plan. The design verifications will address the following technical items.

- o Establishment of design criteria
- o Establishment of scope and responsibilities
- o Establishment of design inputs (starting with new PGandE walkdown isometrics)
- o Reasonableness of assumptions
- o Applicability of analysis methods
- o Applicability of computer programs
- o Modeling methods and boundary conditions
- o Consistency of results based on judgement and/or simplified or alternate methods
- o Completeness of qualification
- o Satisfaction of design criteria

7.2.3 Verification of Specific Items

In addition to the design verifications described above, four specific items of concern will be verified: remote operated valves, non-rigid equipment, welded attachments and walkdown isometrics. Samples of these items may be included in the design review samples.

- o Remote Operated Valves: The IDVP will select 10 remote operated valves attached to design class I piping to obtain a wide representation of the following items: buildings, elevations, previously identified problems, valve sizes, valve manufacturers, orientations, weights and valve supports.



The valves will be field verified against the new PGandE walkdown isometrics for orientation, identification number, manufacturer's number, valve support and agreement with the PGandE documentation (i.e. vendor drawings).

The design analysis will be verified by the IDVP for consistency with the PGandE documentation (i.e. vendor drawings and qualification), field inspection and modeling.

- o Non-Rigid Equipment: The IDVP will select 5 samples of non-rigid equipment attached to design class I piping from a PGandE supplied list. The design analysis will be verified by the IDVP for consistency with the equipment flexibility.
- o Walkdown Isometrics: The IDVP will select new PGandE walkdown isometrics of 10 analyses for field verification. These piping analyses will be field verified using the plan tolerances.
- o Welded Attachments: The IDVP will select 10 samples of attachments welded to design class I piping to obtain wide representation of the following items: lugs, stanchions, plates, curved sections, pipe sizes, loadings and welded attachments that failed the screening process. The PGandE screening process and local stresses at the welded attachments will be verified by the IDVP.

7.2.4 IDVP Design Office Verification

The IDVP will verify PGandE design office activities.

Design office verifications will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes, project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.

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8.0 SMALL BORE PIPING

The PGandE plan for the small bore piping specifies a complete review of all Design Class I piping smaller than 2 1/2" qualified by computer analysis. In cases where the review reveals deficiencies in an existing analysis, these are to be corrected by additional qualification. In addition, for Design Class I piping smaller than 2 1/2" qualified by span evaluation procedures, the PGandE plan specifies a revision to the span evaluation procedures along with computer analysis of a sample of this piping to demonstrate conservative design. The IDVP will verify the corrective action by examination of the PGandE plan and implementation.

The IDVP will verify the corrective action for the computer analyzed small bore piping by following the large bore piping approach (Section 7.0) with design verification samples one half the size of large bore piping. Table 6 presents the logic and tasks involved.

The IDVP will verify the corrective action for small bore piping qualified by span evaluation procedures as shown in Table 7. The sections below provide further definition of the tasks.

8.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following three aspects of the PGandE small bore piping plan: revised span evaluation procedures, sampling and analysis.

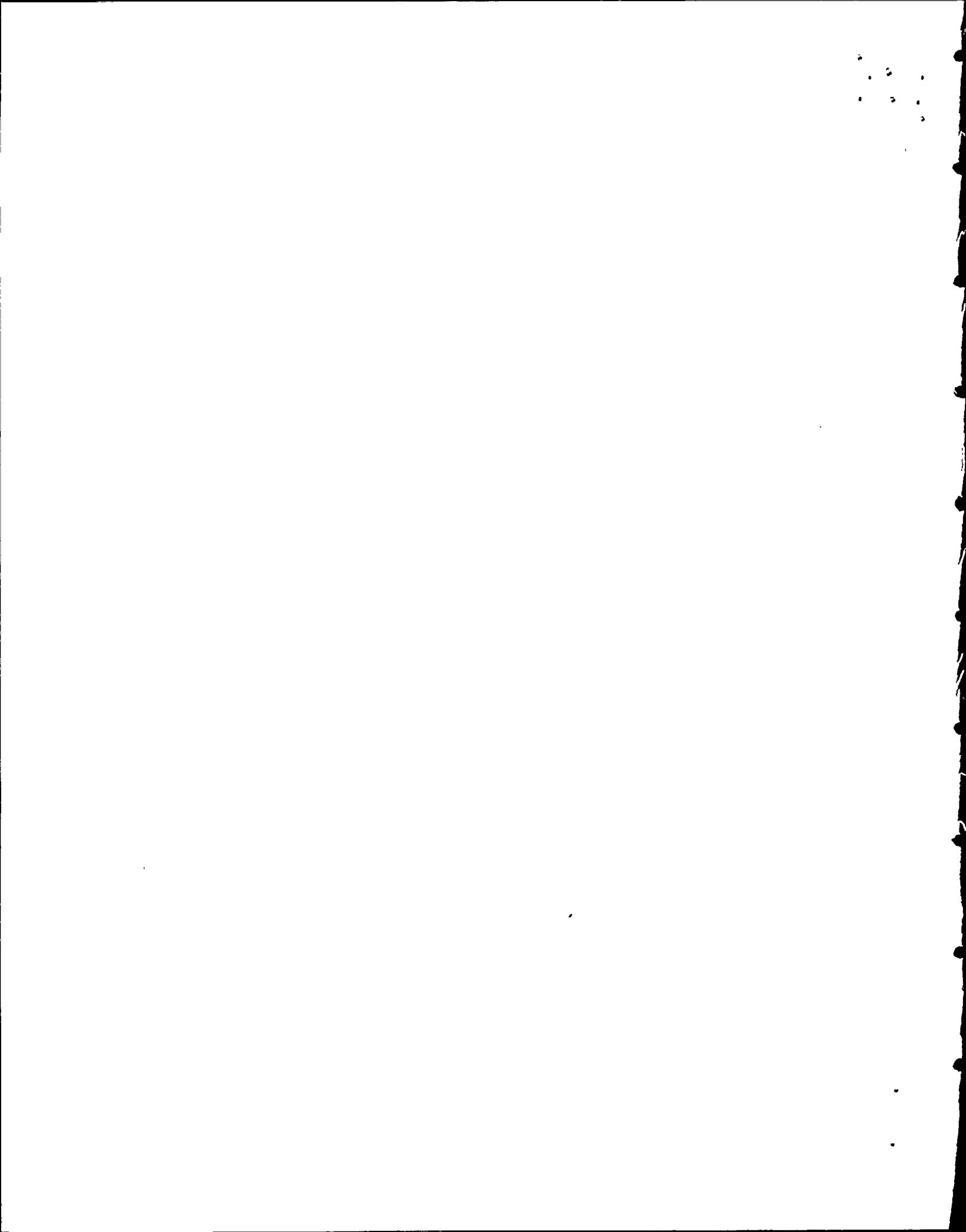
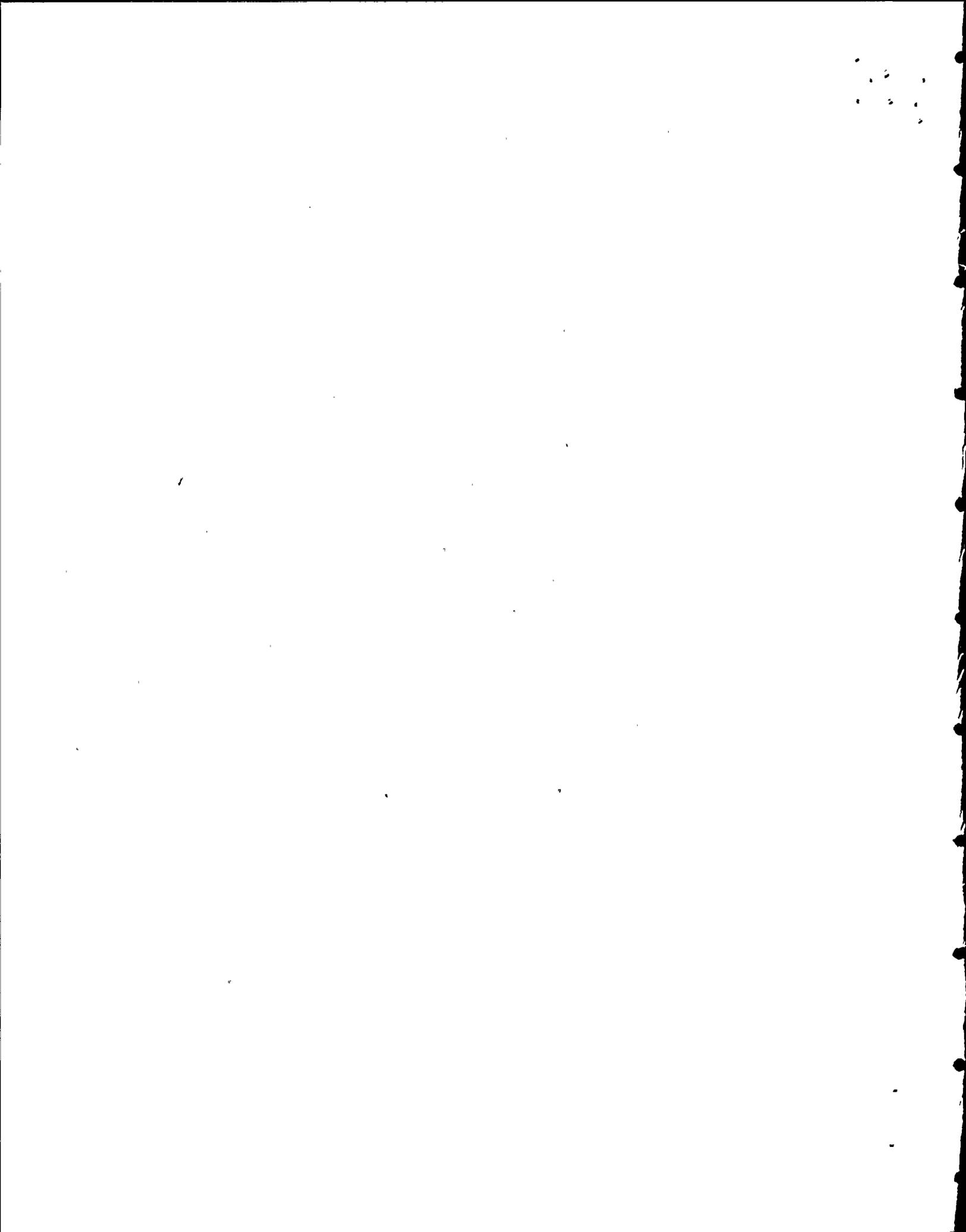


Table 7

Small Bore Piping
Qualified by Span Evaluation Procedures

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Revised Span Evaluation Procedures	- verify consistency with previously noted field conditions, resolution of identified concerns and qualification of design to criteria	- verify specific items: o 4 remote operated valves o 4 welded attachments
Sampling	- verify that sample size and requirements will permit generic conclusions	- verify sample selection through "as-built" and drawing verifications
Analysis	- verify that criteria and methodology are consistent with licensing documents	- perform design verifications on all analyses - verify design office technical interface control



Revised Span Evaluation Procedures: The revised span evaluation procedures will be verified against the previously examined span evaluation procedures (current as of November 30, 1981). All changes will be verified for consistency with the previously noted field conditions, resolution of identified concerns, and qualification of design to criteria.

Sampling: The PGandE sample size and requirements will be verified by the IDVP to determine if generic conclusions can be drawn through application of the sampling methodology. In particular the list of Design Class 1 piping qualified by span evaluation procedures will comprise the sample space.

Analysis: The criteria, methodology and procedures used by PGandE will be verified against the Hosgri Design Class 1 piping commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents.

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8.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by design verification, verification of specific items, verification of the sample selection and design office verification.

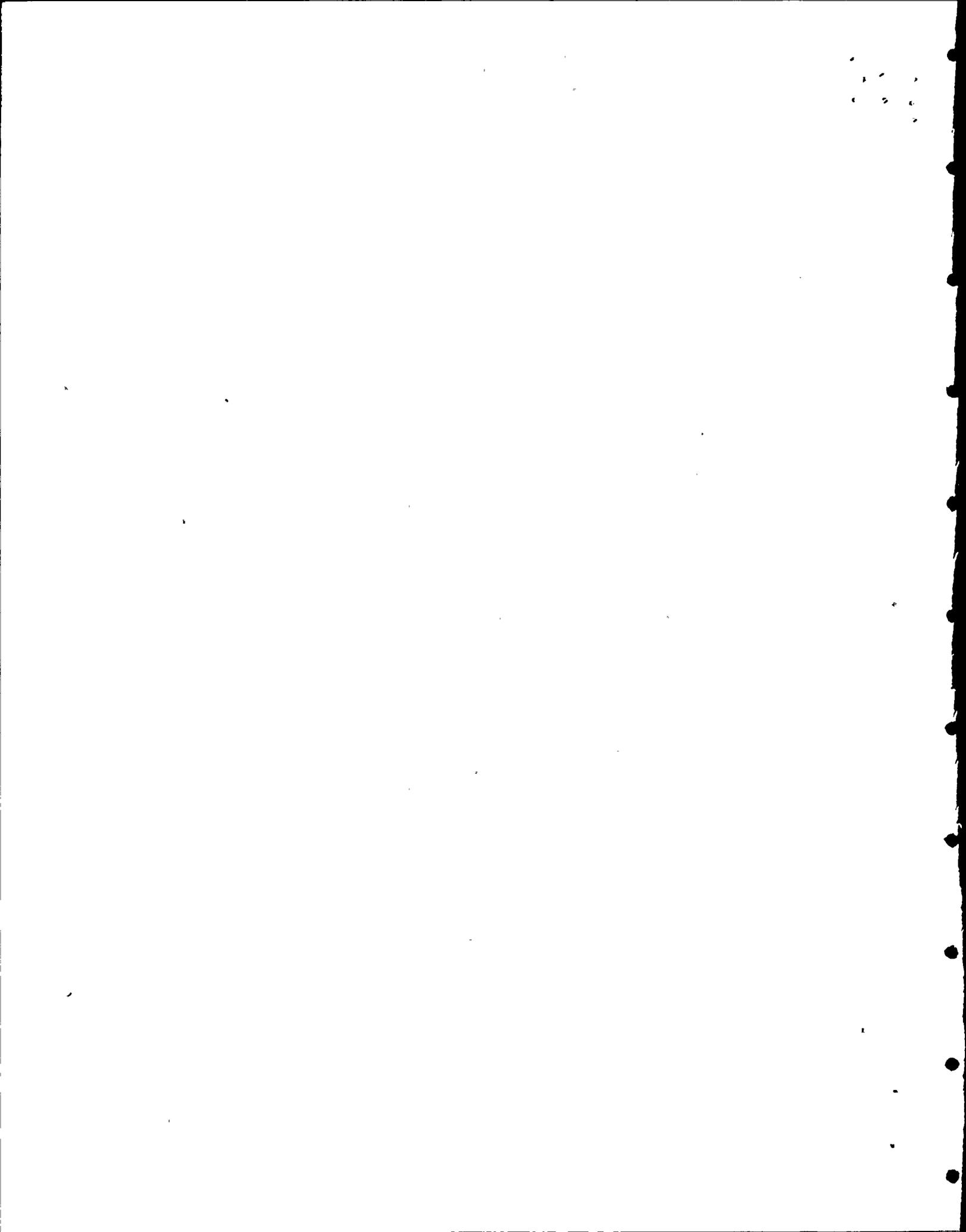
8.2.1 IDVP Design Verification

Design verifications will be performed to assess the implementation of the PGandE computer analysis of piping qualified by span evaluation procedures.

o IDVP Design Verification

The IDVP will design verify all the PGandE sample analyses in accordance with written IDVP check lists to assure compliance with the PGandE Plan. These check lists will contain specific technical items noted in accordance with the PGandE Plan. The design verifications will address the following technical items.

- o Establishment of design criteria
- o Establishment of scope and responsibilities
- o Establishment of design inputs
- o Reasonableness of assumptions
- o Applicability of analysis methods
- o Applicability of computer programs
- o Modeling methods and boundary conditions
- o Consistency of results based on judgement and/or simplified or alternate methods
- o Completeness of qualification
- o Satisfaction of design criteria



8.2.2 Verification of Specific Items

In addition to the design verification described above, two specific items of concern will be addressed by the IDVP: remote operated valves and welded attachments. Samples of these items selected by the IDVP may be included in the design verification samples.

o Remote Operated Valves

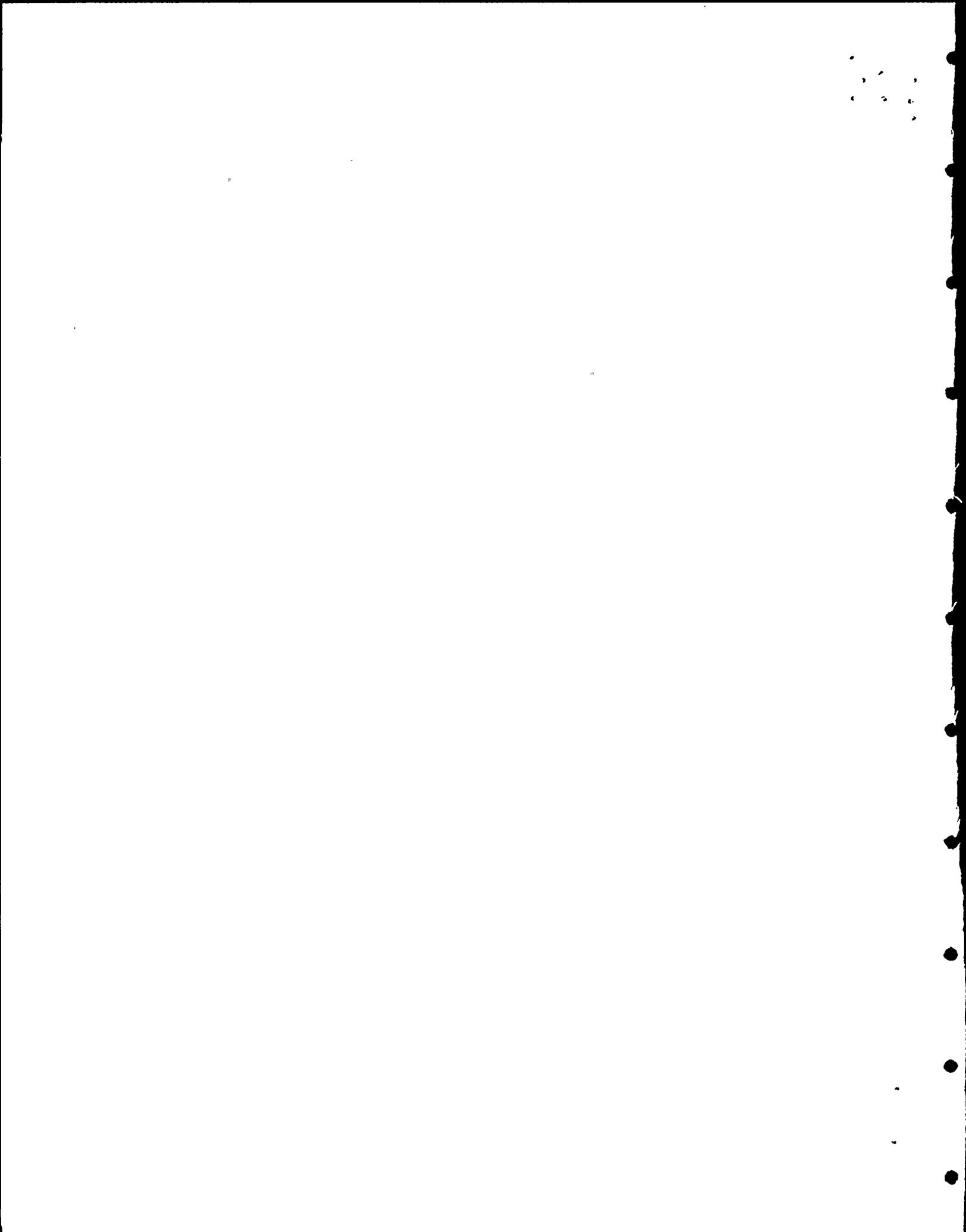
The IDVP will select 4 remote operated valves attached to Design Class 1 piping qualified by span evaluation procedures to obtain a wide representation of the following items: buildings, elevations, pipe sizes, previously identified problems, valve sizes, valve manufacturers, orientations, weights, and valve supports.

The valves will be field verified against the new PGandE walkdown isometrics for orientation, identification number, manufacturer's number, valve support and agreement with the PGandE documentation (i.e., vendor drawings).

The design analyses will be verified by the IDVP for consistency with the PGandE documentation (i.e., vendor drawings and qualification), field inspection and modeling.

o Welded Attachments

The IDVP will select 4 samples of attachments welded to Design Class I piping qualified by span evaluation procedures to obtain wide representation of the following items: lugs, stanchions, plates, curved sections, pipe sizes, loadings and welded attachments that failed the initial plan screening process. The PGandE screening process and local stresses at the welded attachments will be verified by the IDVP.



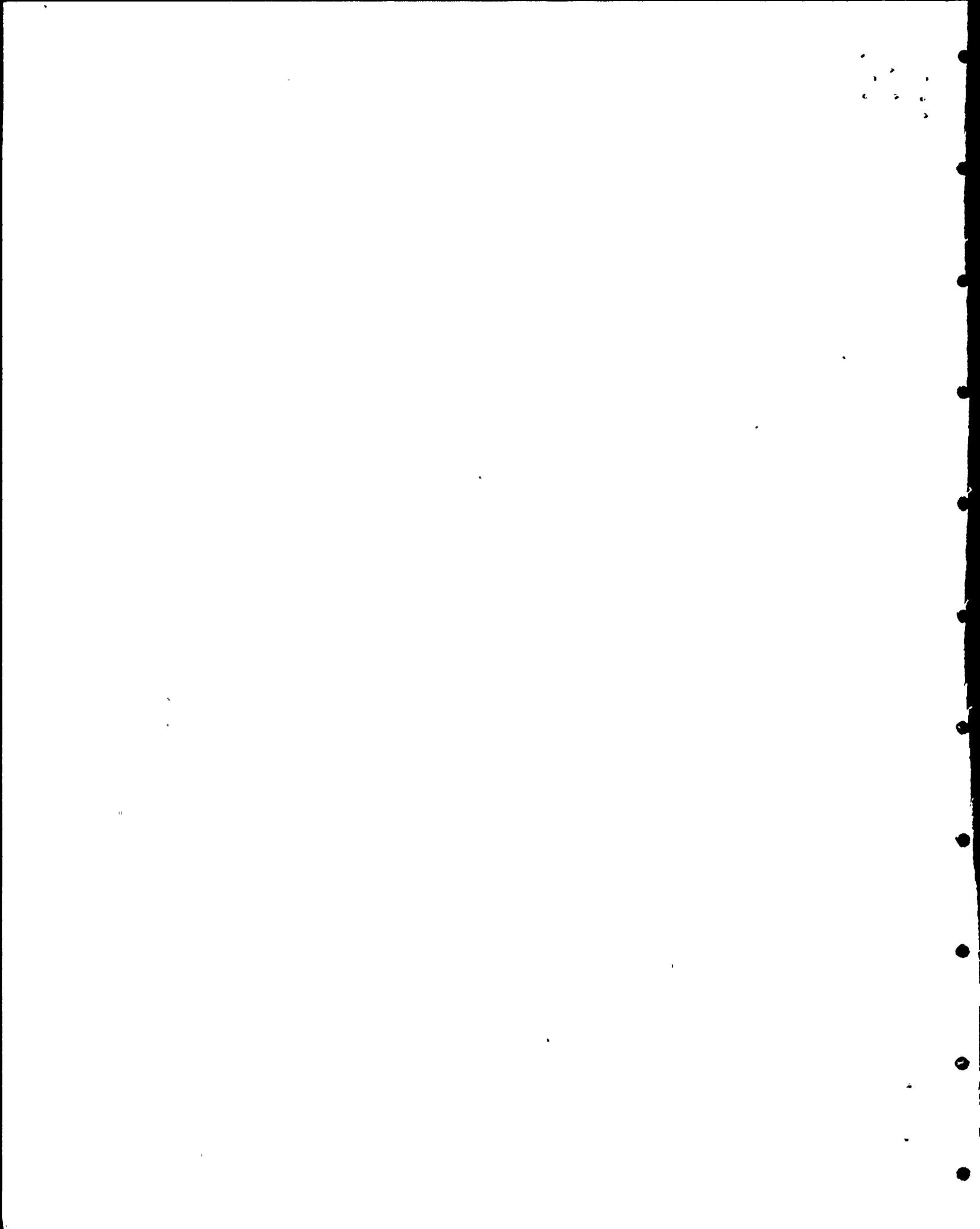
8.2.3 Sample Selection

The sample selection will be verified by the IDVP through field and drawing verifications.

8.2.4 IDVP Design Office Verification

The IDVP will verify PGandE design office activities.

Design office verifications will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval..



9.0 LARGE BORE PIPE SUPPORTS

The PGandE plan specifies a complete review of all Design Class 1 pipe supports for large bore piping. In cases where the review reveals deficiencies, these are to be corrected by additional qualification.

The IDVP will verify the corrective action by examination of the PGandE plan and implementation. Table 8 presents the logic and tasks involved. The sections below provide further definition of the tasks.

9.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following three aspects of the PGandE large bore pipe support plan: scope, review, and reanalysis.

Scope: The PGandE scope will be verified against the Hosgri Design Class 1 pipe support commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements, and other licensing documents. In particular, a list of pipe supports to be reviewed by PGandE will be compared by the IDVP to a list of design class I pipe supports attached to lines larger than 2" and the first two supports after class breaks.

Review: The PGandE review methodology will be verified to assure that all "as-built" inputs, model geometry, support type and direction, loads and pipe support stresses will be considered. In addition, the IDVP will verify the PGandE acceptance criteria for reasonableness.

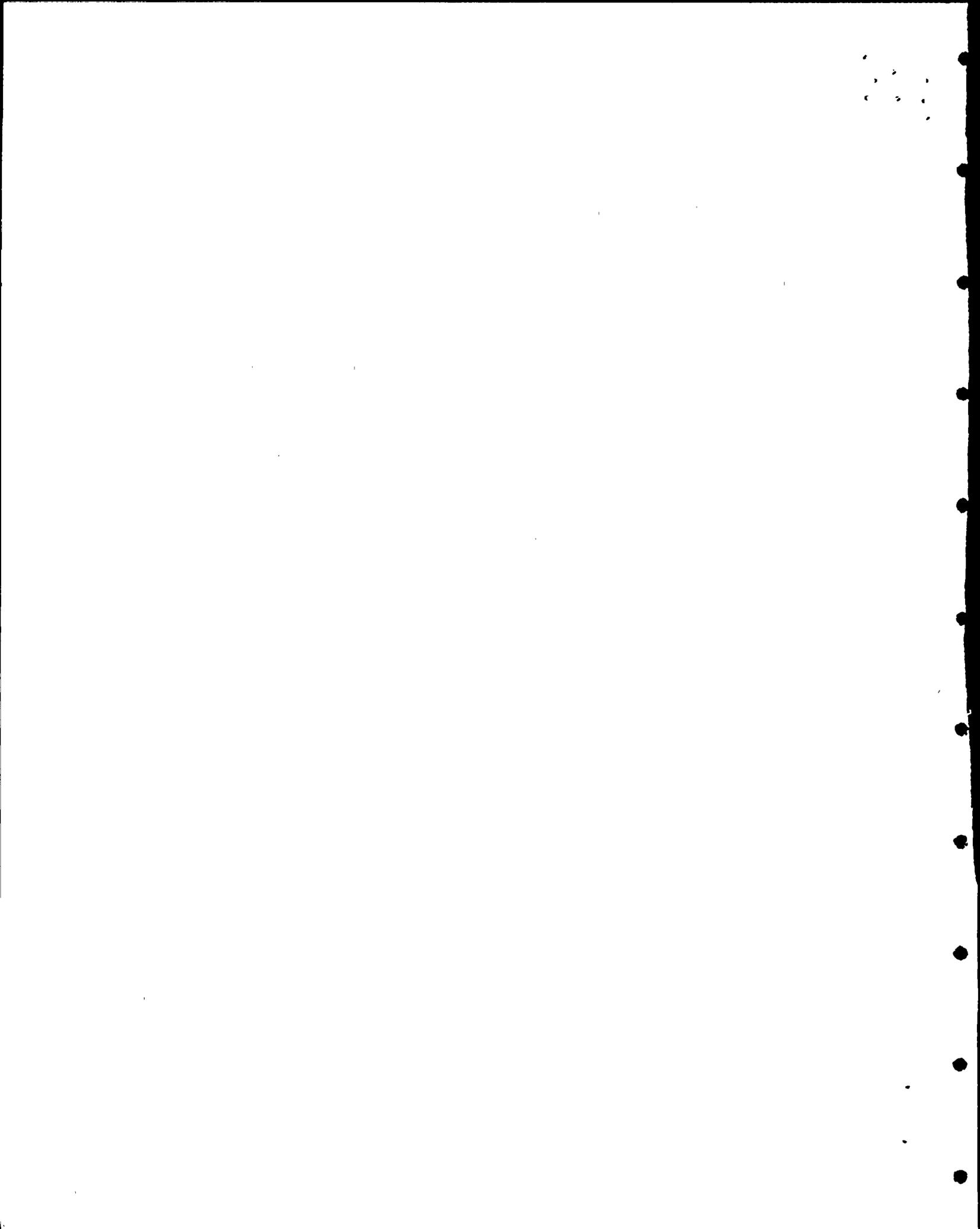
Reanalysis: Where PGandE shows additional qualification is required, the methodology and procedures will be verified by the IDVP against the Hosgri Design Class 1 pipe support commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements, and other licensing documents.

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Table 8

Large Bore Pipe Supports

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Scope	- verify consistency with licensing documents to ensure completeness	- verify completeness
Review	- verify that all inputs affecting qualifications are included and that criteria for acceptance of existing qualifications are reasonable	- perform design verifications on 20 qualifications judged acceptable
Reanalysis	- verify that criteria and methodology are consistent with licensing documents	- perform design verifications on 20 additional qualifications - verify design office technical interface control - verify "as-built" conditions



9.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by scope verification, design verifications, and design office and site verification.

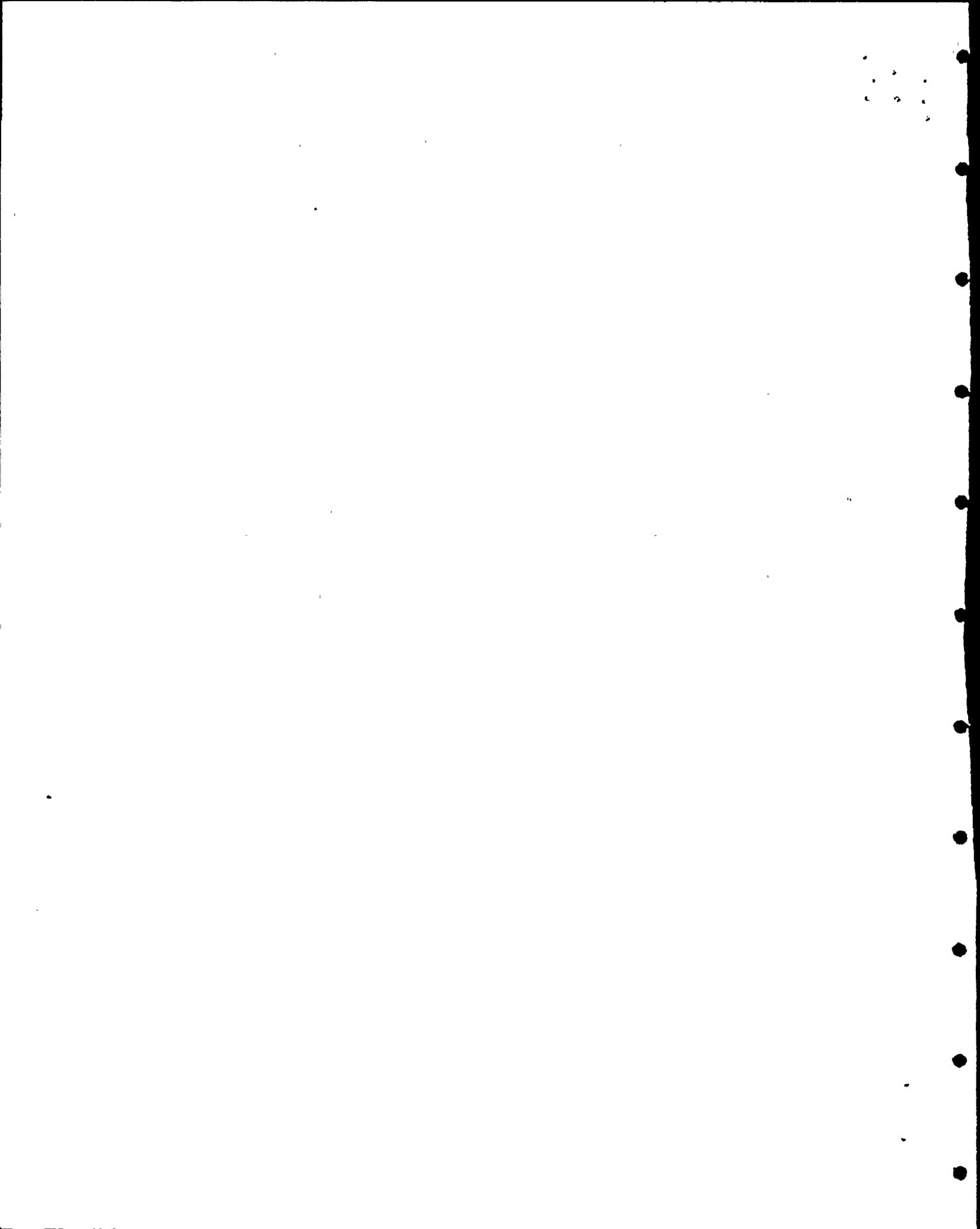
9.2.1 Scope

The scope will be compared by the IDVP to a list of pipe supports reviewed by PGandE to assure that the plan has been fully implemented.

9.2.2 IDVP Design Verification

Two types of design verifications will be performed. One type will assess the implementation of the PGandE review and the other type will assess the PGandE reanalysis.

- o IDVP Verifications - PGandE Review: The IDVP will select 20 samples of original qualification analyses found to be acceptable by the PGandE review. The IDVP verification will check conformance to design criteria and acceptability of: "as-built" conditions, analysis methodology, inputs, interpretation and use of results. In addition, generic concerns noted in the Interim Technical Reports will be reviewed in detail by the IDVP.



- o IDVP Design Verifications - PGandE Reanalysis:
The IDVP will select a sample of 20 qualification analyses. This selection will be limited to analyses revised as a result of the PGandE review.
The qualification analysis will be design verified in accordance with written IDVP check lists to assure compliance with the PGandE Plan. These check lists will be specific technical items noted in accordance with the PGandE plan. The design verification will address the following technical items.
 - o Establishment of design criteria
 - o Establishment of scope and responsibilities
 - o Establishment of design inputs
 - o Reasonableness of assumptions
 - o Applicability of analysis methods
 - o Applicability of computer programs
 - o Modeling methods and boundary conditions
 - o Consistency of results based on judgement and/or simplified or alternate methods
 - o Completeness of qualification
 - o Satisfaction of design criteria

9.2.3 IDVP Design Office and Site Verification

The IDVP will verify of PGandE design office activities and "as-built" information at the site.

Design office verification will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.

Site verification will follow from the design verifications. Overall modeling techniques and methodology will be evaluated by the IDVP on the basis of familiarity with the site condition. In addition, selected details and dimensions in the qualification calculations will be field verified.

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10.0 SMALL BORE PIPE SUPPORTS

The PGandE internal plan for small bore pipe supports specifies analysis of a sample of supports to demonstrate conservative design.

The IDVP will verify the corrective action by examination of the PGandE plan and implementation. Table 9 presents the logic and tasks involved. The sections below provide further definition of the tasks.

10.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify two aspects of the PGandE small bore pipe support plan: sampling and analysis.

Sampling: The PGandE sample size and requirements will be verified by the IDVP to determine if generic conclusions can be drawn through application of the sampling methodology. In particular, the list of all Design Class 1 supports for piping qualified by span evaluation procedures will comprise the sample space.

Analysis: The analysis criteria, methodology and procedures used by PGandE will be verified by the IDVP against the Hosgri Design Class 1 pipe support commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements, and other licensing documents.

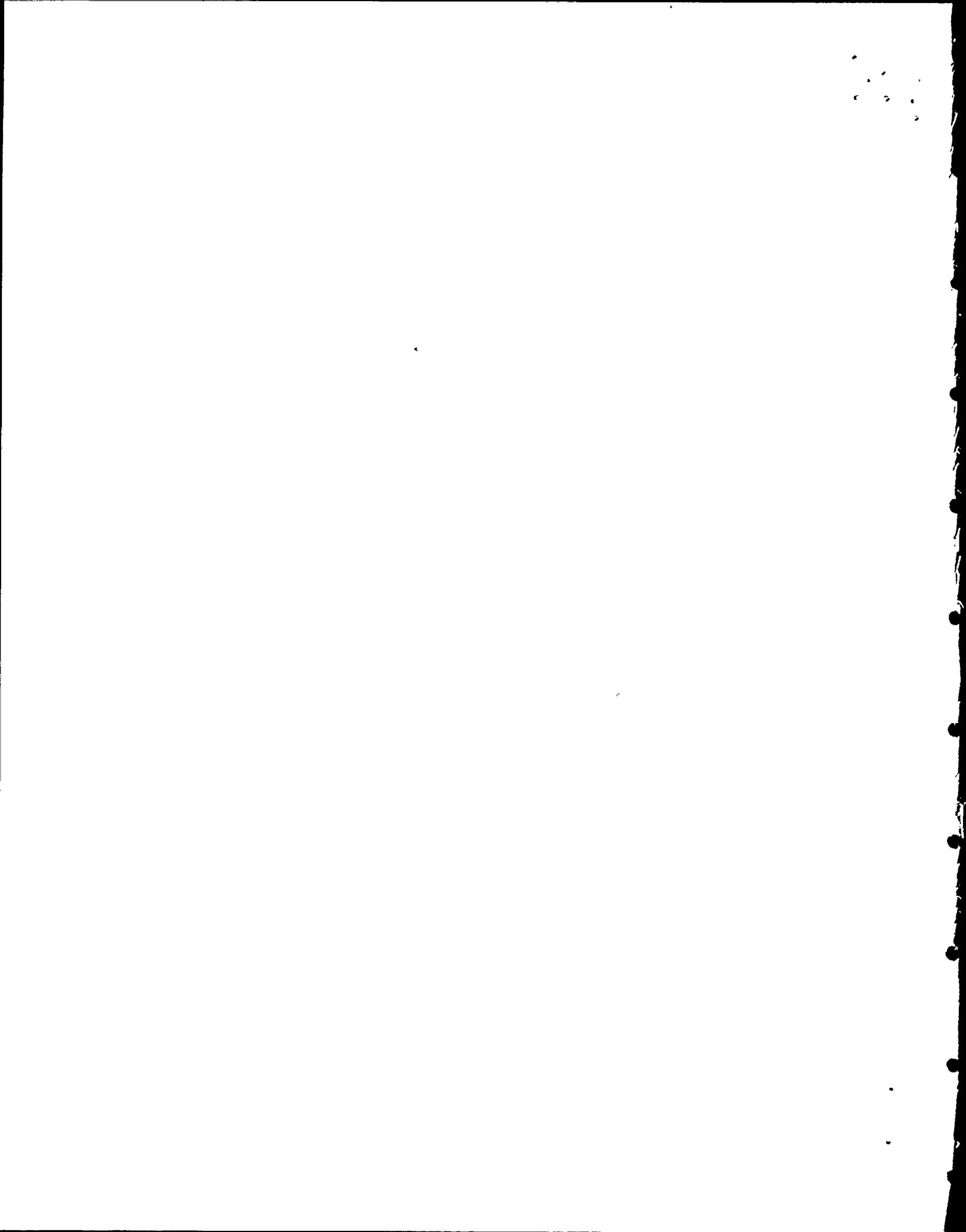
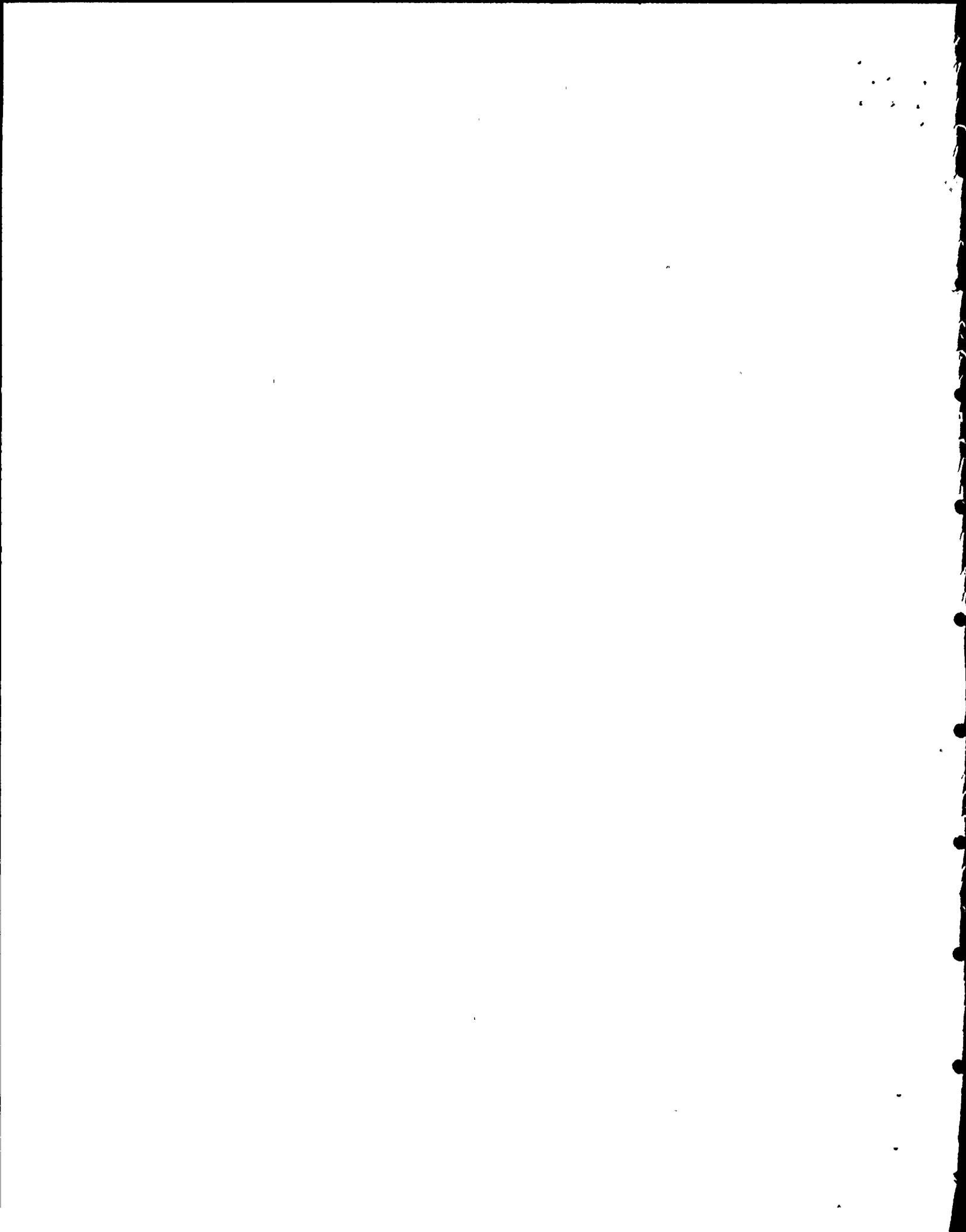


Table 9

Small Bore Pipe Supports

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Sampling	- verify that sample size and requirements will permit generic conclusions	- verify sample selection through "as-built" and drawing verifications
Analysis	- verify that criteria and methodology are consistent with licensing documents	- perform design verifications on all analyses - verify design office technical interface control



10.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by design verification, verifications of the sample selection, and design office verification.

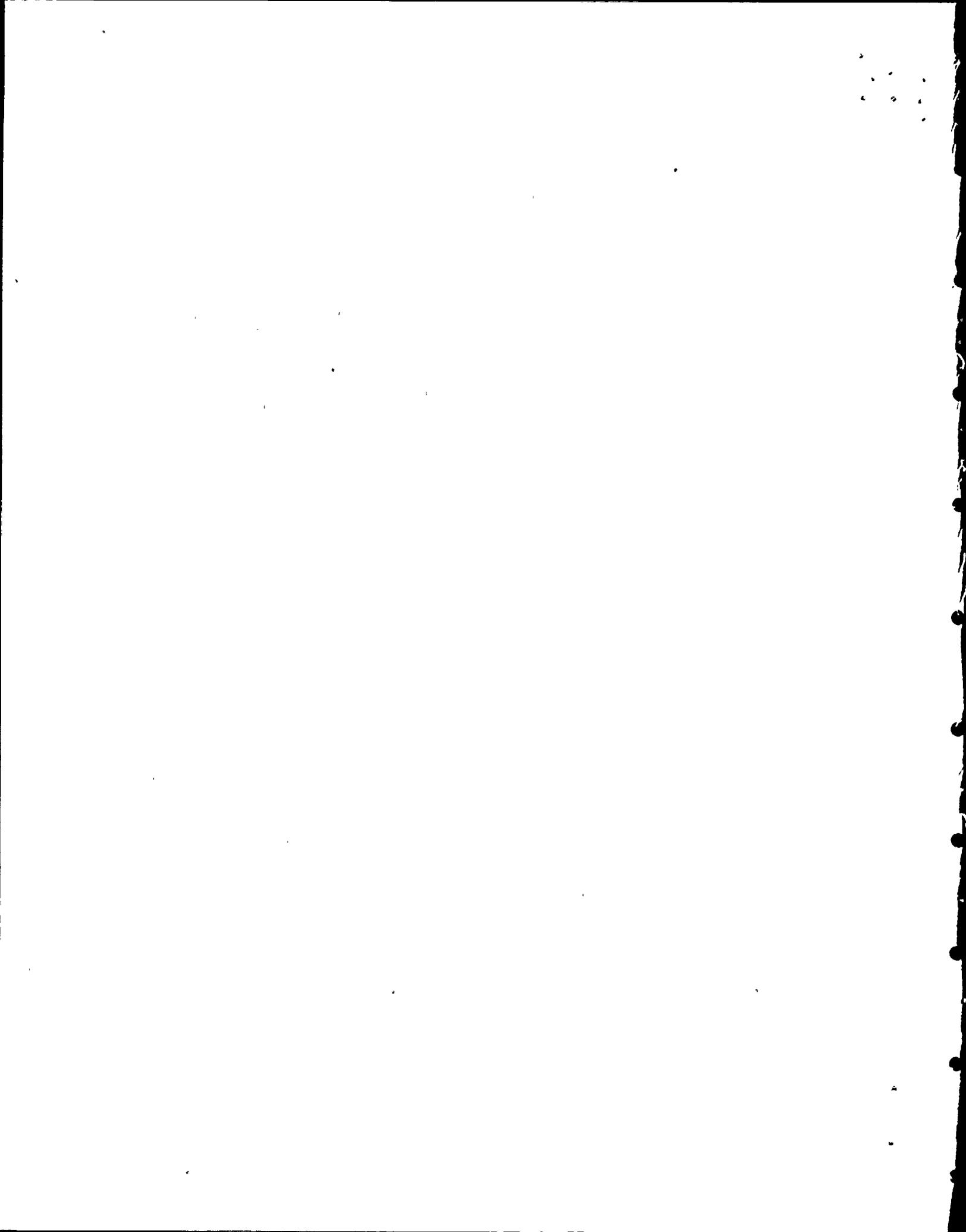
10.2.1 IDVP Design Verification - PGandE Analysis

The IDVP will design verify all the PGandE sample analyses in accordance with written IDVP check lists to assure compliance with the PGandE Plan. These check lists will contain specific technical items noted in accordance with the PGandE plan. The design verifications will address the following technical items.

- o Establishment of design criteria
- o Establishment of scope and responsibilities
- o Establishment of design inputs
- o Reasonableness of assumptions
- o Applicability of analysis methods
- o Applicability of computer programs
- o Modeling methods and boundary conditions
- o Consistency of results based on judgement and/or simplified or alternate methods
- o Completeness of qualification
- o Satisfaction of design criteria

10.2.2 Sample Selection

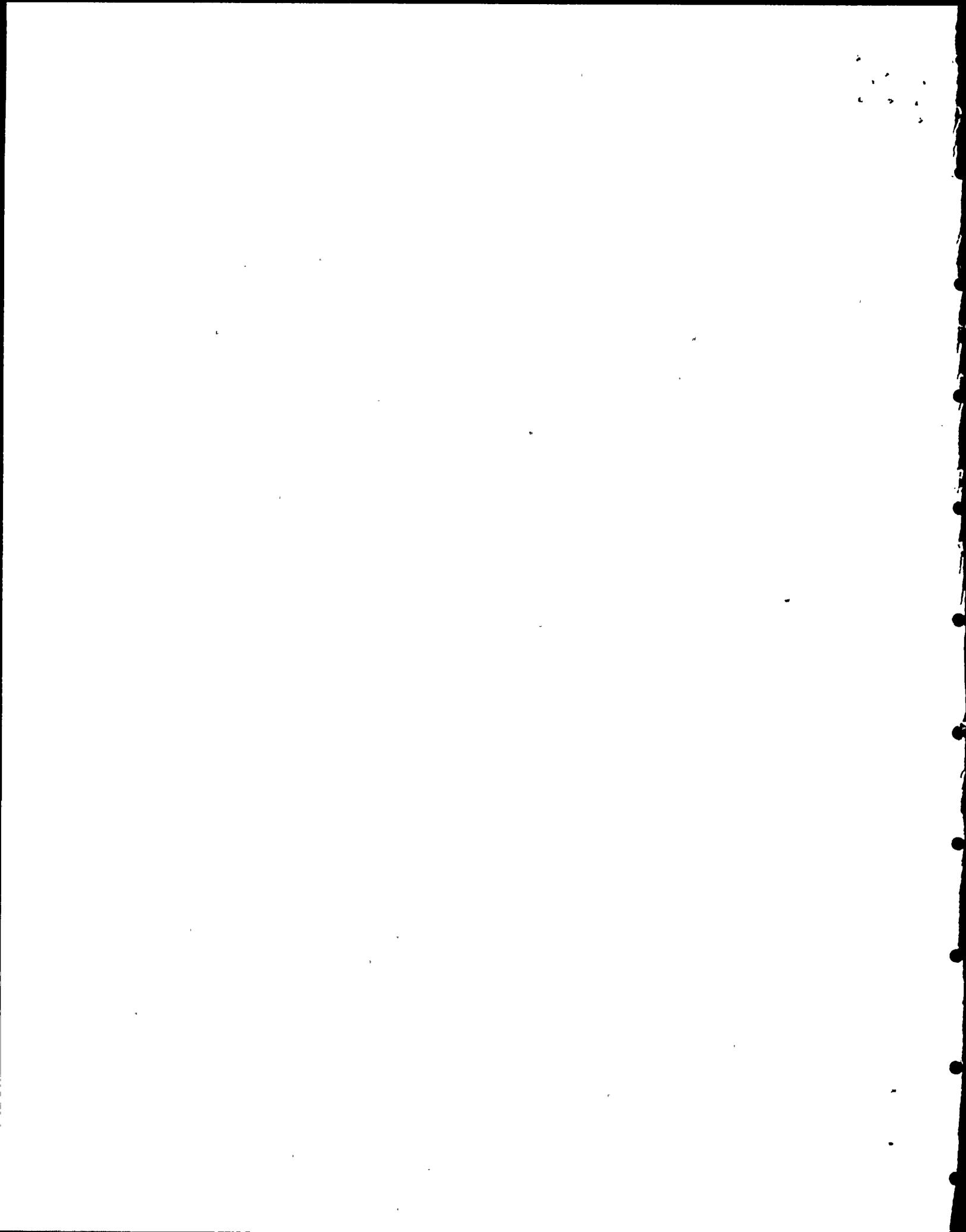
The sample selection will be verified by the IDVP through field and drawing verifications.



10.2.3 IDVP Design Office Verification

The IDVP will verify PGandE design office activities.

Design office verifications will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.



11.0 MECHANICAL EQUIPMENT

The PGandE plan for mechanical equipment specifies a complete review of seismic inputs for all Design Class I mechanical equipment.

The IDVP will verify the corrective action by examination of the PGandE plan and implementation. Table 10 presents the logic and tasks involved. The sections below provide further definition of the tasks.

11.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following two aspects of the PGandE mechanical equipment plan: scope and seismic input review.

Scope: The scope will be verified against the Hosgri Design Class I mechanical equipment lists contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents.

Seismic Input Review: The IDVP will verify the PGandE review methodology to assure that the current spectra are checked by PGandE against the qualification analyses.

11.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by scope verification and design office verification.

11.2.1 Scope

The list of mechanical equipment reviewed by PGandE will be compared by the IDVP to the scope to assure that the plan has been fully implemented.

11.2.2 IDVP Design Office Verification

The IDVP will verify PGandE design office activities.

Design office verifications will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.

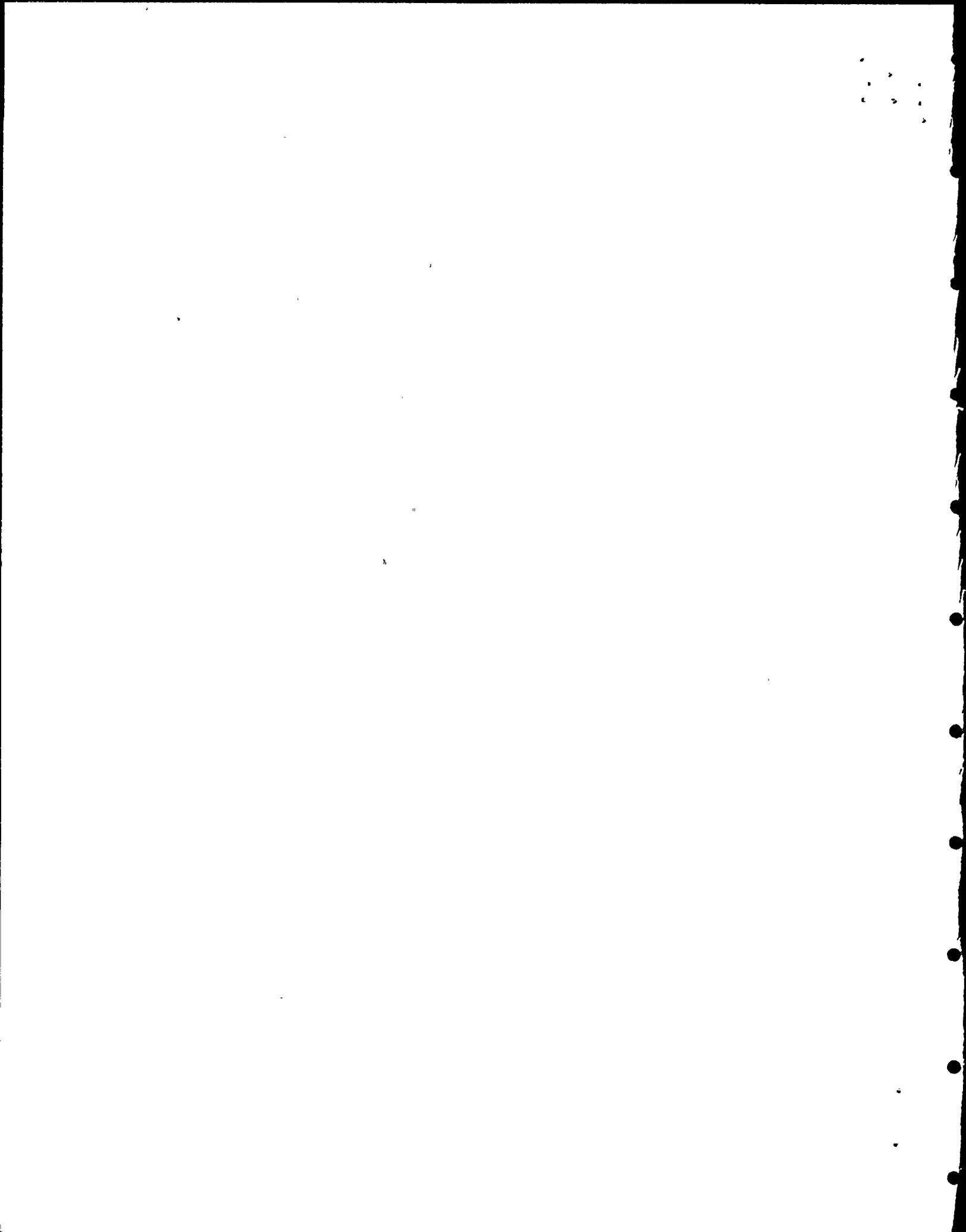
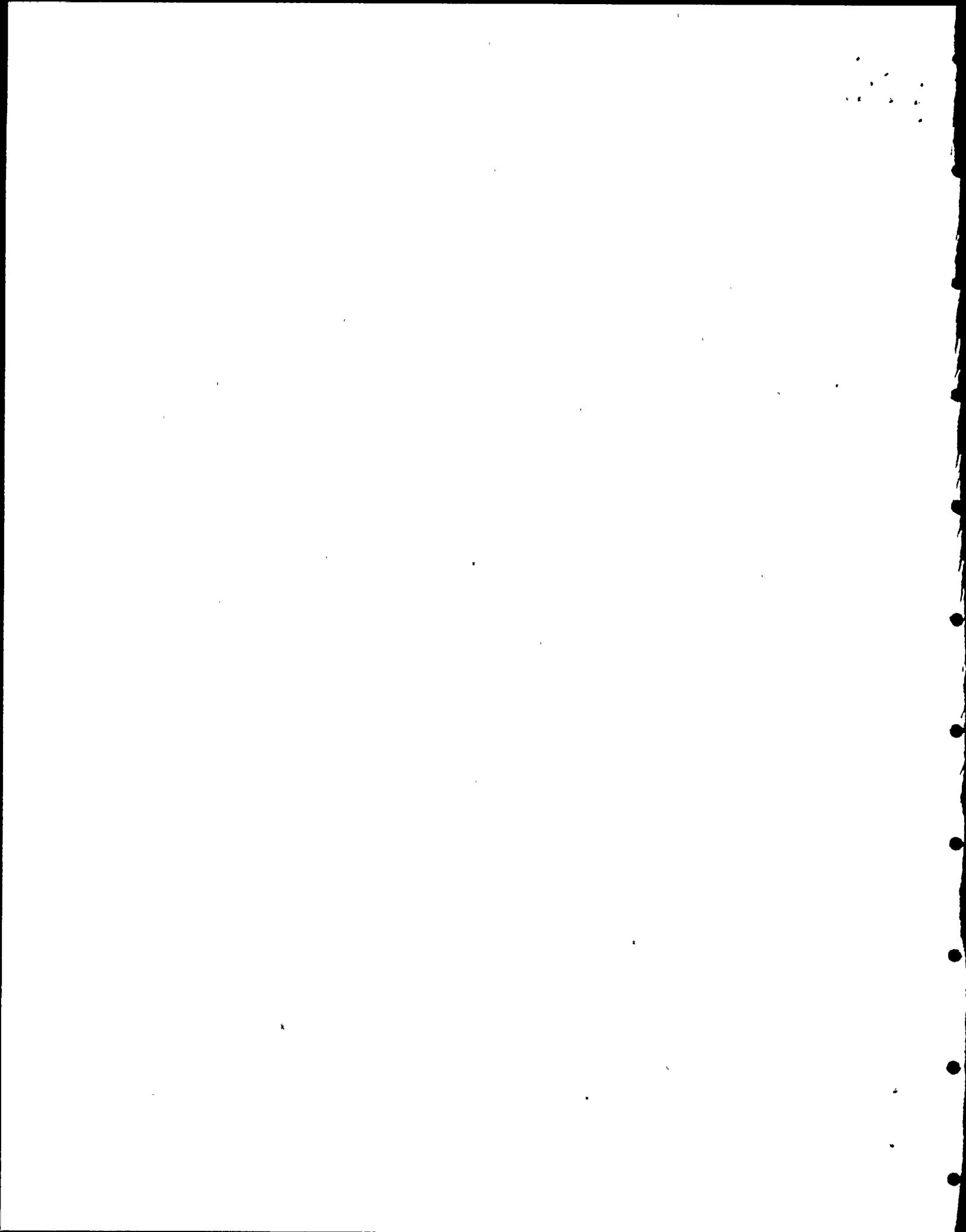


Table 10

Mechanical Equipment

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Scope	- verify consistency with licensing documents to ensure completeness	- verify completeness
Review	- verify that the current controlled seismic inputs are specified	- verify design office technical interface control



12.0 ELECTRICAL EQUIPMENT AND INSTRUMENTATION

The PGandE plan for electrical equipment and instrumentation specifies a complete review of seismic inputs for all Design Class I electrical equipment and instrumentation.

The IDVP will verify the corrective action by examination of the PGandE plan and implementation. Table 11 presents the logic and tasks involved. The sections below provide further definition of the tasks.

12.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following two aspects of the PGandE electrical equipment and instrumentation plan: scope and seismic input review.

Scope: The scope will be verified against the Hosgri Design Class I electrical equipment and instrumentation lists contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents.

Seismic Input Review: The IDVP will verify the PGandE review methodology to assure that the current spectra are checked by PGandE against the qualification analyses.

12.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by scope verification and design office verification.

12.2.1 Scope

The list of electrical equipment and instrumentation reviewed by PGandE will be compared by the IDVP to the scope to assure that the plan has been fully implemented.

12.2.2 IDVP Design Office Verification

The IDVP will verify PGandE design office activities.

Design office verifications will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.

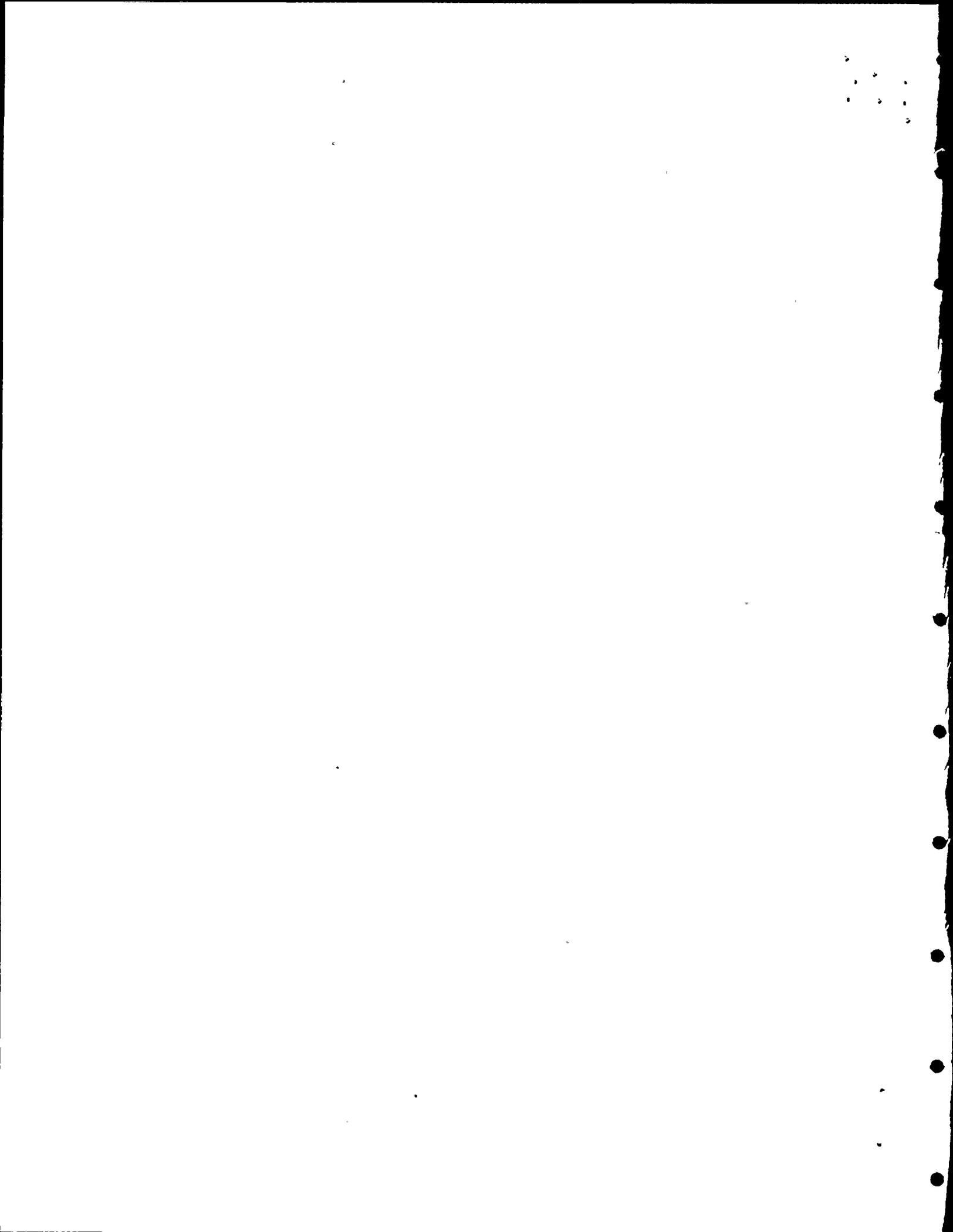
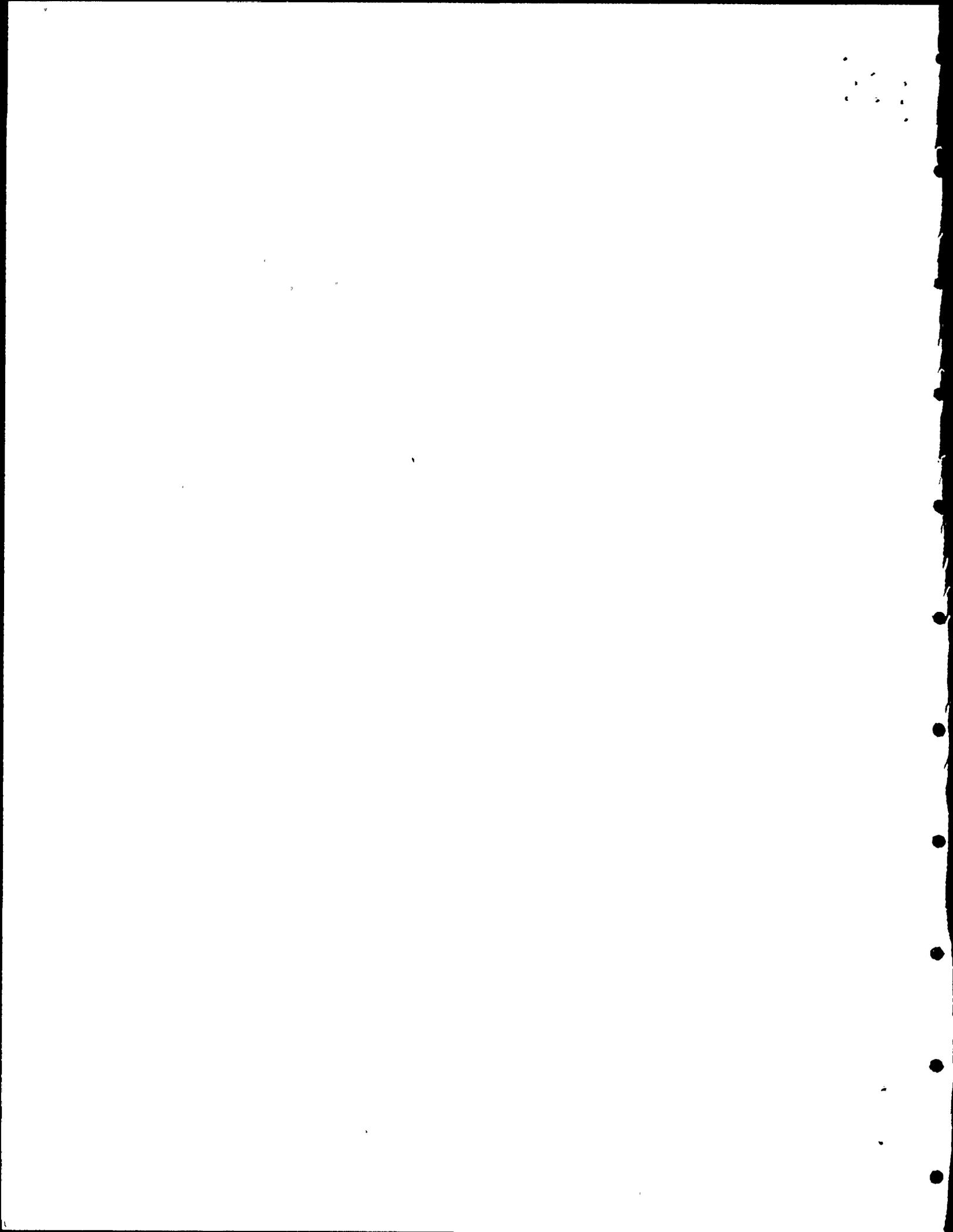


Table 11

Electrical Equipment and Instrumentation

<u>PGandE Plan</u> Elements	<u>PGandE Plan</u> IDVP Tasks	<u>PGandE Plan Implementation</u> IDVP Tasks
Scope	- verify consistency with licensing documents to ensure completeness	- verify completeness
Review	- verify that the current controlled seismic inputs are specified	- verify design office technical interface control



13.0 HVAC EQUIPMENT

The PGandE plan for HVAC equipment specifies a complete review of seismic inputs for all Design Class I HVAC equipment.

The IDVP will verify the corrective action by examination of the PGandE plan and implementation. Table 12 presents the logic and tasks involved. The sections below provide further definition of the tasks.

13.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following two aspects of the PGandE HVAC equipment plan: scope and seismic input review.

Scope: The scope will be verified against the Hosgri Design Class I HVAC equipment lists contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents.

Seismic Input Review: The IDVP will verify the PGandE review methodology to assure that the current spectra are checked by PGandE against the qualification analyses.

13.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by scope verification and design office verification.

13.2.1 Scope

The list of HVAC equipment reviewed by PGandE will be compared by the IDVP to the scope to assure that the plan has been fully implemented.

13.2.2 IDVP Design Office Verification

The IDVP will verify PGandE design office activities.

Design office verifications will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.

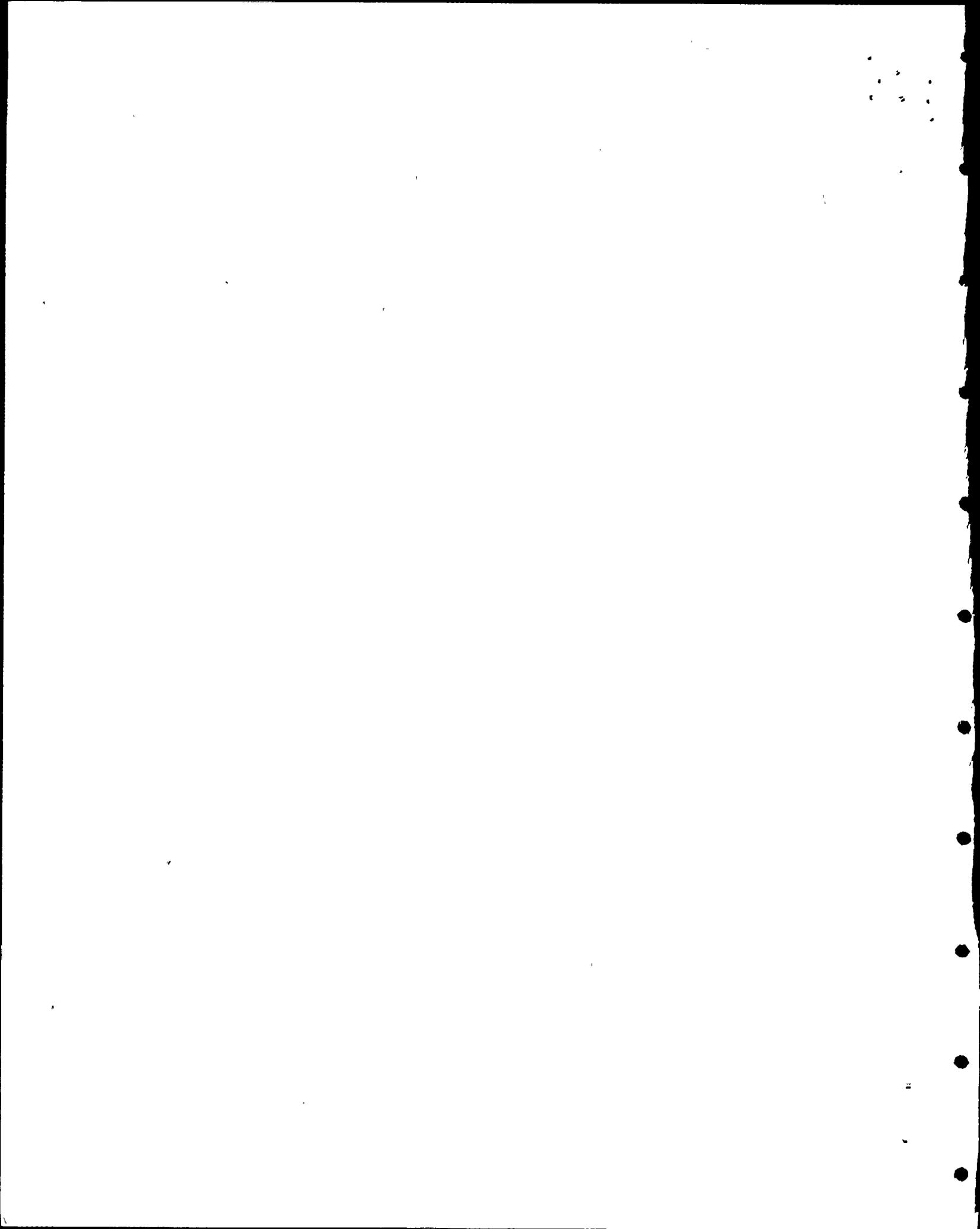
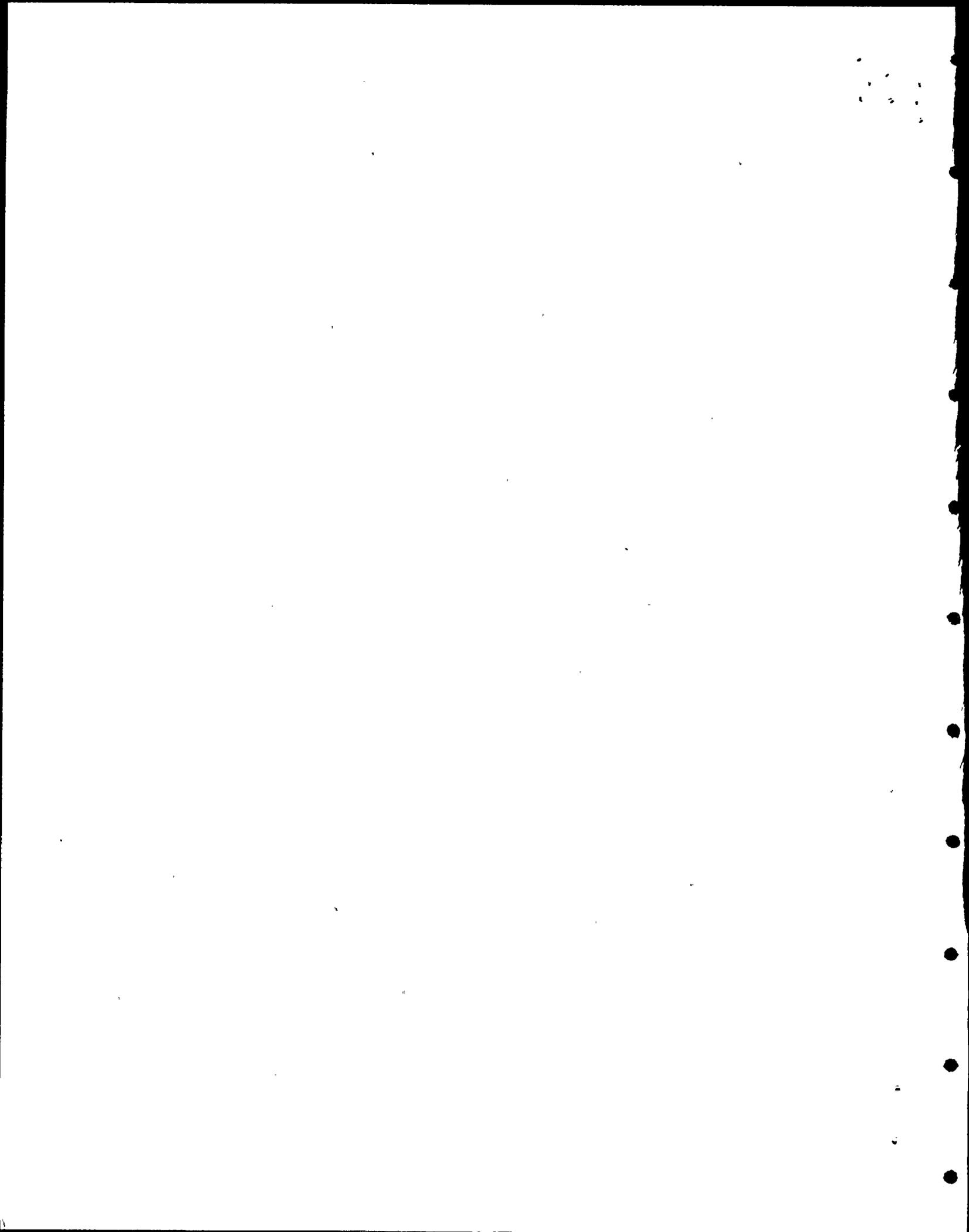


Table 12

HVAC Equipment

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Scope	- verify consistency with licensing documents to ensure completeness	- verify completeness
Review	- verify that the current controlled seismic inputs are specified	- verify design office technical interface control



14.0 ELECTRICAL RACEWAYS

The PGandE plan for electrical raceways specifies a complete reanalysis of electrical raceway supports, implementation of a field review program and justification of criteria.

The IDVP will verify the corrective action by examination of the detailed PGandE plan and implementation. Table 13 presents the logic and tasks involved. The sections below provide further definition of the tasks.

14.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following three aspects of PGandE electrical raceway plan: scope, reanalysis and the field review program.

Scope: The scope will be verified against the Hosgri design class 1E electrical raceway commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and supplements and other licensing documents. The IDVP will verify a list of qualification calculations to ensure completeness.

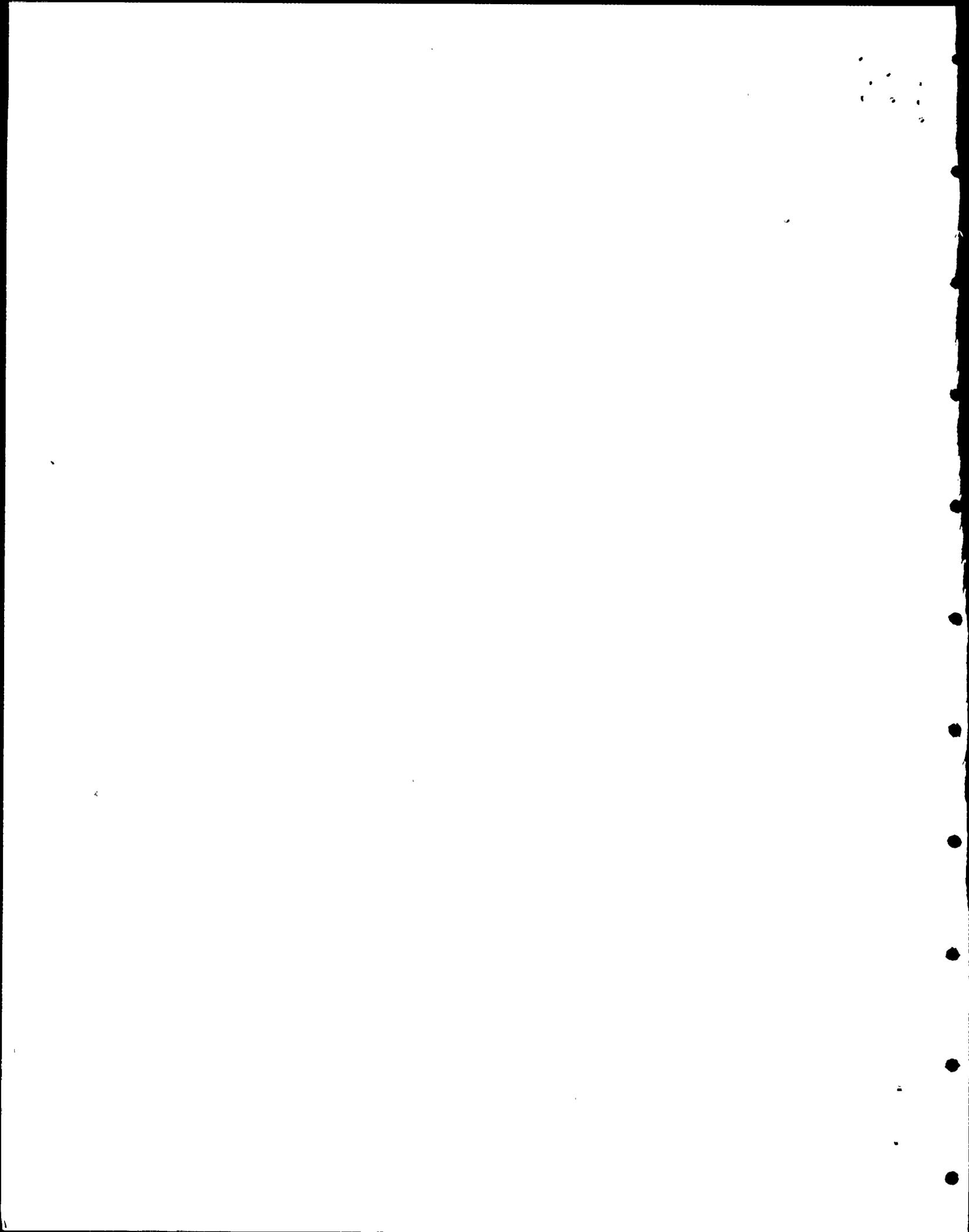
Reanalysis: The PGandE reanalysis criteria, methodology and procedures will be verified by the IDVP against the Hosgri Design Class 1E electrical raceway commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplements and other licensing documents. In addition, this criteria and methodology will be verified by the IDVP against the concerns noted in EOI 930 to ensure adequate design.

Field Review Program: The PGandE field review program will be verified by the IDVP to assure that it covers the concerns noted in EOI 910.

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Table 13
Electrical Raceways

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Scope	<ul style="list-style-type: none"> - verify consistency with licensing documents to ensure completeness 	<ul style="list-style-type: none"> - verify completeness
Reanalysis	<ul style="list-style-type: none"> - verify that criteria and methodology are consistent with licensing documents - verify that the field review program covers the concerns noted in EOI 910 	<ul style="list-style-type: none"> - perform design verifications on 20 additional qualifications - verify design office technical interface control - verify "as-built" conditions for 20 supports - verify the field review program for 20 supports



14.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by scope verification, design verification, "as-built" verification and design office verification.

14.2.1 Scope

The scope will be compared by the IDVP to a list of raceway supports reanalyzed by PGandE to assure that the plan has been fully implemented.

14.2.2 IDVP Design Verification - PGandE Reanalysis

The IDVP will select a sample of 20 qualification analyses.

The PGandE qualification analyses will be design verified in accordance with written IDVP check lists to assure compliance with the PGandE Plan. These check lists will contain specific technical items noted in accordance with the PGandE plan. The design verifications will address the following technical items:

- o Establishment of design criteria
- o Establishment of scope and responsibilities
- o Establishment of design inputs
- o Reasonableness of assumptions
- o Applicability of analysis methods
- o Applicability of computer programs
- o Modeling methods and boundary conditions
- o Consistency of results based on judgement and/or simplified or alternate methods
- o Completeness of qualification
- o Satisfaction of design criteria

14.2.3 IDVP "As-Built" Verification

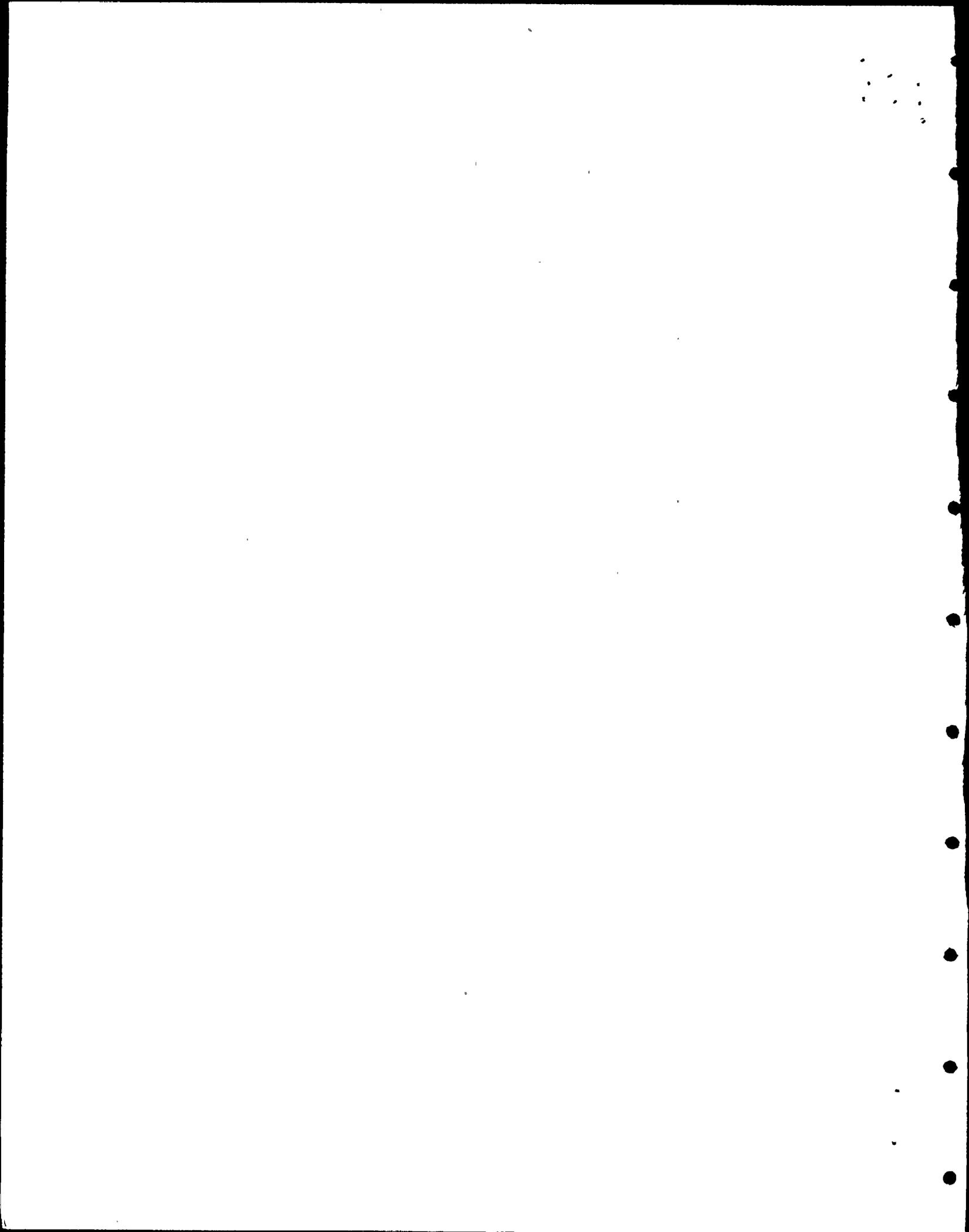
Twenty electrical raceway supports will be field verified by the IDVP. In addition, twenty samples will be taken to specifically verify the PGandE field review program in response to EOI 910.

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14.2.4 IDVP Design Office Verification

The IDVP will verify PGandE design office activities.

Design office verifications will include only technical interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.



15.0 INSTRUMENT TUBING AND TUBING SUPPORTS

The PGandE plan for Design Class 1 instrument tubing and tubing supports specifies analysis of a sample of instrument tubing and tubing supports to demonstrate adequate design.

The IDVP will verify the corrective action by examination of the PGandE plan and the implementation. Table 14 presents the logic and tasks involved. The sections below provide further definition of the tasks.

15.1 IDVP VERIFICATION OF THE PGandE PLAN

The IDVP will verify the following aspects of the internal PGandE instrument tubing and tubing supports plan: sampling and analysis.

Sampling: The PGandE sample size requirements will be examined to determine if generic conclusions can be drawn through application of the sampling methodology. In particular, the list of Design Class 1 instrument tubing and tubing supports will comprise the sample space.

Analysis: The analysis criteria will be verified by the IDVP against the instrument tubing and tubing supports commitments contained in the FSAR, Hosgri Report, Safety Evaluation Report and Supplement and other licensing documents.

15.2 IDVP VERIFICATION OF THE PGandE PLAN IMPLEMENTATION

The IDVP will verify the implementation of the PGandE plan by design verification, verification of the sample selection and design office and site verification.

15.2.1 IDVP Design Verification - PGandE Analysis:

The IDVP will select a sample of 5 qualification analyses.

The qualification analyses will be design verified in accordance with written IDVP check lists to assure compliance with the PGandE Plan. These check lists will contain specific technical items noted in accordance with the PGandE plan. The design verifications will address the following technical items.

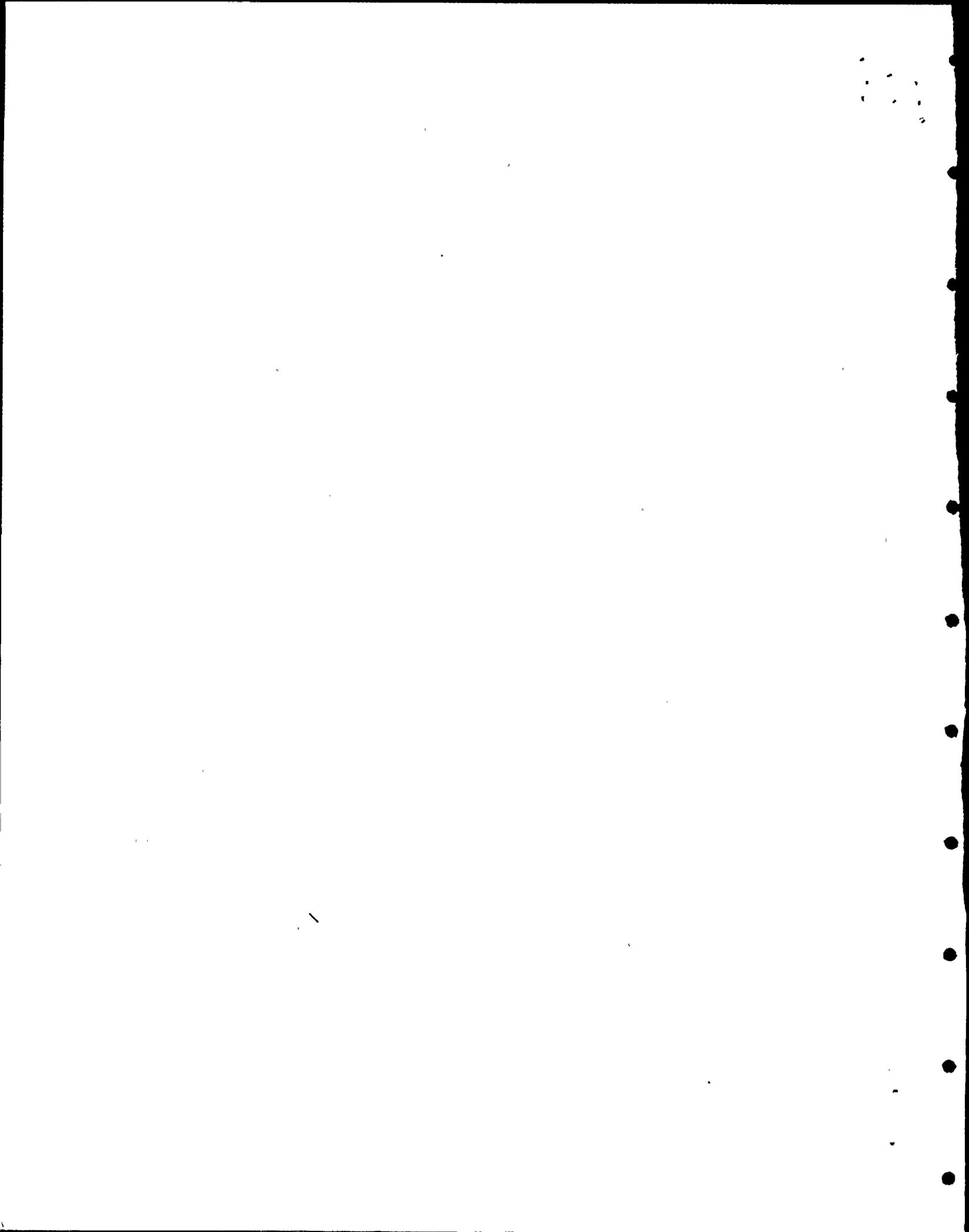
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Table 14

Instrument Tubing and Tubing Supports

<u>PGandE Plan Elements</u>	<u>PGandE Plan IDVP Tasks</u>	<u>PGandE Plan Implementation IDVP Tasks</u>
Sampling	- verify that sample size and requirements will permit generic conclusions	- verify sample selection through "as-built" and drawing verifications
Analysis	- verify that criteria and methodology are consistent with licensing documents	- perform design verifications on 5 analyses - verify design office technical interface control



- o Establishment of design criteria
- o Establishment of scope and responsibilities
- o Establishment of design inputs
- o Reasonableness of assumptions
- o Applicability of analysis methods
- o Applicability of computer programs
- o Modeling methods and boundary conditions
- o Consistency of results based on judgement and/or simplified or alternate methods
- o Completeness of qualification
- o Satisfaction of design criteria

15.2.2 Sample Selection

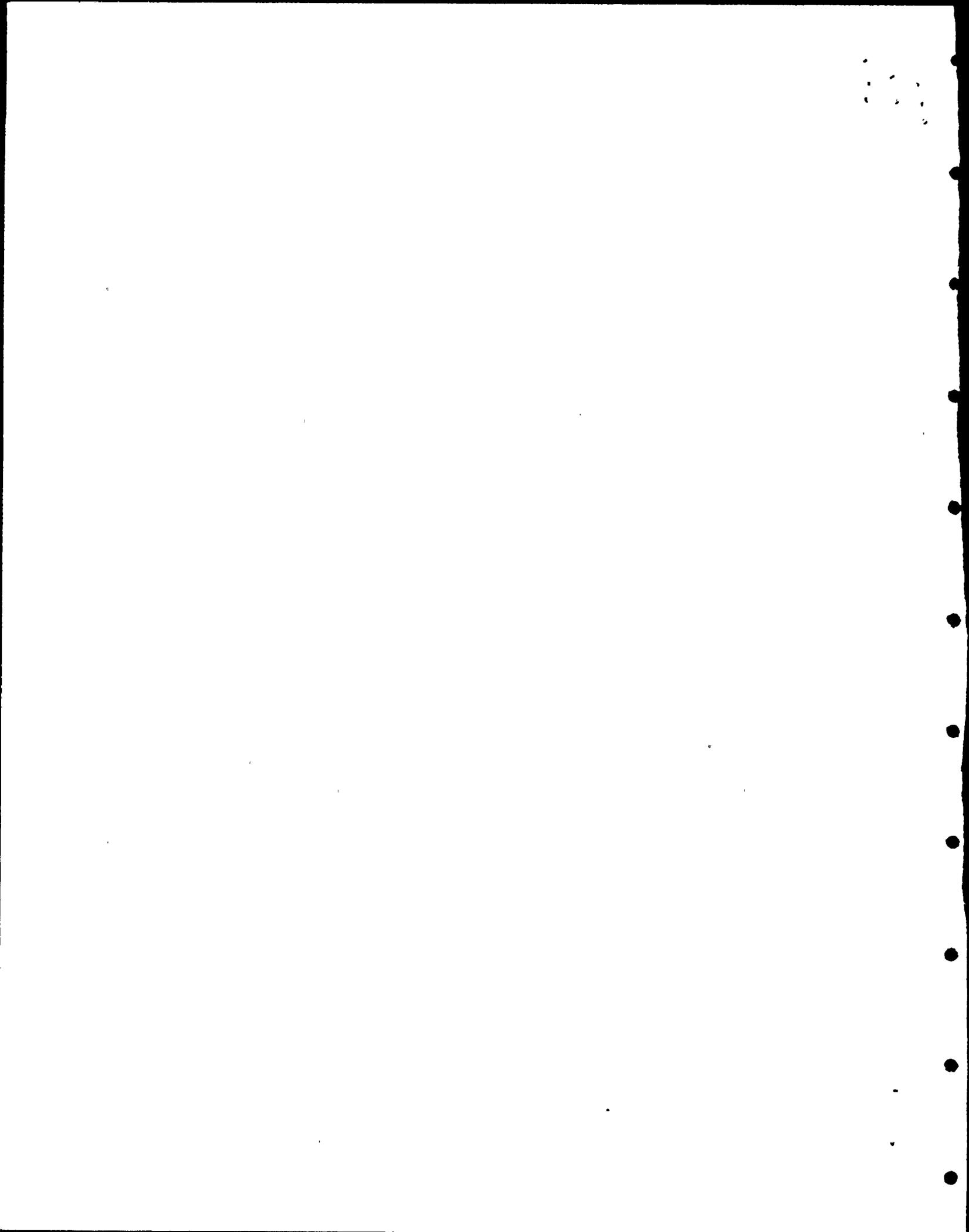
The PGandE sample selection will be verified by the IDVP through field and drawing verifications.

15.2.3 IDVP Design Office and Site Verification

The IDVP will verify PGandE design office activities and "as-built" information at the site.

Design office verifications will include only interface control implementation and project indoctrination in accordance with the PGandE Plan. Interface control includes project responsibilities and instructions, identification and execution of technical interfaces, document and information control distribution, and technical review and approval.

Site verification will follow from the design verifications. Overall modeling techniques and methodology will be evaluated by the IDVP on the basis of familiarity with the site conditions. In addition, selected details and dimensions in the qualification calculations will be field verified.



16.0 DIABLO CANYON PROJECT QUALITY ASSURANCE
PROGRAM REVIEW AND AUDIT

The objective of this portion of the Design Verification Program is to evaluate the appropriate design control QA procedures against the Diablo Canyon Project (DCP) QA Manual.

16.1 CONTROLLING DOCUMENTS

The review team of R. F. Reedy, Inc. shall collect controlling Quality Assurance related documents associated with the design aspects of the DCP corrective action program. These documents shall include the applicable revisions during the period August 20, 1982 until the date of the review.

16.1.1 Specific Documents to be Reviewed

The specific documents to be reviewed during this phase of review, shall, as a minimum, include:

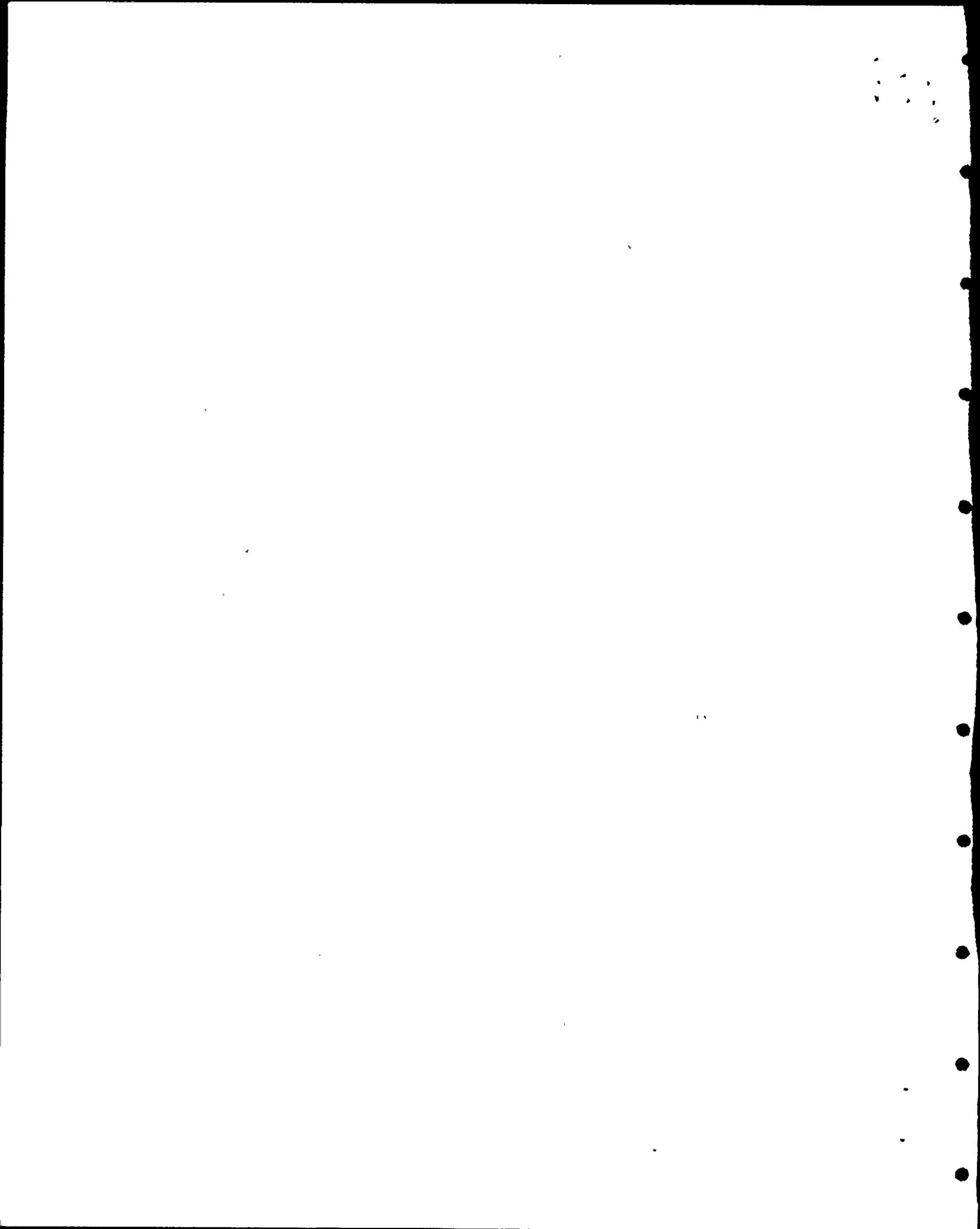
- a) The PG&E Diablo Canyon Safety Analysis Report.
- b) The DCP Quality Assurance Manual and implementing procedures which were applicable during this design corrective action period.

16.2 REVIEW

The review team of R. F. Reedy, Inc. shall conduct the review of the Implementing Procedures in Section 16.1 for compliance with the requirements of DCP QA Manual. In general, the DCP QA Manual sections applicable to design groups will include Design Control; Instructions; Procedures and Drawings; Document Control; Corrective Actions and Audits.

16.3 REVIEW OF IMPLEMENTATION OF CORRECTIVE ACTION PROGRAM

The objective of this portion of the IDVP is to evaluate the implementation of the DCP QA Program applicable to design-related corrective actions.



16.3.1 Development of Audit Plan

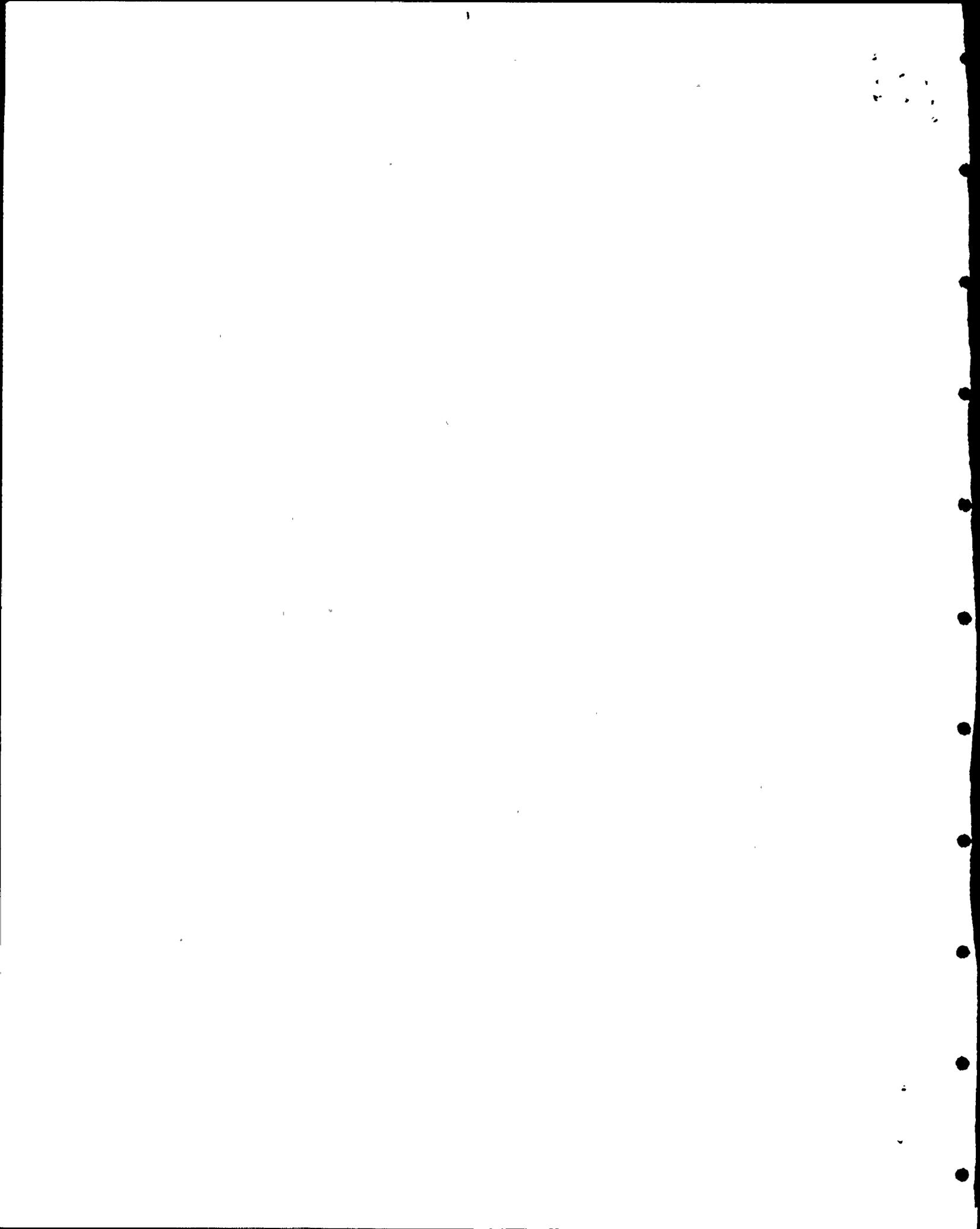
The review team of R. F. Reedy, Inc. shall develop and conduct verification audits to assess the design control implemented by DCP in their design offices, at the site, wherever these design controls are practiced.

Where the review of Section 16.0 shows a method of controlling design activities in an organized and documented manner which meets the requirements of the DCP QA Manual, the audit will consist of a review of objective evidence to verify that the program was adequately implemented and documented. Where the program review team considers that the procedures do not contain the applicable controls of the DCP QA Manual, the audit will consist of a determination whether the design activities were controlled in a manner consonant with criteria requirements of the QA Manual.

16.3.2 Audit Scope and Depth

The scope of these audits will include a review of the implementation of procedures and controls used by and for:

- a) DCP internal design groups that interfaced with the DCP site design groups;
- b) Transmittal of information between DCP and the site design groups; and
- c) DCP internal interfaces and interfaces with organizations other than the IDVP.

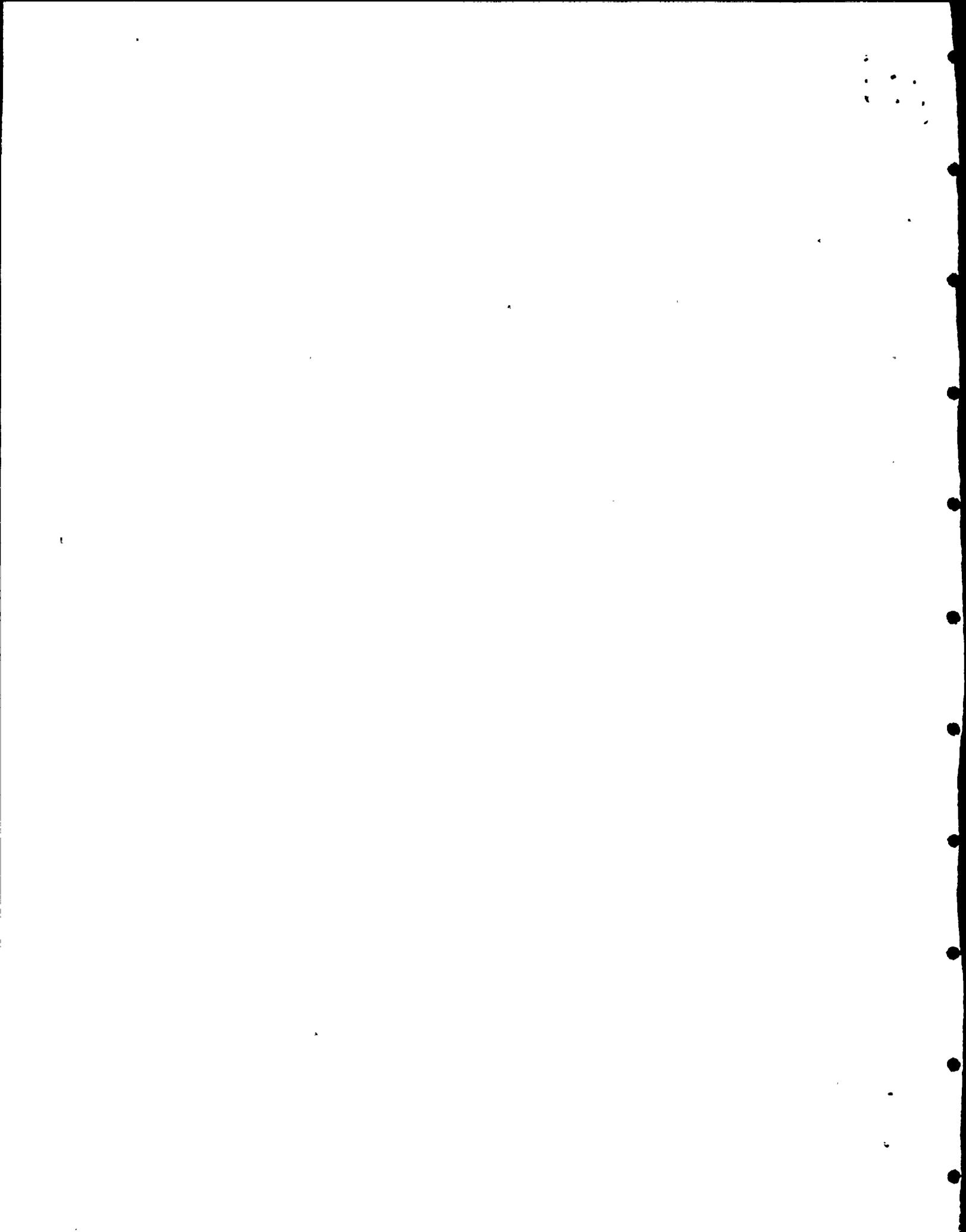


16.3.3 Quality Assurance Results

The results of the program reviews and audits will be presented in an Interim Technical Report.

16.3.4 Schedule

It is estimated that this review and audit can be completed within 6 weeks after receipt of the controlling documents referenced in 16.1.1, above.



III Verification Program for the Balance of Structures, and
Piping Components Required for Phase I

To be provided.

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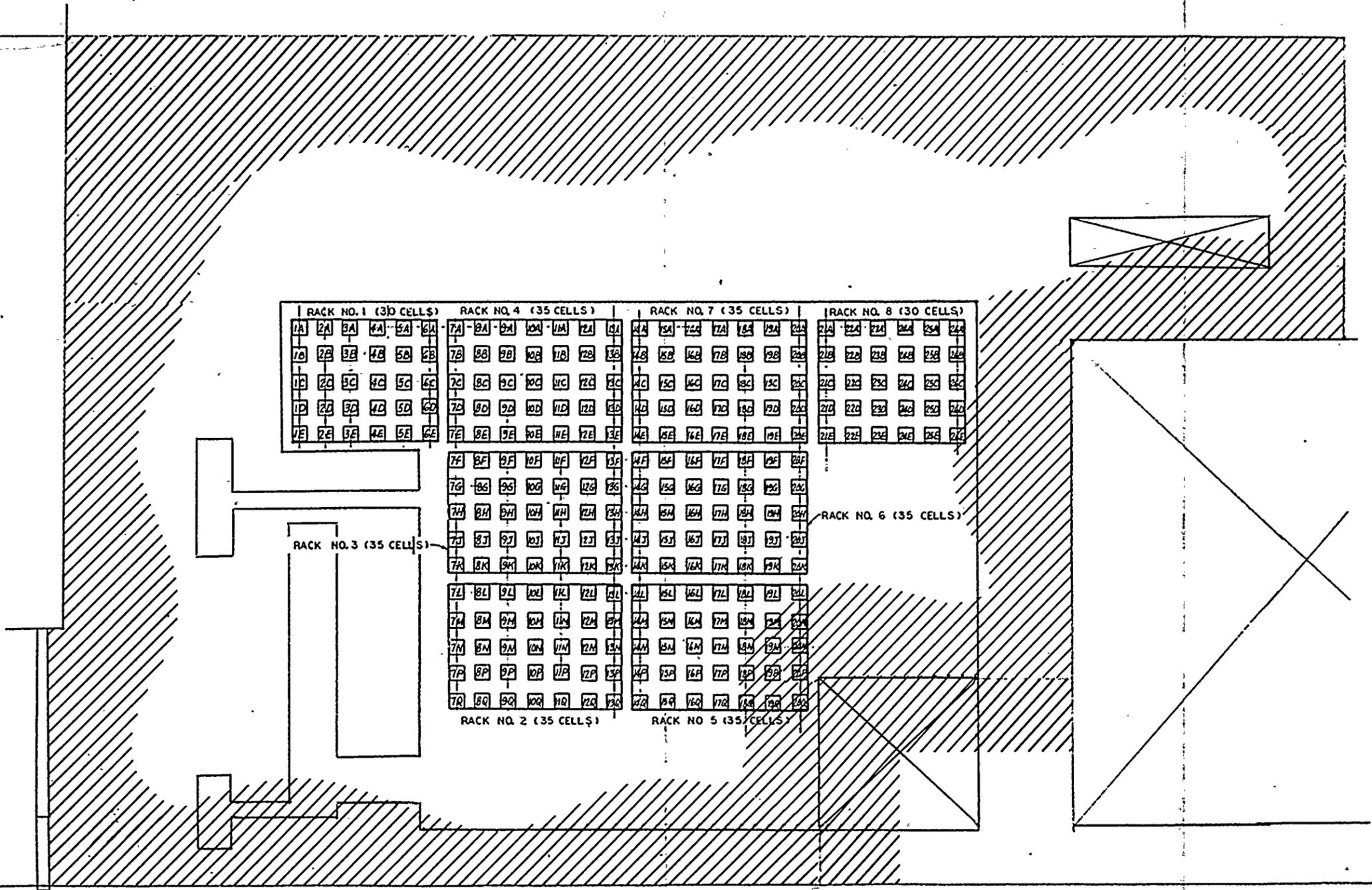
IV Verification Program for the Balance of Structures,
and Piping Components Required for Phase II.

To be provided.

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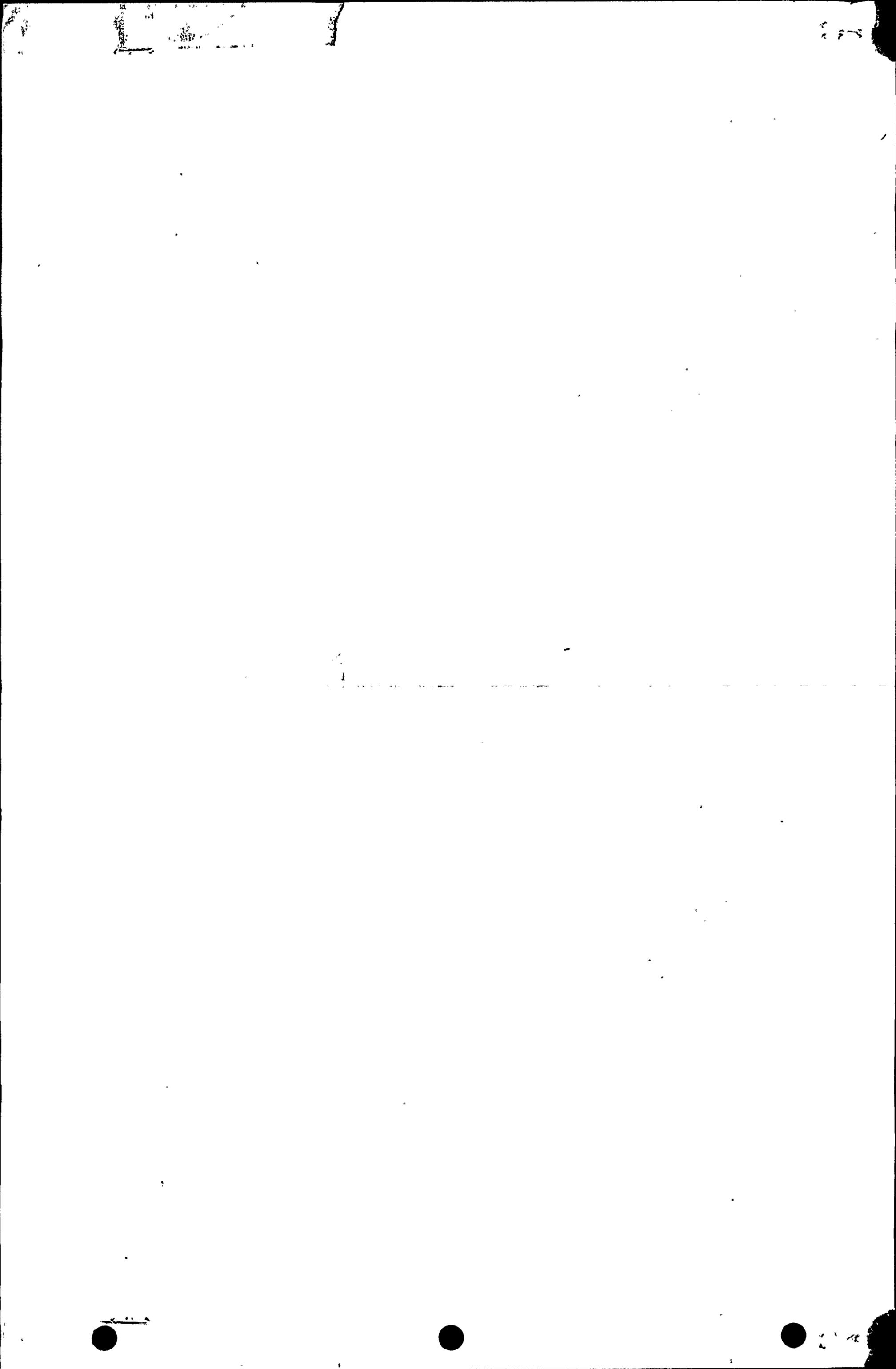
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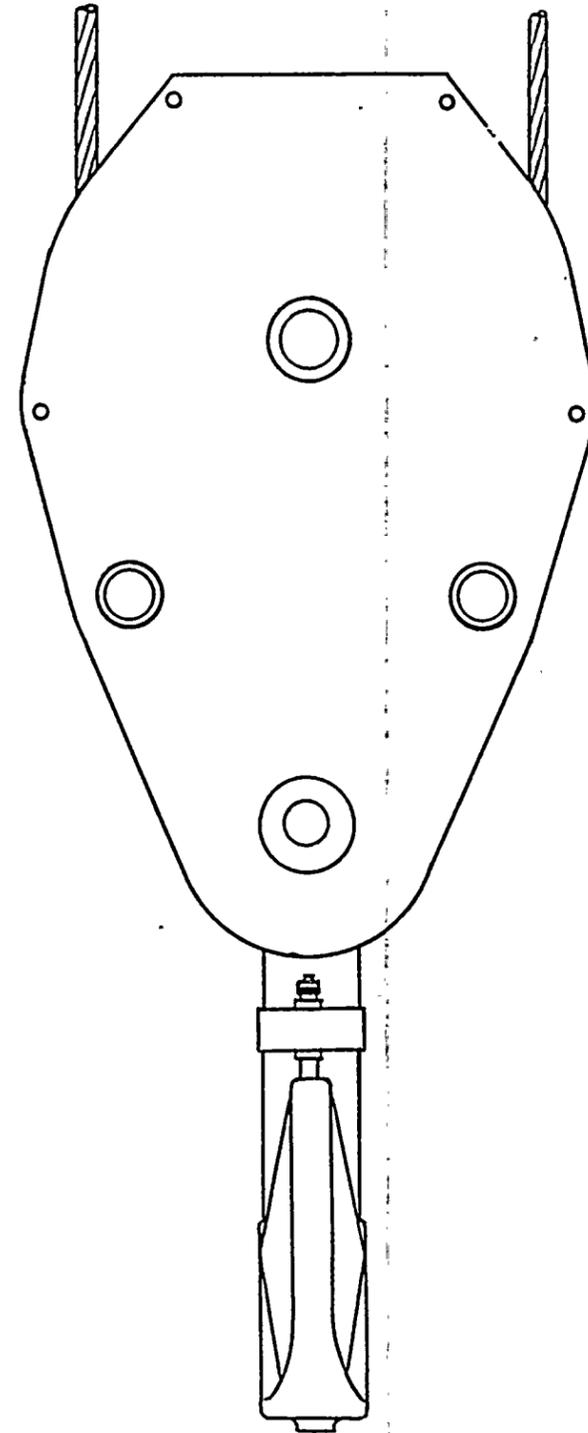
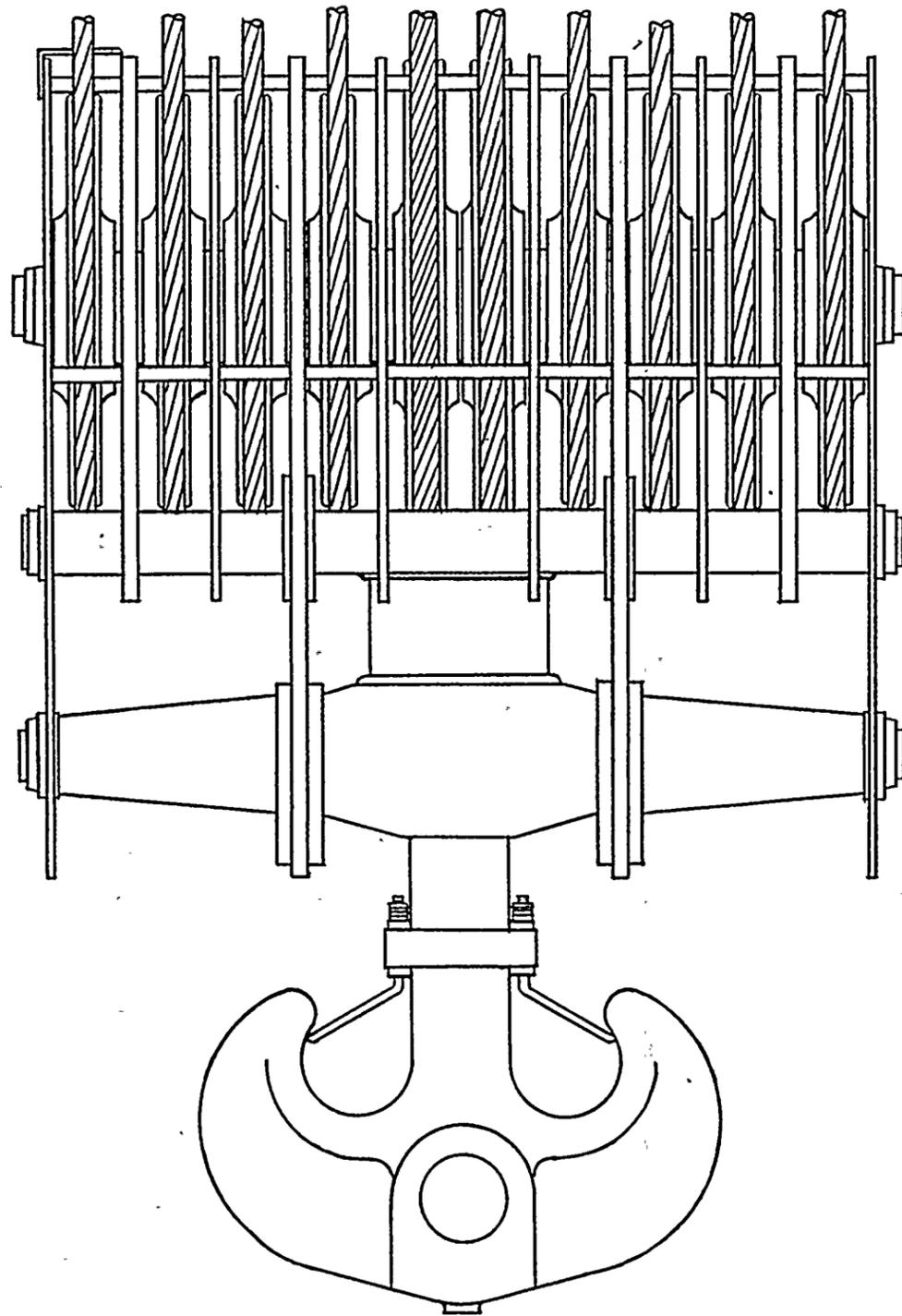
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**UNIT 1
DIABLO CANYON SITE**

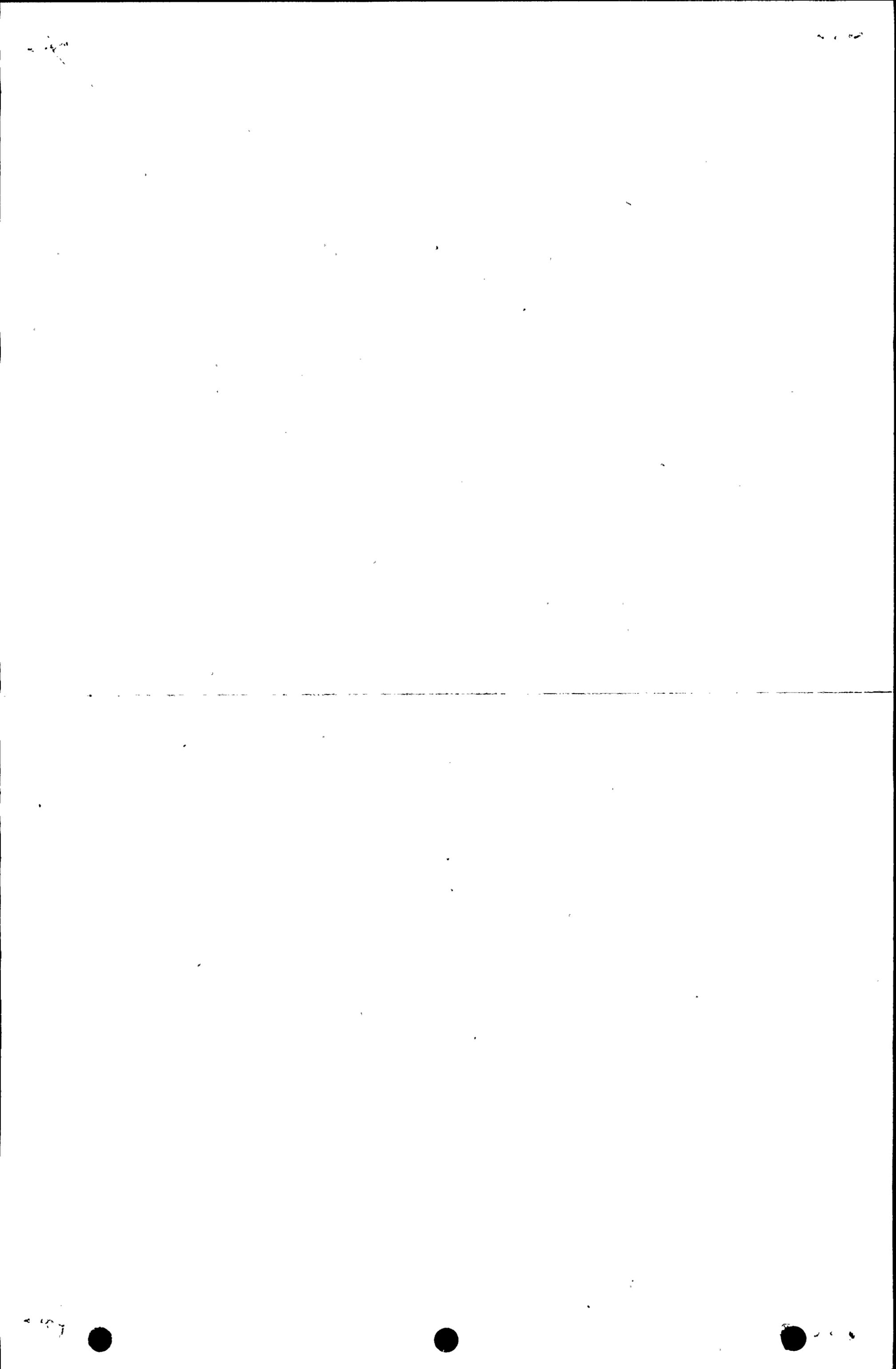
FIGURE 2.2.4-2
NEW SPENT FUEL POOL
EXCLUSION AREA

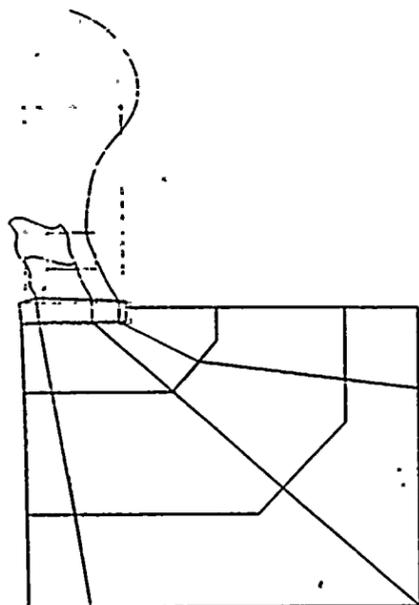




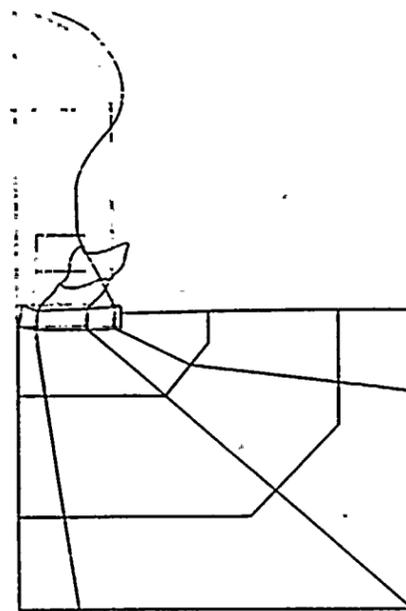
UNIT 1
DIABLO CANYON SITE

FIGURE 2.4.2-2
CONTAINMENT POLAR CRANE
LOAD BLOCK

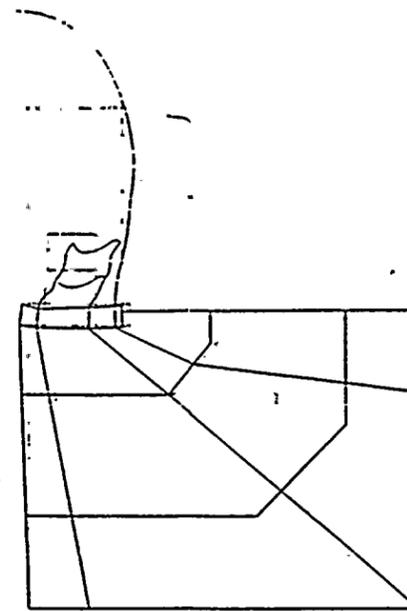




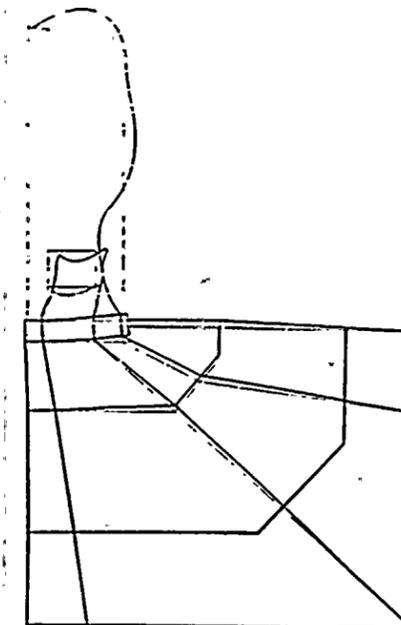
MODE 2
PERIOD = 0.093 SEC.



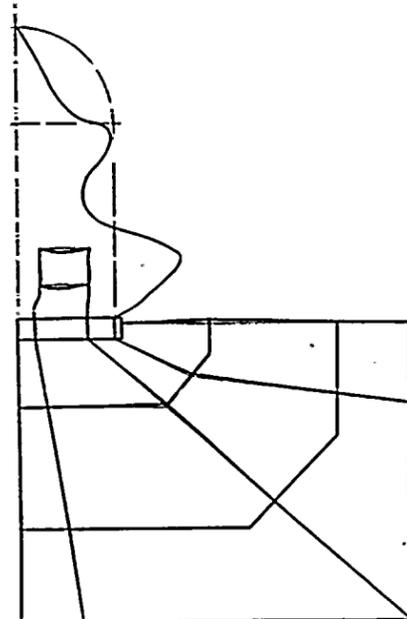
MODE 3
PERIOD = 0.088 SEC.



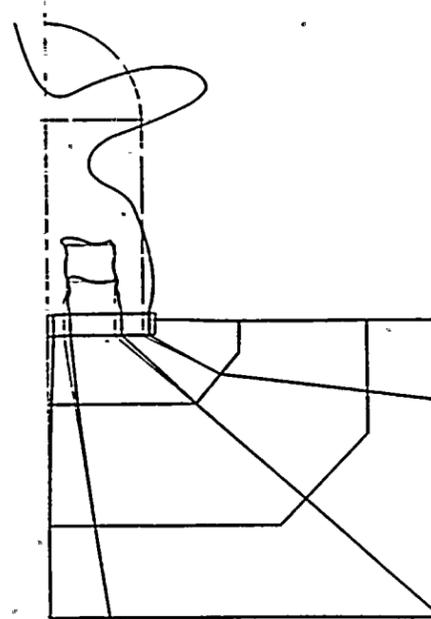
MODE 4
PERIOD = 0.073 SEC.



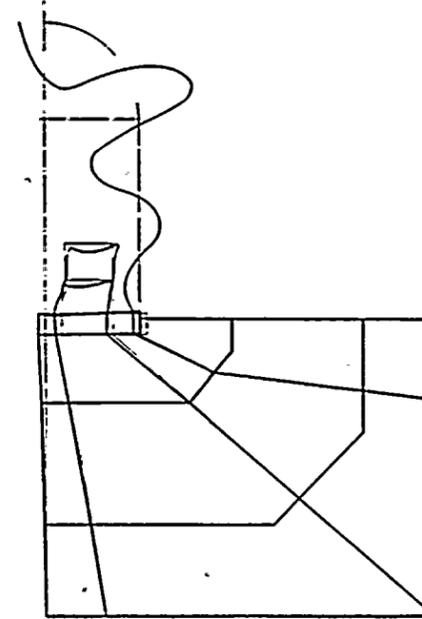
MODE 5
PERIOD = 0.060 SEC.



MODE 7
PERIOD = 0.057 SEC.



MODE 8
PERIOD = 0.051 SEC.



MODE 9
PERIOD = 0.0509 SEC.

FIGURE 2.1.1-10

DIABLO CANYON POWER PLANT
UNITS 1 AND 2

CONTAINMENT STRUCTURE
FINITE ELEMENT MODEL
MODE SHAPES

23

