

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8208250202 DOC. DATE: 82/08/20 NOTARIZED: NO. DOCKET #
 FACIL: 50-275 Diablo Canyon Nuclear Power Plant, Unit 1, Pacific: Ga 05000275
 50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific: Ga 05000323
 AUTH. NAME AUTHOR AFFILIATION
 CRANE, P.A. Pacific Gas & Electric Co.
 RECIP. NAME RECIPIENT AFFILIATION
 EISENHUT, D.G. Division of Licensing

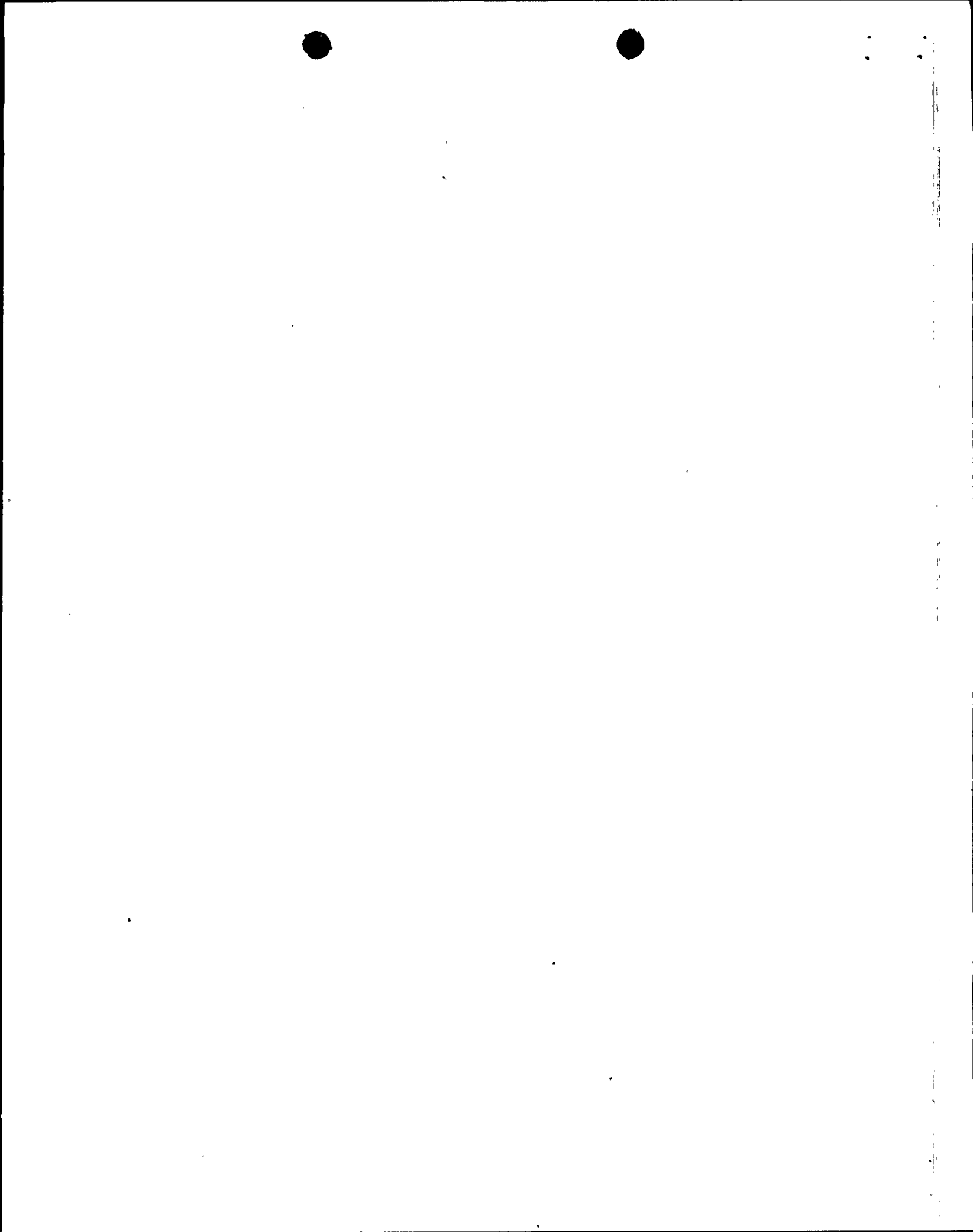
SUBJECT: Forwards preliminary outline developed for final rept Phase I of design verification program, Description of Scope, criteria & methodology for certain corrective action program elements will be submitted by 820901.

DISTRIBUTION CODE: D013S COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 17
 TITLE: Diablo Canyon (50-275) Independent Design Verification Program

NOTES: J Hanchett icy PDR Documents. 05000275
 J Hanchett icy PDR Documents. 05000323

	RECIPIENT ID CODE/NAME	COPIES LTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTR ENCL
	A/D LICENSNG	1 0	LIC BR #3 BC	1 0
	LIC BR #3 LA	1 0	BUCKLEY, B. 06	1 1
INTERNAL:	ELD/HDS1	1 0	IE FILE 07	1 1
	IE/DEP EPDS 10	1 1	IE/DEP/EPLB 11	1 1
	MPA	1 0	NRR/DE/CEB 12	1 1
	NRR/DE/eqb 13	1 1	NRR/DE/GB 14	1 1
	NRR/DE/MEB 15	1 1	NRR/DE/QAB 16	1 1
	NRR/DE/SEB 17	1 1	NRR/DSI/ASB 18	1 1
	REG FILE 04	1 1	RGNS 08	2 2
	SCHIERLING, H 01	1 1		
EXTERNAL:	ACRS 19	16 16	FEMA-REP DIV	1 1
	LPDR 03	2 2	NRC PDR 02	1 1
	NSIC 05	1 1	NTIS	1 1
NOTES:		1 1		

LB.



PACIFIC GAS AND ELECTRIC COMPANY

PG&E +

77 BEALE STREET, SAN FRANCISCO, CALIFORNIA 94106
P. O. BOX 7442, SAN FRANCISCO, CALIFORNIA 94120

TELEPHONE (415) 781-4211
TELECOPIER (415) 543-7813

ROBERT OHLBACH
VICE PRESIDENT AND GENERAL ATTORNEY

CHARLES T. VAN DEUSEN
PHILIP A. CRANE, JR.
HENRY J. LAPLANTE
JOHN B. GIBSON

ARTHUR L. HILLMAN, JR.
CHARLES W. THISSELL

DANIEL E. GIBSON
JACK F. FALLIN, JR.
JOSEPH I. KELLY
ASSISTANT GENERAL COUNSEL

GILBERT L. MARRICK
GLENN WEST, JR.
HOWARD V. GOLUB
JAMES C. LOSSON
ROBERT L. BORDON
PETER W. HANSCHEM
RICHARD P. LOCKE
DAVID L. LUDVIGSON
WILLIAM M. EDWARDS
P. RONALD LAUPHEIMER
ROBERT R. RICKETT
DAVID J. WILLIAMSON
BRUCE R. WORTHINGTON

EDWARD J. MCCANNNEY
DAN GRAYSON LUSBOEK
BERNARD J. DELLASANTA
JOSHUA EARLEY
JOSEPH B. ENGLEST, JR.
ROBERT L. MARRIS
DOUGLAS A. GALEBY
J. PETER BAUMGARTNER
JOHN N. FRYE
J. MICHAEL REICHENBACH
FOR C. SANDERSON
SHIRLEY A. WOOD

SENIOR COUNSEL

DAVID W. ANDERSON
CRAIG M. BUCHBAUM
LEIGH S. CASSIDY
AUDREY DAINES
DONALD D. BRIDGSON
DAVID C. GILBERT
STEVEN F. GREENWALD
JUAN M. JAYS
MERCE E. LIPSON
JESSICA LORINE
A. KIRK MCKENZIE
RICHARD L. MEISS
KENNETH O. OLESON
SHIRLEY L. SANDERSON
JACK W. SHUDE
KENNETH YANE

ITZHAK T. ANHARD
STEVEN P. BUREE
PAMELA CHAPPELLE
DARYL P. ENGINAS
DAVID H. FLEISS
PATRICK G. GOLDEN
PAULA Y. HAYNES
RICHARD C. JONES
HARRY W. LONG, JR.
JOHN R. LOW
ROBERT B. McLENNAM
RICHARD M. MOSE
ROGER J. PETERS
JO ANN SHAFER
LOUIS E. VINDENT

ATTORNEYS

August 20, 1982

Mr. D. G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Eisenhut:

Enclosed is a preliminary outline developed by the Diablo Canyon Project ("Project") for the Final Report for Phase I of the design verification program. The outline provides the scope of corrective action program elements and a schedule for completion of the Phase I Final Report and its submittal to the NRC and the Independent Design Verification Program ("IDVP"). The Final Report will provide the results of the corrective action program. Detailed supporting documentation of the corrective action program analyses and records of physical modifications will be maintained by the Project.

Descriptions of the corrective action program elements will be submitted to the NRC and the IDVP according to the established schedule as noted in the enclosed outline. In particular, a description of scope, criteria, and methodology for certain corrective action program elements will be submitted by September 1, 1982.

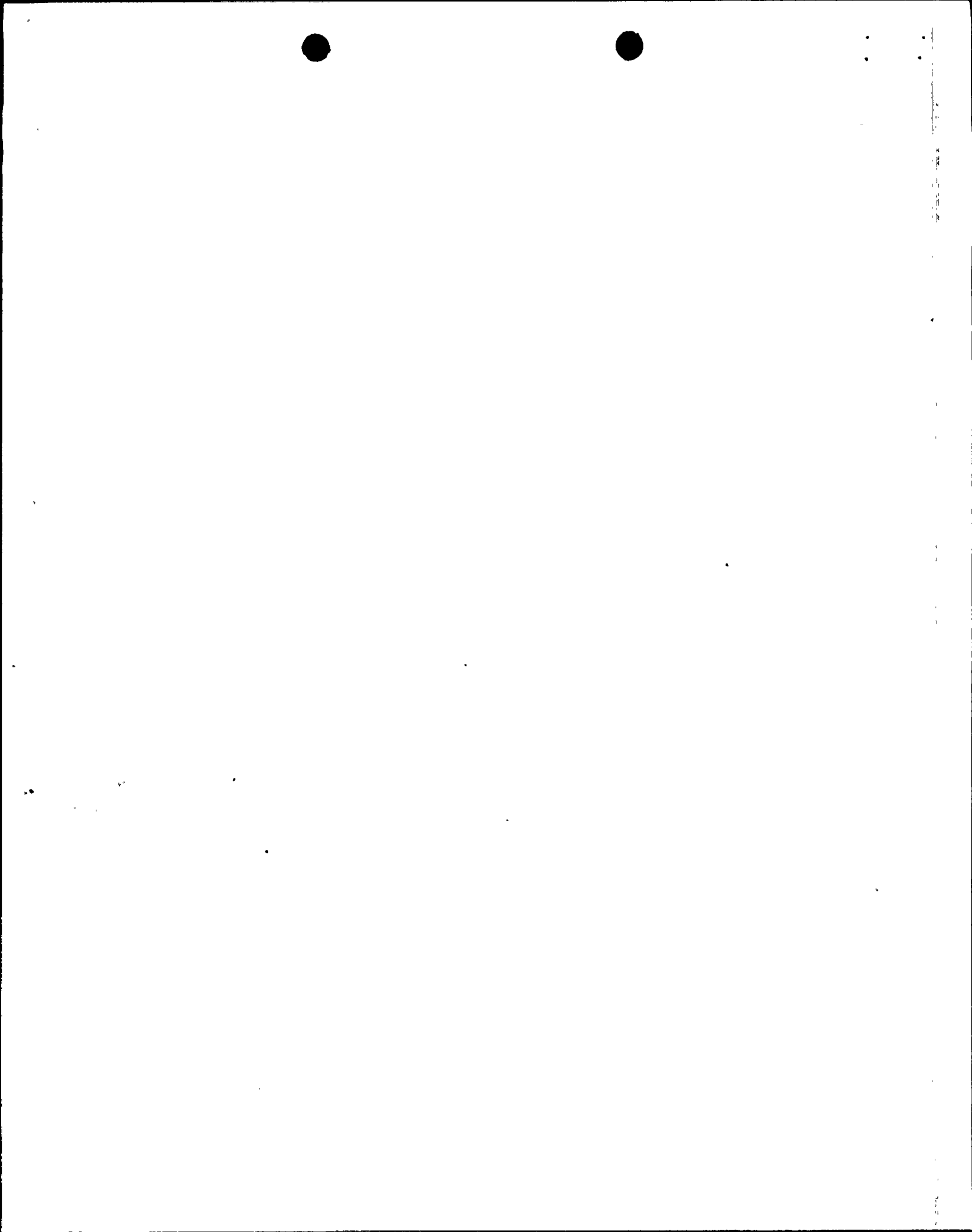
Very truly yours,

Philip A. Crane, Jr.

Enclosure

cc: Mr. R. H. Engelken, NRC Region V
Dr. W. E. Cooper, Teledyne Engineering Services
Mr. R. F. Reedy
Dr. R. L. Cloud
Service List

DO13



OUTLINE
PHASE I FINAL REPORT

	<u>Due Date To</u> <u>NRC and IDVP</u>
Vol. 1 - <u>DESIGN VERIFICATION AND CORRECTIVE ACTION PROGRAMS</u>	
1.1 <u>INTRODUCTION</u>	10/01
1.2 <u>BACKGROUND AND DEVELOPMENT OF DESIGN VERIFICATION</u> <u>AND CORRECTIVE ACTION PROGRAMS</u>	
1.2.1 INITIAL ERRORS AND EARLY PROGRAM FOR EVALUATION	10/01
1.2.2 NRC ORDER AND LETTER	10/01
1.2.3 QUALITY ASSURANCE FINDINGS (REEDY REPORT)	10/01
1.2.4 INITIAL SAMPLING PROGRAMS AND RESULTS	
1.2.4.1 <u>Independent Design Verification</u> <u>Program (IDVP)</u>	10/01
1.2.4.2 <u>Internal Technical Program</u>	10/01



Due Date To
NRC and IDVP

1.2.5	<u>EVALUATION OF RESULTS AND EXPANSION OF PROGRAMS</u>	
1.2.5.1	<u>Cause of Deficiencies</u>	10/01
1.2.5.2	<u>Significance to Plant Safety</u>	10/01
1.2.5.3	<u>Difficulties in Extrapolating Sample Results</u>	10/01
1.2.5.4	<u>Schedule Considerations</u>	10/01
1.2.5.5	<u>Conclusions and Expansion of Programs</u>	10/01
1.3	<u>PG&E/BECHTEL INTERNAL TECHNICAL PROGRAM - SUMMARY</u>	
1.3.1	SUMMARY OF SCOPE	10/01
1.3.2	SUMMARY OF CRITERIA	10/01
1.3.3	METHODOLOGY - GENERAL DESCRIPTION SUMMARY	
1.3.3.1	<u>Structural</u>	10/01
1.3.3.2	<u>Piping</u>	10/01
1.3.3.3	<u>Mechanical Equipment</u>	10/01
1.3.3.4	<u>Electrical Equipment and Instrumentation</u>	10/01
1.3.3.5	<u>Electrical Conduit and Raceway</u>	10/01
1.3.3.6	<u>HVAC</u>	10/01

Due Date To
NRC and IDVP

1.3.4	QUALITY ASSURANCE	10/01
1.4	<u>INDEPENDENT DESIGN VERIFICATION PROGRAM (IDVP)</u>	
1.4.1	VERIFICATION OF PG&E/BECHTEL INTERNAL TECHNICAL PROGRAM	11/12
1.4.2	VERIFICATION NOT COVERED BY PG&E/BECHTEL INTERNAL TECHNICAL PROGRAM	11/12
1.4.3	QUALITY ASSURANCE	10/15
1.5	<u>CONCLUSIONS</u>	11/12
1.5.1	QUALIFICATION OF STRUCTURES, SYSTEMS, AND COMPONENTS	
1.5.2	SCHEDULE FOR MODIFICATIONS	
Vol. 2	- <u>PG&E/BECHTEL INTERNAL TECHNICAL PROGRAM - SUPPORTING INFORMATION AND RESULTS</u>	
2.1	- <u>STRUCTURAL DESIGN REVIEW</u>	
2.1.1	CONTAINMENT	09/01
2.1.1.1	<u>Scope</u>	09/01
2.1.1.2	<u>Description of Structures</u>	09/01
2.1.1.3	<u>Criteria</u>	09/01
2.1.1.4	<u>Methodology</u>	09/01
2.1.1.4.1	Description of Model	
2.1.1.4.1.1	Horizontal Models	

Due Date To
NRC and IDVP

2.1.1.4.1.2	Vertical Models	09/01
2.1.1.4.1.3	Model of Polar Crane (Due later - 10/01/82)	
2.1.1.4.2	Description of Model Properties	
2.1.1.4.2.1	Properties of Horizontal Models	
2.1.1.4.2.2	Properties of Vertical Wall Models	
2.1.1.5	<u>Description of Analyses</u>	09/01
2.1.1.5.1	Horizontal Models	
2.1.1.5.2	Vertical Models	
2.1.1.6	<u>Design Review of Structure</u>	10/01
2.1.1.6.1	Design Review of Annulus Structure	
2.1.1.6.2	Evaluation to Criteria	
2.1.1.6.3	Description of Modifications	
2.1.1.7	<u>Analysis and Qualification of Structure</u>	10/01



•
•

•
•

•
•

Due Date To
NRC and IDVP

2.1.2 AUXILIARY BUILDING

2.1.2.1 Scope

09/01

2.1.2.2 Criteria

09/01

2.1.2.3 Methodology

09/01

2.1.2.3.1 Description of Structure

2.1.2.3.2 Description of Analytical Models

2.1.2.3.3 Analysis Method

2.1.2.3.4 Description of Analysis Output

2.1.2.4 Seismic Design Analyses

09/01

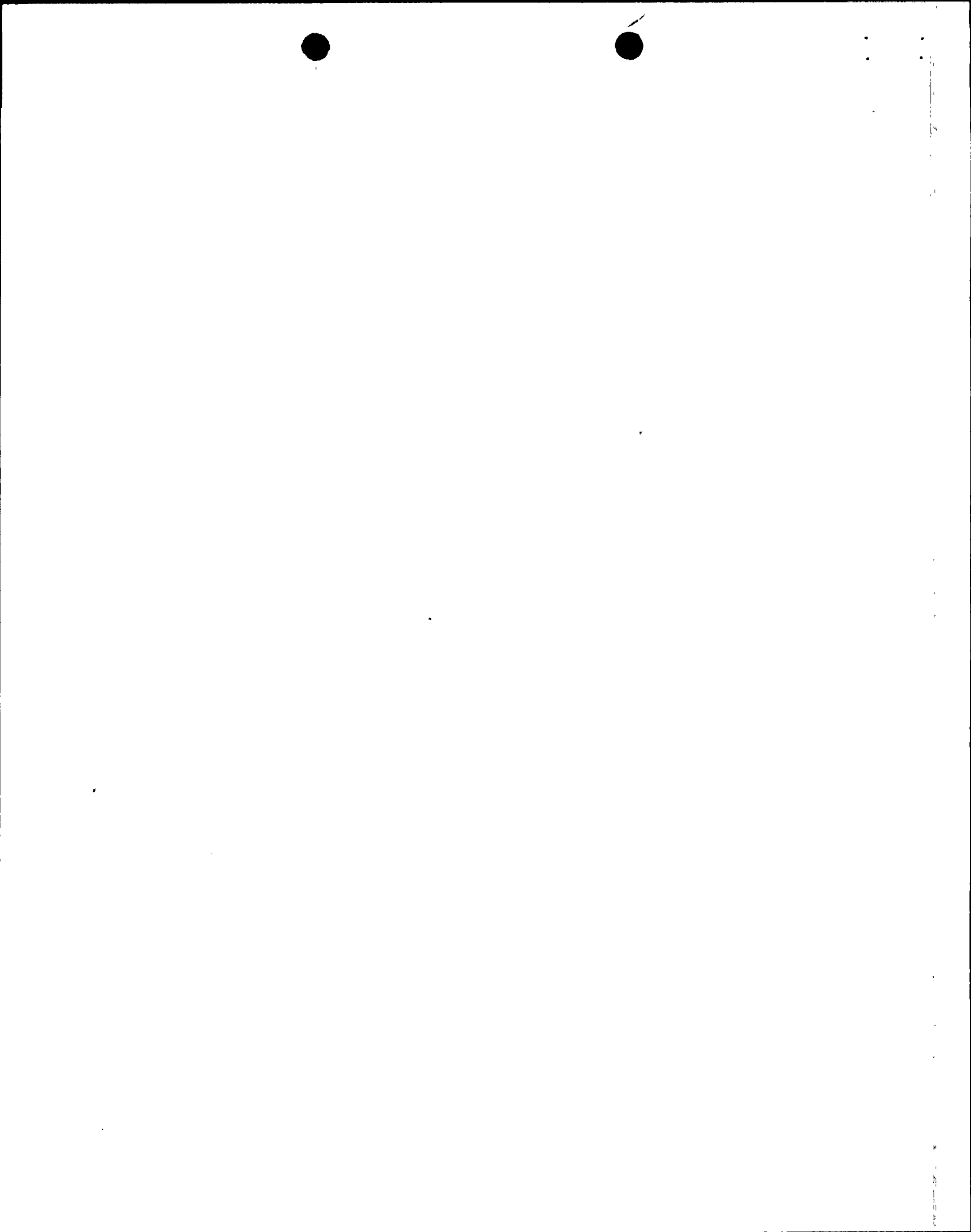
2.1.2.4.1 Ground Motion Input

2.1.2.4.2 Analytical Models

2.1.2.4.3 Analytical Results



	<u>Due Date To NRC and IDVP</u>
2.1.2.5 <u>Structural Design Review</u>	11/01
2.1.2.5.1 Evaluation to Criteria	
2.1.2.5.2 Description of Modifications	
2.1.2.6 <u>Analysis and Qualification of Structure</u>	11/01
2.1.3 <u>FUEL HANDLING BUILDING</u>	
2.1.3.1 <u>Scope</u>	09/01
2.1.3.2 <u>Criteria</u>	09/01
2.1.3.3 <u>Methodology</u>	09/01
2.1.3.3.1 Description of Model	
2.1.3.3.2 Description of Model Properties	
2.1.3.4 <u>Description of Analyses</u>	09/01
2.1.3.5 <u>Design Review</u>	10/15
2.1.3.5.1 Evaluation to Criteria	
2.1.3.5.2 Description of Modifications	
2.1.3.6 <u>Analysis and Qualification of Structure</u>	10/29



Due Date To
NRC and IDVP

2.1.4 TURBINE BUILDING

2.1.4.1 <u>Scope</u>	09/17
2.1.4.2 <u>Criteria</u>	09/17
2.1.4.3 <u>Methodology</u>	09/17
2.1.4.3.1 Description of Model	
2.1.4.3.2 Description of Model Properties	
2.1.4.4 <u>Description of Analyses</u>	09/17
2.1.4.5 <u>Design Review</u>	10/15
2.1.4.5.1 Evaluation to Criteria	
2.1.4.5.2 Description of Modifications	
2.1.4.6 <u>Analysis and Qualification of Structure</u>	11/12

2.1.5 INTAKE STRUCTURE

2.1.5.1 <u>Scope</u>	09/01
2.1.5.2 <u>Criteria</u>	09/01
2.1.5.2.1 Loading Conditions	
2.1.5.2.2 Strength Evaluation	

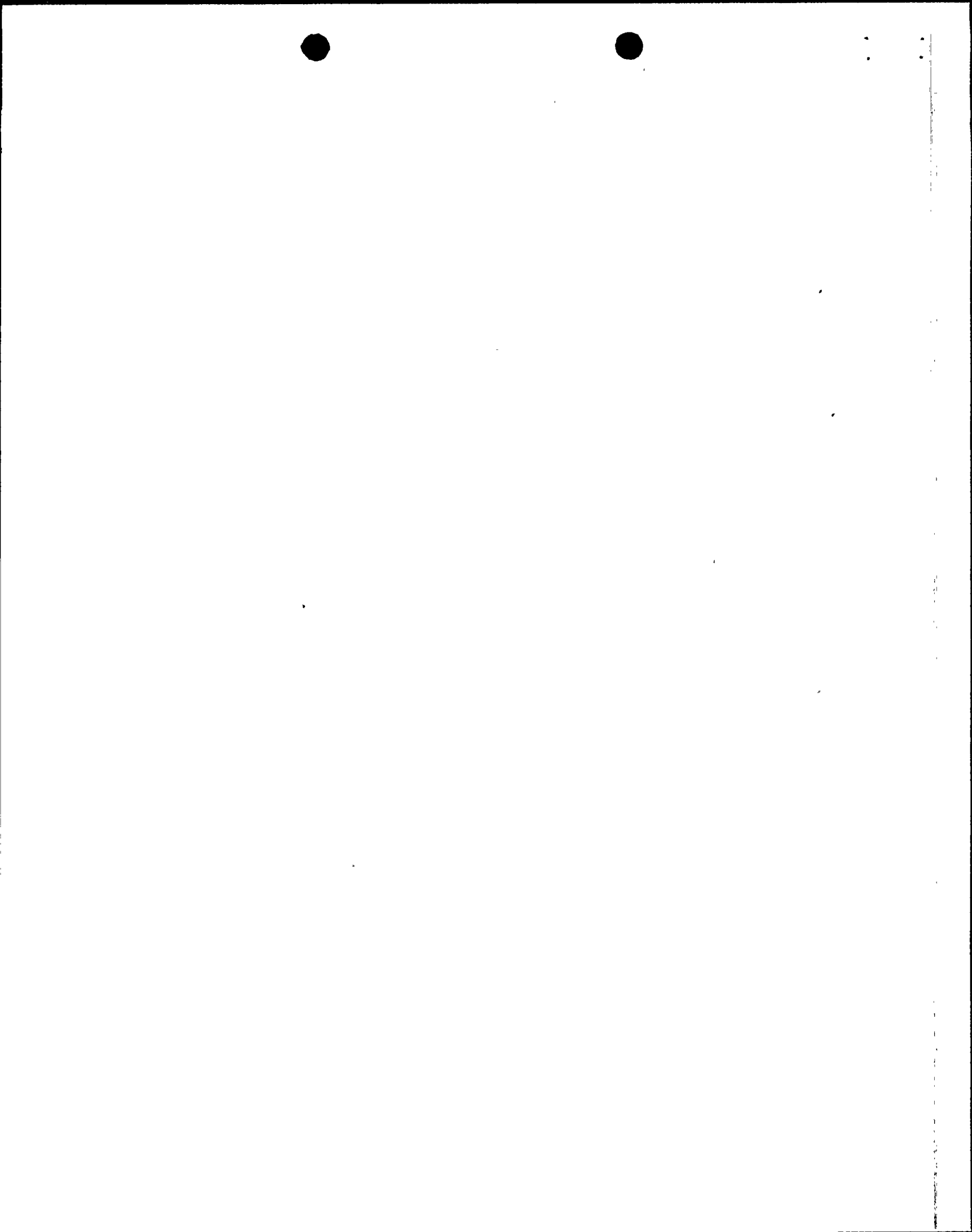


1 1

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

Due Date To
NRC and IDVP

2.1.5.3	<u>Methodology</u>	09/01
2.1.5.3.1	Description of Seismic Model	
2.1.5.3.2	Description of Intake Gantry Crane Seismic Model	
2.1.5.3.3	Description of Wave Force Scale Model	
2.1.5.4	<u>Description of Seismic Model Properties</u>	09/01
2.1.5.5	<u>Description of Seismic Analyses</u>	09/01
2.1.5.5.1	North-south Horizontal Response	09/01
2.1.5.5.2	East-west and Vertical Coupled Response	
2.1.5.6	<u>Scope of Wave Force Scale Model Test</u>	09/01
2.1.5.7	<u>Results from Scale Model Test</u>	10/15
2.1.5.8	<u>Analysis of Structure Subjected to Wave Force</u>	10/15
2.1.5.9	<u>Design Review</u>	10/15
2.1.5.9.1	Evaluation to Criteria	
2.1.5.9.2	Description of Modifications	
2.1.5.10	<u>Analysis and Qualification of Structure</u>	10/15



2.2 - PIPING AND PIPE SUPPORTS DESIGN REVIEW

2.2.1 LARGE BORE PIPING

2.2.1.1 Scope

09/01

2.2.1.2 Criteria

09/01

2.2.1.3 Methodology

09/01

2.2.1.3.1 Analysis Requirements

2.2.1.3.2 Modeling

**2.2.1.3.3 Dynamic and Static
Analysis Input**

**2.2.1.3.4 Review of Computer
Results**

**2.2.1.3.5 Procedures and Documen-
tation**

**2.2.1.4 Results - supporting data, tables, etc.,
showing qualifications and completed modifications**

11/01*

* Results and qualifications
for fuel loading



2.2.2 SMALL BORE PIPING

2.2.2.1 Scope

09/01

2.2.2.1.1 Generic

2.2.2.1.2 Sampling

2.2.2.2 Criteria

09/01

2.2.2.3 Methodology

09/01

2.2.2.3.1 Generic Approach

2.2.2.3.2 Sampling Approach

2.2.2.3.3 Procedures and Documentation

2.2.2.4 Results - supporting data, tables, etc.,
showing qualifications and completed modifications

11/01*

2.2.3 LARGE BORE PIPE SUPPORTS

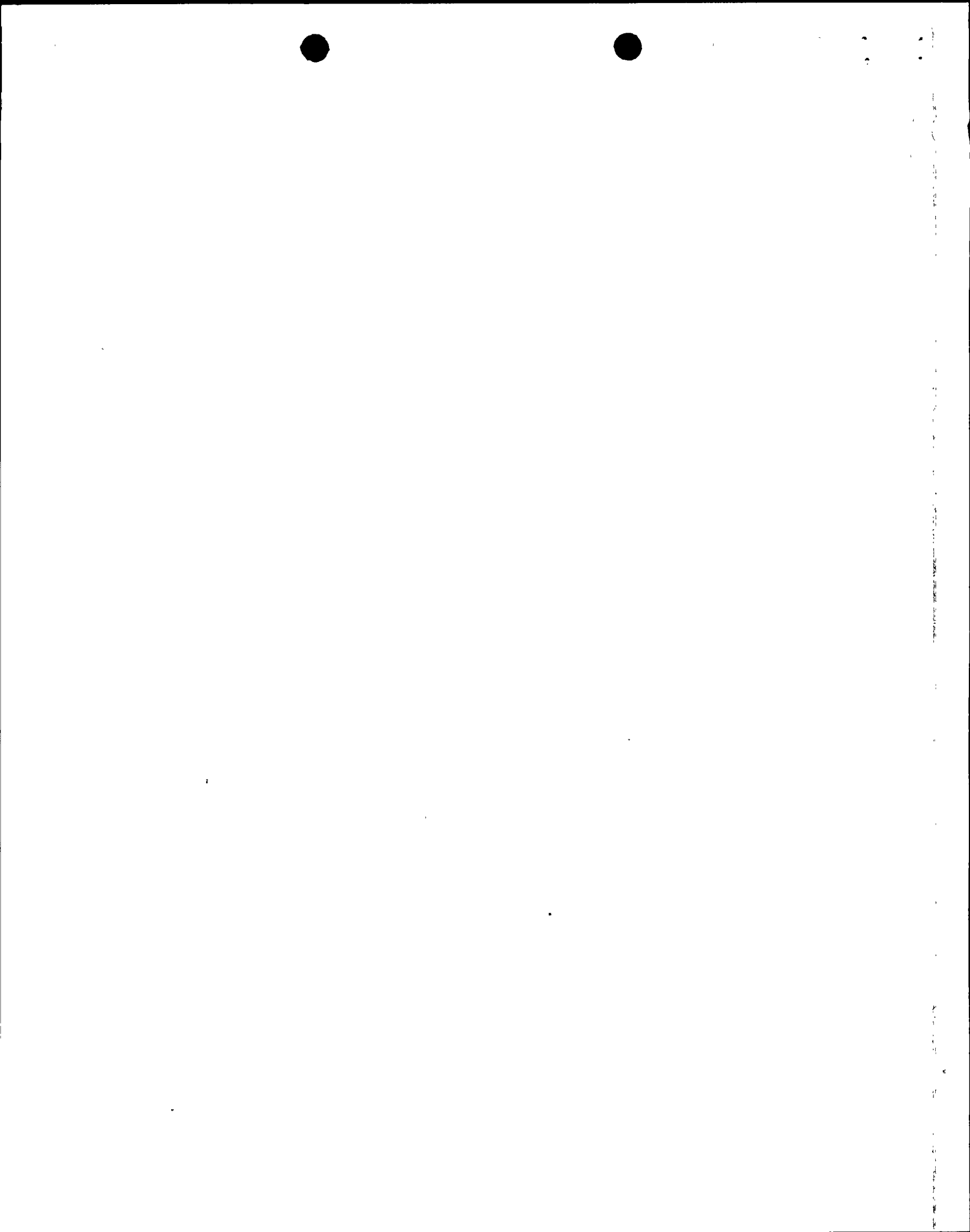
2.2.3.1 Scope

09/01

2.2.3.2 Criteria

09/01

* Results and qualifications
for fuel loading



Due Date To
NRC and IDVP

2.2.3.3 Methodology

09/01

2.2.3.3.1 Analysis Requirements

2.2.3.3.2 Analysis Input

2.2.3.3.3 I&E Bulletin 79-02 Program

o Review of Analysis

2.2.3.3.4 Procedure and Documentation

2.2.3.4 Results - supporting data, tables,
etc., showing qualifications and completed modifications

11/01*

2.2.4 SMALL BORE PIPE SUPPORTS

2.2.4.1 Scope

09/01

2.2.4.1.1 Generic

2.2.4.1.2 Sampling

2.2.4.2 Criteria

09/01

2.2.4.3 Methodology

09/01

2.2.4.3.1 Generic Approach

2.2.4.3.2 Sample Approach

2.2.4.3.3 Procedures and Documentation

* Results and qualifications
for fuel loading

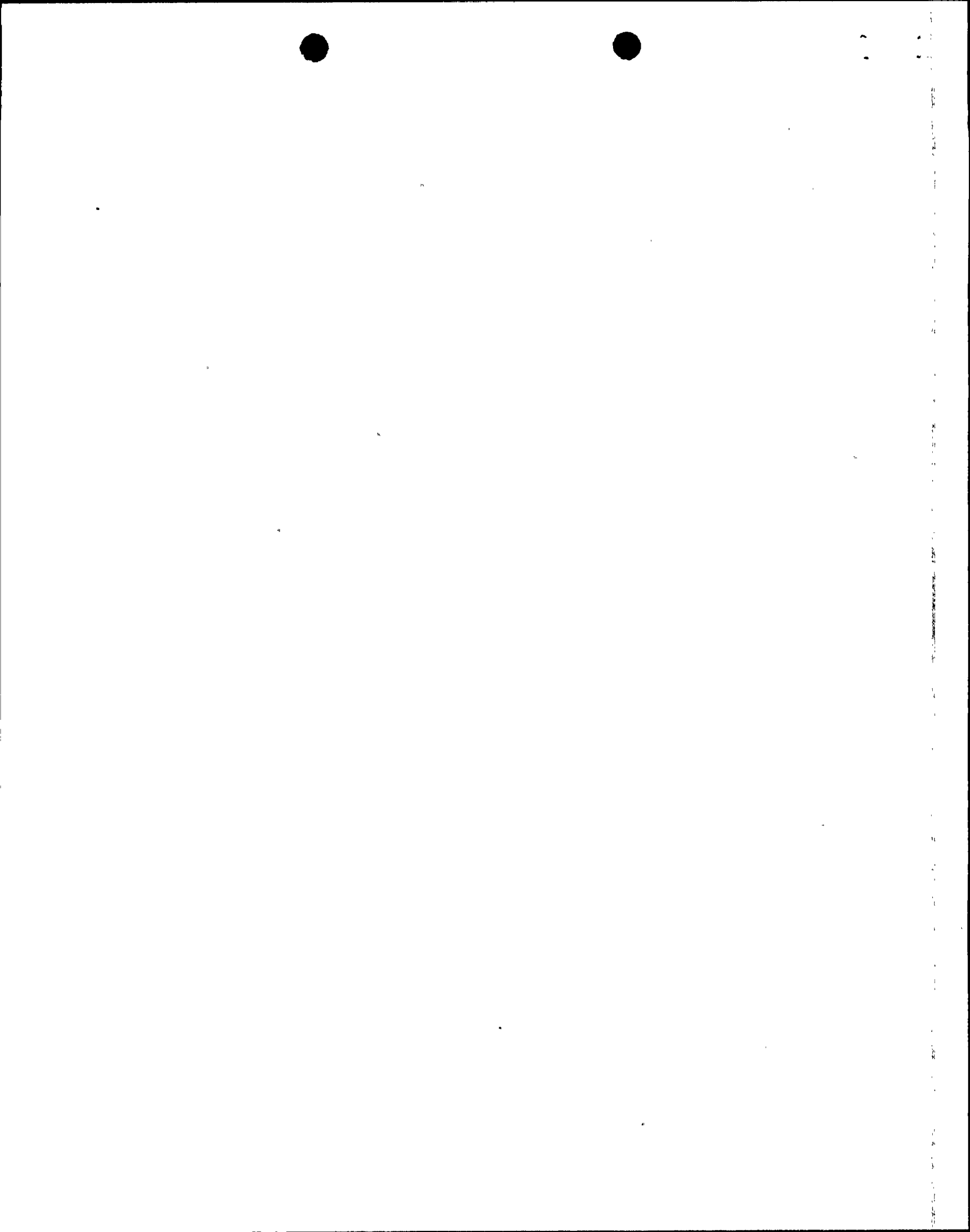


Vertical text or markings along the right edge of the page, possibly bleed-through or a margin.

Due Date To
NRC and IDVP

2.2.4.4	Results - supporting data, tables, etc., showing qualifications and completed modifications	11/01*
2.3	<u>EQUIPMENT SEISMIC DESIGN REVIEW</u>	
2.3.1	GENERAL DESCRIPTION OF SCOPE & JUSTIFICATION OF SCOPE	09/01
2.3.2	CRITERIA	09/01
2.3.3	MECHANICAL EQUIPMENT	09/01
2.3.3.1	<u>Scope</u>	09/01
2.3.3.2	<u>Methodology</u>	09/01
2.3.3.3	<u>Results</u>	10/15*
2.3.4	ELECTRICAL EQUIPMENT AND INSTRUMENTATION	
2.3.4.1	<u>Scope</u>	09/01
2.3.4.2	<u>Methodology</u>	09/01
2.3.4.3	<u>Results</u>	10/15*

* Results and qualifications
for fuel loading



Due Date To
NRC and IDVP

2.3.5 HVAC

2.3.5.1 Scope

09/01

2.3.5.2 Methodology

09/01

2.3.5.3 Results

10/15*

2.3.6 ANALYSIS AND QUALIFICATION OF EQUIPMENT

10/15*

2.4 - ELECTRICAL CONDUIT & RACEWAY SUPPORTS REVIEW

2.4.1 SCOPE

09/01

2.4.2 CRITERIA

09/01

2.4.3 SEISMIC ANALYSES

2.4.3.1 Transverse Analyses

09/01

2.4.3.1.1 Methodology

09/01

2.4.3.1.2 Procedure

09/01

2.4.3.2 Longitudinal Analyses

09/01

2.4.3.2.1 Methodology

2.4.3.2.2 Procedure

* Results and Qualifications
for fuel loading



3 2

3 4

3 4

Due Date To
NRC and IDVP

2.4.4	PROCEDURES AND DOCUMENTATION	09/01
2.4.5	DESIGN REVIEW	
2.4.5,1	<u>Evaluation to Criteria</u>	10/15*
2.4.5,2	<u>Description of Modifications</u>	10/15*
2.4.6	ANALYSIS AND QUALIFICATION OF CONDUITS AND SUPPORTS	10/15*
2.5	<u>HVAC DUCT & SUPPORTS</u>	
2.5.1	SCOPE	09/17
2.5.2	CRITERIA	09/17

* Results and qualifications
for fuel loading

	<u>Due Date To NRC and IDVP</u>
2.5.3 METHODOLOGY	
2.5.3.1 <u>Generic</u>	09/17
2.5.3.2 <u>Specific</u>	09/17
2.5.3.3 <u>Properties</u>	09/17
2.5.4 DESIGN REVIEW	
2.5.4.1 <u>Evaluation to Criteria</u>	10/29*
2.5.4.2 <u>Description of Modifications</u>	10/29*
2.6 <u>INSTRUMENTATION TUBING SUPPORTS</u>	
2.6.1 SCOPE	09/01
2.6.2 METHODOLOGY	
2.6.2.1 <u>Tubing Supports</u>	09/01
2.6.2.2 <u>Instrument Tubing</u>	09/01
2.6.3 RESULTS	
2.6.3.1 <u>Tubing Supports</u>	10/15*
2.6.3.2 <u>Instrument Tubing</u>	10/15*

* Results and qualifications
for fuel loading



Due Date To
NRC and IDVP

2.6.4 DESIGN REVIEW

2.6.4,1 Evaluation to Criteria

10/15

2.6.4,2 Redesign if Required

10/15

Vol. 3 - INDEPENDENT DESIGN VERIFICATION PROGRAM
(Project Overview, supporting information, and
IDVP Reports)

3.1 INTRODUCTION (PROJECT OVERVIEW OF IDVP)

09/17

3.2 DESCRIPTION OF PHASE I MANAGEMENT PLAN

09/17

3.3 PROJECT SUMMARY AND REVIEW OF IDVP PROGRAM

09/17

3.4 IDVP REPORTS

3.4.1 DESCRIPTION OF REPORTS

09/17

3.4.2 IDVP INTERIM TECHNICAL REPORTS (ITR)

10/15

3.4.3 IDVP ITR ON FUEL LOADING

11/12

