U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Meeting Report No. 50-219/88-08

Docket No. 50-219

License No. DPR-16

Licensee: GPU Nuclear Corporation
Oyster Creek Nuclear Generating Station
P. O. Box 388
Forked River, NJ 08731

Facility Name: Oyster Creek Generating Station

Meeting At: NRC Region I Office, King of Prussia, PA

Meeting Conducted: March 8, 1988

Inspector: P. K. Eapen 4/29/88
for S. K. Chaudhary, Senior Reactor Engineer — date

Approved by: P. K. Eapen 4/29/88
for D. R. Strosnider, Chief, MPS, EB, DRS — date

Meeting Summary: The subject of the meeting was licensee activities related to NRC Bulletins 79-02 and 79-14.

DETAILS

1.0 Meeting Attendees

GPU - Nuclear Corporation

D. K. Croneberger, Director, Engineering Services
M. W. Laggart, Manager, BWR Licensing
Y. Nagai, BWR Licensing
A. P. Rochino, Manager, Engineering Mechanics
J. Rogers, Senior Licensing Engineer
R. Zak, Senior Licensing Engineer

U.S. Nuclear Regulatory Commission

H. Ashar, Senior Structural Engineer, NRR
L. H. Bettenhausen, Chief, Projects Branch 1, RI
S. K. Chaudhary, Senior Reactor Engineer, RI
C. J. Cowgill, Chief, Reactor Projects Section 1A, RI
A. W. Dromerick, Licensing Project Manager, NRR
J. P. Durr, Chief, Engineering Branch, RI
S. Hou, Senior Mechanical Engineer, NRR
Kamal Manoly, Technical Assistant, DEST, NRR
J. E. Richardson, Acting Deputy Dirctor, DRS, RI
J. R. Strosnider, Chief, Materials & Processes Section, RI

2.0 Purpose and Scope of the Meeting

The meeting was convened at the request of the licensee to discuss the status of the licensee's actions/plans and schedules for work pursuant to IE Bulletins 79-02 and 79-14.

The licensee presented to the NRC staff the status of the bulletin followup efforts, and commitments the licensee had made in 1985 in response to the NRC inspection findings.

The NRC staff reviewed the projected schedule, and discussed the technical bases of licensee's evaluations of pipe support reanalysis and modifications efforts. The NRC staff informed the licensee that detailed technical review of the program and schedule for adequacy would be performed in later NRC inspections.

A summary of the licensee's presentation is attached with this report as Attachment 1.

IE BULLETIN 79-02/14 REVIEW

GPU NUCLEAR/OYSTER CREEK PLANT

March 8, 1988

Mgmt Meeting #
50-219/88-08

INTRODUCTION

- CHRONOLOGY OF IEB 79-02/14
- STATUS OF COMMITMENTS

STATUS OF FIELD ACTIVITIES

- SUPPORT MODIFICATION
- BASEPLATE INSPECTION

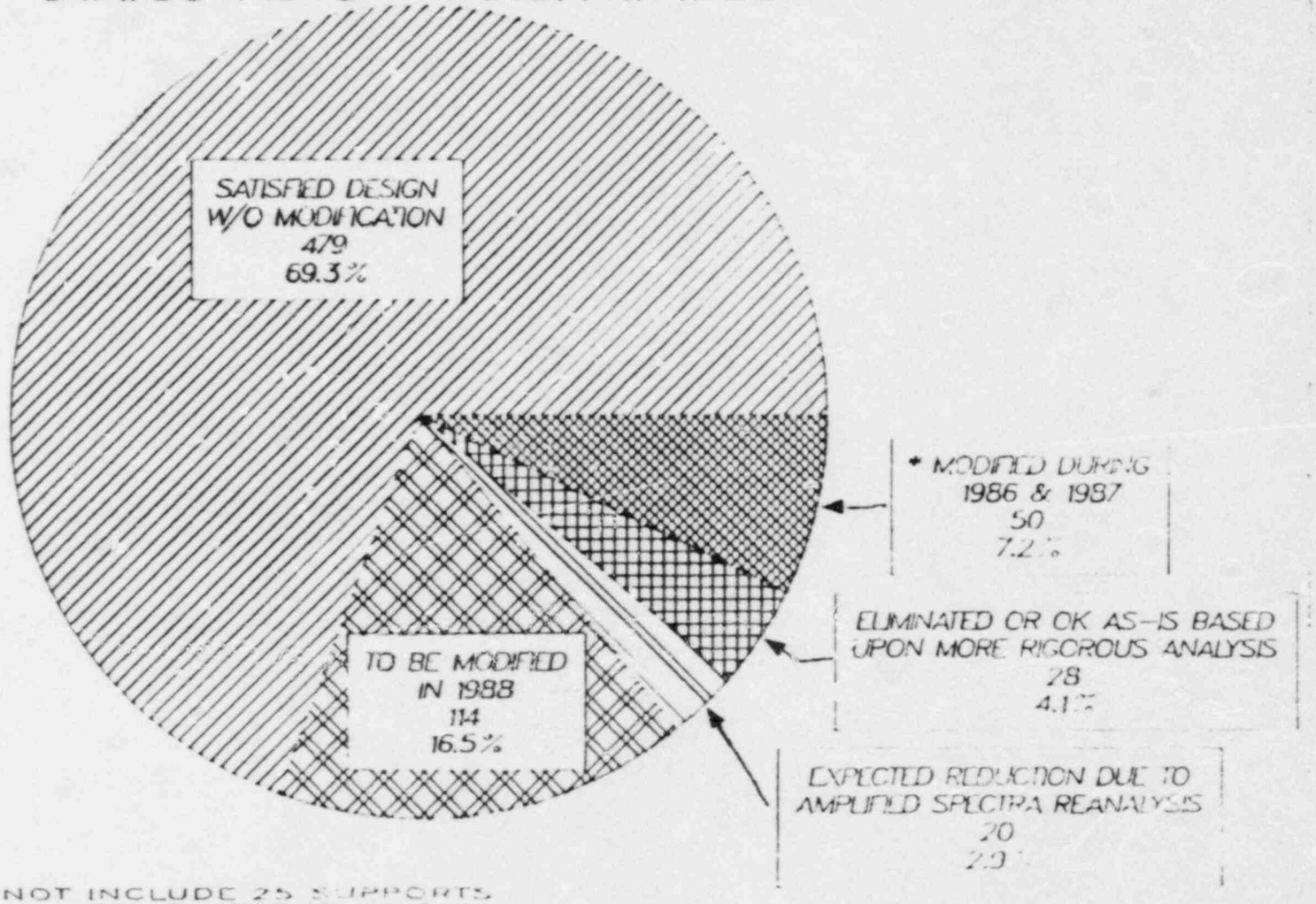
FLOOR RESPONSE SPECTRA

- MOTIVATION
- SSI METHODOLOGY
- STATUS/RESULTS
- INTERACTIONS WITH NRR

RESUMPTION OF IE BULLETIN 79-14/02
EVALUATION FOR O.C. IN 1985

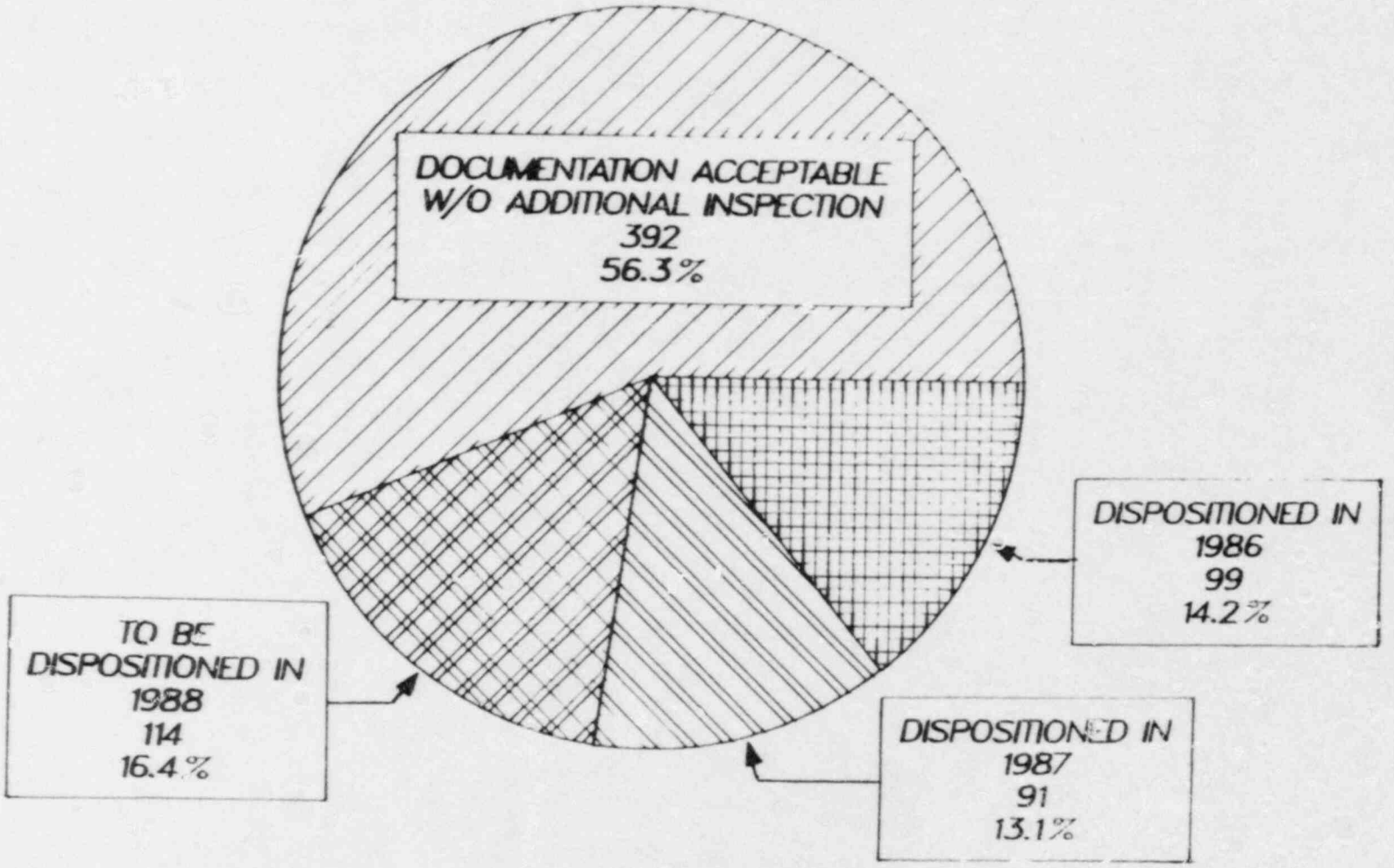
- IE INSPECTION 85-14 CONDUCTED BY REGION I, MAY 14-17, 1985
  - INADEQUATE DOCUMENTATION OF ORIGINAL 1979/80 EFFORT
  - PROCEDURES/INSTRUCTIONS RELATED TO ORIGINAL 1979/80 EFFORT WERE NOT CONTROLLED IN ACCORDANCE WITH ORIGINAL QA PLAN
- SEVERAL INTERACTIONS WITH REGION I IN 1985 - 1986 REGARDING SCOPE, STATUS AND SCHEDULE OF REEVALUATION
  - PIPING ANALYSIS AND PIPE SUPPORT CRITERIA CONCURRED WITH REGION I
- GPUN COMMITMENT TO REGION I
  - COMPLETE INSPECTIONS, REANALYSIS, DESIGN VERIFICATIONS AND MODIFICATIONS BY END OF 12R

79-14 SUPPORT UPGRADES
STATUS AS OF MARCH 1. 1988



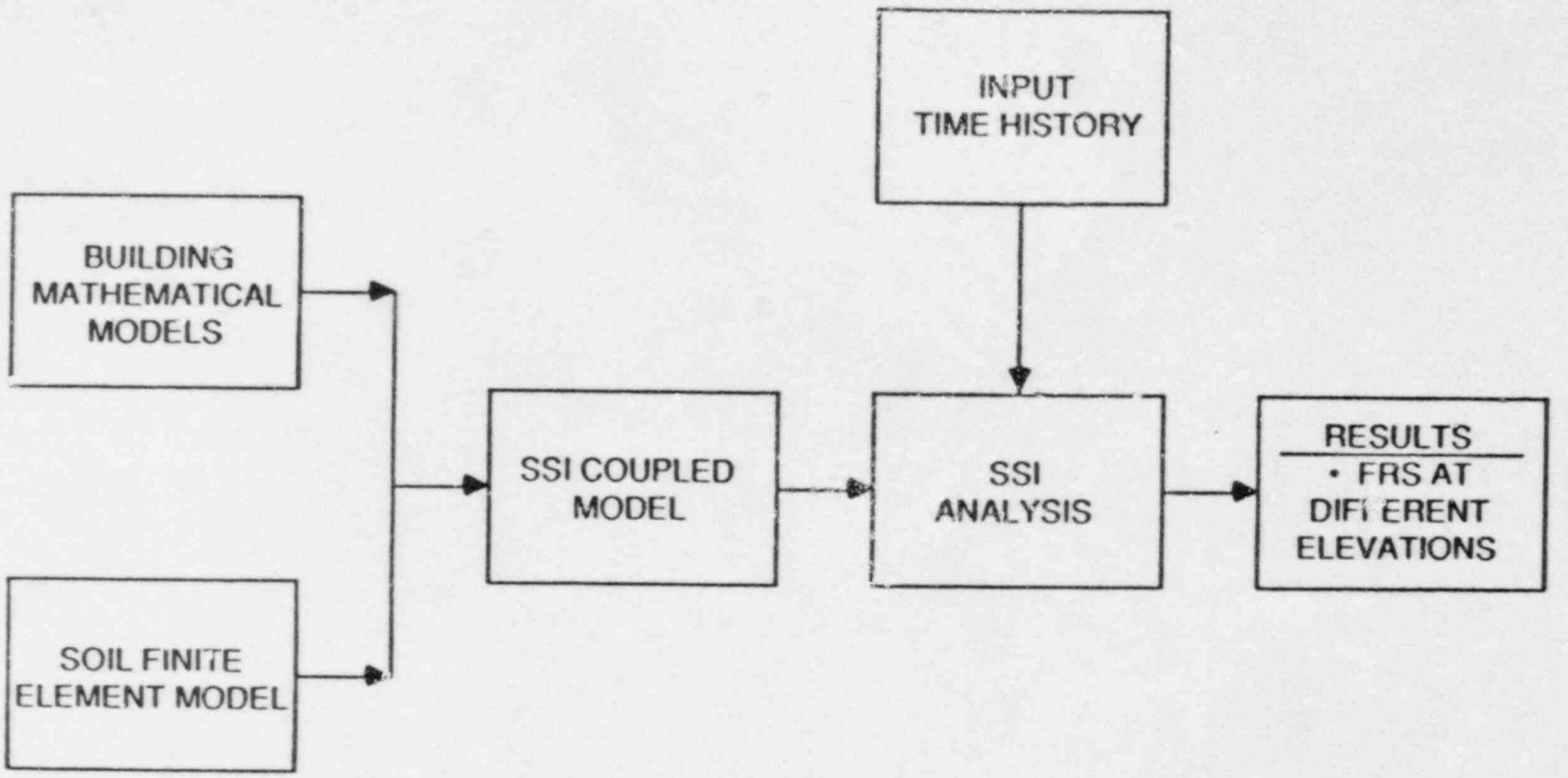
* DOES NOT INCLUDE 25 SUPPORTS
PARTIALLY COMPLETED '85 & '86

79–02 ANCHORAGE INSPECTIONS
STATUS AS OF MARCH 1, 1988



REASONS FOR GENERATING NEW FLOOR RESPONSE SPECTRA FOR O.C.

- CONFLICTING SEISMIC CRITERIA ON SEVERAL PROJECTS - NEED FOR UNIFICATION
  - UNAMPLIFIED GROUND RESPONSE SPECTRA FOR PIPING ANALYSES/PIPE SUPPORT EVALUATION
  - SEP AMPLIFIED FLOOR RESPONSE SPECTRA FOR BLOCK WALLS (IEB 80-11)/ESSF BUILDING DESIGN/SPENT FUEL POOL RACK MODS, SEP SEISMIC EVALUATIONS, ETC.
  - URS/BLUME 1986 AMPLIFIED SPECTRA FOR RECIRC PIPE ANALYSES
- SAVINGS IN MAN-REM EXPOSURE FOR MODIFICATION/INSPECTIONS INSIDE DRYWELL
- REDUCTION OF OVERALL CONSTRUCTION COST
- TAKE ADVANTAGE OF EXISTING "STATE OF THE ART" SEISMIC METHODOLOGY AND COMPUTATIONAL TECHNIQUES



Overall Approach to Develop New Spectra

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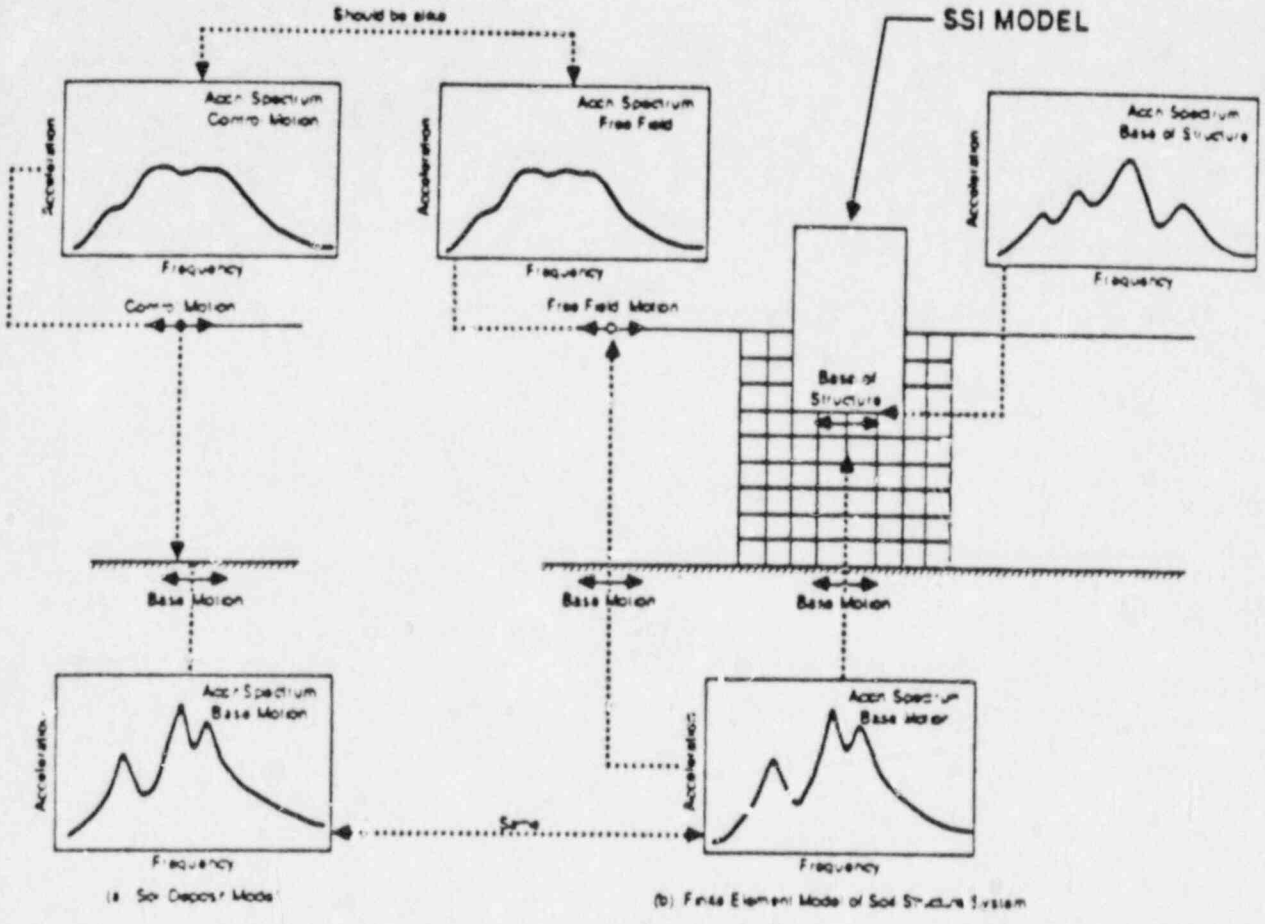

Schematic Representation of Soil-Structure Interaction Analysis Using Finite Element Model

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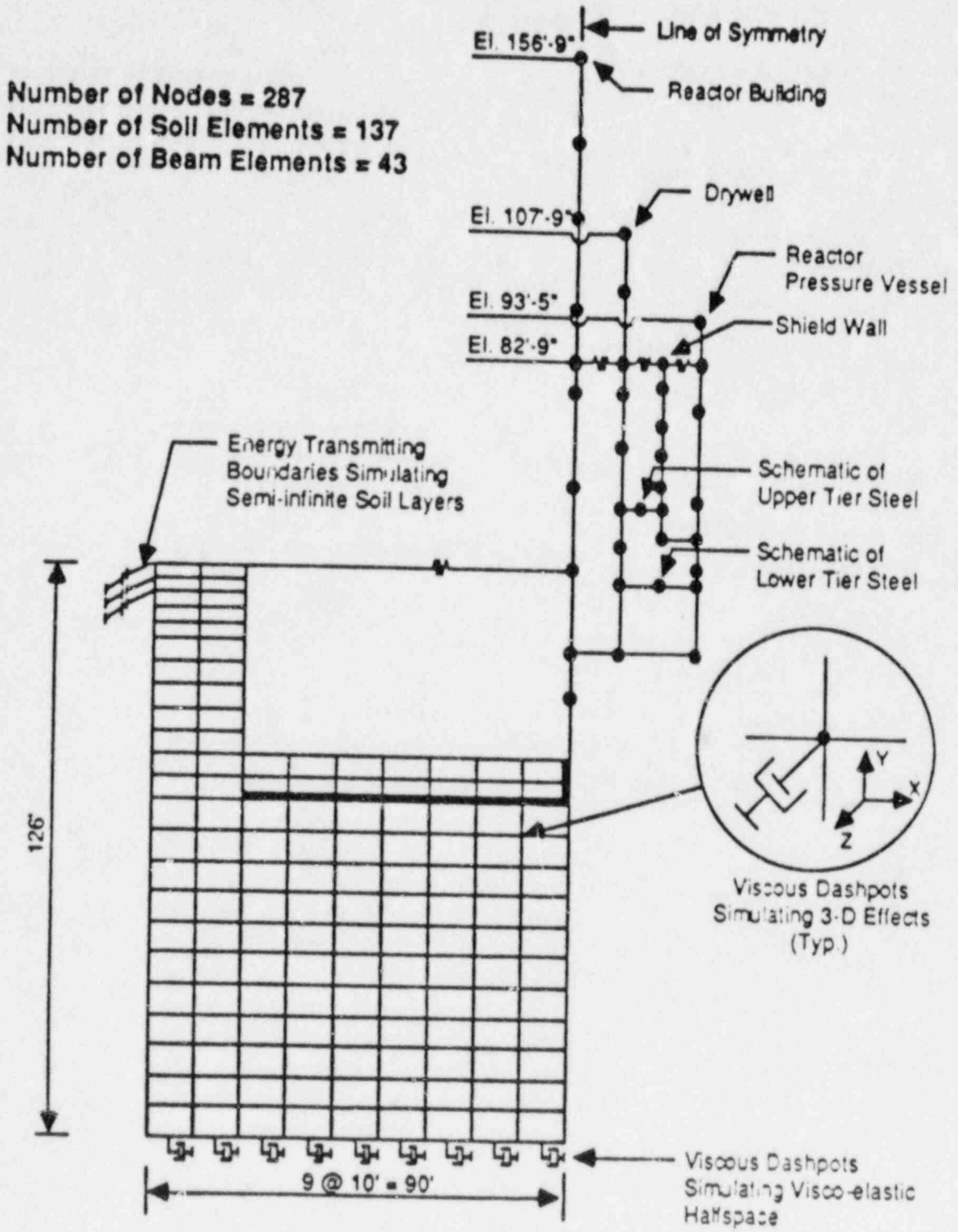

Superflush SSI Model, Oyster Creek Reactor Building

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AMPLIFIED FLOOR SPECTRA REANALYSIS

STATUS

- GENERATED SOIL STRUCTURE INTERACTION MODEL
- GENERATED FLOOR RESPONSE SPECTRA - SSE & OBE
- 10CFR 50.59 SAFETY EVALUATION JUSTIFYING USE FOR OYSTER CREEK IN PROGRESS
- REANALYZED ALL AFFECTED PIPING MODELS AND GENERATED SUPPORT REACTION LOADS
- REANALYZED ALL AFFECTED SUPPORTS (FIRST PASS) FOR OBE/SSE ALLOWABLES

RESULTS

- PIPING STRESS LEVEL REDUCED SOMEWHAT
- SEISMIC REACTION LOADS GENERALLY DECREASED
- REACTION LOADS FROM PIPING ATTACHED TO THE TORUS AND THE UPPER ELEVATIONS OF THE REACTOR VESSEL HAVE INCREASED WHICH RESULTED IN A FEW ADDITIONAL UPGRADES
- APPROX. 20 FEWER (NET) UPGRADES ARE REQUIRED
- THE REDUCTION OF WORK IS NOT AS GREAT AS GPUN HAD ANTICIPATED
- THE ANALYSIS HAS A BETTER TECHNICAL BASIS

INTERACTIONS WITH NRC (NRR) ON NEW SEISMIC METHODOLOGY FOR GENERATING FLOOR RESPONSE SPECTRA

- MEETINGS ON JULY 7, 1987 AND SEPTEMBER 3, 1987
  - GPUN PRESENTED TECHNICAL DETAILS OF NEW METHODOLOGY, I.E.,
    - A. DETAILS OF SUPERFLUSH COMPUTER CODE
    - B. MATHEMATICAL/FINITE ELEMENT MODELS OF BUILDINGS AND SOILS
  - GPUN PROPOSED UTILIZING 0.165G ZPA GROUND RESPONSE SPECTRA APPROVED BY NRC FOR USE IN O.C. SYSTEMATIC EVALUATION PROGRAM (SEP)
- NRC LETTER OF OCTOBER 27, 1987 TO GPUN
  - ACCEPTED ABOVE PROPOSED GROUND RESPONSE SPECTRA SUBJECT TO THREE CONDITIONS
    - A. SSI ANALYSIS WITH COMPATIBLE INPUT TIME HISTORIES PER APPLICABLE SRP CRITERIA
    - B. RESPONSES TO ADDITIONAL INFO REQUEST BY NRC BE SATISFACTORY
    - C. AUDIT RESULTS (NOVEMBER 17/18, 1987) ARE ACCEPTABLE

INTERACTIONS WITH NRC (NRR) - (CONTINUED)

AUDIT OF GPUN/URS BLUME, NOVEMBER 17/18, 1987

- ADDITIONAL INFO/ACTION ITEMS WERE IDENTIFIED BY NRC TO SUPPORT FINAL APPROVAL
- NRC PERSONNEL AND THEIR CONSULTANT (BNL) WERE IMPRESSED WITH ANALYSES/RESULTS
- AFTER CONSULTATION WITH REST OF NRR STAFF, ADDITIONAL CONDITIONS AND LIMITATIONS HAVE BEEN IMPOSED ON SSI EFFORT. THESE ARE STATED IN DECEMBER 16. 1987 LETTER. ADDITIONAL INFORMATION (7 ITEMS) REQUIRED BY NRR STAFF WERE IDENTIFIED BY THIS LETTER.

STATUS OF INFO/ACTION ITEMS REQUIRED BY NRR

- RESPONSES TO 6 OF 7 ITEMS FOR ADDITIONAL INFORMATION HAVE BEEN SUBMITTED TO NRR ON FEBRUARY 26, 1988.
- SEVENTH ITEM TO BE SUBMITTED IN MARCH 1988.

INTERACTIONS W/ NRC (NRR) - (CONTINUED)

MEETING ON DECEMBER 21, 1987

- NRC HAS GIVEN GPUN THREE OPTIONS

  OPTION 1A

  USE 0.165g SEP GROUND RESPONSE SPECTRA AND EXISTING CONSERVATIVE SSI METHODOLOGY

  OPTION 1B

  USE 0.165g SEP GROUND RESPONSE SPECTRA AND NEW SEISMIC METHODOLOGY, BUT LIMIT MAX. REDUCTION IN BASEMAT TO 25%

  OPTION 2

  GENERATE SITE SPECIFIC GROUND MOTION, USE NEW SEISMIC METHODOLOGY, WITH NO LIMITATION FOR REDUCTION AT BASEMAT

- PRESENT AND FUTURE CONCERNS BY NRC PERTAINING TO OPTION 2 MUST BE RESOLVED SUCCESSFULLY

- ACCEPTING CRITERIA FOR OPTION 2 NOT CLEAR AND FINALIZED (NEW SRP REVISION IN PROCESS).