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NUCLEAR MANAGEMENT AND RESOURCES COUNCIL

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Byron Lee, Jr.
President & Chief
Executive Officer

July 8, 1992

The Honorable Ivan Selin
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: SECY 92-215, "Revision of 10 CFR Part 100, Revisions to 10 CFR Part 50,
New Appendix to CFR Part 100 and New Appendix S to 10 CFR Part 50"

Dear Mr. Chairman:

We appreciate the NRC's decision to release SECY 92-215 to the Public Document Room at an early date as requested in our letter of June 16, 1992. Availability of that document has helped the industry in planning to address this matter more effectively. This will improve the constructive character and quality of industry feedback to the NRC.

Based on our review of SECY 92-215, we recommend that the Commission carefully consider the policy issues associated with the urban siting features of the current draft revision to Part 100 prior to publishing it for public comment. If approved as proposed in SECY 92-215, the draft changes to Part 100 would place into regulation quantified criteria for population distribution and exclusion zone size, apparently without technical bases. The Committee to Review Generic Requirements and the Advisory Committee on Reactor Safeguards (ACRS) have expressed concern regarding the advisability of putting these numerical criteria into regulation. ACRS also questioned the validity of the basis for the criteria proposed and the relation of such regulation to the Safety Goals. In addition, NRC's most recent previous detailed evaluation of regulatory approaches to siting, the Siting Policy Task Force report (NUREG-0625, published in 1979), concluded that a different population distribution criterion is appropriate. The current proposal differs from that previous recommendation, in part, due to the apparent lack of employing technical bases. A proper and stable regulatory approach to this issue should be achieved by clearly defining the objective and developing firm technical bases. The proposal contained in SECY 92-215 does not provide either of these.

We consider Commission action toward establishing population distribution and exclusion zone size criteria in regulation to be important because, unless there is a sound technical basis, it could have a negative impact on public acceptance of present and new

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nuclear power facilities. That acceptance is critical to the successful accomplishment of the Nuclear Power Oversight Committee's Strategic Plan for Building New Nuclear Power Plants. We are also very concerned about creating a mistaken public perception regarding the adequacy of protection at presently operating plants that meet the Safety Goals but do not satisfy these potential regulatory criteria.

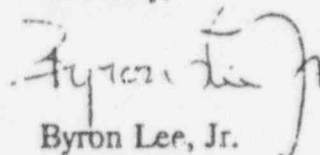
We believe that Commission policy action in this very important area must be sufficiently reasoned and technically sound. The Commission policy regarding urban siting should continue to adhere to the hierarchical regulatory framework with regulations subordinate to the Safety Goals, rather than deviate from the stated Commission policy on promulgation and revision of regulations.

The Commission should consider whether it may be more appropriate to address the urban siting elements proposed for inclusion in Part 100 during Phase 2 of the revision effort. This would provide the opportunity for sufficient industry and public input on this policy prior to deciding whether and how to prepare NRC's regulation. The industry can site new plants under the Part 52 process without Part 100 rulemaking. However, revision of Part 100 in the area of seismic siting criteria is desirable. This will allow incorporation of advancements in earth science and earthquake engineering from the past 30 years and, hopefully, provide flexibility, not present in the current regulation, to permit appropriate consideration of new technical developments and understandings.

We recommend that in developing changes to Part 100, the NRC should establish a process wherein the NRC staff and the industry work cooperatively in public meetings, similar to the process being successfully used for development of the maintenance guideline. This will permit seismic and other Part 100 issues to be discussed in an interactive mode, allowing an iterative process to work in an efficient and effective manner.

Again, we appreciate the early release of SECY 92-215 and the expression of openness which it represents. The suggestions offered above will, we believe, aid efficient development of a pertinent and operative revision to Part 100. The industry, through NUMARC, remains available to assist and support your efforts in this regard. If we can be of further assistance, please call me or Joe Colvin.

Sincerely,


Byron Lee, Jr.

BLjr/JFS:mls

COMMISSION BRIEFING
ON
PROPOSED REVISION TO 10 CFR 100
REACTOR SITE CRITERIA

THOMAS L. KING
LEONARD SOFFER
ANDREW J. MURPHY
U.S. NUCLEAR REGULATORY COMMISSION

JUNE 24, 1992

*Chx PDR 13 & 43/44
for "foundation level"
and min level at
the foundation level
Clarify OGE Exceedance*

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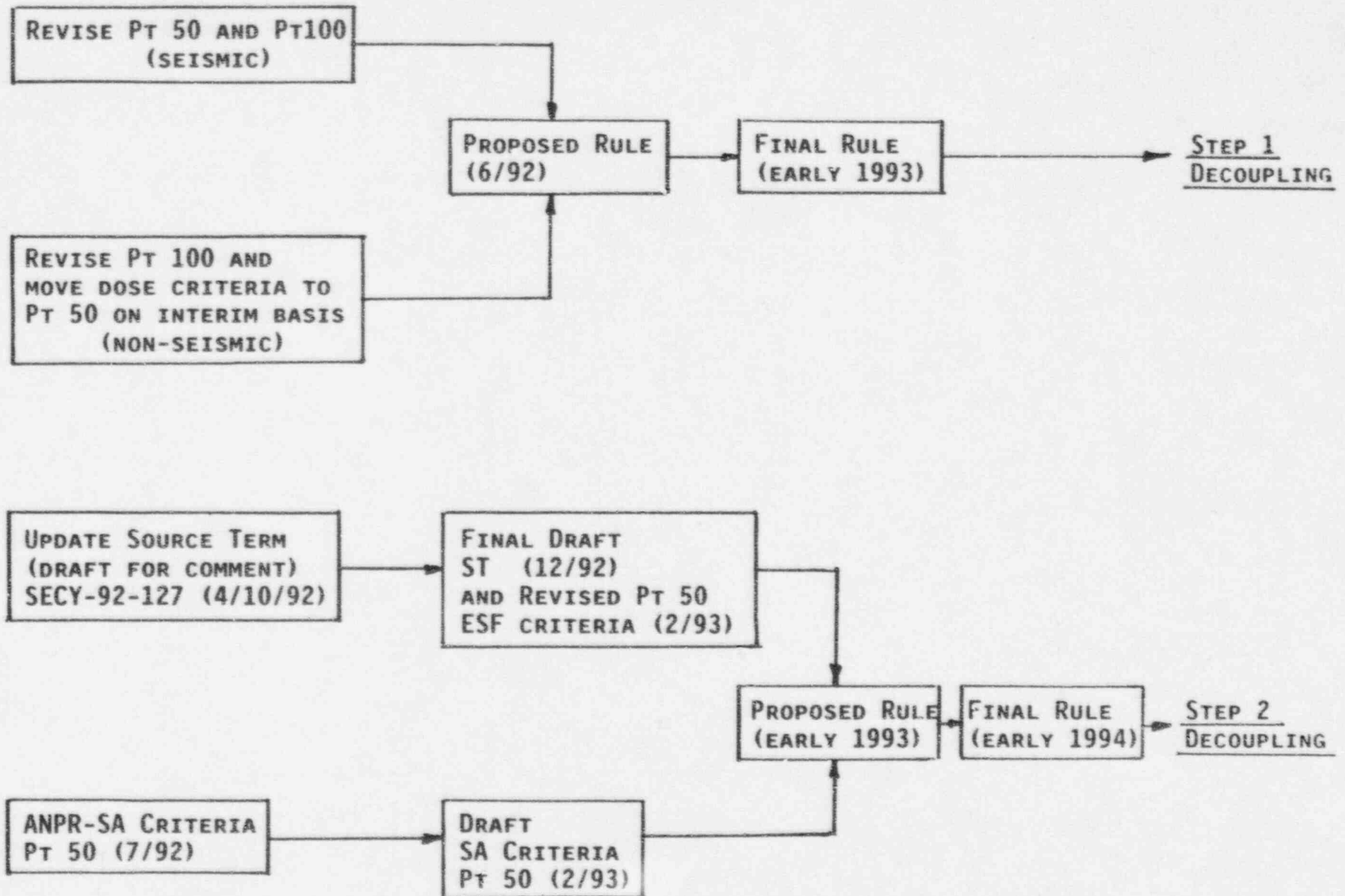
OUTLINE OF PRESENTATION

- o BACKGROUND
- o NON-SEISMIC ASPECTS
 - EXPERIENCE WITH CURRENT REGULATION
 - PROPOSED REVISION
 - BASES
- o SEISMIC ASPECTS
 - EXPERIENCE WITH CURRENT REGULATION
 - PROPOSED REVISION
- o SCHEDULE
- o CONCLUSIONS

BACKGROUND

- o STAFF RECOMMENDED (SECY-90-341) THAT COMMISSION DECOUPLE DOSE CALCULATIONS AND SOURCE TERMS FROM SITING, AND SPECIFY SITE CRITERIA DIRECTLY, FOR FUTURE PLANTS.
 - SEISMIC
 - NON-SEISMIC
- o TWO STEP RULEMAKING PROPOSED:
 - STEP 1 PART 100, INTERIM PART 50.34 AND PART 50 APPENDIX S.
 - STEP 2 FINAL PART 50
- o COMMISSION DIRECTED STAFF (JAN. 25, 1991 SRM) TO PROCEED WITH RULEMAKING.

OVERALL DECOUPLING PLAN



PRESENT REACTOR SITE CRITERIA

- o PRESENT REGULATION IS 10 CFR PART 100 (APRIL 1962)
- o REQUIRES THAT EVERY REACTOR HAVE
 - EXCLUSION AREA
IMMEDIATE ZONE AROUND REACTOR. NO RESIDENTS, BUT TRANSIENT ACTIVITIES PERMITTED. DISTANCE TO EXCLUSION AREA BOUNDARY DETERMINED BY DOSE CALCULATIONS, AND IS NOT FIXED.
 - LOW POPULATION ZONE (LPZ)
ZONE OUTSIDE EXCLUSION AREA. MAY CONTAIN RESIDENTS, BUT NOT DENSELY POPULATED CENTER. SIZE OF LPZ DETERMINED BY DOSE CALCULATIONS, AND IS NOT FIXED.
 - POPULATION CENTER DISTANCE
DISTANCE TO NEAREST DENSELY POPULATED CENTER MAY BE NO CLOSER THAN ONE AND ONE-THIRD TIMES THE LPZ RADIUS.

REACTOR SITE CRITERIA (CONTINUED)

- o FISSION PRODUCT RELEASE WITHIN CONTAINMENT POSTULATED. DOSES TO HYPOTHETICAL INDIVIDUALS AT EXCLUSION AREA BOUNDARY AND LPZ OUTER RADIUS MUST MEET VALUES (25 REM WHOLE BODY AND 300 REM THYROID) STATED IN PART 100.
- o PART 100 IS VERY FLEXIBLE AND HAS NO NUMERIC CRITERIA FOR THE EXCLUSION AREA, LPZ AND POP. CENTER DISTANCE.
- o CURRENTLY, PART 100 AFFECTS PLANT DESIGN MORE THAN THE SITE PARAMETERS.
- o PART 100, APPENDIX A SPECIFIES SEISMIC AND GEOLOGIC SITE CRITERIA:
 - REQUIRED INVESTIGATIONS
 - DESIGN BASIS

MAJOR AREAS OF SITING EXPERIENCE
(NON-SEISMIC)

- o PROXIMITY TO LARGE POPULATION CENTERS**
- o FISSION PRODUCT CLEANUP SYSTEMS AND EXCLUSION AREA SIZE**
- o MAN-RELATED HAZARDS**
- o RELATIONSHIP OF SITING TO EMERGENCY PLANNING**

ELEMENTS OF PROPOSED RULE
(NON-SEISMIC)

- o PROPOSED RULE CONSISTS OF TWO SUB-PARTS
 - SUB-PART A. APPLICABLE TO EXISTING PLANTS;
IDENTICAL TO PRESENT RULE.
 - SUB-PART B. APPLICABLE TO FUTURE PLANTS.
- o SUB-PART B
 - SOURCE TERMS AND DOSE CRITERIA DELETED FOR
SITING. PRESENT SOURCE TERM AND DOSE CRITERIA
MOVED ON AN INTERIM BASIS TO PART 50.34 FOR PLANT
EVALUATION.
 - MINIMUM EXCLUSION AREA SIZE OF 0.4 MILES.
 - LOW POPULATION ZONE DEFINITION DELETED.

ELEMENTS OF PROPOSED RULE (NON-SEISMIC)
(CONTINUED)

o SUB-PART B (CONTINUED)

- POPULATION DENSITY AT INITIAL SITE APPROVAL OR SITE RENEWAL NOT TO EXCEED 500 PERSONS PER SQUARE MILE OUT TO 30 MILES (FROM REG. GUIDE 4.7). PROJECTED DENSITY NOT TO EXCEED 1000 PERSONS PER SQUARE MILE 40 YEARS AFTER SITE APPROVAL.**
- PHYSICAL CHARACTERISTICS THAT COULD POSE SIGNIFICANT IMPEDIMENT TO DEVELOPMENT OF EMERGENCY PLANS TO BE IDENTIFIED.**
- NO METEOROLOGY EVALUATION FOR SITE SUITABILITY. (BUT MET. DATA TO BE COLLECTED AND USED FOR OTHER PLANT EVALUATIONS)**
- NEW SECTION REQUIRING EVALUATION OF MAN-RELATED HAZARDS.**

o REGULATORY GUIDE 4.7 UPDATED FOR CONSISTENCY.

BASES FOR PROPOSED RULE
(NON-SEISMIC)

- o STAFF EXPERIENCE TOGETHER WITH RISK INSIGHTS HAVE SHOWN WHICH SITING ASPECTS ARE KEY TO ASSURING LOW RISK.
- o POPULATION DENSITY VALUES FROM REG. GUIDE 4.7 CAN LEAD TO LOW RISK WHILE ALLOWING GOOD SELECTION OF SITES IN ALL REGIONS OF NATION.
- o EXCLUSION AREA SIZE OF 0.4 MILES, TOGETHER WITH TYPICAL ENGINEERED SAFETY FEATURES, PROVIDES ASSURANCE THAT DOSES OF PART 100 COULD BE MET.
- o INCLUDES RECOMMENDATIONS OF SITING POLICY TASK FORCE.
- o COMMENSURATE WITH PRESENT STAFF PRACTICE FOR MAN-RELATED HAZARDS.
- o SITE CRITERIA SATISFY THE QHO'S OF THE SAFETY GOAL.
- o CRITERIA PLUS RISK CHARACTERISTICS OF PRESENT REACTORS PROVIDE ASSURANCE OF LOW SOCIETAL IMPACT DUE TO LAND CONDEMNATION.

CONCERNS REGARDING POPULATION DENSITY

- o SOME STAFF CONCERNS EXPRESSED REGARDING ADVISABILITY OF HAVING NUMERICAL POULATION DENSITY VALUES IN THE RULE.
- o PROS- VALUES IN THE RULE WOULD LIMIT LITIGATION IN INDIVIDUAL SITE HEARINGS.
- o CONS- NUMERICAL VALUES IN THE RULE IMPLY A GREATER PRECISION THAN MAY BE WARRANTED, AND MAY, BY IMPLICATION, RAISE CONCERNS FOR SOME EXISTING SITES.
- o STAFF RECOMMENDS ISSUANCE OF PROPOSED RULE WITH POPULATION DENSITY VALUES INCLUDED. FEDERAL REGISTER NOTICE IS REQUESTING COMMENTS IN THIS AREA.

REVISION OF APPENDIX A TO 10 CFR PART 100
SEISMIC AND GEOLOGIC SITING CRITERIA
FOR NUCLEAR POWER PLANTS

- o THE MAJORITY OF CURRENT NUCLEAR POWER PLANTS HAVE BEEN SUCCESSFULLY LICENSED USING THE CURRENT APPENDIX A TO PART 100 (ISSUED IN 1973); HOWEVER, THERE HAVE BEEN SOME DIFFICULTIES.

- o DIFFICULTIES WITH THE CURRENT REGULATION IN THE EARTH SCIENCES AREA:
 - IN SOME SECTIONS APPENDIX A IS TOO DETAILED AND INFLEXIBLE; IN OTHER SECTIONS THERE IS A LACK OF CLARITY LEADING TO CONFLICTING INTERPRETATIONS. THIS HAS LED TO TIME CONSUMING DISCUSSIONS AND ADJUDICATION BY THE LICENSING PANELS.

 - APPENDIX A DOES NOT REFLECT ADVANCES IN THE SCIENCES OF SEISMOLOGY AND GEOLOGY (FOR EXAMPLE, PALEOSEISMIC DISCOVERIES AND PROBABILISTIC HAZARD ANALYSIS), AND EVOLUTION OF THE LICENSING PROCESS THROUGH ADJUDICATORY PROCESS.

REVISION OF APPENDIX A (CONTINUED)

- o DIFFICULTIES WITH THE CURRENT REGULATION IN THE ENGINEERING AREA:
 - THE MULTIPLE DEFINITIONS OF THE OPERATING BASIS EARTHQUAKE (OBE) (LIKELIHOOD OF OCCURRENCE; MINIMUM FRACTION OF THE SAFE SHUTDOWN EARTHQUAKE (SSE); AND FUNCTIONALITY OF STRUCTURES, SYSTEMS AND COMPONENTS) HAVE RESULTED IN THE OBE CONTROLLING PLANT DESIGN
 - APPENDIX A REQUIRES PLANT SHUTDOWN IF THE OBE IS EXCEEDED; HOWEVER, EXCEEDANCE CRITERIA ARE VERY IMPRECISE AND RESTART GUIDANCE IS NONEXISTENT

REVISION OF APPENDIX A (CONTINUED)

o OBJECTIVES OF THE REVISION

- REMOVE SOURCES OF CURRENT MISINTERPRETATION
- DECOUPLE SITING FROM DESIGN
- INCREASE THE EASE FOR UPDATING THE TECHNICAL GUIDANCE
- PROVIDE STABILITY IN LICENSE REVIEWS
- COMPLETE REVISION FOR EARLY SITE REVIEWS

REVISION OF APPENDIX A (CONTINUED)

o SCOPE (REGULATIONS)

- THE LICENSING BASIS FOR EXISTING PLANTS WILL REMAIN AS APPENDIX A TO PART 100
- GEOLOGIC AND SEISMIC SITING REQUIREMENTS FOR NEW APPLICANTS WILL BE DESIGNATED AS APPENDIX B TO PART 100
- EARTHQUAKE ENGINEERING CRITERIA FOR NEW APPLICANTS WILL BE DESIGNATED AS APPENDIX S TO PART 50

REVISION OF APPENDIX A (CONTINUED)

o SCOPE (REGULATORY GUIDANCE)

- DEVELOP A NEW REGULATORY GUIDE THAT WILL CONTAIN THE DETAILED HAZARD CHARACTERIZATION GUIDANCE CURRENTLY IN APPENDIX A, AND GUIDANCE ON HOW TO PERFORM THE DETERMINISTIC AND PROBABILISTIC EVALUATIONS
- REVISE SRP SECTION 2.5.2, VIBRATORY GROUND MOTION
- REVISE GUIDE 1.12, NUCLEAR POWER PLANT INSTRUMENTATION FOR EARTHQUAKES
- DEVELOP NEW GUIDES ON PLANT SHUTDOWN (CRITERIA AND PROCEDURES) AND RESTART (RECOMMENDED EVALUATIONS)
- REVISIT EXISTING GUIDES; IDENTIFY THOSE REQUIRING CONFORMING CHANGES

REVISION OF APPENDIX A (CONTINUED)

- o HIGHLIGHTS OF CHANGES IN THE EARTH SCIENCES
 - REGULATION
 - * RETAINS DETERMINISTIC GEOLOGICAL INVESTIGATIONS
 - * REQUIRES PROBABILISTIC SEISMIC HAZARD ASSESSMENTS
 - REGULATORY GUIDE
 - * GUIDANCE ON APPLICATION OF EITHER EPRI OR LLNL PROBABILISTIC SEISMIC HAZARD ASSESSMENT TO PROPOSED SITE
 - * APPLICATION OF EXISTING/APPROVED COMPUTER CODE
 - * UTILIZATION OF EXISTING COMPUTER COMPATIBLE DATA BASES
 - IN THE PROPOSED RULEMAKING PROBABILISTIC AND DETERMINISTIC ANALYSES HAVE EQUAL WEIGHT

REVISION OF APPENDIX A (CONTINUED)

- o HIGHLIGHTS OF CHANGES IN EARTHQUAKE ENGINEERING
 - APPLICANT SELECTS THE OBE VALUE
 - * IF OBE IS $1/3$ SSE, NO EXPLICIT RESPONSE OR DESIGN ANALYSIS IS REQUIRED
 - * IF OBE IS GREATER THAN $1/3$ SSE, EXPLICIT RESPONSE AND DESIGN ANALYSIS ARE REQUIRED (CURRENT REQUIREMENTS)
 - IF OBE IS EXCEEDED, ORDERLY SHUTDOWN IS REQUIRED
 - * DRAFT REGULATORY GUIDE CONTAINS EXCEEDANCE CRITERIA AND SHUTDOWN GUIDANCE
 - * DRAFT REGULATORY GUIDE CONTAINS RESTART GUIDANCE

PART 100 SCHEDULE

- o JULY 1992- PUBLISH PROPOSED RULE FOR 90 DAY COMMENT PERIOD.
- o OCT. 1992- CLOSE OF COMMENT PERIOD.
- o FEB. 1993- ACRS/CRGR REVIEW FINAL RULEMAKING PACKAGE.
- o MARCH 1993- FINAL RULEMAKING PACKAGE TO COMMISSION.

CONCLUSIONS

- o PART 100 SHOULD BE UPDATED TO REFLECT CURRENT STAFF PRACTICE.
- o THE PROPOSED RULE DOES NOT REPRESENT A SIGNIFICANT CHANGE IN PRESENT SITING PRACTICE, BUT PRIMARILY CODIFIES IT.
- o RECOMMEND THAT COMMISSION APPROVE PUBLICATION OF PROPOSED RULECHANGE FOR COMMENT.