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RELATED CORRESPONDENCE

July 30, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

DOCKETED

In the Matter of CLEVELAND ELECTRIC ILLUMINATING COMPANY, Et Al. (Perry Nuclear Power Plant, Units 1 and 2)	Docket Nos. 50-440 50-441 (Operating License)

OHIO CITIZENS FOR RESPONSIBLE ENERGY
THIRTEENTH SET OF INTERROGATORIES TO APPLICANTS

Intervenor Ohio Citizens for Responsible Energy ("OCRE") hereby files its Thirteenth Set of Interrogatories to Applicants, pertaining to Issue #8 in this proceeding, on hydrogen control. The following interrogatories concern the generation, release, and combustion of hydrogen gas in a degraded core accident and the effects of such combustion on the integrity of the PNPP Mark III containment and the survival of equipment within containment. The purpose of these interrogatories is to ascertain the design, operation, and adequacy of Applicants' proposed hydrogen control system and the bases for Applicants' analyses in support of said system.

Also included herewith is a request for production of documents identified in response to the interrogatories.

DSB

THE INTERROGATORIES FILED HEREIN ARE SUBMITTED PURSUANT TO 10 CFR 2.740b, WHICH REQUIRES THAT THE INTERROGATORIES BE ANSWERED SEP ARATELY AND FULLY IN WRITING UN DER OATH OR AFFIRMATION WITHIN 14 DAYS AFTER SERVICE. THE INTER ROGATORIES ARE INTENDED TO BE CONTINUING IN NATURE; AND THE AN SWERS MUST BE SUPPLEMENTED OR AMENDED, AS APPROPRIATE, SHOULD APPLICANTS OBTAIN ANY NEW OR DIF FERENT INFORMATION RESPONSIVE TO THE INTERROGATORIES.

REQUESTS FOR PRODUCTION OF DOCU MENTS ARE FILED PURSUANT TO 10 CFR 2.741, WHICH REQUIRES THAT APPLICANTS PRODUCE AND EITHER FURNISH COPIES OF OR PERMIT OCRE TO INSPECT AND COPY ANY DOCU- MENTS RESPONSIVE TO THE REQUEST WHICH ARE IN THE POSSESSION, CUS TODY, OR CONTROL OF APPLICANTS. REQUESTS FOR PRODUCTION OF DOCU MENTS ARE ALSO CONTINUING IN NA TURE AND APPLICANTS MUST PRODUCE IMMEDIATELY ANY ADDITIONAL DOCU MENTS IT OBTAINS WHICH ARE RESPO NSIVE TO THE REQUEST.

FOR THE PURPOSES OF THESE INTER ROGATORIES, THE TERM 'DOCUMENT' MEANS ALL WRITINGS AND RECORDS OF EVERY TYPE IN THE POSSESSION, CUSTODY, OR CONTROL OF APPLI- CANTS, INCLUDING, BUT NOT LIMIT- ED TO, MEMORANDA, CORRESPONDENCE REPORTS, SURVEYS, TABULATIONS, CHARTS, BOOKS, PAMPHLETS, PHOTO GRAPHS, MAPS, BULLETINS, MINUTES NOTES, SPEECHES, ARTICLES, TRAN SCRIPTS, VOICE RECORDINGS, VIDEO TAPES, COMPUTER PROGRAMS, PRINT OUTS, OR DATA STORED SUCH THAT IT IS RETRIEVABLE BY COMPUTER, AND ALL OTHER WRITINGS OR RECORD INGS OF ANY KIND. 'DOCUMENTS' SHALL ALSO MEAN COPIES OF DOCU MENTS EVEN THOUGH THE ORIGINALS THEREOF ARE NOT IN THE POSSES- SION, CUSTODY, OR CONTROL OF APPLICANTS.

FOR THE PURPOSES OF THESE INTER ROGATORIES, A DOCUMENT SHALL BE DEEMED TO BE WITHIN APPLICANTS' 'CONTROL' IF APPLICANTS HAVE OWNERSHIP, POSSESSION, OR CUSTO DY OF THE DOCUMENT OR COPY THERE OF, OR HAVE THE RIGHT TO SECURE THE DOCUMENT OR COPY THEREOF FROM ANY PERSON OR PUBLIC OR PRI VATE ENTITY HAVING PHYSICAL POS SESSION THEREOF.

WHEN IDENTIFICATION OF A DOCU MENT IS REQUESTED, BRIEFLY DES CRIBE THE DOCUMENT, I.E., LETTER MEMORANDUM, BOOK, PAMPHLET, ETC. AND STATE THE FOLLOWING INFORMA TION AS APPLICABLE TO THE PARTI CULAR DOCUMENT: NAME, TITLE, NUMBER, AUTHOR, DATE OF PUBLICA

TION AND PUBLISHER, ADDRESSEE, DATE WRITTEN OR APPROVED, AND THE NAME AND ADDRESS OF THE PERSON(S) HAVING POSSESSION OF THE DOCUMENT.

13-1. STATE THE NAME, PRESENT OR LAST KNOWN ADDRESS, PRESENT OR LAST KNOWN EMPLOYER, AND EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS OF EACH PERSON KNOWN TO YOU TO HAVE FIRST-HAND KNOWLEDGE CONCERNING THE PRODUCTION, RELEASE, AND COMBUSTION OF HYDROGEN IN A DEGRADED CORE ACCIDENT, AND THE EFFECT OF SUCH COMBUSTION ON CONTAINMENT INTEGRITY AND SURVIVAL OF EQUIPMENT WITHIN CONTAINMENT.

13-2. (A) STATE THE NAME, TITLE, EMPLOYER, AND EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS OF EACH PERSON YOU INTEND TO CALL AS A WITNESS ON ISSUE NO. 8.
(B) STATE THE SUBJECT MATTER ON WHICH EACH SUCH PERSON IS EXPECTED TO TESTIFY.
(C) STATE THE SUBSTANCE OF THE FACTS AND OPINIONS TO WHICH EACH SUCH PERSON IS EXPECTED TO TESTIFY.
(D) STATE A SUMMARY OF THE GROUNDS FOR SUCH OPINIONS, AND IDENTIFY ALL DOCUMENTS UPON WHICH EACH SUCH PERSON WILL RELY TO SUBSTANTIATE SUCH OPINIONS.

13-3. IDENTIFY EACH AND EVERY CONSULTANT (AND EMPLOYEES, ASSOCIATES, CONTRACTORS, OR OTHER AGENTS OF EACH CONSULTANT) WHICH APPLICANTS HAVE EMPLOYED OR OTHERWISE ENGAGED OR RELIED UPON TO PROVIDE ASSISTANCE OR SERVICES PERTAINING TO THE GENERATION, RELEASE, AND COMBUSTION OF HYDROGEN IN A DEGRADED CORE ACCIDENT, AND THE EFFECT OF SUCH COMBUSTION ON CONTAINMENT INTEGRITY AND THE SURVIVAL OF EQUIPMENT IN CONTAINMENT. FOR EACH SUCH CONSULTANT, DESCRIBE THE SERVICES PROVIDED, AND IDENTIFY ANY STUDIES, REPORTS, ANALYSES, OR OTHER DOCUMENTS GENERATED BY THE CONSULTANTS PERTAINING TO THE SUBJECT MATTER OF ISSUE NO. 8.

13-4. IDENTIFY ALL DOCUMENTS IN YOUR POSSESSION, CUSTODY, OR CONTROL, INCLUDING ALL RELEVANT PAGE CITATIONS, PERTAINING TO THE GENERATION, RELEASE, AND COMBUSTION OF HYDROGEN IN A DEGRADED CORE ACCIDENT AND THE EFFECT OF SUCH COMBUSTION ON CONTAINMENT INTEGRITY AND SURVIVAL OF EQUIPMENT IN CONTAINMENT.

13-5. IDENTIFY ALL DOCUMENTS WHICH YOU INTEND TO OFFER AS EXHIBITS OR WHICH YOU INTEND TO USE DURING CROSS-EXAMINATION ON ISSUE NO. 8 IN THIS PROCEEDING.

13-6. IDENTIFY EACH AND EVERY PROBABILISTIC RISK ASSESSMENT, INCLUDING BUT NOT LIMITED TO ANY MINI-PRA PERFORMED BY OR FOR APPLICANTS, UPON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE NO. 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8.

13-7. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, EVALUATION, ASSESSMENT, OR OTHER SUCH DOCUMENT PREPARED FOR OR BY MISSISSIPPI POWER AND LIGHT, UPON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE # 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8.

13-8. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, ASSESSMENT, EVALUATION, OR OTHER SUCH DOCUMENT PREPARED BY OR FOR THE HYDROGEN CONTROL OWNERS GROUP, ON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE # 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8.

13-9. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, ASSESSMENT, REPORT, EVALUATION, OR OTHER SUCH DOCUMENT PREPARED BY OR FOR THE IDCOR PROGRAM, UPON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE # 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8.

13-10. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, ASSESSMENT, EVALUATION, OR OTHER SUCH DOCUMENT PREPARED BY OR FOR THE GENERAL ELECTRIC CO., ON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE # 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8.

13-11. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, ASSESSMENT, EVALUATION, OR OTHER SUCH DOCUMENT PREPARED BY OR FOR THE BWR OWNERS GROUP, ON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR ITS DEFENSE ON ISSUE # 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8.

13-12. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, ASSESSMENT, EVALUATION, OR OTHER SUCH DOCUMENT PREPARED BY OR FOR THE NUCLEAR REGULATORY COMMISSION, UPON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE # 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8.

13-13. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, ASSESSMENT, EVALUATION, OR OTHER SUCH

DOCUMENT PREPARED BY OR FOR THE ELECTRIC POWER RESEARCH INSTITUTE (EPRI), ON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART FOR THEIR DEFENSE ON ISSUE # 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8.

13-14. IDENTIFY EACH AND EVERY PROGRAM OF RESEARCH, AND THE RESULTS, CONCLUSIONS, AND EVALUATIONS THEREOF (AND ALL RELATED DOCUMENTATION) CONDUCTED BY OR FOR EPRI, UPON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART FOR THEIR DEFENSE ON ISSUE # 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8.

13-15. IDENTIFY EACH AND EVERY PROGRAM OF RESEARCH, AND THE RESULTS, CONCLUSIONS, AND EVALUATIONS THEREOF (AND ALL RELATED DOCUMENTATION) CONDUCTED BY OR FOR NRC, UPON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART FOR THEIR DEFENSE ON ISSUE # 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8.

13-16. IDENTIFY ANY OTHER PROGRAM OF RESEARCH, AND THE RESULTS, CONCLUSIONS, AND EVALUATIONS THEREOF (AND ALL RELATED DOCUMENTATION) CONDUCTED BY OR FOR ANY ENTITY, UPON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE # 8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE # 8. IDENTIFY IN EACH CASE THE PERSON OR ENTITY CONDUCTING AND SPONSORING THE RESEARCH.

13-17. FOR EACH OF THE ABOVE INTERROGATORIES 13-6 THROUGH 13-16, IDENTIFY WHETHER THE DOCUMENTS OR RESEARCH WILL BE RELIED UPON BY APPLICANTS OR IS MERELY RELEVANT TO ISSUE # 8.

13-18. IDENTIFY EACH AND EVERY COMPUTER CODE, SIMULATION, OR MODEL WHICH WILL BE RELIED UPON BY APPLICANTS, IN WHOLE OR PART, TO EVALUATE THE GENERATION, RELEASE, TRANSPORT, AND COMBUSTION OF HYDROGEN IN A DEGRADED CORE ACCIDENT, AND THE EFFECT OF SUCH COMBUSTION ON CONTAINMENT INTEGRITY AND THE SURVIVAL OF EQUIPMENT IN CONTAINMENT. FOR EACH SUCH CODE IDENTIFIED,

(A) DESCRIBE THE CODE'S PURPOSE AND METHODOLOGY;

(B) STATE WHEN AND BY WHOM IT WAS DEVELOPED;

(C) IDENTIFY ANY AVAILABLE DOCUMENTATION OF THE CODE;

(D) STATE WHETHER THE RESULTS ARE SENSITIVE TO INPUT VALUES OR ASSUMPTIONS, USER OPTIONS, TIME STEP SIZE OR OTHER FACTORS;

(E) STATE WHETHER THE CODE IS

AVAILABLE IN THE PUBLIC DOMAIN;
(F) STATE THE USAGE OF THE CODE (NUMBERS AND TYPES OF USERS);
(G) STATE WHETHER THE CODE HAS UNDERGONE INDEPENDENT EVALUATION OR REVIEW AND WHETHER IT HAS BEEN VERIFIED WITH EXPERIMENTAL DATA.

13-19. LIST ALL 'ESSENTIAL EQUIPMENT' LOCATED IN THE DRYWELL OR CONTAINMENT WHICH APPLICANTS INTEND TO EVALUATE FOR ITS CAPABILITY TO SURVIVE HYDROGEN BURNING.

13-20. LIST ALL EQUIPMENT LOCATED IN THE DRYWELL OR CONTAINMENT WHICH IS USED TO :
1. MAINTAIN CONTAINMENT INTEGRITY; 2. MITIGATE THE CONSEQUENCES OF AN ACCIDENT;
3. MAINTAIN THE CORE IN A SAFE CONDITION; 4. MONITOR THE COURSE OF AN ACCIDENT.

13-21. (A). DO APPLICANTS HAVE IN THEIR POSSESSION (OR IN THE POSSESSION OF ANY OF THEIR AGENTS) A THREE-DIMENSIONAL SCALE MODEL OF THE PNPP MARK III CONTAINMENT AND THE STRUCTURES AND COMPONENTS WITHIN?
(B). IF SO, IDENTIFY THE LOCATION OF SUCH MODEL.
(C). IF NOT, IDENTIFY ANY OTHER MODEL OF THE CONTAINMENT WHICH APPLICANTS POSSESS.

13-22. IDENTIFY ALL PENETRATIONS OF THE CONTAINMENT PRESSURE BOUNDARY; FOR EACH PENETRATION IDENTIFIED, GIVE:
(A). ITS NUMBER AND LOCATION IN THE CONTAINMENT SHELL;
(B). TYPE (ELECTRICAL, MECHANICAL, VACUUM BREAKER, VALVE, OR HATCH) AND FUNCTION OR SYSTEM
(C). SIZE OF THE PENETRATION;
(D). HOW CONTAINMENT ISOLATION IS ACHIEVED;
(E). WHETHER THE PENETRATION USES ORGANIC, POLYMERIC, OR RESILIENT SEALANTS, GASKETS, SEATS, OR SEALS;
(F). A DESCRIPTION OF THE TYPE OF REINFORCEMENT AROUND THE PENETRATION;
(G). WHETHER THE PENETRATION WAS ANALYZED IN THE PNPP ULTIMATE STRUCTURAL CAPACITY OF MARK III CONTAINMENTS REPORT, AND IF NOT, WHY NOT.

13-23. IDENTIFY EACH TYPE OF ORGANIC, POLYMERIC, OR RESILIENT SUBSTANCE USED AS A SEALANT, GASKET, SEAT, OR SEAL OR OTHERWISE RELIED UPON TO MAINTAIN THE INTEGRITY OF THE CONTAINMENT PRESSURE BOUNDARY. FOR EACH SUBSTANCE IDENTIFIED, STATE WHERE AND HOW IT IS USED, WHETHER IT IS FLAMMABLE, WHETHER IT UNDERGOES THERMAL DEGRADATION OR

DECOMPOSITION (AND AT WHAT TEMPERATURE), AND TO WHAT TEMPERATURE THE MATERIAL OR COMPONENT USING THE MATERIAL HAS BEEN QUALIFIED. GIVE THE BASIS FOR YOUR ANSWERS.

13-24. IDENTIFY ALL CORRESPONDENCE OR COMMUNICATIONS BETWEEN APPLICANTS OR ANY OF THEIR AGENTS AND THE AMES LABORATORY OF IOWA STATE UNIVERSITY (OR ANY PERSON ACTING ON THE BEHALF OF AMES LABORATORY).

13-25. CONCERNING THE DOCUMENT ENTITLED 'ULTIMATE STRUCTURAL CAPACITY OF MARK III CONTAINMENTS' IDENTIFIED IN APPLICANTS' SUPPLEMENTAL ANSWER TO OCRE INTERROGATORY 5-49, GIVE THE DATE OF THE DOCUMENT, AND SUPPLY THE NAMES, ADDRESSES, EMPLOYERS, AND PROFESSIONAL QUALIFICATIONS OF ALL PERSONS RESPONSIBLE FOR ITS PREPARATION.

13-26. WHAT IS THE DOMINANT NATURAL FREQUENCY OF THE CONTAIN MENT STRUCTURE? OF THE DRYWELL? EXPLAIN HOW THIS WAS DETERMINED.

13-27. IDENTIFY ANY CALCULATIONS ANALYSES, EVALUATIONS, OR STUDIES PERFORMED BY OR FOR APPLICANTS TO DETERMINE THE CAPABILITY OF THE CONTAINMENT AND DRYWELL TO WITHSTAND LOADS RESULTING FROM HYDROGEN COMBUSTION IN COMBINATION WITH OTHER ACCIDENT LOADS, E.G., SAFETY RELIEF VALVE DISCHARGES AND CHUGGING LOADS.

13-28. IDENTIFY ANY STUDIES, CALCULATIONS, ANALYSES, OR EVALUATIONS PERFORMED BY OR FOR APPLICANTS TO DETERMINE THE LOADS IMPOSED ON THE DRYWELL AND THE STRUCTURES AND COMPONENTS THEREIN (AND THE CAPABILITY OF SUCH STRUCTURES AND COMPONENTS TO WITHSTAND THESE LOADS) BY THE FLOW OF THE SUPPRESSION POOL INTO THE DRYWELL DUE TO PRESSURE RESULTING FROM HYDROGEN COMBUSTION IN THE CONTAINMENT.

13-29. HAVE APPLICANTS IN THEIR ANALYSIS OF CONTAINMENT CAPACITY CONSIDERED THE VARIATION OF MATERIAL PROPERTIES WITH THE TEMPERATURES ASSOCIATED WITH HYDROGEN COMBUSTION? IF SO, IDENTIFY ALL SUCH ANALYSES. IF NOT, WHY NOT?

13-30. HOW DO APPLICANTS DEFINE CONTAINMENT FAILURE? STATE WHAT CRITERION (E.G., LEAKAGE, FRACTURE, DEFORMATION, ATTAINMENT OF A CERTAIN PRESSURE OR STRAIN) IS CONSIDERED CONTROLLING AND WHY.

13-31. IDENTIFY ALL CALCULATIONS ANALYSES, EVALUATIONS, OR STUDIES PERFORMED BY OR FOR AP-

PLICANTS CORRELATING LEAKAGE FROM THE CONTAINMENT WITH INTERNAL PRESSURE OR SHELL DEFORMATION.

13-32. IDENTITY ANY STUDY, EVALUATION, CALCULATION, OR ANALYSIS PERFORMED BY OF FOR APPLICANTS TO DETERMINE THE DEGREE OF LEAKAGE FROM ELECTRICAL PENETRATIONS, VACUUM BREAKERS, PURGE/VENT VALVES, HATCHES, AND AIRLOCKS DUE TO THE PRESSURES AND TEMPERATURES RESULTING FROM HYDROGEN COMBUSTION.

13-33. GIVE THE VALUE OF EACH VARIABLE IN THE EQUATIONS ON PP. 10 AND 11 OF ULTIMATE STRUCTURAL CAPACITY OF MARK III CONTAINMENTS REPORT USED TO SOLVE SAID EQUATIONS, AND EXPLAIN HOW THESE VALUES WERE OBTAINED.

13-34. IDENTIFY ALL SOURCES OF UNCERTAINTY IN ALL OF THE ASSUMPTIONS, JUDGEMENTS, CALCULATIONS, AND MODELS EMPLOYED IN THE ULTIMATE STRUCTURAL CAPACITY OF MARK III CONTAINMENTS REPORT, AND EXPLAIN WHAT EFFECT THEY HAVE ON THE RESULTS AND CONCLUSIONS THEREIN.

13-35. DID THE ANALYSIS OF STRUCTURAL CAPACITY INCLUDE THE EFFECTS OF DEFECIENCIES IN CONSTRUCTION AND FABRICATION OF THE CONTAINMENT VESSEL? IF SO, EXPLAIN HOW THESE EFFECTS WERE CONSIDERED. IF NOT, WHY NOT?

13-36. (A). WHAT IS THE NUMBER OF WELDS IN THE CONTAINMENT SHELL?
(B). DID EACH WELD UNDERGO TESTING OR EXAMINATION? IDENTIFY THE TYPES OF TESTING USED.
(C). IDENTIFY THE WELD PROCEDURE USED IN THE CONTAINMENT SHELL, AND ANY POST-WELD TREATMENTS USED.

13-37. HAVE APPLICANTS ANALYZED THE PNPP CONTAINMENT FOR GEOMETRICAL IRREGULARITIES OR ASYMMETRIES? IF SO, WITH WHAT RESULTS? IF NOT, WHY NOT?

13-38. (A). IDENTIFY ALL NONCONFORMING CONDITIONS IN THE CONTAINMENT VESSEL OR OTHER COMPONENTS RELIED UPON TO MAINTAIN THE INTEGRITY OF THE CONTAINMENT PRESSURE BOUNDARY.
(B). IDENTIFY WHICH OF THE ABOVE HAVE NOT BEEN CORRECTED, AND WHY NOT.

13-39. IDENTIFY ALL STUDIES, REPORTS, EVALUATIONS, OR CALCULATIONS PERFORMED BY APTECH ENGINEERING SERVICES CONCERNING THE PNPP CONTAINMENT OR OTHER COMPONENTS RELIED UPON TO MAINTAIN THE INTEGRITY OF THE CONTAINMENT PRESSURE BOUNDARY.

13-40. DID APPLICANTS IN THEIR ULTIMATE STRUCTURAL CAPACITY REPORT CONSIDER THE EFFECTS OF ANY CHANGES IN MATERIAL PROPERTIES OR THE CREATION OF RESIDUAL STRESSES RESULTING FROM WELDING OF THE CONTAINMENT VESSEL? IF SO EXPLAIN HOW THEY WERE ACCOUNTED FOR. IF NOT, WHY NOT?

13-41. DEMONSTRATE THAT THE CALCULATIONS AND METHODOLOGY EMPLOYED IN THE ULTIMATE STRUCTURAL CAPACITY REPORT ARE IN ACCORDANCE WITH THE PROVISIONS OF THE ASME CODE, SECTION III.

13-42. (A). WHEN AND BY WHOM WERE THE CONTAINMENT VESSEL MATERIALS (INCLUDING PENETRATIONS) MANUFACTURED OR SUPPLIED?
(B). STATE THE PERSON AND/OR ENTITY SUPPLYING THE MATERIAL CERTIFICATIONS FOR THE CONTAINMENT VESSEL AND PENETRATIONS THEREIN.
(C). STATE WHEN AND BY WHOM THE CONTAINMENT VESSEL (INCLUDING PENETRATIONS) WAS CONSTRUCTED.

13-43. IDENTIFY ALL PORTIONS OF THE CONTAINMENT VESSEL WHICH WERE HEAT TREATED. IDENTIFY ALL HEAT TREATING PROCEDURES USED.

13-44. EXPLAIN AND SUPPLY THE BASIS FOR THE FOLLOWING STATEMENT APPEARING ON P. 6 OF THE ULTIMATE STRUCTURAL CAPACITY REPORT: "SINCE THE YIELDING IN THE KNUCKLE OCCURS ONLY AT ONE POINT ALONG THE MERIDIAN, THE PRESSURE CAN BE INCREASED ABOVE 68.0 PSIG TO 78.0 PSIG, THE LEVEL AT WHICH HOOP BUCKLING OCCURS IN THE KNUCKLE."

13-45. EXPLAIN AND SUPPLY THE BASIS FOR THE STATEMENTS AT P. 7 OF THE ULTIMATE STRUCTURAL CAPACITY REPORT THAT LOCAL AREAS AT DISCONTINUITIES HAVING STRESSES EXCEEDING THE YIELD STRESS WILL NOT AFFECT VESSEL INTEGRITY BECAUSE THE STRESSES ARE ONLY ON THE INSIDE SURFACE OF THE VESSEL.

13-46. DO APPLICANTS CONSIDER THE PRESSURES IN PARENTHESES IN TABLES 5A AND 6B (SOME OF WHICH ARE QUITE LOW, E.G. MAIN STEAM PENETRATION) TO BE THE CONTROLLING PRESSURES FOR THE CONTAINMENT? EXPLAIN WHY OR WHY NOT.

13-47. EXPLAIN THE BASIS FOR THE FOLLOWING ASSERTIONS APPEARING ON P. 9 OF THE ULTIMATE STRUCTURAL CAPACITY REPORT:
(A). INITIAL YIELD PRESSURES CAN BE INCREASED IF THE PLASTIC ZONE IS LIMITED TO ONE RADIUS FROM THE PENETRATION SLEEVE. SPECIFICALLY EXPLAIN HOW SUCH LIMITATION OF THE PLASTIC ZONE CAN BE ASSURED.

(B). IT IS EXPECTED THAT THE VESSEL STRAINS RESULTING FROM ONE RADIUS YIELD REGION AROUND PENETRATIONS WOULD NOT RESULT IN OBJECTIONABLE DISTORTIONS. DEFINE OBJECTIONABLE DISTORTIONS, WITH REFERENCE TO PROPER AUTHORITY, AND EXPLAIN THE BASIS FOR YOUR EXPECTATION.

13-48. WERE HYDRODYNAMIC LOADS RESULTING FROM HYDROGEN COMBUSTION CONSIDERED IN THE ANALYSIS OF THE LOWER CONTAINMENT PENETRATIONS? IF NOT, WHY NOT?

13-49. IDENTIFY ALL DEFICIENCIES ASSOCIATED WITH THE INCLINED FUEL TRANSFER TUBE AND PENETRATION. INDICATE WHICH OF THESE DEFICIENCIES HAVE NOT BEEN CORRECTED, AND FOR EACH UNCORRECTED DEFICIENCY IDENTIFIED, EXPLAIN WHETHER IT HAD BEEN CONSIDERED IN THE ANALYSIS OF THE FUEL TRANSFER PENETRATION IN THE ULTIMATE STRUCTURAL CAPACITY REPORT, AND IF NOT, WHY NOT.

13-50. (A). EXPLAIN IN DETAIL THE POTENTIAL DEFECT REPORTED TO THE NRC UNDER 10 CFR 50.55(e) CONCERNING ELECTRICAL PENETRATION BULKHEAD MATERIAL.
(B). INDICATE WHETHER THE DEFECT ASSOCIATED WITH WESTINGHOUSE CLASS 1E ELECTRICAL PENETRATIONS HAS BEEN CONSIDERED IN THE ANALYSIS OF CONTAINMENT CAPACITY. IF NOT, WHY NOT?

13-51. (A). HAVE APPLICANTS PERFORMED AN ANALYSIS OF THE CAPABILITY OF THE DRYWELL WALL TO WITHSTAND A LOCAL DETONATION? IF NOT, WHY NOT?
(B). IF SO, WERE THE EFFECTS OF THE LARGE NUMBER OF CONCRETE EXPANSION ANCHOR BOLTS INSTALLED IN THE WALL AND THE VOIDS WHICH HAVE BEEN DISCOVERED IN THE WALL CONSIDERED? IF NOT, WHY NOT?

13-52. IN YOUR 5-10-84 LETTER TO THE NRC CONCERNING POST WELD HEAT TREATMENT OF CONTAINMENT ATTACHMENT WELDS (REPORTED UNDER 10 CFR 50.55(e)) YOU STATE THAT RING STIFFENER FLANGE TO WEB WELDS WOULD BE MODIFIED SO AS TO REMOVE THEM FROM THE ASME CODE JURISDICTIONAL BOUNDARY. EXPLAIN HOW THIS MODIFICATION WAS MADE (PROVIDING DRAWINGS AS APPROPRIATE) AND HOW THIS SOLVES THE PROBLEM. STATE WHAT EFFECT THE LACK OF POST WELD HEAT TREAT AND PREHEAT HAS ON THE CAPACITY OF THE CONTAINMENT TO WITHSTAND HYDROGEN COMBUSTION LOADS.

13-53. ARE THE PENETRATIONS USED IN THE DRYWELL WALL CONTAINMENT GRADE? IDENTIFY ALL THOSE PENETRATIONS IN THE DRYWELL WALL

WHICH ARE NOT CONTAINMENT GRADE OR WHICH ARE OF A LESSER GRADE, QUALITY, OR STANDARD THAN THOSE USED IN THE CONTAINMENT VESSEL.

13-54. IDENTIFY ALL PENETRATIONS IN THE DRYWELL WALL, AND FOR EACH GIVE:
(A). ITS NUMBER AND LOCATION IN THE DRYWELL WALL;
(B). TYPE (ELECTRICAL, MECHANICAL, VACUUM BREAKER, HATCH, ETC.) AND FUNCTION OR SYSTEM;
(C). SIZE OF THE PENETRATION;
(D). HOW ISOLATION IS ACHIEVED;
(E). WHETHER THE PENETRATION USES ORGANIC, POLYMERIC, OR RESILIENT SEALANTS, GASKETS, SEATS, OR SEALS.

13-55. IDENTIFY EACH TYPE OF ORGANIC, POLYMERIC, OR RESILIENT SUBSTANCE USED AS A SEALANT, GASKET, SEAT, SEAL OR OTHERWISE USED IN A DRYWELL PENETRATION. FOR EACH SUBSTANCE IDENTIFIED, STATE WHERE AND HOW IT IS USED, WHETHER IT IS FLAMMABLE, WHETHER IT UNDERGOES THERMAL DECOMPOSITION OR DEGRADATION (AND AT WHAT TEMPERATURE), AND TO WHAT TEMPERATURE THE MATERIAL OR COMPONENT USING THE MATERIAL HAS BEEN QUALIFIED. GIVE THE BASIS FOR YOUR ANSWERS.

13-56. WHAT IS THE AMOUNT OF DRYWELL LEAKAGE, IN SCFM, POST-LOCA FOLLOWING THE UPPER POOL DUMP, WITH THE HYDROGEN MIXING SYSTEM ON, AND CONSIDERING THE EFFECTS OF THE CONCRETE EXPANSION ANCHOR BOLTS, LEAKAGE THROUGH DRYWELL PENETRATIONS AND LINER AT POINTS WHERE THE ANCHOR BOLTS PENETRATE THE LINER AND THERMALLY-INDUCED CRACKING IN THE DRYWELL WALL. EXPLAIN THE BASES FOR THE ANSWER.

13-57. PROVIDE A DRAWING OF THE IGNITER ASSEMBLY WITH SPRAY/SPLASH SHIELD TO BE USED AT PNPP.

13-58. IDENTIFY ALL THOSE IGNITERS WHICH ARE PLACED BELOW OR IN CLOSE PROXIMITY TO CEILINGS, SLABS, FLOORS, I-BEAMS, OR OTHER OBSTRUCTIONS OR CONFINEMENTS.

13-59. IDENTIFY ALL EXPERIMENTS, TESTS, OR OTHER PHYSICAL RESEARCH ON HYDROGEN COMBUSTION WHICH HAVE BEEN CONDUCTED USING THE SAME TYPE OF IGNITER ASSEMBLY, INCLUDING SPRAY/SPLASH SHIELDS, TO BE USED AT PNPP, IN THE SAME GEOMETRICAL ARRANGEMENT WITH REGARD TO CEILINGS, SLABS, AND OBSTRUCTIONS AS CITED ABOVE.

13-60. IDENTIFY ALL EXPERIMENTS, TESTS, OR OTHER PHYSICAL RESEARCH OF WHICH APPLICANS ARE AWARE CONCERNING THE COMBUSTION OF HYDROGEN IN IONIZING RADIATION FIELDS.

13-61. IDENTIFY THOSE CONTAINMENT PENETRATIONS WHICH ARE NORMALLY KEPT INTERNALLY PRESSURIZED, AND STATE THE PRESSURE LEVEL.

13-62. IDENTIFY ALL ANALYSES OF CONTAINMENT PRESSURE AND TEMPERATURE RESPONSE TO HYDROGEN COMBUSTION FOR PNPP PERFORMED BY, FOR, OR TO THE KNOWLEDGE OF APPLICANTS, USING ANY OTHER COMPUTER CODE THAN CLASIX-3, OR USING ANY SCENARIOS, ASSUMPTIONS, INPUT VALUES OR OPTIONS OTHER THAN THE ONES EMPLOYED IN THE OFFSHORE POWER SYSTEMS REPORT, OPS-38A92, OCT. 7, 1982.

13-63. FOR THE 2 CLASIX-3 RUNS DESCRIBED IN OPS-38A92, PROVIDE THE FOLLOWING INFORMATION: A DETAILED SEQUENTIAL DESCRIPTION OF THE ACCIDENT SCENARIOS ANALYZED, INCLUDING THE TIMES OF ALL SIGNIFICANT EVENTS, BREAK SIZES, OPERATOR ACTIONS AND ERRORS, ECCS FLOW RATES, INITIAL POWER LEVEL AND DECAY HEAT ASSUMPTIONS, ETC.; AND THE BASIS FOR CHOOSING THESE SCENARIOS.

13-64. EXPLAIN WHY A DRYWELL BURN WAS NOT MODELED IN THE SORV TRANSIENT (OPS-38A92, P. 2). IF IT IS YOUR POSITION THAT HYDROGEN WILL NOT ACCUMULATE IN THE DRYWELL IN THE SORV TRANSIENT, DEMONSTRATE THAT THE CGCS COMPRESSORS OR LEAKS ACCOCIATED WITH THE HIGH POINT VENTS OR SAFETY RELIEF VALVE DISCHARGE LINES OR VACUUM BREAKERS WILL NOT INTRODUCE HYDROGEN INTO THE DRYWELL.

13-65. OPS-38A92, P. 2 STATES THAT MARCH CODE VALUES FOR HYDROGEN, STEAM, AND ENERGY RELEASE WERE MODIFIED FOR INPUT INTO CLASIX-3. CONCERNING THE MARCH ANALYSIS:

(A). STATE WHERE, WHEN, AND BY WHOM THE MARCH CODE RUNS WERE PERFORMED.

(B). STATE THE VERSION OF THE MARCH CODE USED.

(C). DESCRIBE IN DETAIL THE ACCIDENT SCENARIOS CONSIDERED IN THE MARCH ANALYSIS.

(D). IDENTIFY THE VALUE USED FOR EACH AND EVERY MARCH INPUT VARIABLE FOR EACH SCENARIO RUN.

(E). STATE WHEN EACH MARCH RUN WAS TERMINATED AND WHY THIS TIME WAS CHOSEN.

(F). EXPLAIN IN DETAIL HOW THE MARCH CODE RESULTS WERE "MODIFIED."

(G). WAS THE HYDROGEN SOURCE TERM FROM MARCH CONSIDERED CONSTANT OVER A TIME INTERVAL, OR WAS INTERPOLATION BETWEEN DATA POINTS USED? IF SO, EXPLAIN WHY AND WHAT TYPE OF INTERPOLATION WAS USED.

13-66. EXPLAIN WHY DRYWELL VACUUM RELIEF VALVES WERE NEGLECTED IN THE CONTAINMENT TO DRYWELL FLOW PATH (OPS-38A92, P. 3).

13-67. IDENTIFY THE "PRIOR ANALYSES" SHOWING THAT THE CONTAINMENT PRESSURE NEVER DROPS BELOW ATMOSPHERIC (JUSTIFICATION FOR NEGLECTING CONTAINMENT VACUUM RELIEF VALVES, OPS-38A92, P. 3).

13-68. DID THE OPS ANALYSIS CONSIDER THE APPARENT CONTRIBUTION TO CONTAINMENT PRESSURIZATION OF BELOW ATMOSPHERIC PRESSURES IN THE SHIELD BUILDING ANNULUS? IF SO, EXPLAIN HOW; IF NOT, WHY NOT?

13-69. EXPLAIN THE BASIS FOR THE ASSUMPTION (OPS-38A92, P. 4) THAT SHEET FLOW HAS HALF THE COOLING CAPABILITY OF DROPLET FLOW. INDICATE WHETHER THE ASSUMPTION HAS ANY BASIS IN EXPERIMENTAL DATA.

13-70. (A). DOES THE OPS REPORT ASSUME THAT BOTH CONTAINMENT SPRAY RHR LOOPS ARE OPERATING TO MITIGATE HYDROGEN BURNING? (B). RECONCILE THE ASSUMPTION THAT CONTAINMENT SPRAYS ARE AVAILABLE AND OPERABLE AFTER THE FIRST BURN (OPS-38A92, P. 4) WITH THE STATEMENT THAT REINSTATEMENT OF INJECTION SYSTEMS (I.E. RHR/LPCI MODE) OCCURS AT 6500 SECONDS INTO THE TRANSIENT (OPS-38A92, P. 2).

13-71. DEMONSTRATE THAT THE SIMULATION OF A DRYWELL SPRAY (OPS-38A92, P. 4) DOES NOT CREATE ARTIFICIAL RESULTS.

13-72. EXPLAIN THE BASIS FOR THE PASSIVE HEAT SINK NODE CRITERIA ON PP. 4-5 OF OPS-38A92.

13-73. WAS THE UPPER POOL DUMP ASSUMED TO FILL ANY PORTION OF THE HOLDUP VOLUME BEFORE REINSTATEMENT OF VESSEL INJECTION? IF SO, SPECIFY THE AMOUNT OF WATER IN THE DRYWELL POOL DUE TO THE UPPER POOL DUMP. IF NOT, WHY NOT?

13-74. WAS THE UPPER POOL DUMP ASSUMED TO CONDENSE ANY STEAM IN THE DRYWELL? IF SO, STATE WHETHER DRYWELL BURNING OCCURED AS A RESULT. IF NOT, WHY NOT?

13-75. RECONCILE THE ASSUMPTION THAT THE DRYWELL POOL WILL BE FORMED WITH EMERGENCY PROCEDURE GUIDELINES THAT INSTRUCT OPERATORS TO MAINTAIN VESSEL LEVEL BELOW LEVEL 8.

13-76. EXPLAIN THE BASES, INCLUDING SUPPORT FROM EXPERIMENTAL

DATA, FOR EACH AND EVERY BURN PARAMETER GIVEN IN TABLE 4 OF OPS-38A92.

13-77. EXPLAIN WHETHER THE INITIAL CONDITIONS IN TABLE 5 OF OPS-38A92 ARE PRE-BURN CONDITIONS OR ARE CONDITIONS EXISTING PRIOR TO THE TRANSIENT. IF THE FORMER, EXPLAIN WHY NO INCREASE IN CONTAINMENT PRESSURE, TEMPERATURE, OR STEAM FRACTION RESULTED FROM THE TRANSIENT; IF THE LATTER, EXPLAIN HOW PRE-BURN RISES IN TEMPERATURE, PRESSURE, AND STEAM AND HYDROGEN FRACTIONS ARE CALCULATED.

13-78. EXPLAIN THE BASES FOR THE FLOW PATH PARAMETERS GIVEN IN TABLE 6 OF OPS-38A92.

13-79. EXPLAIN WHETHER DRYWELL BYPASS LEAKAGE WAS MODELED IN THE CLASIX-3 ANALYSIS. IF NOT, WHY NOT?

13-80. EXPLAIN THE BASES FOR EACH AND EVERY PARAMETER LISTED IN TABLES 7 AND 8 OF OPS-38A92.

13-81. EXPLAIN THE BASES FOR EACH AND EVERY PARAMETER FOR THE CONTAINMENT/WETWELL SPRAY LISTED IN TABLE 9 OF OPS-38A92.

13-82. FOR THE CONTAINMENT SPRAY SYSTEM ACTUALLY INSTALLED IN PNPP,

(A). WHAT TYPE AND SIZE SPRAY NOZZLE IS USED?
(B). WHAT IS THE DISTRIBUTION OF SPRAY DROPLET SIZES PRODUCED BY THAT NOZZLE?
(C). WHAT IS THE SPRAY PATTERN DISTRIBUTION IN THE CONTAINMENT AT THE OPERATING FLOOR LEVEL? ANSWER FOR ONE AND BOTH SPRAY LOOPS OPERATING.

13-83. EXPLAIN THE BASES FOR THE PARAMETERS GIVEN IN TABLES 10, 11, 12, 13, AND 14 OF OPS-38A92.

13-84. WHAT IS "CHEMTREE"?

13-85. EXPLAIN THE BASES FOR THE PARAMETERS GIVEN IN TABLES 15 AND 16 OF OPS-38A92.

13-86. DESCRIBE AND QUANTIFY EACH SOURCE OF UNCERTAINTY IN EVERY INPUT PARAMETER USED IN THE OPS ANALYSIS.

13-87. DESCRIBE IN DETAIL ALL THE MODELING ASSUMPTIONS AND SIMULATIONS USED IN THE CLASIX-3 CODE FOR ALL PHENOMENA ASSOCIATED WITH HYDROGEN COMBUSTION, INCLUDING BUT NOT LIMITED TO GAS MIXING WITHIN AND BETWEEN COMPARTMENTS, FLAME SPEED, COMPLETENESS OF COMBUSTION, AND FLAME PROPAGATION LIMITS, AND HEAT TRANSFER.

13-88. DESCRIBE AND QUANTIFY ALL SOURCES OF UNCERTAINTY IN THE CLASIX-3 MODELING ASSUMPTIONS AND SIMULATIONS.

13-89. IDENTIFY ALL STUDIES, ANALYSES, EVALUATIONS, OR REPORTS PREPARED BY OR FOR APPLICANTS CONCERNING THE LIKELIHOOD, MAGNITUDE, AND EFFECTS OF SECONDARY FIRES WHICH MIGHT BE CAUSED BY THE COMBUSTION OF HYDROGEN.

13-90. (A). IDENTIFYANY AND ALL STUDY, EVALUATION, REPORT, OR ANALYSIS PREPARED BY OR FOR APPLICANTS CONCERNING THE LIKELIHOOD, MAGNITUDE, AND EFFECTS OF DETONATIONS, LOCAL OR GLOBAL, IN THE PNPP CONTAINMENT OR DRYWELL. (B). IF IT IS YOUR POSITION THAT DETONATIONS ARE IMPOSSIBLE OR IMPROBABLE, EXPLAIN THE BASES FOR THIS POSITION.

13-91. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, TEST, EXPERIMENT, EVALUATION OR OTHER SUCH DOCUMENT PREPARED BY OR FOR COMBUSTION AND EXPLOSIVES RESEARCH, INC. ON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE #8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE #8.

13-92. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, TEST, EXPERIMENT, EVALUATION OR OTHER SUCH DOCUMENT PREPARED BY OR FOR QUADREX CORP.
ON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE #8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE #8.

13-93. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, TEST, EXPERIMENT, EVALUATION OR OTHER SUCH DOCUMENT PREPARED BY OR FOR THE NUCLEAR SAFETY ANALYSIS CENTER (NSAC)
ON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE #8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE #8.

13-94. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, TEST, EXPERIMENT, EVALUATION OR OTHER SUCH DOCUMENT PREPARED BY OR FOR OFFSHORE POWER SYSTEMS (OPS) AND/OR WESTINGHOUSE
ON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE #8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE #8.

13-95. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, TEST, EXPERIMENT, EVALUATION OR OTHER

SUCH DOCUMENT PREPARED BY OR FOR ACUREX CORP. ON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE #8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE #8.

13-96. IDENTIFY EACH AND EVERY STUDY, ANALYSIS, REPORT, TEST, EXPERIMENT, EVALUATION OR OTHER SUCH DOCUMENT PREPARED BY OR FOR FACTORY MUTUAL RESEARCH CORP. ON WHICH APPLICANTS INTEND TO RELY, IN WHOLE OR PART, FOR THEIR DEFENSE ON ISSUE #8, OR WHICH IS OTHERWISE RELEVANT TO ISSUE #8.

13-97. IS DEPRESSION OF THE SUPPRESSION POOL LEVEL IN THE WETWELL ASSUMED TO MITIGATE THE PRESSURE RISES ASSOCIATED WITH HYDROGEN COMBUSTION? IF SO, TO WHAT DEGREE? PROVIDE THE BASIS FOR THE ANSWER.

13-98. IDENTIFY ANY BUCKLING ANALYSES OF THE MARK III CONTAINMENT OTHER THAN THE ONE IN THE ULTIMATE STRUCTURAL CAPACITY REPORT.

13-99. IDENTIFY ANY ANALYSES ON CONTAINMENT CAPACITY PERFORMED FOR OR BY APPLICANTS USING MINIMUM SPECIFIED MATERIAL PROPERTIES RATHER THAN ACTUAL MEASURED MATERIAL PROPERTIES.

13-100. IDENTIFY ANY AND ALL TESTIMONY, DECISIONS, ORDERS OR CONCLUSIONS IN ANY OTHER NRC PROCEEDING ON WHICH APPLICANTS TO RELY, IN WHOLE OF PART, FOR THEIR DEFENSE ON ISSUE #8.

13-101. IDENTIFY ANY AND ALL STUDIES OR EVALUATIONS PERFORMED BY OR FOR APPLICANTS CONSIDERING THE EFFECT OF LOADS ASSOCIATED WITH THE COMBUSTION OF HYDROGEN ON THE INACCESSIBLE AND POTENTIALLY REJECTABLE LOCATIONS IN CONTAINMENT WELD JOINTS 1-1, 2-1, 1-4, 1-7, AND 1-9.

13-102. (A). IDENTIFY ALL PARAMETERS IN THE CLASIX-3 CODE WHICH, AT THE USER'S OPTION, MAY EITHER BE CALCULATED INTERNALLY OR SUPPLIED IN THE INPUT.
(B). FOR EACH PARAMETER LISTED IN YOUR ANSWER TO (A), IDENTIFY WHICH METHOD WAS USED IN THE CLASIX-3 ANALYSIS FOR PNPP.
(C). EXPLAIN WHY THE CHOSEN METHOD WAS USED.
(D). EXPLAIN THE EFFECT ON THE RESULTS IF THE OTHER METHOD HAD BEEN USED INSTEAD.

13-103. DOES THE CLASIX-3 CONTAINMENT SPRAY MODEL ACCOUNT FOR (A). DISTRIBUTION OF SPRAY DROP-

LET SIZES;
(B). INTERACTIONS BETWEEN DROPLETS, E.G., AGGLOMERATION;
(C). DECREASE IN DROPLET SIZE DUE TO EVAPORATION;
(D). INCREASE IN DROPLET SIZE DUE TO CONDENSATION;
(E). FOR EACH PHENOMENON ABOVE WHICH IS MODELED IN CLASIX-3, EXPLAIN THE MODEL EMPLOYED; FOR EACH NOT MODELED, EXPLAIN WHY IT CAN BE IGNORED.

13-104. DID ANY CLASIX-3 ANALYSES FOR PNPP ASSUME THAT HYDROGEN IS BURNED AS IT IS ADDED OR RELEASED TO THE CONTAINMENT OR DRYWELL? IDENTIFY ALL SUCH ANALYSES AND EXPLAIN WHY THAT MODEL WAS EMPLOYED.

13-105. DOES CLASIX-3 MODEL FLAME PROPAGATION THROUGH VACUUM BREAKERS, THE DRYWELL PURGE SYSTEM, OR UNCOVERED POOL VENTS? IF SO, EXPLAIN THE MODELS USED; IF NOT, WHY NOT?

13-106. LIST THE VALUES OF ALL INPUT PARAMETERS (INCLUDING DEFAULT VALUES) USED IN CLASIX-3 ANALYSES OF PNPP, AND EXPLAIN WHY EACH VALUE WAS USED.

13-107. IDENTIFY ALL CLASIX-3 OUTPUTS, INCLUDING BUT NOT LIMITED TO CONTAINMENT CONDITIONS, HEAT SINK DATA, AND BURN MAXIMA DATA, PRODUCED FOR PNPP.

13-108. IDENTIFY ANY AND ALL ANALYSES PERFORMED FOR OR BY APPLICANTS OF INVERTED HYDROGEN FLAMES IN THE DRYWELL.

13-109. IDENTIFY ALL OPERATING PROCEDURES FOR TURNING OFF OR ALIGNING TO ANOTHER RHR MODE A CONTAINMENT SPRAY TRAIN ACTIVATED BY HIGH CONTAINMENT PRESSURE.

13-110. IDENTIFY ALL FLOORS, OBSTACLES, AND MAJOR ITEMS OF EQUIPMENT IN THE CONTAINMENT AND DRYWELL. FOR EACH, GIVE:
(A). THE ELEVATION AT WHICH IT IS LOCATED;
(B). SIZE AND MASS;
(C). MATERIAL FROM WHICH IT IS MADE;
(D). THE FRACTION OF AREA AT THE ELEVATION WHICH IS BLOCKED BY THE FLOOR OR ITEM.

13-111. FOR THE 1/20 SCALE HYDROGEN COMBUSTION TEST PROGRAM, DESCRIBE:
(A). PURPOSE OF THE TESTS;
(B). DETAILED DESIGN OF THE TEST FACILITY;
(C). LOCATION OF THE TEST FACILITY;

(D). SCALING OF THE FACILITY AND THE BASIS FOR USING THE SCALING MODEL;
(E). TESTS PERFORMED IN THE FACILITY;
(F). THE DATA OBTAINED FROM THE TESTS AND ANY ANALYSES OF THE TEST DATA;
(G). ANY CONCLUSIONS DRAUN FROM THE TESTS;
(H). ANY COMMENTS OR EVALUATIONS OF THE TESTS OR THE FACILITY BY THE NRC OR ANY NRC CONTRACTORS.

13-112. FOR THE 1/4 SCALE HYDROGEN COMBUSTION TEST PROGRAM, DESCRIBE:
(A). PURPOSE OF THE TESTS;
(B). DETAILED DESIGN OF THE TEST FACILITY;
(C). LOCATION OF THE TEST FACILITY;
(D). SCALING OF THE FACILITY AND THE BASIS FOR USING THE SCALING MODEL;
(E). TESTS PERFORMED IN THE FACILITY;
(F). THE DATA OBTAINED FROM THE TESTS AND ANY ANALYSES OF THE TEST DATA;
(G). ANY CONCLUSIONS DRAUN FROM THE TESTS;
(H). ANY COMMENTS OR EVALUATIONS OF THE TESTS OR THE FACILITY BY THE NRC OR ANY NRC CONTRACTORS.

13-113. (A). IDENTIFY ALL PERSONS RESPONSIBLE FOR THE ANSUERS TO THE ABOVE INTERROGATORIES; FOR EACH PERSON IDENTIFIED, LIST THE INTERROGATORIES ANSUERED BY THAT PERSON AND GIVE THE ADDRESS EMPLOYER, AND PROFESSIONAL QUALIFICATIONS OF THE PERSON;
(B). IDENTIFY ALL DOCUMENTS USED IN ANSUERING THE ABOVE INTERROGATORIES.

REQUEST FOR PRODUCTION OF DOCUMENTS

OCRE REQUESTS THAT APPLICANTS RESPOND IN URITING TO THE FOLLOUING REQUEST FOR PRODUCTION OF DOCUMENTS, AND PRODUCE THE ORIGINAL OR BEST COPY OF EACH OF THE DOCUMENTS REQUESTED BELOU AT A PLACE CONVENIENT TO OCRE. OCRE REQUESTS THAT APPLICANTS PRODUCE:
1. EACH AND EVERY DOCUMENT IDENTIFIED OR DESCRIBED IN THE ANSUERS TO THE INTERROGATORIES ABOVE;
2. DESIGN AND FABRICATION OF STEEL CONTAINMENT VESSELS AND RELATED ITEMS FOR REACTOR BUILDINGS 1 AND 2, PERRY NUCLEAR POUER PLANT, UNITS 1 AND 2, SP-660-4549-00 (REFERENCE 1 IN ULTIMATE STRUCTURAL CAPACITY REPORT);

3. DESIGN REPORT FOR UPPER AND LOWER PERSONNEL AIR LOCK, PERRY NUCLEAR POWER PLANT, UNITS 1 AND 2, SEPT. 8, 1982 (REFERENCE 8 IN ULTIMATE STRUCTURAL CAPACITY REPORT);

4. DESIGN REPORT FOR CONTAINMENT EQUIPMENT HATCH ASSEMBLY, PERRY NUCLEAR POWER PLANT, UNITS 1 AND 2, SEPT. 22, 1982 (REFERENCE 9 IN ULTIMATE STRUCTURAL CAPACITY REPORT).

IF ANY OF THE ABOVE REQUESTS CONCERN PROPRIETARY DOCUMENTS, PROVIDE THE DOCUMENTS PURSUANT TO AN APPROPRIATE PROTECTIVE AGREEMENT.

RESPECTFULLY SUBMITTED,

Susan L. Hiatt

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CERTIFICATE OF SERVICE

This is to certify that copies of the foregoing were served by deposit in the U.S. Mail, first class, postage prepaid, this 20th day of July, 1984 to those on the service list below.

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Susan L. Hiatt

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