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FIRE PROTECTION ACTION PLAN

STATUS SUMMARY REPORT

DATA FOR DECISIONS

MANAGEMENT BY OBJECTIVES

FOREWORD

THIS MANAGEMENT REPORT, "FIRE PROTECTION ACTION PLAN, STATUS SUMMARY REPORT" WAS ESTABLISHED BY THE EXECUTIVE DIRECTOR FOR OPERATIONS, TO PROVIDE INFORMATION FOR MONITORING AND DISPLAYING THE PROGRESS OF NRC ACTIVITIES RELATED TO FIRE PREVENTION AND PROTECTION.

IT UTILIZES DATA PERTAINING TO PROJECT PLANS, SCHEDULES, AND STATUS WHICH HAVE BEEN INTEGRATED INTO A NETWORK–BASED MANAGEMENT INFORMATION SYSTEM. AS PART OF THIS SYSTEM'S INITIAL DEVELOPMENT, INFORMATION HAS BEEN COLLECTED AND ANALYZED BY THE OFFICE OF PLANNING AND ANALYSIS FROM THE OFFICES OF STANDARDS DEVELOPMENT INSPECTION AND ENFORCEMENT, NUCLEAR REACTOR REGULATION, REGULATORY RESEARCH AND INTERNATIONAL AND STATE PROGRAMS.

THE PURPOSE OF THIS PUBLICATION IS TO PROVIDE A VEHICLE FOR REVIEW OF THE CURRENT STATUS AND OVERALL PROGRESS OF THE FIRE PROTECTION ACTION PLAN FROM A MANAGERIAL POINT OF VIEW. THUS, THIS REPORT IS A VEHICLE FOR CONSOLIDATING MULTIPLE OFFICE PLANS AND PROGRAMS INTO A SINGLE INTEGRATED MANAGEMENT PLAN FOR THE USE OF OFFICE DIRECTORS IN COORDINATING THEIR ACTIVITIES AS WELL AS FOR AN OVERVIEW FOR THE EXECUTIVE DIRECTOR AND THE COMMISSION.

SEVERAL OTHER MECHANISMS EXIST FOR THE COORDINATION OF FIRE PROTECTION EFFORTS BEING PERFORMED BY VARIOUS NRC OFFICES. THREE OF THEM ARE LISTED BELOW.

A "COORDINATING COMMITTEE" WITH MEMBERS REPRESENTING EACH OF THE OFFICES INVOLVED MEETS PERIODICALLY (AT LEAST QUARTERLY) TO IDENTIFY AND DISCUSS INTERFACE PROBLEMS WHICH ARE THEN RESOLVED THROUGH NORMAL MANAGEMENT CHANNELS.

A FIRE PROTECTION REVIEW GROUP WITH MEMBERS FROM THE DIVISION OF OPERATING REACTORS (DOR) AND THE DIVISION OF SYSTEMS SAFETY (DSS) ASSURES THAT THE FIRE PROTECTION EVALUATIONS BEING PERFORMED BY VARIOUS BRANCHES OF THESE TWO DIVISIONS ARE OF SIMILAR DEPTH AND ARE CONSISTENT WITH NRC REQUIREMENTS. THIS GROUP ALSO IDENTIFIES AND DISCUSSES INTERFACE PROBLEMS AND NEW CONCERNS WHICH MAY ARISE. MEETINGS ARE AS FREQUENT AS NECESSARY; ISSUES ARE RESOLVED THROUGH NORMAL MANAGEMENT CHANNELS.

THE ELECTRICAL STANDARDS AND FIRE PROTECTION REVIEW GROUP, WITH MEMBERS REPRESENTING THE OFFICES OF NUCLEAR REACTOR REGULATION, RESEARCH, INSPECTION AND ENFORCEMENT AND STANDARDS DEVELOPMENT, PROVIDES GUIDANCE FOR FIRE PROTECTION RESEARCH PROGRAMS TO ASSURE THAT THEY ARE DESIGNED TO MEET THE NEEDS OF THE VARIOUS USER OFFICES. THE GROUP MEETS AS NECESSARY.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

September 20, 1976

MEMORANDUM FOR: B. C. Rusche, Director, Nuclear Reactor Regulation
R. B. Minogue, Director, Standards Development
E. Volgenau, Director, Inspection and Enforcement
S. Levine, Acting Director, Nuclear Reactor Research

FROM: Lee V. Gossick
Executive Director for Operations

SUBJECT: NRC FIRE PROTECTION ACTION PLAN

Enclosed for your review is the first Working Draft of the NRC Fire Protection Action Plan.

During the course of the past year, a number of initiatives and recommendations have been formulated. These actions are at varying stages of implementation within the NRC. In order to establish a vehicle for coordinating and controlling this program, I have asked MIPC to develop an Action Plan to bring all the NRC activities together into a single integrated plan. In addition, I have asked the Operations Evaluation Division of MIPC to analyze and evaluate the program implementation and to assume the responsibility for following and updating the plan.

In that regard, I would appreciate your cooperation in making your staff personnel available to work with the MIPC Evaluation Staff to review the draft with respect to its adequacy and completeness. Please let me know which person or persons on your staff have the responsibility for this effort and who will be designated as contacts for MIPC.

Please review the attached first draft of the plan for adequacy and give me your recommendations concerning changes and additional items. I would like your response by October 5, 1976 so that a second draft can be issued shortly thereafter.

Lee V. Gossick
Executive Director for Operations

Enclosure:
As stated

cc:
See attached list

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INTRODUCTION

THE NRC FIRE PROTECTION ACTION PLAN HAS BEEN FORMULATED TO IMPLEMENT THE RECOMMENDATIONS ARISING FROM THE FIRE WHICH OCCURRED ON MARCH 22, 1975, AT THE TVA'S BROWNS FERRY NUCLEAR PLANT LOCATED NEAR ATHENS, ALABAMA.

FOLLOWING THE FIRE THE NRC LAUNCHED A THREE PHASE INVESTIGATION :

PHASE 1 CONSISTED OF THE OFFICE OF INSPECTION AND ENFORCEMENT'S INVESTIGATION OF EVENTS LEADING UP TO THE FIRE, THE FIREFIGHTING EFFORTS, THE SEQUENCE OF OPERATIONAL EVENTS, PROBLEMS EXPERIENCED WITH THE REACTORS, THE INTERACTION BETWEEN THE TWO REACTORS AND THE RESPONSE OF TVA, STATE AND LOCAL AUTHORITIES. THIS PHASE WAS COMPLETED ON JULY 25, 1975.

PHASE 2 CONSISTED OF THE EFFORTS OF THE OFFICE OF NUCLEAR REACTOR REGULATION TO ASSURE THAT A SAFE PLANT CONFIGURATION WAS ATTAINED AND MAINTAINED SUBSEQUENT TO THE FIRE. EFFORTS EXPENDED DURING THIS PHASE ALSO ASSURED THAT THE REMOVAL OF DAMAGED EQUIPMENT WAS DONE IN A SAFE MANNER AND ASSURED THAT TVA'S DESIGN CHANGES FOR THE RESTORATION OF THESE PLANTS TO OPERATIONAL STATUS WERE REVIEWED AND APPROVED.

PHASE 3 REQUIRED A SPECIAL REVIEW GROUP TO EVALUATE THE RESULTS OF THE VARIOUS INVESTIGATIONS AND OTHER INPUT IN ORDER TO DEVELOP APPROPRIATE RECOMMENDATIONS CONCERNING IMPROVEMENTS OF A GENERIC NATURE IN NRC TECHNICAL REQUIREMENTS, POLICIES AND PROCEDURES: ON FEBRUARY 21, 1976, A REPORT OF THE SPECIAL REVIEW GROUP ON BROWNS FERRY FIRE WAS ISSUED. ONE OF THE GROUP'S PRINCIPAL RECOMMENDATIONS STATED—"AS INDICATED IN THE DISCUSSIONS OF SEVERAL SPECIFIC TOPICS IN THIS REPORT, THERE IS PRESENTLY A NOTABLE LACK OF DEFINITIVE CRITERIA, CODES OR STANDARDS RELATED TO FIRE PREVENTION OR FIRE PROTECTION IN NUCLEAR POWER PLANTS. LIKEWISE, THE EXISTING CRITERIA COVERING SEPARATION OF REDUNDANT CONTROL CIRCUITS AND POWER CABLES NEED REVISION. THE REVIEW GROUP RECOMMENDS THAT DEVELOPMENT OR REVISION OF THE NEEDED STANDARDS AND CRITERIA RECEIVE A HIGH PRIORITY. THE GROUP ALSO RECOMMENDS THAT THE REGULATORY GUIDANCE REGARDING THE PROPER BALANCING OF THE THREE FACTORS IDENTIFIED AS DEFENSE - IN - DEPTH PRINCIPLES FOR FIRES IN SECTION I.4 OF THIS REPORT BE AUGMENTED.—"

THIS DEFENSE - IN - DEPTH PRINCIPLE IS AIMED AT ACHIEVING SAFETY THROUGH ADEQUATE BALANCE IN:

1. PREVENTING FIRES FROM STARTING.
2. DETECTING AND EXTINGUISHING ANY FIRES THAT DO START AND LIMITING THEIR DAMAGE.
3. DESIGNING THE PLANT TO MINIMIZE THE EFFECT OF FIRES ON ESSENTIAL FUNCTIONS.

PHASE 4 CONSISTS OF THE FIRE PROTECTION ACTION PLAN WHICH CONCERNS THE BROAD BASED ADOPTION AND ULTIMATE ENFORCEMENT OF REGULATORY FIRE PROTECTION.

BASICALLY THE ACTION PLAN HAS THREE GOALS:

1. IDENTIFICATION OF FACTORS WHICH CAN CAUSE FIRES AT NUCLEAR FACILITIES.
2. ASSESSMENT OF THE POTENTIAL IMPACT OF FIRE ON NUCLEAR REACTORS AT THE SITE AND OF THE BREACHING OF DEFENSES IN DEPTH.
3. ASSESSMENT OF THE RELATIONSHIP OF THE BROWNS FERRY FIRE IN TERMS OF THE NATIONWIDE NUCLEAR POWER PROGRAM.

THESE GOALS WILL BE ACHIEVED BY:

A. IMPLEMENTING THE SPECIAL REVIEW GROUP'S RECOMMENDATIONS RELATED TO:
   1. IMPROVED I & E PROCEDURES FOR PLANT FIRE PROTECTION INSPECTIONS AND EMERGENCY PLANNING AND RESPONSE,
   2. ONGOING FIRE TEST RESEARCH AND
   3. FIRE PROTECTION STANDARDS.

B. RE-EVALUATING THE FIRE PROTECTION PROGRAMS OF OPERATING PLANTS [1] AND PLANTS UNDER DESIGN OR CONSTRUCTION WITH RESPECT TO NRC FIRE PROTECTION GUIDELINES (APPENDIX A TO BRANCH TECHNICAL POSITION 9.5-1) WHICH INCORPORATES THOSE RECOMMENDATIONS OF THE SPECIAL REVIEW GROUP THAT ADDRESS PLANT SPECIFIC ITEMS.

[1] IT SHOULD BE BORNE IN MIND THAT THE PRESENT NRC REQUIREMENTS FOR FIRE PROTECTION IN NUCLEAR POWER PLANTS REPRESENT AN EXPANSION AND IMPROVEMENT OF GUIDELINES THAT WERE ALREADY IN EXISTENCE IN THIS AREA. THESE INCLUDED THE REQUIREMENTS STATED IN CRITERION 3 OF THE GENERAL DESIGN CRITERIA (APPENDIX A, 10 CFR PART 50) AND REGULATORY GUIDE 1.70.4 "ADDITIONAL INFORMATION—FIRE PROTECTION CONSIDERATIONS FOR NUCLEAR POWER PLANTS" WHICH WAS ISSUED IN 1974 AND REPLACED SECTION 9.5.1 OF REGULATORY GUIDE 1.70, *"STANDARD FORMAT AND CONTENT OF SAFETY ANALYSIS REPORTS FOR NUCLEAR POWER PLANTS"*. THEREFORE, PLANTS BUILT PRIOR TO 1975 WERE REQUIRED TO PROVIDE FIRE PROTECTION AND THE REVIEW OF THESE SYSTEMS WERE PART OF THE NORMAL LICENSING PROCESS.

THE REVISION OF THE STANDARD REVIEW PLAN 9.5.1 ON MAY 1, 1976, TO INCLUDE THE BRANCH TECHNICAL POSITION 9.5-1 (AND APPENDIX A TO BTP 9.5-1) AND THE DEVELOPMENT OF REGULATORY GUIDE 1.120 BROADENED THE CRITERIA AGAINST WHICH EVERY NUCLEAR POWER PLANT'S FIRE PROTECTION PROGRAM WILL HAVE TO BE EVALUATED. SOME PLANTS WILL *REQUIRE VERY FEW MODIFICATIONS TO MEET THE NEW CRITERIA WHILE THOSE REQUIRED FOR* OTHERS WILL BE MUCH MORE EXTENSIVE.

ACTION PLAN RECOMMENDATIONS

FIRE PROTECTION
ACTION PLAN RECOMMENDATIONS
(WITH A BRIEF DISCUSSION OF EACH RECOMMENDATION)

1. ESTABLISH FIRE PROTECTION STANDARDS, GUIDELINES AND CRITERIA

   This recommendation refers to the actions to be taken by the various NRC offices in upgrading the standards, guidelines and criteria used in the review of nuclear power plants for fire protection.

   Guidelines for fire protection program for future plants have been issued in BTP APCSB 9.5-1. Guidelines for fire protection program for plants 05/76 presently being reviewed, constructed or operated, have been issued. These guidelines are based on the BTP APCSB 9.5-1, modified as appropriate to provide alternative methods of achieving acceptable fire protection in areas where the preferred method is not cost effective and issued as Appendix A to the BTP.

2. DEVELOP STANDARDS FOR FIRE DETECTORS WITH AUGMENTATION WHEN IMPROVED MATERIALS BECOME AVAILABLE

   Standards development covered under recommendation No. 1.

   This recommendation involves evaluation, test and requirements for detectors suitable for the products of combustion expected from fires in nuclear power plants.

3. URGE NRC AND INDUSTRY STANDARDS GROUPS TO DEVELOP STANDARDS AND REQUIREMENTS FOR INSTRUMENTATION REQUIRED FOR OPERATOR

   Plant operators and supervisors need certain information to maintain the reactor in a safe condition. This recommendation relates to standardization of the information and instrumentation for providing it.

4. PROVIDE BETTER REGULATORY GUIDANCE FOR FIRE DETECTORS COVERING: REVIEW, UPGRADING, INSTALLATION FOR ALL PLANTS

   This recommendation relates to the assurance that all plants will have the proper fire detectors installed in the necessary locations.

5. AUGMENT REGULATORY GUIDANCE REGARDING PROPER BALANCE OF "DEFENSE IN DEPTH", I.E., OF:

   A. PREVENTING FIRES FROM GETTING STARTED

   B. DETECTING AND EXTINGUISHING QUICKLY SUCH FIRES AS THEY DO GET STARTED AND LIMITING THEIR DAMAGE

   C. DESIGNING THE PLANT TO MINIMIZE THE EFFECT OF FIRES ON ESSENTIAL FUNCTIONS

   This recommendation relates to the need for plants to be evaluated against the defense-in-depth concept as applied to fire protection.

6. DEVELOP PROCEDURES FOR LIMITING/CONTROL OF IGNITION SOURCES

   Ignition sources such as sparks, high temperatures, and smoking must be maintained at a minimum. This recommendation relates to guidance in this area.

7. DEVELOP GUIDANCE FOR SPECIFICATION OF QUALITY AND DESIGN REQUIREMENTS FOR WATER SPRINKLER SYSTEMS

   Professional fire protection engineering criteria such as National Fire Protection Association (NFPA) codes must be used for sizing and locating sprinkler systems.

8. DEVELOP PLAN FOR PERIODIC TESTING OF FIRE PROTECTION SYSTEMS INCLUDING INDIVIDUALS AND THEIR RESPONSIBILITIES. INCLUDE IN TECHNICAL SPECIFICATIONS.

   Equipment should be tested and individuals given practice drills under a definite plan of action.

9. MODIFY ENFORCEMENT PROGRAM TO PLACE RENEWED EMPHASIS ON "STOP-WORK" ENFORCEMENT ACTION

   Revise enforcement program to facilitate appropriate utilization of IE "stop-work" authority. This includes establishment of criteria for determining when work should be stopped. Criteria would include matters such as specific technical deficiencies and QA program breakdown. Internal IE procedures specifying review, approval, and implementation of "stop work" enforcement action and criteria for immediate action letters were incorporated.

10. NOTIFICATION OF LICENSEES

    This recommendation has been completed and relates to action by IE to notify all licensees of action required following the Browns Ferry Fire. Where appropriate, recommendations were sent by IE to NRR.

11. UPGRADE INSPECTION PROGRAM FOR FIRE PREVENTION/PROTECTION

    Fire Prevention/Protection inspection procedures were incorporated in the Operating Reactor Inspection Program on 9/5/75. Fire inspections pursuant to these procedures have been conducted at all licensed power reactors and will be repeated on an annual frequency. The procedures address all echelons of the defense-in-depth approach, and they have been uniformly applied at operating facilities regardless of individual licensee commitments in the areas of fire prevention, fire detection, fire fighting, measures to limit consequences, and emergency response.

    Fire Prevention/Protection inspections procedures applicable to nuclear power plants under construction and in the preoperational testing phases have also been issued. These inspections are keyed to construction and testing milestones established within the Reactor Inspection Program and are being conducted prior to operating license issuance as the designated milestones are achieved.

    Construction inspection procedures were revised to focus detailed attention on verifying conformance of electrical cables and terminations activities consistent with the licensee's QA program. Inspection requirements provide for sampling a comprehensive range of activities, including receipt, inspection, storage, handling, installation, testing, cable identification, wireway separation and protection, cable redundancy and separation, wireway loading, cable NDE after installation, design changes, and follow-up on deficiencies. These inspections are keyed to construction milestones, and as such are being conducted on plants under construction as the milestones are achieved.

12. EXPAND AND REFINE INSPECTION PROCEDURES PERTAINING TO LICENSEE FIRE PREVENTION/PROTECTION

    Revise procedures to reflect new/revised NRC criteria pertaining to fire protection systems, fire detectors, emergency breathing apparatus.

13. IMPROVE NRC PROCEDURES FOR SAFEY REVIEW OF INCIDENTS, CLARIFYING "LEAD RESPONSIBILITY" CONCEPT WITH POSSIBLE DESIGNATION OF A NAMED INDIVIDUAL IN CHARGE

    NRC needs to clarify whether IE or NRR will provide incident safety review, or if a joint effort, develop procedures for designating a "responsible person in charge".

ACTION PLAN RECOMMENDATIONS CONTINUED

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14. ANALYSIS OF INSPECTION PROGRAM

IE

An analysis of the reactor inspection program relative to the events associated with the Browns Ferry fire has been conducted within the Division of Reactor Inspection Programs, IE. The analysis focuses on the reactor inspection program at Browns Ferry Nuclear Power Plant prior to the fire and on licensee actions during the fire with respect to:

1. What was inspected, the results, and how resolved;
2. The inspection activities specified by the effective instructions for the operating reactors;
3. The inspection activities currently specified for operating reactors;
4. Whether direct or indirect causative factors of the fire were or could have been identified prior to the fire under the existing inspection program;
5. What revisions to the current inspection program should be incorporated to deter future recurrence or mitigate the consequences of similar events.

NRR

A safety evaluation with conclusions and recommendations will be issued on plants under construction and in design.

15. REEVALUATE PROCEDURES FOR RESOLUTION BY NRC OF MANAGEMENT ISSUES INVOLVING "POOR PRACTICE" FINDINGS BY INSPECTION

Existing IE procedures provide for this and are deemed adequate.

16. IMMEDIATE INSPECTIONS

Special inspections covering the installation of fire stops on electrical cables and penetration seals were completed at all operating power reactors in April-May 1975. A summary analysis of special IE inspections was forwarded to NRR. Inspection findings resulting in noncompliance with NRC requirements were resolved or are being resolved within the context of the existing inspection program.

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17. UTILIZATION OF SPECIAL EXPERTISE FOR FIRE INSPECTION

Experts are available in the fire protection industry, particularly in fire insurance companies. This recommendation relates to the use of such experts and to the possible training of NRC personnel to become proficient in fire protection engineering.

18. REVISE INSPECTION PROGRAM TO PLACE ADDITIONAL EMPHASIS ON LICENSEE "DEFICIENCY CORRECTION" AND GENERIC CORRECTIVE ACTION

Amplify the IE inspection effort for ensuring that the licensee has fully implemented corrective action when his QA controls indicate existence of a deficiency. This revision will be made to all phases of the inspection program.

19. EXPAND AND REFINE INSPECTIONS PROCEDURES PERTAINING TO LICENSE CONSTRUCTION/OPERATIONS INTERFACE ACTIVITIES

Amplify operations and operational preparedness inspection procedures to examine in depth the effectiveness of licensee measures relation to the control of construction-type activities that could impact on safety of operations. Examples of measures for effective control include:

1. Identification of interface work with regard to scope, location, affected systems, proximity to safety-related items, physical boundaries, structures, and operating staff involvement;
2. The extend of facility review group attention and any additional licensee inspection effort to identify hazards;
3. The extend of coordination, communication, and planning between operating staff and construction supervisors and operator authority to stop work where safety is jeopardized;
4. Operating staff knowledge of the type and location of work in progress and methods of promulation to operating staff of planned interface work;
5. Fire watch and work monitor requirements and physical separation and security practices.

Estimated completion will be within 6 months after publication of the criteria.

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20. EVALUATION OF INSURANCE COMPANY INSPECTION FINDINGS

IE Bulletin 75-04B dated 11/3/75 requested licensee to submit copies of the most recent insurance company inspection finding for evaluation. These reports are presently being evaluated. It is expected that the evaluation will be used as input to the establishment of additional NRC criteria pertaining to fire prevention and protection. The evaluation will also be reflected in revisions to the inspection program, as appropriate.

21. IMPROVE EXISTING NRC SEPARATION AND ISOLATION CRITERIA, I.E.,

A. DEVELOP NEEDED TECHNICAL INFORMATION

B. PROMOTE COOPERATION WITH OTHER ORGANIZATIONS

This recommendation relates to the need for definitive criteria on cable separation, tray separation, possible separate cable spreading rooms, etc.

22. ASSURE ADEQUACY OF ISOLATION AND SEPARATION CRITERIA AS IT RELATES TO:

A. SAFETY EQUIPMENT AND NON-SAFETY CIRCUITS

B. CONDUIT PROTECTION

C. CABLE SPREADING ROOM

Research will conduct tests to provide data for standard development and conduct screening tests on present materials.

NRR will develop guidance for evaluating present separation and isolation design features including corrective actions which may be needed.

BTP 9.5-1 in Section IV.D.3 recommends separate cable spreading room for each safety train cabling for new plant.

23. SEPARATE REDUNDANT MANUAL CONTROL SWITCHES BY SUITABLE FIRE BARRIERS

BTP 9.5-1* discusses separation of cables and circuits. The adequacy of existing separation requirements for redundant manual control switches will be evaluated. Suitable measures will be taken where necessary to correct identified deficiencies.

ACTION PLAN RECOMMENDATIONS CONTINUED

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24. CONSIDER PRACTICALITY OF PROVIDING SEPARATE CABLE SPREADING ROOMS FOR EACH DIVISION IN FUTURE PLANTS

    BTP 9.5-1* recommends separate cable spreading rooms for each safety division cabling for new plants. The recommendation is not applicable to operating plants, or plants in advanced stage of design and/or construction.

25. ESTABLISH FIRE ZONES TO ADEQUATELY ISOLATE REDUNDANT SAFETY EQUIPMENT

    BTP 9.5-1* provides fire protection guidelines with respect to defining and identifying fire zones for isolation of redundant safety equipment. Fire zones in operating plants will be evaluated on a case-by-case basis.

26. CONSIDER INDEPENDENCE OF NORMAL AND SAFETY SYSTEMS WHICH COULD COOL THE REACTOR

    BTP 9.5-1 contains guidance relating to separation and isolation of safety related systems for new plants. The independence of normal and safety systems for operating plants will be evaluated and backfitted as required on a case-by-case basis.

27. FOLLOW SANDIA AND NELPIA - UL PROGRAMS, AFTER COMPLETION OF THESE PROGRAMS, IMPLEMENT CHANGES IN EXISTING PLANTS WHERE SIGNIFICANT SAFETY IMPROVEMENT IS INDICATED

    The Sandia and Nelpia - UL test programs are outside the scope of BTP 9.5-1. However, the programs will be followed. Significant safety improvements that are developed from these tests will be incorporated in guidelines for new and operating plants as applicable.

28. DEVELOP TESTING METHODS AND SELECTION CRITERIA FOR MATERIALS

    BTP 9.5-1 recommends that the use of combustible material be permitted only when suitable non-combustible materials are not available.

    This recommendation relates also and more specifically to the development and testing associated with new materials.

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29. LIMIT AMOUNT AND NATURE OF COMBUSTIBLE MATERIALS USED IN PLANTS. INVESTIGATE USE OF FLAME RETARDANT COATINGS INCLUDING RESEARCH TESTING

    A survey of coating materials will be initiated to determine which materials will be studied and what is already known of the characteristics. Research and testing will be conducted in an attempt to determine performance variations because of application method variations and environmental differences as well as consistency of performance with age.

    Start a compilation of all combustible materials at water reactor power plants.

    This recommendation is primarily concerned with correcting unsatisfactory conditions in operating plants. The nature and amount of combustible material used in operating plants will be evaluated and appropriate measures taken to replace or reduce the fire hazard associated with its use.

30. REMOVAL/REPLACEMENT OF FLEXIBLE POLYURETHANE FOAM SEALS WHERE POSSIBLE

    This recommendation applies only to existing plants (being constructed or operated) that already have such seals installed. Such installed seals have been removed and replaced with suitable fire retardant materials.

31. DEVELOP STANDARD QUALIFICATION TEST TO RESOLVE UNCERTAINTIES OF FLAMMABILITY OF FIRE STOP MATERIALS

    Implementation of this recommendation may involve use of standard tests developed by NFPA, UL, Factory Mutual Engineering (FM), as well as those generated by RES, SD.

32. AIRBORNE PRODUCT STUDY

    RES

    A compilation of all combustible materials in a water reactor power plant will allow for hypothetical fires which then can provide a basis for determining the products released when heated or the products of combustion when burned.

    NRR

    BTP 9.5-1 states in Section IV.B.3(g) "To the extent practical, cable construction that does not give off corrosive or toxic gas while burning should be used." The recommendation is not applicable to operating reactors.

- 9 -

33. ASSESS AND UPGRADE ALL FIRE SYSTEMS AS NEEDED

    This recommendation refers to a review of all operating plants and plants under construction from a fire protection standpoint by comparing them against BTP 9.5-1 and Appendix A. A Safety Evaluation Report (SER) will be issued for each plant.

34. PROVIDE ONSITE/OFFSITE FIREFIGHTING COMPATIBILITY, I.E., FIRE HOSE CONNECTIONS

    NRR

    Has conducted a short range review of operating reactors for confirmation of adherence to FSAR commitments and assurance that plants meet minimum acceptable level of fire protection.

    IE

    Has incorporated the concept established by this recommendation in the IE inspection procedures for reactor facilities.

35. CONSIDER ADDITION OF FIRE STOPS AND SEALS IN EXISTING PLANT TO REDUCE SPREAD OF HAZARDOUS SUBSTANCES

    BTP 9.5-1 addresses the need for sealing fire barrier penetration for new plants. Operating plants will be reviewed to determine the need for additional fire stops and seals to reduce the spread of fire and hazardous combustion products.

36. PROVIDE FIXED EXTINGUISHING SYSTEMS, AUTOMATIC IF FEASIBLE, IN AREAS OF HIGH FLAMMABLE MATERIALS

    BTP 9.5-1 specifies the need for automatic fire extinguishing systems in areas with high combustible material loading. Automatic fixed fire extinguishing systems will also be required in operating plants in areas with high combustible material loading. Automatic fixed water sprinkler and/or spray system will be installed as required in new and operating plants to protect areas of high combustible material loading.

37. IN FUTURE PLANT DESIGN CONTINUE TO PROVIDE HIGH PRESSURE WATER SYSTEMS IN ALL PLANT AREAS, INCLUDING THOSE WITH SPRINKLER SYSTEMS

    BTP 9.5-1 recommends that interior manual hose stations should be able to reach any location with at least one effective hose stream for new plants. The recommendation is not applicable to operating plants.

ACTION PLAN RECOMMENDATIONS CONTINUED

- 10 -

38. CONSIDER DRAINAGE NEEDS AND POTENTIAL FOR WATER DAMAGE IN DESIGN OF WATER EXTINGUISHMENT SYSTEM

RES

Potential damage of using water on Class 1 (electrical) equipment fires will be evaluated.

NRR

BTP 9.5-1 specifically addresses in Section IV.B1.(i). the need for adequate drainage in new plants when water extinguishing systems are utilized. The needs for drainage and shielding or relocating equipment to prevent water damage will be considered when installing water extinguishing systems in operating plants.

39. ASSURE COMPATIBILITY OF SMOKE DETECTOR WITH ANTICIPATED PRODUCTS OF COMBUSTION

RES

Fire and smoke detection systems will be evaluated with emphasis on products of combustion. Provide a compilation of all combustible material in water reactor power plants. Hypothetical fires will then provide a basis for determining the products released when heated or the products of combustion when burned.

NRR

BTP 9.5-1 and Appendices state that fire detectors used should be of proper type and correctly located in each area. Deficient systems to be upgraded as needed.

40. REVIEW AND UPGRADE VENTILATION SYSTEMS, AND THEIR ISOLATION BY CUTOUT VALVES AND DAMPERS COMPATIBLE WITH RADIOACTIVE CONTAINMENT

Recognizes the desirability of maintaining ventilation during fire to remove smoke and toxic gases balanced by the sometimes conflicting requirement of containment. BTP 9.5-1 addresses these needs for new plants. A review will be made at operating plants of ventilation systems required to deal with fire and smoke consistent with the need to contain radioactive product.

41. CONSIDER MANUAL VALVE MANIPULATION CAPABILITY IN DESIGN OF ALL PLANTS

This recommendation applies to new plants and should be considered for fire protection system valves. Evaluation will be done to see where this recommendation can be extended to operating plants.

- 11 -

42. REVIEW AND UPGRADE, AS NEEDED, AVAILABLE BREATHING EQUIPMENT AND MEANS OF RECHARGING

It is necessary that the recharging equipment for self-contained breathing apparatus be capable of charging the air cylinders to their complete capacity.

43. PROVIDE ALTERNATE OR EMERGENCY POWER SUPPLIES FOR FIXED IN-PLANT RADIOLOGICAL MONITORING EQUIPMENT OR PROVIDE SUFFICIENT MANPOWER FOR USE OF PORTABLE MONITORS

Self explanatory.

44. STEEL CABLE TRAY COVERS APPEAR TO BE INADEQUATE FIRE BARRIERS

RES

Screening tests will be conducted on currently used barrier materials and designs. This will provide data that can be used to write a standard or guide.

NRR

BTP 9.5-1 does not recommend cable tray covers for new plants. Such covers will be one of several factors considered in evaluation of adequacy of separation of redundant safety cabling.

45. REEVALUATE REVISED BROWNS FERRY QA PROGRAM IN LIGHT OF EXPERIENCE OF FIRE, EXTEND TO ALL PLANTS

Self explanatory.

46. REVIEW ALL LICENSEE QA PROGRAMS AND UPGRADE NRC RELATED INSPECTION WITH RESPECT TO FIRE PREVENTION AND FIRE FIGHTING

BTP 9.5-1 discusses items required in a plant QA program relative to fire protection for new plants. Also, action is under way by NRR to upgrade the QA programs of all operating plants. In addition, emphasis dealing specifically with fire procedure and personnel will be accomplished during the overall fire safety review of each plant.

Inspections of plants will include this aspect of the fire protection area.

- 12 -

47. NRC'S LEAD AGENCY EFFORTS IN INTERAGENCY EMERGENCY PLANNING

IE

Continued participation by IE on the Steering Committee for the Federal Interagency Field Training Cadre is planned.

SP

Providing improved liaison with the States and their local governments at the NRC Regional Office level.

Development of standard drill and exercise scenarios for testing and evaluating radiological emergency response plans.

Development of an expanded Federal Interagency radiological emergency preparedness training program (operationally oriented) for State and local government personnel.

Exploration of a system to assist in the qualitative, quantitative evaluation of State and local government radiological emergency response plans.

Expand the field assistance effort to directly assist States and their local governments in the actual development or improvement of their Radiological Emergency Response Plans.

Complete the development of technical guidance such as protective action guides.

Expand the field assistance effort (Federal Interagency Field Assistance Cadre) to allow for an annual Federal critique of a radiological emergency response exercise in each State with an operating nuclear facility.

Development of Radiological Emergency Instrumentation Guidance for States and local governments.

48. EXPAND AND REFINE INSPECTION PROCEDURES PERTAINING TO LICENSEE EMERGENCY PLANNING, TRAINING, AND RESPONSE

Amplify operations and operational preparedness inspection procedures to include training and emergency planning for radiological emergencies. This should include examination of conduct of actual drills with full participation by all involved parties, specific qualification of emergency team members, LER feedback into training program, formal communications procedures, preassigned emergency duties and similar matters.

ACTION PLAN RECOMMENDATIONS CONTINUED

49. ALABAMA AND LOCAL GOVERNMENTS SHOULD REASSESS AND STRENGTHEN EMERGENCY NOTIFICATION METHODS AND PROCEDURES

    Evaluate the method and procedures for emergency notification of State and local government used by the various nuclear power plants. Evaluation of methods and procedures of notification between State and local government is not an NRC province, although advice and comments may be given.

50. PROVIDE "STANDBY" CLASSIFICATION IN EMERGENCY PLANS TO COVER INCIDENTS WITH POTENTIAL FOR TRIGGERING ONE OF FOUR MAJOR INCIDENT CLASSIFICATION CATEGORIES

    Following a fire or other incident, there may remain a potential for triggering an additional incident. Standby provisions must be included in emergency plans to cover this eventuality.

51. PROVIDE FOR ACCESS TO AND EGRESS FROM POTENTIALLY HAZARDOUS AREAS IN EMERGENCY EXIT PLANS

    NRR will review all plants, existing and future, to assure adequate access to and egress from potentially hazardous areas.

52. IDENTIFY NRC MANPOWER AVAILABILITY DURING EMERGENCIES

    Identify qualified NRC technical personnel available to assist the IE Incident Management Center team leader during emergencies. Incorporate names in Duty Officer Call List and develop procedures for calling personnel to duty.

53. PROVIDE FOR RAPID TRANSPORTATION OF PERSONNEL TO SITE IN EVENT OF EMERGENCY

    Alternative methods of transportation from home or Regional Office to the affected nuclear site at any hour are being evaluated. The objective is to assure dispatch of appropriate personnel within two hours after notification.

54. IMPROVE COMMUNICATIONS FACILITIES FOR QUICK RESPONSE TO INCIDENT

    An Incident Management Center (IMC) has been established in the IE Headquarters Office in Bethesda. The Center houses the existing communications equipment for incident management, which consists of telephones with arrangements for conference calls. During emergency periods, the NRC operators' services are available for assisting the IMC on an augmented basis. Four of the principal staff and the IE Duty Officers have been assigned papers for prompt response to messages. Two facsimile machines and communicating magnetic card typewriters are located within the IE offices. Procedures for notification of other agencies are in effect.

    Acquisition of communications facilities and development of procedures necessary to establish a link between Headquarters, Regions and the incident site remains to be accomplished. AT&T consultation for the discussion of operational needs and equipment has been arranged. Internal procedures are under development.

55. TVA EMERGENCY SPOKESMAN NEEDS TO USE MORE CAREFUL PHRASEOLOGY TO AVOID INCITING UNDUE ALARM IN OFFSITE AGENCIES

    It is obvious that this recommendation must be applied to all emergency spokesmen to preclude undue alarm and possible unnecessary precipitous action in the event of any emergency.

56. CONDUCT PERIODIC FIRE DRILLS AND INCLUDE ONSITE AND OFFSITE PERSONNEL AND ORGANIZATIONS THAT WOULD NORMALLY RESPOND TO FIRES

    BTP 9.5-1 recommends drills involving both onsite and offsite organizations and personnel be conducted at least annually. NRR will encourage such cooperative participation from all applicants and licensees.

    Drills for onsite organizations can and probably should be held more often than annually.

57. LICENSEE SHOULD INITIATE ADEQUATE REGULAR EXERCISES TO PROMOTE MAINTENANCE OF EMERGENCY RESPONSE CAPABILITY BY LOCAL GOVERNMENT

    This recommendation is important since personnel of local government and its organizations change. Implementation of the recommendation obviously requires cooperation from local government agencies.

    NRC State Programs and Research are developing standard drill and exercise scenarios.

TASK RESPONSIBILITY MATRIX

Recommendation	Offices Involved NRR	I&E	SD	RES	SP	Plant Specific[1] Items	Completed Items	Plant Specific Recommendations vs. BTP 9.5-1 Section
1. Establish Fire Protection Standards, Guidelines and Criteria	X		X					
2. Develop Standards for Fire Detectors with Augmentation when Improved Materials become Available			X	X				
3. Urge NRC and Industry Standards Groups to Develop Standards and Requirements for Instrumentation Required for Operator			X	X				
4. Provide Better Regulatory Guidance for Fire Detectors Covering: Review, Upgrading, Installation for all Plants	X		X	X		X		IV.A
5. Augment Regulatory Guidance Regarding Proper Balance of "Defense in Depth"	X		X			X		III.A
6. Develop Procedures for Limiting/Control of Ignition Sources	X	X	X				X	
7. Develop Guidance for Specification of Quality and Design Requirements for Water Sprinkler Systems.	X		X					
8. Develop Plan for Periodic Testing of Fire Protection Systems Including Individuals and their Responsibilities. Include in Technical Specifications.	X		X					
9. Modify Enforcement Program to Place Renewed Emphasis on "Stop-Work" Enforcement Action		X					X	
10. Notification of Licensees		X				X	X	III.C, IV.C.1
11. Upgrade Inspection Program for Fire Prevention/Protection		X					X	
12. Expand and Refine Inspection Procedures Pertaining to Licensee Fire Prevention/ Protection		X					X	
13. Improve NRC Procedures for Safety Review of Incidents, Clarifying "Lead Responsibility" Concept with Possible Designation of a Named Individual in Charge.		X					X	
14. Analysis of Inspection Program	X	X					X	
15. Reevaluate Procedures for Resolution by NRC of Management Issues Involving "Poor Practice" Findings by Inspection		X					X	
16. Immediate Inspection		X				X	X	IV.B.6 (Inspections)
17. Utilization of Special Expertise for Fire Inspection	X	X						
18. Revise Inspection Program to Place Additional Emphasis on Licensee "Deficiency Correction" and Generic Corrective Action		X					X	
19. Expand and Refine Inspections Procedures Pertaining to Licensee Construction/Operation Interface Activities		X					X	
20. Evaluation of Insurance Company Inspection Findings		X				X	X	Insurance Inspections
21. Improve Existing NRC Separation and Isolation Criteria	X		X	X				
22. Assure Adequacy of Isolation and Separation Criteria	X			X				
23. Separate Redundant Manual Control Switches by Suitable Fire Barriers	X					X		IV.D.3
24. Consider Praticality of Providing Separate Cable Spreading Rooms for Each Division in Future Plants	X						X	
25. Establish Fire Zones to Adequately Isolate Redundant Safety Equipment	X					X	X	III.C, IV.B. & Others
26. Consider Independence of Normal and Safety Systems which Could Cool the Reactor	X					X	X	III.C, IV.B. & Others
27. Follow Sandia and Nelpia - UL Programs, after Completion of These Programs, Implement Changes in Existing Plants Where Significant Safety Improvement is Indicated	X					X		IV.A
28. Develop Testing Methods and Selection Criteria for Materials	X						X	
29. Limit Amount and Nature of Combustible Materials Used in Plants. Investigate Use of Flame Retardant Coatings Including Research Testing.	X			X		X		Appendix A
30. Removal/Replacement of Flexible Polyurethane Foam Seals Where Possible	X					X	X	*Appendix A*
31. Develop Standard Qualification Test to Resolve Uncertainties of Flammability of Fire Stop Materials	X		X	X				
32. Airborne Product Study	X			X				
33. Assess and Upgrade all Fire Systems as Needed	X					X		IV.A
34. Provide Onsite/Offsite Firefighting Compatibility, i.e., Fire Hose Connections	X	X				X	X	IV.C.2
35. Consider Addition of Fire Stops and Seals in Existing Plants to Reduce Spread of Hazardous Substances	X					X		Appendix A

TASK RESPONSIBILITY MATRIX (Continued)

Recommendation	Office Involved NRR	I&E	SD	RES	SP	Plant Specific [1] Items	Completed Items	Plant Specific Recommendations [1] vs. BTP 9.5-1 Section
36. Provide Fixed Extinguishing Systems, Automatic if Feasible, in Areas of Highly Flammable Materials	X					X		III.B, IV.B.3, IV. D.1, 3
37. In Future Plant Design Continue to Provide High Pressure Water Systems in all Plant Areas, Including Those with Sprinkler Systems	X					X	X	IV.C.3
38. Consider Drainage Needs and Potential for Water Damage in Design of Water Extinguishment System	X			X		X		IV.B.1
39. Assure Compatibility of Smoke Detector with Anticipated Products of Combustion	X			X		X		III.C, IV.C.1
40. Review and Upgrade Ventilation Systems, and Their Isolation by Cutout Valves and Dampers Compatible with Radioactive Containment	X							
41. Consider Manual Valve Manipulation Capability in Design of all Plants	X					X		IV.C.3, & Others
42. Review and Upgrade, as needed, Available Breathing Equipment and Means of Recharging	X					X		IV.B.4
43. Provide Alternate or Emergency Power Supplies for Fixed In-Plant Radiological Monitoring Equipment or Provide Sufficient Manpower for Use of Portable Monitors	X					X		Beyond BTP - NRR will Review
44. Steel Cable Tray Covers Appear to be Inadequate Fire Barriers	X			X				
45. Reevaluate Revised Browns Ferry QA Program in Light of Experience of Fire, Extend to All Plants	X					X		IV.B.7
46. Review all Licensee QA Programs and Upgrade NRC Related Inspection with Respect to Fire Prevention and Fire Fighting	X	X				X	X	IV.B.7
47. NRC's Lead Agency Efforts in Interagency Emergency Planning		X			X		X	
48. Expand and Refine Inspection Procedures Pertaining to Licensee Emergency Planning, Training, and Response		X					X	
49. Alabama and Local Governments Should Reassess and Strengthen Emergency Notification Methods and Procedures	X					X		Local/State-Beyond BTP
50. Provide "Standby" Classification in Emergency Plans to Cover Incidents with Potential for Triggering one of four Major Incident Classification Categories	X		X			X		Beyond BTP
51. Provide for Access to and Egress from Potentially Hazardous Areas in Emergency Exit Plans	X					X		III.C
52. Identify NRC Manpower Availability During Emergencies		X					X	
53. Provide for Rapid Transportation of Personnel to Site in Event of Emergency		X					X	
54. Improve Communications Facilities for Quick Response to Incident		X					X	
55. TVA Emergency Spokesman Needs to use More Careful Phraseology to Avoid Inciting Undue Alarm in Offsite Agencies								
56. Conduct Periodic Fire Drills and Include Onsite and Offsite Personnel and Organizations that Would Normally Respond to Fires	X					X	X	IV.B.6
57. Licensee Should Initiate Adequate Regular Exercises to Promote Maintenance of Emergency Response Capability by Local Government	X			X	X	X		IV.A, IV.B.6, & Others

Plant Specific recommendations are those which require direct attention by licensees and review by NRR and/or inspection by I & E as opposed to recommendations requiring research and development or changes to regulations, standards or regulatory guides. In order to track those recommendations that are plant specific, it is necessary to show the relationship between the recommendations and the NRR Standard Review Plan and the Branch Technical Position on fire protection. NRR reviews the fire protection programs at nuclear reactor facilities using BTP 9.5-1 as the basis for writing a safety evaluation report (SER) for each plant.

This Matrix shows the various NRC office responsibilities for implementing the 57 recommendations and also indicates in which Section of the BTP that the substance of each plant specific recommendation is discussed. Most of them are covered by Sections III and IV.

ORGANIZATION: COMMISSION STAFF | STAFF: V. STELLO, R. FERGUSON | DATE: JANUARY 15, 1978

MBO SCHEDULE

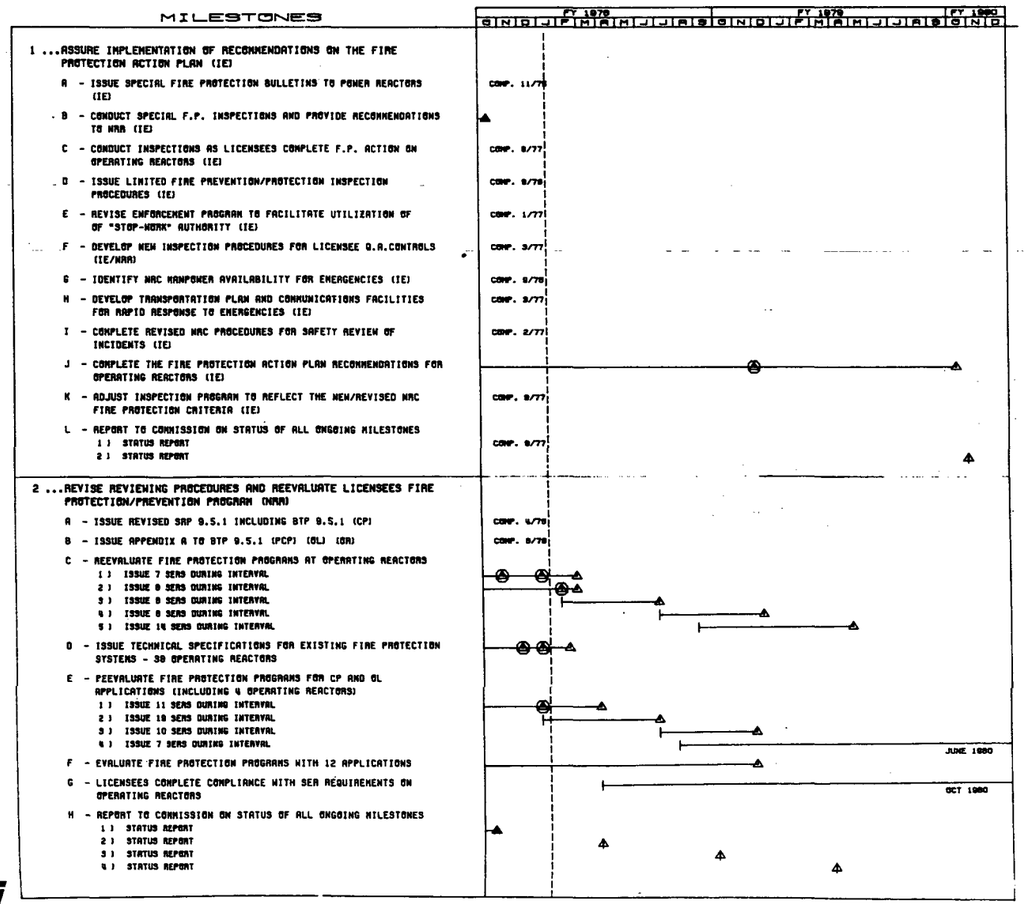
GOAL

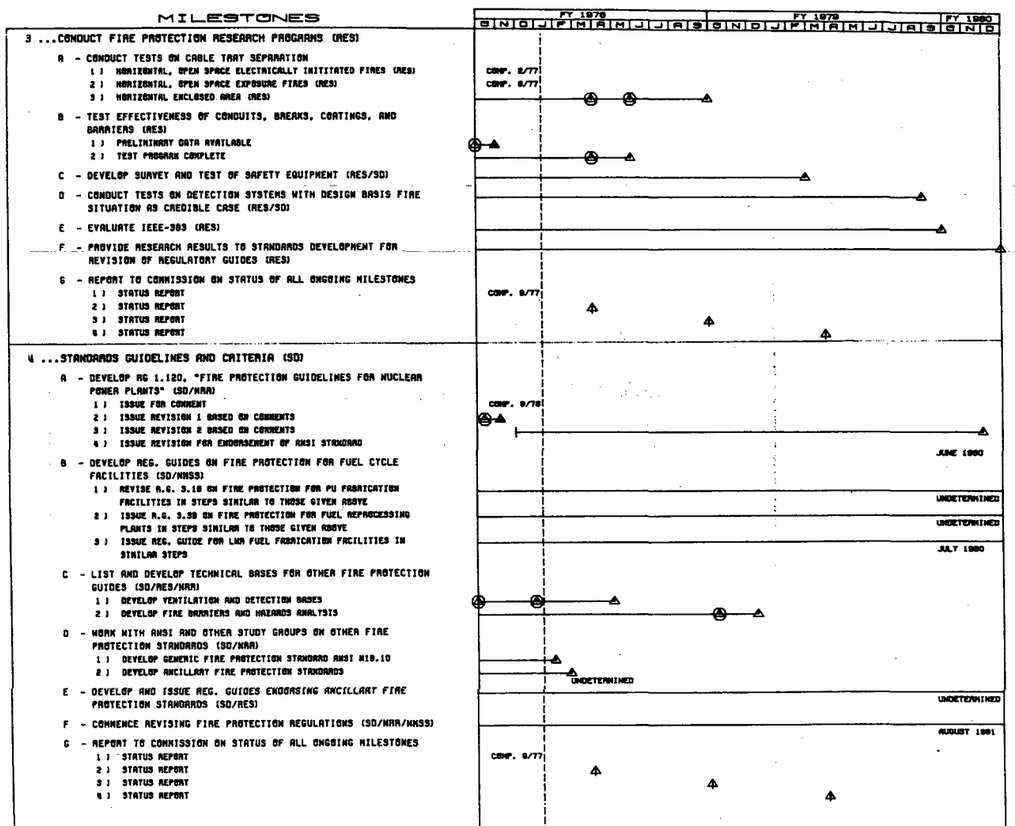
A - IMPROVE NRC'S EFFECTIVENESS IN ACHIEVING ITS MISSION THEREBY INCREASING THE BASIS FOR PUBLIC CONFIDENCE IN NUCLEAR REGULATION

OBJECTIVE

B - IMPLEMENT ON A TIMELY BASIS THE RECOMMENDATIONS FORMULATED IN THE REPORT ON THE BROWN'S FERRY FIRE

LEAD OFFICE . . . NRR





COMMENTS

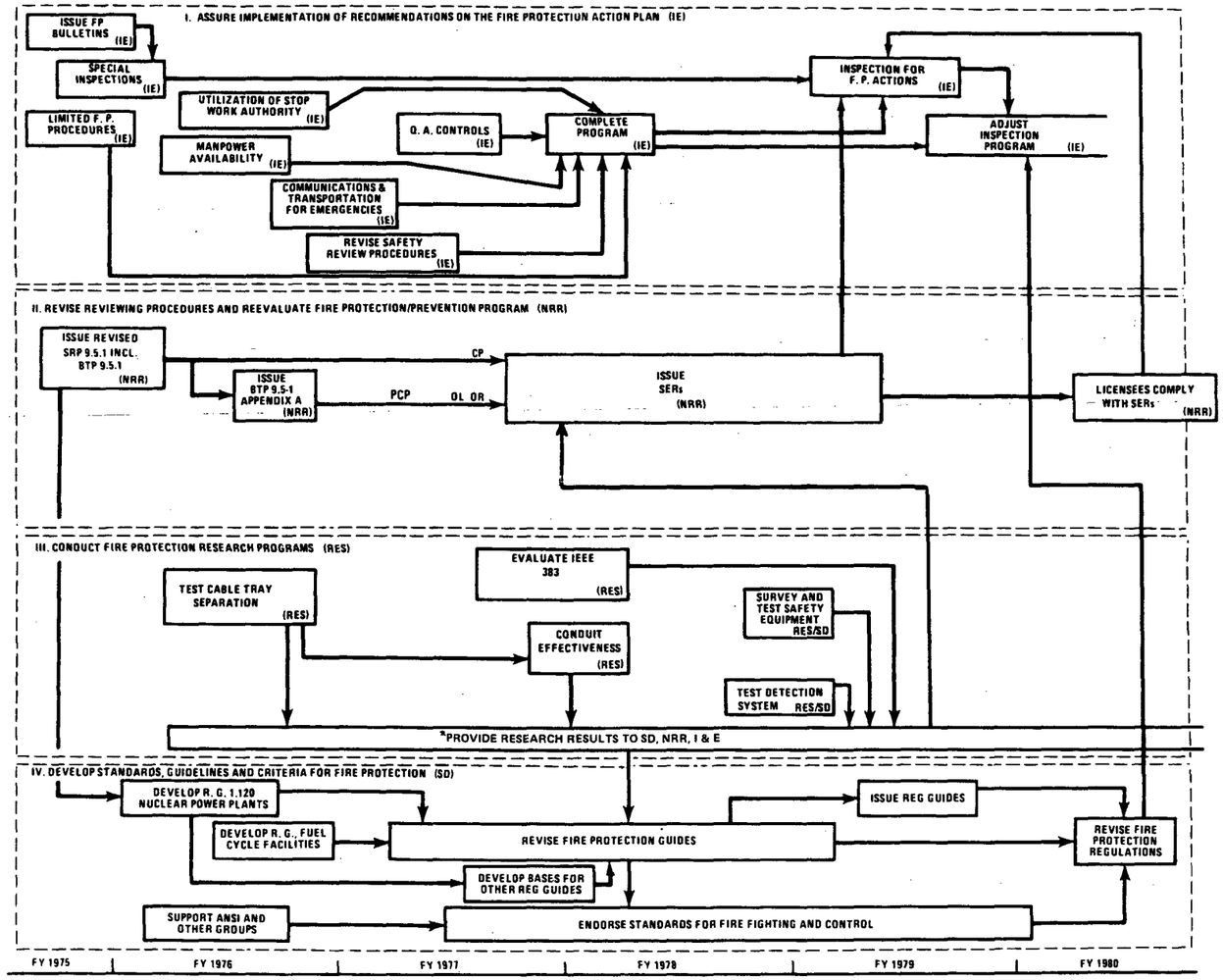
2.C. Intermediate milestones are experiencing delays; however, DOR expects to complete the actions by December 31, 1978.

4.C. Schedule delay due to insufficient contractor manpower during initial stages of study.

4.D.2 Schedule awaiting development of standards by ANSI.

4.F. Slip due to more work involved than anticipated.

MBO SCHEDULE



*RESEARCH RESULTS ARE PROVIDED VIA:

–QUICK LOOK REPORTS
–RESEARCH INFORMATION LETTERS (RIL)
–TOPICAL REPORTS

BRANCH TECHNICAL POSITION APCSB 9.5-1

GUIDELINES FOR FIRE PROTECTION FOR NUCLEAR POWER PLANTS

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(AS REFERENCED IN THE TASK RESPONSIBILITY MATRIX)

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  3. Hazardous Chemicals
  4. Materials Containing Radioactivity

V. Implementation of Branch Positions and Criteria

VI. References

The Table of Contents of APCSB 9.5-1 is reproduced here to illustrate the comprehensiveness of the NRC's requirements for fire protection in nuclear power plants. It also indicates the sections of the BTP in which the plant specific recommendations formulated by the Special Review Group are addressed.

RELATION OF REVISED TABLE OF CONTENTS OF APPENDIX A TO BTP 9.5-1 TO THOSE OF BTP 9.5-1 AND REG GUIDE 1.120

(APPENDIX A HAS BEEN REARRANGED TO FOLLOW THE SEQUENCE OF REG GUIDE 1.120)

TABLE OF CONTENTS BRANCH TECHNICAL POSITION 9.5-1	REVISED TABLE OF CONTENTS APPENDIX A TO BTP 9.5-1	TABLE OF CONTENTS REG. GUIDE 1.120
I. Definitions		
II. Introduction		A. Introduction
III. Discussion		B. Discussion
IV. Positions	Positions	C. Regulatory Position
A. Overall Requirements of a Nuclear Plant Fire Protection Program	A. Overall Requirements of Nuclear Plant Fire Protection Program	1. Overall Requirements of the Fire Protection Program
	B. Administrative Procedures, Controls and Fire Brigade	2. Administrative Procedures, Controls, and Fire Brigade
	C. Quality Assurance Program	3. Quality Assurance Program
B. General Guidelines for Plant Protection	D. General Guidelines for Plant Protection	4. General Plant Guidelines
1. Building Design	1. Building Design	a. Building Design
2. Control of Combustibles	2. Control of Combustibles	b. Control of Combustibles
3. Electrical Cable Construction, Cable Trays and Cable Penetrations	3. Electric Cable Construction, Cable Trays and Cable Penetrations	c. Electrical Cable Construction, Cable Trays, and Cable Penetrations
4. Ventilation	4. Ventilation	d. Ventilation
5. Lighting and Communications	5. Lighting and Communications	e. Lighting and Communications
6. Administrative Procedures, Controls and Fire Brigade		
7. Quality Assurance		
C. Fire Detection and Suppression	E. Fire Detection and Suppression	5. Fire Detection and Suppression
D. Guidelines for Specific Plant Areas	F. Guidelines for Specific Plant Areas	6. Guidelines for Specific Plant Areas
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V. Implementation of Branch Positions and Criteria		D. Implementation
VI. References		

SUMMARY OF LETTERS TO UTILITIES

LETTER A

LETTER A WAS TRANSMITTED ON MAY 11, 1976, TO ALL UTILITY COMPANIES OPERATING NUCLEAR POWER FACILITIES LICENSED BY THE COMMISSION PRIOR TO JULY 1, 1976. THE LETTER REQUESTED THE UTILITIES TO EXAMINE AND COMPARE THE EXISTING FIRE PROTECTION PROVISIONS AT EACH OF THEIR NUCLEAR FACILITIES WITH THE GUIDELINES IN THE REVISED STANDARD REVIEW PLAN 9.5.1. THE UTILITIES' RESPONSES CAN BE DIVIDED INTO TWO MAJOR PARTS: ONE PART IDENTIFIES THE ADMINISTRATIVE CHANGES THAT ARE PLANNED OR UNDERWAY; THE OTHER IDENTIFIES THE GUIDELINES IN SRP-9.5.1 WHICH ARE PRESENTLY MET, THOSE GUIDELINES WHICH ARE NOT NOW MET AND THOSE WHICH WILL NOT BE MET.

LETTER B

LETTER B WAS TRANSMITTED ON SEPTEMBER 30, 1976, TO ALL UTILITY COMPANIES OPERATING NUCLEAR POWER FACILITIES LICENSED BY THE COMMISSION PRIOR TO JULY 1, 1976. ENCLOSED WITH THE LETTER WAS A COPY OF APPENDIS A TO BRANCH TECHNICAL POSITION APCSB 9.5-I, 'GUIDELINES FOR FIRE PROTECTION FOR NUCLEAR POWER PLANTS DOCKETED PRIOR TO JULY 1, 1976,' WHICH PRESENTS ALTERNATIVES FOR OPERATING PLANTS TO THE POSITIONS GIVEN IN THE STANDARD REVIEW PLAN 9.5.1. THE LETTER STRESSED THAT THE UTILITIES' RESPONSES SHOULD INCLUDE THE RESULTS OF THE FIRE HAZARDS ANALYSIS PERFORMED FOR EACH UNIT AND TECHNICAL SPECIFICATIONS FOR THE PRESENT FIRE PROTECTION SYSTEMS.

LETTER C

LETTER C WAS TRANSMITTED ON MAY 3, 1976, TO ALL UTILITY COMPANIES INCLUDING THOSE HAVING APPLICATIONS FOR OPERATING LICENSES OR HAVING CONSTRUCTION PERMITS DOCKETED BY THE COMMISSION. THE LETTER SIMPLY TANSMITTED THE REVISED STANDARD REVIEW PLAN 9.5.1 AND ADVISED THE UTILITIES THAT IT WOULD BE USED BY THE NRC STAFF IN EVALUATING THE FIRE PROTECTION PROVISIONS OF THEIR NUCLEAR FACILITIES.

LETTER 1

LETTER 1 WAS TRANSMITTED ON SEPTEMBER 30, 1976, TO ALL UTILITY COMPANIES HAVING CONSTRUCTION PERMITS DOCKETED BY THE COMMISSION PRIOR TO JULY 1, 1976. THIS LETTER INCLUDED APPENDIX A TO BRANCH TECHNICAL POSITION APCSB 9.5-1 AND REQUESTED THAT ESSENTIALLY THE SAME INFORMATION BE SUBMITTED FOR NUCLEAR UNITS UNDER CONSTRUCTION THAT HAD BEEN REQUESTED FOR OPERATING UNITS VIA LETTERS A AND B. THAT IS, THEIR RESPONSES SHOULD INCLUDE THE FOLLOWING: A FIRE HAZARDS ANALYSIS FOR EACH UNIT; IDENTIFICATION OF THE GUIDELINES IN APPENDIX A THAT ARE PRESENTLY MET, THOSE GUIDELINES THAT ARE NOT NOW MET AND THOSE WHICH WILL NOT BE MET; PROPOSED REVISIONS TO THE TECHNICAL SPECIFICATIONS IN THE AREA OF FIRE PROTECTION SYSTEMS.

LETTER 2

LETTER 2 WAS TRANSMITTED ON SEPTEMBER 30, 1976, TO ALL UTILITY COMPANIES HAVING APPLICATIONS FOR CONSTRUCTION PERMITS DOCKETED BY THE COMMISSION. THE LETTER ENCLOSED APPENDIX A TO BRANCH TECHNICAL POSITION APCSB 9.5-I AND, WITH THE EXCEPTION OF PROPOSED REVISIONS TO THE TECHNICAL SPECIFICATIONS, LETTER 2 REQUESTED THE SAME INFORMATION AS LETTER 1.

Letter A

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

May 11, 1976

Docket No.

Gentlemen:

RE: PLANT UNIT

By letter dated May 3, 1976, from Roger S. Boyd, Director of the Division of Project Management, you were sent a copy of Standard Review Plan 9.5.1 "Fire Protection" dated May 1, 1976, which contains new guidelines for the NRC staff evaluations of fire protection in our review of future applications for nuclear power plant construction permits. To the extent reasonable and practicable, these guidelines also will be utilized in a reevaluation of the fire protection provisions of operating nuclear power plants. In order to begin such an evaluation of the fire protection provisions at your nuclear power plant, we request that you conduct an examination to compare the existing fire protection provisions at your facility with the guidelines in the Standard Review Plan.

This examination should:

(1) Identify the guidelines in Standard Review Plan 9.5.1 which are presently met, and discuss how this is done;

(2) Identify the guidelines for which modifications, procedural changes, or enhanced training of personnel are underway or planned, such that the guidelines will be met in the near future; and

(3) Indicate which of the guidelines you do not now meet or do not intend to meet in the future. For such items, you should provide a basis for your position.

Please respond within 20 days of receiving this letter to inform us when you will submit the requested information.

Carolina Power & Light Company - 2 - May 11, 1976

This request for generic information was approved by GAO under a blanket clearance number B-180225 (R0072), this clearance expires July 31, 1977.

Sincerely,

Victor Stello, Jr., Director
Division of Operating Reactors
Office of Nuclear Reactor Regulation

Letter B

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Docket No. September 30, 1976

Gentlemen:

RE: PLANT

In our letter dated May 11, 1976, we requested that you conduct an examination of your facility to compare its existing fire protection provisions with the guidelines in the Standard Review Plan 9.5.1, "Fire Protection," dated May 1, 1976, which included Branch Technical Position APCSB 9.5-1. We are enclosing a copy of Appendix A to Branch Technical Position APCSB 9.5-1, "Guidelines for Fire Protection For Nuclear Power Plants Docketed Prior to July 1, 1976" (Enclosure 1). This document presents certain acceptable alternatives for operating plants to the positions given in APCSB 9.5-1. We are sending this to you for your information because we will be using Appendix A in our evaluation of your plant.

After reviewing the licensee submittals made to date in response to our letter, we believe your initial response may not adequately present the results of your fire hazards analysis. We stress that in order to begin a re-evaluation of the fire protection program of your facility, you must perform a fire hazards analysis with the assistance and technical direction of a qualified fire protection engineer. In order for us to evaluate your fire hazards analysis we require that you submit the results in sufficient detail. To provide further guidance, we are enclosing a copy of "Supplementary Guidance on Information Needed For Fire Protection Program Evaluation" (Enclosure 2). This document indicates the type of information that will enable us to evaluate the total fire hazards analysis for your facility. This type of information may or may not be included in the detailed point-by-point comparison with Standard Review Plan 9.5.1 depending upon how you present that information.

In addition, we request at this time that you propose Technical Specifications for your present fire protection systems and inform us of the date you intend to meet Section B of Appendix A "Administrative Procedures, Controls and Fire Brigade". Your presently scheduled submittal should include the information indicated by Enclosure 2 and proposed Technical Specifications for the fire protection systems of your facility.

Sincerely,

Karl R. Goller

Karl R. Goller, Assistant Director
for Operating Reactors
Division of Operating Reactors

Enclosures:
1. Appendix A to Branch Technical Position APCSB 9.5-1
2. Supplementary Guidance

Letter C

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 3 1976

Gentlemen:

The Nuclear Regulatory Commission has been evaluating the generic implications of the fire of March 22, 1975 at the Browns Ferry Nuclear Plant to identify appropriate improvements in NRC policies, procedures, and requirements in regard to fire protection. In February 1976, NRC published the report of a special review group, "Recommendations Related to Browns Ferry Fire," NUREG-0050. As part of the continuing NRC evaluation, the Office of Nuclear Reactor Regulation is issuing a revision (dated May 1, 1976) to Section 9.5.1 "Fire Protection" of the Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (NUREG-75/987). This revised plan will be used by the NRC staff in evaluating the acceptability of designs and procedures for fire protection for construction permit applications docketed after July 1, 1976. A copy is enclosed for your information and guidance.

To the extent reasonable and practicable, the guidelines provided in the revised SRP-9.5.1 also will be used by the staff in evaluating the fire protection provisions of operating plants, applications currently under review for construction permits and operating licenses, and future applications for operating licenses for plants now under construction. As we continue to develop more definitive criteria for the application of the SRP-9.5.1 guidelines, or acceptable alternatives, to the review of these plants you will be kept informed of our progress.

Sincerely,

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Enclosure

XX

Letter 1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SEP 3 0 1976

Gentlemen:

FIRE PROTECTION EVALUATION

By my letter dated May 3, 1976, you were sent a copy of revised Standard Review Plan Section 9.5.1, "Fire Protection," dated May 1, 1976. This revised SRP 9.5.1 contained new guidelines for the NRC staff evaluations of fire protection in our review of nuclear power plant construction permit applications docketed after July 1, 1976. The letter stated (1) that to the extent reasonable and practicable the guidelines in the revised SRP 9.5.1 will be used by the staff in evaluating fire protection provisions of operating plants, applications currently under review for construction permits and operating licenses, and future applications for operating licenses for plants now under construction; and (2) that you would be kept informed of our progress as we developed more definitive criteria or acceptable alternatives for the application of the SRP 9.5.1 guidelines to the review of these plants.

Enclosure 1 is Appendix A to Branch Technical Position APCSB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976," which gives alternative guidance and criteria acceptable to the staff to be utilized in a re-evaluation of the fire protection provisions of the

We request that you conduct a re-evaluation of the fire protection program of your nuclear power plant and compare, in detail, the fire protection provisions currently proposed for your facility(ies) with the guidelines in Appendix A to Branch Technical Position APCSB 9.5-1. In order to begin such a re-evaluation, it is necessary that you perform a fire hazards analysis of your facility with the assistance

SEP 3 0 1976

and the technical direction from a qualified fire protection engineer. In order for us to evaluate your fire hazards analysis, we require that you submit the results of your fire hazards analysis in the form described in Enclosure 2, "Supplementary Guidance on Information Needed for Fire Protection Program Evaluation."

Your re-evaluation should:

1. Identify the guidelines in Appendix A which are presently met and discuss how this is done;

2. Identify the guidelines for which modifications, procedural changes, or enhanced training of personnel are underway or planned, such that the guidelines will be met, and the date you intend to meet Section B of Appendix A, "Administrative Procedures, Controls and Fire Brigade;"

3. Indicate which of the guidelines you do not now meet or do not intend to meet in the future. For such items, you should provide a basis for your position; and

4. Provide proposed revisions to the Technical Specifications in the area of fire protection systems.

Please respond within 20 days of receipt of this letter to inform us when you will submit the requested information, forty (40) copies of which will be required for staff review.

This request for generic information was approved by GAO under a blanket clearance number B-180225 (R0072). This clearance expires July 31, 1977.

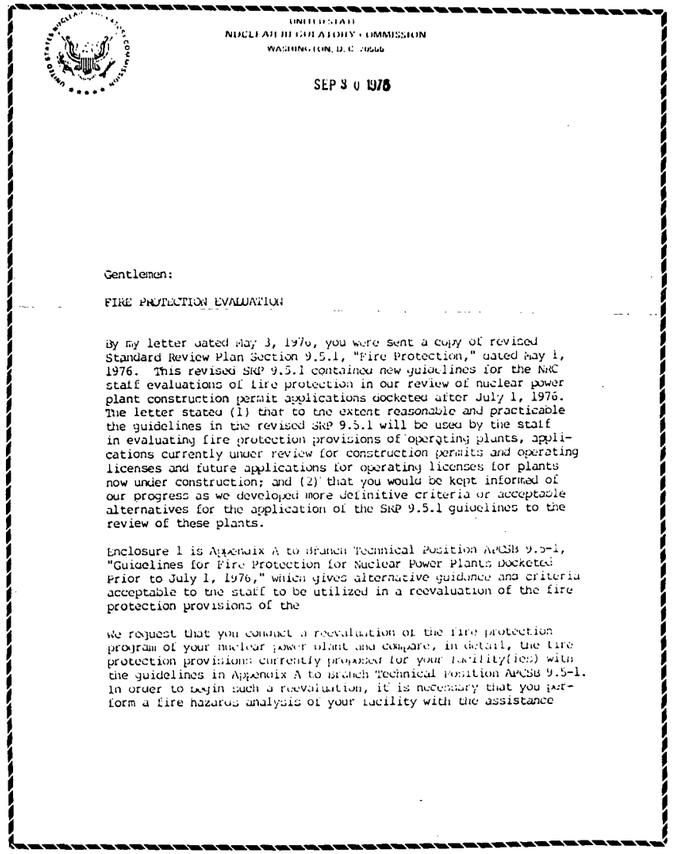
Sincerely,

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Enclosures:
1. Appendix A to Branch Technical Position APCSB 9.5-1
2. "Supplementary Guidance on Information Needed for Fire Protection Program Evaluation"

cc: See next page

Letter 2



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

SEP 3 0 1976

Gentlemen:

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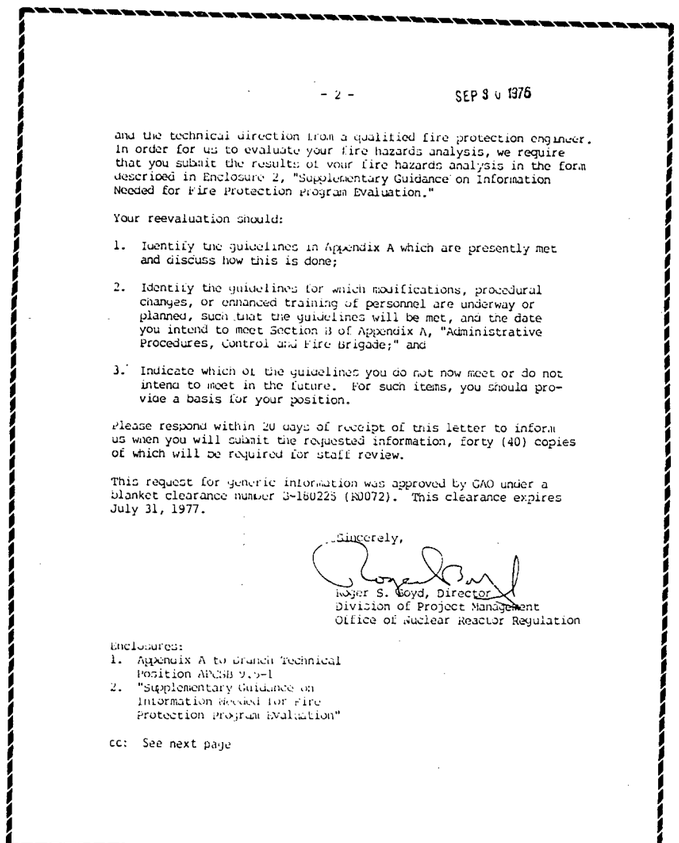
By my letter dated May 3, 1976, you were sent a copy of revised Standard Review Plan Section 9.5.1, "Fire Protection," dated May 1, 1976. This revised SRP 9.5.1 contained new guidelines for the NRC staff evaluations of fire protection in our review of nuclear power plant construction permit applications docketed after July 1, 1976. The letter stated (1) that to the extent reasonable and practicable the guidelines in the revised SRP 9.5.1 will be used by the staff in evaluating fire protection provisions of operating plants, applications currently under review for construction permits and operating licenses and future applications for operating licenses for plants now under construction; and (2) that you would be kept informed of our progress as we developed more definitive criteria or acceptable alternatives for the application of the SRP 9.5.1 guidelines to the review of these plants.

Enclosure 1 is Appendix A to Branch Technical Position APCSB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976," which gives alternative guidance and criteria acceptable to the staff to be utilized in a reevaluation of the fire protection provisions of the

We request that you conduct a reevaluation of the fire protection program of your nuclear power plant and compare, in detail, the fire protection provisions currently provided for your facility(ies) with the guidelines in Appendix A to Branch Technical Position APCSB 9.5-1. In order to begin such a reevaluation, it is necessary that you perform a fire hazards analysis of your facility with the assistance



and the technical direction from a qualified fire protection engineer. In order for us to evaluate your fire hazards analysis, we require that you submit the results of your fire hazards analysis in the form described in Enclosure 2, "Supplementary Guidance on Information Needed for Fire Protection Program Evaluation."

Your reevaluation should:

1. Identify the guidelines in Appendix A which are presently met and discuss how this is done;

2. Identify the guidelines for which modifications, procedural changes, or enhanced training of personnel are underway or planned, such that the guidelines will be met, and the date you intend to meet Section B of Appendix A, "Administrative Procedures, Control and Fire Brigade;" and

3. Indicate which of the guidelines you do not now meet or do not intend to meet in the future. For such items, you should provide a basis for your position.

Please respond within 20 days of receipt of this letter to inform us when you will submit the requested information, forty (40) copies of which will be required for staff review.

This request for generic information was approved by GAO under a blanket clearance number B-180225 (R0072). This clearance expires July 31, 1977.

Sincerely,

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Enclosures:
1. Appendix A to Branch Technical Position APCSB 9.5-1
2. "Supplementary Guidance on Information Needed for Fire Protection Program Evaluation"

cc: See next page

SECTION 1

OFFICE OF NUCLEAR REACTOR REGULATION

PLANT INDEX

CATEGORY I

PLANTS WHOSE FIRE PROTECTION PROGRAMS ARE BEING REVIEWED BY THE DIVISION OF OPERATING REACTORS. ALL PLANTS EXCEPT THOSE WITH ASTERISKS HAD OPERATING LICENSES AS OF JULY 1, 1976.

ARKANSAS 1
ARKANSAS 2*
BEAVER VALLEY 1
BIG ROCK POINT 1
BRUNSWICK 1* & 2
CALVERT CLIFFS 1 & 2*
CRYSTAL RIVER 3*
COOPER STATION
DRESDEN 1, 2, & 3
DUANE ARNOLD
FITZPATRICK
FORT CALHOUN
GINNA
HADDAM NECK
HUMBOLDT BAY
INDIAN POINT 1, 2, & 3
KEWAUNEE
LACROSSE
MAINE YANKEE
MILLSTONE POINT 1 & 2
MONTICELLO
NINE MILE POINT
OCONEE 1, 2, & 3
OYSTER CREEK
PALISADES
PEACH BOTTOM 2 & 3
PILGRIM
POINT BEACH 1 & 2
PRAIRIE ISLAND 1 & 2
QUAD CITIES 1 & 2
RANCHO SECO
ROBINSON 2
SAINT LUCIE 1
SAN ONOFRE 1
SURRY 1 & 2
THREE MILE ISLAND 1
THREE MILE ISLAND 2*
TROJAN
TURKEY POINT 3 & 4
VERMONT YANKEE
YANKEE ROWE
ZION 1 & 2

CATEGORY II

PLANTS WHOSE FIRE PROTECTION PROGRAMS ARE BEING REVIEWED BY THE DIVISION OF SYSTEMS SAFETY. ALL PLANTS EXCEPT THE OPERATING PLANTS, INDICATED BY DOUBLE ASTERISKS, HAD CONSTRUCTION PERMITS ISSUED AS OF JULY 7, 1976.

BAILLY
BEAVER VALLEY 2
BELLEFONTE 1 & 2
BRAIDWOOD 1 & 2
BROWNS FERRY 1, 2, & 3**
BYRON 1 & 2
CALLAWAY 1 & 2
CATAWBA 1 & 2
CLINTON 1 & 2
COMANCHE PEAK 1 & 2
COOK 1**
COOK 2
DAVIS BESSE 1
DIABLO CANYON 1 & 2
FARLEY 1 & 2
FERMI 2
FORKED RIVER
FORT ST. VRAIN**
GRAND GULF 1 & 2
HATCH 1**
HATCH 2
HOPE CREEK 1 & 2
LASALLE 1 & 2
LIMERICK 1 & 2
MCGUIRE 1 & 2
MIDLAND 1 & 2
MILLSTONE 3
NINE MILE POINT 2
NORTH ANNA 1 & 2
NORTH ANNA 3 & 4
PALO VERDE 1, 2, & 3
SALEM 1 & 2
SAN ONOFRE 2 & 3
SEABROOK 1 & 2
SEQUOYAH 1 & 2
SHOREHAM
SOUTH TEXAS 1 & 2
SUMMER 1
SURRY 3 & 4
SUSQUEHANNA 1 & 2
VOGTLE 1 & 2
WATERFORD 3
WATTS BAR 1 & 2
WPPSS 1
WPPSS 2
ZIMMER 1

CATEGORY III

PLANTS WHOSE FIRE PROTECTION PROGRAMS ARE BEING REVIEWED BY THE DIVISION OF SYSTEMS SAFETY. ALL PLANTS HAVE DOCKETED APPLICATIONS FOR CONSTRUCTION PERMITS BUT THEY HAVE NOT RECEIVED A CONSTRUCTION PERMIT.

ALLENS CREEK 1 & 2
ATLANTIC 1 & 2
BARTON 1 & 2
BLACK FOX 1 & 2
BLUE HILLS 1 & 2
CHEROKEE 1, 2, & 3
DAVIS BESSE 2 & 3
DOUGLAS POINT 1 & 2
GREENE COUNTY
GREENWOOD 2 & 3
HARRIS 1, 2, 3, & 4
HARTSVILLE 1, 2, 3, & 4
JAMESPORT 1 & 2
MARBLE HILL 1 & 2
MONTAGUE 1 & 2
PEBBLE SPRINGS 1 & 2
PERKINS 1, 2, & 3
PERRY 1 & 2
PHIPPS BEND 1 & 2
PILGRIM 2
RIVER BEND 1 & 2
ST. LUCIE 2
SKAGIT 1 & 2
STERLING
SUMMIT
TYRONE
WPPSS 3 & 5
WPPSS 4
WOLF CREEK
YELLOW CREEK
FORT CALHOUN 2
KOSHKONONG 1 & 2

SUMMARY OF NRR ACCOMPLISHMENTS

THE OFFICE OF NUCLEAR REACTOR REGULATION'S APPROACH TO FIRE PROTECTION IS TWO-FOLD AS REQUIRED BY THE FACT THAT THERE ARE PLANTS THAT ARE IN COMMERCIAL OPERATION AND PLANTS UNDER CONSTRUCTION OR UNDERGOING REVIEW FOR CONSTRUCTION PERMITS.

IN CONDUCTING THEIR REVIEW OF OPERATING PLANTS, THE DIVISION OF OPERATING REACTORS HAS ADOPTED A TEAM APPROACH WHEREBY FOUR TEAMS CONSISTING OF SPECIALISTS IN VARIOUS AREAS REVIEW THE FIRE PROTECTION PROGRAM AT EACH FACILITY, MAKE RECOMMENDATIONS, FORMULATE POSITIONS, CONFER WITH THE UTILITY AND PREPARE MATERIAL TO BE INCLUDED IN THE SAFETY EVALUATION REPORT FOR FIRE PROTECTION.

IN CONDUCTING THEIR REVIEW OF PLANTS THAT ARE NOT YET OPERATIONAL, THE DIVISION OF SYSTEMS SAFETY USES CONSULTANTS AND SPECIALISTS FROM VARIOUS BRANCHES TO PERFORM THE FIRE PROTECTION REVIEWS. HOWEVER THE REVIEWS ARE DONE SIMULTANEOUSLY WITH THE ONGOING REVIEWS OF APPLICATIONS FOR LICENSES AND PERMITS. IN THIS WAY, THE FIRE PROTECTION PROGRAM WILL EVENTUALLY BE ANOTHER ITEM IN THE APPLICATION THAT WILL REVIEWED IN THE NORMAL COURSE OF THE LICENSING PROCEDURE.

IN SUMMARY, SINCE THE OCCURRENCE OF THE BROWNS FERRY FIRE IN MARCH 1975, THE OFFICE OF NUCLEAR REACTOR REGULATION HAS IMPROVED ITS EXISTING FIRE PROTECTION REVIEW PROCESS AS IS SHOWN BELOW:

1. GUIDELINES

IMPROVED GUIDELINES HAVE BEEN ISSUED FOR

- –FIRE PROTECTION PROGRAMS IN BOTH NEW AND EXISTING NUCLEAR POWER STATIONS
- –FIRE HAZARDS ANALYSIS
- –TECHNICAL SPECIFICATIONS
- –CRITERIA FOR EVALUATING ALTERNATIVES TO NEW GUIDELINES.

2. EVALUATION PROCEDURES

THE EVALUATION PROCEDURES NECESSARY TO ACCOMPLISH THE FOLLOWING HAVE BEEN REVISED

- –IMPLEMENT THE NEW GUIDELINES IN ALL FACILITIES
- –UTILIZE MULTIDISCIPLINE REVIEW TEAMS TO ASSESS THE RELATIONSHIP OF FIRE PROTECTION PROGRAMS AND NUCLEAR SAFETY
- –DEDICATE REVIEW TEAMS TO THE EVALUATION OF REVISED FIRE PROTECTION PROGRAMS IN OPERATING REACTORS
- –REDUCE THE TIME AND CORRESPONDENCE REQUIRED TO COMPLETE THE EVALUATIONS.

3. FACILITY FIRE PROTECTION PROGRAMS

EACH LICENSEE HAS BEEN REQUESTED TO

- – REEVALUATE THE FIRE PROTECTION PROGRAM AT EACH EXISTING FACILITY IN ACCORDANCE WITH THE NEW GUIDELINES
- – PERFORM A FIRE HAZARDS ANALYSIS TO PROVIDE A BASIS FOR HIS FIRE PROTECTION PROGRAM
- – PROPOSE MODIFICATIONS DEEMED APPROPRIATE TO IMPROVE FIRE PROTECTION IN TERMS OF PROCEDURES AND PORTABLE AND FIXED SUPPRESSION SYSTEMS
- – PROPOSE TECHNICAL SPECIFICATIONS FOR FIRE PROTECTION SYSTEMS
- – PROPOSE A SCHEDULE FOR IMPLEMENTATION.

EACH APPLICANT HAS BEEN REQUESTED TO PERFORM SIMILAR TASKS FOR EACH NEW FACILITY.

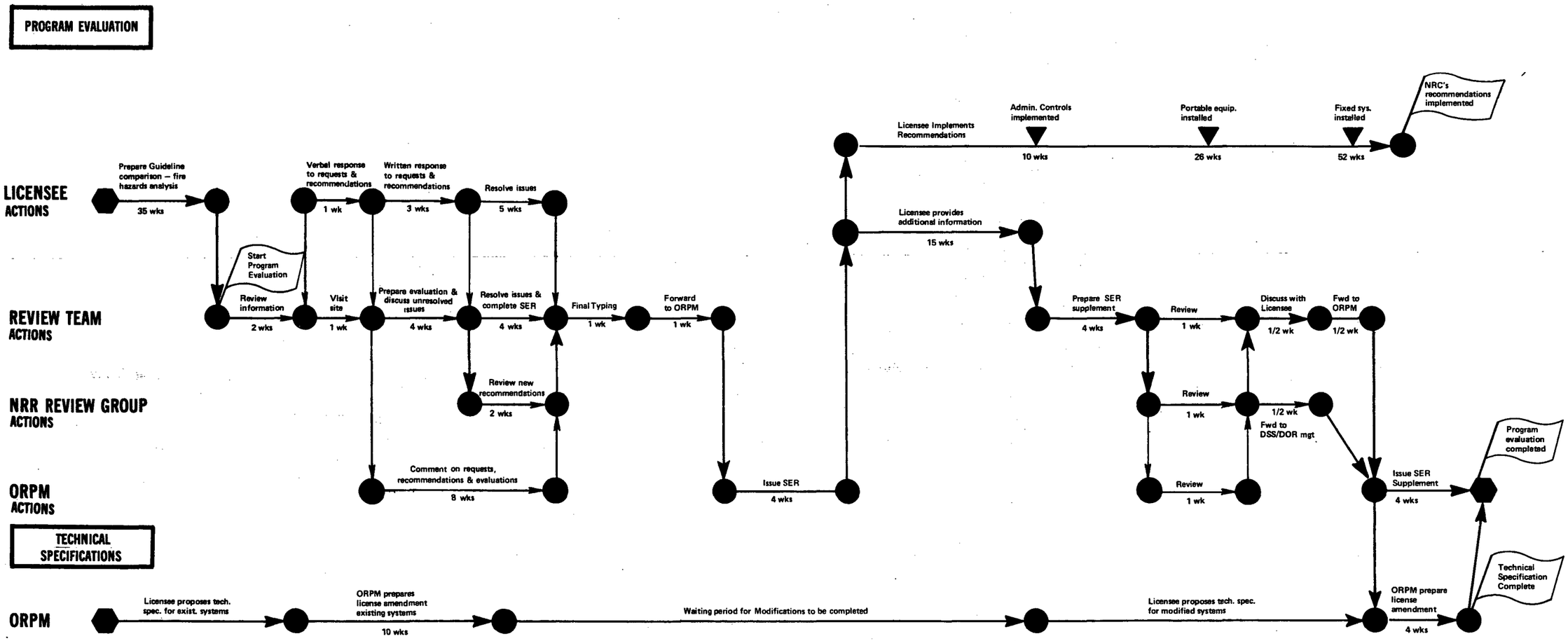
THE COMPLETION OF EACH REVIEW REQUIRES

- – REVIEWING THE ABOVE CITED EVALUATIONS AND PROPOSALS
- – VISITING EACH SITE TO ESTABLISH THE RELATIONSHIP OF FIRE HAZARDS, SAFETY-RELATED EQUIPMENT, AND FIRE PROTECTION SYSTEMS
- – RECOMMENDING MODIFICATIONS DEEMED APPROPRIATE
- – ISSUING SAFETY EVALUATIONS SUMMARIZING THE REVIEW
- – AMENDING LICENSES AND TECHNICAL SPECIFICATIONS.

OFFICE OF NUCLEAR REACTOR REGULATION

CATEGORY 1 PLANTS

OPERATING REACTOR FIRE PROTECTION PROGRAM EVALUATION – TARGET CYCLE



STATUS OF LICENSEE/NRR ACTIONS (CATEGORY 1 PLANTS)

DATES FOLLOWED BY A "C" INDICATE THE DATE OF COMPLETION
DATES FOLLOWED BY A "T" INDICATE A TARGET DATE FOR COMPLETION

NO.	PLANT	LICENSEE DOCUMENT RECEIVED				MODIFICATIONS IMPLEMENTED				NRR ACTIONS COMPLETED						
		ADMINISTRATIVE CONTROLS	GUIDELINE COMPARISON	FIRE HAZARDS ANALYSIS	TECHNICAL SPECIFICATIONS	ADMINISTRATIVE CONTROLS	PORTABLE EQUIPMENT	FIXED SYSTEMS	NRR RECOM-MENDATIONS	SITE VISIT	LICENSEE MEETING	TECHNICAL SPECIFICATIONS	SER RECOMMENDATION	SER SUPPLEMENT	PROGRAM EVALUATION	LICENSE AMENDMENT
1.	ARKANSAS 1	09-23-76C	09-23-76C	02-15-78T	06-20-77C					11-05-76C		02-28-78T				
2.	ARKANSAS 2 *	02-15-78T	05-17-77C	02-15-78T						03-11-77C		02-28-78T				
3.	BEAVER VALLEY	10-27-76C	10-27-76C	05-01-77C	02-18-77C							11-30-77C	12-78T			
4.	BIG ROCK POINT **	04-01-77C	04-01-77C	04-01-77C	04-01-77C							02-28-78T	10-21-78T			
5.	BRUNSWICK 1 & 2	12-29-76C	12-29-76C	12-29-76C	12-29-76C	10-30-77C	Cycle 2/3 Refueling	Cycle 2/3 Refueling	10-31-78T	05-13-77C	06-06-77C	12-26-77C	11-22-77C			
6.	COOPER	12-23-76C	12-23-76C	04-04-77C	02-07-77C							02-28-78T	06-01-78T			
7.	DRESDEN I **	10-21-76C	04-05-77C	04-05-77C						01-21-77C	05-24-77C	02-28-78T				
8.	DRESDEN 2 & 3	10-21-76C	04-05-77C	04-05-77C						01-21-77C	05-24-77C	02-28-78T				
9.	DUANE ARNOLD	02-03-77C	02-03-77C	06-22-78T	02-03-77C					12-02-77C	01-24-78C	02-28-78T	07-15-78T			
10.	FITZPATRICK	01-13-77C	01-13-77C	05-05-77C	04-19-77C							02-01-78C	05-27-78T			
11.	FORT CALHOUN	01-03-77C	01-03-77C	01-03-77C	02-18-77C					08-12-77C	09-30-77C	02-28-78T				
12.	GINNA	03-02-77C	03-02-77C	03-02-77C	03-02-77C							02-28-78T				
13.	HADDAM NECK **	02-22-77C	02-22-77C	02-22-77C	02-25-77C							02-28-78T	11-18-78T			
14.	HUMBOLDT BAY 3 **	01-03-77C	01-3-77C		07-14-77C							12-29-77C				
15.	INDIAN POINT 1 **	12-15-76C	12-15-76C	04-15-77C	Not in Service							02-28-78T				
16.	INDIAN POINT 2 & 3	12-15-76C	12-15-76C	04-15-77C	07-20-77C							11-30-77C	09-08-78T			
17.	KEWAUNEE	05-09-77C	05-09-77C	05-09-77C	05-09-77C							02-28-78T	08-12-78T			
18.	LACROSSE **	02-25-77C	02-25-77C	02-25-77C	07-25-77C							02-28-78T	10-07-78T			
19.	MAINE YANKEE	10-04-76C	02-01-77C	02-01-77C	03-21-77C						08-05-77C	02-03-78C	12-14-78T			
20.	MILLSTONE POINT 1 & 2	02-28-77C	02-28-77C	02-28-77C	05-18-77C							02-28-78T				
21.	MONTICELLO	12-15-76C	12-15-76C	03-11-77C	01-31-77C							01-25-78C	08-26-78T			
22.	NINE MILE POINT	03-07-77C	03-07-77C	03-07-77C	03-07-77C							02-28-78T				
23.	OCONEE 1-3	01-06-77C	01-06-77C	01-06-77C	03-10-77C						10-07-77C	02-28-78T	04-15-78T			

□/■ SCHEDULED/COMPLETED

* UNDER OPERATING LICENSE REVIEW

** PLANTS INCLUDED IN A PROPOSED "SYSTEMATIC EVALUATION PROGRAM"

STATUS OF LICENSEE/NRR ACTIONS (CATEGORY 1 PLANTS)

DATES FOLLOWED BY A "C" INDICATE THE DATE OF COMPLETION
DATES FOLLOWED BY A "T" INDICATE A TARGET DATE FOR COMPLETION

NO.	PLANT	LICENSEE DOCUMENT RECEIVED				MODIFICATIONS IMPLEMENTED				NRR ACTIONS COMPLETED						
		ADMINISTRATIVE CONTROLS	GUIDELINE COMPARISON	FIRE HAZARDS ANALYSIS	TECHNICAL SPECIFICATIONS	ADMINISTRATIVE CONTROLS	PORTABLE EQUIPMENT	FIXED SYSTEMS	NRR RECOM-MENDATIONS	SITE VISIT	LICENSEE MEETING	TECHNICAL SPECIFICATIONS	SER RECOMMENDATION	SER SUPPLEMENT	PROGRAM EVALUATION	LICENSE AMENDMENT
24.	OYSTER CREEK	12-06-76C	12-06-76C	12-06-76C						08-05-77C	Telephone 08-31-77C	02-28-78T				
25.	PALISADES	04-04-77C	04-04-77C	04-04-77C	04-04-77C							02-28-78T	06-10-78T			
26.	PEACH BOTTOM 2 & 3	10-26-76C	10-26-76C	04-16-77C	07-18-77C					04-01-77C	06-16-77C	02-28-78T				
27.	PILGRIM	03-21-77C	03-21-77C	03-21-77C	02-11-77C					05-27-77C		02-28-78T	03-20-78T			
28.	POINT BEACH 1 & 2	11-04-76C	11-04-76C	06-30-77C	07-30-77C					01-07-77C	03-04-77C	01-23-78C	03-30-78T			
29.	PRAIRIE ISLAND 1 & 2	12-10-76C	12-10-76C	07-05-77T	02-03-77C							02-28-78T				
30.	QUAD CITIES 1 & 2	10-21-76C	04-05-77C	04-05-77C								02-28-78T	05-20-78T			
31.	RANCHO SECO	09-09-76C	09-09-76C	08-04-77C	01-10-77C					10-15-76C		02-28-78T				
32.	ROBINSON 2	11-24-77C	12-29-76C	12-29-76C	12-29-76C		03-79T	03-79T		04-01-77C	06-03-77C	02-28-78T				
33.	SAINT LUCIE 1	04-07-77C	04-07-77C	04-07-77C	07-18-77TC							02-28-78T				
34.	SAN ONOFRE 1 **	10-29-76C	03-18-77C	03-18-77C	03-30-77C							02-28-78T				
35.	SURRY 1 & 2	04-07-77C	04-07-77C	07-14-77C	01-10-77C							11-30-77C	07-01-78T			
36.	THREE MILE ISLAND 1	12-20-76C	12-23-77C	12-29-77C	02-10-77C							11-30-77C	04-01-78T			
37.	THREE MILE ISLAND 2 *	07-01-77C	07-05-77C	07-05-77C	07-01-77T					01-05-78C	12-22-77C					
38.	TROJAN	10-29-76C	10-29-76C	10-29-76C	08-22-77C		03-78T	10-78T		01-04-77C	02-17-77C	12-05-77C				
39.	TURKEY POINT 3 & 4	02-28-77C	02-28-77C	02-28-77C								02-28-78T	03-18-78T			
40.	VERMONT YANKEE	10-04-76C	02-01-77C	02-01-77C	03-24-77C		07-78T	1978 Refueling		04-08-77C	06-09-77C	01-13-78C				
41.	YANKEE ROWE **	10-04-76C	02-01-77C	02-01-77C	03-24-77C							02-28-78T	12-31-78T			
42.	ZION 1 & 2	11-03-76C	PII-03-76C 05-02-77C	05-02-77C	07-21-77C					04-15-77C	08-17-77C	02-28-78T				
43.	CALVERT CLIFFS 1 & 2	03-14-77C	03-14-77C	03-14-77C	08-05-77C							12-02-77C	07-29-78T			
44.	CRYSTAL RIVER	06-23-77C	06-23-77C	06-30-77C								02-03-78C				
†	COOK 1 & 2	02-07-77C	02-07-77C	04-15-77C	02-07-77C					04-19-77C	05-11-77C	1) 12-12-77C 02-28-78T	03-31-78T			
†	HATCH 1 & 2	10-30-76C	10-30-76C	10-30-76C	01-28-77C					02-22-77C		02-28-78T				

BROWNS FERRY AND FORT ST. VRAIN have been completed (See Category II)

■/■ SCHEDULED/COMPLETED

* UNDER OPERATING LICENSE REVIEW

** PLANTS INCLUDED IN A PROPOSED "SYSTEMATIC EVALUATION PROGRAM"

† Two Sites with One Operating Reactor--SEE CATEGORY II

ARKANSAS 1

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Fixed water spray systems are being installed in the welding shop and the maintenance shop.
- The following areas will have sprinkler systems installed to provide coverage for cable trays in that particular area: electrical penetrations rooms; radwaste demineralizer access area; welding shop; machine shop; decontamination room.
- A carbon dioxide suppression system is being installed for the turbine-generator. Carbon dioxide protection will be provided in the exciter housing and at the turbine-generator bearing enclosures and exposed lubricating oil piping above the operating floor. This will be completed during the first refueling outage.
- Silicone foam will be used to seal around cables and trays where they pass through a fire barrier.
- The cable spreading room will have a manual smoke venting system.
- Two smoke detectors have been provided in the vicinity of each reactor coolant pump.

NRR VERIFICATION: W Diederich **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- August 2-5 and 22-23 (77-12): An inspection of three areas of the fire protection program revealed one item of noncompliance involving failure to provide and follow procedures, and one deviation involving failure to keep fire doors closed.
- November 2-4 (77-20): An inspection of fire protection controls and follow-up on previously identified matters revealed no items of noncompliance.

● SUMMARY

- A "Request for Additional Information" covering some 50 items has been transmitted to Arkansas Power & Light Company.
- Licensee's responses to NRC questions were received on September 2 and September 26, 1977.

GPO 917-848

ARKANSAS 1 CAT I

FACILITY DATA

Facility Name: ARKANSAS 1

Utility Name: ARKANSAS POWER & LIGHT

Docket Number: 50-313

License/Permit Number: DPR-51

Location: 6 MI WNW OF RUSSELLVILLE, ARK

Plant Type: PWR

Lic. Thermal Power: 2568

Design Elec. Power: 0850

NSSS Vendor: BABCOCK & WILCOX

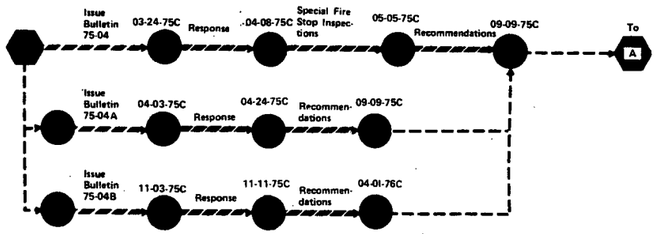
Architect/Engineer: BECHTEL

O.R. Branch Chief: D. DAVIS

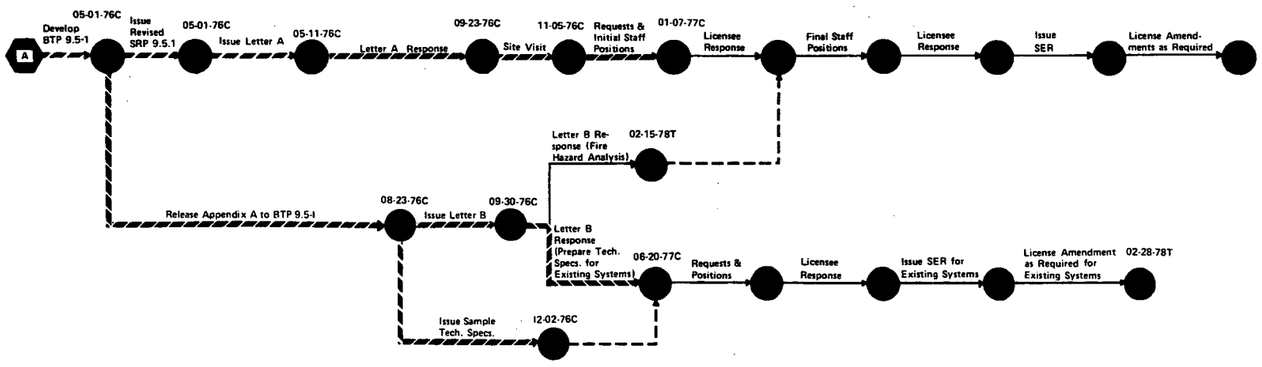
O. R. Proj. Manager: R. SNAIDER

IE Inspector: T. WESTERMAN

I & E ACTIONS



NRR ACTIONS



ARKANSAS 2

LICENSEE MODIFICATIONS

- **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**

- **PORTABLE FIRE EQUIPMENT**
  - Portable communications equipment will be made available.

- **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**
  - A barrier will be installed between the redundant service water pump power cables.
  - A detection and spray system will be added for the covered trays behind the control room containing all four channels of RPS indications.

NRR RECOMMENDATIONS

- **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**

- **PORTABLE FIRE EQUIPMENT**

- **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**

NRR VERIFICATION: R. Lavie **DATE:** 2/10/78

I & E INSPECTION SUMMARY/ACTIONS

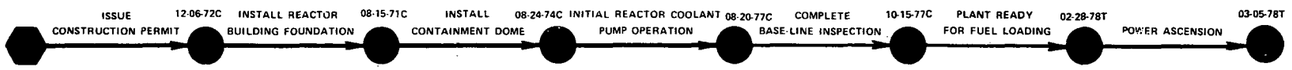
- **SUMMARY**
  - A request for additional information covering nineteen items was transmitted to the utility on April 14, 1977. Also included in this transmittal were five staff positions pertaining to the following subjects: containment fire detector location, portable radio communication equipment, separation of service water pump power cables, protection of equipment from water damage, and cable penetration fire stop test.
  - A Fire Hazards Analysis has been completed for 85% of the fire zones.
  - The fire protection systems (described in detail in the FSAR) that protect safety-related equipment will be operational prior to initial plant commercial operation.

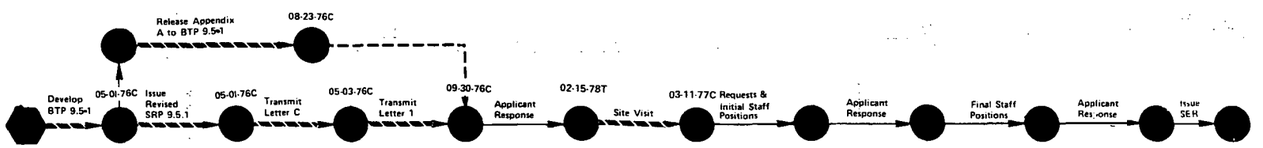
GPO 91 7-645

FACILITY DATA

Facility Name: ARKANSAS 2
Utility Name: ARKANSAS POWER & LIGHT
Docket Number: 50-368
License/Permit Number: N/A
Location: 6 MI WNW OF RUSSELLVILLE, ARK
Plant Type: PWR
Lic. Thermal Power: 000
Design Elec. Power: 0941
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: BECHTEL
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: R. MARTIN
IE Inspector: R. G. TAYLOR

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977





BEAVER VALLEY 1

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- The station administrative directives have been developed which delineate the responsibilities of members of the operating staff with regard to design changes to the existing fire protection systems, maintenance and testing of the systems, fire prevention activities within the station and training of the emergency squad.
- Administrative procedures have been implemented to control storage of combustibles inside or near safety-related buildings.
- Procedures have been established for the formal training of fire watches.
- Measures for all the criteria specified for the Quality Assurance program have been established.
- Guidelines will be established to prohibit the use of open flames or combustion generated smoke for leak testing.

● PORTABLE FIRE EQUIPMENT

- Additional self-contained breathing apparatus will be purchased.
- Additional large-wheeled, dry chemical extinguishers will be provided in strategic areas throughout the plant.
- A portable CO_2 extinguisher will be provided for the cable tunnel.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- A curb will be installed at the door between the diesel generator cubicles.
- An oil collection system for the reactor coolant pump lubricating oil system will be installed.
- Doors to the control room and the switchgear rooms will be replaced with fire-rated doors.
- A fire-rated barrier will be provided for the benchboard access panel in the control room and cable spreading room.
- Temporary fire detection systems and fire-rated enclosures will be provided for the control room area and ducts of the Unit 2 under construction.
- Fire-rated insulation will be applied to the control room air-conditioning ductwork passing through the cable spreading room.
- A containment detection system with control room alarm will be installed.
- An automatic Halon suppression system will be installed for the false floor area in the control room CR-4.
- Redundant smoke detectors will be added in the returns from the communication equipment and relay panel room to prevent the spread of smoke.
- Additional area detection will be provided for remote safety-related panels.
- A duct detector and 1-1/2 hour fire dampers will be added for the charging pump cubicles in the radwaste building.
- Additional area detection will be provided for the radwaste building by adding detectors in the main building exhaust ducts.
- The access hatch to the cable tunnel will be modified to allow rapid entry by the fire brigade.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- May 24-25 (77-19): An inspection of eight aspects of the fire prevention/protection program revealed one apparent item of noncompliance involving failure to follow documented instructions in two areas.

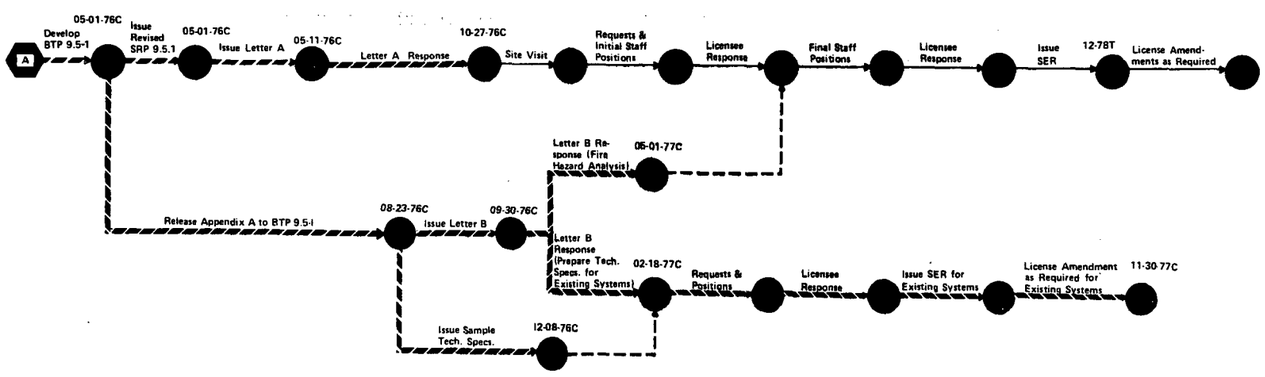
● SUMMARY

GPO 917-843

FACILITY DATA

Facility Name: BEAVER VALLEY 1
Utility Name: DUQUESNE LIGHT
Docket Number: 50-334
License/Permit Number: DPR-66
Location: 25 MI NW OF PITTSBURGH, PA
Plant Type: PWR
Lic. Thermal Power: 2652
Design Elec. Power: 852
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: STONE & WEBSTER
O.R. Branch Chief: R. REID
O. R. Proj. Manager: J. SIEGEL
IE Inspector: W. RAYMOND

NRR ACTIONS



BIG ROCK POINT 1

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Administrative procedures to be implemented by September 1977.
- Administrative procedures dealing with storage of combustible materials has been implemented.
- Procedures to ensure that management and staff review all normal and abnormal conditions have been implemented.
- Administrative procedures will be developed consistent with the need for maintaining the performance of the fire protection system and personnel at the plant.

● PORTABLE FIRE EQUIPMENT

- Additional air bottles will be located on site to provide a minimum of two bottles for each self-contained breathing apparatus.
- A hose reel will be added within 50 feet of the control rod accumulator area.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Consideration will be given to utilize, to the extent practicable, cable construction that does not give off corrosive gases while burning.
- All penetrations to the control room in the screen well and pump house, in the computer room and several other areas will be sealed.
- Fire retardant coatings will be applied to the cables and penetrations in the exterior and interior cable penetration room.
- Additional fire barriers will be installed in appropriate locations.
- Fire doors will be installed for the machine shop.
- Consideration will be given to applying flame-retardant coating to all cables in the cable trays in the condensate pump area and several other areas of the plant or providing separate cable runs.
- Appropriate modifications will be made for ventilation to facilitate manual fire fighting capability.
- Local fire detection will be installed in containment in the condensate pump area and in the core spray pump room which will alarm and annunciate in the control room.
- Fire detectors and water spray will be installed along several cable trays in the emergency condenser floor area.
- Detectors will be added inside the panels in the control room.
- Fire detectors will be installed in the emergency diesel generator room, in the screen well and pump house, in the computer room, in the control rod drive accumulator area and in the shutdown heat exchanger room.
- Additional fire detection and suppression systems will be installed in the exterior and interior cable penetration room.
- Additional automatic detection and suppression systems will be installed in the electrical equipment room, in storage room #441.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- October 3-7 (77-15): An inspection to review records, procedures, equipment and performance of requalification training and fire protection revealed no items of noncompliance.

● SUMMARY

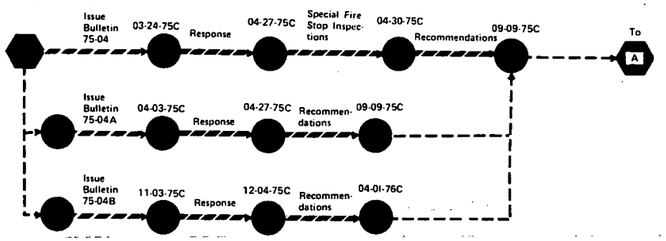
GPO 917-845

BIG ROCK POINT 1 CAT I

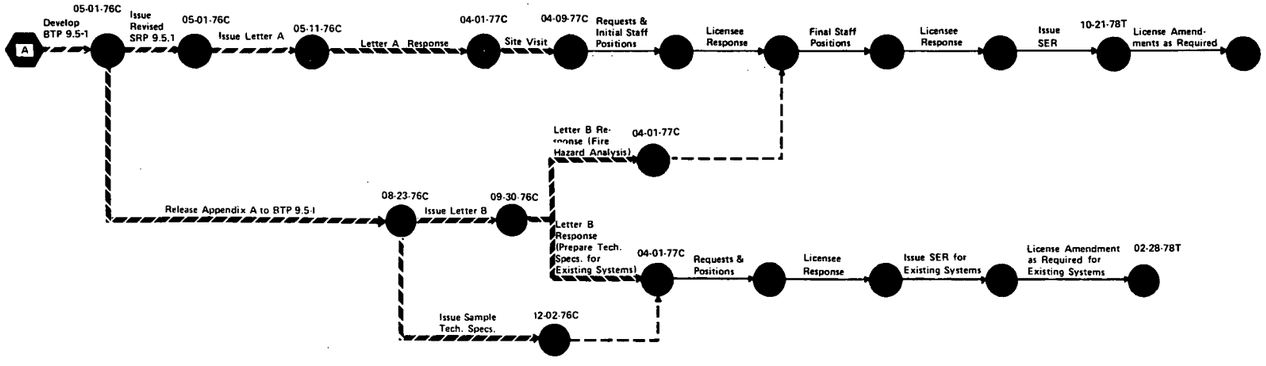
FACILITY DATA

Facility Name: BIG ROCK POINT 1
Utility Name: CONSUMERS POWER
Docket Number: 50-155
License/Permit Number: DPR-6
Location: 15 MI W OF PETOSKEY, MICH
Plant Type: BWR
Lic. Thermal Power: 0240
Design Elec. Power: 72
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O.R. Branch Chief: D. DAVIS
O. R. Proj. Manager: E. A. REEVES
IE Inspector: D. HUNTER

I & E ACTIONS



NRR ACTIONS



BRUNSWICK 1 & 2

LICENSEE MODIFICATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- General guidelines will be added to the plant's procedures for maintaining fire protection during periods of system impairment. A procedure for periodic testing of emergency lighting and for checking the communications systems will be completed by July 1, 1977.
- All personnel utilized on fire watches will be given training in fire protection. The local fire department will be given more familiarization classes and plant tours.
- An alternative approach to their use of a combustion-type smoke generator for leak testing is being investigated investigated and will be used instead of the present device.
- Several aspects of the Quality Assurance Program will be improved with regard to fire protection and a set of pre-fire plans is under development for use by fire brigade (complete by 12/31/77).

PORTABLE FIRE EQUIPMENT

- Interior hose stations will be provided in the control building stairwells and mechanical equipment room; the intake structure; the diesel generator rooms and switchgear rooms; the diesel generator building basement and fan room; the augmented off-gas building; and the reactor building.
- Hydrants and hose houses will be installed near the intake structure and the No. 1 diesel fuel oil storage tank.
- Portable extinguishers will be provided at the diesel generator building basement area, control room, cable spreading rooms and battery rooms.
- Portable radio equipment and handlights will be provided for fire brigade use.
- Two portable aqueous film forming foam concentrate stations will be provided.
- Portable fans and ducts will be provided for smoke removal.
- Four additional breathing units and 21 additional spare air bottles will be provided, along with an air compressor.
- Linen fire hoses are being replaced with lined hoses and suitable racks.

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Additional fire detectors will be installed to cover all areas containing combustibles in buildings containing safe shutdown equipment, in main control cabinets and in charcoal filter elements in the mechanical equipment room.
- Automatic water spray suppression systems will be installed at the intake structure, at the standby liquid control pumps and the diesel generator rooms.
- Automatic sprinkler systems will be installed in the core spray pump rooms, RHR pump rooms, diesel generator basement, service water intake structure cable spreading area, and in the water treatment building.
- Automatic aqueous film forming foam (AFFF) system will be installed in the diesel generator tank rooms and a ventilation system will be provided for them.
- An automatic suppression system will be installed for the area in the reactor building designated for storage of necessary combustibles. And the water treatment chemicals will be stored in a three-hour fire-rated room monitored by a fire detection system.
- Gas-tight doors will be installed between the diesel generator tank rooms and gas-tight seals will be added to pipe and trench penetrations in the walls of these rooms.
- Three-hour fire walls will be added in the diesel generator building for cable accessways and conduit which are associated with safety-related cables or redundant divisions. They will also be built around the control room to separate it from adjacent rooms and installed between diesel generators 1 and 2.
- Three-hour fire doors will be installed between the diesel generator rooms; the cable spreading and the battery rooms; the cable spreading rooms; and between the diesel generator basement area and the switchgear rooms.
- Fire dampers will be added in all ventilation penetrations of fire barriers.
- Additional sectionalizing valves will be installed in the yard line main system. A second connection to the yard loop will be provided for the diesel generator building suppression systems. Valves in the fire water systems will be locked open. An isolation valve will be installed in the suction header between the fire pumps.
- Smoke removal capability will be provided for the control room and a discharge cowl will be added to the control building exhaust ports.
- Flame retardant coatings will be applied to PVC-coated conduit in the cable accessways and to uncoated cables in the cable spreading room.
- Heat detectors and an oil collection system will be installed at the reactor recirculation pumps outside the drywell.
- One safety division of battery cables will be re-routed outside of the cable spreading room.
- Keylock remote isolation switches will be installed at the local diesel generator control panel.
- Modifications will be made to the diesel generator bus loads such that only two diesel generators are required to handle safe-shutdown loads in a fire situation.

NRR RECOMMENDATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

The administrative controls for fire protection should be improved with regard to the fire protection organization, fire brigade training, controls over combustibles and ignition sources, prefire plans, and quality assurance provisions. The licensee will review these areas and provide a revised description of his administrative controls.

PORTABLE FIRE EQUIPMENT

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

I & E INSPECTION SUMMARY/ACTIONS

- January 3-6 (77-1): Observation of startup testing, a plant tour and a review of reportable occurrences revealed one item of noncompliance concerning the failure to use a fire blanket as specified by welding and burning permit.
- March 28-April 1 (77-6): An inspection of technical specification compliance, document retention, design changes and plant tour revealed one item of noncompliance involving inspection of fire extinguishers at Unit 2.
- May 9-13 (77-09): An inspection provided the NRR fire protection review team with direct knowledge of the arrangement of safety-related equipment, fire hazards and fire protection equipment.
- August 30 and September 6-9 (77-18): An inspection to determine licensee's continued implementation of their fire protection program revealed four items of noncompliance in four areas involving participation in drills by offsite support agencies and completion of fire training by all members of the fire brigade.

SUMMARY

- Amendment No. 11 to the operating license of Unit 1, Amendment No. 37 to the operating license of Unit 2 and a Safety Evaluation Report for fire protection at both units were issued on November 22, 1977. However, three items remain incomplete: fire stop qualification; effects on safe shutdown where redundant cables are in proximity; and effects on safe shutdown for a fire in cable tunnels. The licensee will complete the evaluations necessary to resolve these items and should additional modifications be required, they will be implemented on schedule with the other modifications.
- All modifications will be completed following refueling of Unit 1 for Cycle 2 and Unit 2 for Cycle 3 operation, presently scheduled for the fall of 1978.

NRR VERIFICATION: _____ DATE: 2/10/78

GPO 911-845

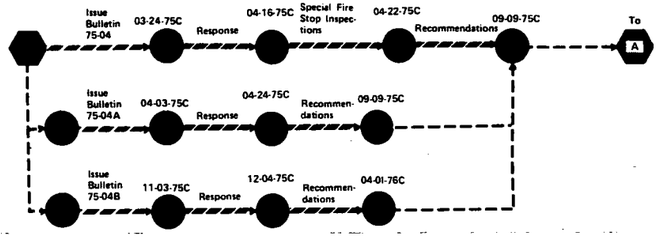
FACILITY DATA

Facility Name: BRUNSWICK 1
Utility Name: CAROLINA POWER & LIGHT
Docket Number: 50-325
License/Permit Number: DPR-71
Location: 2.5 MI N OF SOUTHPORT, NC
Plant Type: BWR
Lic. Thermal Power: 2436
Design Elec. Power: 821
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: UNITED ENGINEERS
O.R. Branch Chief: A. SCHWENCER
O. R. Proj. Manager: C. TRAMMELL
IE Inspector: R. SULLIVAN

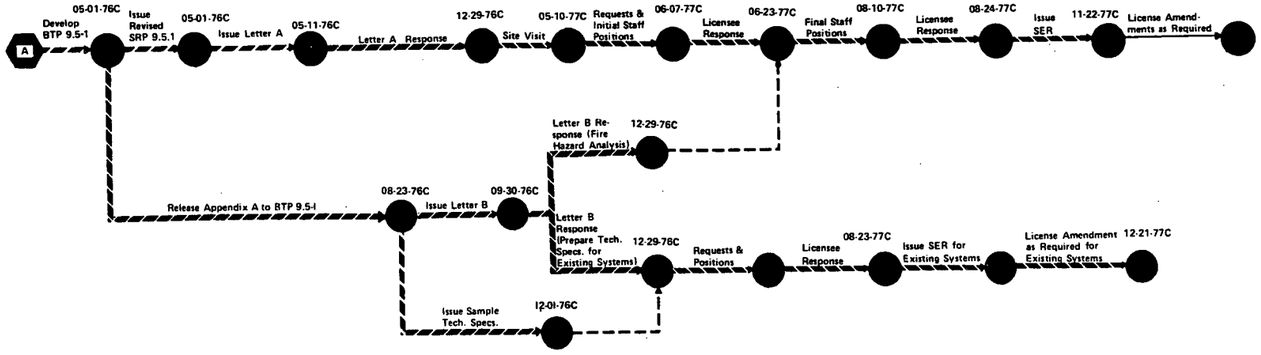
FACILITY DATA

Facility Name: BRUNSWICK 2
Utility Name: CAROLINA POWER & LIGHT
Docket Number: 50-324
License/Permit Number: DPR-62
Location: 2.5 MI N OF SOUTHPORT, NC
Plant Type: BWR
Lic. Thermal Power: 2436
Design Elec. Power: 0821
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: UNITED ENGINEERS
O.R. Branch Chief: A. SCHWENCER
O. R. Proj. Manager: C. TRAMMELL
IE Inspector: R. SULLIVAN

I & E ACTIONS



NRR ACTIONS



CALVERT CLIFFS 1 & 2

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Procedures have been established to control outages of the fire detection and suppression systems.
- An administrative procedure has been developed which formalizes the comprehensive training requirements for the plant fire brigades. Drills will be conducted at least once each quarter.
- The Quality Assurance program will be improved.

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Sprinklers have been installed in the new northside equipment-hatch building but the alarm circuitry will not be completed until later in the year.
- Curbs will be installed around the diesel generators.

NRR VERIFICATION: D Eisenhut **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- July 26-28 (77-20): An inspection of seven areas of emergency planning, including coordination with offsite support agencies, revealed one item of noncompliance in two areas involving inadequate maintenance of emergency equipment and failure to implement provisions for drills with local fire departments.
- November 29-December 1 (77-29): An inspection to determine licensee's continued implementation of special work controls for fire protection as required by IE Bulletin Nos. 75-04 and 75-04A revealed one item of noncompliance involving failure to take timely corrective action regarding audit findings.

● SUMMARY

GPO 891-645

CALVERT CLIFFS 1&2 CAT I

FACILITY DATA

Facility Name: CALVERT CLIFFS 1 & 2

Utility Name: BALTIMORE GAS & ELECTRIC

Docket Number: 50-317/318

License/Permit Number: DPR-53/69

Location: 45 MI SE OF WASHINGTON, DC -

Plant Type: PWR

Lic. Thermal Power: 2700

Design Elec. Power: 845

NSSS Vendor: COMBUSTION ENGINEERING

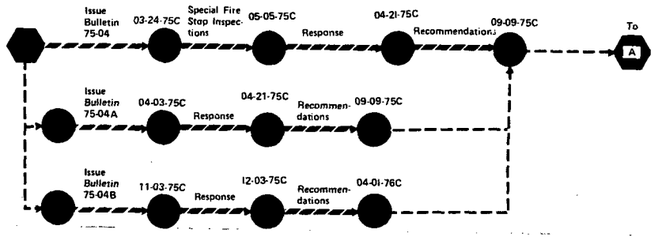
Architect/Engineer: BECHTEL

O.R. Branch Chief: D. DAVIS/ K. KNIEL

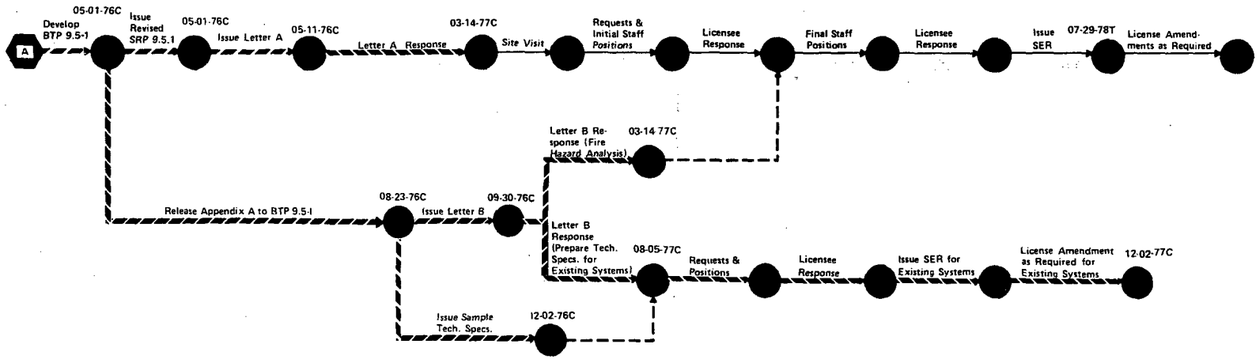
O. R. Proj. Manager: E. L. CONNER, JR.

IE Inspector: D. HAVERKAMP

I & E ACTIONS



NRR ACTIONS



COOPER STATION

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Directives outlining the delegation of authority concerning the overall fire protection program have been issued.
- Authorization for the position of Fire Protection Engineer at the plant is being reviewed.
- Appropriate sections of the Operations Manual are being revised to properly address the bulk storage of combustibles.
- Emergency Procedure documents are being revised to provide a more definitive outline for frequency and procedures for testing the plant's fire fighting organization and to provide instructions for fire fighting during special operations.
- Administrative procedures relating to the Quality Assurance program will be improved.

● PORTABLE FIRE EQUIPMENT

- Additional fire hose stations will be provided for several areas in the reactor buildings and several hoses in the control building will be lengthened.
- Fire hose nozzles will be replaced with nozzles suitable for Class A, B & C type fires.
- Two foam dispensing nozzles and five gallons of AFFF concentrate will be purchased.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Open or improperly sealed penetrations are being restored to meet design criteria.
- Thirteen doors are being replaced with properly fire-rated doors.
- Additional curbs or ramps will be installed to contain flammable liquid leaks.
- A hydrogen gas analyzer with remote "trouble" and "alarm" annunciation will be provided for the D.C. battery rooms.
- A wet pipe automatic sprinkler system will be installed for the primary and back-up fire pumps.
- A wet pipe automatic sprinkler system will be provided for the M-G set oil heat exchangers in the reactor building. Also a wet pipe automatic sprinkler system will be installed above and within the metal-clad wood frame enclosure located in the southwest corner of the M-G area.
- A wet pipe automatic sprinkler system will be installed in the corridor of the radwaste building where combustibles are stored.
- Chain activators are being provided to allow easy access to the OS&Y control valves for each fire hose standpipe riser.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- The licensee has no written policies or procedures for several fire-related activities, such as electrical cable seal testing, limiting the use of open flames or ignition sources for leak testing, the use of monitors in areas adjacent to maintenance or modification work and others.
- Fire Suppression Equipment Periodic Testing: Inspections and tests of the fire hoses, CO_2 hose reels and fire nozzles were not in conformance with the guidelines of the National Fire Protection Association's (NFPA) National Fire Code.
- May 2-6 (77-06): An inspection of the fire prevention/protection program, and several other operations, revealed three items of noncompliance, one involving failure to conduct fire brigade team training as required by emergency plan and two others not related to fire protection.

● SUMMARY

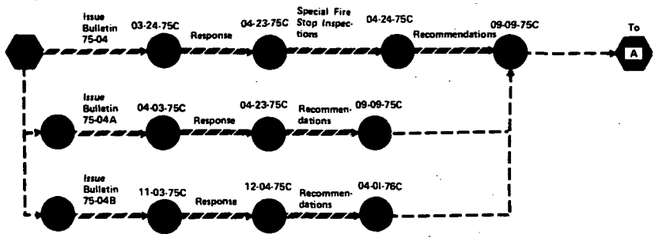
GPO 917-848

COOPER STATION CAT I

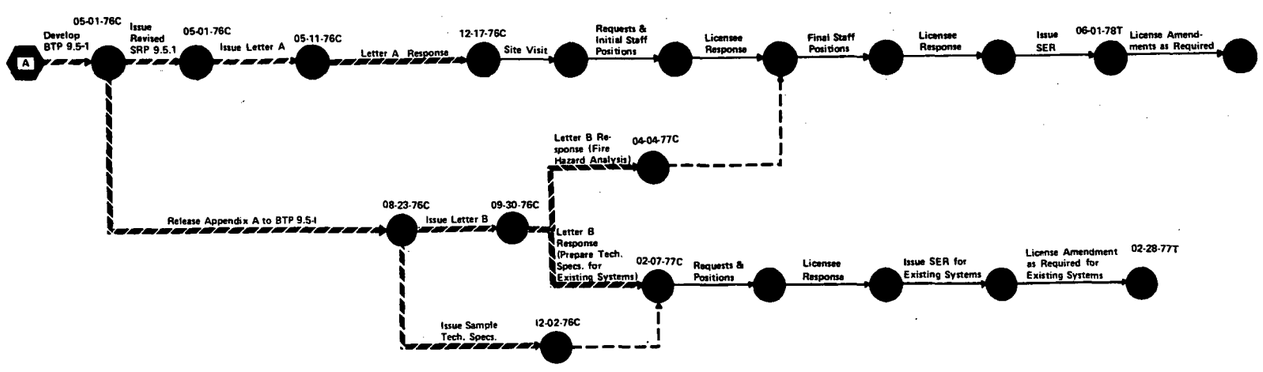
FACILITY DATA

Facility Name: COOPER STATION
Utility Name: NEBRASKA PUBLIC POWER STATION
Docket Number: 50-298
License/Permit Number: DPR-46
Location: 60 MI SE OF OMAHA
Plant Type: BWR
Lic. Thermal Power: 2381
Design Elec. Power: 0778
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BURNS & ROE
O.R. Branch Chief: D. ZIEMANN
O. R. Proj. Manager: M. FLETCHER
IE Inspector: E. JOHNSON

I & E ACTIONS



NRR ACTIONS



CRYSTAL RIVER 3

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Quality assurance requirements for documentation, review and audit will be applied to existing and future surveillance procedures, testing of fire protection system modifications and other testing activities related to fire protection.

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Additional fire detection systems will be installed in the reactor building, the intermediate building and the auxiliary building. These systems will provide fire detection capability in areas with safety-related pumps, cable concentrations and other critical areas.
- Cable tray fire breaks and/or fire stops will be added in a few locations where required to bring cable separation into conformance with applicable criteria.

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- July 20-22 and August 2-5 (77-13): An inspection of several areas of the fire protection system reveaied one item of noncompliance concerning the tag out of fire equipment temporarily removed from service.

● SUMMARY

NRR VERIFICATION: W. Paulson **DATE:** 2/10/78

GPO 817-845

CRYSTAL RIVER 3 CAT I

FACILITY DATA

Facility Name: CRYSTAL RIVER 3

Utility Name: FLORIDA POWER CORPORATION

Docket Number: 50-302

License/Permit Number: DPR-72

Location: 70 MI N OF TAMPA, FLA

Plant Type: PWR

Lic. Thermal Power: 2452

Design Elec. Power: 0825

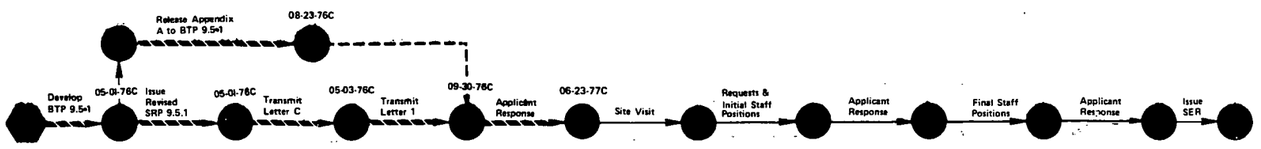
NSSS Vendor: BABCOCK & WILCOX

Architect/Engineer: GILBERT ASSOCIATES

O.R. Branch Chief: J. STOLZ

O. R. Proj. Manager: C. C. NELSON

IE Inspector: R. WESSMAN



DRESDEN 1

LICENSEE MODIFICATIONS

● **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**

● **PORTABLE FIRE EQUIPMENT**

● **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**

- The reactor protection system wiring in primary containment will be redesigned.
- The false ceiling and the rug in the control room and the wood in the instrument calibration area will be replaced with materials of limited combustibility.
- The control room door will be replaced with a Class A door.
- Automatic supervision of battery room ventilation will be provided.
- The diesel fire pump enclosure will be upgraded to a 3-hour rated structure.
- Additional detectors or detection systems will be provided for the containment penetration area, control room, control room cabinets, battery room, new fuel receiving area, feed pump area and turbine building.
- Automatic water suppression systems will be installed or expanded to provide additional coverage for the containment cable penetration area, feed pump area, H_2 seal oil unit, cable passageways in the turbine building, turbine bearings, fire pumps, core spray pumps, and auxiliary boiler house.

NRR VERIFICATION: V Panciu **DATE:** 2/10/78

NRR RECOMMENDATIONS

● **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**

● **PORTABLE FIRE EQUIPMENT**

● **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**

● I & E INSPECTION SUMMARY/ACTIONS

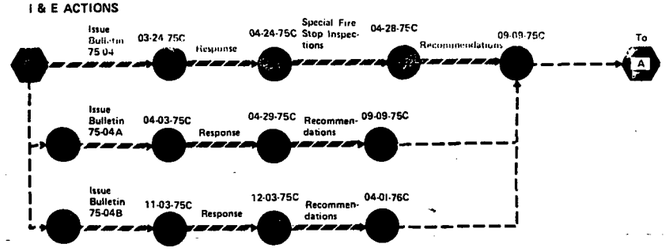
● **SUMMARY**

- The earliest possible completion date for the extensive modifications to the Reactor Protection System and the Fire Protection System is the first quarter of 1979.
- Licensee response to NRC questions and positions were received on August 30 and September 12, 1977.

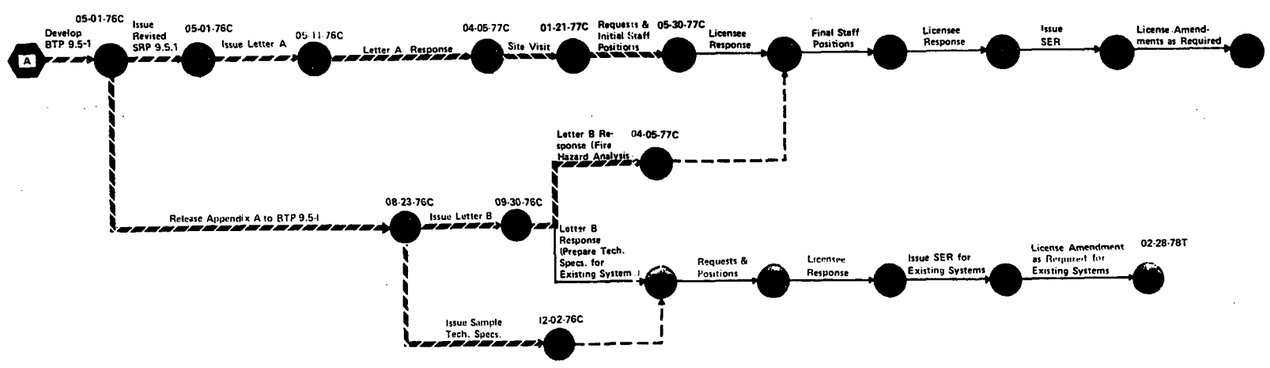
FACILITY DATA

Facility Name: DRESDEN 1
Utility Name: COMMONWEALTH EDISON
Docket Number: 50-010
License/Permit Number: DPR-2
Location: 14 MI SW OF JOLIET, ILL
Plant Type: BWR
Lic. Thermal Power: 0700
Design Elec. Power: 0200
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O.R. Branch Chief: D. DAVIS
O. R. Proj. Manager: R. BEVAN
IE Inspector: W. SHAFER

I & E ACTIONS



NRR ACTIONS



DRESDEN 2 & 3

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

- Additional standpipes and/or hose stations will be provided for Unit 2/3 control room, the Unit 2 battery room, the auxiliary electric equipment room, the diesel generator room, the 4 Kv switchgears 33-34, 28-29 and 38-39.
- Longer hoses will be provided for the hose stations located next to the feedwater pumps and the cooling service water pump.
- Portable smoke removal equipment will be provided for the cable tunnel, diesel generator rooms and clean and dirty oil room.
- Several cables will be covered with a fire retardant coating.
- Portable fire extinguishers will be provided for the control room.
- About 100 charged air supply bottles will be obtained.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- The following non-labeled doors will be replaced with Class A doors: doors between Units 2 & 3 reactor buildings, the control room access, plant computer room, diesel room, and safety-related pump room access doors and between the turbine and radwaste buildings.
- Rated fire dampers will be installed in HVAC for control room, computer room, clean and dirty lube oil rooms, diesel room, and off gas recombiner area.
- The false ceiling and the rug in the control room area will be replaced.
- Exposed structural steel will be coated in the control room and the plant computer room.
- A 3-hour fire barrier will be installed in Unit 3 cable tunnel.
- A floor curb will be provided in Unit 3 diesel day tank room.
- Additional detectors or detection systems will be provided in the secondary containment and turbine building in the vicinity of safety-related motor control centers and switchgear, the standby liquid control area, control room, control room cabinets, remote safety-related panels, plant computer room and battery room.
- Automatic water suppression systems will be installed or expanded to provide additional coverage for the feed pump area, containment cooling service water pump area, Unit 2 trackway, oil reservoir area, instrument air compressor area, turbine building cable tray area, H_2 seal oil unit, HPCI pump rooms, and crib house.
- The plant computer room will be provided with an automatic Halon system with manual CO_2 backup.
- The wall between the computer room and the Unit 1 turbine building will be upgraded to a 3-hour barrier.
- Drains will be provided in the day tank rooms.

NRR VERIFICATION: [illegible] **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- January 11-14 (77-01): A review was made of the facilities' fire prevention and protection status and of the CECo submittal of December 28, 1976, as to their conformance to Standard Review Plan 9.5.1 "Fire Protection System". The inspection was performed while accompanying a Nuclear Regulatory Commission, Division of Operating Reactors (DOR), review team.
- October 18, 20-21 and 26-28 (77-33): A fire protection review and an inspection of several other operations revealed three items of noncompliance and one deviation in areas all unrelated to fire protection.

● SUMMARY

- Licensee response to NRC questions and positions were received on August 30 and September 12, 1977.

GPO 817-645

FACILITY DATA

Facility Name: DRESDEN 2 & 3

Utility Name: COMMONWEALTH EDISON

Docket Number: 50-237/249

License/Permit Number: DPR-19/25

Location: 14 MI SW OF JOILET, ILL

Plant Type: BWR

Lic. Thermal Power: 2527

Design Elec. Power: 794

NSSS Vendor: GENERAL ELECTRIC

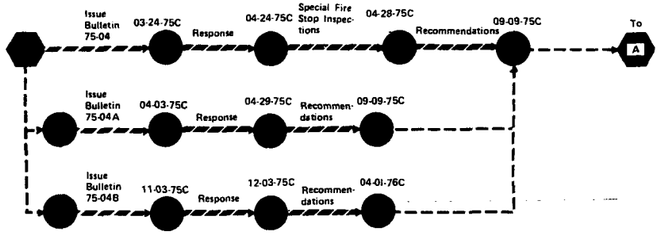
Architect/Engineer: SARGENT & LUNDY

O.R. Branch Chief: D. DAVIS/ D. ZIEMANN

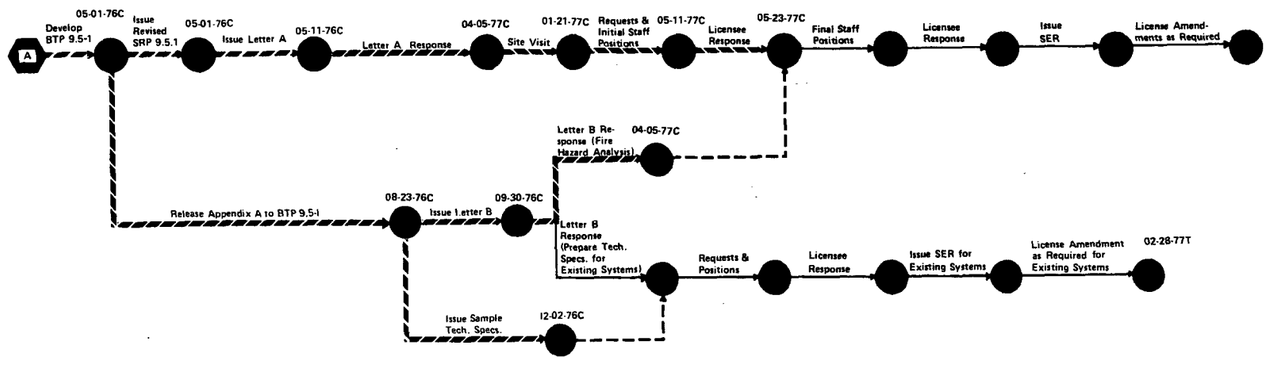
O. R. Proj. Manager: R. BEVAN

IE Inspector: W. SHAFER

I & E ACTIONS



NRR ACTIONS



DUANE ARNOLD

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- All post indicator valves and all OS&Y gate valves in the fire protection system will be locked open.

● PORTABLE FIRE EQUIPMENT

- Thirteen additional spare bottles will be provided to make two spares available for each self-contained breathing units. Also three additional recharging cylinders will be provided.
- Nine additional hose stations and longer hoses will be added to provide effective hose coverage for areas containing safety related equipment and areas apt to contain transient combustibles.
- Additional fire suppression equipment will be temporarily provided in hazardous areas within the primary containment.
- Provisions will be made for the temporary location of breathing apparatus in the vicinity of containment entrances during refueling and maintenance periods.
- A number of portable Halon extinguishers will be provided in the area behind the control room boards.
- A well equipped hose cart, portable smoke ejector units, ten sealed-beam high intensity portable lighting units and protective clothing will be provided in a central place for the fire brigade.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- One door in each of the two motor-generator set rooms airlocks will be replaced with a standard Class A fire door.
- Louvers will be installed in the walls of the day tank rooms to provide gravity venting of the rooms and a flow switch will be installed in the exhausts for the battery rooms.
- All welding gas cylinders other than those required for routine use will be stored in the detached and sprinklered warehouse building.
- The present fire and smoke detection systems will be expanded to cover the following areas within the reactor building: each RHR and core spray pump rooms; CRD pump room; cable tray areas at two levels; the M-G set room; and the underside of the reactor building roof and several other levels.
- An ionization smoke detector will be installed in the intake plenum of the control room so that a smoke source exterior to the control room will be indicated.
- An ionization detector will be installed in the computer room ceiling and a Halon 1301 portable extinguisher will be mounted inside the room entrance.
- The existing wet-pipe sprinkler system in the day tank room will be converted to a pre-action system with thermal detectors and extended to provide coverage for the diesel engine area of the diesel generator rooms.
- A fire and smoke detection system will be installed in the intake structure areas housing the water supply pumps and in the pump house areas of the ESW and RHR pumps.
- Exposed steel columns in the switchgear rooms will be coated to provide fire protection and the coatings on the steel beams in the diesel generator and fire pump rooms will be repaired.
- Curbs will be provided at appropriate doors and under the turbine lube oil reservoir to contain combustible liquid spills.
- A fire detection system will be installed in the control boards and auxiliary electrical equipment cabinets.
- An automatic sprinkler system will be installed for the reactor building railroad airlock and for the north end of the turbine building to protect safety-related cables.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- February 7-10 (77-03): A review of emergency planning relating to agreements and coordination with offsite agencies, review of drills, and examination of equipment revealed one item of noncompliance relating to Emergency Preparedness Plan training.

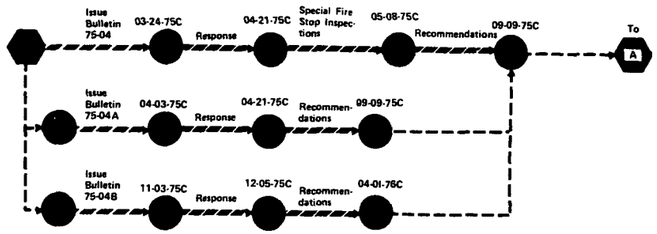
● SUMMARY

GPO 917-645

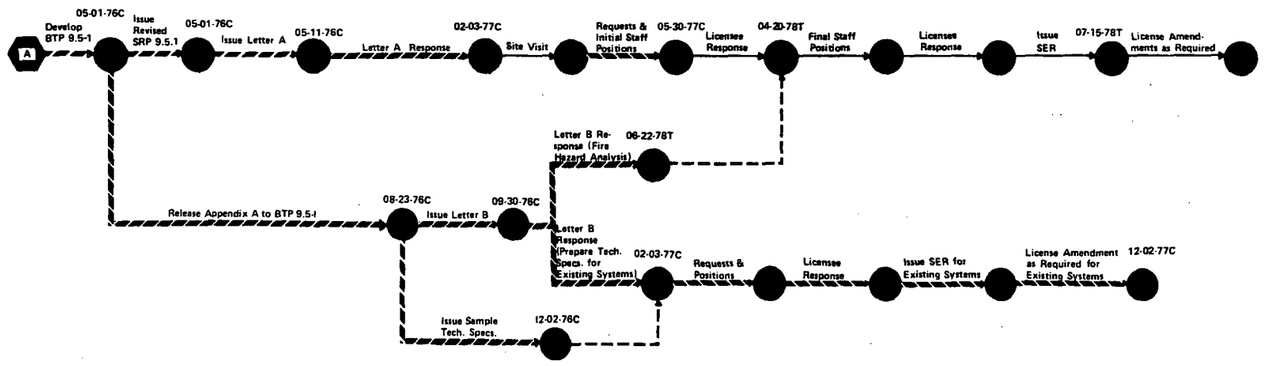
FACILITY DATA

Facility Name: DUANE ARNOLD
Utility Name: IOWA ELECTRIC POWER & LIGHT
Docket Number: 50-331
License/Permit Number: DPR-49
Location: 8 MI NW OF CEDAR RAPIDS
Plant Type: BWR
Lic. Thermal Power: 1593
Design Elec. Power: 0538
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O.R. Branch Chief: G. LEAR
O. R. Proj. Manager: F. CLARK
IE Inspector: H. KISTER

I & E ACTIONS



NRR ACTIONS



FITZPATRICK

LICENSEE MODIFICATIONS

- **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**

- **PORTABLE FIRE EQUIPMENT**
  - A breathing air recharging compressor will be installed to provide a six-hour reserve capacity.

- **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**
  - Ventilation dampers will be upgraded as required.
  - Isolation valves will be installed in the yard fire loop.
  - Doors in the diesel pump room will be upgraded to three-hour fire rated doors.

NRR VERIFICATION: M Virgilio **DATE:** 2/10/78

NRR RECOMMENDATIONS

- **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**

- **PORTABLE FIRE EQUIPMENT**

- **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**

I & E INSPECTION SUMMARY/ACTIONS

- February 22-25 (77-04): A review of Emergency Planning including coordination with offsite agencies, emergency equipment, training and drills revealed three items of noncompliance relating to the failure to conduct drills, failure to prepare drill report and the improper maintenance of emergency equipment.
- April 12-15 (77-07): A review of training and requalification training in all areas including fire training revealed no items of noncompliance.
- August 22-25 (77-23): An inspection of the plant fire protection program revealed one item of noncompliance involving failure to provide fire instruction to plant personnel.

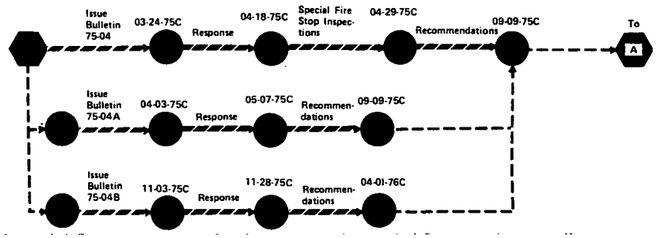
- **SUMMARY**

GPO 81 7-643

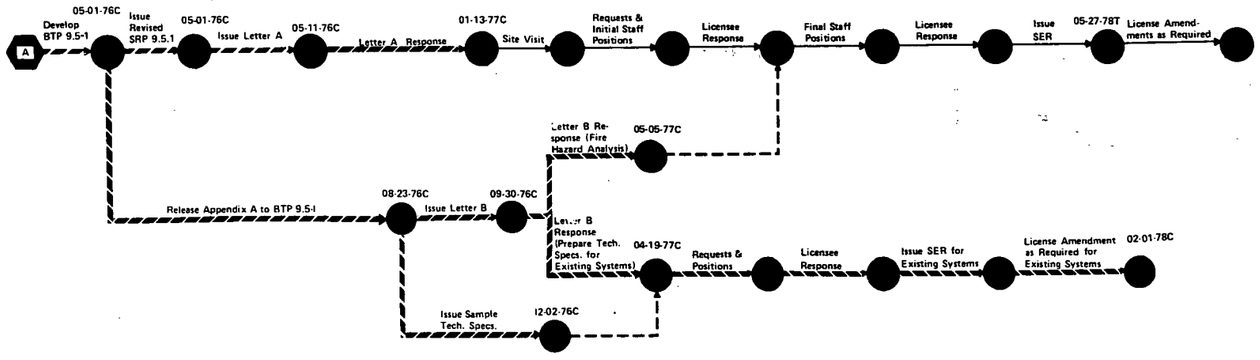
FACILITY DATA

Facility Name: FITZPATRICK
Utility Name: POWER AUTHORITY OF STATE OF N. Y.
Docket Number: 50-333
License/Permit Number: DPR-59
Location: 15 MI E OF OSWEGO, NY
Plant Type: BWR
Lic. Thermal Power: 2436
Design Elec. Power: 0821
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: STONE & WEBSTER
O.R. Branch Chief: R. REID
O. R. Proj. Manager: G. VISSING
IE Inspector: T. MARTIN

I & E ACTIONS



NRR ACTIONS



FORT CALHOUN

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- The quality assurance program for all fire protection equipment/procedures will be established.

● PORTABLE FIRE EQUIPMENT

- Dry chemical, CO_2 and Halon portable extinguishers will be added to those existing in the auxiliary building and the intake structure, and for the control room.
- Additional hose stands will be provided throughout the auxiliary building.(Start 12/1/77)
- Additional self-contained breathing apparatus and a unit to provide bottle recharge capability will be procured.
- Portable lanterns will be purchased for use by the fire brigade.
- All hose stations will be supplied with 100-foot hoses.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Electrical cables in the cable spreading room, the electrical switchgear room and in areas where redundant trains of safety-related cables do not meet separation requirements will have flame retardant coatings applied.(Start 8/1/77)
- Where required, doors will be replaced and electrical and mechanical penetrations in the auxiliary building will be upgraded.(Start 8/1/77)
- Water curtains will be provided over door openings between the turbine and auxiliary buildings.(Start 12/1/77)
- Additional fire detectors and fire alarm lights will be installed in various fire zones of the auxiliary building and in the intake structure.(Start 2/1/78)
- Fixed Halon fire extinguishing systems will be installed in the cable spreading room and the electrical switchgear room.(Start 1/1/78)
- The diesel generator area will be divided into two separate fire areas and the sprinklers will be improved.(Start 1/1/78)
- Power-operated fire dampers will be installed in the ventilation ducts of the electrical switchgear room and the cable spreading room.
- Two fixed radio repeaters will be installed.
- Battery powered detectors will be placed in all safety-related cabinets and consoles and an automatic Halon system will be installed in the main control cabinets.
- Each battery room will have an air flow monitor and the exhaust ducts will be improved.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- October 11-14 and 18-21 (77-16): An inspection of six areas unrelated to fire protection revealed no items of noncompliance but identified one deviation involving failure to keep fire doors closed.
- December 12-15 (77-21): An inspection of plant operations revealed no items of noncompliance. The NRR review team also gained direct knowledge of the fire protection systems.

● SUMMARY

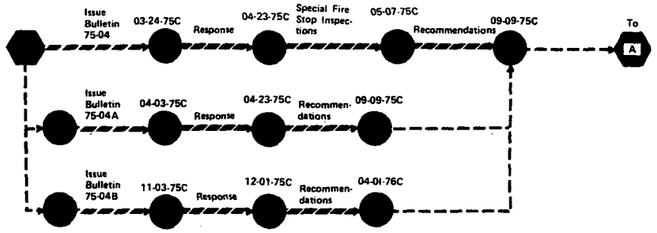
- Engineering for modifications has been initiated.

GPO 81 7-845

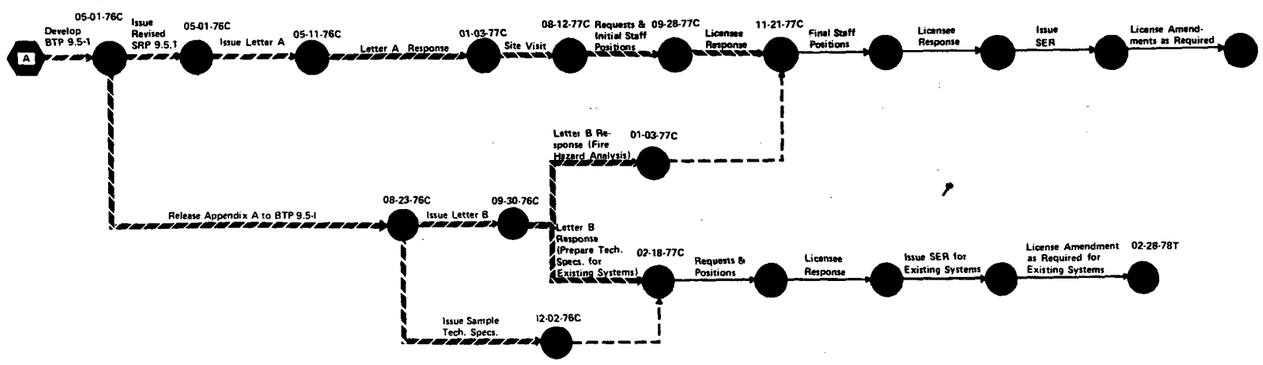
FACILITY DATA

Facility Name: FORT CALHOUN 1
Utility Name: OMAHA PUBLIC POWER DISTRICT
Docket Number: 50-285
License/Permit Number: DPR-40
Location: 19 MI N OF OMAHA
Plant Type: PWR
Lic. Thermal Power: 1420
Design Elec. Power: 0457
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: GIBBS & HILL INC
O.R. Branch Chief: G. LEAR
O. R. Proj. Manager: P. WAGNER
IE Inspector: W. JOHNSON

I & E ACTIONS



NRR ACTIONS



GINNA

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Administrative controls are being developed for equipment maintenance, fire fighting, tests of equipment, general housekeeping, and use of combustibles.

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Fire alarms in the control room will be made distinctive.
- At the screen house, the gas meter regulating station and the fire pump diesel fuel tank will be moved outside and a thermally operated shutoff valve will be added to the pump fuel line.
- A fire retardant coating will be sprayed on certain sections of power cables in the east cable vault of the diesel generator building and door closures will be adjusted.
- Other alterations include the replacement of 5 doors with "A" labeled 3-hour doors and of 2 doors with "B" labeled 1-1/2 hour doors to upgrade walls; the upgrading of the computer room ceiling to a 1-hour fire rating from the underside; the installation of several water spray shields; the walls between the auxiliary and the nitrogen storage buildings and the walls between the control room and the turbine building will be upgraded or a water curtain will be added; fire dampers will be installed in the spent fuel pool charcoal filter ducts and in the computer room air supply and exhaust ducts; and curbs will be installed in the reactor containment on the floor within the secondary shield walls and in the diesel generator rooms.
- In the fire water system, all isolation valves will either be supervised or locked and additional sectionalizing will be installed.
- Fire detection and automatic suppression systems (water deluge or spray) will be installed in the following locations: basement cable trays area, cable tunnel entrance and charcoal filter areas of the auxiliary building; the control complex in the northwest part of the mechanical equipment room; and the basement cable trays below the switchgear and the service water pumps areas in the screen house.
- Smoke detectors will be installed to convert the following manually operated fire suppression systems to automatic operation: the relay/cable spreading room Halon system; the computer room Halon system; the cable tunnel water spray system.
- A manually operated water spray sprinkler system will be installed for the cable trays in the 256.5' elevation of the intermediate building.
- Fire detection systems will also be installed in the following areas: auxiliary building operating floor; intermediate building purge filter exhaust ducts; turbine auxiliary feedwater pump area; control room instrument cabinets; diesel generator cable vaults; and the standby auxiliary feedwater pump building.

NRR VERIFICATION: M Virgilio **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- July 25-27 (77-14): A review of training and requalification training in all areas including fire training revealed six items of noncompliance.

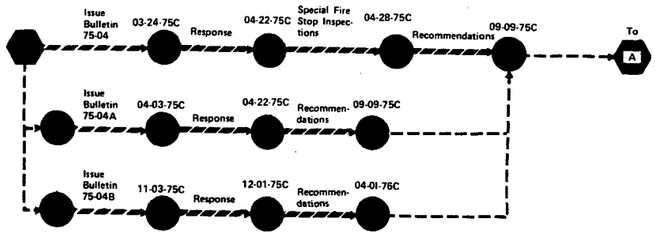
● SUMMARY

GPO 917-843

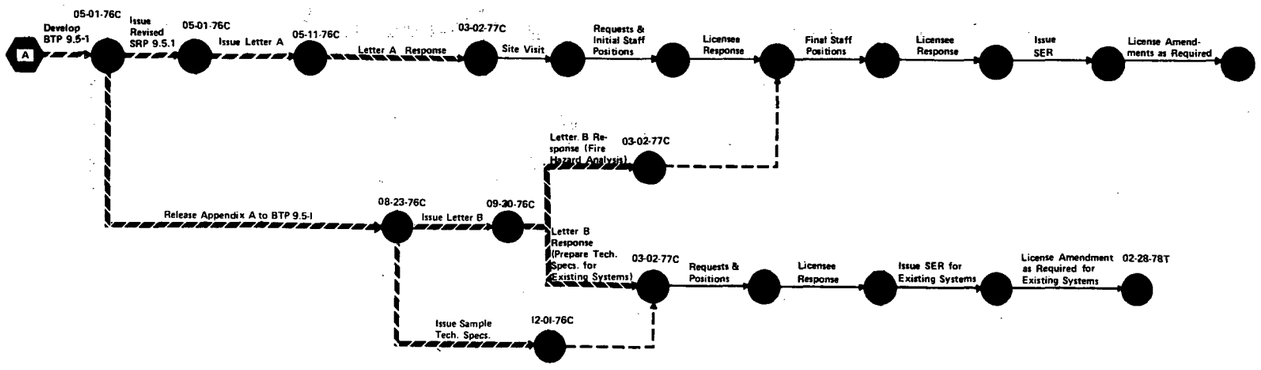
FACILITY DATA

Facility Name: GINNA
Utility Name: ROCHESTER GAS & ELECTRIC
Docket Number: 50-244
License/Permit Number: DPR-18
Location: 20 MI ENE OF ROCHESTER, NY
Plant Type: PWR
Lic. Thermal Power: 1520
Design Elec. Power: 0490
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: GILBERT ASSOCIATES INC
O.R. Branch Chief: A. SCHWENCER
O. R. Proj. Manager: T. WAMBACH
IE Inspector: W. RAYMOND

I & E ACTIONS



NRR ACTIONS



HADDAM NECK

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Existing plant procedures are being supplemented and upgraded.

● PORTABLE FIRE EQUIPMENT

- A hose cabinet will be installed to provide backup protection to the east end of the primary auxiliary building.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- The high density cable trays at 21'6" in the primary auxiliary building will be coated with a flame-retardant material.
- A fire-retardant coating will be applied to cables protected only by a sheet metal duct in the lunch room.
- Three-hour fire doors will be installed between the pump motor area and the oil storage areas in the pump house and between the H. P. storage room and the service building.
- All cable and conduit penetrations in the west wall between the primary auxiliary building and the service building will be sealed and, where appropriate, such penetrations through the south and west walls of the cable spreading area will be sealed and fire dampers installed.
- Seals will be provided around vents penetrating the floor of the mechanical equipment room.
- Wall penetration from the H. P. storage room to the cable spreading area will be sealed.
- Smoke detection equipment will be installed in the following locations: in all levels and in the stairwell over the cable tray and the motor control center in the waste processing building; in the control room walk-in control cabinets; in the waste draining areas, over the residual heat removal pumps and over high density cable trays in the primary auxiliary building; in the diesel oil storage area of the screenwell pump house; at the reactor coolant pumps in the reactor building; in the H. P. storage area; and in the RCA storage area of the fuel storage building.
- An automatic fire suppression system will be installed in the diesel generator room.
- An automatic water spray system will be installed in the cable spreading area in the service building.
- Smoke detectors in the diesel generator room will be rewired such that each room is on a separate circuit.
- The CO_2 suppression system for the cable penetration vault will be converted to automatic operation.

NRR VERIFICATION: H Conklin **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- March 15-17 (77-06): A review of emergency planning including in coordination with offsite agencies, and examination of emergency facilities, equipment, procedures, training and conduct of drills revealed all items to be satisfactory.
- October 3-7 (77-19): An inspection of fire protection activities and one other area revealed one item of noncompliance involving failure to document performance of yearly testing of fire hoses.

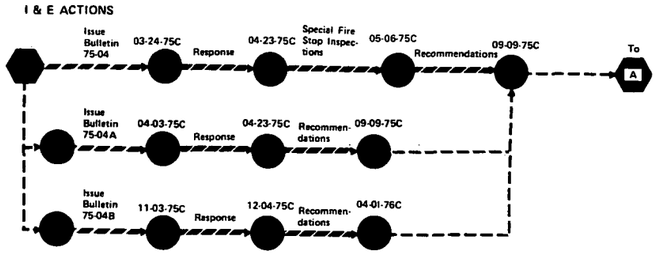
● SUMMARY

GPO 911-843

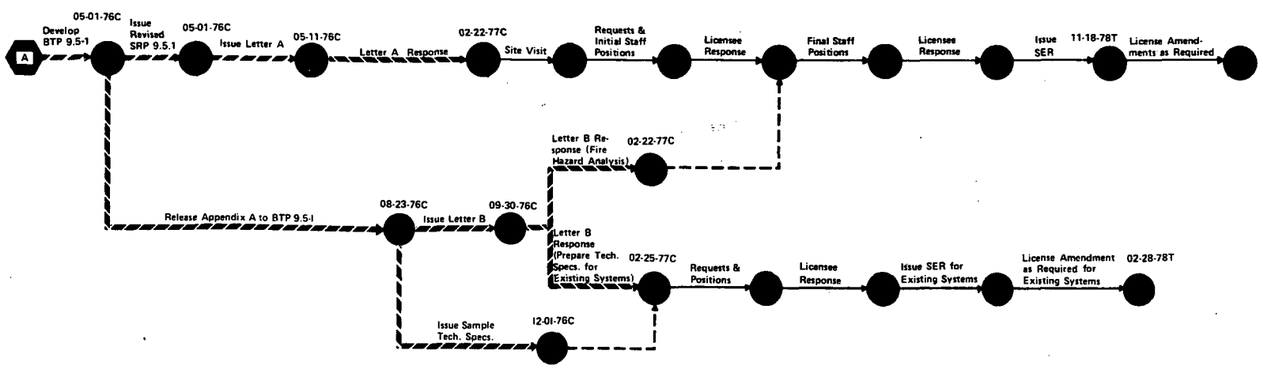
FACILITY DATA

Facility Name: HADDAM NECK
Utility Name: CONNECTICUT YANKEE ATOMIC POWER
Docket Number: 50-213
License/Permit Number: DPR-61
Location: 9.5 MI SE OF MIDDLETON, CONN
Plant Type: PWR
Lic. Thermal Power: 1825
Design Elec. Power: 0575
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: STONE & WEBSTER
O.R. Branch Chief: A. SCHWENCER
O. R. Proj. Manager: W. RUSSELL
IE Inspector: W. LAZARUS

I & E ACTIONS



NRR ACTIONS



HUMBOLDT BAY

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Impaired protection procedures are under development.

● PORTABLE FIRE EQUIPMENT

- Additional dry chemical fire extinguishers will be provided for the control room, the access shaft and the reactor feed pump room.
- Water hose nozzles in electrical hazard areas will be replaced with non-conductive fog nozzles.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- A containment curb will be installed around the lube oil reservoir area.
- A fire rated mastic coating will be applied to the control room structural steel in the reactor feed pump room.
- Additional fire stops will be added to the cable trays in the cable spreading area.
- Additional ionization-type smoke detectors will be provided for numerous areas throughout the plant.
- CO_2 protection will be installed for the switchgear and motor control centers.
- Thermal detectors will be provided for the emergency engine generator and the fire pump house.
- A deluge sprinkler water screen will be installed around the lube oil reservoir area.
- A manual deluge sprinkler system will be installed for the cable trays in the cable spreading area.
- An automatic wet pipe sprinkler will be installed in the hallway between the control room and demineralizer control area.
- A deluge sprinkler water screen will be installed between Units 2 & 3 at the operating floor area.
- Existing sprinklers over the lube oil reservoir area will be relocated.

NRR VERIFICATION: W Vaughn **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

● SUMMARY

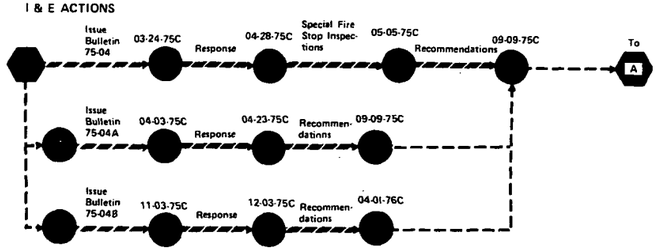
- Modifications for fire prevention systems will be completed during the fuel outage in June, 1977.
- Because of plant additions and modifications during the past year, a detailed fire hazard analysis of each fire area will not be completed until December 31, 1977.

GPO 917-645

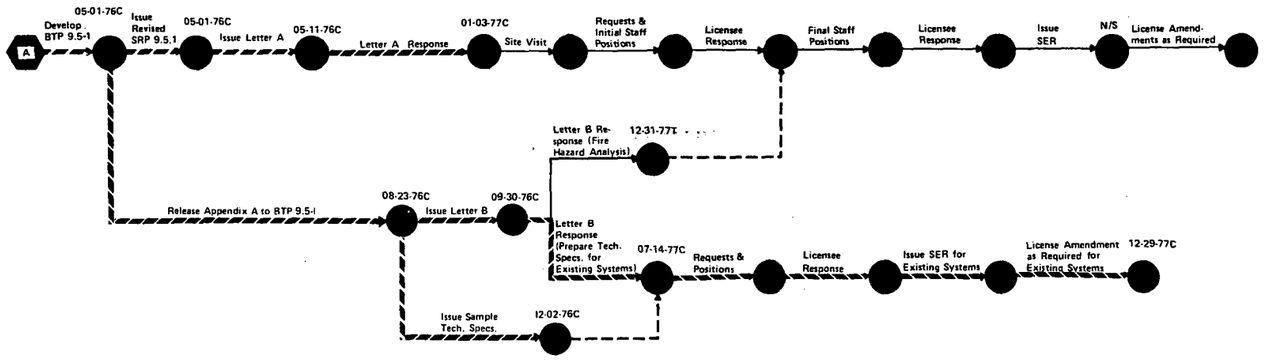
FACILITY DATA

Facility Name: HUMBOLDT BAY
Utility Name: PACIFIC GAS & ELECTRIC
Docket Number: 50-133
License/Permit Number: DPR-7
Location: 4 MI SW OF EUREKA, CAL
Plant Type: BWR
Lic. Thermal Power: 0220
Design Elec. Power: 0068
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O.R. Branch Chief: R. REID
O. R. Proj. Manager: C. NELSON
IE Inspector: J. WOESSNER

I & E ACTIONS



NRR ACTIONS



INDIAN POINT 1, 2, & 3

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Instructions for the conduct of fire drills will be issued shortly.
- A specific audit plan based on Tech Specs, QA, and fire protection requirements will be prepared and issued.

● PORTABLE FIRE EQUIPMENT

- A sufficient number of self-contained breathing units will be located near the Unit 3 air lock.
- Battery-operated emergency lighting will be provided where necessary.
- Interior manual hose stations may be installed in the Units 2 and 3 primary auxiliary buildings.
- Metal deck roofs on Unit 2 buildings will be protected with hose stations.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- The stairways in the Unit 1 chemical systems building will be improved by eliminating the ventilation openings through the doors and by enclosing the ducts in fire-rated constructions.
- All portions of the north wall of Unit 2 control building that are within 50 feet of an oil-filled transformer will be protected by a water curtain.
- Fire-rated doors will be installed for the water pump room and for the access to the Unit 1 turbine building on the south wall of the Unit 2 switchgear room.
- The ventilation openings into the turbine buildings will be provided with fire doors.
- The louvered openings in the Units 2 and 3 doors will have fire dampers installed.
- Electric fire pump to be enclosed within fire-rated structure.
- An additional diesel fire pump will be installed; all buried isolation valves in the underground fire main loop will be clearly marked; a second, proper-sized water tank will be erected; and an adequate number of hose houses will be provided on the north and south loops.
- OS&Y valves will be installed in Units 2 & 3 standpipe risers at their connection to the header.
- The installation of additional automatic fire and/or smoke detectors in the Units 2 & 3 primary auxiliary buildings, control buildings, auxiliary feedwater buildings and containment buildings is under investigation.
- Any corrective actions needed for the potential hazard of the Unit 1 turbine oil storage tank will be implemented before the Unit is returned to service.
- Trailers containing high pressure hydrogen cylinders will be relocated to be a minimum of 50' from any building containing safety-related equipment.
- The fixed fire protection for the oil storage tanks has been included in the Indian Point five-year improvement program.
- Automatic fire detection systems will be installed in Units 2 & 3 near fuel storage areas.

NRR VERIFICATION: N. Trehan **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- February 1-3 (77-04): An inspection concerning work controls for fire prevention and protection, including training and drills, procedures, quality assurance surveillance, and cable penetration sealing specifications revealed one item of noncompliance relating to failure to follow signs and procedures for smoking control and inspection of emergency equipment.
- December 6-9 (77-41): An inspection of the fire protection programs for Units 2 and 3, including work control procedures, quality assurance surveillance, and several other areas, revealed no items of noncompliance.

● SUMMARY

- Indian Point 1 was shutdown in October 1974, and it was defueled in January 1976. Only those systems which are required to maintain Unit 1 in its present status or are common to Units 2 & 3 are in active service.

GPO 917-845

INDIAN POINT 1, 2, & 3 CAT I

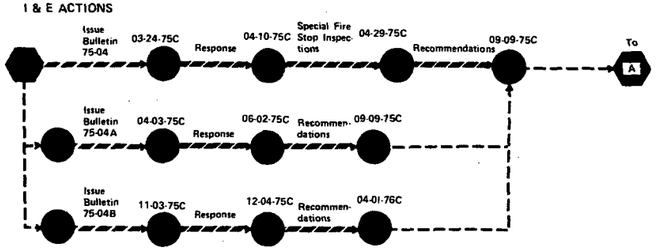
FACILITY DATA

Facility Name: INDIAN POINT 1
Utility Name: CONSOLIDATED EDISON
Docket Number: 50-003
License/Permit Number: DPR-5
Location: 3 MI NE OF PEEKSKILL, NY
Plant Type: PWR
Lic. Thermal Power: 0615
Design Elec. Power: 0265
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: UNITED ENGINEERS
O.R. Branch Chief: R. REID
O. R. Proj. Manager: P. ERICKSON
IE Inspector: J. STREETER

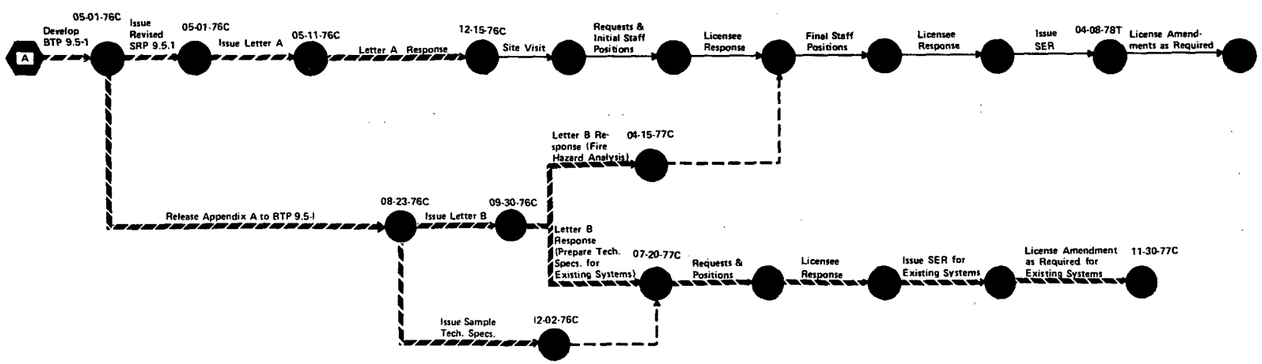
Facility Name: INDIAN POINT 2
Utility Name: CONSOLIDATED EDISON
Docket Number: 50-024
License/Permit Number: DPR-26
Location: 3 MI NE OF PEEKSKILL, NY
Plant Type: PWR
Lic. Thermal Power: 2758
Design Elec. Power: 0873
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: CONSOLIDATED ENGINEERS
O.R. Branch Chief: R. REID
O. R. Proj. Manager: P. ERICKSON
IE Inspector: J. STREETER

Facility Name: INDIAN POINT 3
Utility Name: POWER AUTHORITY OF THE STATE OF N. Y.
Docket Number: 50-286
License/Permit Number: DPR-64
Location: 3 MI NE OF PEEKSKILL, NY
Plant Type: PWR
Lic. Thermal Power: 2760
Design Elec. Power: 873
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: WEDCO
O.R. Branch Chief: R. REID
O. R. Proj. Manager: P. ERICKSON
IE Inspector: J. STREETER

I & E ACTIONS



NRR ACTIONS



KEWAUNEE

LICENSEE MODIFICATIONS

- **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**

- **PORTABLE FIRE EQUIPMENT**

- **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**
  - A properly rated fire door will be provided for the CO_2 tank room.
  - Isolation dampers will be installed in the ventilation ducts of the relay room.

NRR VERIFICATION: H Vingel **DATE:** 2/10/78

NRR RECOMMENDATIONS

- **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**

- **PORTABLE FIRE EQUIPMENT**

- **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**

I & E INSPECTION SUMMARY/ACTIONS

- February 15-18 (77-05): A review of documentation relative to compliance with emergency planning requirements, including training, drills and offsite coordination, and examination of selected emergency facilities, and other areas, revealed three deviations.

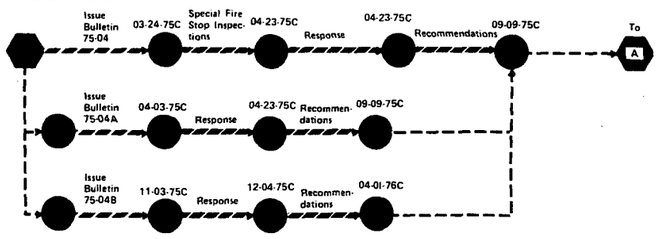
- **SUMMARY**

GPO 917-845

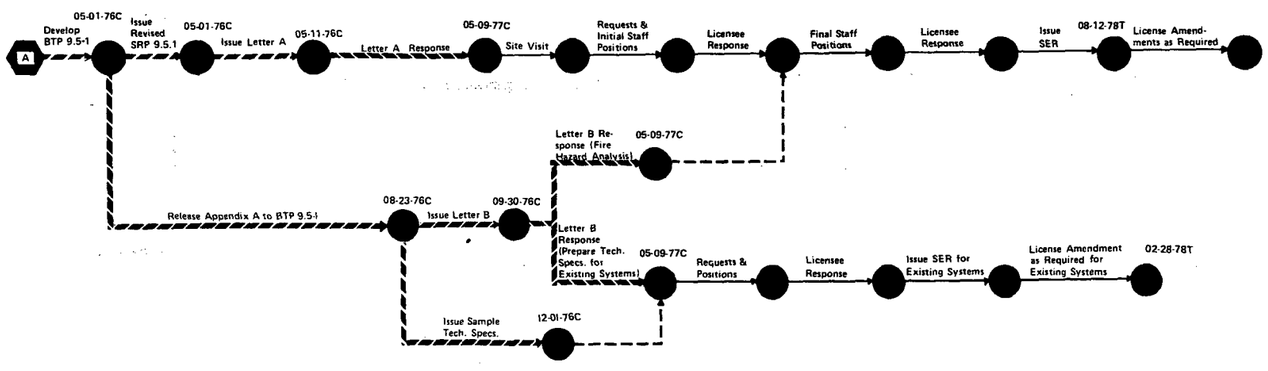
FACILITY DATA

Facility Name: KEWAUNEE
Utility Name: WISCONSIN PUBLIC SERVICE
Docket Number: 50-305
License/Permit Number: DPR-43
Location: 27 MI ESE OF GREEN BAY, WISC
Plant Type: PWR
Lic. Thermal Power: 1650
Design Elec. Power: 535
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: PIONEER SERVICE & ENGINEERING
O.R. Branch Chief: A. SCHWENCER
O. R. Proj. Manager: D. NEIGHBORS
IE Inspector: N. CHOULES

I & E ACTIONS



NRR ACTIONS



LACROSSE

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- The requirement for fire brigade drills will be increased to quarterly.
- Local fire department will be invited for an onsite visit annually.
- Fire alarm check procedures will be changed to have personnel check fire doors to adjacent areas to verify closure. (Spring '77)
- An audit of the fire protection program to audit schedule of Quality Assurance Department will be added.

● PORTABLE FIRE EQUIPMENT

- Portable smoke ejection equipment will be purchased.
- Two additional sets of self-contained breathing apparatus and two more spare individual bottles will be purchased.
- The fire hoses in the containment building will be replaced with larger 1-1/2 inch hoses.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Six penetrations will be sealed to meet fire ratings of walls.
- Hydrogen concentration monitors will be installed in both battery rooms.
- Unused resins will be stored outside of the turbine hall.
- Additional detectors will be installed in the containment building to cover the area containing forced circulation pump lubricants.
- Automatic sprinkler protection will be installed in the turbine hall area containing alternate core spray valves and sections of CCW, DMW and HPSW lines.
- The sprinkler protection over the turbine lube oil tank and the oil storage areas will be improved.
- A manual initiation control for the CO_2 system in the diesel generator building will be added.
- A light to indicate power, alarm and trouble indicator circuit will be added to the operator's fire alarm panel.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- March 1-3 (77-05): A review of emergency planning, including coordination with offsite agencies, examination of facilities and procedures specified in Emergency Plan, and review of drills, revealed all items to be satisfactory.

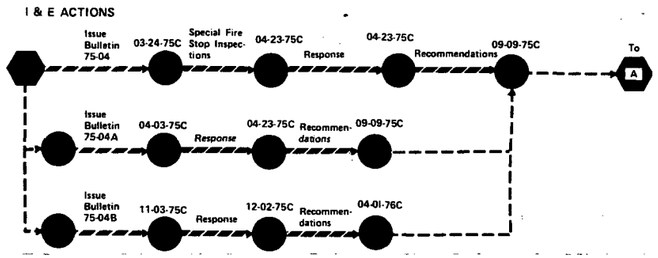
● SUMMARY

GPO 81 7-849

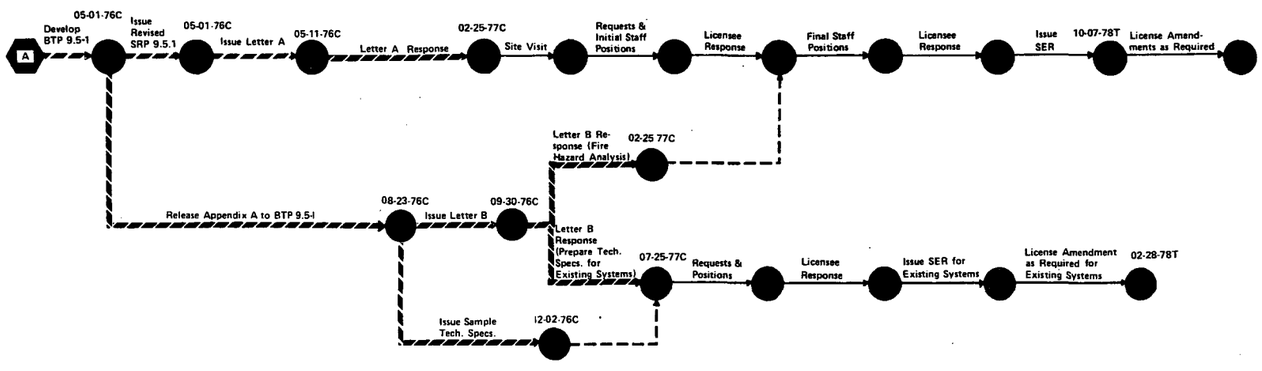
FACILITY DATA

Facility Name: LA CROSSE
Utility Name: DAIRYLAND POWER
Docket Number: 50-409
License/Permit Number: DPR-45
Location: 1 MI S OF GENOA, WISC
Plant Type: BWR
Lic. Thermal Power: 0165
Design Elec. Power: 0050
NSSS Vendor: ALLIS-CHALMERS
Architect/Engineer: SARGENT & LUNDY
O.R. Branch Chief: R. REID
O. R. Proj. Manager: G. VISSING
IE Inspector: H. KISTER

I & E ACTIONS



NRR ACTIONS



MAINE YANKEE

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Plant procedures, including those for maintaining fire equipment, brigade training and quality assurance, will be developed.
- Additional administrative controls to be imposed will regulate storage of combustibles.

● PORTABLE FIRE EQUIPMENT

- Hose stations will be installed in several levels of the PAB.
- A 150 gallon water extinguisher will be provided for containment and an extinguisher will be added near the hydrogen storage shed.
- A portable ventilation duct will be provided to convey the smoke and gases to an outside location from the cable vault hatch.
- A portable duct system will be provided for the exhaust opening of the protected cable vault.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- The downcomer cables in the control room will be coated with a fire retardant material.
- Fire stops of fire retardant material will be installed in the auxiliary L. O. cable tray and in the charging pumps auxiliaries cable trays in the PAB and on all reactor coolant pump cables in containment.
- Appropriate additional curbing will be installed.
- Fire dampers will be installed in the following locations: in duct work penetrations to the non-protected cable tray room; in the vent ducts to the protected cable tray room; and in ducts penetrating walls and floors of the switchgear room and the control building.
- Numerous penetrations of ducting, piping and cables will be sealed with fire retardant material.
- Smoke detectors will be installed in the following areas: the main control board; in the upper and the lower battery rooms; in the area of the auxiliary charging pump; and above each pump in the containment spray pump area.
- AFFF capability will be added for the turbine lube oil tank and seal oil areas and for the day tank and the integral tank in the diesel generator and for the RHR pump pit.
- A dry pipe sprinkler system will be installed in the protected cable vault, sprinklers will be provided for the primary and secondary component coolant pumps and an automatic sprinkler system will be installed in the Radioactive control area storage building.
- Protectowire will be installed in all cable trays in the protected cable tray room; in trays in the unprotected cable tray room; in cable trays in the cable vault; and in the cable trays, junction boxes, etc. in the lower level of the PAB.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- August 1-5 (77-14): An inspection provided the NRR fire protection review team with direct knowledge of the arrangement of safety-related equipment, fire hazards, fire protection equipment and administrative controls.

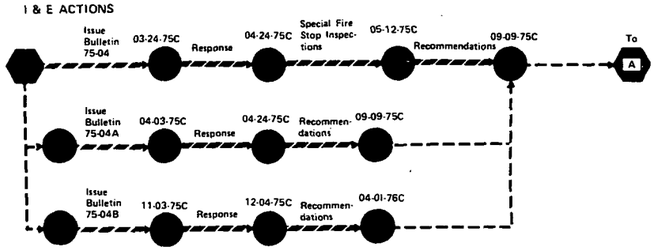
● SUMMARY

GPO 917-845

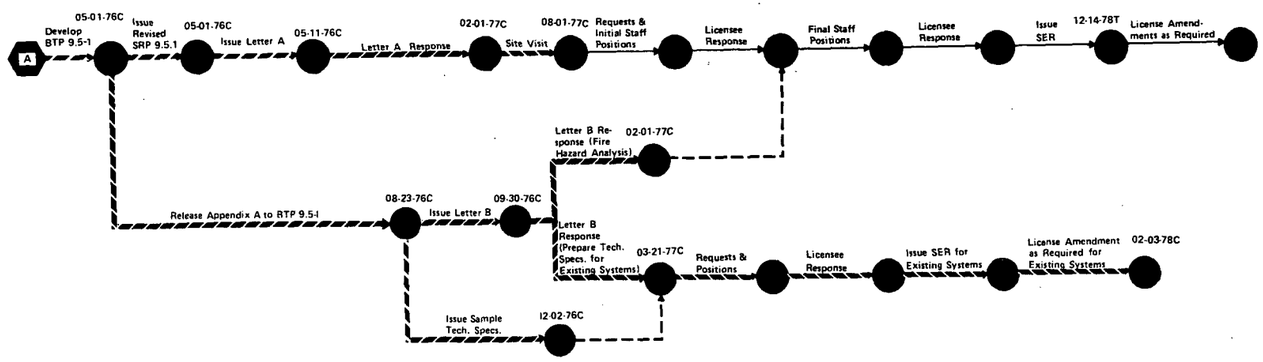
FACILITY DATA

Facility Name: MAINE YANKEE
Utility Name: MAINE YANKEE ATOMIC POWER
Docket Number: 50-309
License/Permit Number: DPR-36
Location: 10 MI N OF BATH, ME
Plant Type: PWR
Lic. Thermal Power: 2440
Design Elec. Power: 790
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: STONE & WEBSTER
O.R. Branch Chief: R. REID
O. R. Proj. Manager: L. OLSHAN
IE Inspector: W. LAZARUS

I & E ACTIONS



NRR ACTIONS . .



MILLSTONE 1

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Existing plant administrative procedures are being upgraded or supplemented.

● PORTABLE FIRE EQUIPMENT

- Additional hose stations will be installed at the drywell entrance, in the station services area, and in the mezzanine area of the turbine building.
- Additional portable extinguishers will be installed in eight areas of the reactor such as the cleanup system area, operating floor, standby liquid control area, etc.
- Recharging system for Scott air pak air cylinders to be installed.
- Radio transmitting system to be upgraded.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Fire dampers will be installed in the following areas of the turbine building: the supply and exhaust ducts in the control room; the cable vault exhaust; and the supply ventilation ducts in Area T-7 and Area T-4.
- Additional fire barriers will be constructed in the control room, the diesel-generator day tank room and the switchgear area.
- Drainage systems will be evaluated and modified to reduce the fire severity.
- Fire stops will be installed as appropriate and 8 fire doors will be installed in the turbine building.
- Manual transfer switches that permit wiring and controls in the main control room to be isolated, with control reverting to a local control station, will be installed for several safety-related systems.
- Some rerouting of cables is proposed to avoid having cables for redundant components pass through common fire areas and to provide redundant power supply.
- Automatic fire detection and suppression systems will be installed in Area R-2 of the reactor building and in Area T-5 and T-17 of the turbine building.
- Additional fire detection systems will be installed on all levels, except the operating floor, of the reactor building and in several areas of the turbine building, such as the decontamination, station services, cable vault, control room and the ventilation equipment areas.
- The existing fire suppression system for the 42'6" elevation of the reactor building will be improved.
- The ventilation fan control system will be modified to shutdown affected areas in the event of a fire.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

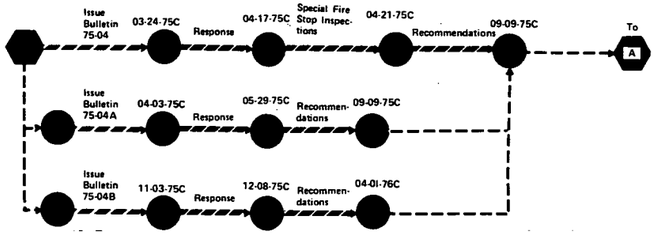
● SUMMARY

GPO 817-845

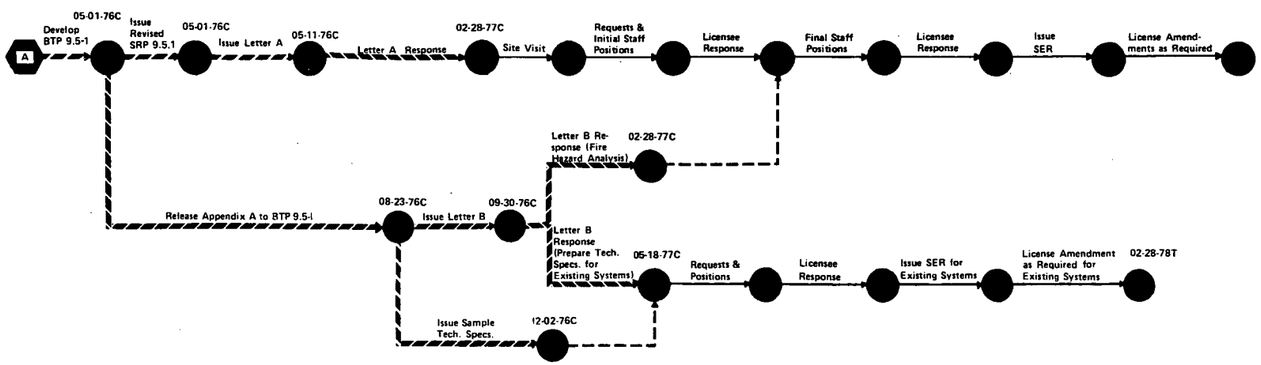
FACILITY DATA

Facility Name: MILLSTONE 1
Utility Name: NORTHEAST NUCLEAR ENERGY
Docket Number: 50-245
License/Permit Number: DPR-21
Location: 5 MI SW OF NEW LONDON
Plant Type: BWR
Lic. Thermal Power: 2011
Design Elec. Power: 660
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: EBASCO
O.R. Branch Chief: G. LEAR
O. R. Proj. Manager: D. JAFFE
IE Inspector: J. SHEDLOWSKY

I & E ACTIONS



NRR ACTIONS



MILLSTONE 2

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Existing plant administrative procedures being upgraded or supplemented.

● PORTABLE FIRE EQUIPMENT

- The length of several hoses will be increased to 75 feet.
- Additional hose stations will be installed at the east entrance to the cable spreading room and at the east entrance to the auxiliary building at the -5' level.
- The number of emergency breathing apparatus will be increased and a recharging station for the air cylinders will be installed.
- The existing radio transmitting system will be improved with the addition of new transmitters and other modifications.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- A 1-1/2 hour fire barrier will be established between Unit 1 and Unit 2 control rooms.
- Oil deflection shields will be installed on each reactor coolant pump oil system.
- Fire detection equipment will be installed in the control cabinets in the control room, at each of the four reactor coolant pumps and in the area of the CCW pump area in the auxiliary building.
- The yard fire loop will be modified to provide means for treating and flushing.

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

● SUMMARY

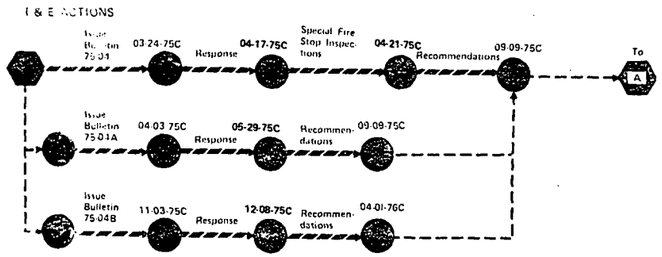
NRR VERIFICATION: M Vaughlin **DATE:** 2/10/78

GPO 917-845

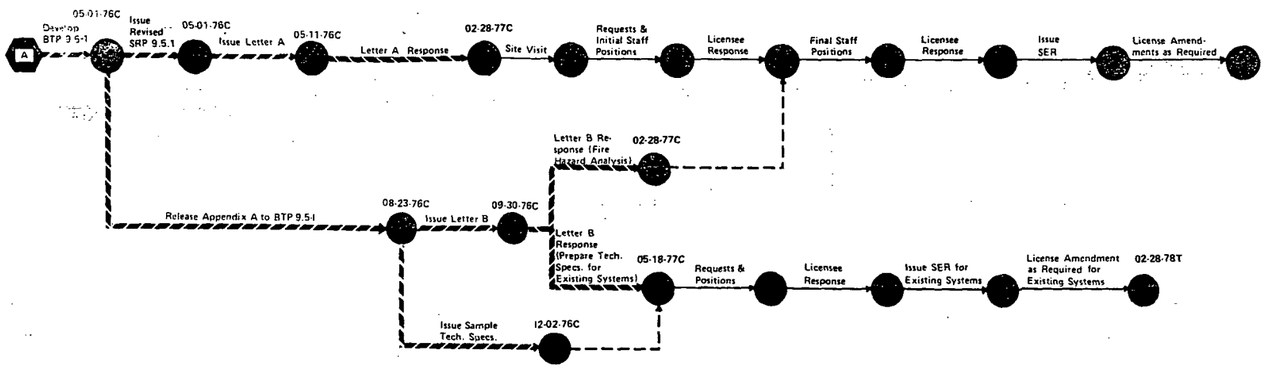
FACILITY DATA

Facility Name: MILLSTONE 2
Utility Name: NORTHEAST NUCLEAR ENERGY
Docket Number: 50-336
License/Permit Number: DPR-65
Location: 5 MI SW OF NEW LONDON
Plant Type: PWR
Lic. Thermal Power: 2560
Design Elec. Power: 830
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: BECHTEL
O.R. Branch Chief: G. LEAR
O. R. Proj. Manager: D. JAFFE
IE Inspector: J. STREETER

I & E ACTIONS



NRR ACTIONS



MONTICELLO

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Directives designating responsibilities for the plant's fire protection program will be issued.
- Requirements for the proper storage of combustible material and restrictions on the use of combustible material in safety-related areas will be established.
- A permit system will be formulated for welding and torch use and for designating precautions that should be taken by fire watches.
- Plant fire drills will be formalized to include annual participation by the local fire department, and semi-annual drills will be conducted for the emergency team.
- A review of documents will be performed to insure that fire protection procedures are adequate.

● PORTABLE FIRE EQUIPMENT

- Portable extinguishers will be provided for each hose station in the condensate storage tank area.
- A portable extinguisher will be mounted on each welding cart.
- Additional Scott pressure-pak units, extra air bottles for self-contained units and additional spare air cylinders will be obtained.
- Additional hose stations will be installed in the torus area.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- All wood presently used in the plant will be treated with fire retardant. Only treated wood will be used in the future.
- Adequately sized floor drains will be installed in the recirculation M-G set room.
- The steel supports for the heating boiler and diesel fire pump day tanks will be protected.
- A properly protected records storage area will be constructed.

- Audible and visual alarm annunciation in the control room will be provided for the recirculating M-G set room and cooling towers.
- An automatic CO_2 or Halon suppression system will be installed for the cable spreading room.
- The control room ventilation system will be modified to meet detection, alarm and isolation requirements.
- Additional tamper-proof seals will be installed on the fire water system valves and the valves will be inspected more frequently.
- A barrier will be installed around the lube oil deluge system in the turbine building to prevent possible damage to redundant safety cabling.
- Several unsealed duct penetrations in the battery rooms, the cable spreading room, the lube oil storage tank room and between the fuel oil day tank rooms will be sealed.
- Several non-rated doors will be replaced with fire doors.
- The deluge system for the turbine lube oil reservoir will be extended.
- Automatic fire suppression systems will be installed in the diesel generator rooms and in the diesel generator day tank areas.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

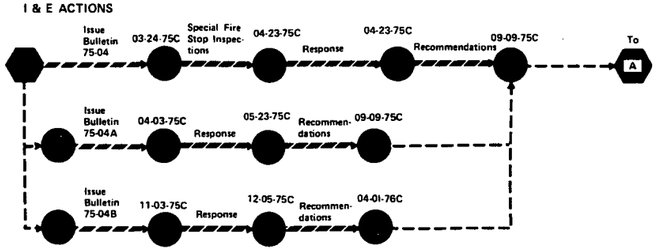
- September 6-8 (77-15): An inspection to review fire protection procedures, including detection, training, and penetration seal maintenance, revealed no items of noncompliance or deviations.

● SUMMARY

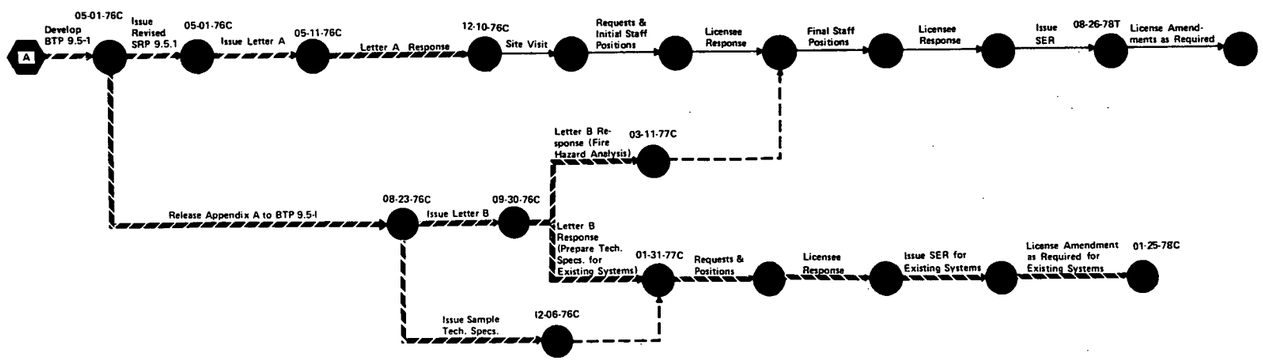
FACILITY DATA

Facility Name: MONTICELLO
Utility Name: NORTHERN STATES POWER
Docket Number: 50-263
License/Permit Number: DPR-22
Location: 30 MI NW OF MINNEAPOLIS
Plant Type: BWR
Lic. Thermal Power: 1670
Design Elec. Power: 0545
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O.R. Branch Chief: D. DAVIS
O. R. Proj. Manager: R. SNAIDER
IE Inspector: T. HARPSTER

I & E ACTIONS



NRR ACTIONS



NINE MILE POINT 1

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Procedural modifications are in progress to address welding and leak testing activities, to control combustibles and to assure adequate fire protection during plant maintenance and modifications.

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Fire retardant material will be placed over all safety-related cable trays that pass near powerboards in the reactor building, in the turbine building and in the diesel generator building.
- Appropriate cable penetrations through the floor of the reactor building and penetrations through the floors and walls of the turbine and diesel generator buildings will be sealed.
- Several fire doors will be installed in the diesel generator building.
- Barriers will be provided to separate close powerboards and to separate the liquid poison pumps in the reactor building. Several fire walls will be erected in the turbine building.
- Sprinkler protection will be provided for the following: heavy safety-related cable concentrations and for the general tool storage area in the reactor building; for the noble gas equipment area, for safety-related cable runs, for the truckway entrances and the storage areas in the turbine building; for the laboratory areas, the welding area, the general storage area and for heavy concentrations of safety-related cables in the turbine building; for charcoal filters; for the welding area in the off gas building; for the truck loading area of the waste building; for the diesel generators; for the cable room, as a backup; and for the administration building.
- Additional fire detection systems will be provided for safety-related motors and powerboards for cable concentrations and for other safety-related equipment in the reactor building, and the turbine buildings, the screen and pump house and the diesel generator building.
- Fire detection systems will also be installed in the control room cabinets and above the ceiling and on every floor of the waste building and the off gas building.

NRR VERIFICATION: H Denton **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- February 22-25 (77-02): A review of the licensee's program for coping with emergencies, including off-site agency coordination, emergency facilities and equipment, emergency training and conduct of drills revealed three items of noncompliance relating to conduct and evaluation of drills and maintenance of emergency equipment.
- May 24 (77-10): During an inspection, witnessed test of Transformer Deluge System.

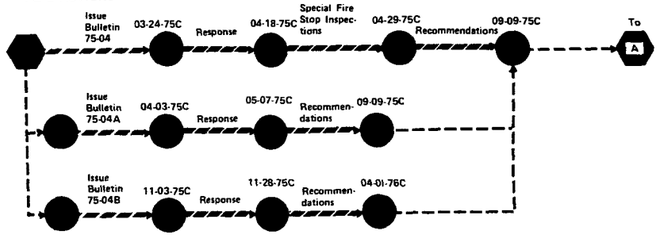
● SUMMARY

GPO 817-845

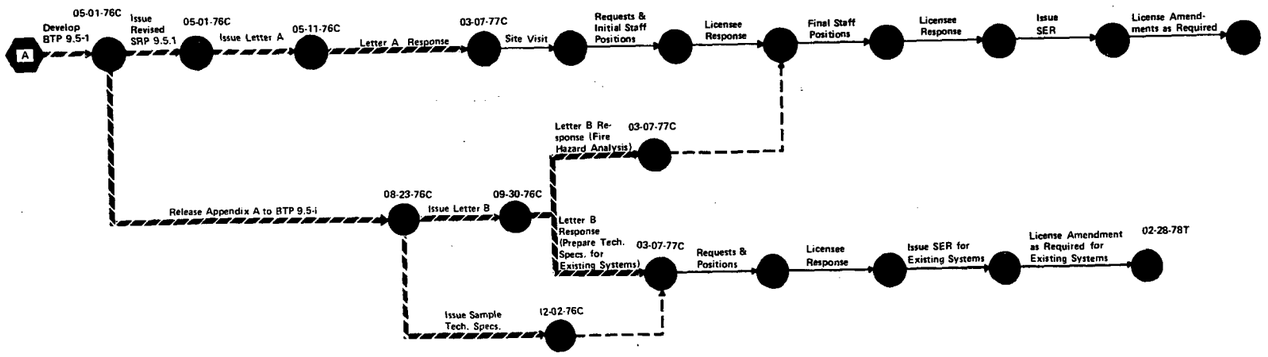
FACILITY DATA

Facility Name: NINE MILE POINT 1
Utility Name: NIAGARA MOHAWK POWER
Docket Number: 50-220
License/Permit Number: DPR-17
Location: 7 MI NE OF OSWEGO, NY
Plant Type: BWR
Lic. Thermal Power: 1850
Design Elec. Power: 610
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: NIAGARA MOHAWK
O.R. Branch Chief: G. LEAR
O. R. Proj. Manager: S. NOWICKI
IE Inspector: D. STERNBERG

I & E ACTIONS



NRR ACTIONS



OCONEE 1, 2, & 3

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Existing procedures being modified and supplemented.
- Propane tanks located outside the turbine building will be anchored and provided with excess flow valves.
- Areas containing flammable atmospheres have been posted to restrict smoking and areas with safety-related equipment will be physically marked.

● PORTABLE FIRE EQUIPMENT

- Portable Halon-type fire extinguishers will be provided in each control room.
- Portable smoke purge fans and duct work will be provided.
- Two separate air bottles and a 6-hour supply will be provided for the air masks required for fire brigade personnel.
- Portable hand lights will be provided for the fire brigade.
- Selected interior hose stations will be provided with spray stream nozzles.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Cables in the following rooms will be sprayed with a flame retardant coating; three equipment rooms; six penetration rooms; three cable rooms; and in connecting cable shafts.
- Doors to the HVAC equipment room will be upgraded to 3-hour rated doors.
- Additional smoke detectors will be provided for the following areas: three work areas; three laundry storage areas; five towel storage areas; protective clothing areas; three general storage areas; eight laboratory areas; electrical maintenance, kitchen and computer rooms; in the cabinets and consoles in the control room; in Unit 3 battery room; and in the areas of the low and high pressure injection pumps.
- An audible alarm in the control room will indicate water flow in sprinkler or deluge systems (by April 1978).
- Cloth identification tags will be replaced with noncombustible tags in the Unit 1 cable spreading room.
- Various duct and conduit penetrations will be sealed and upgraded.

NRR VERIFICATION: T. Novak **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- March 8-11 (77-3): A review of plant operations, reportable occurrences (LERs), a previous item of noncompliance, and of fire prevention/protection revealed one item of noncompliance which was not related to fire protection. (Unit 3)
- October 11-19 (77-24): An inspection of ten areas of the licensee's emergency organization, including fire brigade organization and coordination with offsite support agencies, revealed two items of noncompliance involving failure to inspect self-contained breathing apparatus monthly and failure to battery check emergency survey instruments monthly. Five deviations were also identified in four areas unrelated to fire protection.

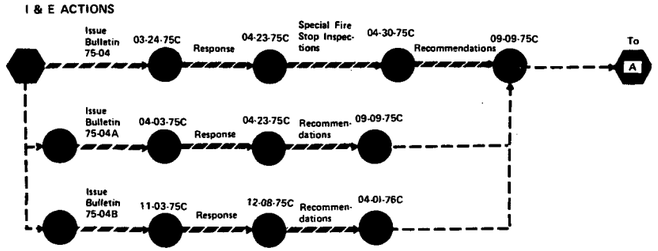
● SUMMARY

GPO 917-845

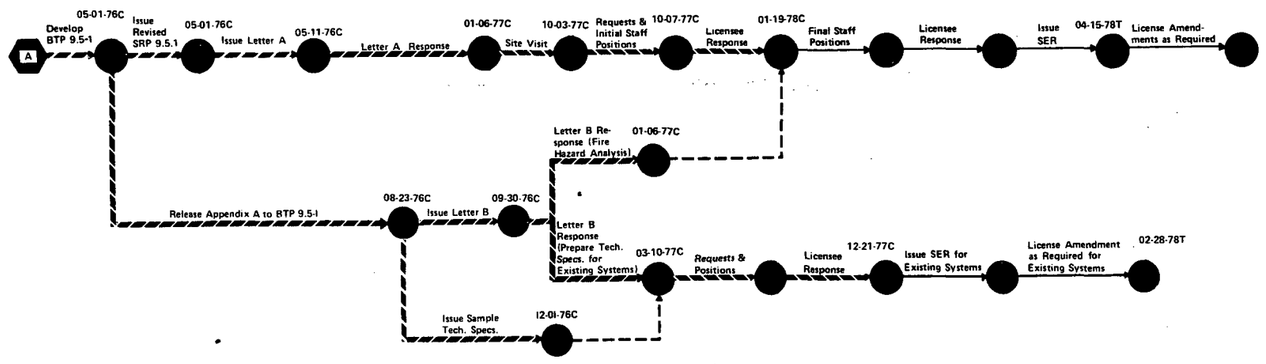
FACILITY DATA

Facility Name: OCONEE 1, 2 & 3
Utility Name: DUKE POWER
Docket Number: 50-269/270/287
License/Permit Number: DPR-38/47/55
Location: 30 MI W OF GREENVILLE, SC
Plant Type: PWR
Lic. Thermal Power: 2568
Design Elec. Power: 0886
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: BECHTEL
O.R. Branch Chief: A. SCHWENCER
O. R. Proj. Manager: D. NEIGHBORS
IE Inspector: F. JAPE

I & E ACTIONS



NRR ACTIONS



OYSTER CREEK

LICENSEE MODIFICATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- A quality assurance program is being developed.
- The organization of the utility has been augmented with the establishment of positions for a station Fire Protection Specialist and a Fire Protection Consultant.
- A fire hazards analysis has been performed and will be periodically updated.
- A schedule for the training and drilling for the fire brigade and other appropriate personnel has been developed.
- Procedures to control combustible materials and ignition sources have been developed.

PORTABLE FIRE EQUIPMENT

- Fog nozzles will be used for all appropriate hose stations.
- Portable extinguishers will be provided for cutting and welding activities during refueling and maintenance activities where fixed suppression systems are not available.
- Self-contained breathing apparatus will be provided outside the entrance to the drywell during refueling and will be provided at other locations for fire brigade use.
- Hose stations and additional portable fire extinguishers will be installed in several levels of the reactor building, outside the cable spreading room and in the fuel storage and loading areas.
- Portable extinguishers will provide coverage throughout the plant.
- Portable smoke removal equipment will be provided for the fire brigade.

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- A new battery room will be provided so that redundant batteries are in separate areas and the D.C. cables will be properly re-routed.
- Isolation exhaust dampers will be installed in the exhaust ductwork for the cable spreading and control room ventilation systems.
- A total flooding CO_2 suppression system will be installed in the 4160 V switchgear vaults.
- The control room doors will be upgraded to 3-hour rated doors and most other penetrations to the control room have been plugged or sealed with 3-hour barriers.
- An automatic sprinkler system will be installed in the building housing the fire pumps, in the fuel storage and loading areas and at the 119' level of the reactor building.
- An automatic Halon 1301 suppression system will be installed in the cable spreading, 480 volt switchgear, battery and electric tray rooms. The 4160 volt switchgear will be enclosed in a 3-hour vault which will have a detection system and a fixed manual CO_2 total flooding system.
- An automatic sprinkler system to protect the metal deck roof will be installed and the control room ceiling will be replaced with a non-combustible ceiling. The enclosure around the main transformers' bus work into the 4160 volt room will be sprinkler protected.
- Additional automatic sprinkler protection will be installed in the turbine building and the stock of flammable liquids will be reduced.
- Safety related cables will be protected with an automatic water spray with automatic detection.
- Automatic smoke detection system will be installed in the office building ventilation system, in the auxiliary boiler house and in the radwaste building.
- Automatic fire detection and AFFF foam will be provided for the emergency diesel generator room and fuel storage area.
- Fire detection systems will give audible and visual alarm and annunciation in the control room.
- Numerous doors will be upgraded to be properly rated fire doors.
- An alternate fixed means to supply water to the yard loop will be provided.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

PORTABLE FIRE EQUIPMENT

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

I & E INSPECTION SUMMARY/ACTIONS

- December 8, 9, 15 (76-35): An inspection concerning fire prevention and preparedness, including QA surveillance, procedures and training and drills revealed two items of noncompliance relative to combustible material control.
- September 6 and 7 (77-21): An inspection of seven areas of the fire protection program revealed one item of noncompliance involving failure to follow requirements in housekeeping procedure No. 119, para. 8.b.
- October 25-27 (77-25): An inspection of plant operations, organization and administration, and cleanliness revealed one item of noncompliance involving failure to provide fire watch with a fire extinguisher.
- November 21-23 (77-27): An inspection of several areas, including fire brigade training, revealed no items of noncompliance.

SUMMARY

- Partial licensee response to NRC positions and request for additional information was received on October 4, 1977.
- Modifications should be complete by the end of the 1980 refueling.

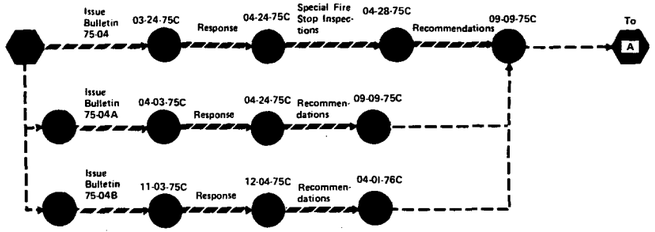
GPO 917-845

OYSTER CREEK CAT I

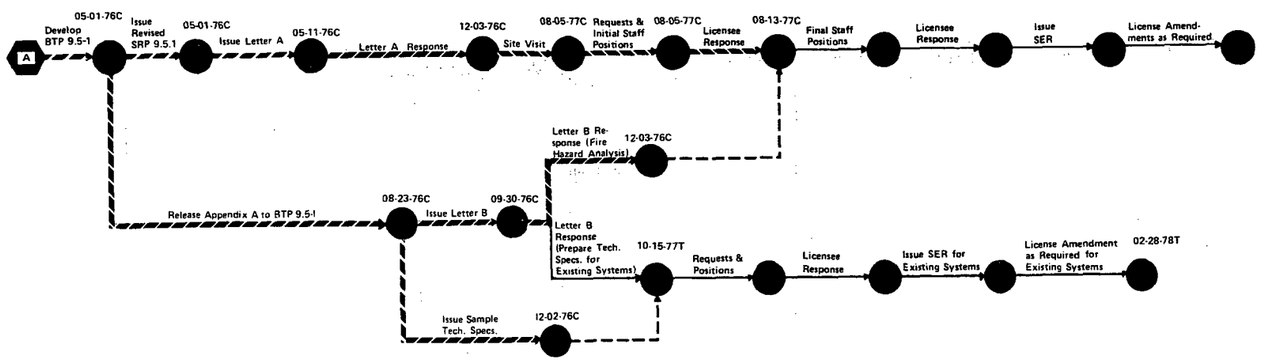
FACILITY DATA

Facility Name: OSYTER CREEK 1
Utility Name: JERSEY CENTRAL POWER & LIGHT
Docket Number: 50-219
License/Permit Number: DPR-16
Location: 35 MI N OF ATLANTIC CITY, NJ
Plant Type: BWR
Lic. Thermal Power: 1930
Design Elec. Power: 0650
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BURNS & ROE
O.R. Branch Chief: G. LEAR
O. R. Proj. Manager: S. NOWICKI
IE Inspector: D. STERNBERG

I & E ACTIONS



NRR ACTIONS



PALISADES

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Administrative procedures will be developed consistent with the need for providing training, fire drills and responsible personnel to maintain and inspect fire protection equipment.(9/77)
- Procedures dealing with storage of combustible materials have been implemented.(3/77)
- Administrative procedures that ensure the appropriate levels of management and staff review of all normal and abnormal conditions have been implemented.(3/77)
- All cable penetrations into the control room have been sealed with flame-retardant material.(3/77)

● PORTABLE FIRE EQUIPMENT

- A hose reel will be installed for the refueling and spent fuel pool area.
- Several hose reels will be provided with longer hoses.(6/77)

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Separation barriers will be provided between cable trays serving redundant systems in the safeguards areas.(2/79)
- Cable penetrations in the switchgear rooms will be sealed on both sides.(2/79)
- Several doors will be replaced with properly rated fire doors.(5/78)
- Both day tanks for the service and fire water pumps will be relocated outside the pump room or a 3-hour fire wall will be installed around the day tanks.(5/78)
- A smoke detector system will be installed in the walk-in cabinet enclosures, on the ceiling in the northwest corner and in the north and east office areas of the control room. The system will be alarmed locally and annunciated in the control room.(7/79)
- Smoke detectors will be installed in the control room, in both switchgear rooms, in the area of remote safety related panels, above the cable tray area in the cable spreading room and in the southwest cable penetration room.(7/79)
- Additional sprinklers will be installed in the 1-D switchgear room.(7/79)
- Automatic sprinklers will be installed in the north end area of the spent fuel pool area and in the compactor area of the auxiliary building.(7/79)
- A sprinkler system surrounding the pit area in the condensate pump area of the turbine building will be installed.(7/79)
- A six-foot ladder will be mounted in the cable spreading room to access any cable tray.(6/77)
- Covers for cable trays in switchgear room 1-D will be removed to allow wetting down by the existing sprinkler system.(6/77)
- Automatic detection will be provided for the diesel generator areas by the water flow alarm from the existing fused link-type sprinkler system.

NRR VERIFICATION: M Ziemann **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- April 11, 28-29; May 4-5, 11-12, 16 & 18 (77-03): An inspection of several operations, including licensee housekeeping and cleanliness controls, fire prevention/protection and licensee actions regarding IE Circular No. 76-07, revealed one item of noncompliance which was unrelated to fire protection.

● SUMMARY

GPO 917-645

FACILITY DATA

Facility Name: PALISADES

Utility Name: CONSUMERS POWER

Docket Number: 50-255

License/Permit Number: DPR-20

Location: 5 MI S OF SOUTH HAVEN, MICH

Plant Type: PWR

Lic. Thermal Power: 2200

Design Elec. Power: 805

NSSS Vendor: COMBUSTION ENGINEERING

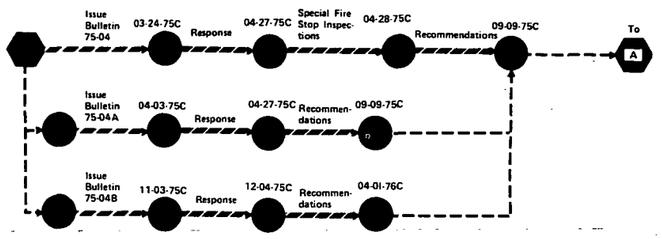
Architect/Engineer: BECHTEL

O.R. Branch Chief: A. SCHWENCER

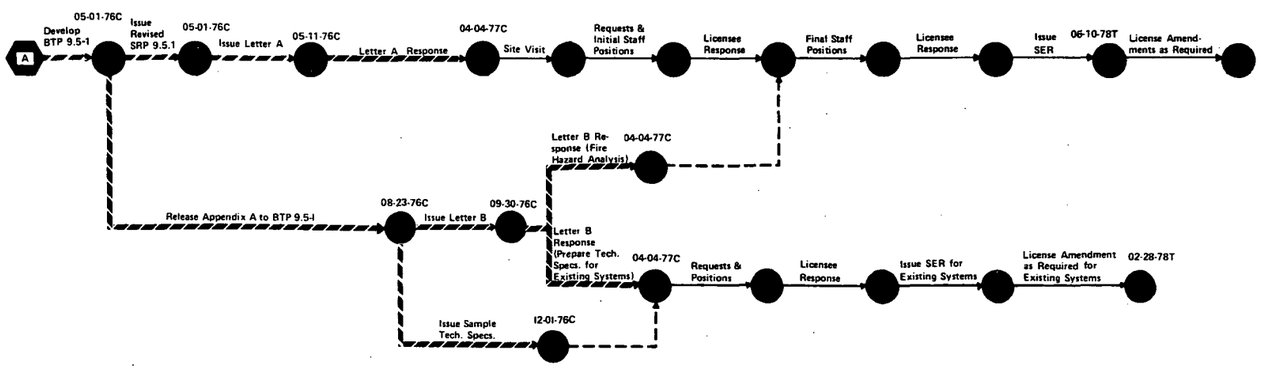
O. R. Proj. Manager: G. ZECH

IE Inspector: D. HUNTER

I & E ACTIONS



NRR ACTIONS



PEACH BOTTOM 2 & 3

LICENSEE MODIFICATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- A test plan defining the responsibilities of various company departments in connection with fire protection will be developed.
- Additional administrative procedures for maintaining the performance of the fire protection system and personnel will be developed as appropriate.
- The Quality Assurance program will be improved.
- A plan defining the responsibilities of various company departments in connection with fire protection at the plant will be developed.
- The Quality Assurance program will be applied to fire protection activities.
- Procedures concerning modification of system designs will be revised to require consideration of their impact on fire protection.

PORTABLE FIRE EQUIPMENT

- Sealed-beam, battery-powered hand lights will be provided for emergency use.

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- A fire protection system will be installed in the recirculation pump MG set lube oil pump rooms.
- The fire detection system in the cable spreading room will be upgraded.
- Fire detectors will probably be installed in the rooms surrounding the control room proper.
- Sprinklers will be installed above the anti-contamination clothing storage area in the turbine building.
- Smoke detectors will be installed in the RHR, RCIC and core spray pump rooms and at the refueling floor of the reactor buildings.

NRR RECOMMENDATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

PORTABLE FIRE EQUIPMENT

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

I & E INSPECTION SUMMARY/ACTIONS

- January 12-14 and 17 (77-03): An inspection of various training procedures, including fire fighting training, revealed two items of noncompliance not related to the fire protection program.
- March 28-29 (77-12): The inspection provided the fire-protection program review team from NRR with direct knowledge of the arrangement of safety-related equipment, fire hazards, fire protection equipment, and administrative controls.
- August 3 (77-24): An inspection provided followup to LER No. 2-77-35/1P, dated 7/29/77, regarding a fire in the Unit 2 SRM/IRM detector drive relay cabinet.
- August 23-25 (77-28): An inspection of seven areas of the fire protection program revealed one item of noncompliance in one area involving failure to maintain CO_2 level in Cardox System storage tanks and one deviation involving storage of flammable material in a control room instrument cabinet.
- September 20-21 (77-32): An inspection provided the NRR fire protection review team with direct knowledge of the arrangement of safety-related equipment, fire hazards, fire protection equipment and administrative controls for Unit 2.

SUMMARY

- Licensee's responses to NRC requests for additional information and to staff concerns were received on August 17 and September 20, 1977.

NRR VERIFICATION: W Dingle **DATE:** 2/10/78

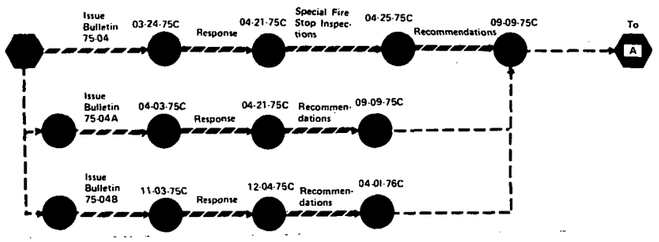
GPO 917-843

PEACH BOTTOM 2&3 CAT I

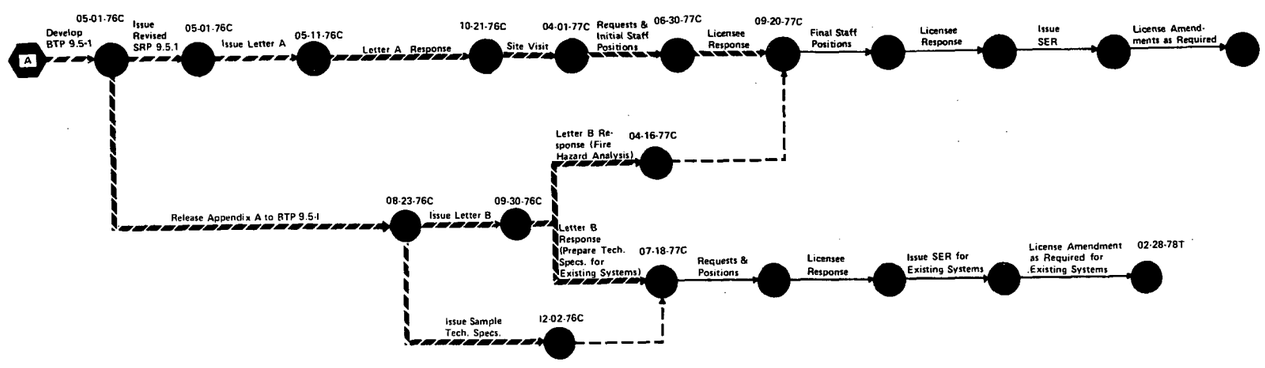
FACILITY DATA

Facility Name: PEACH BOTTOM 2 & 3
Utility Name: PHILADELPHIA ELECTRIC
Docket Number: 50-277/278
License/Permit Number: DPR-44/56
Location: 19.4 MI S OF LANCASTER, PA
Plant Type: BWR
Lic. Thermal Power: 3293
Design Elec. Power: 1065
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O.R. Branch Chief: G. LEAR
O. R. Proj. Manager: D. VERRELLI
IE Inspector: E. GREENMAN

I & E ACTIONS



NRR ACTIONS



PILGRIM

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- The fire protection administrative program will be amended to ensure that safe shutdown will not be precluded and that adequate administration is maintained throughout the plant life.
- Administrative procedures will control the use and storage of permanent and transient combustibles.
- A formal leak testing program which would not use open flames or combustion generated smoke is under study.
- Procedures will be initiated to provide a fire protection-trained watch to monitor modifications and/or normal and abnormal conditions.
- The responsibility for the overall fire protection program has been assigned to the Nuclear Operations Department Manager.
- Fire brigades commenced training on February 1, 1977.

● PORTABLE FIRE EQUIPMENT

- Rescue breathing equipment will be provided adjacent to the control room to provide CR personnel six hours of air support.
- Portable smoke ejector units will be provided for fire brigade use.
- Additional spare bottles and recharging cylinders will be provided for the self-contained breathing apparatus.
- Additional hose stations will be provided outside the S.E. entrance to the cable spreading room and outside the entrances to the control room.
- A spare coil of hose will be provided at each hose station and an additional dry chemical extinguisher will be provided adjacent to each portable fire extinguisher.
- A hose rack and additional extinguisher will be provided for the service water pumps and intake structure.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Fire doors and dampers will be upgraded to be consistent with the fire rating needed for the enclosure served.
- Any deficient penetration seals will be protected by a covering of fire retardant material.
- Fire breaks will be provided for computer instrument cabling routed through totally enclosed trays.
- Cable deemed incapable of meeting the IEEE 383 flame test will be covered with a fire retardant coating.
- Ventilation system modifications will provide limited smoke venting consistent with the fire loading of specific areas.
- The lube oil storage shed will be relocated a safe distance from the water storage tanks.
- The records storage room will be relocated.
- Arrangements will be made for cross pumping between the town water main and the fire loop and for pumping bay water directly into the fire main.
- An additional 500,000 gallon water tank and pumping facilities will be installed when Pilgrim 2 is constructed.
- All post indicator valves and all OS&Y gate valves in the fire piping will be sealed open.
- The present fire and smoke detection systems will be expanded to provide detection capability for the cable trays in the CRD module areas and for the radwaste truck loading area which will also have automatic sprinklers.
- Fire and smoke detection will be provided in the radioactive chemistry lab, in the instrument repair shop and in the radwaste control room.
- An automatic Halon 1301 extinguishing system will be installed in the computer and storage/office rooms.
- The wet pipe sprinkler systems for the diesel day tank rooms will be converted to pre-action systems and will be extended to cover the diesel engine area.

NRR VERIFICATION: W. Vince Dini **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- December 13-15 (76-35): An inspection of special work controls for fire prevention and protection during various plant operations revealed all items to be satisfactory.
- February 24-25 (77-04): An inspection of licensee cleanliness and housekeeping, facility and corporate office tours, fire protection coordination/communication, and several other items revealed one item of noncompliance relating to smoking in an unauthorized area.
- May 23-26 (77-11): An inspection provided the NRR fire protection review team with direct knowledge of the arrangement of safety-related equipment, fire hazards, fire protection equipment and administrative controls.

● SUMMARY

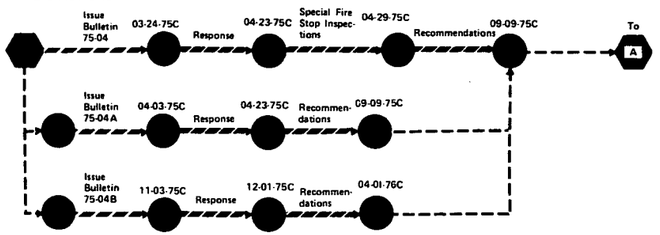
- Additional information on cable penetration fire barrier testing was received on August 15, 1977, in response to a generic question posed by NRC.

GPO 917-845

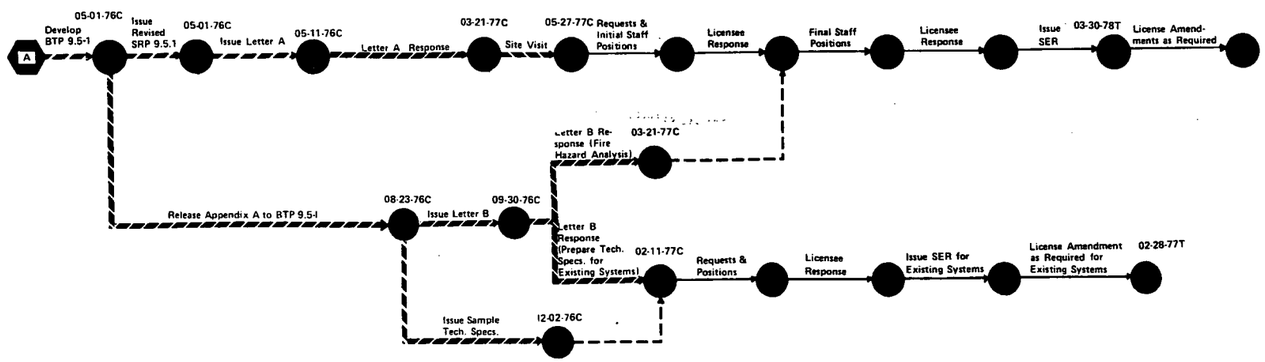
FACILITY DATA

Facility Name: PILGRIM 1
Utility Name: BOSTON EDISON
Docket Number: 50-293
License/Permit Number: DPR-35
Location: 4 MI ESE OF PLYMOUTH, MASS
Plant Type: BWR
Lic. Thermal Power: 1998
Design Elec. Power: 655
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O.R. Branch Chief: D. DAVIS
O. R. Proj. Manager: P. OCONNOR
IE Inspector: R. ARCHITZEL

I & E ACTIONS



NRR ACTIONS



POINT BEACH 1 & 2

LICENSEE MODIFICATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- The fire brigade classroom training program will be expanded to include instructions for all items recommended by the NRC.
- Fire retardant wood will be used for scaffolding and temporary structures.
- No cutting, welding or open-flame work will be permitted without an "Ignition Source Control Permit" issued by the fire brigade chief.
- New specific fire fighting procedures will be developed for the control room, cable spreading room, 4160 switchgear room and the emergency diesel generator rooms. Fire fighting procedures will be expanded for all safety-related areas and for areas presenting a hazard to safety-related equipment.

PORTABLE FIRE EQUIPMENT

- Additional self-contained breathing apparatus to be purchased.
- Additional portable communication equipment to be provided.
- A portable smoke venting unit will be provided for the switchgear room.
- Eight hose reels with piping and valves will be installed to serve various locations.
- Six additional Bio-pac units with 12 spare bottles will be provided.
- A portable smoke exhaust fan and ducting will be available for the auxiliary building.
- Selected interior hose stations will be provided with fixed fog-type nozzles.
- Three portable pressurized water extinguishers will be added in the switchgear room and two will be provided in the control room.

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Additional exhaust fans will be added to cable spreading room ventilation systems.
- All scaffolding material to be flame resistant.
- A manually-operated smoke exhaust system will be installed for the computer room and cable spreading room.
- About 151 smoke or heat detectors will be added to various areas -- including, containment; auxiliary building; diesel generator, cable spreading, battery, boiler day tank and the control room; control building; pipeways; auxiliary feed pump area and local control station,and in the air compressor area.
- A manually-operated sprinkler system will be added in the cable spreading room.
- A localized sprinkler system will be installed in the cable spreading room for the electrical trays running above the motor control centers.
- The height of the curbs around the lube oil reservoir and storage tanks will be increased and a curb will be provided for the diesel fire pump.
- A 12' fire barrier will be installed between the diesel and electric driven fire pumps.
- Several dampers and doors will be replaced with appropriately rated fire dampers and doors and several fire walls will be upgraded.
- Cable trays in numerous areas will be covered with fire retardant material.
- Four new post indicating valves will be added to the main fire loop header.
- The water suppression systems in the diesel generator rooms will be upgraded to wet-pipe sprinklers.

NRR VERIFICATION: H. Denton **DATE:** 2/10/78

NRR RECOMMENDATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

PORTABLE FIRE EQUIPMENT

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

I & E INSPECTION SUMMARY/ACTIONS

- January 4-7 (77-01): A review of fire protection found all items to be satisfactory.

SUMMARY

- Licensee will submit responses to all staff positions by March 15, 1978.

GPO 81 7-843

FACILITY DATA

Facility Name: POINT BEACH 1 & 2

Utility Name: WISCONSIN-MICHIGAN ELECTRIC

Docket Number: 50-266

License/Permit Number: DPR-24

Location: TWO CREEKS, WISC

Plant Type: PWR

Lic. Thermal Power: 1518

Design Elec. Power: 0497

NSSS Vendor: WESTINGHOUSE

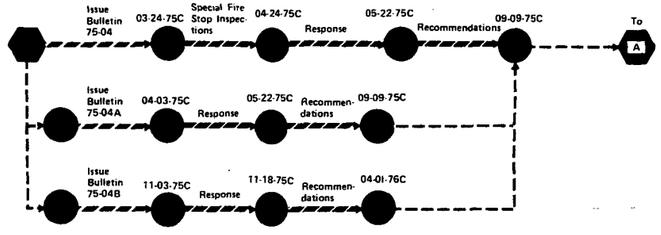
Architect/Engineer: BECHTEL

O.R. Branch Chief: G. LEAR

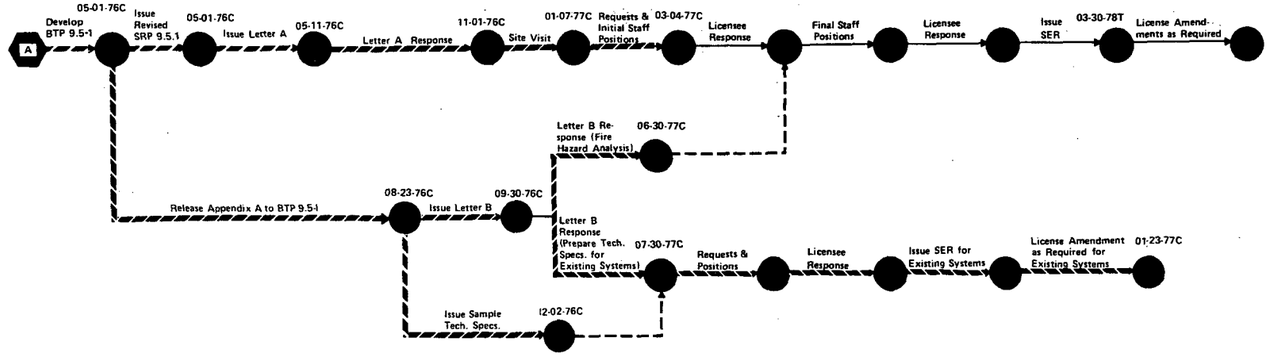
O. R. Proj. Manager: P. WAGNER

IE Inspector: N. CHOULES

I & E ACTIONS



NRR ACTIONS



PRAIRIE ISLAND 1 & 2

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Directives will be prepared to designate responsibilities for the nuclear plant fire protection program and they, along with all other aspects of the fire protection program will be formally incorporated in the system of Administrative Controls Directives by July 1,1978.
- Fire drills will be held semi-annually. One drill will involve the local fire department.
- The Quality Assurance organization will audit the fire protection program. All changes will be completed by 7/1/78.
- Improved controls of combustibles will be issued by 12/31/77.

● PORTABLE FIRE EQUIPMENT

- A manual means of exhausting smoke from the relay and cable spreading room is being investigated.
- All switchgear rooms will have 20 pound carbon dioxide extinguishers inside the entrance doors. One will also be provided for the computer room and for the new fuel area.
- Self-contained breathing equipment will be set aside for emergency team use and extra tanks will be purchased.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- All inadequately sealed pipe penetrations will be corrected.
- A flame retardant coating will be applied to a six-foot section at the centerline of the shared cable spreading room.
- Consideration is being given to alarming all vital doors.
- A proposed recirculation pump oil collection system is under review.
- A wet pipe sprinkler system is being installed in the resin storage warehouses.
- A sprinkler system for the area where cables penetrate the relay and cable spreading room is under review.
- The recommendation to use flame retardant coatings more extensively is undergoing review.
- The sealing of pipe penetrations with fiberglass-covered flammastic will be completed by 12/31/77.
- Fused-link fire dampers are required for some areas. They will be installed by 7/1/78.
- Either sprinkler protection or flame retardant cable coating will be in use in the hot chemistry lab by 7/1/78.
- A lube oil collection system will be provided for the reactor coolant pumps.

NRR VERIFICATION: M Hughes **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- December 13-16 and 27-29 (76-22): An inspection concerning maintenance, fire prevention and other plant operations revealed all items to be satisfactory.
- November 21-23 (77-25): An inspection of the fire protection program, including equipment, work control procedures and several other areas, revealed no items of noncompliance or deviations.

● SUMMARY

GPO 917-845

PRAIRIE ISLAND 1 & 2 CAT I

FACILITY DATA

Facility Name: PRAIRIE ISLAND 1 & 2

Utility Name: NORTHERN STATES POWER

Docket Number: 50-282/306

License/Permit Number: DPR-42/60

Location: 26 MI SW OF MINNEAPOLIS

Plant Type: PWR

Lic. Thermal Power: 1650

Design Elec. Power: 530

NSSS Vendor: WESTINGHOUSE

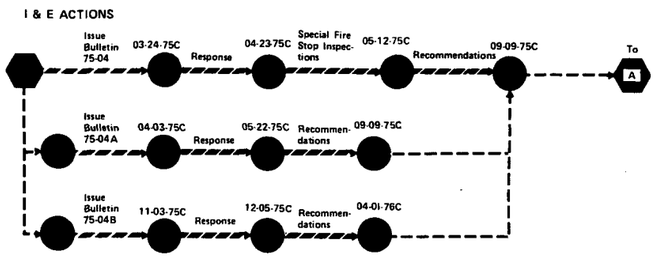
Architect/Engineer: PIONEER SERVICES & ENGINEERING

O.R. Branch Chief: D. DAVIS/ D. ZIEMANN

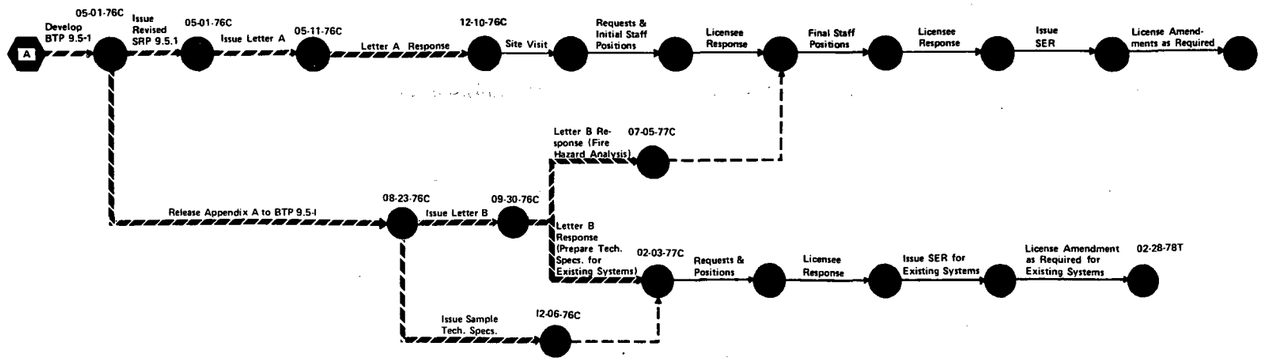
O. R. Proj. Manager: M. GROTENHUIS

IE Inspector: C. FEIERABEND

I & E ACTIONS



NRR ACTIONS



QUAD CITIES 1 & 2

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Future modifications and maintenance work on fire protection and detection systems will be included under the Utility's Quality Assurance program.

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Exposed structural steel in the control room, in the cable room, in the electrical equipment and plant computer room, in the battery room and in the diesel generator room will be treated to improve its resistance to fire.
- Access doors to the control room, to the cable room, to the electrical equipment room, to the battery room and the diesel generator room will be replaced with properly rated doors.
- Approved fire dampers will be installed in ventilation ducting penetrating the control room and the cable room.
- All floor cable penetrations in the cable room will be sealed.
- Smoke and heat detectors are being installed in the control room and consoles and cabinets.
- An engineered ionization detection system is being installed in the cable room and is being evaluated for use in the electrical equipment and computer rooms.
- A wet pipe automatic sprinkler system will be installed in the cable room by April 1978.
- Access doors to the following areas will be replaced with Class A fire doors: the ground floor, the mezzanine, the main floor and the reactor floor of the reactor buildings; the control room; the ground floor of the turbine building; diesel generator rooms; service building cable spreading room; and electrical equipment room.
- Rated fire dampers will be installed in ventilation ducting penetrating the following areas: control room, turbine building ground floor, service building, cable spreading room, electrical equipment room, and turbine building lube oil room.
- The control room false ceiling will be replaced with a ceiling of non-combustible material.
- Automatic detectors to be installed in vicinity of motor control centers in secondary containment (ground floor and mezzanine area).
- Detectors will be installed in control room consoles, cable spreading room, remote safety-related panels, electrical equipment room, battery room of Unit 2, and switchgear room.
- A zoned deluge spray system will be installed in the cable spreading room.
- Sprinkler systems will be installed in the RHR service water areas, crib house, turbine building cable riser and secondary containment compressor area.

NRR VERIFICATION: M Vaughn **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

July 25-29 (77-21): A review of emergency planning relating to agreements and coordination with offsite agencies, examination of facilities, equipment and supplies, review of drills and exercises, and observation of an emergency plan drill revealed no items of noncompliance or deviations.

● SUMMARY

- Revision to previous Fire Protection Report dated April 1977 was received on August 30, 1977.

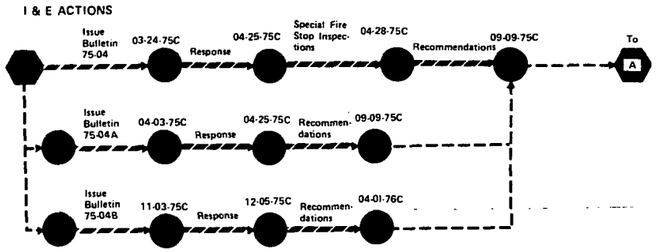
GPO 917-865

QUAD CITIES 1 & 2 CAT I

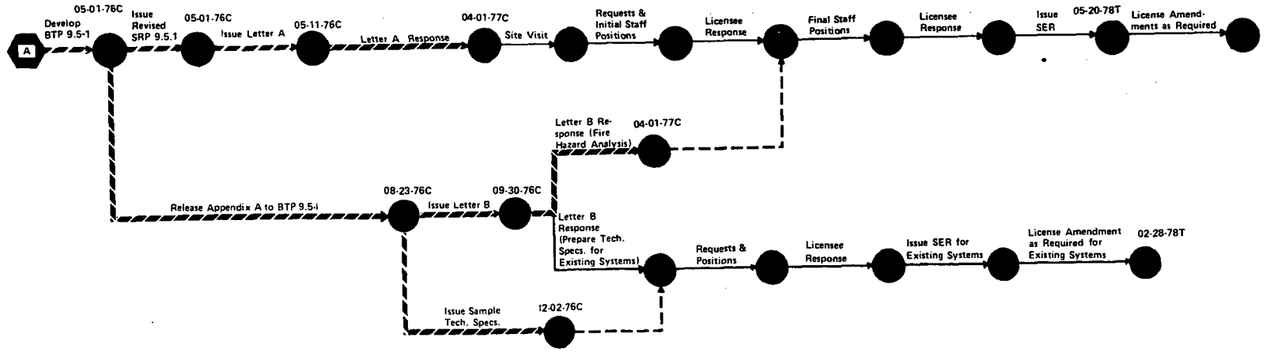
FACILITY DATA

Facility Name: QUAD CITIES 1 & 2
Utility Name: COMMONWEALTH EDISON
Docket Number: 50-254/265
License/Permit Number: DPR-29/30
Location: 3 MI S OF CORDOVA, ILL
Plant Type: BWR
Lic. Thermal Power: 2511
Design Elec. Power: 789
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: SARGENT & LUNDY
O.R. Branch Chief: D. DAVIS/ D. ZIEMANN
O. R. Proj. Manager: P. OCONNOR
IE Inspector: I. JACKIW

I & E ACTIONS



NRR ACTIONS



RANCHO SECO

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- The methods of storing hazardous chemicals will be changed to comply with the recommendations of NFPA No. 49.

● PORTABLE FIRE EQUIPMENT

- Longer hoses (100') will be installed at several hose stations and one new hose station will be installed.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Automatic high-pressure carbon dioxide fire suppression systems are being installed in the records storage areas of the plant.
- A total flooding carbon dioxide system is presently being installed to provide fire protection for the main turbine-generator bearings and the main exciter. This system will be automatically initiated by heat detection type sensors.
- Thermal insulation will be installed on redundant Channel A, C and D conduits and a flame retardant will be put on connector cables in the control and computer room cabinets.
- The suspended ceiling in the computer room will be removed.
- Ionization detectors will be installed in all safe shutdown related computer and control room cabinets, in the corridors and in the waste tank pumproom in the auxiliary building and in the H. P. injection pump room.
- Appropriate fire-rated dampers will be installed in ventilation openings and duct penetrations in numerous locations throughout the plant.
- Several doors will be replaced with properly rated doors.
- Thermal barriers will be installed in the west 480 volt switchgear room around conduits containing Channel B cables associated with HPI and AFW systems and around those for the remote control circuits for decay heat system valves, for the SFA system and for the CRD trip system.
- Thermal barriers will be installed over all Channel A, C and D conduits in the east 480 volt switchgear room containing cables required for safe shutdown.
- All cable penetrations in the cable shaft will be packed.
- Additional separation, fire stops or barriers will be provided in the main corridor of the auxiliary building.
- Temperature detectors for alarm and automatic damper actuation will be installed at charcoal filters and at the reactor building purge unit A-536.
- Electrical penetration terminal box covers will be sealed to prevent water damage to circuits for safe shutdown systems.
- Conduits for Channel B cables associated with AFS, DHR and the diesel generator will be re-routed or covered with a thermal barrier.

NRR VERIFICATION: M Vaughn **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- January 11-13 (77-01): An examination of fire prevention and protection, maintenance and other data and occurrences revealed all items to be satisfactory.
- December 15-16 and 20 (77-18): An inspection if fire protection and several other areas revealed no items of noncompliance or deviations.

● SUMMARY

- A "Request for Additional Information" covering some 40 items has been transmitted to the Sacramento Municipal Utility District.

GPO 891-749

FACILITY DATA

Facility Name: RANCHO SECO

Utility Name: SACRAMENTO MUN. UTIL. DISTRICT

Docket Number: 50-312

License/Permit Number: DPR-54

Location: 25 MI SE OF SACRAMENTO, CAL

Plant Type: PWR

Lic. Thermal Power: 2772

Design Elec. Power: 0913

NSSS Vendor: BABCOCK & WILCOX

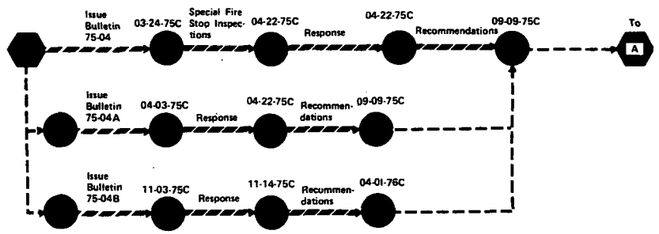
Architect/Engineer: BECHTEL

O.R. Branch Chief: R. REID

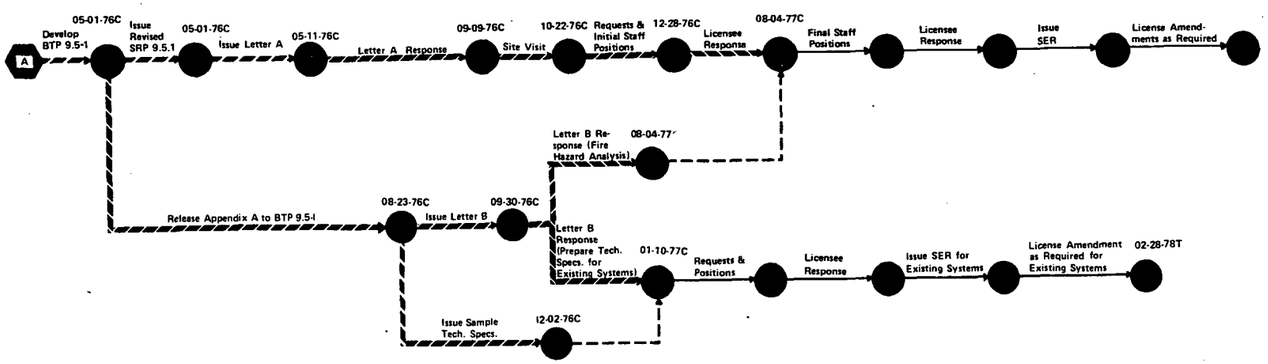
O. R. Proj. Manager: V. ROONEY

IE Inspector: R. DODDS

I & E ACTIONS



NRR ACTIONS



SAINT LUCIE 1

LICENSEE MODIFICATIONS

- **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**
  - A fire hazards analysis and reevaluation of existing plant design features and administrative controls have been performed and the licensee proposes no procedural or plant modifications at this time.

- **PORTABLE FIRE EQUIPMENT**

- **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**

NRR RECOMMENDATIONS

- **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**

- **PORTABLE FIRE EQUIPMENT**

- **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**

I & E INSPECTION SUMMARY/ACTIONS

- January 25-27 and February 1-4 (77-01): An inspection concerning licensee event reports, diesel generator operation, training, fire prevention and protection and several other operations revealed two items of noncompliance which were unrelated to fire protection.
- November 6-10 (77-17): An inspection of the fire protection program, including work control procedures, quality control surveillance, and several other areas, revealed no items of noncompliance or deviations.

- **SUMMARY**

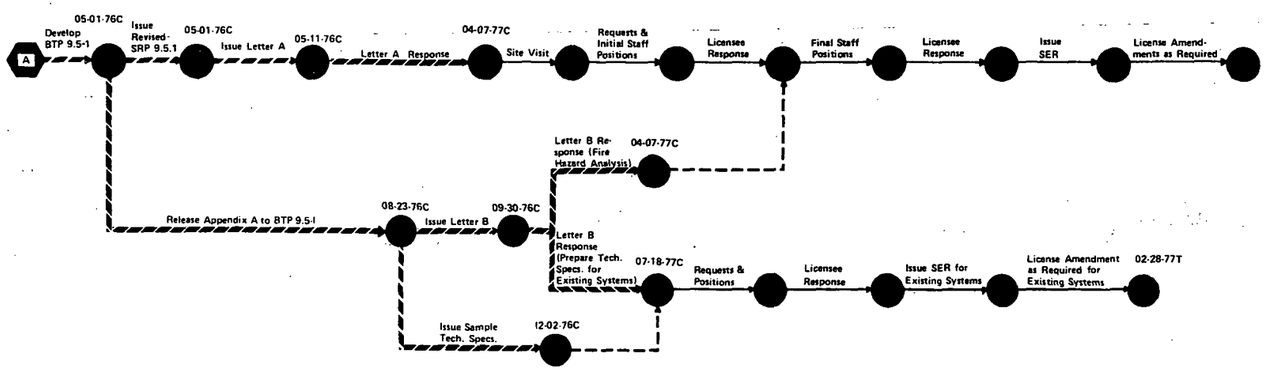
NRR VERIFICATION: W. Russell **DATE:** 2/10/78

GPO 917-645

FACILITY DATA

Facility Name: SAINT LUCIE 1
Utility Name: FLORIDA POWER & LIGHT
Docket Number: 50-335
License/Permit Number: DPR-67
Location: 11 MI SE OF FORT PIERCE, FLA
Plant Type: PWR
Lic. Thermal Power: 2560
Design Elec. Power: 802
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: EBASCO
O.R. Branch Chief: D. DAVIS
O. R. Proj. Manager: E. REEVES
IE Inspector: R. PARKER

NRR ACTIONS



SAN ONOFRE 1

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Administrative procedures will be amended to specifically cover the bulk storage of combustible materials.
- A documented Quality Assurance program was put in effect in September 1976.

● PORTABLE FIRE EQUIPMENT

- Portable fire extinguishers will be installed in the spent fuel storage room and in the new fuel storage room.
- The number of portable lights will be increased.
- Portable smoke removal equipment will be provided for the pipe tunnel.
- Several doors and walls will be upgraded to provide properly rated enclosures.
- A standpipe and hose reel will be provided for the pipe tunnel and near the southeast entrance to the 4160-volt switchgear room. A hose reel will be provided for the southwest entrance to the 480-volt switchgear room.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Some wire rerouting will be done to ensure the redundant components required for safe shutdown have protection from damage due to a single fire in a common fire zone.
- Several splash shields and curbs will be installed to contain oil spills.
- Fire stops will be provided for cable penetrations into the pipe tunnel, for all cable penetrations in the switchgear rooms and for cable tray penetrations through the north wall of the chemical feed area to the sphere.
- A hydrogen monitor for the D.C. battery room will be installed.
- Several fire dampers will be installed in venting and ducting.
- Additional fire detectors will be installed inside containment, over the motor control center in the reactor auxiliary building, in the solid waste baling room, in the pipe tunnel, in the lubricating-oil storage shed, in the feedwater pump/condenser area, throughout the administration/control building, in battery room 2, in the ventilation equipment room and over the cable trays in the east and west cable tray areas from the turbine building to the sphere.
- An automatic Halon total-flooding system will be installed in the 480-volt switchgear room and in the 4160-volt switchgear room.
- An automatic water or foam fire-suppression system will be installed over the turbine lubricating-oil reservoir and conditioner area and one will be installed over the hydrogen seal oil unit.
- A fire shield will be installed between the north charging pump and the test pump.
- A second source of water will be provided to the administration/control building header and isolation valves will be provided for maintenance.
- A jockey pump to maintain the water main at working pressure will be installed.

NRR VERIFICATION: M Vara Sec. **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

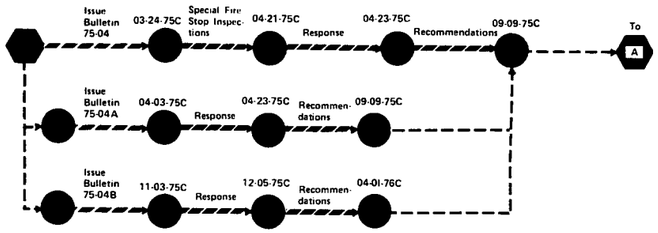
● SUMMARY

GPO 81 7-645

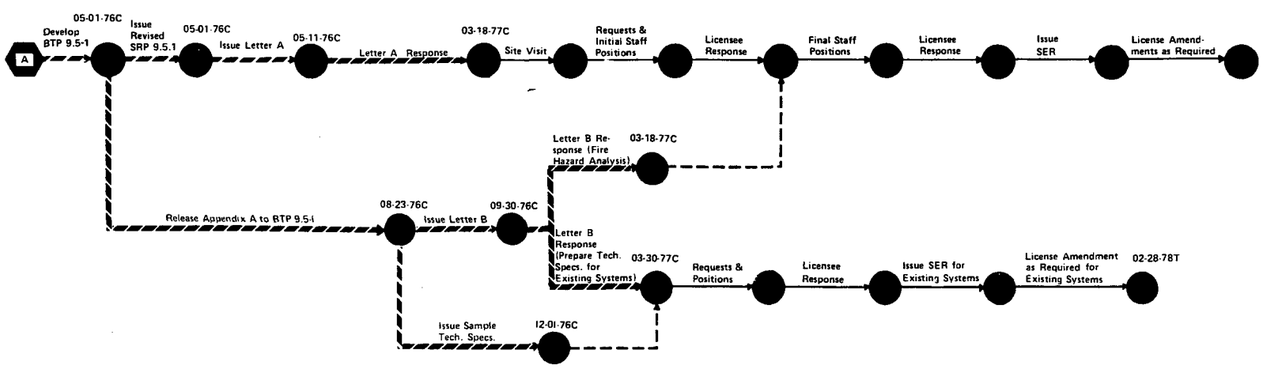
FACILITY DATA

Facility Name: SAN ONOFRE 1
Utility Name: SOUTHERN CALIFORNIA EDISON
Docket Number: 50-206
License/Permit Number: DPR-13
Location: 5 MI S OF SAN CLEMENTE, CAL
Plant Type: PWR
Lic. Thermal Power: 1347
Design Elec. Power: 0430
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: BECHTEL
O.R. Branch Chief: A. SCHWENCER
O. R. Proj. Manager: A. BURGER
IE Inspector: M. MALMROS

I & E ACTIONS



NRR ACTIONS



SURRY 1 & 2

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- An interim fire hazards analysis was submitted on April 5, 1977. A more comprehensive analysis should be completed in the near future.

  Protection requirements in the event of equipment maintenance or malfunction have been developed. Procedures to be followed during the impairment of fire stops or of fire detection and suppression systems have been developed.

● PORTABLE FIRE EQUIPMENT

- A large-wheeled extinguisher will be located near the intake structure. Low-pressure nozzles will be provided for hoses in the control room.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Covers will be installed on cable trays where minimum separation does not meet the requirements of R. G. 1.75 and additional fire stops will be installed in several trays.
- Several doors will be replaced with properly rated fire doors.
- Fire dampers will be installed in ventilation ducts where they penetrate fire barriers.
- Additional ionization-type smoke detectors will be installed in numerous areas, including the relay rooms, emergency switchgear rooms, charging pump cubicles, waste drumming room, containment spray pump area, main steam valve house and basement, and safeguards equipment area.
- A dike will be installed around the auxiliary oil tank.
- Photoelectric smoke detectors and airflow detectors will be provided for the battery rooms.
- A dry standpipe system with manual actuation with photoelectric smoke detectors will be installed within containment and additional smoke detectors will be placed in the cable penetration area.

NRR VERIFICATION: M Vassallo **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- August 8-12 (77-22): An inspection of ten areas, including examination of fire protection equipment and supplies and coordination with offsite support agencies, revealed one item of noncompliance in one area unrelated to fire protection.
- October 25-28 (77-32): An inspection of fire protection and two other areas revealed no items of noncompliance or deviations.

● SUMMARY

GPO 917-645

FACILITY DATA

Facility Name: SURRY 1 & 2

Utility Name: VIRGINIA ELECTRIC & POWER CO.

Docket Number: 50-280/ 281

License/Permit Number: DPR-32/37

Location: 12 MI NW OF NEWPORT NEWS, VA

Plant Type: PWR

Lic. Thermal Power: 2441

Design Elec. Power: 822

NSSS Vendor: WESTINGHOUSE

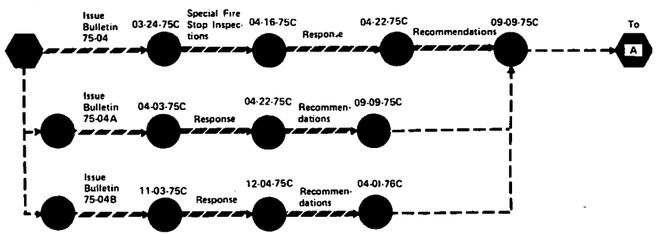
Architect/Engineer: STONE & WEBSTER

O.R. Branch Chief: R. REID

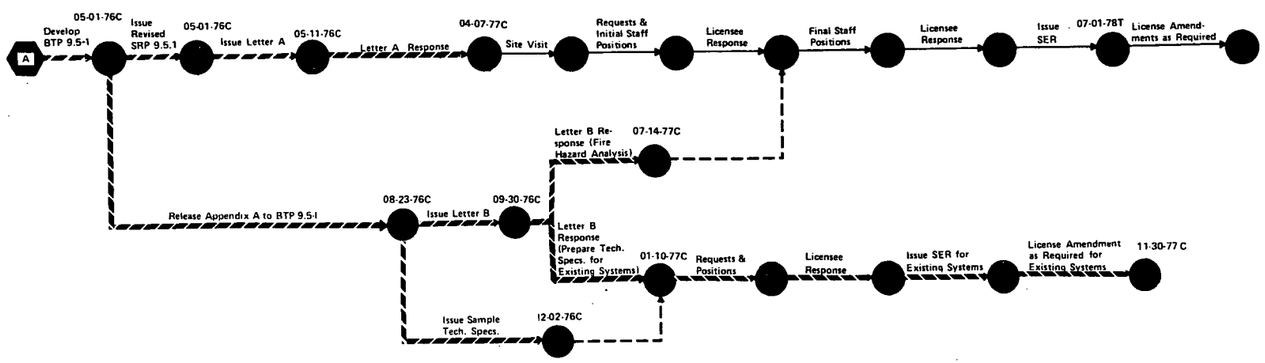
O. R. Proj. Manager: M. FAIRTILE

IE Inspector: R. ROGERS

I & E ACTIONS



NRR ACTIONS



THREE MILE ISLAND 1

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- A fire detection system to provide early warning will be provided for all fire zones in the Reactor Building and for the emergency feed water pump areas in the Intermediate Building.
- An ionization fire detection system and automatic water spray system will be installed in the pipe penetration area of the Auxiliary Building.
- Ionization detectors will be installed in panels in the control room and a Halon system will be added to the computer room subfloor.
- Cables in the Control Building necessary for emergency system actuation will be enclosed in fire retardant material or protected by sprinklers.
- Those control cables in the Fuel Handling Building which constitute significant fire loading will be coated or provided with an automatic sprinkler system.
- Fire dampers will be installed in appropriate duct penetrations in the Control Building.
- Fire dampers will be installed in the HVAC supply and return ducts in the decay heat pits and in the duct penetrating the concrete wall adjacent to makeup pump Cubicle A.
- Thermal insulation will be provided for the decay heat valves inside the secondary shield on the west and southwest sides of the Reactor Building.
- Several doors in the Intermediate Building, the Control Building, the diesel generator building, the turbine building, the fuel handling building and the service building will be replaced in Class A doors.
- Numerous joints and penetrations in the Intermediate Building, the Control Building, the fuel handling building and the turbine building will be properly sealed.
- Curbs will be installed inside the secondary shield in the Reactor Building.

NRR VERIFICATION: W. Vince Sica **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- June 7-10 (77-18): A review of emergency planning relating to coordination with offsite agencies, examination of emergency facilities and equipment, training of emergency personnel, provisions for drills, and licensee's management controls in the area of emergency planning revealed six items of noncompliance or deviations relating to emergency planning and health physics practices.
- September 21-23 (77-29): An inspection of the fire protection program, including work control procedures, quality assurance surveillance, design change controls, training, drills and emergency shutdown procedures, revealed two items of noncompliance involving failure to maintain operability of ventilating fan in battery room and smoking in "No Smoking" posted cable spreading room.

● SUMMARY

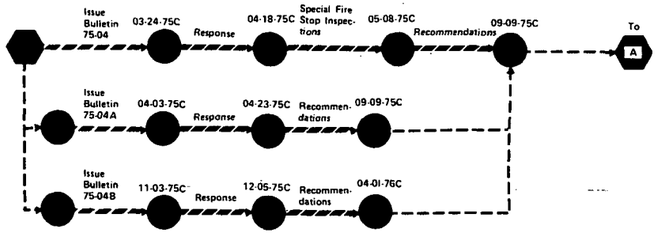
GPO 81 7-643

THREE MILE ISLAND 1 CAT I

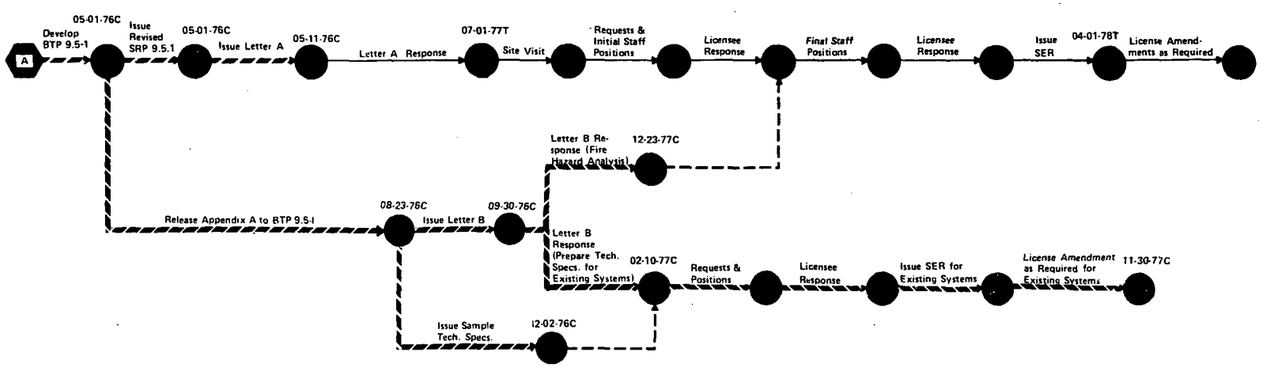
FACILITY DATA

Facility Name: THREE MILE ISLAND 1
Utility Name: METROPOLITAN EDISON
Docket Number: 50-289
License/Permit Number: DPR-50
Location: 9 MI SE OF HARRISBURG, PA
Plant Type: PWR
Lic. Thermal Power: 2535
Design Elec. Power: 0819
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: GILBERT ASSOCIATES
O.R. Branch Chief: R. REID
O. R. Proj. Manager: G. ZWETZIG
IE Inspector: P. KELLOG

I & E ACTIONS



NRR ACTIONS



THREE MILE ISLAND 2

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- The FSAR will be updated to address the training and updating provisions regarding fire protection.
- Training of local fire companies will include practical demonstrations of fire fighting peculiar to a nuclear plant. Drills will include the simulated use of equipment in each area.
- The fire protection program and related equipment is subject to a quality assurance program.
- A program provides for annual physical examinations of fire brigade members.

● PORTABLE FIRE EQUIPMENT

- Interior hose stations should be long enough to reach safety-related areas with at least one effective hose stream.
- One additional hose station should be provided at each entrance to the river water pump house.
- Five-hour emergency lights, with portable backup, will be provided.
- Three fire fighter type smoke ejectors and portable ducting will be available.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- The fire detectors in the control room will be relocated to be able to detect fires in safety-related cabinets and consoles more quickly.
- The battery room ventilation air flow monitors will be relocated to be more effective.
- An automatic water suppression (or equivalent) system will be provided in the basement of the diesel generator rooms.
- All fire doors will be electrically supervised or locked closed.
- A fixed manual water suppression system will be installed as a backup for the Halon system in the cable spreading room.
- Fire water valves will be electrically supervised, locked open, or given tamper proof seals.

NRR VERIFICATION: W Dougles **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- November 15 (76-27): The inspection concerned the circumstances surrounding a fire in a construction trailer which occurred at the Three Mile Island site construction area on November 11, 1976. This included a review of the details of the fire, the response actions of personnel and the coordination between responding elements.

● SUMMARY

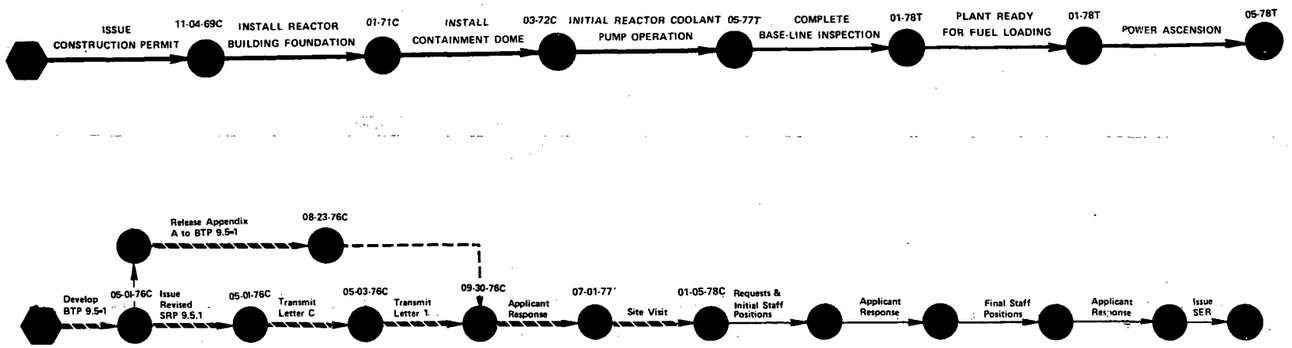
- Five areas (auxiliary building, cable room, reactor building, service and control building and the H&V duct and cable tray area) contain redundant safe shutdown instrumentation circuits routed in the same cable tray. A description and schedule of plant modifications for these areas will be submitted at a later date.

GPO 91 7-645

FACILITY DATA

Facility Name: THREE MILE ISLAND 2
Utility Name: METROPOLITAN EDISON
Docket Number: 50-320
License/Permit Number: N/A
Location: 9 MI SE OF HARRISBURG, PA
Plant Type: PWR
Lic. Thermal Power: 0000
Design Elec. Power: 0905
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: BURNS & ROE
O. L. Branch Chief: S. VARGA
O. L. Proj. Manager: H. SILVER
IE Inspector: L. NARROW

CONSTRUCTION SCHEDULE - SOURCE YELLOW BOOK DATED DECEMBER 1977



TROJAN

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Additional documentation of fire protection equipment testing and the inclusion of quality assurance review and audits of the Fire Protection System will be required.

● PORTABLE FIRE EQUIPMENT

- A hose station serving the ESF battery room area and one serving the turbine bay area are being added. (Spring 1978)
- Portable extinguishers are being added in the two hose stations near the refueling water storage tanks.
- Portable fire extinguishers at remote safety-related panels are also being added.
- Provisions for a fixed number (12) of strategically located fire extinguishers to be carried into the Containment during each major maintenance operation are being completed.
- Manually operated smoke exhaust fans and ducting systems are being added to the cable spreading room and both switchgear rooms.
- A breathing air canister filling compressor is being purchased.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Fire dampers to ductwork penetrations in 2- and 3-hr fire-rated walls are being added. All stairwell louvers are being fit with 3-hr fire-rated dampers.
- Fire detectors and a Halon flooding system will be installed in the emergency shutdown cabinet.
- A fire water tap will be made into the circulating water piping. (1978 Refueling)
- All fire doors are being upgraded to the same fire rating as the walls which they penetrate.
- NEMA 1 terminal boxes in the cable spreading room are being upgraded to be rain tight. (Spring 1978)
- A sprinkler system will be provided for the turbine auxiliary pump room. (Spring 1978)
- The cable spreading room and cable penetration area sprinkler systems are being converted to deluge type, with actuation by redundant detectors with manual override.
- More than ninety additional fire detector sensors are being added to the following areas of the plant: containment; remote safety-related panels; diesel generator areas and Diesel day tanks; safety-related pump areas; new and spent fuel pool areas; radwaste areas; decontamination area. cable spreading room, the cable penetration containment area, and control room cabinets.
- Cables from the redundant safe shutdown system that run through the diesel-driven auxiliary feedwater pump room will be separated by a 3-hour barrier.
- Fixed sealed-beam units will be provided for several areas.
- Fire stop penetrations will be upgraded.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

● SUMMARY

- Licensee response to NRC positions and requests for additional information was received on September 26, 1977. Modifications should be complete by 10/79.

FACILITY DATA

Facility Name: TROJAN

Utility Name: PORTLAND GENERAL ELECTRIC

Docket Number: 50-344

License/Permit Number: NPF-1

Location: 42 MI N OF PORTLAND

Plant Type: PWR

Lic. Thermal Power: 3411

Design Elec. Power: 693

NSSS Vendor: WESTINGHOUSE

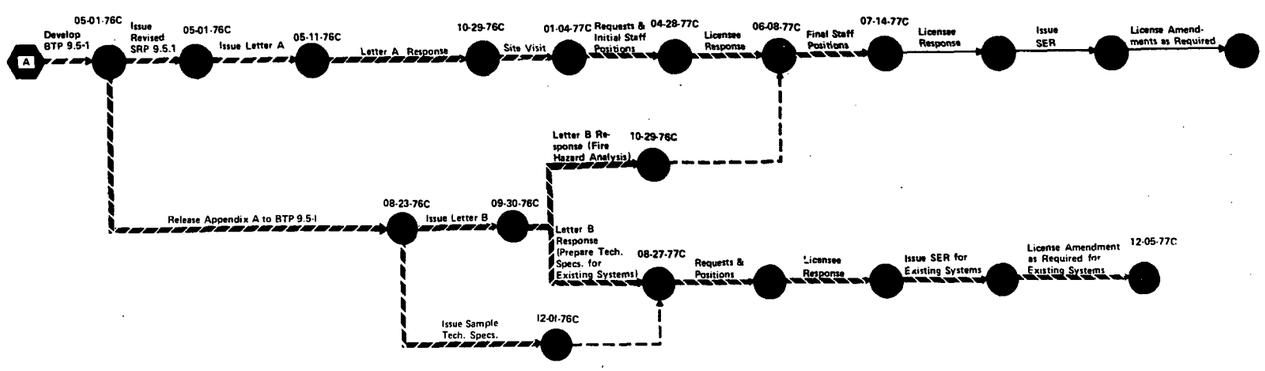
Architect/Engineer: BECHTEL

O.R. Branch Chief: A. SCHWENCER

O. R. Proj. Manager: C. TRAMMELL

IE Inspector: A. JOHNSON

NRR ACTIONS



TURKEY POINT 3 & 4

LICENSEE MODIFICATIONS

- **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**
- **PORTABLE FIRE EQUIPMENT**
- **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**
  - Install or modify area curbing around the hydrogen seal oil unit and auxiliary transformer in the turbine building.
  - And install or modify runoffs from diked areas to non-safe shutdown related areas.
  - Fire detector coverage will be extended to the diesel-generator building.

NRR VERIFICATION: W Vergilio **DATE:** 2/10/78

NRR RECOMMENDATIONS

- **ADMINISTRATIVE CONTROLS AND FIRE BRIGADE**
- **PORTABLE FIRE EQUIPMENT**
- **FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS**

I & E INSPECTION SUMMARY/ACTIONS

- January 11-14 (77-1): An inspection concerning reportable occurrences, cleanliness, unresolved items, fire prevention and protection, refueling maintenance and other activities revealed one item of noncompliance at Turkey Point 3 which was unrelated to fire protection.

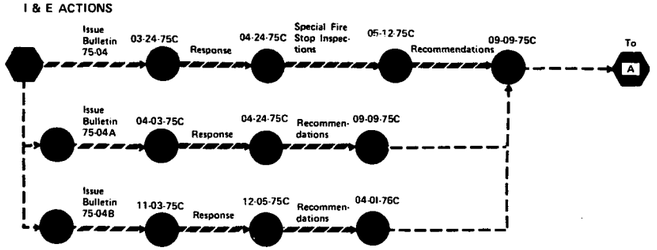
- **SUMMARY**

GPO 917-645

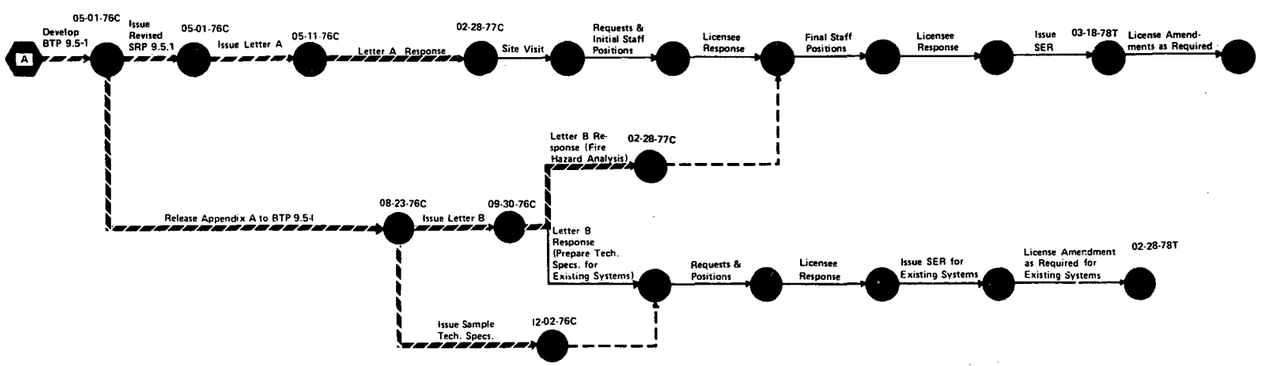
FACILITY DATA

Facility Name: TURKEY POINT 3 & 4
Utility Name: FLORIDA POWER & LIGHT
Docket Number: 50-250/251
License/Permit Number: DPR-31/41
Location: 10 MI EAST OF HOMESTEAD, FLA
Plant Type: PWR
Lic. Thermal Power: 2200
Design Elec. Power: 0760
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: BECHTEL
O.R. Branch Chief: G. LEAR
O. R. Proj. Manager: R. CLARK
IE Inspector: M. SINKULE

I & E ACTIONS



NRR ACTIONS



VERMONT YANKEE

LICENSEE MODIFICATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- An administrative procedure will be generated which identifies a "Shutdown Basis Fire" and the actions required to shutdown the plant and mitigate the effects of such a fire.(September 1977)
- An administrative procedure will be generated to control the amount, type and location of combustibles.
- A procedure will be established to insure that the essential power sources are protected (7/78).
- Fire doors protecting safety-related areas will be electrically supervised or locked closed (9/78).
- All shutoff, isolation and sectionalizing valves which would isolate the water supply to hose stations or suppression systems will be electrically supervised, locked open or given tamper-proof seals (9/77).

PORTABLE FIRE EQUIPMENT

- A separate fire hose station will be installed on each level of the reactor building diagonally opposite to those presently installed and they will be supplied from a separate riser connecting the yard fire main.
- Additional extinguishers will be provided for the fixed welding area in the turbine building and for the intake structure.
- Portable ventilation units will be provided to allow emergency ventilation for fire fighting access.(complete by 7/78)
- Portable fire extinguishers rated for Class A fires will be provided in the control room and self-contained breathing apparatus will be accessible.
- Two spare bottles and a recharging unit will be provided for the self-breathing equipment to cover a minimum time interval of 6 hours.

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Smoke detectors which will actuate control room alarms will be provided for many areas -- such as, in the control boards, the ceiling and the office enclosures of the control room; for the RHR equipment and the reactor core isolation cooling equipment; the feed pump room; in the torus area; the HPCI equipment room; the cable penetration area in the reactor building; and in the diesel generator day tank rooms (1978 refueling).
- A manual dry pipe sprinkler system will be provided in each diesel generator room and an area preaction sprinkler system will be provided at the cable penetration area in the reactor building (1978 refueling).
- An automatic foam suppression system will be provided for the recirculation pump M-G sets in the reactor building (1978 refueling).
- An automatic gas suppression system will be provided for the switchgear room, the diesel fire water pump day tank room and the battery room in the cable spreading area (1979 refueling).
- Covers will be removed from cable trays and risers in the cable spreading area to enhance fire suppression capabilities (1978 refueling).
- Numerous piping and cable penetrations in various areas of the plant will be sealed and upgraded (1979 refueling).
- Doors and ventilation openings in fire barriers will be replaced with properly rated fire doors and modifications (9/78).
- Fire stops will be installed in appropriate nonsafety-related cable trays (1979 refueling).
- Berms will be provided at several doors or areas to prevent the spread of flammable liquid fires, and the combustible plastic lighting panels and partitions in the control room will be replaced.
- The diesel fire pump will be isolated from the electric fire pump and service water pumps by a one-hour fire wall with an automatic sprinkler system for the top opening.

NRR VERIFICATION: W. Pasedag Jr. **DATE:** 2/10/78

NRR RECOMMENDATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

PORTABLE FIRE EQUIPMENT

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- The use of flame retardant coatings on electrical cables in trays and risers in the switchgear room is recommended. The licensee will evaluate the impact of flame retardant coatings on cable derating to determine if sufficient design margin exists to use this method to improve the fire resistance of electrical cables.

I & E INSPECTION SUMMARY/ACTIONS

- April 4-8 (77-06): An inspection provided the NRR fire protection review team with direct knowledge of the arrangement of safety-related equipment, fire hazards, fire protection equipment and administrative controls.
- October 5-7 (77-21): An inspection of special work controls for fire protection implemented in accordance with IE Bulletin Nos. 75-04 and 75-04A revealed no items of noncompliance.

SUMMARY

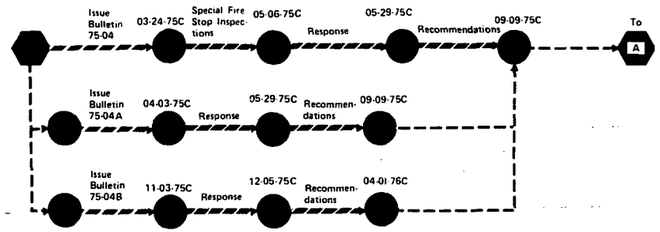
- Amendment No. 43 to the operating license and a Safety Evaluation Report for fire protection was issued on January 13, 1978.
- However, several items remain incomplete: The licensee will evaluate the electrical power distribution system and routing of nonessential load cables connected to essential power sources to verify their protection; evaluate the alternatives to maintain an adequate supply of fire water in the event of damage to the redundant feed to the underground loop; evaluate the consequences of fires in the radwaste and advanced off-gas building; submit additional information concerning administrative controls, actuation of automatic CO_2 systems, fire hazards analysis for the primary containment and operation of safe shutdown systems.
- The NRC's review of these items and any further proposed changes to the fire protection program will be addressed in a supplement to the SER.

GPO 917-045

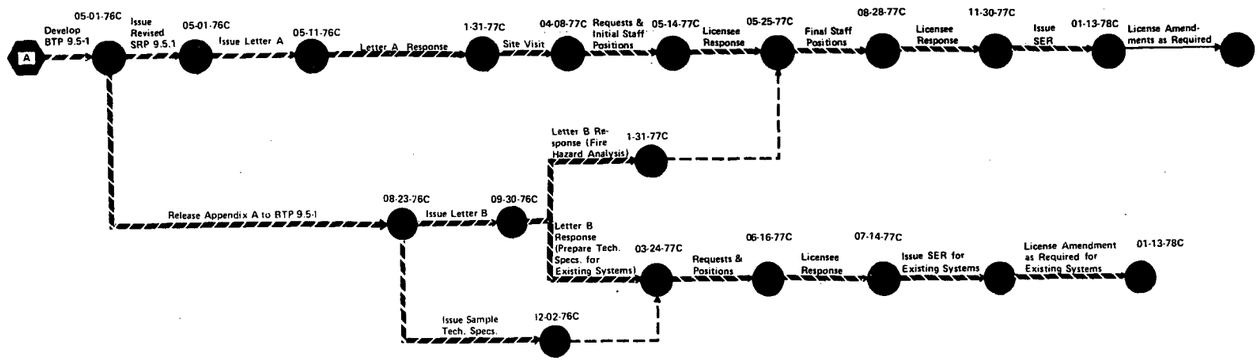
FACILITY DATA

Facility Name: VERMONT YANKEE
Utility Name: VERMONT YANKEE NUCLEAR POWER
Docket Number: 50-271
License/Permit Number: DPR-28
Location: 5 MI SE OF BRATTLEBORO, VT
Plant Type: BWR
Lic. Thermal Power: 1593
Design Elec. Power: 514
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: EBASCO
O.R. Branch Chief: R. REID
O. R. Proj. Manager: J. SIEGEL
IE Inspector: T. MARTIN

I & E ACTIONS



NRR ACTIONS



YANKEE ROWE

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

- An additional hose station will be added outside the switchgear rooms and a fire extinguisher will be added to the spent fuel pit.
- Two additional wheeled fire extinguishers will be added for the vapor container area.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Exposed I-beams in the control room and in the switchgear room and the exposed steel columns on the outside walls of these two rooms will be coated with fire resistant mastic.
- Penetrations in the control room, in the switchgear room, the diesel generator room and the primary auxiliary building will be sealed or supplemented with Flamastic.
- Combustibles in the control room, in the storage area in the diesel generator building and in the vapor container will be minimized. They will be stored in small, widely separated areas.
- The oil soaked asphalt floor in the turbine building will be replaced.
- The diesel generator fuel oil supply lines in the primary auxiliary building and in the diesel generator building will be moved outdoors.
- Curbs will be provided for all doorways of the diesel generator rooms and at the entrance to the heating boiler room.
- Smoke detectors will be installed in the two battery rooms in the switchgear room, in the office building, and in mechanical equipment room #3.
- Sprinklers and cable tray covers in the cable tray house will be altered.
- Protectowire or an approved early warning fire detection system will be installed in areas of high cable concentration, in cable trays and in switchgear and motor control centers.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- March 23-24 (77-07): An inspection of Fire Prevention/Protection including work control procedures, quality assurance surveillance, design change controls, and emergency procedures and facility inspection revealed one item of noncompliance relating to quality assurance surveillance of a plant modification.

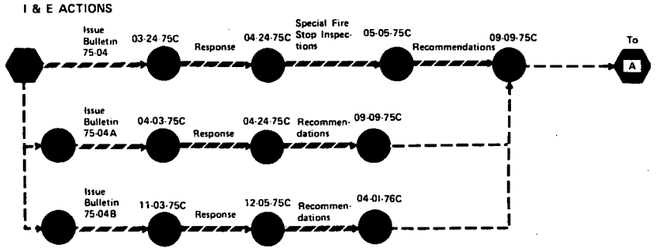
● SUMMARY

GPO 917-645

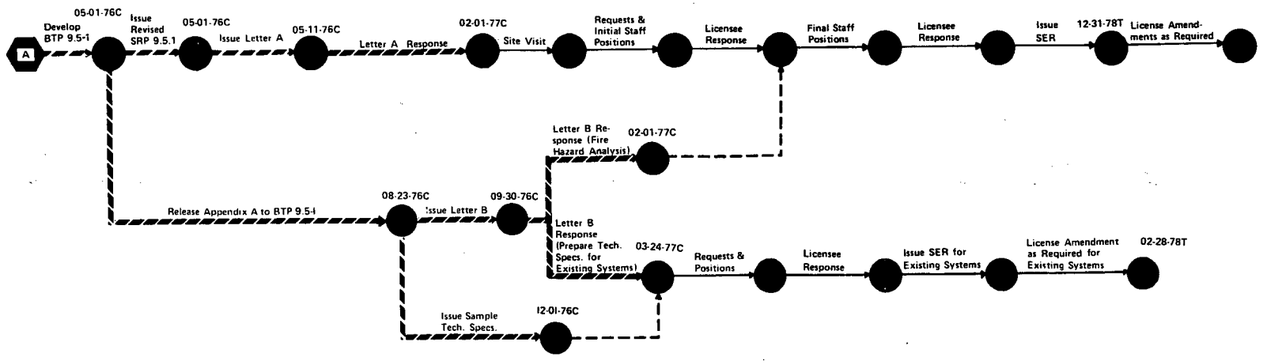
FACILITY DATA

Facility Name: YANKEE-ROWE
Utility Name: YANKEE ATOMIC ELECTRIC
Docket Number: 50-029
License/Permit Number: DPR-3
Location: 25 MI NNE OF PITTSFIELD, MASS
Plant Type: PWR
Lic. Thermal Power: 0600
Design Elec. Power: 0175
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: STONE & WEBSTER
O.R. Branch Chief: A. SCHWENCER
O. R. Proj. Manager: A. BURGER
IE Inspector: W. LAZARUS

I & E ACTIONS



NRR ACTIONS



ZION 1 & 2

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Future modifications and maintenance work on fire protection and detection systems will be included under the Utility's Quality Assurance program.

● PORTABLE FIRE EQUIPMENT

- Additional portable extinguishers will be provided in Units 1 & 2 pipe tunnels.
  Portable ventilation equipment will be provided for fire brigade use.
  All external hose houses will be equipped with 250 feet of 2-1/2 inch hose and 100 feet of 1-1/2 inch hose.
  Additional hose stations will be provided in the cable spreading rooms in conjunction with the installation of the Halon and CO_2 fire suppression systems and longer hoses will be provided for a number of stations in the auxiliary building.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Fire dampers will be installed in the charging pump rooms 1C and 2C exhaust ducts and numerous HVAC fire dampers will be upgraded to the appropriate fire rating.
- Exposed steel beams will be insulated/protected in Units 1 & 2 outer cable spreading area, Units 1 & 2 auxiliary electrical equipment areas, Unit 1 plant computer room, and for the air intake plenum for D/G rooms 1A and 2A.
- Cable trays passing through stairwells will be enclosed in rated fire barriers in Unit 1 cable spreading area.
- Unlabeled doors will be upgraded to Class B doors in Units 1 & 2 electrical equipment room and battery rooms.
- Additional detectors or detection systems will be provided for the following areas of both Units: ECCS accumulator tanks; steam generator and feed pump areas; operating floor areas of containment building; control room; computer rooms; diesel oil transfer pumps area, remote shutdown panel areas, and component cooling pump area of the auxiliary building; charging pump rooms 1C and 2C: HVAC equipment room; fuel handling building; office areas; and instrument/record room; in the exhaust ductwork of the control room cabinets; in several building ventilation systems; and at the 592 ft. level of the auxiliary building.
- Halon flooding suppression system with fixed CO_2 backup suppression system will be installed in Units 1 & 2 cable spreading area and in the inner and outer cable penetration vaults.
- Automatic water suppression systems will be installed or extended to provide coverage for both Unit 1 and for Unit 2 turbine building trackway at the 592' 1" level, for the diesel driven fire pump area and for both Units' containment spray pump rooms.
- Diesel generators (1A, 1B, 2A, 2B) air intake louvers will be separated from the transformer area by a water curtain.
- A detection and total flooding CO_2 system will be installed in records storage area.
- Halon 1301 systems will be installed in the cable spreading rooms. They can be operated on a fully automatic basis and by both "manual electrical" and emergency "manual pneumatic" auxiliary means at locations outside the hazard area.
- Automatic protection systems, consisting of a Halon 1301 primary system and a CO_2 backup system, will be provided for the cable spreading rooms.

NRR VERIFICATION: M Ciampi **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- March 7-10 (77-09): A review of emergency planning, facilities, equipment, medical arrangements and training, tests and drills revealed one deviation from the GSEP commitment. (Unit 2)
- July 11-14 (77-17): An inspection of station fire protection revealed one item of noncompliance involving failure to follow procedure during maintenance activities regarding welding and grinding.

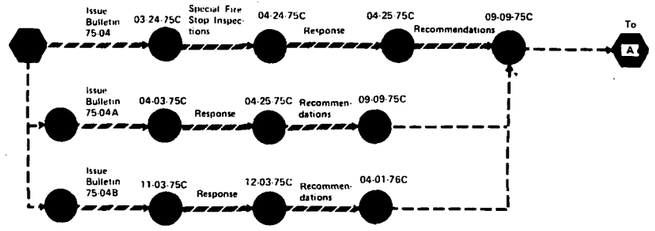
● SUMMARY

GPO 817-643

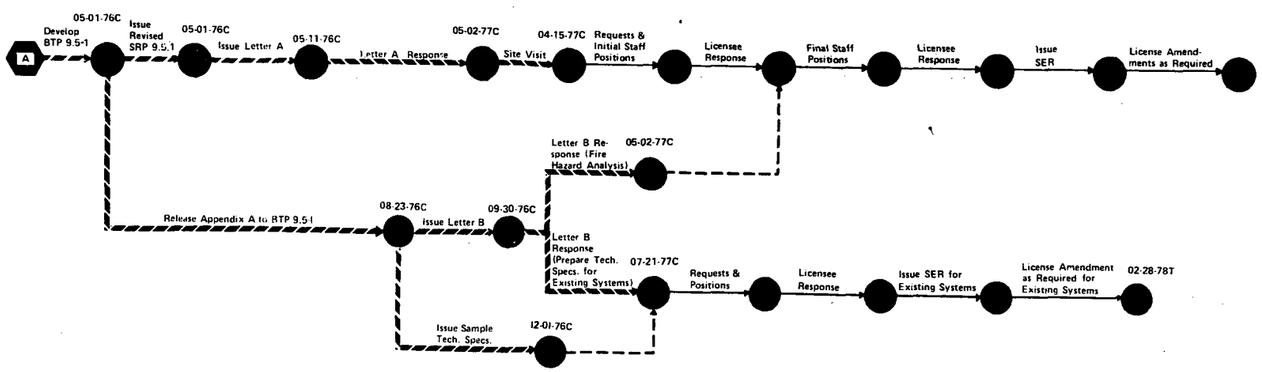
FACILITY DATA

Facility Name: ZION 1& 2
Utility Name: COMMONWEALTH EDISON
Docket Number: 50-295/304
License/Permit Number: DPR-39/48
Location: 40 MI N OF CHICAGO
Plant Type: PWR
Lic. Thermal Power: 3250
Design Elec. Power: 1040
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: SARGENT & LUNDY
O.R. Branch Chief: A. SCHWENCER
O. R. Proj. Manager: G. ZECH
IE Inspector: D. BOYD

I & E ACTIONS



NRR ACTIONS



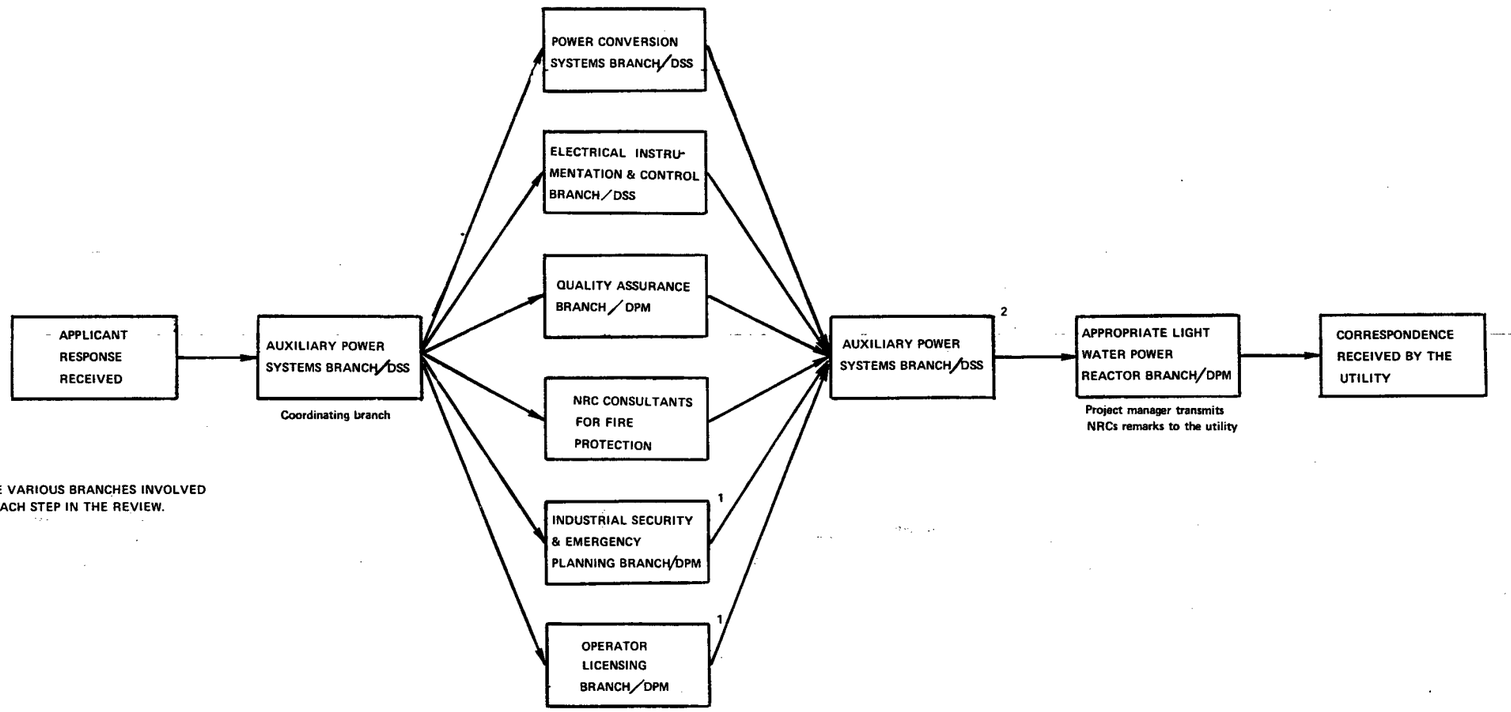
OFFICE OF NUCLEAR REACTOR REGULATION

CATEGORY II PLANTS

REVIEW PROCEDURE FOR CATEGORY II AND III PLANTS

THE FIRE PROTECTION PROGRAMS OF THOSE PLANTS LISTED IN CATEGORY II AND CATEGORY III ON PAGE 1-2, PRIMARILY PLANTS UNDER CONSTRUCTION OR PLANTS HAVING APPLICATIONS DOCKETED FOR AN OPERATING LICENSE' ARE BEING REVIEWED BY THE TWO DIVISIONS, SYSTEMS SAFETY (DSS) AND PROJECT MANAGEMENT (DPM), IN THE OFFICE OF NUCLEAR REACTOR REGULATION (NRR). EACH STEP OF THE REVIEW PROCESS INVOLVES MEMBERS OF AT LEAST FIVE BRANCHES OF THESE DIVISIONS, PLUS CONSULTANTS. MEMBERS OF TWO ADDITIONAL BRANCHES MAY BE REQUIRED TO COMPLETE THE REVIEW OF SOME SUBMITTALS. THIS INTERACTION BETWEEN NUMEROUS BRANCHES AND DIVISIONS, PLUS THE FACT THAT THE REVIEW OF THE FIRE PROTECTION PROGRAMS MUST BE DONE SIMULTANEOUSLY WITH THE REVIEW OF OTHER APPLICATIONS FOR LICENSES AND PERMITS, MAKES THE SCHEDULING AND THE ILLUSTRATION OF A TYPICAL FIRE PROTECTION REVIEW CYCLE VERY DIFFICULT.

HOWEVER, THE REVIEW OF FIRE PROTECTION PROGRAMS OF ALL OPERATING REACTORS IS SCHEDULED TO BE COMPLETED BY THE END OF 1978 AND THE REVIEW OF THE FIRE PROTECTION PROGRAMS OF THE APPLICANTS FOR AN OPERATING LICENSE SHOULD BE COMPLETED BY THE TIME THE LICNESE IS GRANTED.



THE SIMPLIFIED BLOCK DIAGRAM IS AN ATTEMPT TO SHOW THE VARIOUS BRANCHES INVOLVED AND SOME OF THE INTERACTIONS NECESSARY TO COMPLETE EACH STEP IN THE REVIEW.

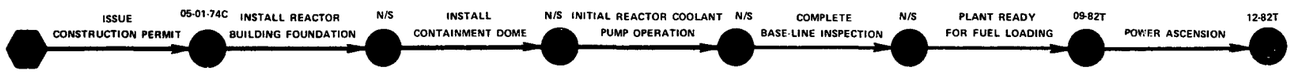
[1] It may not be necessary for these branches to perform a special review of the fire protection programs of all plants.

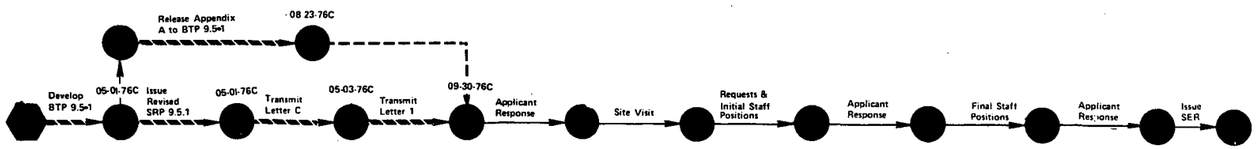
[2] The conclusions drawn from the review of the applicants submittal are coordinated with the Division of Operating Reactors at this point.

FACILITY DATA

Facility Name: BAILLY 1
Utility Name: NORTHERN INDIANA PUBLIC SERVICE
Docket Number: 50-367
License/Permit Number: CPPR-104
Location: 12 MI ENE OF GARY, IND
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 0645
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: SARGENT & LUNDY
O. L. Branch Chief: D. VASSALLO
O. L. Proj. Manager: D. LYNCH
IE Inspector: T. VANDEL

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977



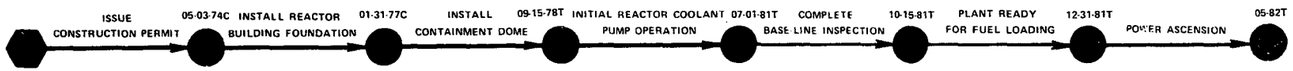


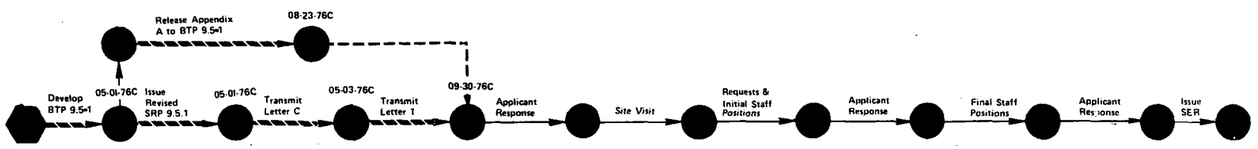
BEAVER VALLEY 2 CAT II

FACILITY DATA

Facility Name: BEAVER VALLEY 2
Utility Name: DUQUESNE LIGHT
Docket Number: 50-412
License/Permit Number: CPPR-105
Location: 25 MI NW OF PITTSBURGH
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 0852
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: STONE & WEBSTER
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: J. ANGELO
IE Inspector: J. MATTIA

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977



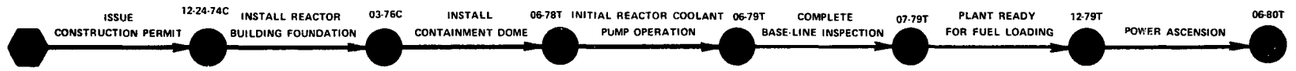


FACILITY DATA

Facility Name: BELLEFONTE 1 & 2
Utility Name: TENESSEE VALLEY AUTHORITY
Docket Number: 50-438/439
License/Permit Number: CPPR-122/123
Location: 8 MI NE OF SCOTTSBORO, ALA
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1213
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: TENNESSEE VALLEY AUTHORITY
O. L. Branch Chief: O. PARR
O. L. Proj. Manager: W. PIKE
IE Inspector: L. FOSTER

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

BELLEFONTE 1



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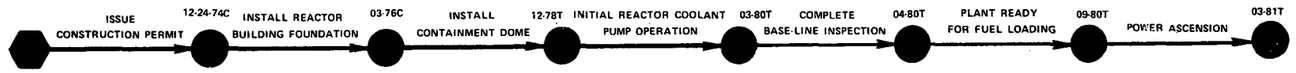
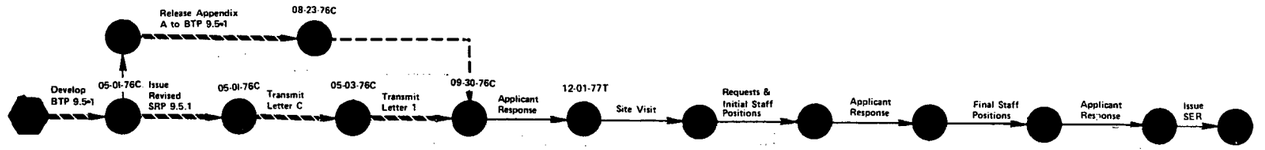




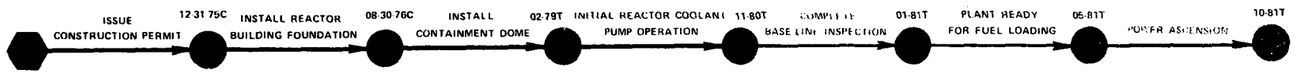
BRAIDWOOD 1 & 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE YELLOW BOOK DATED DECEMBER 1977

FACILITY DATA

Facility Name: BRAIDWOOD 1 & 2
Utility Name: COMMONWEALTH EDISON
Docket Number: 50-456/457
License/Permit Number: CPPR-132/133
Location: 24 MI SSW OF JOLIET, ILL
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1120
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: SARGENT & LUNDY
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: J. ANGELO
IE Inspector: C. WILLIAMS

BRAIDWOOD-1



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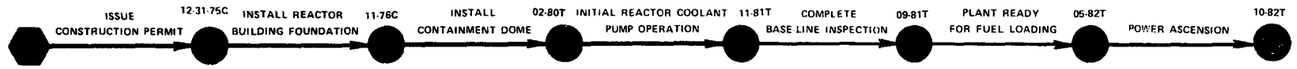
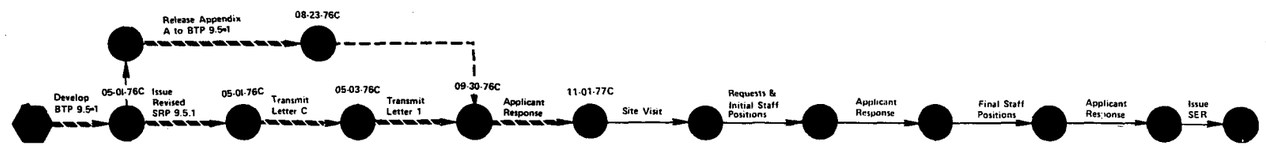




FACILITY DATA

Facility Name: BROWNS FERRY 1, 2 & 3
Utility Name: TENNESSEE VALLEY AUTHORITY
Docket Number: 50-259/260/296
License/Permit Number: DPR-33/52/68
Location: 10 MI NW OF DECATUR, AL
Plant Type: BWR
Lic. Thermal Power: 3440
Design Elec. Power: 1065
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: TENNESSEE VALLEY AUTHORITY
O.R. Branch Chief: A. SCHWENCER
O. R. Proj. Manager: T. WAMBACH
IE Inspector: R. SULLIVAN

FIRE PROTECTION REVIEW COMPLETED

SAFETY EVALUATION REPORT (NUREG–0061) ISSUED FOR UNITS 1 & 2 IN FEBRUARY 1976
SUPPLEMENT 1 TO THE ABOVE SER (NUREG–0061, Supplement 1) ISSUED IN JUNE 1976
SUPPLEMENT 2 TO THE ABOVE SER (NUREG–0061, Supplement 2) ISSUED IN JULY 1976

SAFETY EVALUATION REPORT ISSUED FOR UNIT 3 IN JULY 1976.

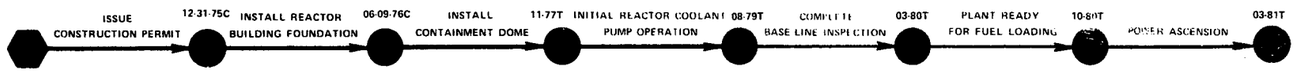
BYRON 1 & 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

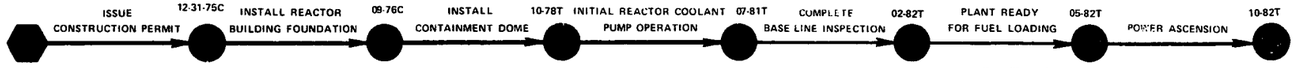
FACILITY DATA

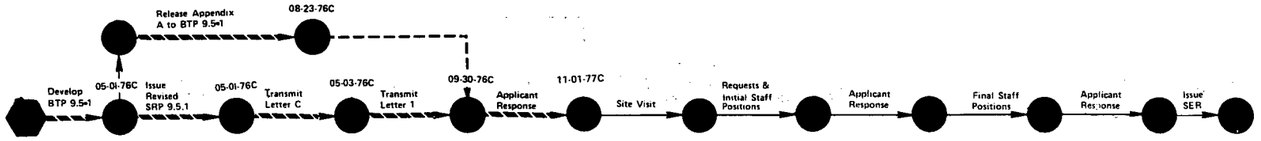
Facility Name: BYRON 1 & 2
Utility Name: COMMONWEALTH EDISON
Docket Number: 50-454/455
License/Permit Number: CPPR-130/131
Location: 17 MI SW OF ROCKFORD, ILL
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1120
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: SARGENT & LUNDY
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: J. ANGELO
IE Inspector: C. WILLIAMS

BYRON 1



BYRON 2



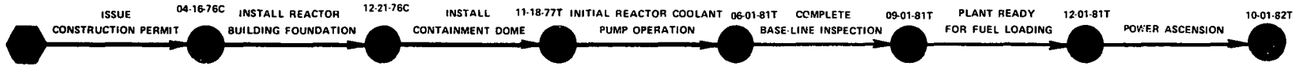


FACILITY DATA

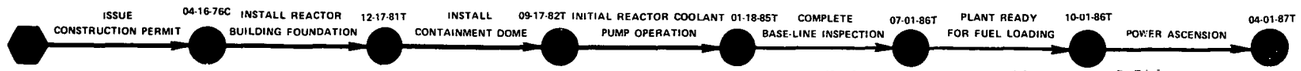
Facility Name: CALLAWAY 1& 2
Utility Name: UNION ELECTRIC
Docket Number: 50-483/486
License/Permit Number: CPPR-139/ 140
Location: 10 MI SE OF FULTON, MO
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1120
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: BECHTEL
O. L. Branch Chief: O. PARR
O. L. Proj. Manager: E. LICITRA
IE Inspector: T. VANDEL

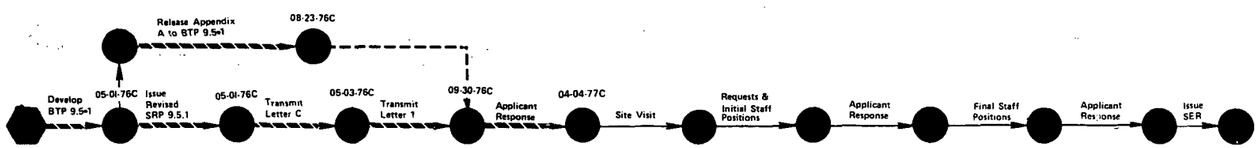
CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

CALLAWAY 1



CALLAWAY 2





CATAWBA 1 & 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

FACILITY DATA

Facility Name: CATAWBA 1 & 2

Utility Name: DUKE POWER

Docket Number: 50-413/414

License/Permit Number: CPPR-116/117

Location: 14 MI SW OF CHARLOTTE, NC

Plant Type: PWR

Lic. Thermal Power: N/A

Design Elec. Power: 1153

NSSS Vendor: WESTINGHOUSE

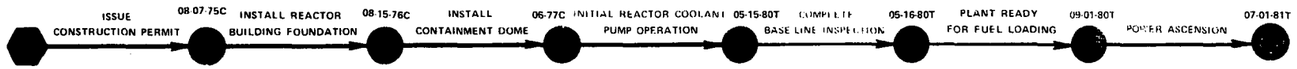
Architect/Engineer: DUKE POWER

O. L. Branch Chief: K. KNIEL

O. L. Proj. Manager: J. VILLALVA

IE Inspector: B. COCHRAN

CATAWBA 1



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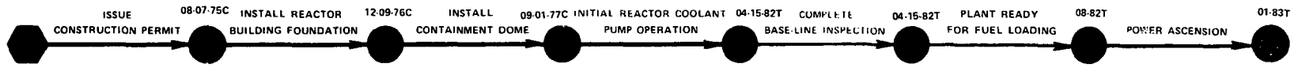
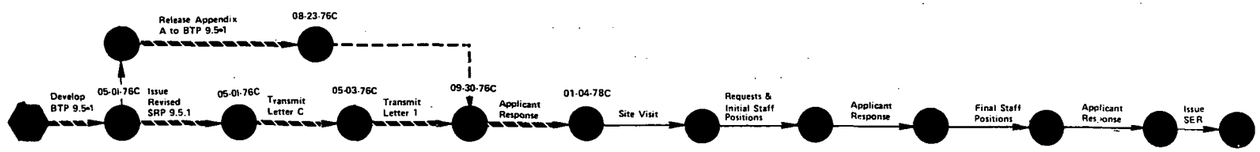


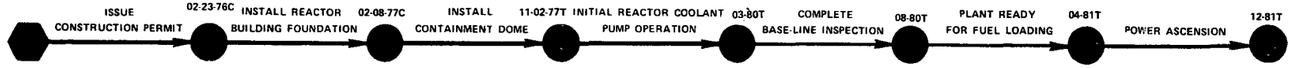


FACILITY DATA

Facility Name: CLINTON 1 & 2
Utility Name: ILLINOIS POWER
Docket Number: 50-461/462
License/Permit Number: CPPR-137/138
Location: 6 MI E OF CLINTON, ILL
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 0933
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: SARGENT & LUNDY
O. L. Branch Chief: K. KNIEL
O. L. Proj. Manager: S. BURWELL
IE Inspector: I. YIN

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

CLINTON 1



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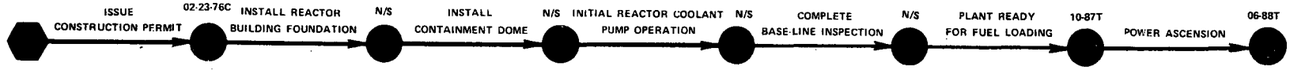
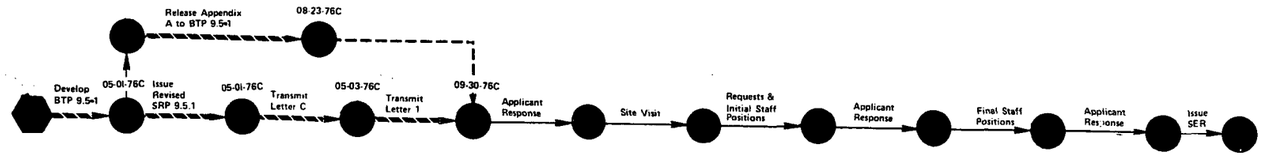


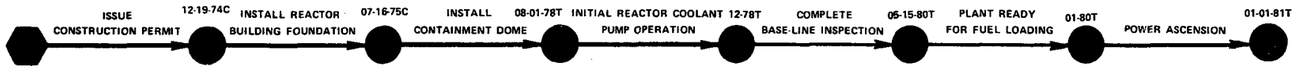


FACILITY DATA

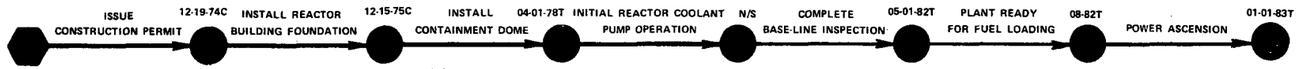
Facility Name: COMANCHE PEAK 1 & 2
Utility Name: TEXAS UTILITIES GENERATING
Docket Number: 50-445/446
License/Permit Number: CPPR-128/127
Location: 4 MI N OF GLEN ROSE, TEX
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1150
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: GIBBS & HILL
O. L. Branch Chief: O. PARR
O. L. Proj. Manager: E. LICITRA
IE Inspector: R. STEWART

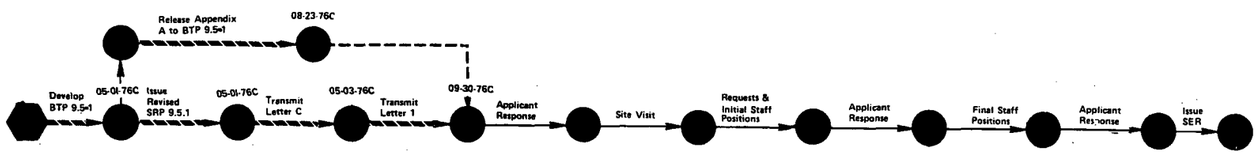
CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

COMANCHE PEAK 1



COMANCHE PEAK 2





COOK 1

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Administrative procedures for maintaining the performance of fire protection systems and the training of a plant fire brigade are in effect.
- Administrative measures to control the storage of combustible materials and to control the use of ignition sources have been established.
- Administrative procedures will be established to control the use of combustible materials within any safety-related areas.
- The Quality Assurance program will be improved with regard to fire protection equipment and procedures.

● PORTABLE FIRE EQUIPMENT

- Additional hose stations will be installed at access areas to the control room cable spreading room, the auxiliary cable vault, the switchgear room cable vault and the containment penetration cable tunnels.
- Additional dry chemical and CO_2 hand portable extinguishers will be provided.
- Portable communications will be provided for fire brigade personnel for use during an emergency.
- At least two portable ventilation blowers will be provided on the site fire truck.
- Twenty spare bottles will be provided for the pressure demand rebreathers.
- Eight-hour battery packs will be provided for emergency lighting for egress and fire fighting access and for operation of remote shutdown stations.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Fire-proof hatches will be installed in the locker room ceiling and in the control room and several doors will be replaced with fire-rated doors.
- Refractory fiber insulation covered with reinforced silicone sheeting will be installed in seismic gaps in the steam valve enclosures.
- Two 2-hour rated walls have been provided as fire barriers for the quadrants of the containment penetration cable tunnels.
- Trays containing safety related cables have been covered with fire resistant Marinite.
- Fire detection will be provided for the sampling room and for the HVAC vestibule in the auxiliary building, above the suspended ceiling in the control room, for the charging pumps, for the safety injection pumps, and for the reactor coolant pumps.
- A second zone of infra-red detection will be installed in the cable tunnel complexes, in the 4 kV switchgear rooms, in the Eng. Safety Syst. and MCC rooms, and the CRD and battery rooms.
- Automatic sprinklers will be installed for the zone containing diesel fuel and lube oils and in the area of the charging pumps, the safety injection pumps and the reactor coolant pumps.
- Engineering changes will be made to allow the plant to be brought to a cold shutdown condition from outside the control room.
- A fixed communications system, with circuits independent of the cable spreading rooms, will be installed between individual local shutdown stations and certain control locations.
- A pre-action sprinkler system will be installed in fire zones 5 and 6 to protect redundant overhead cabling.
- An oil spillage protection and control system will be installed for each reactor coolant pump motor and a manually actuated sprinkler system will be provided for the catch basin location on the pump motor.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- February 14, 16, 17, 22, 24, 25, March 4, 7, 8, 10, 11, 25, 31, April 1, 6-8, 13 and 15, 1977 (77-07): A review of training, fire protection, cycle 2 startup, and follow-up of events revealed one item of noncompliance associated with the implementation of administrative procedures.
- March 9-11 (77-05): A review of emergency planning relating to agreements and coordination with offsite agencies and examination of facilities, equipment and procedures specified in the Emergency Plan revealed one item of noncompliance relating to licensee failure to adhere to personnel training requirements.

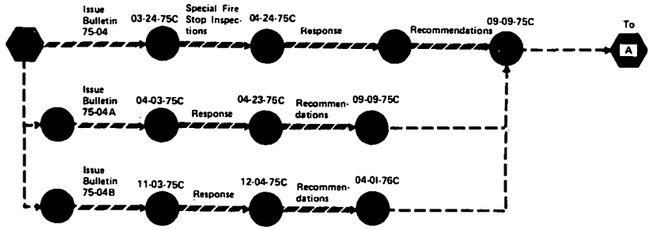
● SUMMARY

GPO 81 7-848

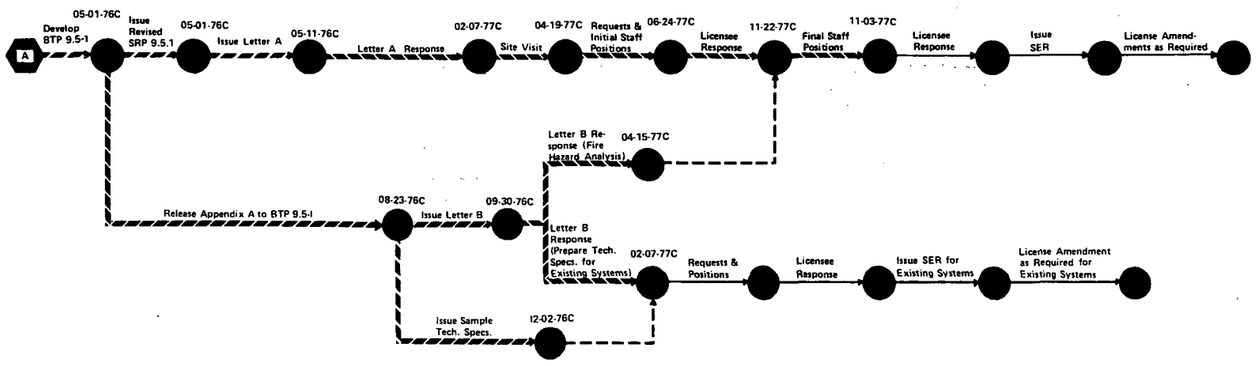
FACILITY DATA

Facility Name: COOK 1
Utility Name: INDIANA & MICHIGAN ELECTRIC
Docket Number: 50-315
License/Permit Number: DPR-59
Location: 10 MI SSW OF BENTON HARBOR
Plant Type: PWR
Lic. Thermal Power: 3250
Design Elec. Power: 1054
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: AMER ELEC POWER SERVICE CORP
O.R. Branch Chief: D. DAVIS
O. R. Proj. Manager: M. FLETCHER
IE Inspector: K. BAKER

I & E ACTIONS



NRR ACTIONS

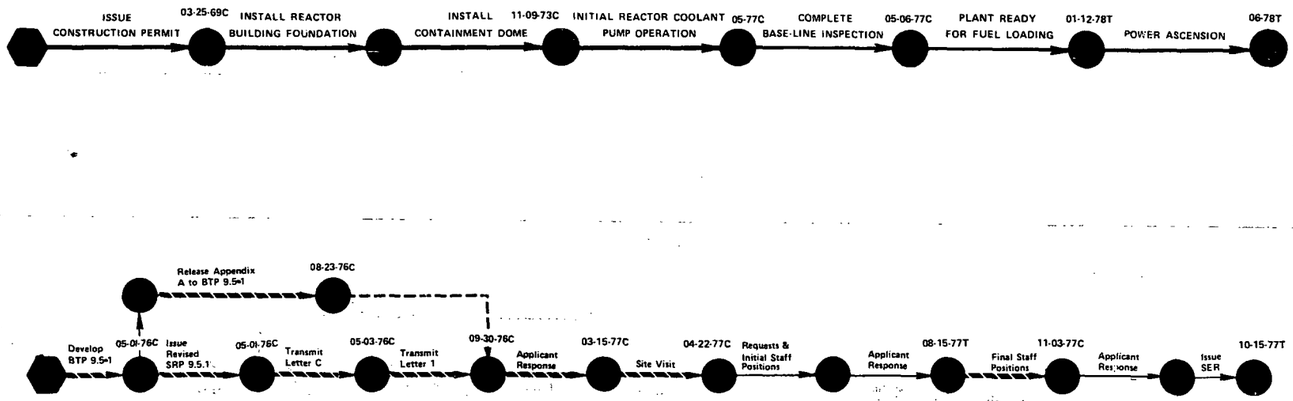


COOK 2 CAT II

FACILITY DATA

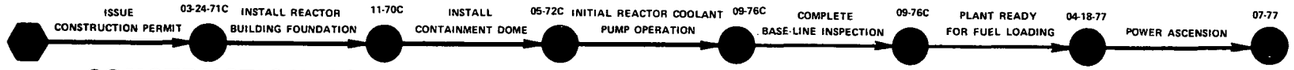
Facility Name: COOK 2
Utility Name: INDIANA & MICHIGAN ELECTRIC
Docket Number: 50-316
License/Permit Number: CPPR-81
Location: 10 MI SSW OF BENTON HARBOR
Plant Type: PWR
Lic. Thermal Power: 0000
Design Elec. Power: 3391
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: AMER ELEC POWER SERVICE CORP
O. L. Branch Chief: K. KNEIL
O. L. Proj. Manager: M. MLYNCAZAK
IE Inspector: C. JONES

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

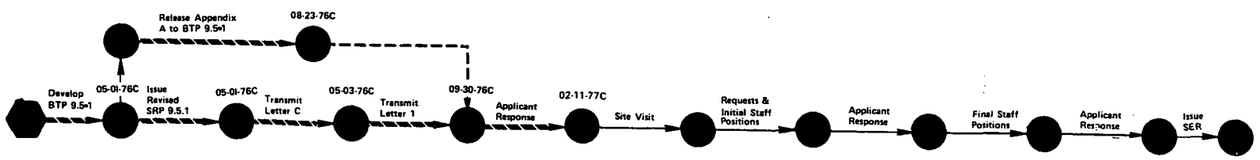


FACILITY DATA

Facility Name: DAVIS-BESSE 1
Utility Name: TOLEDO EDISON
Docket Number: 50-346
License/Permit Number: CPPR-80
Location: 21 MI EAST OF TOLEDO
Plant Type: PWR
Lic. Thermal Power: 2772
Design Elec. Power: 0906
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: BECHTEL
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: L. ENGLE
IE Inspector: C. WILLIAMS



CONSTRUCTION COMPLETE — OPERATING LICENSE ISSUED



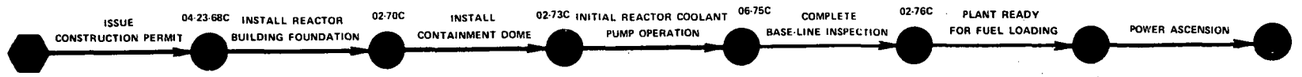
DIABLO CANYON 1 & 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

FACILITY DATA

Facility Name: DIABLO CANYON 1 & 2
Utility Name: PACIFIC GAS & ELECTRIC
Docket Number: 50-275/323
License/Permit Number: CPPR-39/69
Location: 12 MI W OF SAN LUIS OBISPO
Plant Type: PWR
Lic. Thermal Power: 0000
Design Elec. Power: 1131/1156
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: PACIFIC GAS & ELECTRIC
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: D. ALLISON
IE Inspector: W. ALBERT

DIABLO CANYON 1



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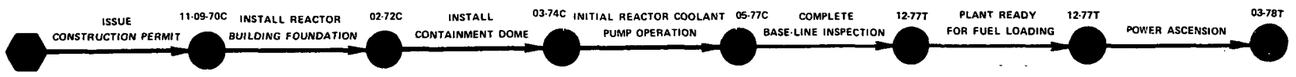
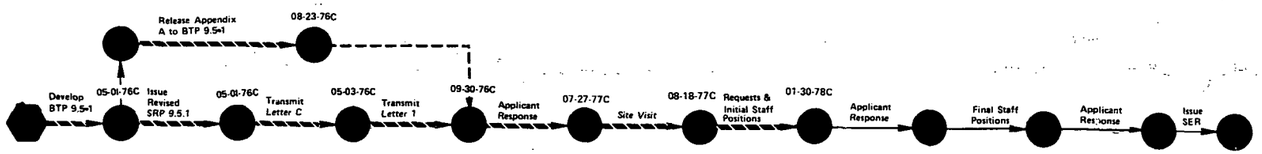


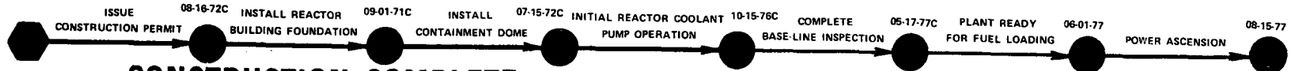


FACILITY DATA

Facility Name: FARLEY 1 & 2
Utility Name: ALABAMA POWER & LIGHT
Docket Number: 50-348 / 364
License/Permit Number: CPPR-86
Location: 16 MI E OF DOTHAN, ALA
Plant Type: PWR
Lic. Thermal Power: 2652
Design Elec. Power: 829
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: SOUTHERN SERVICES/BECHTEL
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: R. MARTIN/ L. KINTNER
IE Inspector: D. DANIELSON

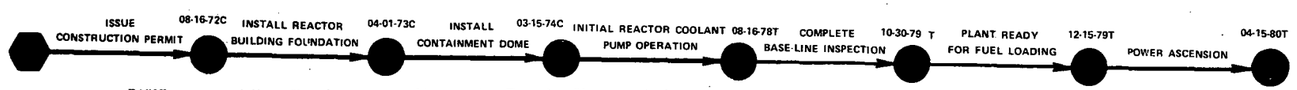
CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

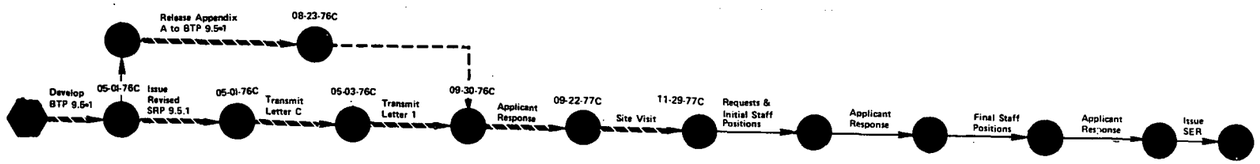
FARLEY 1



CONSTRUCTION COMPLETE — OPERATING LICENSE ISSUED

FARLEY 2



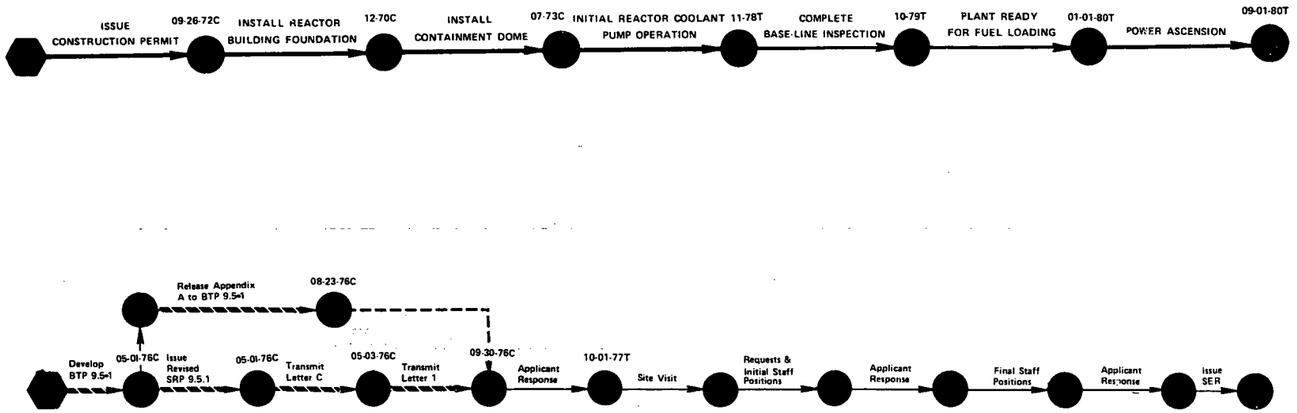


FERMI 2 CAT II

FACILITY DATA

Facility Name: ENRICO FERMI 2
Utility Name: DETROIT EDISON
Docket Number: 50-341
License/Permit Number: CPPR-87
Location: 30 MI SW OF DETROIT
Plant Type: BWR
Lic. Thermal Power: 0000
Design Elec. Power: 1171
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: SARGENT & LUNDY
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: L. KINTNER
IE Inspector: T. VANDEL

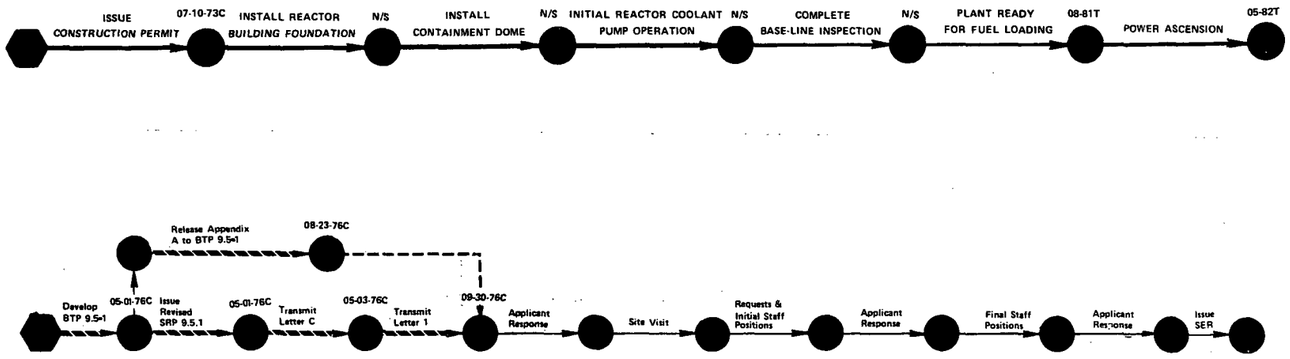
CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977



FACILITY DATA

Facility Name: FORKED RIVER
Utility Name: JERSEY CENTRAL POWER & LIGHT
Docket Number: 50-363
License/Permit Number: CPPR-96
Location: 2 MI S OF FORKED RIVER, NJ
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1070
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: BURNS & ROE
O. L. Branch Chief: S. VARGA
O. L. Proj. Manager: J. WILSON
IE Inspector: S. FOLSOM

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

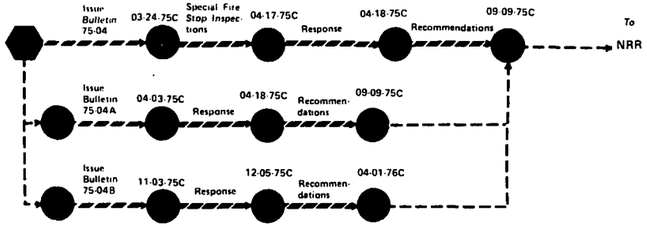


FORT ST. VRAIN CAT II

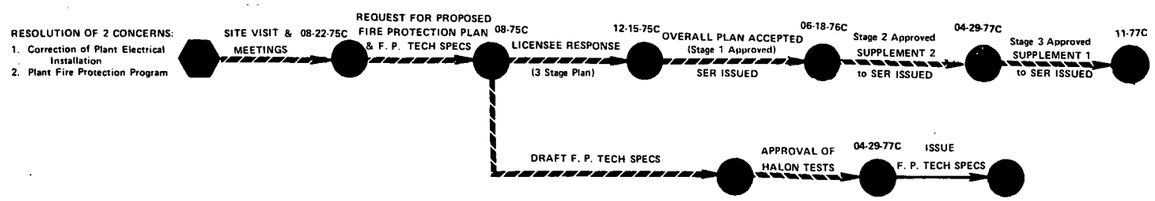
FACILITY DATA

Facility Name: FORT ST VRAIN
Utility Name: PUBLIC SERVICE OF COLORADO
Docket Number: 50-267
License/Permit Number: DPR-34
Location: 3.5 MI NW OF PLATTEVILLE, COL
Plant Type: HTGR
Lic. Thermal Power: 0842
Design Elec. Power: 0345
NSSS Vendor: GENERAL ATOMIC
Architect/Engineer: SARGENT & LUNDY
O.R. Branch Chief: R. DENISE
O. R. Proj. Manager: P. WILLIAMS
IE Inspector: T. WESTERMAN

I & E ACTIONS



NRR ACTIONS

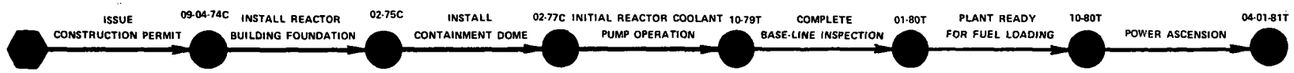


FACILITY DATA

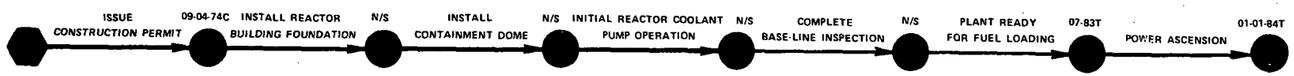
Facility Name: GRAND GULF 1 & 2
Utility Name: MISSISSIPPI POWER & LIGHT
Docket Number: 50-416/417
License/Permit Number: CPPR-118/119
Location: 25 MI S OF VICKSBURG, MISS
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1250
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O. L. Branch Chief: K. KNIEL
O. L. Proj. Manager: S. BURWELL
IE Inspector: B. VALLISH

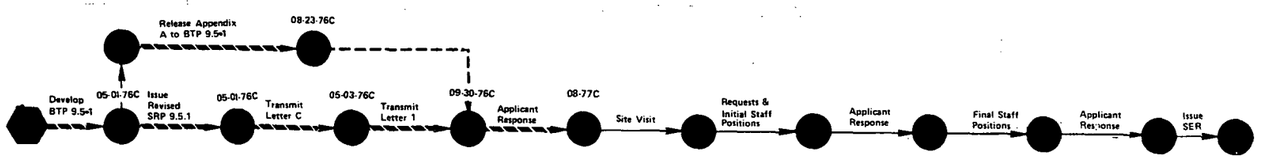
CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

GRAND GULF 1



GRAND GULF 2





HATCH 1

LICENSEE MODIFICATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Procedures are under development which will deal specifically with combustible materials storage and will prohibit bulk storage inside or adjacent to safety-related systems or buildings.
- Leak testing and airflow determination procedures are under development. Open flames or combustion generated smoke will not be permitted for leak testing.

● PORTABLE FIRE EQUIPMENT

- A study is underway to determine feasibility of using fixed or portable heat and smoke removal equipment for the cableways in the control building.
- The Chemox re-breather units will be replaced with "air tank" type units and 39 additional spare bottles will be provided.

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- The polyurethane used around the ventilation ducts in the control room will be removed.
- Numerous wall and floor duct or cable penetrations will be properly sealed.
- The cable spreading room ventilation system will be designed to automatically isolate upon actuation of the CO_2 flooding system.
- Additional smoke detectors will be added in the vertical cable chase area and the penetration into the cable spreading room will be improved.
- The drains and penetrations in the day tank rooms in the diesel generator building will be sealed.
- A curb will be installed around each river intake pump and a wet pipe sprinkler system will be provided for each motor. A water main from the fire protection water system to the intake structure will furnish water for additional hose stations to be built near the intake structure.
- Additional smoke and heat detectors and a manually operated dry sprinkler system will be provided for the recirculation pump in the drywell. Curbing will be built under the pumps.
- All cable trays in the drywell will be sprayed with flammastic.

NRR VERIFICATION: _____ **DATE:** 2/10/78

NRR RECOMMENDATIONS

● ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

● PORTABLE FIRE EQUIPMENT

● FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

● I & E INSPECTION SUMMARY/ACTIONS

- February 22-25 (77-03): A plant tour was conducted with NRR fire protection program evaluation review team. (Unit 1)
- March 14 and May 31-June 3 (77-7): A review of emergency planning relating to agreements and coordination with offsite agencies, and examination of facilities, equipment and procedures, emergency training, tests and drills, main control room environmental system and fire protection systems revealed no items of noncompliance or deviations.
- November 8-11 (77-22): An inspection of fire protection and several other areas revealed two items of noncompliance in areas unrelated to fire protection and one deviation in two areas involving failure to install foam firestops to thickness described in response to IE Bulletin No. 75-04.

● SUMMARY

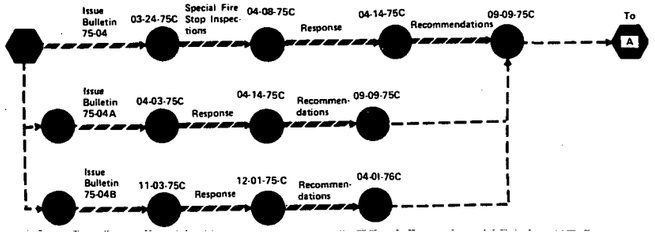
- A "Request for Additional Information" covering some 80 items was transmitted to the utility on June 14, 1977.

GPO 917-845

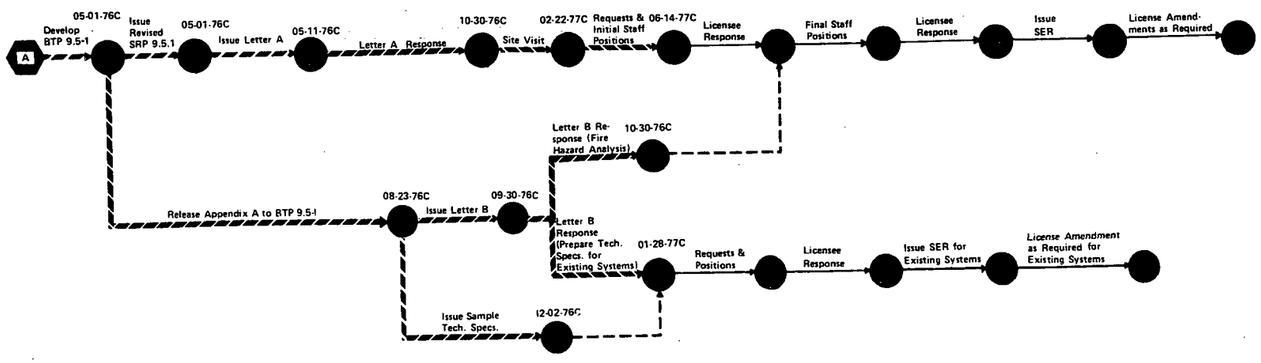
FACILITY DATA

Facility Name: HATCH 1
Utility Name: GEORGIA POWER
Docket Number: 50-321
License/Permit Number: DPR-57
Location: 11 MI N OF BAXLEY, GA
Plant Type: BWR
Lic. Thermal Power: 2436
Design Elec. Power: 0786
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O.R. Branch Chief: G. LEAR
O. R. Proj. Manager: S. NOWICKI
IE Inspector: D. HINCKLEY

I & E ACTIONS



NRR ACTIONS

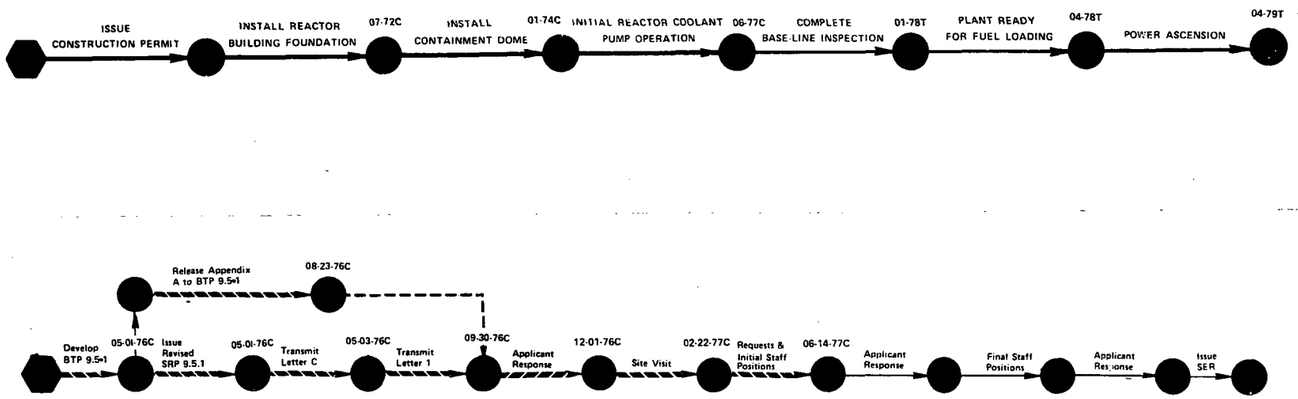


HATCH 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

FACILITY DATA

Facility Name: HATCH 2
Utility Name: GEORGIA POWER
Docket Number: 50-366
License/Permit Number: CPPR-90
Location: 11 MI N OF BAXLEY GA
Plant Type: BWR
Lic. Thermal Power: 0000
Design Elec. Power: 0825
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: E. CHAKOFF
IE Inspector: L. FOSTER

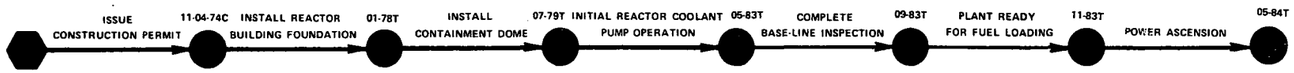


FACILITY DATA

Facility Name: HOPE CREEK 1 & 2
Utility Name: PUBLIC SERVICE GAS & ELECTRIC
Docket Number: 50-324/355
License/Permit Number: CPPR-120/121
Location: 18 MI SE OF WILMINGTON, DEL
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1067
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O. L. Branch Chief: K. KNIEL
O. L. Proj. Manager: P. RIEHM
IE Inspector: S. FOLSOM

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

HOPE CREEK 1



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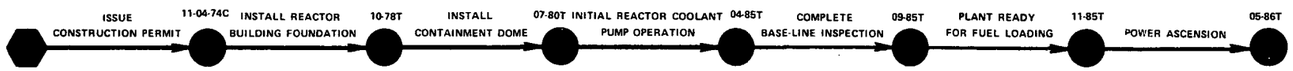
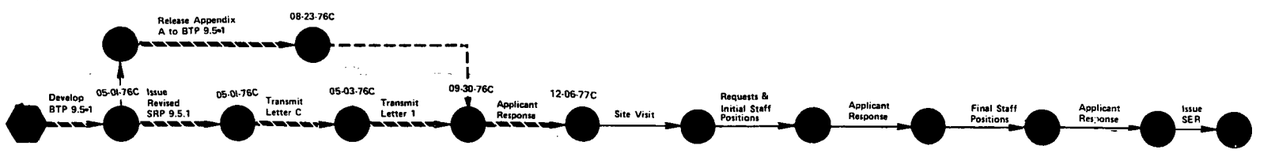




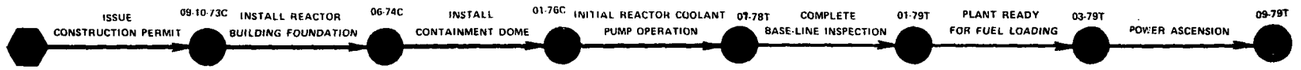
LASALLE 1 & 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

FACILITY DATA

Facility Name: LASALLE 1 & 2
Utility Name: COMMONWEALTH EDISON
Docket Number: 50-373/374
License/Permit Number: CPPR-99/100
Location: 11 MI SE OF OTTAWA ILL
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1078
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: SARGENT & LUNDY
O. L. Branch Chief: O. PARR
O. L. Proj. Manager: A. BOURNIA
IE Inspector: C. JONES

LA SALLE 1



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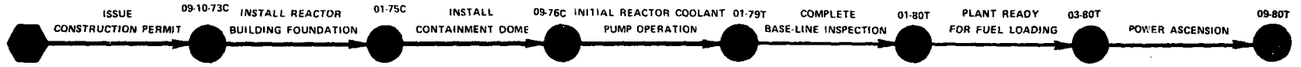
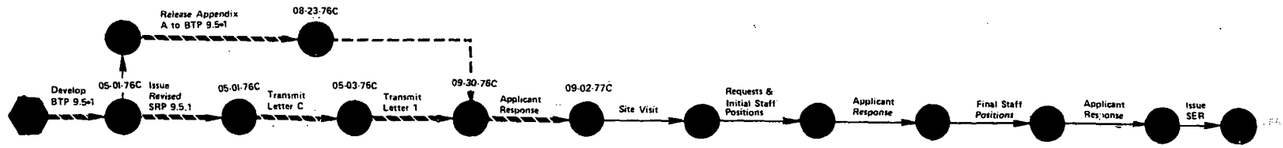


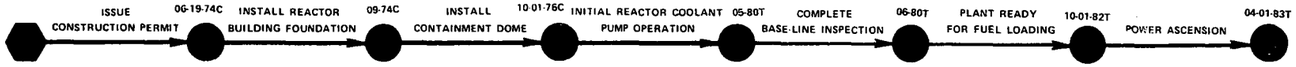


FACILITY DATA

Facility Name: LIMERICK 1& 2
Utility Name: PHILADELPHIA ELECTRIC
Docket Number: 50-352/353
License/Permit Number: CPPR-106/107
Location: 20.7 MI NW OF PHILADELPHIA
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1065
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O. L. Branch Chief: K. KNIEL
O. L. Proj. Manager: P. RIEHM
IE Inspector: A. TOTH

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

LIMERICK 1



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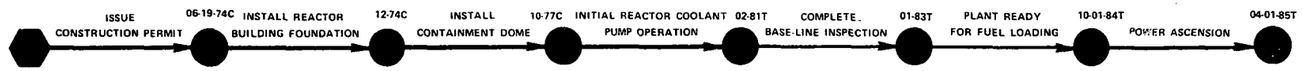
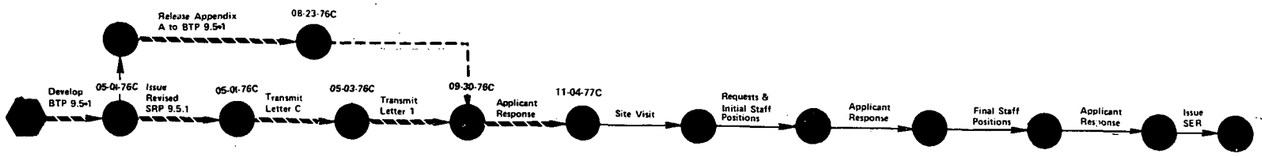




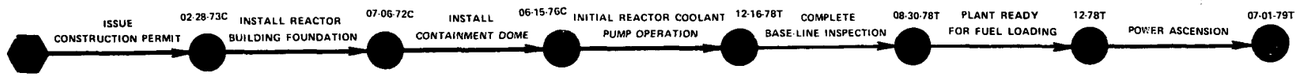
MCGUIRE 1 & 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

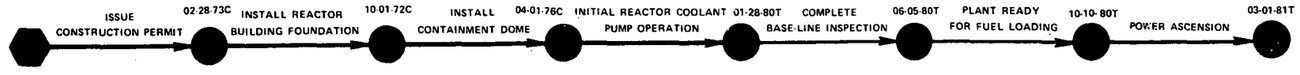
FACILITY DATA

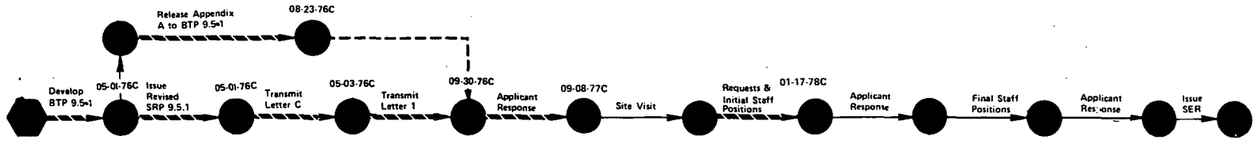
Facility Name: MCGUIRE 1& 2
Utility Name: DUKE POWER
Docket Number: 50-369/370
License/Permit Number: CPPR-83/84
Location: 17 MI NW OF CHARLOTTE
Plant Type: PWR
Lic. Thermal Power: 0000
Design Elec. Power: 1239
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: DUKE POWER
O. L. Branch Chief: K. KNIEL
O. L. Proj. Manager: R. BIRKEL
IE Inspector: V. BROWNLEE

McGUIRE 1



McGUIRE 2



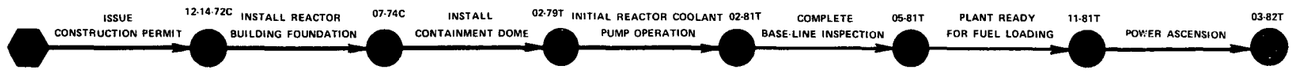


FACILITY DATA

Facility Name: MIDLAND 1& 2
Utility Name: CONSUMERS POWER
Docket Number: 50-329/330
License/Permit Number: CPPR-81/82
Location: 2 MI SW OF MIDLAND, MICH
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 0458/0808
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: BECHTEL
O. L. Branch Chief: S. VARGA
O. L. Proj. Manager: R. POWELL
IE Inspector: I. YIN

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

MIDLAND 2



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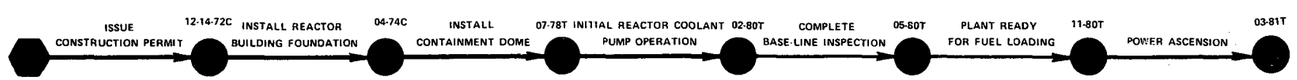
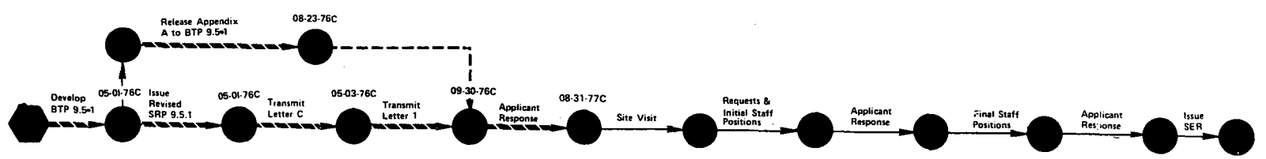


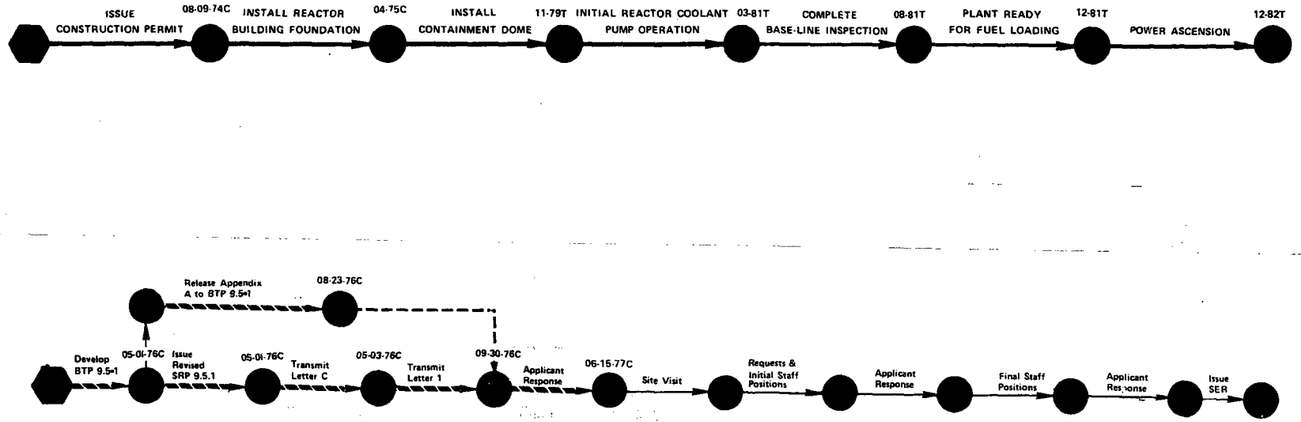


MILLSTONE 3 CAT II

FACILITY DATA

Facility Name: MILLSTONE 3
Utility Name: NORTHEAST NUCLEAR ENERGY
Docket Number: 50-423
License/Permit Number: CPPR-113
Location: 5 MI SW OF NEW LONDON, CONN
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1156
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: STONE & WEBSTER
O. L. Branch Chief: O. PARR
O. L. Proj. Manager: A. DROMERICK
IE Inspector: R. KEIMIG

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

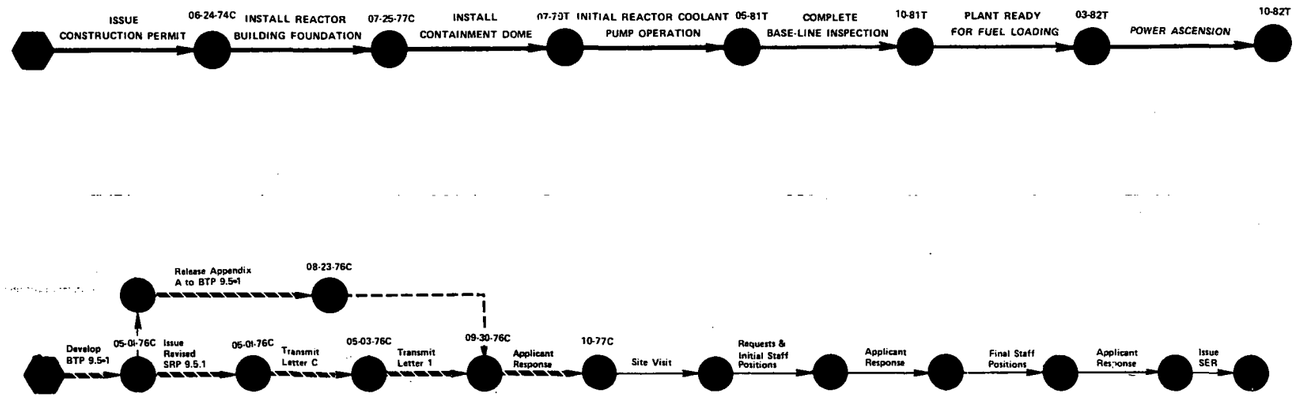


NINE MILE POINT 2 CAT II

FACILITY DATA

Facility Name: NINE MILE POINT 2
Utility Name: NIAGARA MOHAWK POWER
Docket Number: 50-410
License/Permit Number: CPPR-112
Location: 7 MI NE OF OSWEGO, NY
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1090
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: STONE & WEBSTER
O. L. Branch Chief: S. VARGA
O. L. Proj. Manager: W. KANE
IE Inspector: A. TOTH

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977



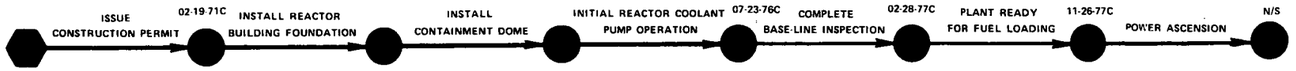
NORTH ANNA 1 & 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

FACILITY DATA

Facility Name: NORTH ANNA 1&2
Utility Name: VIRGINIA ELECTRIC & POWER
Docket Number: 50-338/339
License/Permit Number: CPPR-77/78
Location: 40 MI NW OF RICHMOND VA
Plant Type: PWR
Lic. Thermal Power: 2775
Design Elec. Power: 898
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: STONE & WEBSTER
O. L. Branch Chief: O. PARR
O. L. Proj. Manager: A. DROMERICK
IE Inspector: V. BROWNLEE

NORTH ANNA 1



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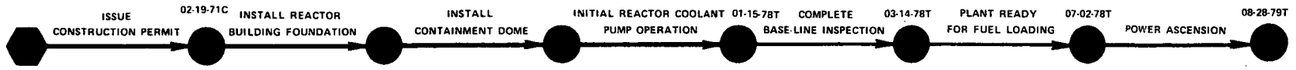
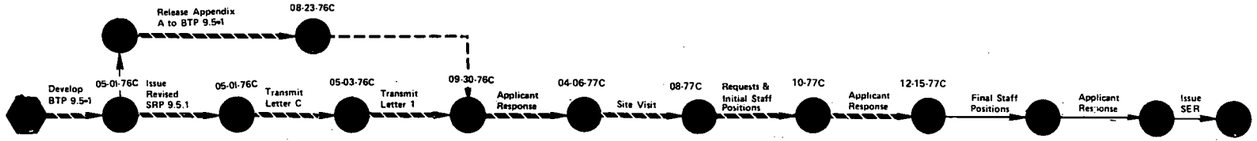


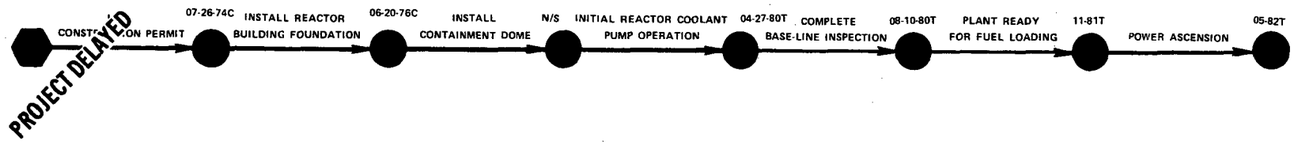


FACILITY DATA

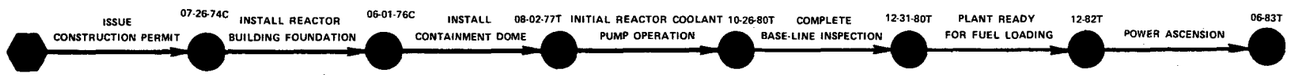
Facility Name: NORTH ANNA 3 &4
Utility Name: VIRGINIA ELECTRIC & POWER
Docket Number: 50-404/405
License/Permit Number: CPPR-114/115
Location: 40 MI NW OF RICHMOND, VA
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 0907
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: STONE & WEBSTER
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: C. THOMAS
IE Inspector: B. COCHRAN / V. BROWNLEE

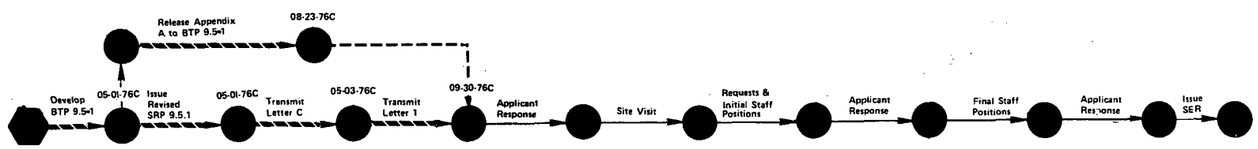
CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

NORTH ANNA 3



NORTH ANNA 4



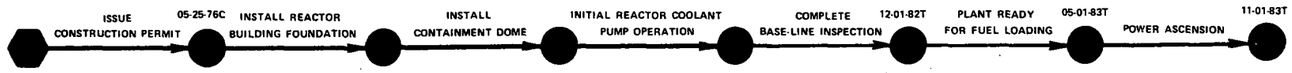


FACILITY DATA

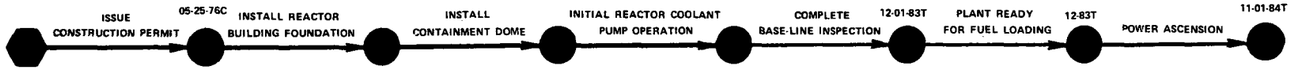
Facility Name: PALO VERDE 1, 2, & 3
Utility Name: ARIZONA PUBLIC SERVICE
Docket Number: 50-528/529/530
License/Permit Number: CPPR-141/142/143
Location: 36 MI W OF PHOENIX
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1238
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: BECHTEL
O. L. Branch Chief: J STOLZ
O. L. Proj. Manager: D. ALLISON
IE Inspector:

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

PALO VERDE 1



PALO VERDE 2



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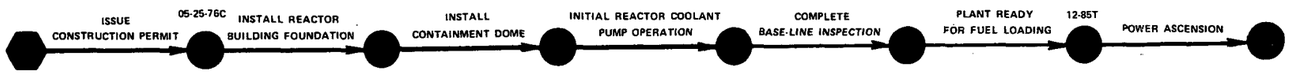
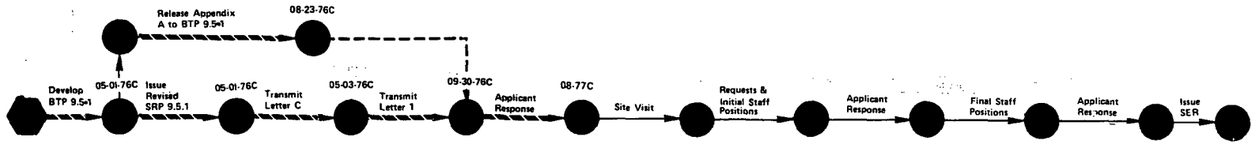




SALEM 1 & 2

LICENSEE MODIFICATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

- Organizational revisions will be made to designate the station superintendent as responsible for all aspects of firefighting and protection.
- The Quality Assurance program will include fire protection.
- An engineering procedure for performing additional fire hazards analysis to reflect future station modifications will be prepared.

PORTABLE FIRE EQUIPMENT

- Four portable Halon 1301 extinguishers will be provided to replace existing CO_2-type in the control room, computer room and the watch engineer's office.
- A hose station will be installed at each yard hydrant and one will be added in the mechanical penetration area of each unit near the entrance to the fuel handling building and at Elevation 122' of the auxiliary building.
- Two Bio-pac breathing units with two spare cylinders will be stored at the reactor containment entrance for each unit on the 100' elevation level.

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

- Six fire area boundary doors will be alarmed and locked.
- A wet pipe sprinkler system will be provided for the dimethylamine storage tanks located in the generator blowdown sample rooms.
- Ionization-type fire detectors will be added to several areas to provide general area protection of safety-related equipment.
- A fire hydrant will be installed near the service water pump house.
- Locks will be put on the hose standpipe root isolation valves and the yard main post indicator valves.
- Unsealed floor penetrations in the auxiliary building will be sealed with silicone foam.
- About ten additional emergency lights will be installed.
- Fire dampers which shut by CO_2 discharge will be installed in the lower electrical penetration area ventilation ducts and fire dampers which shut by both fusible-link and CO_2 discharge will be installed in the exhaust air duct from each diesel fuel oil tank and transfer pump room.
- Dikes will be built around each emergency air compressor and water system chiller.
- Instrumentation to indicate loss of ventilation flow in the battery rooms will be provided.

NRR VERIFICATION: H Wiggins **DATE:** 2/10/78

NRR RECOMMENDATIONS

ADMINISTRATIVE CONTROLS AND FIRE BRIGADE

PORTABLE FIRE EQUIPMENT

FIXED FIRE PREVENTION AND SUPPRESSION SYSTEMS

I & E INSPECTION SUMMARY/ACTIONS

- July 27-29 (77-24): An inspection of eight aspects of the fire prevention/protection program revealed two items of noncompliance involving failure to implement activities affecting quality in accordance with plant procedures and failure to have auxiliary equipment perform its safety-related support function.

SUMMARY

GPO 91 7-645

FACILITY DATA

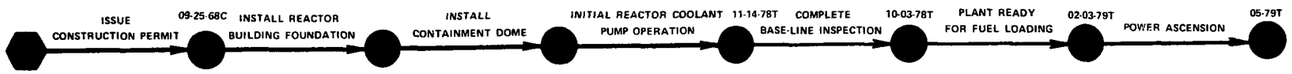
Facility Name: SALEM 1
Utility Name: PUBLIC SERVICE GAS & ELECTRIC
Docket Number: 50-272
License/Permit Number: DPR-70
Location: 20 MI N OF WILMINGTON, DEL
Plant Type: PWR
Lic. Thermal Power: 3338
Design Elec. Power: 1090
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: PUBLIC SERVICE ELECTRIC
O.R. Branch Chief: G. LEAR
O. R. Proj. Manager: D. VERRELLI
IE Inspector: J. N. HANNON

FACILITY DATA

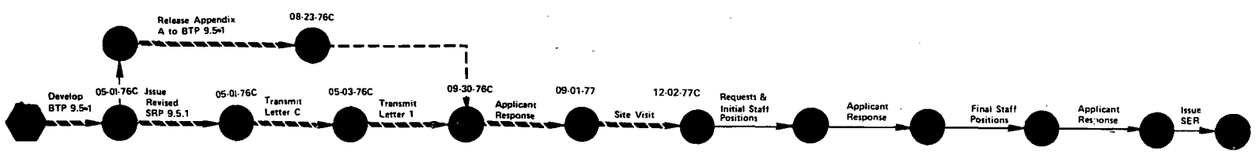
Facility Name: SALEM 2
Utility Name: PUBLIC SERVICE GAS & ELECTRIC
Docket Number: 50-311
License/Permit Number: CPPR-53
Location: 50 MI W OF ATLANTIC CITY, NJ
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1115
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: PUBLIC SERVICE ELECTRIC
O.R. Branch Chief: O. PARR
O. R. Proj. Manager: A. DROMERICK
IE Inspector: R. KEIMIG

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

SALEM 2



SALEM 1 CONSTRUCTION COMPLETE OPERATING LICENSE ISSUED



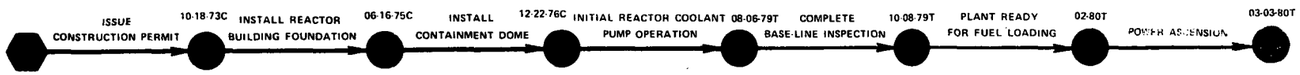
SAN ONOFRE 2 & 3 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

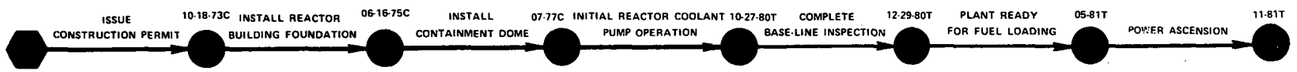
FACILITY DATA

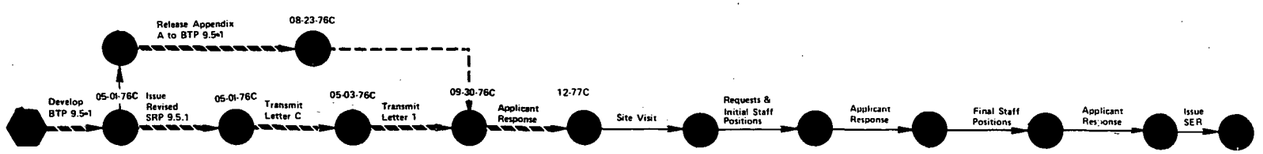
Facility Name: SAN ONOFRE 2 & 3
Utility Name: SOUTHERN CALIFORNIA EDISON
Docket Number: 50-361/362
License/Permit Number: CPPR-97/98
Location: 5 MI S OF SAN CLEMENTE
Plant Type: PWR
Lic. Thermal Power: 0000
Design Elec. Power: 1149
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: BECHTEL
O. L. Branch Chief: K. KNIEL
O. L. Proj. Manager: H. ROOD
IE Inspector: W. ALBERT

SAN ONOFRE 2



SAN ONOFRE 3



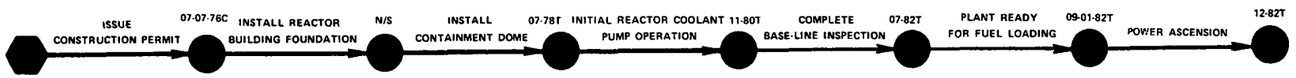


FACILITY DATA

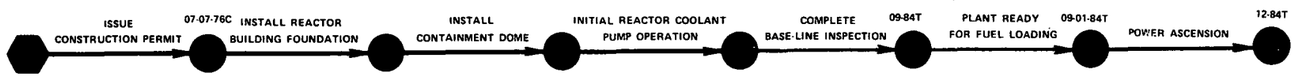
Facility Name: SEABROOK 1 & 2
Utility Name: PUBLIC SERVICE OF NEW HAMPSHIRE
Docket Number: 50-443/444
License/Permit Number: CPPR-135/136
Location: 10 MI S OF PORTSMOUTH, NH
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1200
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: UNITED ENGINEERS
O. L. Branch Chief: W. BUTLER
O. L. Proj. Manager: C. MOON
IE Inspector: A. TOTH

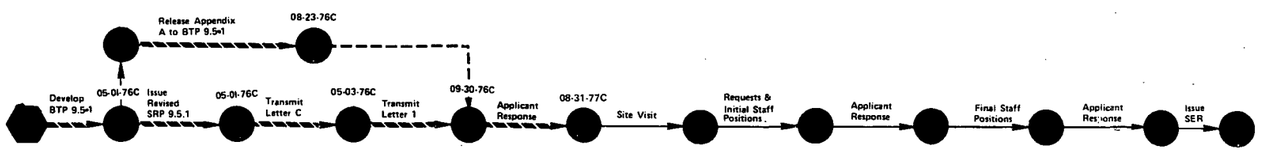
CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

SEABROOK STATION 1



SEABROOK STATION 2





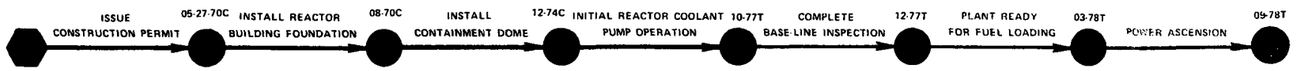
SEQUOYAH 1 & 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

FACILITY DATA

Facility Name: SEQUOYAH 1 & 2
Utility Name: TENNESSEE VALLEY AUTHORITY
Docket Number: 50-327/328
License/Permit Number: CPPR-72/73
Location: 18 MI NE OF CHATTANOOGA
Plant Type: PWR
Lic. Thermal Power: 0000
Design Elec. Power: 1140
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: TENNESSEE VALLEY AUTHORITY
O. L. Branch Chief: S. VARGA
O. L. Proj. Manager: H. SILVER
IE Inspector: J. RAUSCH

SEQUOYAH 1



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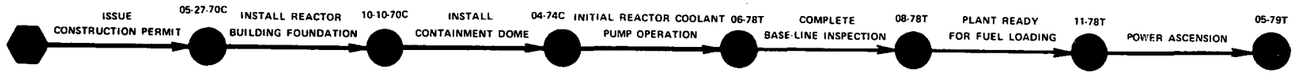
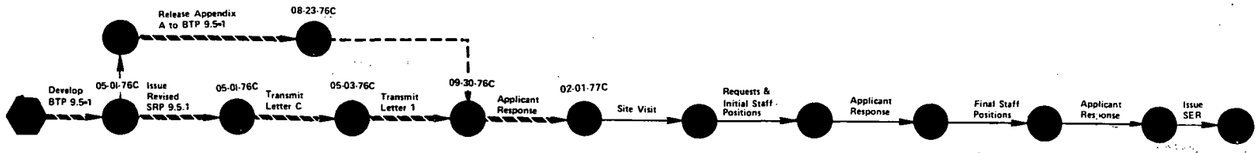
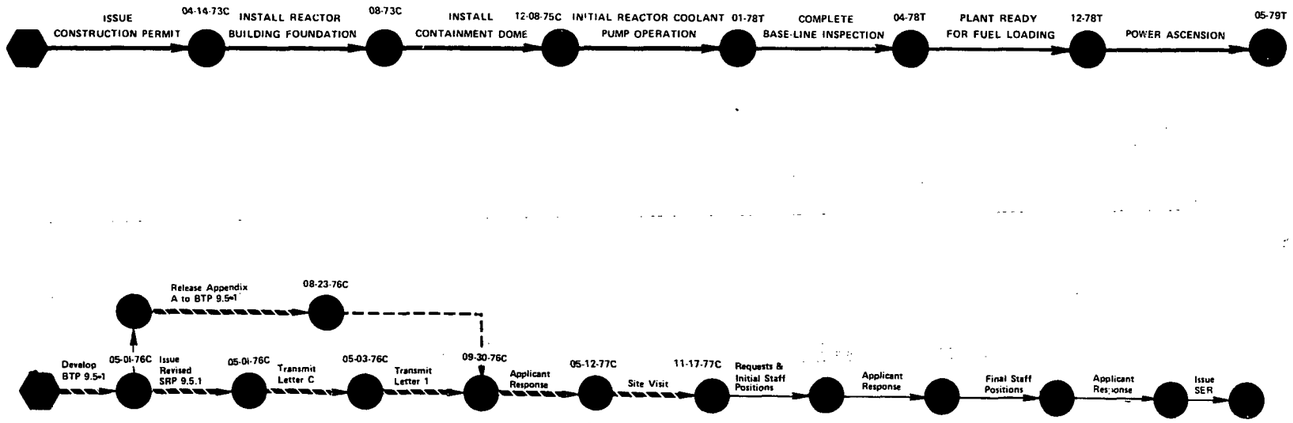




FACILITY DATA

Facility Name: SHOREHAM
Utility Name: LONG ISLAND LIGHTING
Docket Number: 50-322
License/Permit Number: CPPR-95
Location: 12 MI NW OF RIVERHEAD, NY
Plant Type: BWR
Lic. Thermal Power: 0000
Design Elec. Power: 999
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: STONE & WEBSTER
O. L. Branch Chief: K.KNIEL
O. L. Proj. Manager: J. SNELL
IE Inspector: L. NARROW

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977



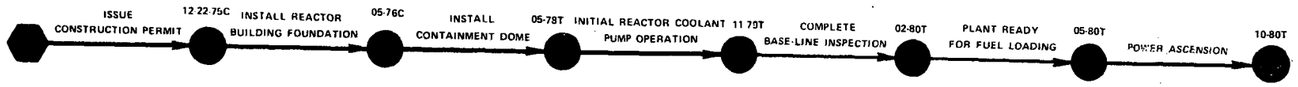
SOUTH TEXAS 1 & 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

FACILITY DATA

Facility Name: SOUTH TEXAS 1 & 2
Utility Name: HOUSTON POWER & LIGHT
Docket Number: 50-498/499
License/Permit Number: N/A
Location: 12 MI SSW OF BAY CITY, TEX
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1250
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: BROWN & ROOT
O. L. Branch Chief: O. PARR
O. L. Proj. Manager: A. DOMERICK
IE Inspector: M. DICKERSON

SOUTH TEXAS 1



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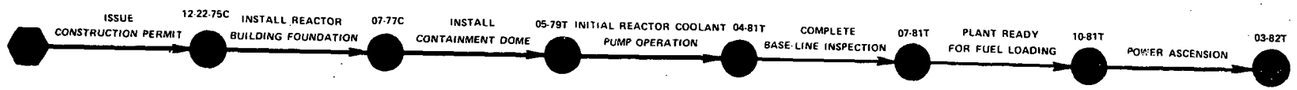
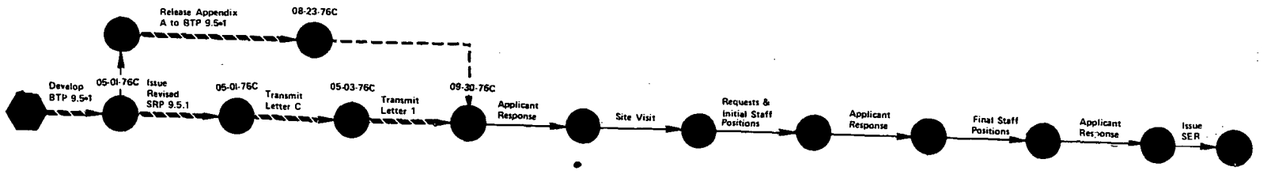
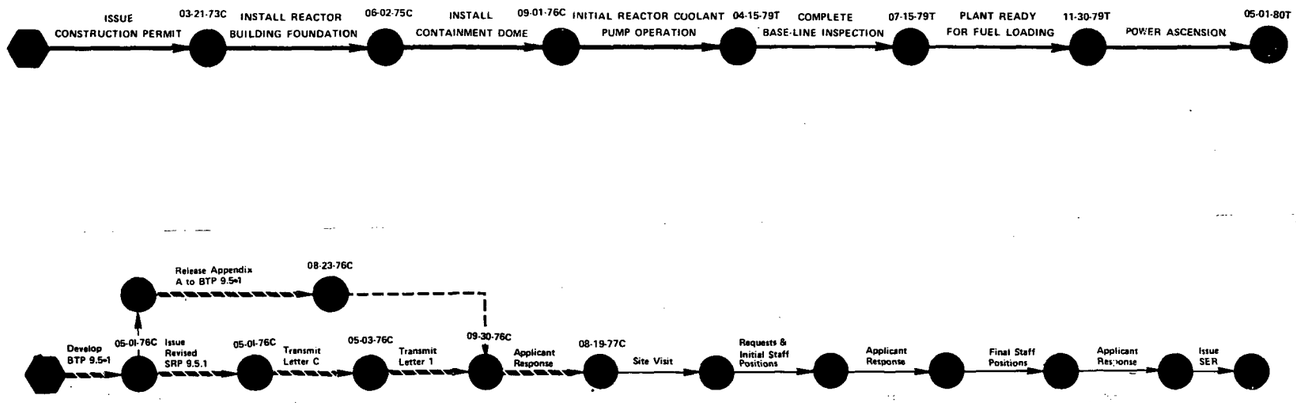




FACILITY DATA

Facility Name: SUMMER 1
Utility Name: SOUTH CAROLINA ELECTRIC & GAS
Docket Number: 50-395
License/Permit Number: CPPR-94
Location: 26 MI NW OF COLUMBIA, SC
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 0900
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: GILBERT ASSOCIATES
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: C. THOMAS
IE Inspector: C. MCFARLAND

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977



SURRY 3 & 4 CAT II

FACILITY DATA

Facility Name: SURRY 3 & 4

Utility Name: VIRGINIA ELECTRIC & POWER

Docket Number: 50-434/435

License/Permit Number: CPPR-124/125

Location: 1.2 MI NW OF NEWPORT NEWS, VA

Plant Type: PWR

Lic. Thermal Power: N/A

Design Elec. Power: 0859

NSSS Vendor: BABCOCK & WILCOX

Architect/Engineer: STONE & WEBSTER

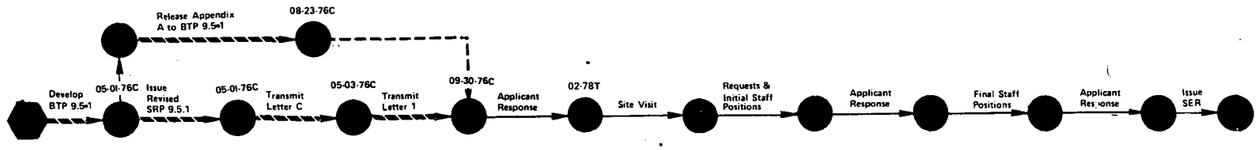
O. L. Branch Chief: J. STOLZ

O. L. Proj. Manager: L. KINTNER

IE Inspector: C. MCFARLAND

PROJECT DELAYED INDEFINITELY

UTILITY ADVISED THE NRC ON 04-08-76 THAT INITIAL CONSTRUCTION WORK WILL BE DEFERRED UNTIL SPRING 1978.

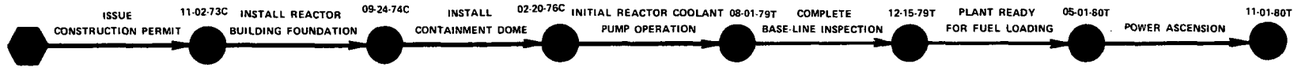


FACILITY DATA

Facility Name: SUSQUEHANNA 1 & 2
Utility Name: PENNSYLVAINIA POWER & LIGHT
Docket Number: 50-387/388
License/Permit Number: CPPR-101/102
Location: 7 MI NE OF BERWICK, PA
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1050
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BECHTEL
O. L. Branch Chief: O. PARR
O. L. Proj. Manager: S. MINER
IE Inspector: J. MATTIA

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

SUSQUEHANNA 1



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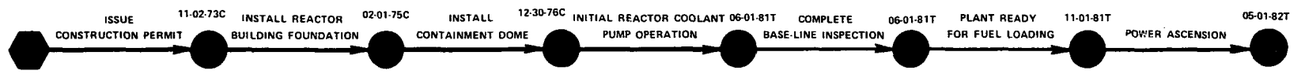
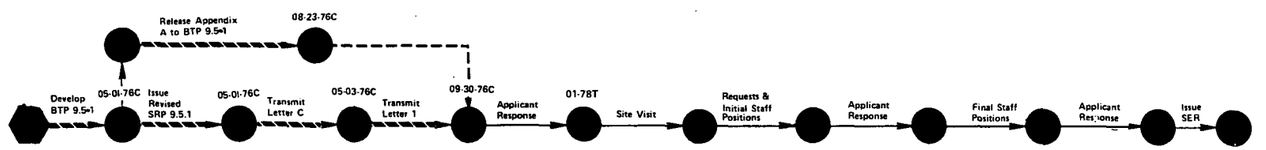


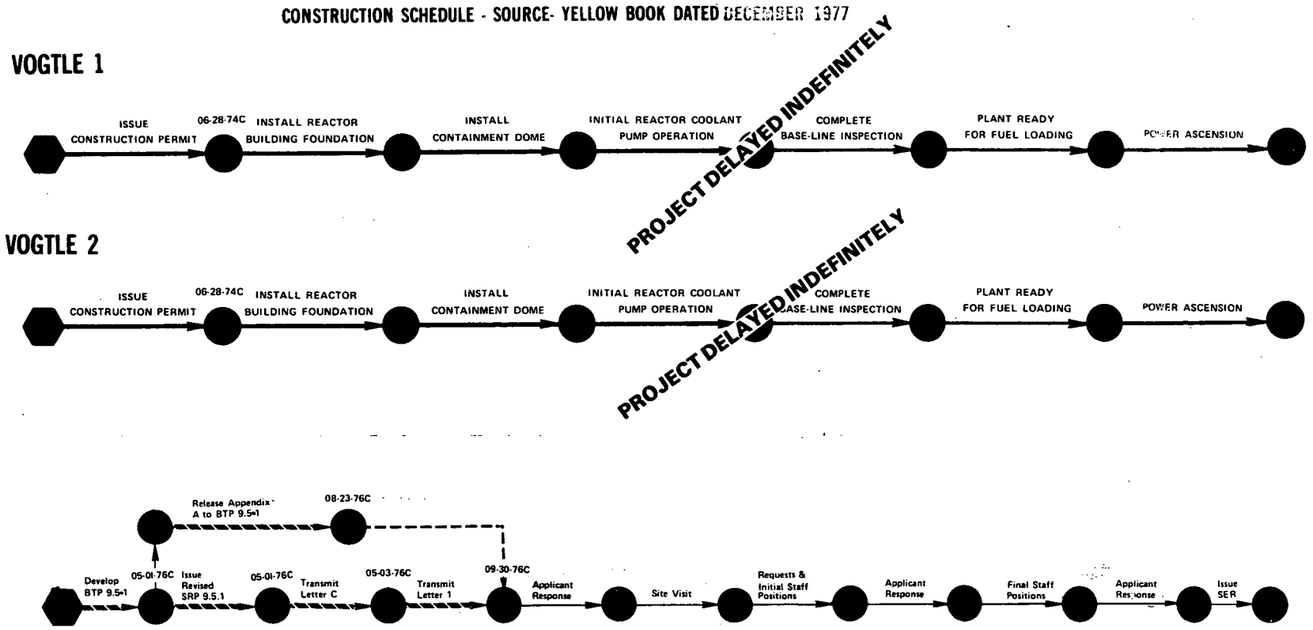


VOGTLE 1 & 2 CAT II

FACILITY DATA

Facility Name: VOGTLE 1 & 2
Utility Name: GEORGIA RIVER
Docket Number: 50-424/425
License/Permit Number: CPPR-108/109
Location: 25 MI SSE OF AUGUSTA, GA
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1113
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: BECHTEL
O. L. Branch Chief: S. VARGA
O. L. Proj. Manager: J. THOMAS
IE Inspector: J. RAUSCH

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

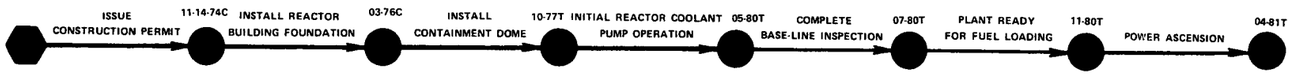


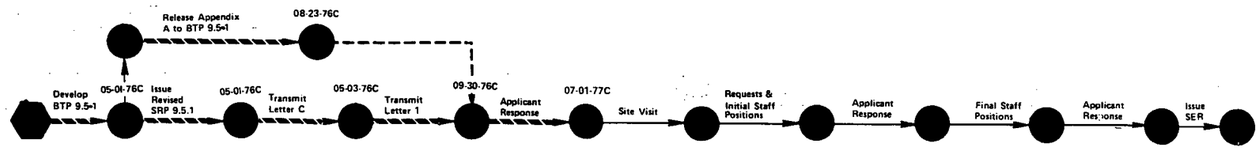
WATERFORD 3 CAT II

FACILITY DATA

Facility Name: WATERFORD 3
Utility Name: LOUISIANA POWER & LIGHT
Docket Number: 50-382
License/Permit Number: CPPR-103
Location: 20 MI W OF NEW ORLEANS
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1113
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: EBASCO
O. L. Branch Chief: K. KNIEL
O. L. Proj. Manager: R. BENEDICT
IE Inspector: W. HUBACEK

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977





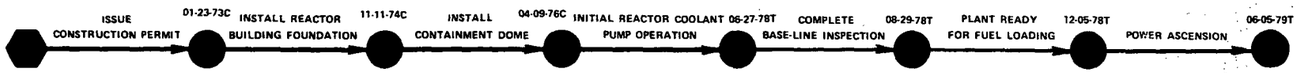
WATTS BAR 1 & 2 CAT II

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

FACILITY DATA

Facility Name: WATTS BAR 1 & 2
Utility Name: TENNESSEE VALLEY AUTHORITY
Docket Number: 50-390/391
License/Permit Number: CPPR-91/92
Location: 8MI NE OF SPRING CITY
Plant Type: PWR
Lic. Thermal Power: 0000
Design Elec. Power: 1160
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: TENNESSEE VALLEY AUTHORITY
O. L. Branch Chief: S. VARGA
O. L. Proj. Manager: C. STAHLE
IE Inspector: V. BROWNLEE

WATTS BAR 1



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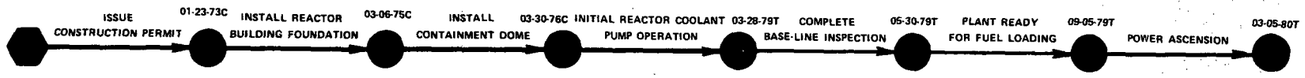
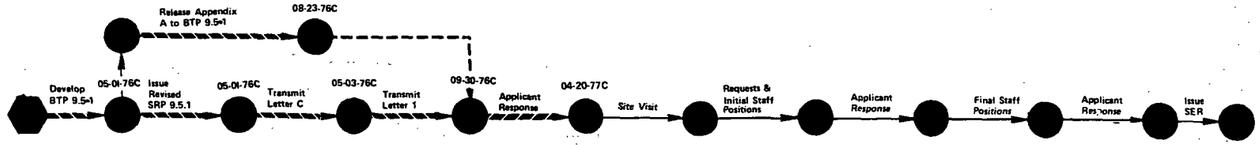
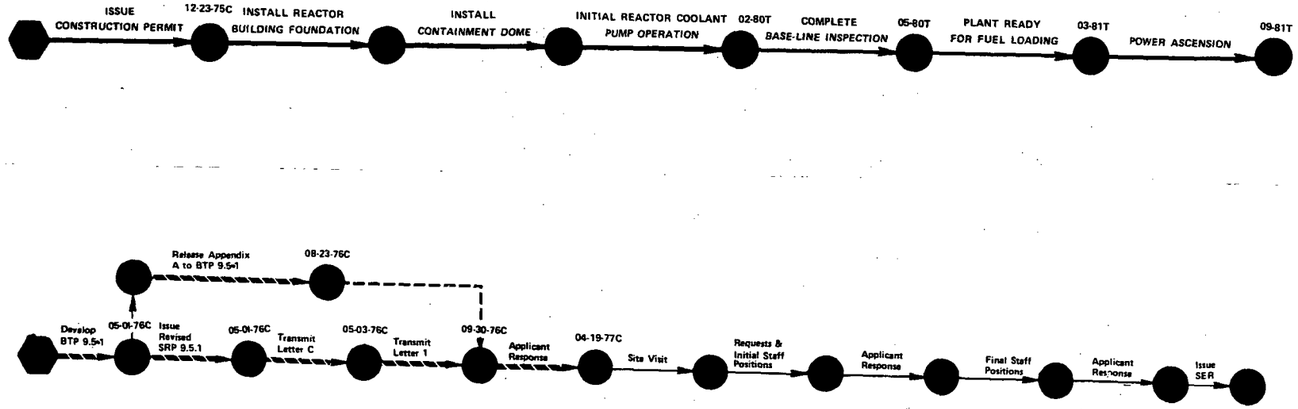




FACILITY DATA

Facility Name: WASHINGTON NUCLEAR 1
Utility Name: WASHINGTON P P S S
Docket Number: 50-460
License/Permit Number: CPPR-134
Location: 30 MI NW OF RICHLAND, WASH
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1218
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: UNITED ENGINEERS
O. L. Branch Chief: O. PARR
O. L. Proj. Manager: T. COX
IE Inspector: W. ALBERT

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977

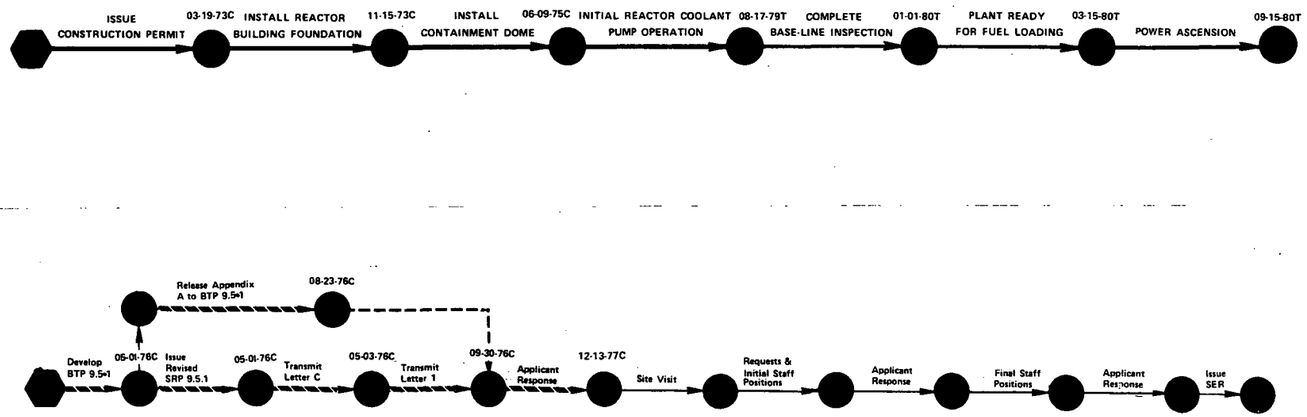


WPPSS 2 CAT II

FACILITY DATA

Facility Name: WASHINGTON NUCLEAR 2
Utility Name: WASHINGTON P. P. S. S.
Docket Number: 50-397
License/Permit Number: CPPR-93
Location: 30 MI NW OF RICHLAND, WASH
Plant Type: BWR
Lic. Thermal Power: 0000
Design Elec. Power: 1103
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BURNS & ROE
O. L. Branch Chief: S. VARGA
O. L. Proj. Manager: M. LYNCH
IE Inspector: A. JOHNSON

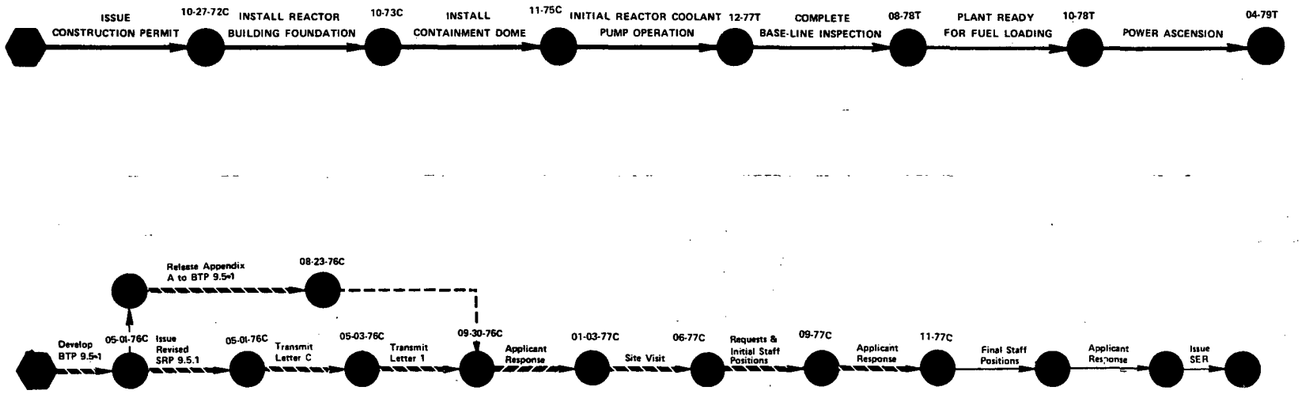
CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977



FACILITY DATA

Facility Name: ZIMMER 1
Utility Name: CINCINNATI GAS & ELECTRIC
Docket Number: 50-358
License/Permit Number: CPPR-88
Location: 24 MI SE OF CINCINNATI
Plant Type: PWR
Lic. Thermal Power: 0000
Design Elec. Power: 0810
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: SARGENT & LUNDY
O. L. Branch Chief: J. STOLZ
O. L. Proj. Manager: I. PELTIER
IE Inspector: T. VANDEL

CONSTRUCTION SCHEDULE - SOURCE- YELLOW BOOK DATED DECEMBER 1977



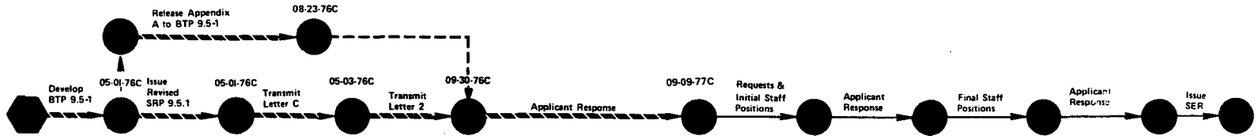
OFFICE OF NUCLEAR REACTOR REGULATION

CATEGORY III PLANTS

ALLENS CREEK 1 & 2 CAT III

FACILITY DATA

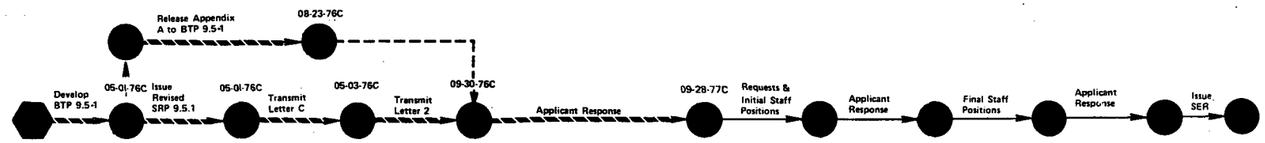
Facility Name: ALLENS CREEK 1 & 2
Utility Name: HOUSTON POWER & LIGHT
Docket Number: 50-466/467
License/Permit Number: N/A
Location: 45 MI W OF HOUSTON
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1150
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: EBASCO
C. P. Proj. Manager: C. MOON
C. P. Branch Chief: S. VARGA
IE Inspector:



ATLANTIC 1 & 2 CAT III

FACILITY DATA

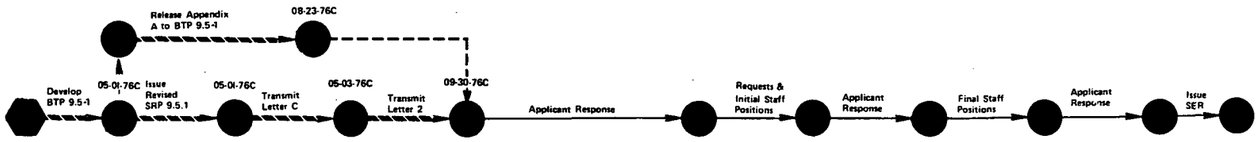
Facility Name: ATLANTIC 1 & 2
Utility Name: PUBLIC SERVICE GAS & ELECTRIC
Docket Number: 50-477/478
License/Permit Number: N/A
Location: 11 MI NE OF ATLANTIC CITY, NJ
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1150
NSSS Vendor: OFFSHORE POWER SYSTEMS
Architect/Engineer: OFFSHORE POWER SYSTEMS
C. P. Proj. Manager: H. ROOD
C. P. Branch Chief: K. KNIEL
IE Inspector: R. KEIMIG



BARTON 1 & 2 CAT III

FACILITY DATA

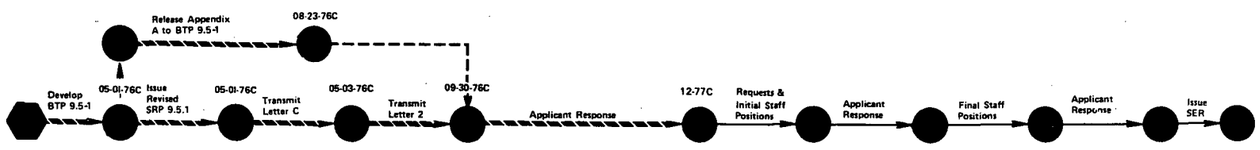
Facility Name: BARTON 1 & 2
Utility Name: ALABAMA POWER & LIGHT
Docket Number: 50-524/525
License/Permit Number: N/A
Location: 15 MI SE OF CLANTON, ALA
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1159
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: SOUTHERN SERVICES COMPANY
C. P. Proj. Manager: R. MARTIN
C. P. Branch Chief: J. STOLZ
IE Inspector:



BLACK FOX 1 & 2 CAT III

FACILITY DATA

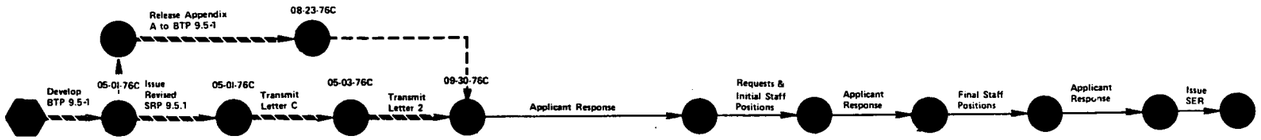
Facility Name: BLACK FOX 1 & 2
Utility Name: PUBLIC SERVICE OF OKLAHOMA
Docket Number: 50-556/557
License/Permit Number: N/A
Location: 23 MI E OF TULSA, OK
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1150
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: BLACK & VEATCH
C. P. Proj. Manager: J. THOMAS
C. P. Branch Chief: S. VARGA
IE Inspector:



BLUE HILLS 1 & 2 CAT III

FACILITY DATA

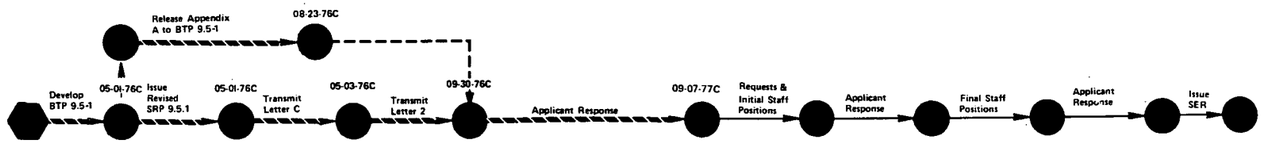
Facility Name: BLUE HILLS 1 & 2
Utility Name: GULF STATES UTILITIES
Docket Number: 50-510/511
License/Permit Number: N/A
Location: 75 MI NNE OF BEAUMONT, TEX
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 0918
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: BECHTEL
C. P. Proj. Manager: E. CHAKOFF
C. P. Branch Chief: J. STOLZ
IE Inspector:



CHEROKEE 1-3 CAT III

FACILITY DATA

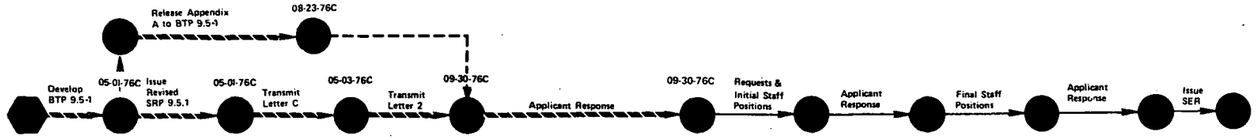
Facility Name: CHEROKEE 1, 2, & 3
Utility Name: DUKE POWER
Docket Number: 50-491/492/493
License/Permit Number: N/A
Location: 21 MI E OF SPARTANBURG, SC
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1280
NSSS Vendor: COMBUATION ENGINEERING
Architect/Engineer: DUKE POWER
C. P. Proj. Manager: C. MOON
C. P. Branch Chief: S. VARGA
IE Inspector:



DAVIS BESSE 2 & 3 CAT III

FACILITY DATA

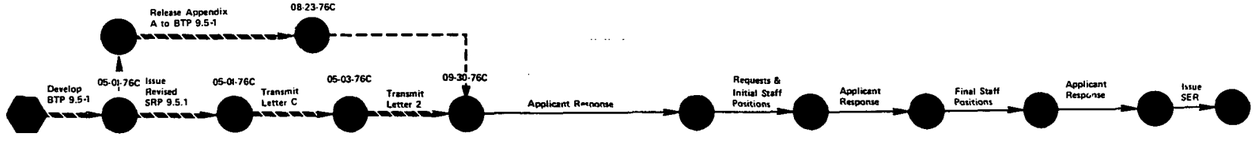
Facility Name: DAVIS-BESSE 2 & 3
Utility Name: TOLEDO EDISON
Docket Number: 50-500/501
License/Permit Number: N/A
Location: 20 MI E OF TOLEDO
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 0906
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: BECHTEL
C. P. Proj. Manager: R. BENEDICT
C. P. Branch Chief: K. KNIEL
IE Inspector: C. WILLIAMS



DOUGLAS POINT 1 & 2 CAT III

FACILITY DATA

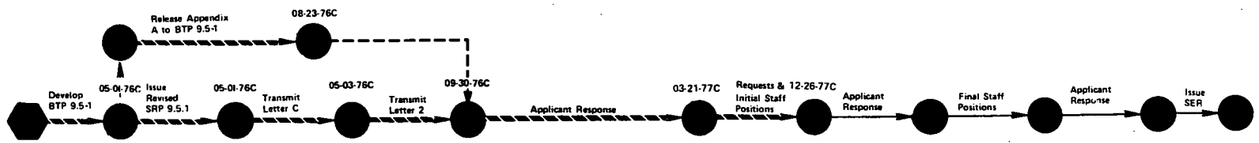
Facility Name: DOUGLAS POINT 1 & 2
Utility Name: POTOMAC ELECTRIC POWER
Docket Number: 50-448/449
License/Permit Number: N/A
Location: 20 MI S OF WASHINGTON, DC
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1178
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: EBASCO
C. P. Proj. Manager: D. LYNCH
C. P. Branch Chief: S. VARGA
IE Inspector: J. MATTIA



GREENE COUNTY CAT III

FACILITY DATA

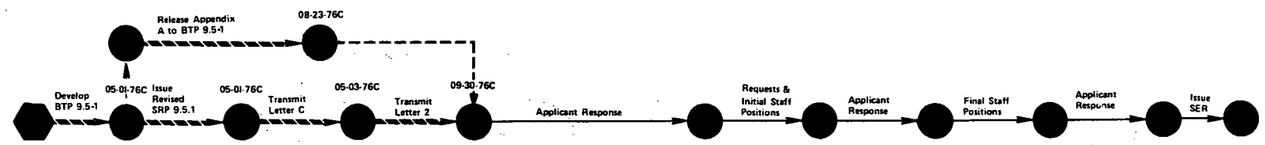
Facility Name: GREENE COUNTY
Utility Name: POWER AUTHORITY OF STATE OF N. Y.
Docket Number: 50-549
License/Permit Number: N/A
Location: 23 MI NE OF KINGSTON, NY
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1191
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: STONE & WEBSTER
C. P. Proj. Manager: S. BURWELL
C. P. Branch Chief: K. KNIEL
IE Inspector:



GREENWOOD 2 & 3 CAT III

FACILITY DATA

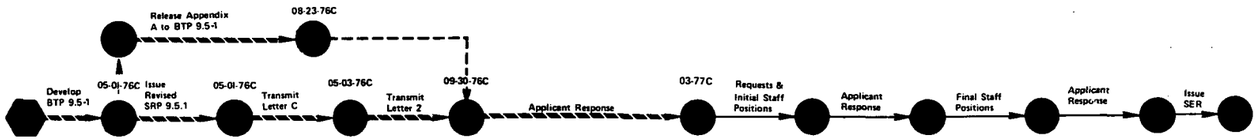
Facility Name: GREENWOOD 2 & 3
Utility Name: DETRIOT EDISON
Docket Number: 50-452/453
License/Permit Number: N/A
Location: 16 MI WNW OF PORT HURON, MICH
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1200
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: BECHTEL
C. P. Proj. Manager: L. ENGLE
C. P. Branch Chief: J. STOLZ
IE Inspector:



HARRIS 1-4 CAT III

FACILITY DATA

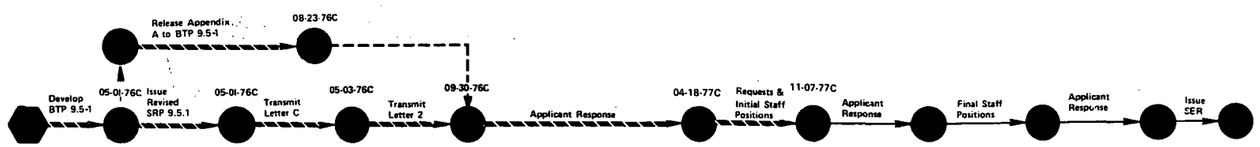
Facility Name: HARRIS 1, 2, 3, & 4
Utility Name: CAROLINA POWER & LIGHT
Docket Number: 50-400/401/402/403
License/Permit Number: N/A
Location: 20 MI SW OF RALEIGH, NC
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 0900
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: EBASCO
C. P. Proj. Manager: S. MINER
C. P. Branch Chief: O. PARR
IE Inspector: C. MCFARLAND



HARTSVILLE 1-4 CAT III

FACILITY DATA

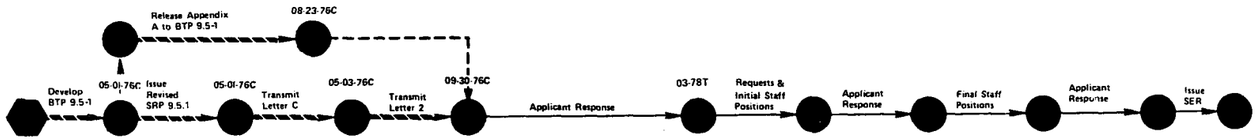
Facility Name: HARTSVILLE 1, 2, 3, & 4
Utility Name: TENNESSEE VALLEY AUTHORITY
Docket Number: 50-518/519/520/521
License/Permit Number: N/A
Location: 40 MI E OF NASHVILLE, TEN
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1233
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: C. F. BRAUN/TVA
C. P. Proj. Manager: R. POWELL
C. P. Branch Chief: S. VARGA
IE Inspector: J. RAUSCH



JAMESPORT 1 & 2 CAT III

FACILITY DATA

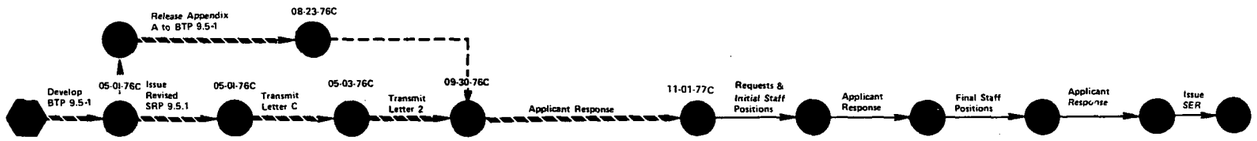
Facility Name: JAMESPORT 1 & 2
Utility Name: LONG ISLAND LIGHTING
Docket Number: 50-516/517
License/Permit Number: N/A
Location: 4 MI N OF RIVERHEAD, NY
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1150
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: STONE & WEBSTER
C. P. Proj. Manager: J. SNELL
C. P. Branch Chief: K. KNIEL
IE Inspector: R. KEIMIG



MARBLE HILL 1 & 2 CAT III

FACILITY DATA

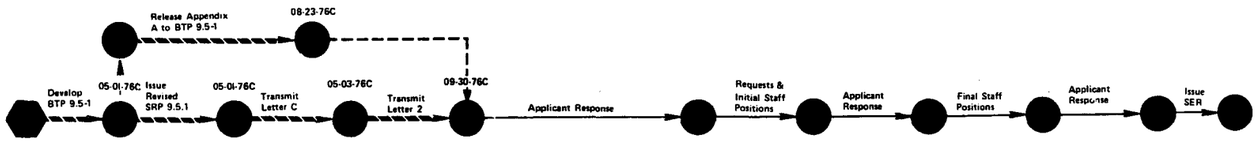
Facility Name: MARBLE HILL 1 & 2
Utility Name: PUBLIC SERVICE OF INDIANA
Docket Number: 50-546/547
License/Permit Number: N/A
Location: 10 MI S OF MADISON, IN
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1130
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: SARGENT & LUNDY
C. P. Proj. Manager: J. WILSON
C. P. Branch Chief: S. VARGA
IE Inspector:



MONTAGUE 1 & 2 CAT III

FACILITY DATA

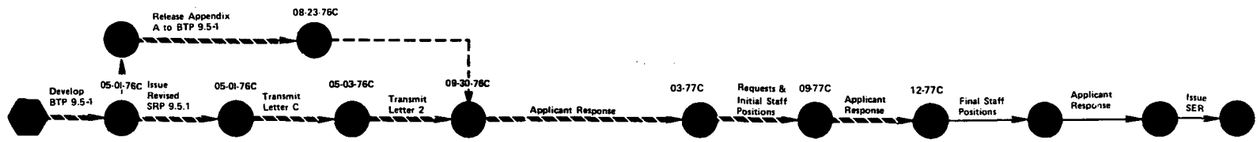
Facility Name: MONTAGUE 1 & 2
Utility Name: NORTHEAST NUCLEAR POWER
Docket Number: 50-496/497
License/Permit Number: N/A
Location: 13 MI N OF AMHERST, MASS
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1150
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: STONE & WEBSTER
C. P. Proj. Manager: R. POWELL
C. P. Branch Chief: S. VARGA
IE Inspector: S. FOLSOM



PEBBLE SPRINGS 1 & 2 CAT III

FACILITY DATA

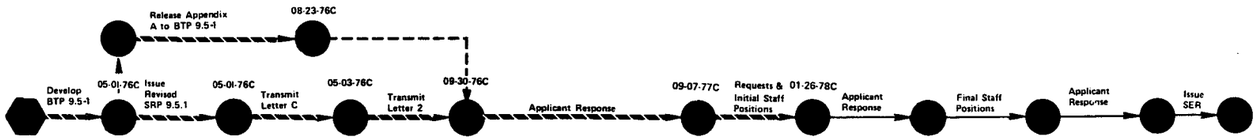
Facility Name: PEBBLE SPRINGS 1 & 2
Utility Name: PORTLAND GENERAL ELECTRIC
Docket Number: 50-514/515
License/Permit Number: N/A
Location: 3 MI NW OF ARLINGTON, ORE
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1260
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: BECHTEL
C. P. Proj. Manager: C. STAHLE
C. P. Branch Chief: S. VARGA
IE Inspector:



PERKINS 1-3 CAT III

FACILITY DATA

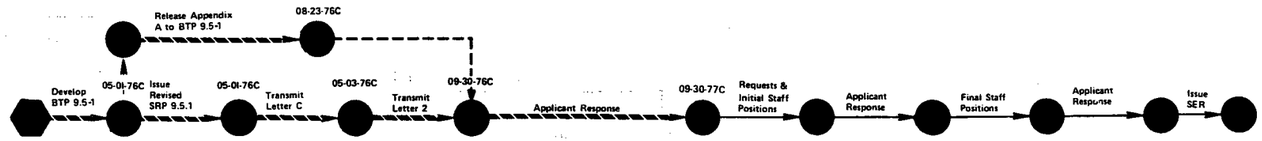
Facility Name: PERKINS 1, 2, & 3
Utility Name: DUKE POWER
Docket Number: 50-488/489/490
License/Permit Number: N/A
Location: 7 MI ESE OF MOCKSVILLE, NC
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1280
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: DUKE POWER
C. P. Proj. Manager: C. MOON
C. P. Branch Chief: S. VARGA
IE Inspector:



PERRY 1 & 2 CAT III

FACILITY DATA

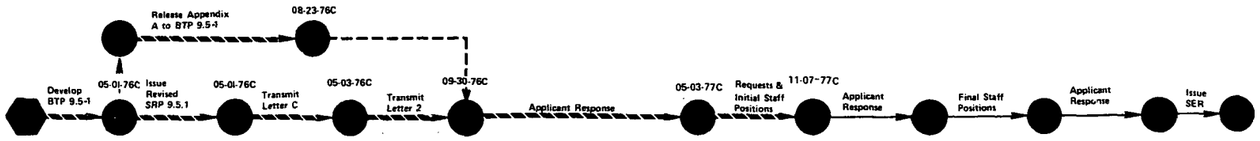
Facility Name: PERRY 1 & 2
Utility Name: CLEVELAND ELECTRIC ILLUMINATING
Docket Number: 50-440/441
License/Permit Number: N/A
Location: 7 MI NE OF PAINESVILLE
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1205
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: GILBERT ASSOCIATES
C. P. Proj. Manager: D. LYNCH
C. P. Branch Chief: S. VARGA
IE Inspector: T. VANDEL



PHIPPS BEND 1 & 2 CAT III

FACILITY DATA

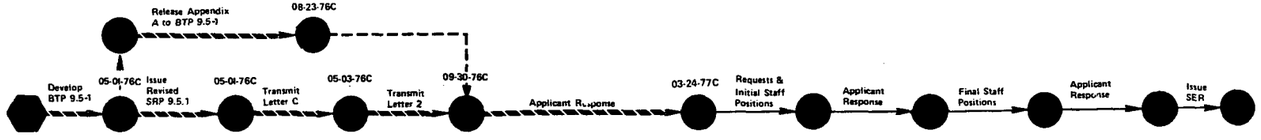
Facility Name: PHIPPS BEND 1 & 2
Utility Name: TENNESSEE VALLEY AUTHORITY
Docket Number: 50-553/554
License/Permit Number: N/A
Location: 15 MI SW OF KINGSPORT, TENN
Plant Type: BWR
Lic. Thermal Power: N/A
Design Elec. Power: 1233
NSSS Vendor: GENERAL ELECTRIC
Architect/Engineer: TENNESSEE VALLEY AUTHORITY
C. P. Proj. Manager: S. MINER
C. P. Branch Chief: O. PARR
IE Inspector:



PILGRIM 2 CAT III

FACILITY DATA

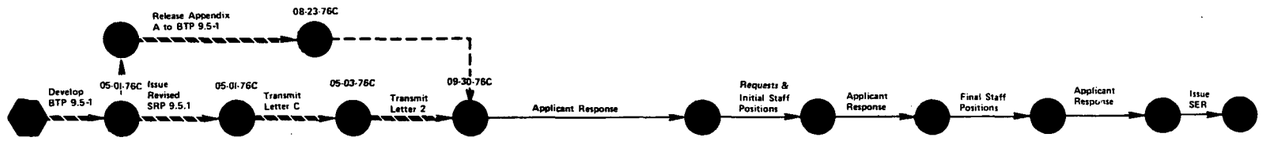
Facility Name: PILGRIM 2
Utility Name: BOSTON EDISON
Docket Number: 50-471
License/Permit Number: N/A
Location: 25 MI WNW OF PLYMOUTH, MASS
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1180
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: BECHTEL
C. P. Proj. Manager: E. LICITRA
C. P. Branch Chief: O. PARR
IE Inspector: S. FOLSOM



SUMMIT CAT III

FACILITY DATA

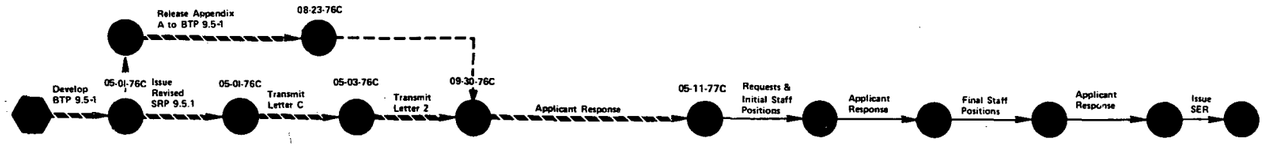
Facility Name: SUMMIT 1
Utility Name: DELMARVA POWER & LIGHT
Docket Number: 50-450
License/Permit Number: N/A
Location: 15 MI SSW OF WILMINGTON, DEL
Plant Type: HTGR
Lic. Thermal Power: N/A
Design Elec. Power: 0770
NSSS Vendor: GENERAL ATOMIC
Architect/Engineer: UNITED ENGINEERS
C. P. Proj. Manager: G. KUZMYCZ
C. P. Branch Chief: R. DENISE
IE Inspector: L. NARROW



TYRONE CAT III

FACILITY DATA

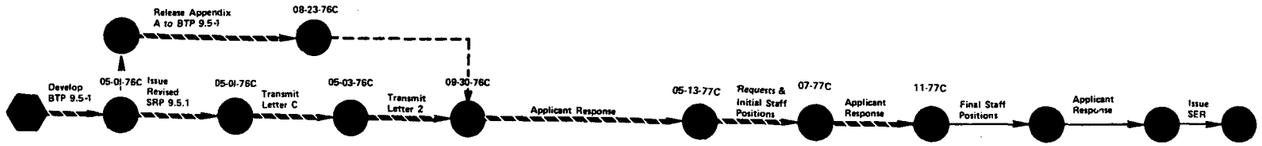
Facility Name: TYRONE
Utility Name: NORTHERN STATES POWER
Docket Number: 50-484
License/Permit Number: N/A
Location: 8 MI NE OF DURAND, WISC
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1150
NSSS Vendor: WESTINGHOUSE
Architect/Engineer: BECHTEL
C. P. Proj. Manager: E. LICITRA
C. P. Branch Chief: O. PARR
IE Inspector:



WPPSS 3&5 CAT III

FACILITY DATA

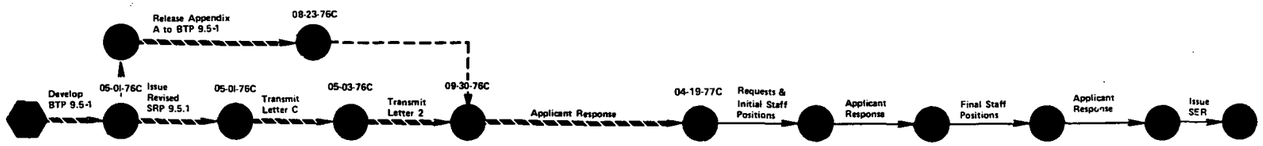
Facility Name: WASHINGTON NUCLEAR 3 & 5
Utility Name: WASHINGTON P. P. S. S.
Docket Number: 50-508/509
License/Permit Number: N/A
Location: 26 MI W OF OLYMPIA, WASH
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1242
NSSS Vendor: COMBUSTION ENGINEERING
Architect/Engineer: EBASCO
C. P. Proj. Manager: A. BOURNIA
C. P. Branch Chief: O. PARR
IE Inspector:



WPPSS 4 CAT III

FACILITY DATA

Facility Name: WASHINGTON NUCLEAR 4
Utility Name: WASHINGTON P. P. S. S.
Docket Number: 50-513
License/Permit Number: N/A
Location: 30 MI W OF RICHLAND, WASH
Plant Type: PWR
Lic. Thermal Power: N/A
Design Elec. Power: 1218
NSSS Vendor: BABCOCK & WILCOX
Architect/Engineer: UNITED ENGINEERS
C. P. Proj. Manager: T. COX
C. P. Branch Chief: O. PARR
IE Inspector: W. ALBERT



SECTION 2

OFFICE OF INSPECTION AND ENFORCEMENT

SUMMARY OF I&E ACCOMPLISHMENTS

THE IMPLEMENTATION OF THE FIRE PROTECTION ACTION PLAN BY THE OFFICE OF INSPECTION AND ENFORCEMENT CONSISTS OF THREE MAJOR PARTS:

THE FIRST PART CONSISTS OF THE IMMEDIATE ACTIONS TAKEN BY I&E AFTER THE BROWNS FERRY FIRE. THESE ACTIONS INCLUDED THE TRANSMITTAL OF THREE SPECIAL BULLETINS TO ALL OPERATING POWER FACILITIES REQUESTING THE UTILITY TO EVALUATE SEVERAL ASPECTS OF THEIR FIRE PROTECTION PROGRAM AND TO SUBMIT THE FINDINGS OF THE LAST INSPECTION MADE BY THEIR FIRE INSURANCE COMPANY INSPECTOR, AND A SPECIAL INSPECTION OF FIRE BARRIERS AND CABLE PENETRATIONS AT EACH SITE.

THE SECOND PART INVOLVES THE EVALUATION AND REVISION OF NRC POLICIES AND PROCEDURES REGARDING EMERGENCIES AND INSPECTIONS.

THE THIRD PART CONSISTS OF THE ONGOING INSPECTIONS BEING CONDUCTED ANNUALLY, QUARTERLY OR AS NEEDED TO ASSURE THAT THE UTILITIES' FIRE PROTECTION PROGRAMS ARE MEETING THE NEW CRITERIA.

AN OUTLINE OF THESE THREE PARTS IS SHOWN BELOW:

1. IMMEDIATE ACTIONS
   - ISSUED THREE I&E BULLETINS[1] TO OPERATING POWER REACTOR FACILITIES
   - CONDUCTED SPECIAL INSPECTIONS OF FIRE BARRIERS AND CABLE PENETRATIONS
   - PROVIDED RECOMMENDATIONS TO NRR

2. REVISION OF POLICIES AND PROCEDURES
   - REVISED INSPECTION OF LICENSEE QUALITY ASSURANCE CONTROLS
   - ISSUED FIRE PROTECTION INSPECTION PROCEDURES TO BE UTILIZED DURING ANNUAL INSPECTIONS
   - REVISED NRC PROCEDURES FOR SAFETY REVIEW OF INCIDENTS
   - IDENTIFIED NRC MANPOWER AVAILABLE FOR EMERGENCIES
   - STRENGTHENED I&E TRANSPORTATION AND COMMUNICATION CAPABILITY FOR EMERGENCY RESPONSE

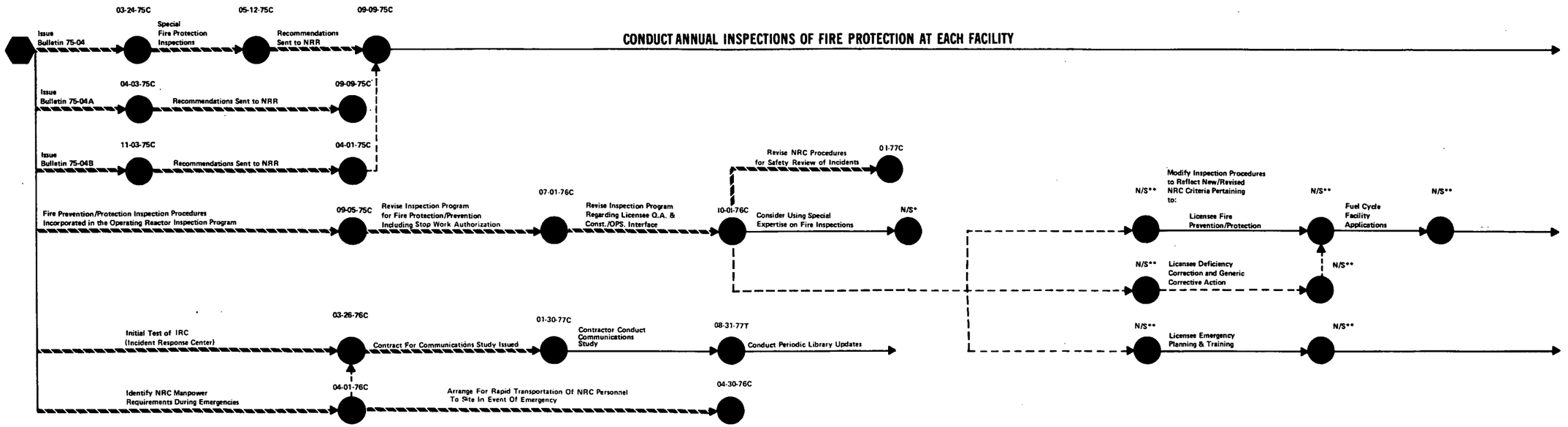
3. INSPECTION ACTIVITIES THAT IMPACT FIRE PREVENTION AND PROTECTION
   - THE FOLLOWING ITEMS ARE COVERED AT LEAST ANNUALLY
     - A. FIRE PREVENTION AND PROTECTION PROGRAM---ALSO INSPECTED PRIOR TO ISSUANCE OF OPERATING LICENSE
     - B. EFFECTIVENESS OF QUALITY ASSURANCE PROGRAM
     - C. CONTROLS FOR DESIGN CHANGE AND MODIFICATION
     - D. REVIEW AND AUDIT ACTIVITIES
     - E. TRAINING IN EMERGENCY PLANS AND FIRE FIGHTING
     - F. PROCEDURAL CHANGES
     - G. SURVEILLANCE AND CALIBRATION ACTIVITIES
     - H. CONTROL OF MAINTENANCE ACTIVITIES
     - I. LIMITING CONDITIONS FOR OPERATIN OPERATION
     - J. EMERGENCY PLANNING, INCLUDING CONTACTS WITH OFFSITE AGENCIES, EMERGENCY EQUIPMENT AND PROCEDURES AND DRILLS
   - QUARTERLY INSPECTIONS

     GENERAL PLANT OPERATIONS---USUALLY INCLUEDS A TOUR OF PLANT AREAS WITH EMPHASIS ON OBSERVATION OF HOUSEKEEPING PRACTICES
   - WHEN OCCURRING

     REPORTABLE EVENTS, INCLUDING FIRES, ARE REVIEWED AS TO CAUSE AND APPROPRIATE CORRECTIVE ACTION.

[1] BULLETINS NO. 75-04, 75-04A and 75-04B

I&E FIRE PROTECTION PLAN OF ACTION



REVIEWED BY IE: _____

*Contingent Upon Favorable Results Of Third Party Utilization Trial Program With ASME.

**Procedures Will Be Revised As Needed When New/Revised Criteria Such As Guides or Regulations Are Issued

SECTION 3

OFFICE OF NUCLEAR REGULATORY RESEARCH

SUMMARY OF RES ACCOMPLISHMENTS

THE EFFORTS OF THE OFFICE OF REGULATORY RESEARCH MAY BE BROKEN DOWN INTO THREE MAJOR STEPS: A DECISION MUST BE MADE AS TO WHAT AREAS SHOULD BE INVESTIGATED AND THESE MUST BE FORMULATED INTO PROGRAM ELEMENTS; THE APPROPRIATE TESTING AND INVESTIGATIONS MUST BE PERFORMED, USUALLY BY A CONTRACTOR; THE RESULTS MUST BE ANALYZED, PUBLISHED AND USED IN MAKING PROPER REGULATORY DECISIONS.

A SUMMARIZATION OF THE EFFORTS OF THE OFFICE OF REGULATORY RESEARCH TOWARD THE IMPLEMENTATION OF THE FIRE PROTECTION ACTION PLAN IS SHOWN BELOW'

1. PROGRAM ELEMENTS
   - EIGHT PROGRAM ELEMENTS HAVE BEEN ESTABLISHED
   - ADDITIONAL ELEMENTS MAY BE ESTABLISHED AS NECESSARY

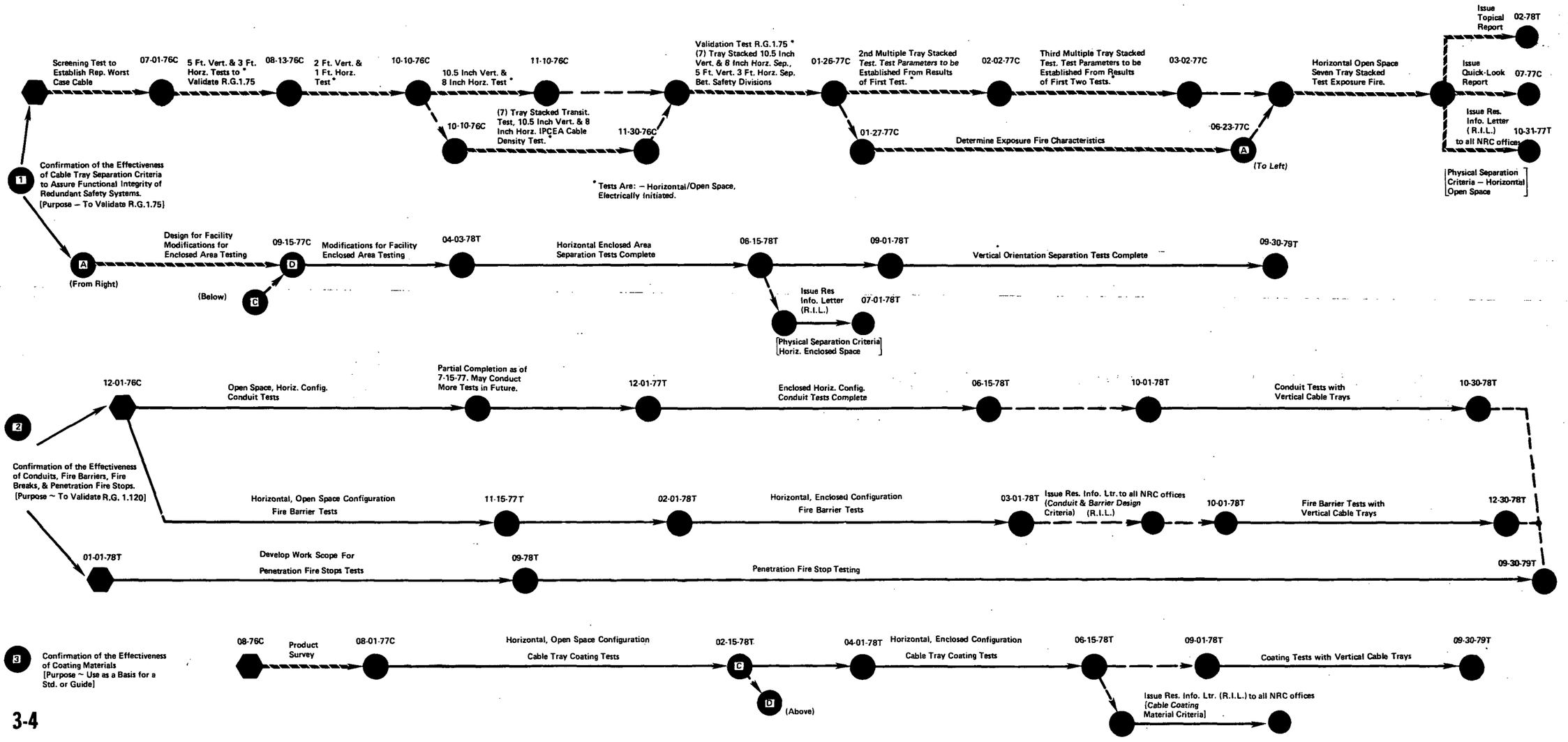
2. TEST PERFORMANCE
   - SEVERAL TYPES OF TESTS CONCERNING THE SEPARATION OF CABLE TRAYS HAVE BEEN PERFORMED
   - MANY MORE TESTS WILL BE PERFORMED

3. PUBLICATIONS
   - "QUICK LOOK" REPORTS HAVE BEEN USED TO DISSEMINATE TEST RESULTS
   - TOPICAL REPORTS WILL BE PUBLISHED AS EACH ELEMENT IS COMPLETED

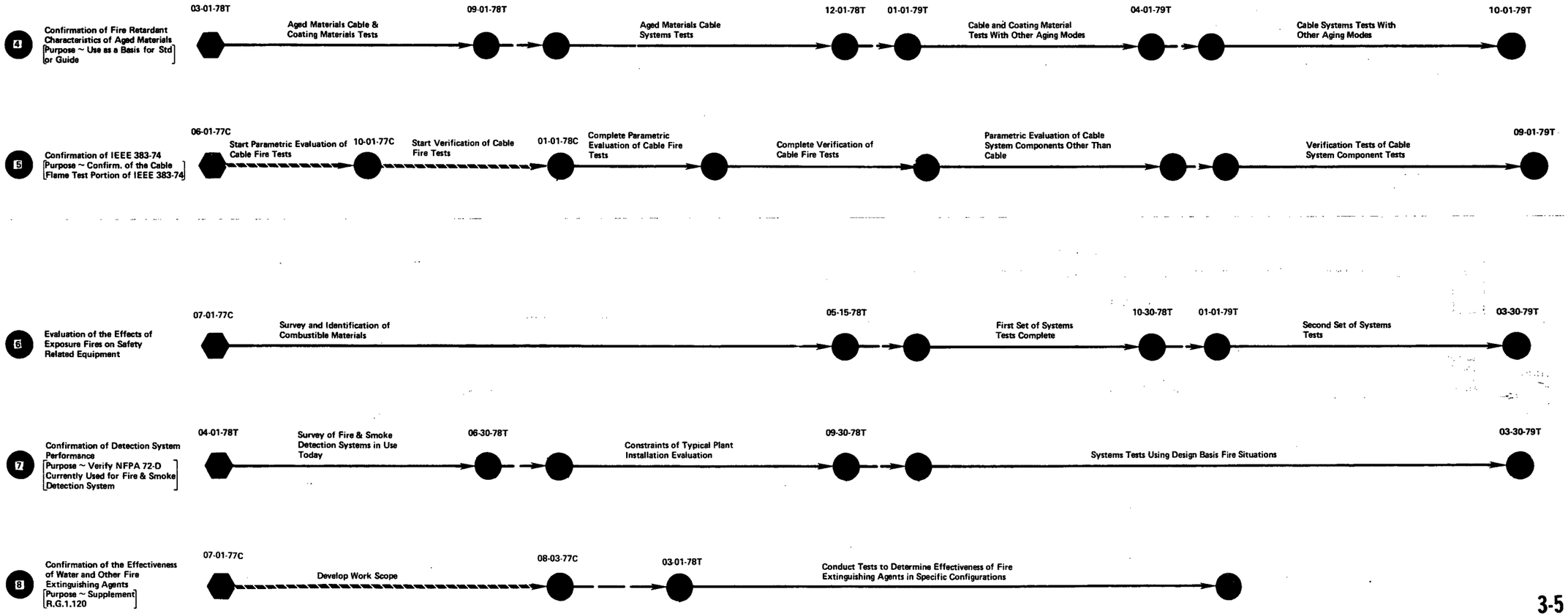
FIRE PROTECTION RESEARCH PROGRAM

PROGRAM ELEMENT DESCRIPTION	RELATED STANDARDS, CONTRACTS, ETC.	STATUS	PROGRAM ELEMENT DESCRIPTION	RELATED STANDARDS, CONTRACTS, ETC.	STATUS
1. Confirmation of the effectiveness of cable tray separation criteria to assure functional integrity of redundant safety systems.	FIN. No. A1010 FY-77 Budget- $250,000 Total	Work is being performed at Sandia Laboratories. (See following networks for program details.)	6. Evaluation of the effects of an electrically initiated fire on safety related equipment other than the cable system covered in Program Elements One through Five.		
2. Confirmation of the effectiveness of conduits, fire barriers, fire-breaks and penetration fire stops.	FIN. No. A1010	Work is being performed at Sandia Laboratories. (See following networks for program details.)	7. Compilation of combustible materials for improved delineation of generic design basis fires.		
3. Confirmation of the effectiveness of coating materials.	FIN. No. A1010	Work is being performed at Sandia Laboratories. (See following networks for program details.)	8. Confirmation of the effectiveness of safety related equipment (other than cable) when subjected to exposure fires.	—	Not scheduled at this time.
4. Confirmation of fire retardant characteristics of aged materials.	FIN. No. A1010	Work is being performed at Sandia Laboratories. (See following networks for program details.)	9. Confirmation of detection system performance.	—	Not scheduled at this time.
5. Confirmation of IEEE-383-74, and development of improved small scale cable system and separate effects acceptance tests.	IEEE-383	Work is being performed at Sandia Laboratories. (See following networks for program details.)	10. Confirmation of the effectiveness of water and other fire extinguishing agents and the potential damage effects on safety related equipment.	—	A request for proposals will be issued during the current fiscal year.

RESEARCH FIRE PROTECTION PLAN OF ACTION



RESEARCH FIRE PROTECTION PLAN OF ACTION



SECTION 4
OFFICE OF STANDARDS DEVELOPMENT

SUMMARY OF SD FIRE PROTECTION PROGRAM

OSD RECOMMENDATIONS FOR THE FIRE PROTECTION/PREVENTION PROGRAM

RECOMMENDATION 1 – Establish Fire Protection standards, guidelines and criteria.

RECOMMENDATION 2 – Develop standards for fire detectors with augmentation when improved materials become available.

RECOMMENDATION 3 – Urge NRC and industry standards groups to develop standards and requirements for instrumentation required for operators.

RECOMMENDATION 4 – Provide better regulatory guidance for fire detectors covering: Review, Upgrading, and Installation for all parts.

RECOMMENDATION 5 – Augment regulatory guidance for fire detectors

RECOMMENDATION 5 – Augment regulatory guidance regarding proper balance of "defense in depth", i.e. of :
(a) Preventing fires from getting started;
(b) Detecting and extinguishing quickly such fires as do get started and limiting their damage;
(c) Designing the plant to minimize the effects of fires on essential functions.

RECOMMENDATION 6 – Develop procedures for limiting/control of ignition sources.

RECOMMENDATION 7 – Develop guidance for specification of quality and design requirements for water sprinkler systems.

THE BULK OF THE OFFICE OF STANDARDS DEVELOPMENT'S EFFORTS TOWARDS THE IMPLEMENTATION OF THE FIRE PROTECTION ACTION PLAN IS SUMMARIZED BELOW:

1. DEVELOPMENT OF REGULATORY GUIDES
   - THREE REGULATORY GUIDES HAVE BEEN ISSUED FOR PUBLIC COMMENT
   - SEVEN ADDITIONAL REGULATORY GUIDES ARE BEING DEVELOPED FOR FUTURE ISSUANCE

2. TECHNICAL ASSISTANCE
   - REVIEW CURRENT INDUSTRY STANDARDS TO IDENTIFY AREAS IN WHICH ADDITIONAL GUIDANCE IS NEEDED
   - DEVELOP TECHNICAL BASES FOR REGULATORY GUIDES

3. PARTICIPATION WITH INDUSTRY
   - PARTICIPATE ON INDUSTRY STANDARDS COORDINATING COMMITTEES
   - PARTICIPATE IN WRITING INDUSTRY STANDARDS

INITIATED TASKS

TASKS UNDER DEVELOPMENT

Task No.	Task Description	Task Leader	Status	Expected Completion Date
EM 502-5	Reg. Guide 1.120 - Fire Protection Criteria for Water Cooled Nuclear Power Plants	E. Imbro	Out for Comment	11-01-78
FP 055-4	Reg. Guide 3.38 - Fire Protection for Fuel Reprocessing Plants	M. Weinstein	Presently in Hold	

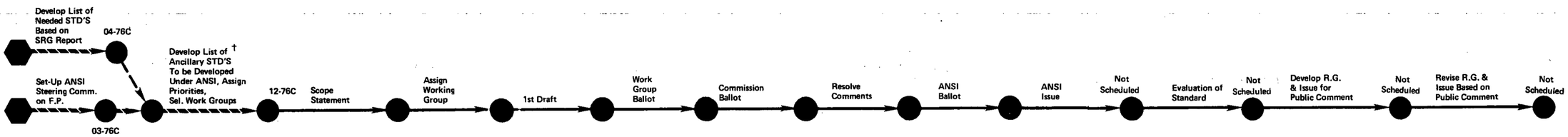
TASKS IN HOLD

Task No.	Task Description	Task Leader	Status	Expected Completion Date
FP 513-5	Fire Protection for Plutonium Fuel Fabrication	M. Weinstein	Task in hold. ANSI schedule not completed.	Not scheduled at this time.
FP 514-5	Fire Protection for Fuel Processing Facilities	M. Weinstein	Task in hold. ANSI schedule not completed.	Not scheduled at this time.

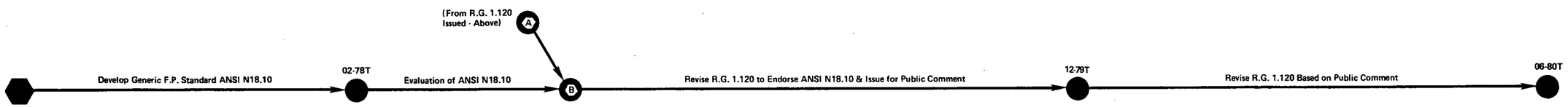
STANDARDS FIRE PROTECTION PLAN OF ACTION

*** REG. GUIDE 1.120**
F.P. CRITERIA FOR LWR POWER PLANTS
[TASK EM 502-5]

* For further details see Task No. EM 502-5 in the "Green Book", Standards Development .



ANCILLARY F.P. STANDARDS Develop Series of Ancillary F.P. Standards Thru ANSI

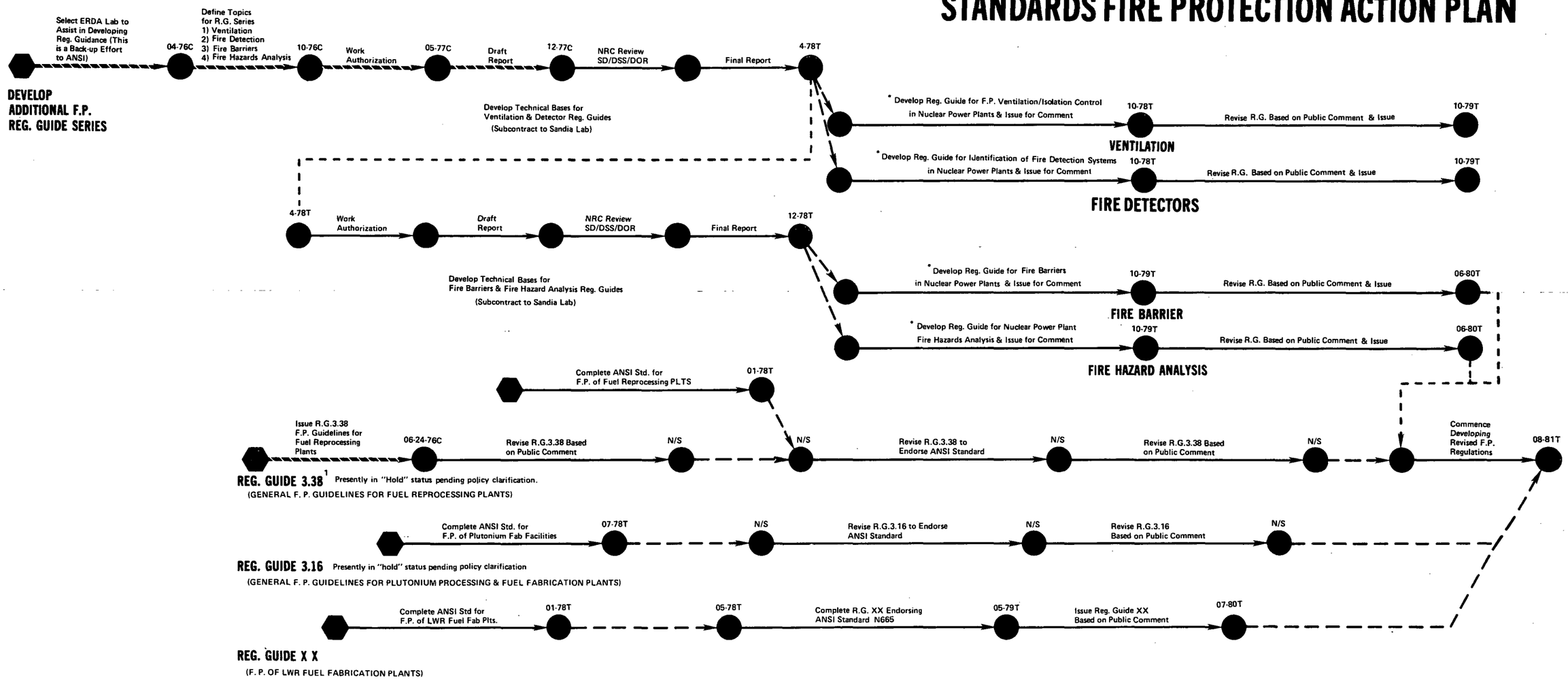


GENERIC F.P. STANDARD ANSI N18.10

[1] The topics proposed were as follows:
1. Fire Protection during Maintenance, Modification and Fueling Operations in Nuclear Power Plants.
2. Nuclear Power Plant Fire Hazards Analysis
3. Fire Protection Ventilation/ Isolation Control in Nuclear Power Plants

Items 1 and 2 will be included in a revision of ANSI N18.10.
Item 3 will be developed on an urgent basis under the sponsorship of ANS - 50.

STANDARDS FIRE PROTECTION ACTION PLAN



[1] See Task No. FP 055-4 in the "Green Book", Standards Development.

*More details on the development of these Guides will appear in the "Green Book", after a Task Number has been assigned to them.

SECTION 5

OFFICE OF NUCLEAR MATERIALS SAFETY & SAFEGUARDS

NUCLEAR MATERIALS SAFETY & SAFEGUARDS FIRE PROTECTION PLAN

NUCLEAR MATERIAL SAFETY AND SAFEGUARDS FIRE SAFETY REVIEW

The following outlines the type of fire safety review performed by NMSS for both plutonium and uranium plants. A listing of the bases for evaluating the adequacy of each item is included.

I. IRRADIATED FUEL CHEMICAL REPROCESSING & PLUTONIUM FABRICATION & PROCESSING PLANTS

A complete fire safety review including such items as:

- Building construction
- Process layout and hazards
- Automatic and manual fire detection and suppression capability
- Protection of vital containment components (process enclosures, building compartment partitions, outer building shell, building ventilation system, etc.)
- Plant fire water supply system
- Emergency mutual aid response
- Emergency plans and procedures

The bases for evaluating these specific areas are as follows:

1. Regulatory Guide 3.16 - General Fire Protection Guide for Plutonium Processing and Fuel Fabrication Plants, and such other Regulatory Guides dealing with fire protection as may from time to time be issued.
2. Good industrial fire safety practice as described in the National Fire Codes published by the National Fire Protection Association.
3. Requirements for "Improved Risk" or "Highly Protected Risk" as defined by the Factory Mutual Insurance System or the Factory Insurance Association, or other comparable insurance organization.

II. URANIUM HANDLING & PROCESSING PLANTS

Assure that building construction complies with applicable local building codes, or one of the four model building codes, as appropriate, whichever is more restrictive. Such assurance will be based on certification by the local responsible Governmental agency. The code used must be fully identified.

Evidence of insurability with one of the major nuclear insurance pools for liability insurance must be furnished by the license applicant.

NMSS VERIFICATION John D. Pinson

STATUS OF FIRE SAFETY REVIEW FOR FACILITIES REQUIRING IN-DEPTH REVIEWS ★

FACILITY & LOCATION	TYPE OF ACTIVITY	LICENSE STATUS	COMMENTS ON FIRE SAFETY REVIEW
Westinghouse Electric Company Anderson, South Carolina	Plutonium-uranium fuel production	New application, Review in hold for GESMO decision.	Final fire safety review will be updated and/or revised when GESMO is resolved.
Nuclear Fuel Services, Inc. West Valley, New York	Spent fuel reprocessing plant	Provisional operating license	Plant shutdown. No combustibles or solvent in plant cells. Detailed review suspended. Fire protection satisfactory for shutdown condition.
Allied-General Nuclear Services Barnwell, South Carolina	Spent fuel reprocessing plant	SER preparation in hold.	Review in "Hold" per Commission order of December 23, 1977. Document will be inserted in SER when "Hold" is removed and pertinent questions are resolved.
Westinghouse Electric Company Cheswick, Pennsylvania	Plutonium-uranium fuel development laboratory	Timely renewal	Final fire safety review completed 08/20/76. Document will be inserted in SER which is due 03/17/78.
Exxon Nuclear Company Oak Ridge, Tennessee	Spent fuel reprocessing plant	Review of CP application has been terminated.	Initial fire safety review completed 09/24/76. The safety review has been terminated per Commission order of December 23, 1977. If review is reactivated, document will be inserted in SER when pertinent questions are resolved.
General Electric Company Pleasanton, California	Plutonium-uranium fuel development laboratory	Timely renewal	Initial fire safety review completed 08/12/77. Document will be inserted in SER which is due on 07/21/78.
Battelle Memorial Institute Columbus, Ohio	Plutonium development laboratory	Timely renewal	Schedule for review will be developed after applicant input is received.
Babcock and Wilcox Company Leechburg, Pennsylvania	Plutonium-uranium fuel production	Timely renewal	The NRC advised B&W on 03/24/77 that insufficient fire protection capability was identified in the safety evaluation of 01/07/77. A schedule is being developed.
Kerr-McGee Corporation Crescent, Oklahoma	Plutonium-uranium fuel production	License renewed 07/15/77	Plant in standby. No inventory dispersible Pu. No fire safety review planned. Plant to be decontaminated and decommissioned.
Exxon Nuclear Company Richland, Washington	Plutonium-uranium fuel production	Term of license expires July 1979	Plant in standby. No inventory of dispersible Pu. No urgency. Fire safety review will be scheduled at time of renewal request.

★ For More details see Section One of the "Gold Book", Nuclear Material Safety and Safeguards, NUREG-0329.

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