



Carolina Power & Light Company

SERIAL: NLS-84-477

NOV 30 1984

Director of Nuclear Reactor Regulation  
Attention: Mr. D. B. Vassallo, Chief  
Operating Reactors Branch No. 2  
Division of Licensing  
United States Nuclear Regulatory Commission  
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62  
LONG-TERM PLANNING

Dear Mr. Vassallo:

In accordance with commitments made to members of your staff in a meeting held at your offices on August 21, 1984, Carolina Power & Light Company (CP&L) hereby submits for your review a copy of our proposed plan for implementation of a long-term integrated program for scheduling of modifications to the Brunswick Steam Electric Plant, Units 1 and 2. This program will result in the development of a long-term implementation schedule based on the concept of a living schedule which was endorsed by the NRC in Generic Letter 83-20 dated May 9, 1983.

Enclosure 1 is the Integrated Plant Modification Plan (the Plan). This document describes the plan which the Company proposes to use to implement CP&L's Integrated Plant Modification Program (the Program) for the Brunswick Steam Electric Plant. The Plan provides a summary description of the mechanisms for changing and updating the implementation schedules developed under the Program, the responsibilities of the NRC and Company staffs with respect to the Plan, and the mechanisms for modifying the requirements of the Plan. Enclosure 2 is a copy of proposed license amendment requiring implementation of the Plan which CP&L will submit separately pursuant to 10CFR50.90 when the various aspects of the Plan have been reviewed by your staff.

The Integrated Plant Modification Program description is included as Enclosure 3 for your information only. This document describes the internal process used by CP&L in performing the integrated long-range planning of modifications to the Plant. As such, it utilizes the Company's Integrated Planning, Budgeting, and Scheduling System and will be modified as required to keep pace with changes to that system and other CP&L administrative requirements. The Program will not be submitted for NRC review and approval when such revisions are made.

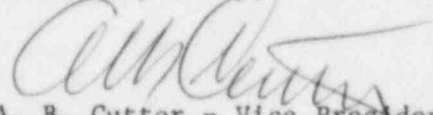
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Carolina Power & Light Company believes that this program meets the intent of Generic Letter 83-20 dated May 9, 1983 and will meet our mutual goal of enhancing the safe, reliable, and economic operation of the Brunswick Steam Electric Plant by enabling CP&L to more effectively coordinate the implementation of improvements required by the NRC and those identified by the Company's management.

Should you have any questions concerning this matter, please contact Mr. Sherwood R. Zimmerman at (919) 836-6242.

Yours very truly,



A. B. Cutter - Vice President  
Nuclear Engineering & Licensing

MAT/crs (848MAT)

Enclosures

cc: Mr. D. O. Myers (NRC-BNP)  
Mr. J. P. O'Reilly (NRC-RII)  
Mr. M. Grotenhuis (NRC)

Enclosure 1

to Serial: NLS-84-477

Carolina Power & Light Company  
Integrated Plant Modification Plan  
for Brunswick Steam Electric Plant Units 1 and 2

## I. INTRODUCTION

This document describes the Integrated Plant Modification Plan (the Plan) to be used to implement Carolina Power & Light Company's (the Company) Integrated Plant Modification Program (the Program) for the Brunswick Steam Electric Plant Units 1 and 2 (the Plant). The Plan provides a summary description of the Program, mechanisms for changing and updating implementation schedules, the interactions of NRC and Company staffs under the Plan, and mechanisms for changing the Plan. The Program enables the Company to effectively manage implementation of modifications to the Plant that have been required or proposed by the NRC, as well as other measures to enhance the safety and reliability of the plant identified by the Company. The Program objectives are to:

- ensure conformance to regulatory requirements;
- provide sufficient lead times for modifications;
- minimize changes for operators;
- assure that training requirements are fulfilled;
- effectively manage financial and human resources; and
- specify the framework for making changes to developed implementation schedules.

The Plan recognizes that fiscal and manpower resources are finite and that the interest of plant safety and performance are best served by careful planning for the use of these resources. The Plan integrates the presently planned work at the Plant over a nominal five-year period to ensure that work items are effectively scheduled and coordinated. It also provides a means for new work items to be accommodated, taking into account schedule and resource constraints.

## II. PROGRAM DESCRIPTION SUMMARY

The Program provides for a compilation and assessment of the work items currently in progress or planned. The compilation and assessment takes into account projections for budgets, site manpower, and engineering support requirements for five years, covering Plant activities. It represents a comprehensive picture of Plant work which is regularly updated to reflect changing conditions, including new NRC regulatory requirements and issues. A primary product of the Program is the development of implementation schedules as discussed below.

### III. IMPLEMENTATION SCHEDULES

Implementation schedules are developed to reflect major work items in progress or planned. The development process includes the schedules, estimates of resource requirements, establishment of relative priorities and the methodology of integration. The major work items are organized into two implementation schedules:

- Schedule A - Items which have implementation dates mandated by NRC regulations, orders or license conditions.
- Schedule B - Items of either generic or plant specific nature identified by NRC which have implementation dates committed to by the Company; and items identified by other agencies or the Company, in anticipation of requirements or for enhancement of Plant reliability or efficiency.

Where appropriate, implementation schedules will identify completion dates keyed to fuel cycle outages.

### IV. IMPLEMENTATION SCHEDULE CHANGES

An important aspect of the Plan is the recognition that schedule A and schedule B may need to be modified at times. Modifications to implementation schedules may arise from a variety of reasons, such as new work items; modification in the scope of scheduled work; problems in delivery, procurement, etc.; changes in NRC rules and regulations; or other NRC or Company actions. It is important that the procedure used by the Company for changing the schedules be documented. The NRC must play a role in the oversight of the schedules; accordingly, it is important that the NRC's role, and the interaction between the NRC and the Company be clearly defined, as discussed below. The Company will monitor the progress of the work undertaken, manage its activities to maintain the schedule and act promptly to take necessary actions when a schedule change is needed.

When it is necessary to add a new work item or to modify the implementation schedule for an existing item, the following general guidance will be utilized to the extent appropriate:

- Avoid where possible, rescheduling of items with implementation dates mandated by NRC regulations, orders, and license conditions.
- Consider the relative priority of work items.
- Select a schedule for the new or changed item which will help in maintaining an optimum integrated program of work.
- Minimize rescheduling of items currently scheduled.

In cases where a completion date is keyed to a fuel cycle outage, a change in the outage period shall not be considered a schedule change.

A. Changes to Schedule A

1. Changes to Schedule A are categorized as follows:
  - a. Changes to existing implementation schedules
  - b. Addition of new items
  - c. Addition of items previously included on Schedule B
2. Changes Initiated by the Company

The Company may request NRC approval of changes to Schedule A in accordance with applicable NRC regulations. Such requests will be considered in a timely fashion by the NRC. If the request for a modification of Schedule A is denied, the NRC shall promptly inform the Company and provide the reasons for denial.

3. NRC Action Resulting in Charges

The NRC initiates action which will change Schedule A by issuing or revising applicable regulations, orders, or license conditions. Before taking such action, the NRC, to the extent consistent with its overall regulatory responsibilities, will take into account the impact of such action on the Company's ability to complete effectively the items on Schedules A and B, and, in consultation with the Company, will try to minimize such impact. The Company will have the opportunity to present alternatives which effectively accommodate the NRC's proposed actions.

B. Changes to Schedule B

1. Changes to Schedule B are categorized as follows:
  - a. Changes to existing implementation schedules
  - b. Addition of new items
2. Changes Initiated by the Company

The Company may make changes to Schedule B items as circumstances require. Such changes require no NRC action to become effective. When changing implementation schedules established by a Company commitment for work items identified by the NRC, the Company will:

- a. inform the NRC project manager when the Company begins to give serious consideration to such changes
- b. notify the NRC in writing at least 30 days or as early as practical in advance of the implementation date affected.
- c. include with the written notification of paragraph b the reasons for the change and any compensatory actions the Company plans to institute.



### 3. Changes initiated by the NRC

The NRC may identify new regulatory issues by means other than regulations, orders, or license conditions which may result in plant modifications for which the NRC may request the Company to provide implementation schedules. Such implementation schedules will be developed in discussions between the Company and the NRC consistent with the objectives of this Plan.

## V. PERIODIC REPORTING

The Company will submit an updated implementation schedule report to the NRC seminannually. The Company will include in the updated report:

- Identification of implementation schedule changes since the last report.
- Identification of new items added to the report.
- A summary of the reasons for NRC approved schedule changes associated with Schedule A items.
- A summary of the reasons for Company initiated changes associated with Schedule B items.

## VI. PROGRAM ENFORCEMENT

The fulfillment of the requirements of this plan requires the implementation of certain internal Company procedures for planning and scheduling of work. This planning and scheduling process is not subject to the requirements of 10 CFR 50 Appendix B or any other regulation and is not auditable under the Company's Quality Assurance Program. NRC enforcement activity associated with this Plan is, therefore, limited to the reporting requirements identified in Section V only.

## VII. MODIFICATIONS TO THE PLAN

The Company and the NRC recognize that this Plan may require future modifications. Accordingly, the Company will draft and submit proposed changes for NRC review and approval as appropriate. The changes will become effective upon approval by the NRC.

Enclosure 2

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PROPOSED LICENSE AMENDMENT

The Integrated Plant Modification Plan for Brunswick Steam Electric Plant Units 1 and 2 (the Plan) dated [ ], 1984, as may be amended from time to time, is approved.

- a) The licensee shall implement the provisions of the Plan effective [date of amendment], 1985.
- b) The provisions of this paragraph shall be effective for a period of five years following the date approved by the NRC and may be renewed upon application by the licensee.

Enclosure 3

to Serial: NLS-84-477

Carolina Power & Light Company  
Integrated Plant Modification Program for  
Brunswick Steam Electric Plant Units 1 and 2

## I. INTRODUCTION

This integrated plant modification program (the Program) describes the internal process used by Carolina Power & Light Company (the Company) to perform integrated long-range planning for modifications to the Brunswick Steam Electric Plants Units 1 and 2 (the Plant). The Program embodies the Company's Integrated Planning, Budgeting, and Scheduling System (IPBS) in implementing the methodology for integration of plant modifications and is referenced in the integrated plant modification plan (the Plan). In structuring the IPBS, major emphasis has been placed on the performance of front-end engineering to adequately define problems and the intended approach for resolution so that the integrated planning process is based on accurate information. Integral with IPBS, as it applies to Brunswick, is the development of a five-year schedule which closely follows the concept of a living schedule endorsed by the NRC in Generic Letter 83-20. In the development of the schedule, a tool is created which allows management of the resources that are available to Brunswick while at the same time assuring continued safe operation through a closely controlled approach to plant modifications. The Program allows establishment of future licensing commitments with the knowledge of an integrated five-year schedule and an assessment of the relative priority of licensing issues so that commitments to plant modifications are realistic and achievable.

## II. FRONT-END PLANNING

Front-end planning in IPBS includes three distinct phases - Project Identification, a Project Proposal, and a Project Plan. Project identification occurs through initiation of a PID form. This includes a brief definition of the proposed project including justification and the expected benefit. The project is classified regarding its merits for further development in the front-end planning process and subjected to a review and approval process within the initiating organization. At this time, it is also determined if a project involves an emergency and as such requires expedited handling.

Once a PID is approved, the project is considered for preparation of a project proposal. After determining that the project warrants further investigation, appropriate resources must be allocated to prepare the proposal. The nature and urgency of the project influences the priority assigned to preparation of the proposal. The primary goal of the proposal is to clearly define the problem for which a solution is being sought, and to arrive at a definitive estimate of what it would take to solve the problem. The proposal is designed to focus management attention on deciding whether or not to proceed with the project. To accomplish this, the proposal normally includes the following specific information:

- A project summary including a definition of the project, the reason for initiating the project, and the need for regulatory commitments associated with it.

- A technical description which includes a functional description, a system description and the impact on plant operations. The functional description provides the scope of the modification including identification of the systems affected. The system description identifies the major changes to the affected systems and the expected changes in their performance. In evaluating the impact on plant operations, critical information regarding the need for plant and/or system outages to implement the project is identified.
- An assessment of support requirements including initiation of the interface with the various support groups to gain their input and identify the required support activities.
- A nuclear safety assessment that provides early identification of potential unreviewed safety questions, technical specification change requirements, FSAR change requirements, and identification of the governing codes and regulations.
- A cost and schedule analysis that provides an estimate of the total project cost as well as schedule milestones and cash-flow estimates.
- A project justification including evaluation of possible alternatives in addition to the recommended approach, and the expected benefits from performing the modification.
- A plan for completing the project plan including cost and schedule estimates.

The completed project proposal is evaluated by the site review group which, in conjunction with the management review group, must decide whether to alter, defer or cancel the project, or proceed with preparation of the project plan. The site review group and management review group verify that all bases have been covered, that possible alternatives have been fully evaluated, that operational considerations are addressed, and that the cost and benefit warrant investment of additional resources. This process provides for management involvement in project selection and development to ensure the most appropriate utilization of available resources. Additional information on the composition and functions of the site review group and management review group is provided in Section V.

Once a project proposal is approved for further development, it proceeds to the project plan stage. The project plan builds upon and expands the information in the project proposal in developing sufficiently detailed information for management to make the final decision whether to implement a project. The project plan represents a significant investment in the engineering design which could be up to 40% of the total engineering resources necessary for the project. The project plan includes the following information:

- An expanded justification for the project including manpower requirements, and cost and budgetary information.

- A project management plan including an organization chart of those people to be involved in the project and the manner in which the project will be administered.
- An engineering plan that includes a completed initial engineering design package, a detailed plan for completion of the design, a procurement plan for engineered equipment, and a plan for procurement of other materials. The design package provides a design basis document along with the proposed changes to major engineering drawings such as the system description, the P&ID, general arrangement drawings, logic diagrams and electrical one-lines, equipment lists, piping isometrics, civil drawings, etc.
- A detailed construction plan which provides a complete picture of the required construction activity. This includes: a construction schedule, the craft manpower requirements, construction procedures, construction material requirements, definition of prefabrication, preoutage and outage scopes of work, and construction cost estimates for both labor and materials.
- Detailed support plans for each of the groups that must support the project are provided based on input from those groups. Each support plan includes the manpower and material requirements for that group, a cost estimate for the support, and a schedule. Support plans are provided for health physics, training, operations, quality assurance, and security if required for the project.
- A Licensing/Permits and Safety Review Plan that identifies the regulatory approval requirements, the safety analysis requirements, and the CP&L safety review/approval requirements.
- A startup and turnover plan which provides the resource and schedule requirements necessary to perform these phases of the project.
- A documentation and closeout plan which addresses project completion requirements, update of design drawings, and closeout of accounting for the project.

Two key accomplishments which occur during preparation of the project plan are a design review with the plant staff and a constructibility review with installation personnel to gain their input and concurrence with the project during front-end planning.

Following completion of the project plan, the site review group and management review group must once again decide whether to alter, defer or cancel the project, or approve it for implementation. Additional information on the composition and function of the site review group and management review group is provided in section V. Upon final management approval, the project now has a reasonably well defined workscope, and is ready to be integrated into the master project schedule.



### III. SCHEDULE INTEGRATION

When addressing schedule integration, it is important that resource requirements for Plant activities are accounted for so as to obtain a complete picture of how they are allocated. In addition, potential future projects are identified as far in advance as possible to minimize their impact on scheduled activities. With these considerations in mind, schedule integration addresses three key areas: (1) the resource requirements for known modification work as identified by IPBS, including currently identified regulatory requirements, and plant betterment projects originated by CP&L to facilitate improved plant availability, reliability and/or efficiency; (2) the resource requirements of routine work load activities such as the plant operations and maintenance staff, health physics, security, warehousing, quality assurance staff, etc; and (3) potential future projects which may result in plant modifications at a later date are evaluated to the extent possible to avoid scheduling conflicts in the event that they become requirements.

In integrating a project into a comprehensive five year schedule a variety of factors are considered. Often the factors conflict in their influence on the schedule and there is seldom a single overriding consideration in scheduling a new project. To accommodate the complexity of this problem, both a structured analytical evaluation and common sense management direction are combined to achieve an appropriate and achievable schedule. These are combined using a schedule index and schedule guidelines in the Program.

The schedule index is the mechanism used to provide an analytical evaluation of relative scheduling priority. The schedule index is derived for each project by evaluating the project in several areas. These areas include:

- Plant Nuclear Safety
- Personnel Safety
- ALARA
- Surveillance Requirements
- Maintenance Requirements
- Plant Availability/Reliability
- Ease of Plant Operation
- Total Cost

Once the scheduling index for a project is known, it is used as an initial indication of when the project should be scheduled relative to other work. However, the schedule index may not in all cases reflect overriding considerations as to when it is appropriate to schedule a project. Therefore, it is used in conjunction with other information available. The types of information that may result in overriding the schedule index include: strong regulatory implications, coordination of modifications to a single system, availability of specialized services, and other unique requirements identified during front-end planning.

Integrated scheduling is performed using scheduling guidelines including appropriate resource limitations. These resource limitations provide the means to produce an end schedule which satisfies the objectives of the Program. Through the implementation of the scheduling guidelines it is possible to establish a rate of plant modifications which enhances overall plant safety and maintains resources within realistic management considerations.



The resource limitations that are used in the Program are traditional variables of the planning process; primarily total budget dollars, human and material resources, and outage durations. These traditional limitations are used because they are easily quantified and better understood; however, there are also a variety of non-traditional considerations that can be more directly related to promoting safety. These additional limitations include: operator training, number of procedure changes, number of design drawing changes, maintenance impact, number of system status changes during an outage, etc. There is an indirect effect on these considerations by utilizing the more traditional limits, however, current planning capabilities make direct use of these limits difficult. It is a Program goal to further develop the concept of limitations with recognizable safety impact and factor them into the Program through recognition of their effects and experience with integrated planning.

The scheduling guidelines include provisions to reserve the allocation of some resources to accommodate the uncertainty that exists in the information used for long-range plans. The farther into the future that the schedule is being established, the larger the resource reserve needs to be to reflect the fact that not as much is known about projects which must be scheduled in the long term as is known about the near term. Through reductions in scheduling resource utilization years in advance, high priority and emergency projects can be integrated into the five-year schedule minimizing the need to reschedule other projects.

#### IV. LONG-TERM DIRECTION

This Program produces a series of five-year schedules which serve as the management tools to provide long-term direction to the Plant. This capability includes five-year schedules with varying format and content to support specific applications. Summary schedules showing major work items are produced to support the Schedule A and Schedule B requirements of the Plan. More detailed schedules, including large numbers of smaller projects, are produced as a management and planning tool providing visibility of the schedule of individual items. Study schedules are also produced to assess the impact of adding new work or changing the schedule of existing work. Through the use of a variety of schedules, management is aware of, and able to exert influence over, the long-term budget and schedule for plant modifications to preserve safe plant operation and realistic economic expenditures.

#### V. MANAGEMENT PARTICIPATION

Direct participation of Plant management and other key site personnel in the IPBS process is provided by the Site Review Group and the Management Review Group. The Site Review Group is composed of key site personnel that are directly affected by changes to the plant - operations, maintenance, environmental and radiation control, technical support, site engineering, construction, and planning and controls. During evaluations of project proposals and plans the group determines if the proposed solution is heading in the right direction, and verifies that practical operational considerations are factored in before designs are set and material orders are placed.

The types of questions which the group must address include:

- Is this the problem we thought it was?
- Have all aspects of the problem and solution been considered?
- Are there other ideas that should be considered?
- Are there any operational considerations that might alter the recommended solution?
- What are the cost/benefit considerations? Is something larger or smaller warranted?

The site review group draws its conclusions relative to a project and forwards a recommendation to the management review group. At the proposal stage this recommendation is whether or not to alter, defer, or cancel the proposal, or proceed with development of the project plan. At the plan stage this recommendation is whether or not to alter, defer, or cancel the plan, or proceed with implementation of the project.

The management review group includes: the site vice president; the plant general manager; the manager of engineering and construction; the manager of site planning and controls; and the manager of outage management. This group provides the final management disposition of the site review group's recommendation at both the proposal and plan stages. In addition, the management review group is responsible for maintaining the Company's safety, operational, and economic objectives through control of the approval of project plans.