BRUNSWICK NUCLEAR PLANT

THREE-YEAR BUSINESS PLAN

PERFORMANCE IMPROVEMENT INITIATIVES & PROJECTS

Update V

BRUNSWICK NUCLEAR PLANT THREE YEAR BUSINESS PLAN

PERFORMANCE IMPROVEMENT INITIATIVES & PROJECTS

TABLE OF CONTENTS

INDEX OF ACTIVE INITIATIVES

INITIATIVE NO.	TITLE	SPONSOR
TY101	Integrated Planning & Scheduling	B. Helme
TY102	BNP Integrated Scheduling and Three-Year Plan Administration	G. Honma
TY103	Corrective Maintenance Backlog Reduction	G. Barnes
TY104	Business Planning Improvements	J. Martin
TY105	Inventory Control	J. Ferguson
TY201	Effective Performance Management/Total Quality	J. Ferguson
TY202	Training Improvements	K. Ahern
TY203	Utilization/Inter-Unit Support	J. Titrington
TY204	Establish "World Class Performance" Culture	D. McCloskey
TY205	Supervisory & Management Development	C. Heath
TY206	Develop and Implement Brunswick Facility Improvements	R. Johnson
TY301	Improved Procedure Control and Content	C. Lewis
TY302	Improving the Modification Process	B. Grazio
TY303	Improve Ability to Identify and Correct Problems	R. Lopriore
TY304	Backlog Reduction	R. Lopriore
TY305	Clearance Process Improvements	J. Titrington
TY308	Centralized Document Control Program	C. Lewis
TY309	Improve Management of Regulatory Commitments	R. Lopricre
TY401	Site Communication Plan	M. Harris
TY501	Preventive/Predictive Maintenance Program Improvements	C. Pardee
TY502	Corrosion Preventive Maintenance	C. Pardee
TY505	Cooling Water Reliability Program	C. Pardee
TY506	Plant Engineering Program Upgrade	C. Pardee
TY507	Inservice Inspection and Inservice Testing Improvement Program	C. Pardee

INITIATIVE NO.	TITLE	SPONSOR
TY510	Develop and Implement Preservation Program to Upgrade Material Condition	B. Deacy
TY511	ALARA Initiatives, Source Term Reduction	J. Gawron
TY512	Environmental and Chemistry Program Improvements	J. Gawron
TY601	Human Performance	J. Cowan
TY602	Reactor Vessel Internals Preservation	E. Willett
TY603	Improve BNP's Competitive Position	J. Martin D. McCloskey
TY604	Reduce Regulatory Burden	R. Lopriore
TY605	Improve Refueling Outage Management	J. Cowan

INDEX OF DELETED INITIATIVES

INITIATIVE NO.	TITLE	SPONSOR
TY106	Outage Length Reduction	U1/U2 Outage Managers
TY207	Nuclear Revision Control System	C. Lewis
TY208	Integrated Computer Support	D. Reid
TY306	Health Physics Program Improvements	J. Gawron
TY307	Implement/Augment BNP Local Area Network	D. Reid
TY310	Assess Implementation of SAT Items	J. Cowan
TY503	Design Basis Reconstitution Program	B. Grazio
TY504	Equipment Data Base System (EDBS)	B. Grazio
TY508	AC Source Improvement Project	B. Grazio
TY509	Management of Temporary and Substandard Conditions	C. Pardee
TY513	Megawatt Improvement Projects	C. Pardee
TY514	Improve Plant HVAC Systems	C. Pardee
TY515	Fire Protection Upgrade Project	C. Pardee

INITIATIVES SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

Improved performance continues at Brunswick as the BNP Three-Year Business Plan reaches the mid-point of its implementation schedule. Continued improvements are being realized in the areas of planning, scheduling, and commitment achievement; human performance; work processes; communications; and system reliability and material condition.

PLAN ACCOMPLISHMENTS

Successful performance indicators noted since the May 4, 1994 update include continued upgrades in the material condition of the plant, a continued decline in backlog reductions for both units, the successful operation of both units, and the smooth and successful restart of Unit 2 from the recent refueling outage.

Four initiatives have been identified as task complete since the last update. They include initiatives TY201, Effective Performance Management/Total Quality; TY204, Establish "World Class Performance" Culture; TY301, Improved Procedure Control and Content; and TY305, Clearance Process Improvements. The next phase of these task complete initiatives is to implement self-assessment effectiveness reviews.

Additional performance improvements are being realized from five (5) initiatives that are still being implemented and are not task complete. A continued downward trend in the corrective maintenance backlog is being realized as a result of implementing initiative TY103, Corrective Maintenance Backlog. A management succession plan has been developed through 1998 and management rotation is being realized as a result of initiative TY205, Supervisory/Management Improvements. Implementation of initiative TY202, Training Improvements has resulted in the following: Development of Advanced Radiation Worker Training; enhanced operator teamwork in simulator training and plant operational activities; implementation of a technical training mock-up; Establishment of the Training Advisory Board; and improved operations, technical, and support training through line organization training involvement. Implementation of initiative TY510, Develop and Implement Preservation Program to Upgrade Material Condition has been accelerated and is projected to complete in 1995, approximately two years ahead of schedule. Progress continues on initiative TY206, Develop and Implement Brunswick Facility Improvements. The Master Facilities Plan has been developed and changes to the plan are managed by the Project Review Group (PRG) and Three-Phase Authorization processes. Construction has been completed on several facilities including the Technical and Administrative Center (TAC), Snubber Repair and Hot Calibration Shop, E&RC Laundry and Chemical Storage Facility,

Sewage Treatment Facility, Tool Decontamination Facility, and Low-Level Waste Storage Facility. Construction of the Hands-On Training Facility, Operations/Maintenance Support Building, and Technical Support Center/Emergency Operations Facility (EOF) is in progress and nearing completion.

Brunswick's ability to self-assess continues to improve and a mid-year "normal business" self-assessment resulted in improvements to three (3) initiatives to achieve the desired objectives. Initiative TY303, Improve BNP's Ability to Identify and Correct Problems was enhanced to develop corrective actions for the timeliness of ACRs, improve ACR information exchange across functional lines, and to place more focus on less consequential (precursor) events. Enhancements to initiative TY501, Preventive/Predictive Maintenance Program Improvements, will focus on adopting a Reliability Centered Maintenance (RCM) Program, reducing the existing preventive maintenance (PM) tasks, developing standard preventive maintenance activities, reducing short term preventive maintenance manpower needs, and RCM evaluations of all PM tasks in progress. Improvements to initiative TY511, ALARA Initiatives, Source Term Reduction include the incorporation of an aggressive correction action study for achieving successful 1995 decontamination and directing management focus to the area of environmental/radiological control.

In addition, six (6) new initiatives were added to the plan: TY601, Human Performance; TY602, Reactor Vessel Internals Preservation; TY603, Improve BNP's Competitive Position; TY604, Reduce Regulatory Burden; and TY605, Improve Refueling Outage Management.

CURRENT STATUS

Sixteen (16) of the forty (40) initiatives identified in the original BNP Three-Year Business Plan are ongoing, eleven (11) initiatives are task complete, and thirteen (13) initiatives have been closed and superseded by other projects or work processes that are achieving the desired improvements. Three (3) initiatives have been augmented to ensure the desired results are obtained and that the initiative is effective. Five (5) new initiatives have been initiated to address areas of management focus.

FUTURE FOCUS

BNP management is committed to an ongoing plan implementation that is results based, focuses on improving work processes and performance, and safely supports plant priorities. Management of the BNP Three-Year Business Plan to ensure trends of continuous improvement are maintained will continue. Aggressive self-assessment activities will be used to assess the effectiveness of the initiatives and to ensure successful performance is realized. Modifications to existing initiatives, or the development of new initiatives will occur as areas requiring improvement are identified.

INITIATIVES STATUS SUMMARY
(40 Original Initiatives)

INITIATIVE	TITLE	STATUS
TY101	Integrated Planning & Scheduling	Initiative is task complete. Task closure documentation has been provided. Effectiveness self-assessment scheduled.
TY102	BNP Integrated Scheduling and Three-Year Plan Administration	Initiative is task complete. Task closure documentation has been provided. Effectiveness self-assessment scheduled.
TY103	Corrective Maintenance Backlog Reduction	Five (5) tasks remain ongoing. Initiative scheduled to task complete in 1995.
TY104	Business Planning Improvements	Initiative is task complete. Task closure documentation has been provided. Effectiveness self-assessment scheduled.
TY105	Inventory Control	Four (4) tasks remain ongoing. Initiative scheduled to task complete in 1995.
TY106	Outage Length Reduction	Initiative closed per August, 1993 update to Three-Year Plan. Works scope is being performed under Strategic Issue, Outage Management. Initiative TY605 has been established to cover this issue.
TY201	Effective Performance Mgmt/Total Quality	Initiative is task complete. Task closure documentation is in process. Effectiveness self-assessment scheduled.
TY202	Training Improvements	Eight (8) tasks remain ongoing. Initiative scheduled to task complete in 1995.
TY203	Utilization/Inter-Unit Support	Initiative is task complete. Task closure documentation has been provided. Effectiveness self-assessment scheduled.
TY204	Establish "World Class Performance" Culture	Initiative is task complete. Task closure documentation is in process. Effectiveness self-assessment scheduled.
TY205	Supervisory & Management Development	One (1) task remains ongoing. Initiative scheduled to task complete in 1994.
TY206	Develop and Implement Brunswick Facility Improvements	Three (3) tasks remain ongoing. Initiative scheduled to task complete in 1994. Master Facilities Plan has been developed and is being implemented. Additions, changes, and deletions to Master Facilities Plan are managed through PRG.
TY207	Nuclear Revision Control System	Initiative closed because scope is currently covered within the action plan developed by Nuclear Business Operations (NBO) in their response to NAD Assessment C-SP-93-03.

INITIATIVE	TITLE	STATUS
TY208	Integrated Computer Support	Initiative closed per August, 1993 update to Three-Year Plan. This scope of work is included in an NGG initiative to reorganize and establish computer and telecommunications organizational consistency among the three nuclear sites.
TY301	Improved Procedure Control and Content	Initiative is task complete. Task closure documentation is in process. Effectiveness self-assessment scheduled.
TY302	Improving the Modification Process	Two (2) tasks remain ongoing. Initiative scheduled to task complete in 1995.
TY303	Improve Ability to Identify and Correct Problems	Mid-year self-assessment determined further actions are required to obtain desired results. Additional tasks incorporated to ensure desired effectiveness.
TY304	Backlog Reduction	Initiative is task complete. Task closure documentation is in process. Effectiveness self-assessment scheduled. Backlog priorities and targets have been established and will be tracked via in-house management and tracking processes.
TY305	Clearance Process Improvements	Initiative is task complete. Task closure documentation is in process. Effectiveness self-assessment in progress.
TY306	Health Physics Program Improvements	Initiative closed per August, 1993 update to Three-Year Plan. Initiative tasks identified under other initiatives, programs, or existing in-house processes.
TY307	Implement/Augment BNP Local Area Network	Initiative closed per August, 1993 update to Three-Year Plan. Work scope is being performed in coordination with the corporate plan for installing company-wide LANs.
TY308	Centralized Document Control Program	Two (2) tasks remain ongoing. Initiative scheduled to task complete in 1995.
TY309	Improve Management of Regulatory Commitments	Initiative is task complete. Task closure documentation is in process. Effectiveness self-assessment scheduled.
TY310	Assess Implementation of SAT Items	Initiative closed per August, 1993 update to Three-Year Plan. Staff Assistance Team (SAT) improvements are incorporated in BNP self-assessment, strategic planning, and business planning processes.
TY401	Site Communication Plan	Initiative is task complete. Task closure documentation has been provided. Effectiveness self-assessment scheduled.

INITIATIVE	TITLE	STATUS
TY501	Preventive/Predictive Maintenance Program Improvements	Mid-year self-assessment determined further actions are required to obtain desired results. Additional tasks incorporated to ensure desired effectiveness.
TY502	Corrosion Preventive Maintenance	Two (2) tasks remain ongoing. Initiative scheduled to task complete in 1995.
TY503	Design Basis Reconstitution Program	Initiative closed per August, 1993 update to Three-Year Plan. Work scopes identified under projects B0018A, B0019A, BNT622, G0017A, and 05644A.
TY504	Equipment Data Base System (EDBS)	Initiative closed per August, 1993 update to Three-Year Plan. Work scope is identified under project F0025C.
TY505	Cooling Water Reliability Program	Seven (7) tasks remain ongoing. Initiative scheduled to task complete in 1995.
TY506	Plant Engineering Program Upgrade	Three (3) tasks remain ongoing. Initiative scheduled to task complete in 1995.
TY507	Inservice Inspection and Inservice Testing Improvement Program	Three (3) tasks remain ongoing. Initiative scheduled to task complete in 1995.
TY508	AC Source Improvement Project	Initiative closed per August, 1993 update to Three-Year Plan. Work scope is identified under project G0110A.
TY509	Management of Temporary and Substandard Conditions	Initiative closed per August, 1993 update to Three-Year Plan. Work scope is being addressed through the implementation of a Temporary Modification Identification and Control Program, internal resources, and existing programs.
TY510	Develop and Implement Preservation Program to Upgrade Material Condition	One task remains ongoing. Five-Year Painting Plan has been developed and implementation accelerated. Initiative scheduled to task complete in 1995. Additions, changes, and deletions to plan are managed through PRG.
TY511	ALARA Initiatives, Source Term Reduction	Mid-year self-assessment determined further actions are required to obtain desired results. Additional tasks incorporated to ensure desired effectiveness.
TY512	Environmental and Chemistry Program Improvements	One (1) task remains ongoing. Initiative scheduled to task complete in 1994.
TY513	Megawatt Improvement Projects	Initiative closed per August, 1993 update to Three-Year Plan. Work scope is being performed through internal resources and processes.
TY514	Improve Plant HVAC Systems	Initiative closed per August, 1993 update to Three-Year Plan. Work scope is being performed through internal resources and processes.

INITIATIVE	TITLE	STATUS
TY515	Fire Protection Upgrade Project	Initiative closed per August, 1993 update to Three-Year Plan. Work scope is being performed through internal resources and processes.

NEW INITIATIVES

INITIATIVE NO.	TITLE
TY601	Human Performance
TY602	Reactor Vessel Internals Preservation
TY603	Improve BNP's Competitive Position
TY604	Reduce Regulatory Burden
TY605	Improve Refueling Outage Management

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Corrective Maintenance Backlog Reduction	*12/92*	*TY103*

Strategy:

To develop and implement management processes for corrective maintenenace backlog to both eliminate the current backlog and maintain manageable levels in the future.

Impact/Benefits:

a) Elimination of the current corrective maintenance backlog within three years.

b) Establishment of the optimum staffing levels in the maintenance organization to effectively manage corrective maintenance.

c) Ensure timely repair of plant equipment to sustain good plant material condition.

d) Enhance the corrective maintenance work process allowing effective utilization of manpower.

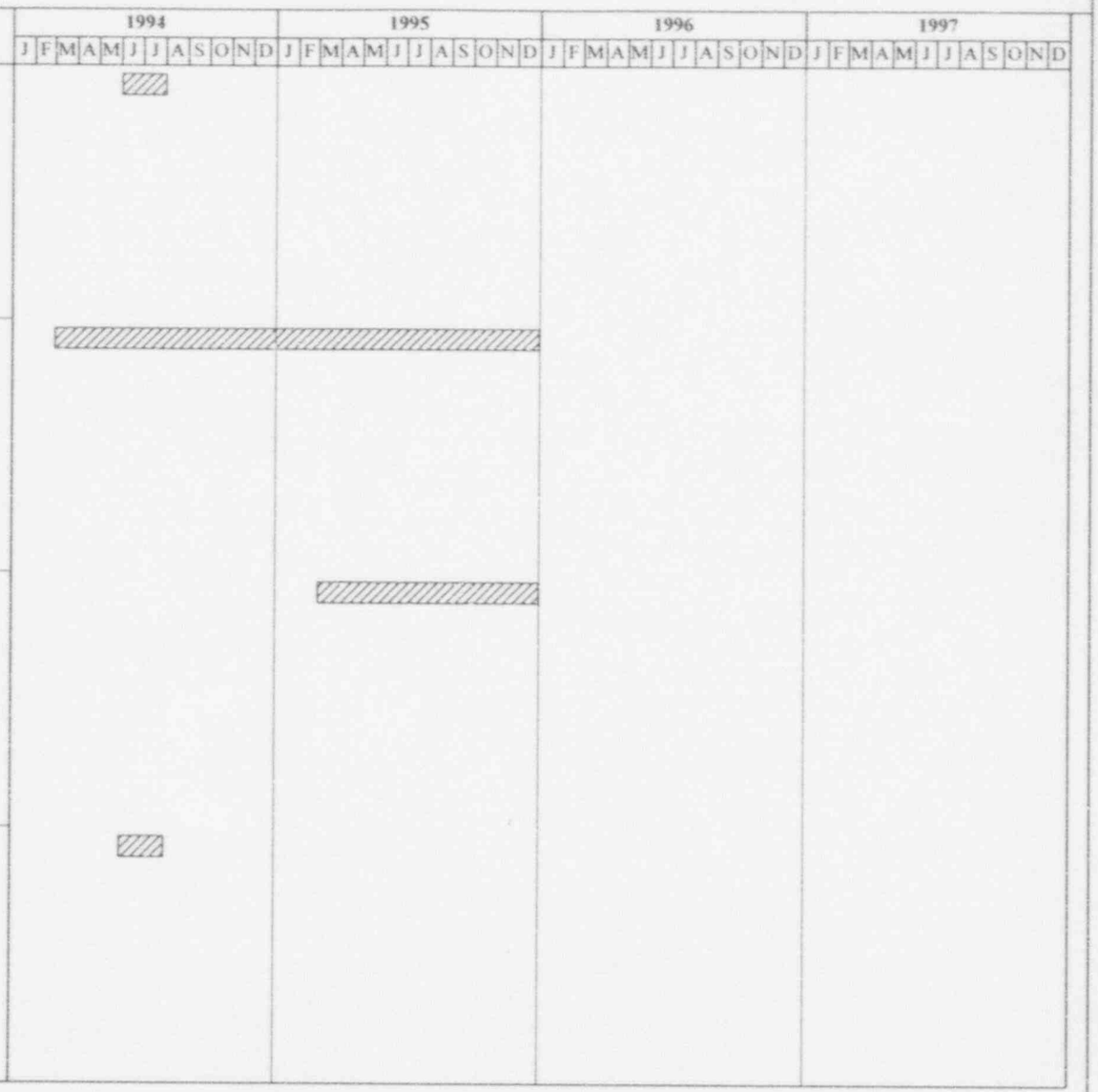
Sponsor:	Priority:
George Barnes	Medium

Corrective Maintenance Backlog Reduction - TY103

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY103 - 1E Develop and implement an improved trouble tag/minor maintenance process.	Bob Helme				
TY103 - 1F Determine appropriate cycle 9 backlog (WR-JO) reduction goal to be attained by June 1995.	Neal Gannon				
TY103 - 2A Reduce existing Unit 2 Corrective Maintenance Backlog and achieve goal established by the Unit 2 Plant Manager.	George Barnes				
TY103 - 2B Reduce existing Unit 1 Corrective Maintenance Backlog and achieve goal established by the Unit 1 Plant Manager.	Neal Gannon				

Corrective Maintenance Backlog Reduction - TY103

Description	Action Sponsor
TY103 - 3A Evaluate performance and implement necessary actions for effective corrective backlog management.	George Barnes
TY103 - 3B Provide necessary staffing to achieve Unit 2 outage corrective maintenance goals per the outage schedule.	George Barnes
TY103 - 3C Provide necessary staffing to achieve Unit 1 outage corrective maintenance goals per the outage schedule.	Neal Gannon
TY103 - 4A Evaluate and implement work process improvements to enhance scheduling and work implementation.	Bob Helme



Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Inventory Control	*12/92*	*TY105*

Strategy:

To effectively reduce and control the materrial inventory while supporting plant needs for replacement parts and other material.

Impact/Benefits:

a) Ensure accuracy in the storage of material.

b) Improved cycle inventory process accuracy in numbers of stored items.

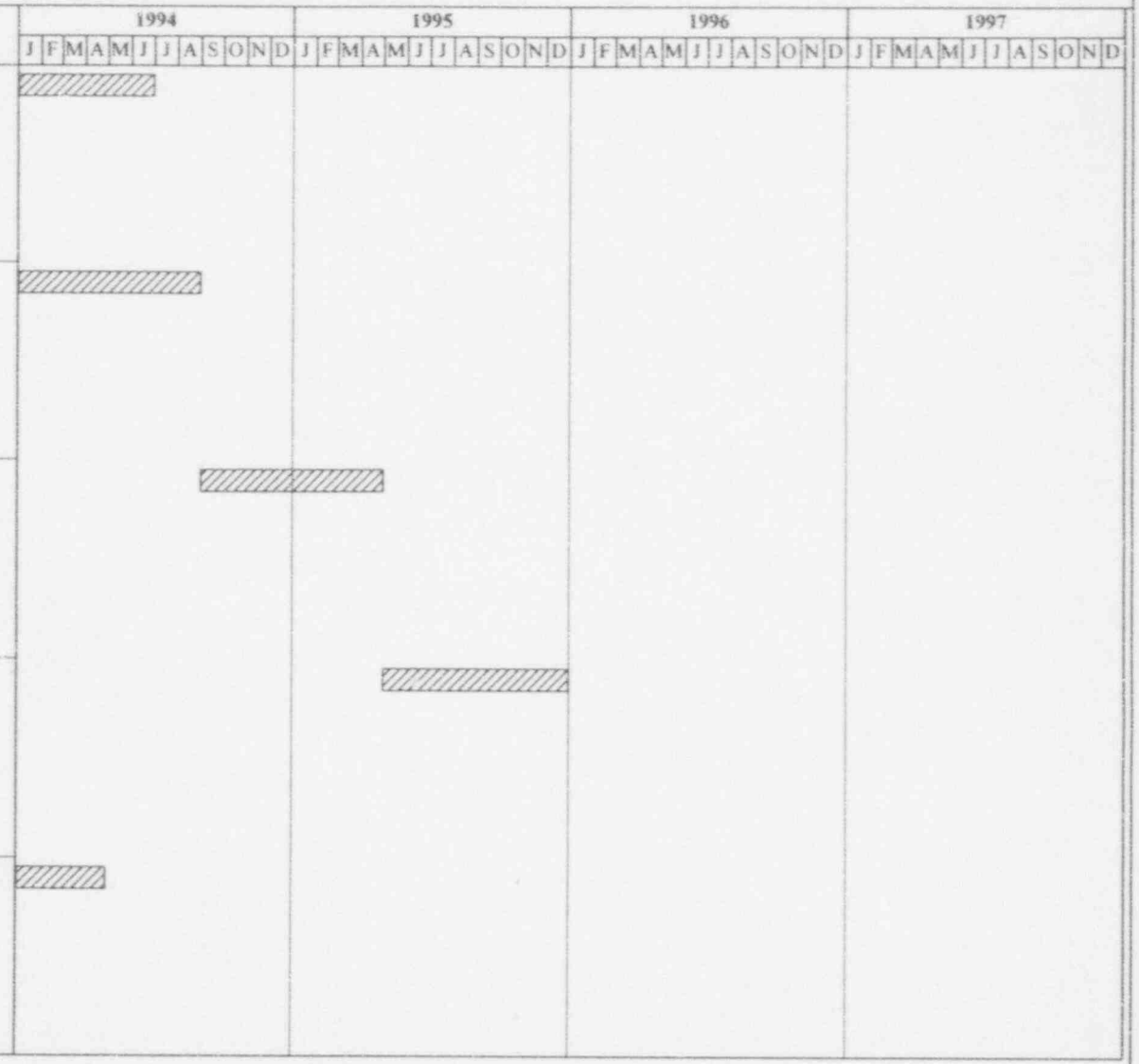
c) Reduced amount of inventory dollars.

d) Improved automation techniques for inventory control.

Sponsor:	Priority:
John Ferguson	Medium

Inventory Control - TY105

Description	Action Sponsor
TY105 - 5A Complete the implementation of the second barcoding segment.	John Ferguson
TY105 - 8C Complete the second segment of the 100% inventory.	John Ferguson
TY105 - 8D Complete the third segment of the 100% inventory.	John Ferguson
TY105 - 8E Complete the final segment of the 100% inventory.	John Ferguson
TY105 - 9A Modify procedures for inventory control improvements.	John Ferguson



Inventory Control - TY105

Description	Action Sponsor	1994	1995	1996	1997
		J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
TY105 - 17A Complete evaluation for removing 154 account for tools.	R. White				
TY105 - 18A Vendor stocking program is implemented for appropriate items (insulation, paint, steel, etc.).	R. Stroud				

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Effective Performance Management	*12/92*	*TY201*

Strategy:

Improve performance in the areas of safety, production, and cost by effective utilization of human resources. This initiative fully implements Effective Performance Management (EPM) at Brunswick.

Impact/Benefits:

a) Clear expectations in support of the mission are established for each employee.

b) The expectations and employee performance are peiodically reviewed to ensure that the expectations support the mission and that performance meets expectations.

c) Employee development plans are developed and reviewed such that each employee may develop to maximum potential.

Sponsor:	Priority:
John Ferguson	High

Effective Performance Management - TY201

Description	Action Sponsor
TY201 - 7B Development Plans for Section Managers are complete.	John Ferguson
TY201 - 7C Development Plans for Unit Managers are complete.	John Ferguson
TY201 - 7D Development Plans for Supervisors are complete.	John Ferguson
TY201 - 7E Development Plan for All Employees is complete.	John Ferguson
TY201 - 7F Incorporate Development Plan results into Assessment Program.	John Ferguson

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Training Improvements	*12/92*	*TY202*

Strategy:

Implement training upgrades that will develop and sustain a highly qualified plant staff by the following:

a) Identifying areas of training weakness.

b) Improving the use of the Systematic Approach to Training.

c) Providing additional training to key personnel.

d) Improved use of industry standards as bases for training programs.

e) Specifically upgrading the following training programs:

Engineering Support
Non-Licensed Operator
Hands-On Craft Personnel

Impact/Benefits:

a) Well trained and highly-qualified workforce.

b) Improved individual employee development.

c) Sustaining a high-level of technical qualification for supervisors and managers.

d) An efficient and effective training process.

e) Maintain accreditation of training programs.

f) Assure 100% pass rates on NRC License Exams.

g) Achieve significant improvement in line ownership, involvement, and oversight of training.

h) Significant improvement in the SRO level systems knowledge by supervisors and managers.

Sponsor:	Priority:
Keith Ahern	High

Training Improvements - TY202

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY202 - 12A Upgrade non-licensed operator training programs for Auxiliary and Radwaste Operators. This includes job and task analysis and development of qualification cards and lesson material.	Mike Williams				
TY202 - 13I Develop lesson plans and conduct hands-on training for maintenance craft personnel.	Cecil Gurganus				
TY202 - 14U Develop, validate, and approve Simulator Guides for use during simulator training.	Mike Williams				
TY202 - 15A Develop and provide performance based Emergency Response Organization initial and refresher training.	Paul Mazzola				
TY202 - 15Q Develop and provide an Advanced Systems Training Course for managers.	Mike Williams				

Training Improvements - TY202

Description	Action Sponsor	1994	1995	1996	1997
		J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
TY202 - 18A Improve the implementation of the Systematic Approach to Training to meet INPO criteria and upgrade job/task analyses and task-to-training matrices for accredited programs.	Keith Ahern	▨			
TY202 - 33A Conduct staffing and instructor training assessments as described in the Corporate Improvement Initiatives.	Keith Ahern	▨			
TY202 -34F Develop a prioritized list and procure hands-on training mock-ups and models.	Cecil Gurganus	▨	▨		
TY202 - 38A Complete the plant simulator upgrade program.	Bill Geise	▨	▨		

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Establish "World Class Peformance" Culture	*12/92*	*TY204*

Strategy:

Establish a culture in which World-Class performance is the highest priority and where continuous improvement is way-of-life.

Impact/Benefits:

a) Organizational structure and staffing aligned to support the vision of World-Class performance.

b) Consistent and continuous communication of the new culture and business direction providing the focus for all business activities.

c) Development and execution of a plan for effective use of human resources.

Sponsor:	Priority:
Dennis McCloskey	High

Establish "World Class Performance" Culture - TY204

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY204 - 3A Management and employees will be provided the results of the employee survey.	Galen Jones				
TY204 - 4A The results of the employee survey will be analyzed and new initiatives will be developed based on the analysis.	Dennis McCloskey				
TY204 - 11A Develop a Human Resource/Organizational Development Plan.	Dennis McCloskey				
TY204 - 12A Managers training will be conducted for the Human Resource/Organizational Development Plan.	Pat Jordan				

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Supervisory and Management Development	*12/92*	*TY205*

Strategy:

This initiative will implement the following Corporate Improvement Initiatives:

Supervisory Assessment Center
Supervisory Development Program
Management Development and Succession Planning

Impact/Benefits:

a) Provide a consistent assessment process to assist in the selection of motivated, high-performing individuals for supervision.

b) Provide supervisory training to incumbent supervisors.

c) Enable the site organization to fill planned and unplanned vacancies with well-prepared supervisors and managers.

Sponsor:	Priority:
Chris Heath	High

Supervisory and Management Development - TY205

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY205 - 10C High-Potential non-managers will be identified for selected positions.	Bowin Lindgren				
TY205 - 10D Development plans will be drafted and discussed with high-potential non-managers and supervisors.	Section Managers				

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Develop and Implement Brunswick Facility Improvements	*12/92*	*TY206*

Strategy:

Improve the overall condition of Brunswick facilities by:

a) Designing and constructing the following new facilities:
- Operations/Maintenance Building
- Single Point Access Facility
- Technical Training Facility
- Snubber Repair and Hot Calibration Shop
- Technical and Administrative Center (TAC Building)
- Tool Decontamination Room
- Sewage Treatment Plant
- Clean Trash Monitoring Building

b) Upgrading the following facilities:
- Main Storeroom HVAC and Power Supply for Hot Shop
- CRD Room Upgrade
- Control Room Upgrade
- Service Building Upgrade
- TSC/EOF Building Upgrade
- Paint and Sandblasting Facility
- Warehouse "C" Renovation
- Site Paving - Asphalt Paving of Stoned Areas

c) Disposing of trailers and temporary buildings.

d) Constructing a Radiation Controlled Area (RCA) with a single-point access.

e) Develop and execute a Master Facilities Plan.

Impact/Benefits:

a) Centralize plant organizations and equipment to improve communications, operational effectiveness, and worker efficiency.
b) Improve radioactive material control and streamline plant access.
c) Improve the quality of life of workers.
d) Create a professional industrial site appearance.
e) Upgrade training capabilities.
f) Increase sewage treatment capacity.
g) Provide adequate material storage space.
h) Provide office space in permanent facilities for all CP&L employees.

Sponsor:	Priority:
Roy Johnson	High

Develop and Implement Brunswick Facility Improvements - TY206

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY206-2A - Remove Trailers and Temporary Buildings	Bob Deacy				
TY206-11A - Implement the Master Site Factilities Plan	Roy Johnson				
TY206 - 41A Renovate Tool Decontamination Room, Material Storage Facilty, and Administrative Annex.	Bob Deacy				

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Improved Procedure Control and Content	*12/92*	*TY301*

Strategy:

Develop and implement a comprehensive procedure control process to more efficiently manage Plant Operating Manual procedures by establishing a hierarchy and an efficient change process to improve plant procedures.

Impact/Benefits:

a) A uniform process for the development, change, and overall control of Plant Operating Manual procedures.

b) An efficient process for executing expedient changes to incorrect or inadequate procedures, thereby stimulating identification of problems and encouraging procedural adherence.

Sponsor:	Priority:
Carol Lewis	Medium

Improved Procedure Control and Content - TY301

Description	Action Sponsor	1994												1995												1996												1997											
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
TY301 - 10A Full implementation of the new procedure control process.	Carol Lewis																																															

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Improving the Modification Process	*12/92*	*TY302*

Strategy:

Improve the plant modification process to reduce the overall investment of both human and financial resources and to provide timely response for needed modifications.

Impact/Benefits:

a) Improved efficiency in resource utilization for design activities to ultimately result in a 25% design cost reduction.

b) Reduced design time for small modifications and setpoint changes to less than 6 weeks and less than 3 weeks, respectively.

Sponsor:	Priority:
Bob Grazio	High

Improving the Modification Process - TY302

Description	Action Sponsor
TY302 - 6E Complete orientation training for incumbent engineers involved in the design process.	Paul Cafarella
TY302 - 6F Complete position specific training for incumbent engineers involved in the design process.	Paul Cafarella

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Improve Ability to Identify and Correct Problems	*12/92*	*TY303*

Strategy:

Develop and implement a self-assessment program that results in critical evaluation of plant processes and products. Develop and implement a root cause analysis process strengthened by improved training, line organization involvement, increased management oversight, and feedback from the Operations Experience Feedback Program. Improve the Corrective Action Program through the following actions:

a) Improve training
b) Establish effective sub-programs
c) Implement effective trending and tracking.
d) Place more focus on less consequential (precursor) events tracking and trending
e) Improve process for exchanging ACR information across functional lines

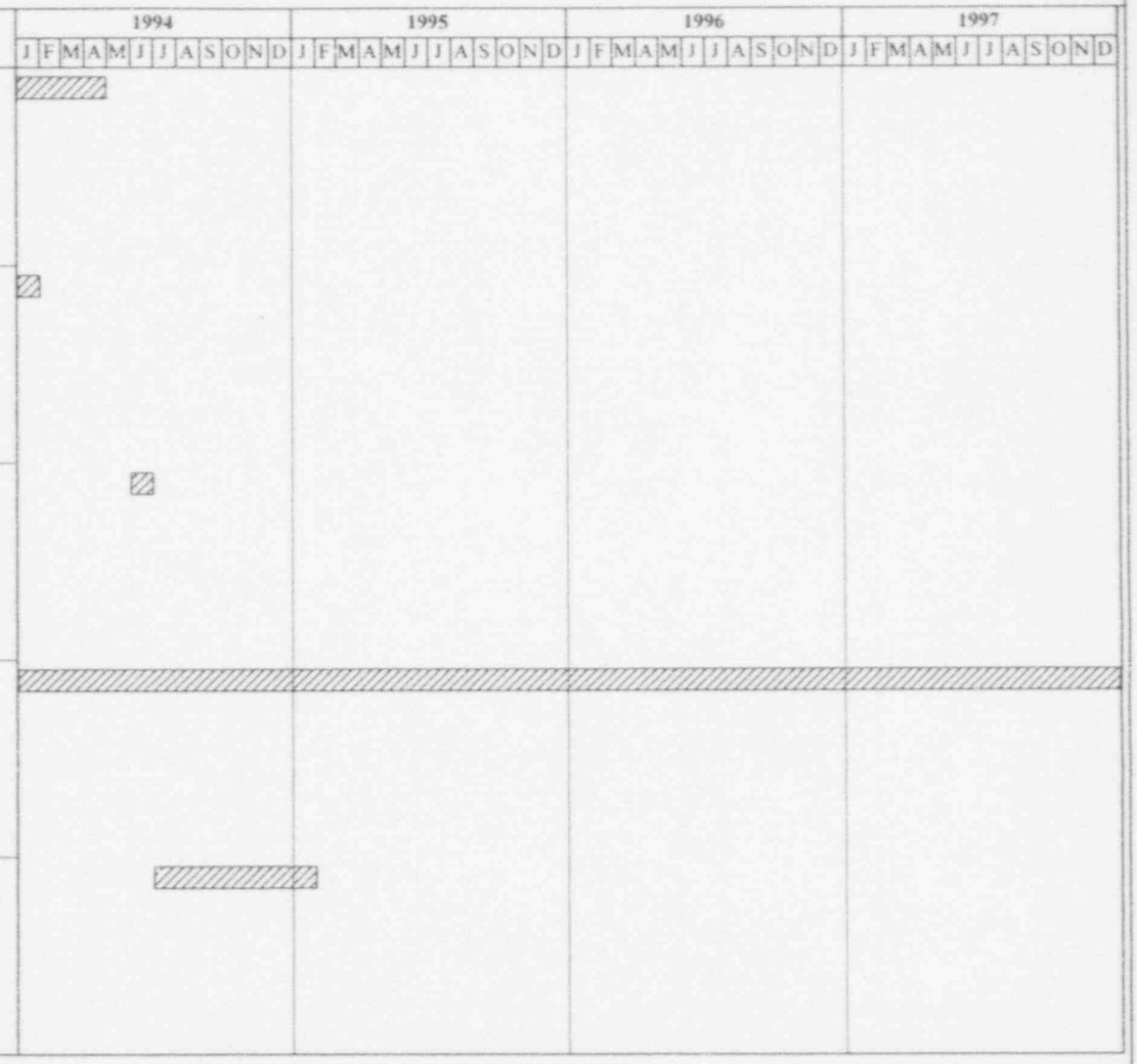
Impact/Benefits:

a) An established culture of continuous improvement.
b) Clear and consistent management direction enforcing the expectation for effective self-assessment and the accountability for effective corrective action.
c) Early identification of problems, by responding to precursor events and findings identified through self-assessment.
d) Management attention focussed on areas needing improvement.
e) Accurate identification of the root causes of problem areas.
f) Decreased number of plant events and violations.
g) Effective application of lessors learned at other plants, worldwide.

Sponsor:	Priority:
Rich Lopriore	High

Improve Ability to Identify and Correct Problems - TY303

Description	Action Sponsor
TY303 - 1H Perform a self-assessment on the effectiveness of the self-assessment progra.n.	Bruce Altman
TY303 - 1J Perform a self-assessment based on the results of the 1993 SALP Report.	Bruce Altman
TY303 - 2L Revise PLP-04 to require key CAP corrective actions followup effectiveness reviews; reinforce cross functional area ACR owner responsibilities; improve ACR investigation response times; document Level III ACR causes.	Bruce Altman
TY303 - 3I Perform annual self-assessments of CAP program to confirm progress and adjust goals.	Bruce Altman
TY303 - 3K Improve the efficiency of the CAP computer program by adding improvement area tracking feature, creating ability to produce 5 standard trend reports; and improving system response time by 25%.	Bruce Altman



TY303.MPP

Improve Ability to Identify and Correct Problems - TY303

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY303 - 3L Improve the effectiveness of CAP subprograms by implementing a Desktop Guide to provide guidance to reinforce management expectations that trend analysis and reporting is performed as required and is consistently applied.	Bruce Altman				
TY303 - 4A Combine all site observations, inspections, surveillances, self-assessments, etc. into a relational database that will form an effective diagnostic tool for improving plant human performance	Bruce Altman				
TY303 - 4B Implement electronic data entry and processing of Adverse Condition Reports (ACRs)	Bruce Altman				
TY303 - 4C Develop mechanisms to facilitate the exchange of ACR information across functional lines and prompt action on issues that cross functional boundaries.	Bruce Altman				

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Clearance Process Improvements	*12/92*	*TY305*

Strategy:

Evaluate the current clearance process against the best practices at world-class plants. Develop and implement improvements to maintain protection for both personnel and equipment and to streamline the clearance process.

Impact/Benefits:

a) Improved margins of personnel and equipment safety through the use of a well understood and practiced clearance process.

b) Increased efficiency of the work management process through the use of an effective and streamlined clearance process.

c) Clear definition of the authority for equipment manipulation.

d) Improved utilization of manpower through the planning and use of master clearances.

Sponsor:	Priority:
John Titrington	High

Clearance Process Improvements - TY305

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY305 - 1A Implement necessary procedure changes resulting from the team evaluation of clearance process improvements.	John Titrington				
TY305 - 2A Complete necessary training on the improved clearance process and implementing procedures.	John Titrington				

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Centralized Document Control Program	*12/92*	*TY308*

Strategy:

Evaluate the current document control process against the needs of the plant. Develop an improved program, train personnel, and implement the improved program.

Impact/Benefits:

a) High confidence that superceded revisions to documents are not used to operate or maintain the plant.

b) Improved efficiency in the work management process.

c) Complete and strict management of controlled documents by a central organization.

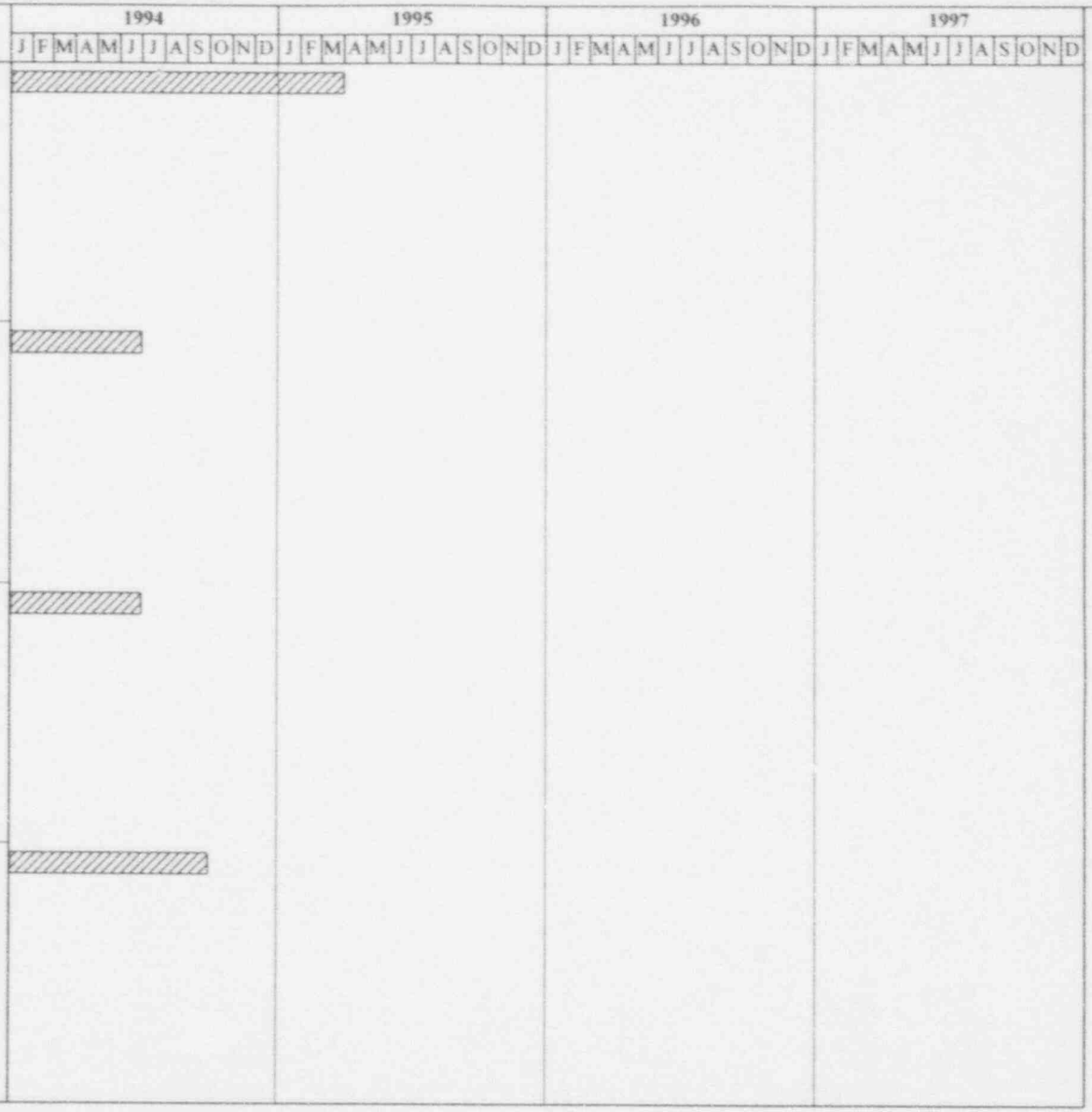
d) Effective management of document libraries with clear and understandable rules for their use.

e) Continued improvement through the use of an internal audit program.

Sponsor:	Priority:
Carol Lewis	Medium

Centralized Document Control Program - TY308

Description	Action Sponsor
TY308 - 1B Evaluate drawing control, procedure control, vendor manual control, and mod package control areas of the document control program.	Carol Lewis
TY308 - 6A Adequately train site personnel in the use of the document control program (RMP-003).	Carol Lewis
TY308 - 7A Fully implement the improved document control procedures (RMP-003).	Carol Lewis
TY308 - 9A Train site personnel and implement sitewide administrative procedure for document control, OAP-008.	Carol Lewis



TY308.MPP

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Preventive and Predictive Maintenance Program Improvements	*12/92*	*TY501*

Strategy:

Evaluate our programs against best practices at world-class plants. Reconstruct the bases for Preventive Maintenance tasks and frequencies and ensure that the work we perform effectively supports the mission.

Develop and implement a Predictive Maintenance Program to proactively evaluate equipment conditions through the use of infrared thermography, and vibration analysis.

Impact/Benefits:

a) An optimized Preventive Maintenance Program which performs the right work at the correct time to improve equipment performance and reliability.

b) Reduced overall maintenance costs by eliminating redundant tasks or those tasks which add no value.

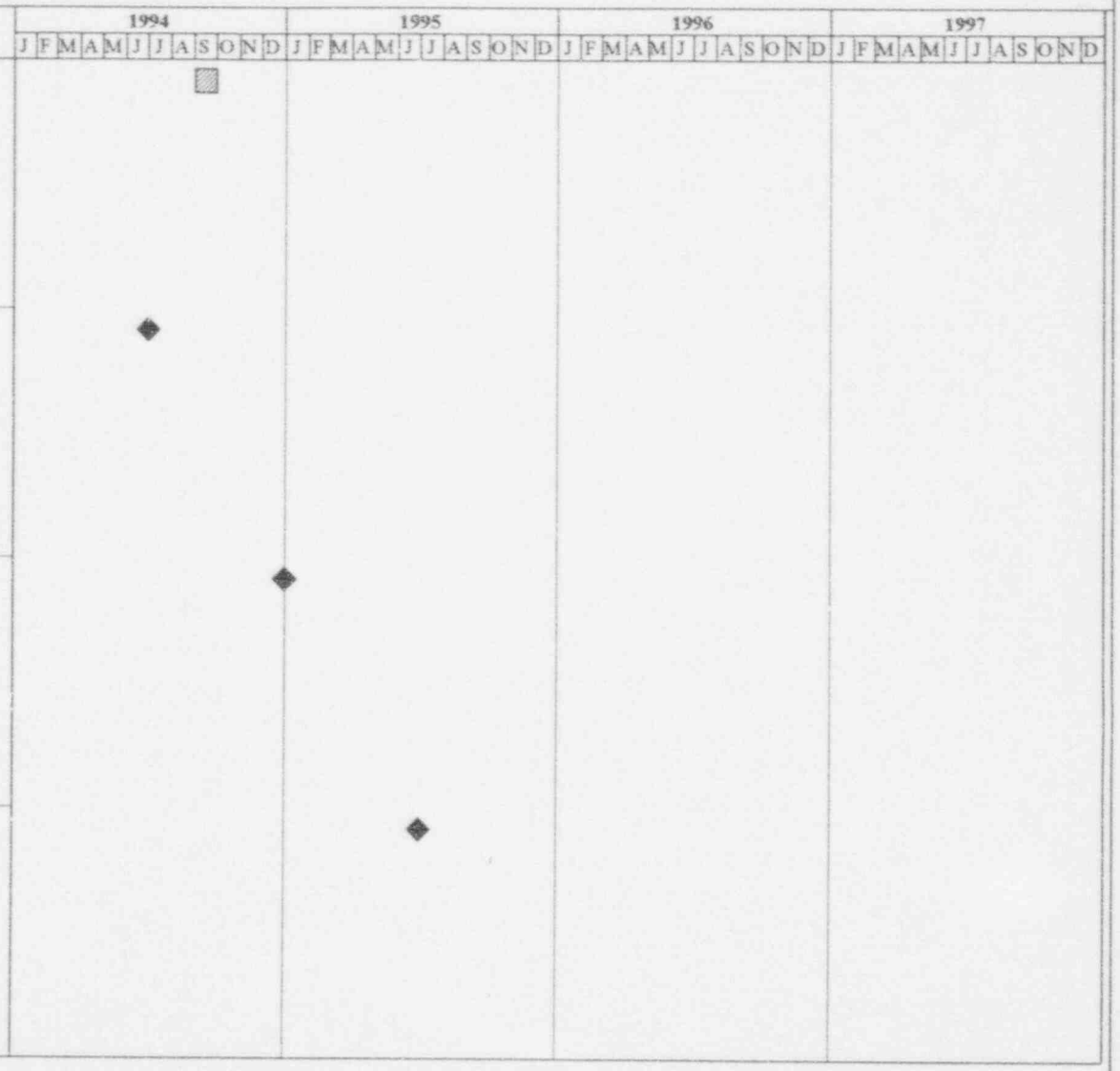
c) Reduced challenges to operation by providing more reliable plant equipment.

d) Provide consistent and trended data for use in Preventive and Predictive Maintenance Programs.

Sponsor:	Priority:
Chip Pardee	High

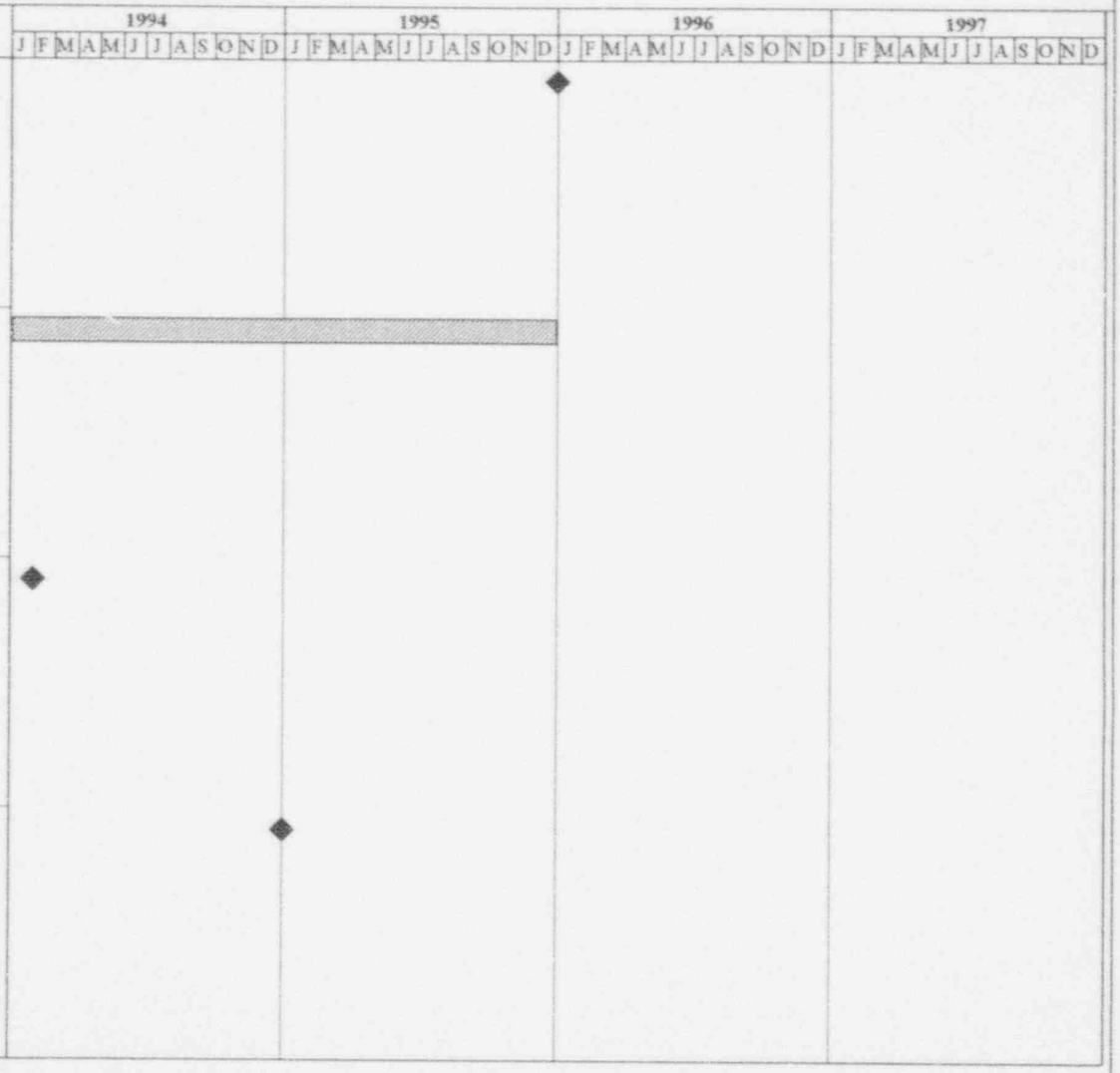
Preventive/Predictive Maintenance Program Improvements - TY501

Description	Action Sponsor
TY501 - 2B Complete a self-assessment of the Preventive Maintenance optimization process.	Mark Varno
TY501 - 4C Complete optimization of 8 total prioritized systems.	Mark Varno
TY501 - 4D Complete optimization of 14 total prioritized systems.	Mark Varno
TY501 - 4E Complete optimization of 20 total prioritized systems.	Mark Varno



Preventive/Predictive Maintenance Program Improvements - TY501

Description	Action Sponsor
TY501 - 4F Complete optimization of 26 total prioritized systems.	Mark Varno
TY501 - 5A Incorporate optimized PM tasks into existing PM program (e.g. procedures).	Mark Varno
TY501 - 5B Incorporate optimized PM tasks into existing program - 2 pilot systems.	Mark Varno
TY501 - 5C Incorporate optimized PM tasks into existing program for 6 more systems (8 to date).	Mark Varno



TY501.MPP

Preventive/Predictive Maintenance Program Improvements - TY501

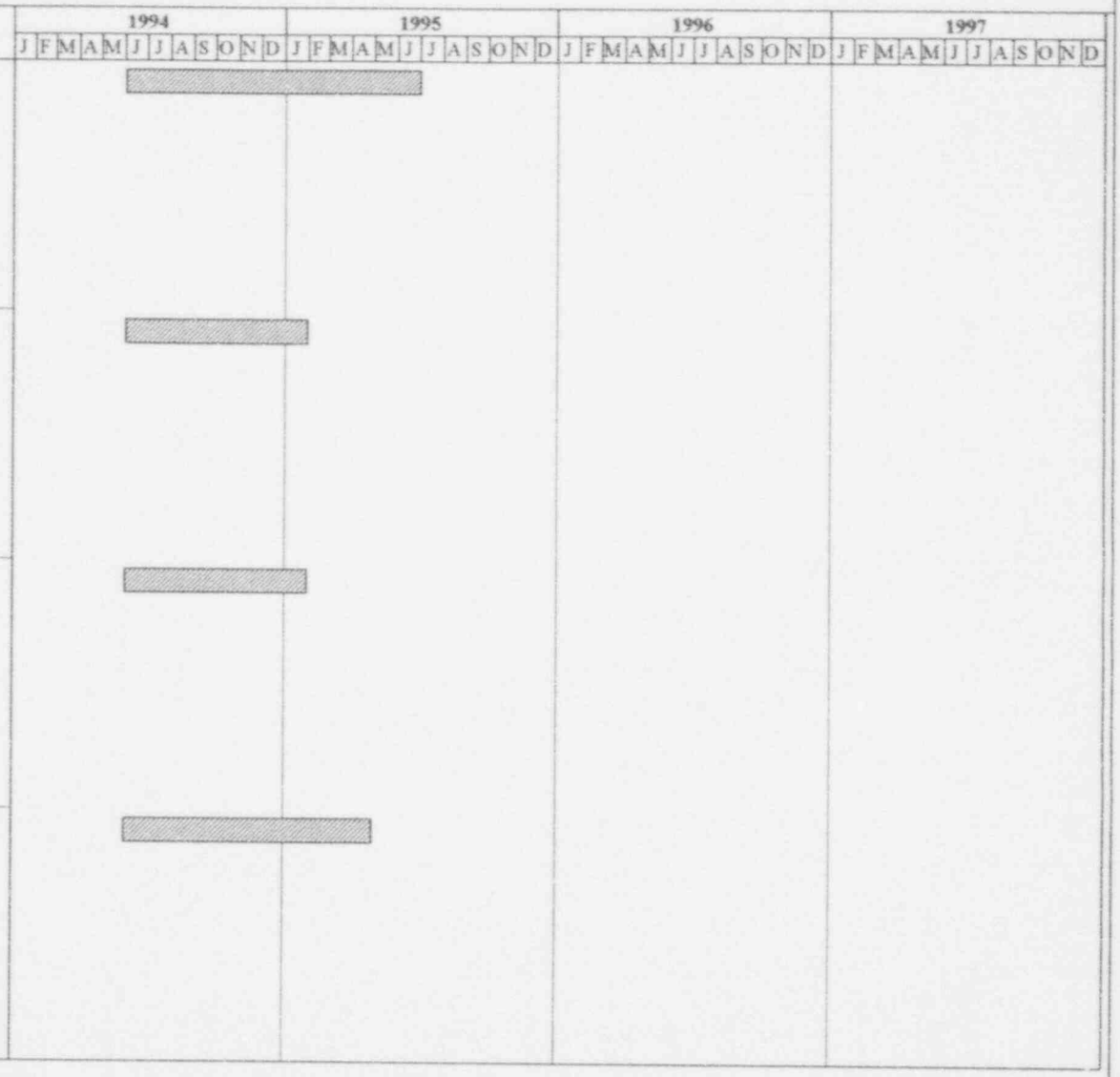
Description	Action Sponsor
TY501 - 5D Incorporate Optimized PM tasks into existing program for 6 more systems (14 to date).	Mark Varno
TY501 - 5E Incorporate optimized PM tasks into existing program for 6 more systems (20 to date).	Mark Varno
TY501 - 6A Develop Predictive Maintenance Program.	Mark Varno
TY501 - 6F Implement Predictive Maintenance Program self-assessment action plan.	Mark Varno

Preventive/Predictive Maintenance Program Improvements - TY501

Description	Action Sponsor
TY501 - 6G Integrate Preventive and Predictive Maintenance Programs to create Predictive-Driven Preventive Maintenance tasks.	Mark Varno
TY501 - 7A Maintenance PM procedure revisions and planning.	Mark Varno
TY501 - 8A Identify and implement initaitives to achieve near-term PM reductions.	Mark Varno
TY501 - 8B Develop standard PM activities that allow for more consistent and accelerated reliability centered maintenance (RCM) studies as described in this initiative.	Mark Varno

Preventive/Predictive Maintenance Program Improvements - TY501

Description	Action Sponsor
TY501 - 8C Initiate reviews of PMs as scheduled for scope and periodicities that are appropriate. Integrate into the proposed Reliability Centered Maintenance (RCM).	Mark Varno
TY501 - 8D Consolidate the vibration data collection and analysis to facilitate overall program to simplify trending and eliminate redundancy.	Mark Varno
TY501 - 8E Benchmark Predictive Maintenance Programs and incorporate lessons learned from industry leaders.	Mark Varno
TY501 - 8F Revise the procedures governing site preventive maintenance practices to reduce the resources required to correct PM deficiencies.	Mark Varno



Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Corrosion Preventive Maintenance	*12/92*	*TY502*

Strategy:

Evaluate the best practices at world-class plants. Develop and implement a program which will prevent declining material condition resulting from corrosion.

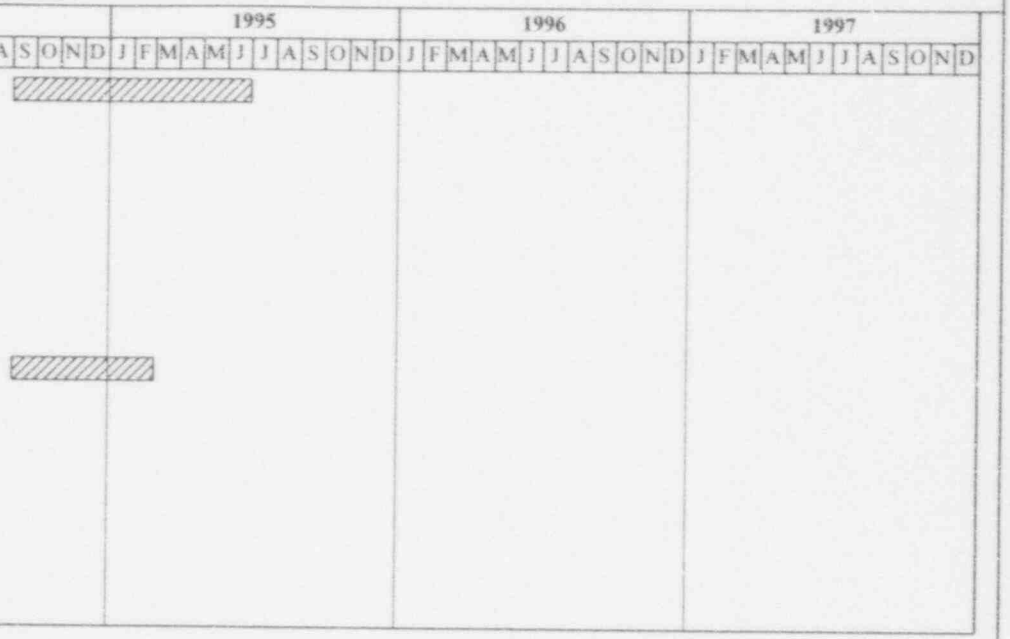
Impact/Benefits:

Plant equipment material condition will be preserved by replacing or properly preserving components with proper coatings.

Sponsor:	Priority:
Chip Pardee	High

Corrosion Preventive Maintenance - TY502

Description	Action Sponsor
TY502 - 1A Develop and implement a Corrosion Preventive Maintenance Program to maintain plant material condition from the effects of corrosion.	Ken Fennell
TY502 - 6B Provide engineering support for cleaning and inspection of storm drains: prepare study based on results.	Hal Pitts



TY502.MPP

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Cooling Water Reliability Program	*12/92*	*TY505*

Strategy:

Evaluate the best practices at world-class plants. Develop and implement a program which will preserve cooling water systems from the effects of erosion and corrosion. Systems to be included are: the Circulating Water System, the Reactor Building Closed Cooling Water System, the Turbine Building Closed Cooling Water System, and the Service Water System.

Impact/Benefits:

a) Reduced potential for through-wall leaks resulting from erosion or corrosion.

b) Improved cooling water system material condition.

c) Long-term reliability and lesser maintenance costs.

Sponsor:	Priority:
Chip Pardee	High

Cooling Water Reliabiility Program - TY505

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY505 - 2B Develop a written procedure to define the program at BNP.	Ken Fennell				
TY505 - 3A Determine the scope of piping to be included in the program for U1 cooling water systems.	Ken Fennell				
TY505 - 3B Implement corrective actions as determined by the inspections of Unit 1 cooling water systems	Don Eng				
TY505 - 3C Complete design of corrective actions and provide engineering support during implementation of corrective actions from Unit 1 cooling water system inspections.	Bob Grazio				

Cooling Water Reliabiility Program - TY505

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY505 - 3E Perform ultrasonic testing (baseline) of identified piping for Unit 1 cooling water systems.	John Langdon				
TY505 - 4C Complete design of corrective actions and provide engineering support during implementation of corrective actions from Unit 2 cooling water system inspections.	Bob Grazio				
TY505 - 4E Perform ultrasonic testing (baseline) of identified piping for Unit 2 cooling water systems.	John Langdon				

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Plant Engineering Program Upgrade	*12/92*	*TY506*

Strategy:

Evaluate best practices at world-class plants and develop and implement a program to upgrade Plant Engineering based on these best practices and the intent of INPO Good Practice TS-413, Use of System Engineers.

Impact/Benefits:

a) Improved performance and reliability of systems and equipment.

b) Improved Plant Engineering performance in the areas of material condition, outage management, and management of engineering backlogs.

c) Increased job satisfaction through increased responsibility, accountability, and technical knowledge.

d) Improved technical knowledge/experience of systems engineers, thereby broadening the capabilities and flexibility of engineering personnel.

Sponsor:	Priority:
Chip Pardee	High

Plant Engineering Program Upgrade - TY506

Description	Action Sponsor
TY506 - 9A Sustain specific interim contractor assignments in needed engineering program areas while minimizing the need for continuing contractor support.	Chip Pardee
TY506 - 17A Incorporate lessons learned from the Technical Support Improvement Program into Nuclear Engineering Department.	Chip Pardee
TY506 - 18A Perform a self-assessment of the effectiveness of improvements in Plant Engineering (Technical Support and NED).	Chip Pardee

TY506.MPP

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Inservice Inspection and Inservice Testing Improvement Program	*12/92*	*TY507*

Strategy:

Evaluate best practices at world-class plants and develop and implement a program to upgrade the Inservice Inspection (ISI) and Inservice Testing (IST) Programs. Evaluate needs and implement necessary improvements in training, test equipment, and system configuration to support this upgrade.

Impact/Benefits:

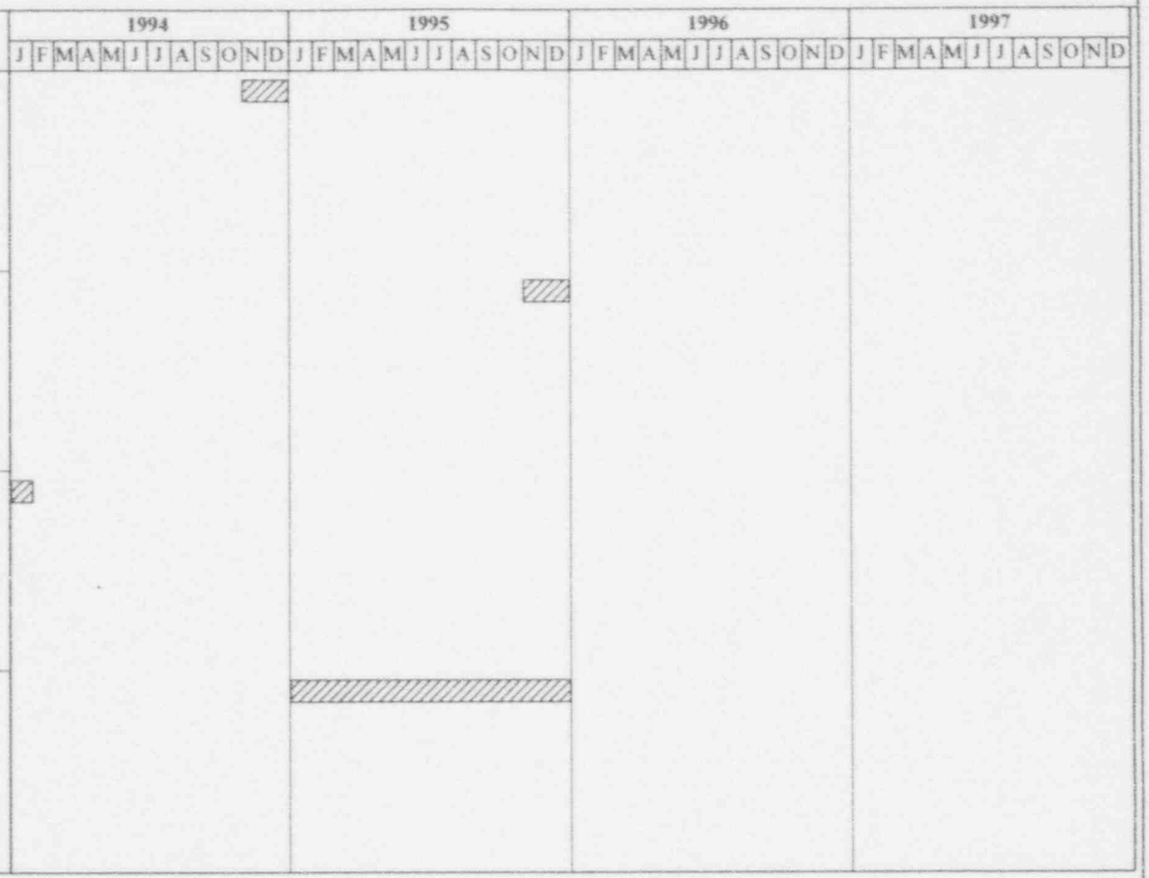
a) High-confidence of compliance with ASME Section XI and 10CFR50 requirements.

b) Improved efficiency of ISI/IST activities thereby eliminating unnecessary resources, radiation exposure, and costs.

Sponsor:	Priority:
Chip Pardee	High

Inservice Inspection and Inservice Testing Improvement Program - TY507

Description	Action Sponsor
TY507 - 1B Perform a self-assessment of ISI/IST improvements and develop a plan for corrective actions.	Jerry Crider
TY507 - 1C Perform a self-assessment of ISI/IST improvements and develop a plan for corrective actions.	Jerry Crider
TY507 - 3A Review/revise ISI/IST program implementing test procedures.	Jerry Crider
TY507 - 12A Update the ISI/IST programs for the third interval using the latest edition of the code.	Jerry Crider



Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Develop and Implement Preservation Program to Upgrade Material Condition	*12/92*	*TY510*

Strategy:

Develop and implement a program to upgrade the material condition of the plant by coating floors, walls, ceilings, and equipment. A system and unit separation color coding scheme should be included. Note: Protective coating of inaccessible or near inaccessible areas will be reviewed by management on a room by room basis.

Impact/Benefits:

a) Higher standards of material condition.

b) A professional plant environment promoting performance excellence.

c) Fewer errors resulting from wrong system/wrong unit mistakes.

Sponsor:	Priority:
Bob Deacy	Medium

Develop and Implement Preservation Program to Upgrade Material Condition - TY510

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY510 - 3A Implement the Five-Year Preservation Program to Upgrade Material Condition.	Bob Deacy				

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
ALARA Initiatives, Source Term Reduction	*12/92*	*TY511*

Strategy:

Develop plans and implement measures to reduce the total absorbed dose. Implement activities to decontaminate necessary systems and components to reduce the dose source.

Develop an aggressive corrective action study for achieving successful source term reduction, which places management focus on the areas of environmental and radiological control; HWC management strategy; robotics for high dose area; implementation of BNP dose reduction plan, and continuous training for dose reduction.

Impact/Benefits:

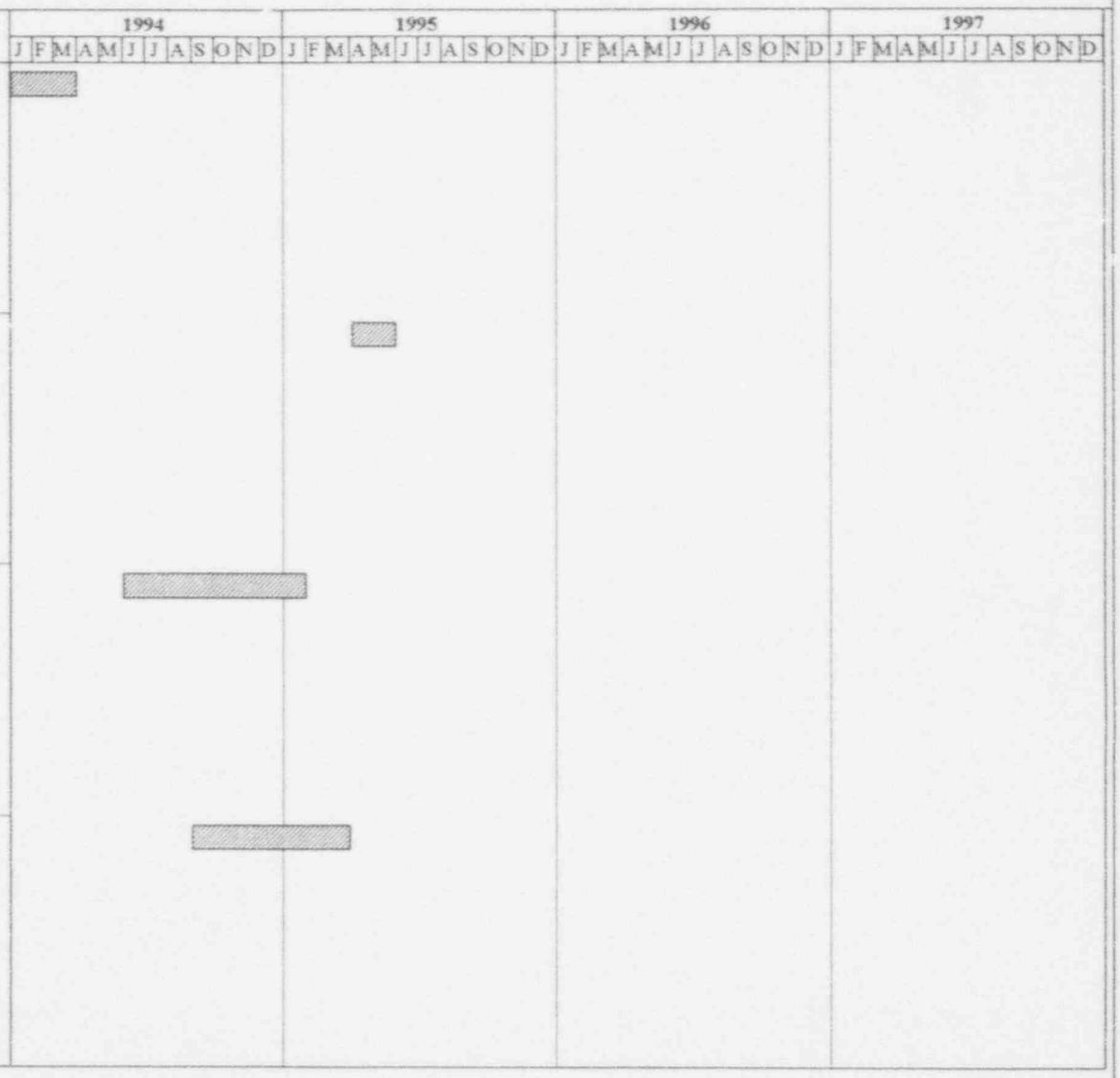
a) Reduced site exposure to world-class levels of less than 500 person-REM, annually.

b) Reduced dose from plant systems and equipment through chemical decontamination and hydrolasing to reduce contamination levels.

Sponsor:	Priority:
Jackie Gawron	Medium

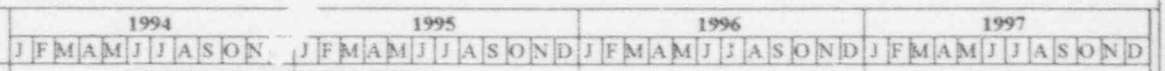
ALARA Initiatives, Source Term Reduction - TY511

Description	Action Sponsor
TY511 - 1C Develop and implement a Chemical Decontamination Plan for Unit 2 Residual Heat Removal and Reactor Recirculation Systems.	Jackie Gawron
TY511 - 1I Implement a Chemical Decontamination Plan for Unit 1 Reactor Recirculation System.	Jackie Gawron
TY511 - 8A Complete the evaluation and make recommendations for zinc and ECP Probe additions.	Scott Watson
TY511 - 8B Consolidate and implement mock-up training for dose reduction purposes.	Jackie Gawron



ALARA Initiatives, Source Term Reduction - TY511

Description	Action Sponsor
TY511 - 8C Complete recommendation for hydrogen water chemistry management strategy.	Scott Watson
TY511 - 8D Approve the BNP Dose Reduction Plan for 1995.	Jackie Gawron
TY511 - 8E Complete evaluation and make recommendations for reactor recirculation pipe decontamination.	Scott Watson
TY511 - 8F Implement robotics for remote work in high radiation areas.	Jackie Gawron



ALARA Initiatives, Source Term Reduction - TY511

Description	Action Sponsor	1994	1995	1996	1997
		J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
TY511 - 8G Implement decontamination and dose reduction strategy for 1995.	Jackie Gawron				

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Environmental and Chemistry Program Improvements	*12/92*	*TY512*

Strategy:

Evaluate best practices at world-class plants. Develop plans and implement measures to upgrade our existing programs.

Impact/Benefits:

a) Optimum chemistry is maintained in plant systems and equipment ensuring long-term plant life.

b) Discharges to the environment are minimized and world-class performance parameters are achieved.

Sponsor:	Priority:
Jackie Gawron	Medium

Environmental and Chemistry Program - TY512

Description	Action Sponsor	1994	1995	1996	1997
		J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
TY512 - 4A Develop and implement a program to reduce liquid radwaste.	Sue Fitzpatrick	//////////			

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Human Performance	*8/94*	*TY601*

Strategy:

Develop and implement an action plan that fully addresses inconsequential errors and near misses due to human performance in the control of equipment evolutions, and ensures long-term and sustained human performance improvements in plant equipment mispositioning.

Recent Unit 2 (B2110R1) outage self-assessment indicates the number of consequential plant occurrences due to human performance problems have declined, but that improvement is needed in the area of near misses and occurrences, specifically in the control of equipment evolutions.

The corrective action plan identified in this initiative will be implemented in conjunction with the BNP Corrective Action Program enhancements (Initiative TY303, Improve Ability to Identify and Correct Problems), to ensure effective human performance improvements are realized.

Impact/Benefits:

a) Fewer inconsequential errors which are deemed to be precursors to significant events

b) Reduced O&M and Capital Costs

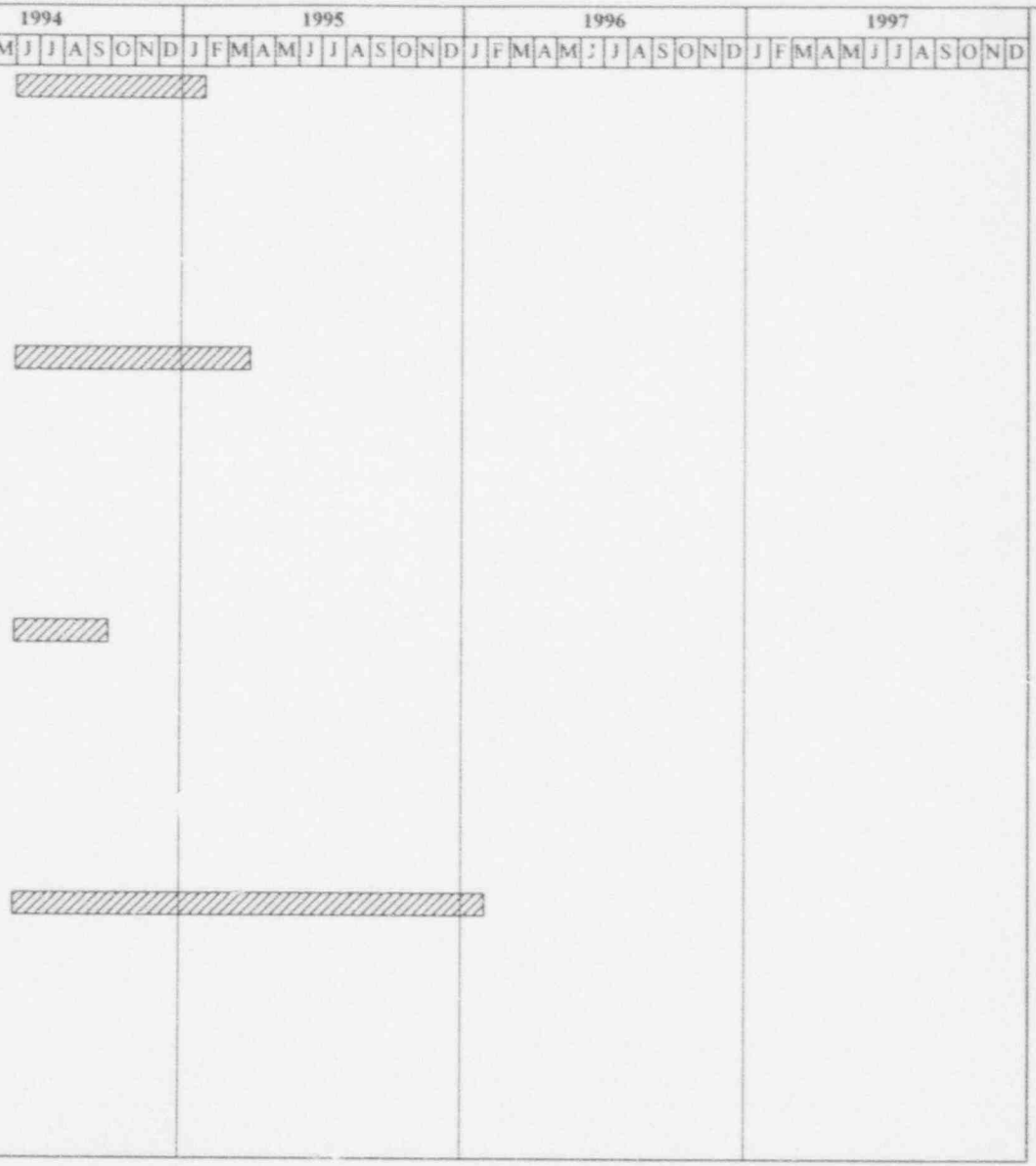
c) Improved plant availability and reliability

d) Reduced outage durations

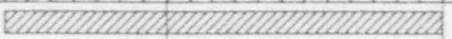
Sponsor:	Priority:
John Paul Cowan	High

Human Performance - TY601

Description	Action Sponsor
TY601 - 1A Increase work force invovlement in developing methods for improving performance through direct involvement with Human Performance Group, in root cause analysis, and corrective action development.	Clay Warren/Bill Levis
TY601 - 1B Improve work force awareness of human performance trends.	Clay Warren/Bill Levis
TY601 - 1C Expand self-check techniques.	Clay Warren/Bill Levis
TY601 - 1D Use EPM processes to modify behavior.	Clay Warren/Bili Levis



Human Performance - TY601

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY601 - 1E Improve work force capability through broad based training.	Clay Warren/Bill Levis				

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Reactor Vessel Internals Preservation	*8/94*	*TY602*

Strategy:

Recent industry events associated with cracking of reactor internal components asssociated with cracking of reactor internal components - shrouds, jet pump beams, shroud head bolts, etc. necessitated an aggressive analysis and evaluation to develop and integrate strategy for preserving the BWR internals and ensuring plant and public safety.

Develop and implement a comprehensive Reactor Vessel Internals Preservation Program that includes the following components:

a) Performs engineering analysis to determine internal components essential to safety and production;

b) Determines scope and frequency of needed inspections;

c) Identifies flaw evaluation methods;

d) Reviews current inspection techniques for improvements in detection capabilities and identifies new/improved techniques required to address all identified components; and

e) Provides mitagation and repair technologies for the most cost effective means to preserve reactor internals.

Impact/Benefits:

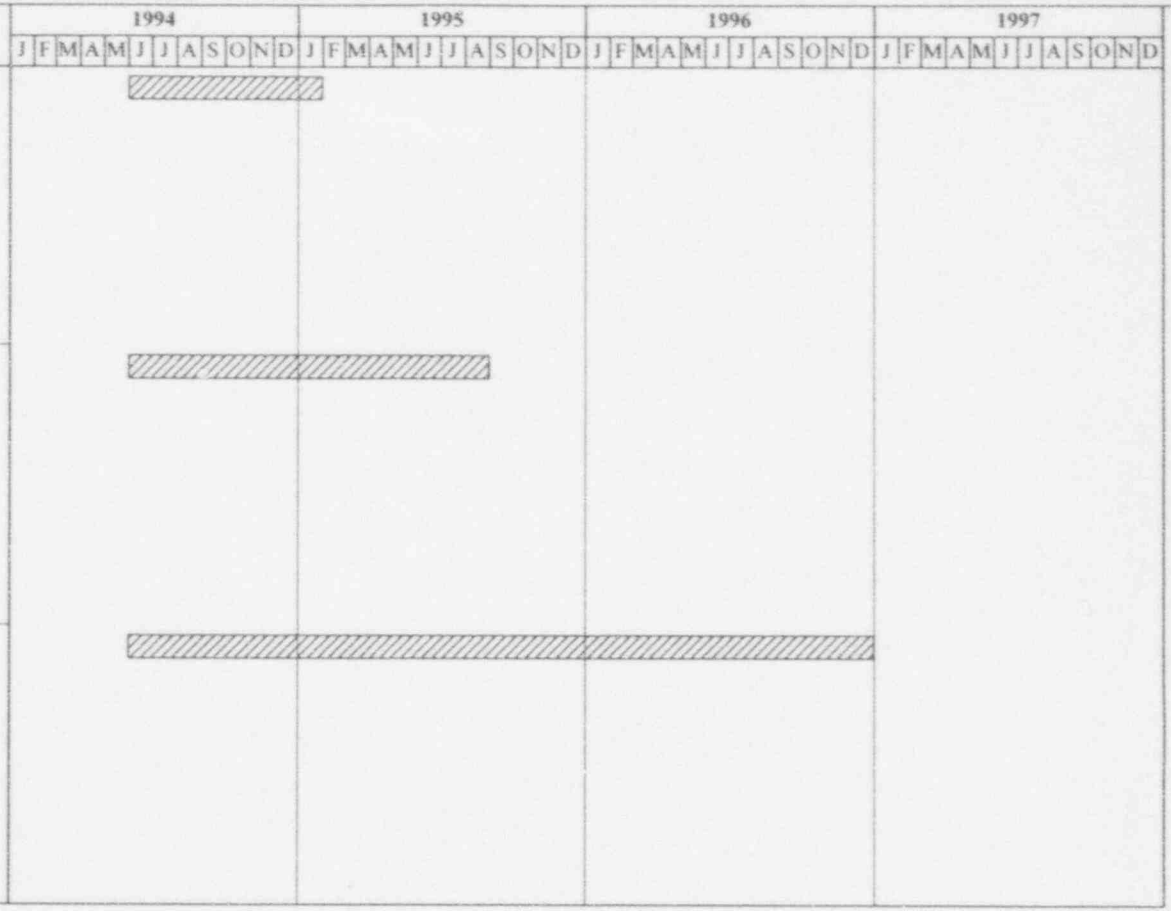
a) Reduced number of outages and outage durations

b) Reduced O&M and Capital Costs

Sponsor:	Priority:
Ed Willett	High

Reactor Vessel Internals Preservation - TY602

Description	Action Sponsor
TY602 - 1A Perform engineering analysis to determine internal components essential to safety and production, scope, and frequency of inspections needed, and flaw evaluation methods.	Vaughn Wagoner
TY602 - 1B Review current inspection techniques for improvements in detection capabilities and time to perform, and identification of new/improved techniques needed to address all components identified.	Vaughn Wagoner
TY602 - 1C Review mitigation and repair technologies for most cost effective means to preserve reactor internals.	Vaughn Wagoner



Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Improve BNP's Competitive Position	*8/94*	*TY603*

Strategy:

Develop and implement strategy for achieving world class cost performance.

Impact/Benefits:

a) Reduced O&M and Capital costs

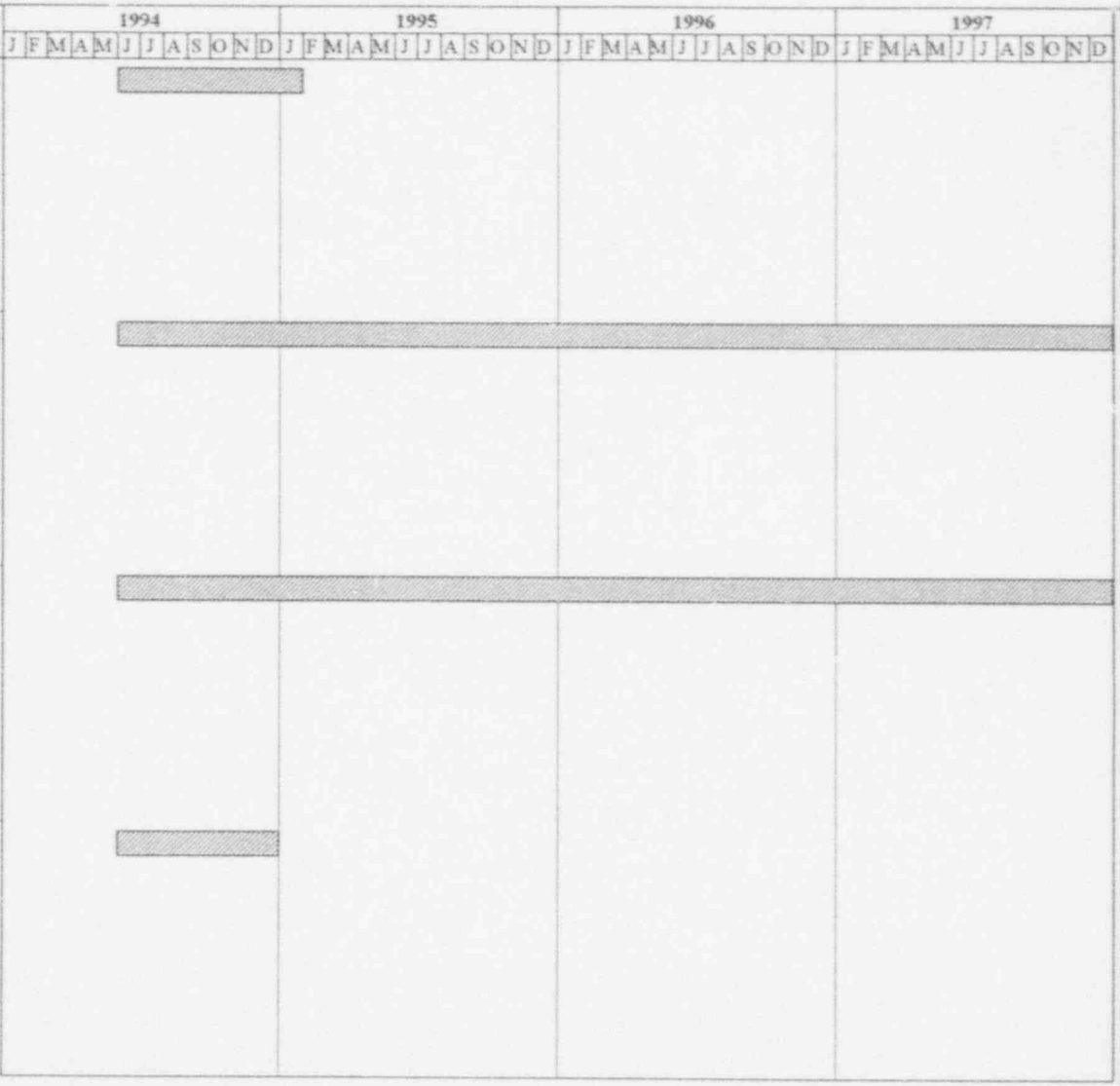
b) Increased customer satisfaction

c) Improved Brunswick competitive edge

Sponsor:	Priority:
Jim Martin/Dennis McCloskey	High

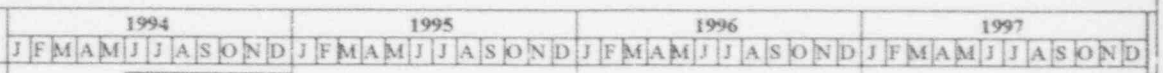
Improve BNP's Competitive Position - TY603

Description	Action Sponsor
TY603 - 1A Implement "Materials Process Redesign" dated May 1994 reducing issue stations and related staffing levels.	John Ferguson
TY603 - 1B Aggressively manage the capital program (post 3-year recovery plan) to keep expenditures below 2.8 mills/KWH. Only authorize projects that are cost justified, or required by regulation.	John Cowan (PRG)
TY603 - 1C Educate staff as to BNP's cost position relative to the competition by means of periodic all-hands meetings or use of printed materials (e.g. Monday Memo).	Jim Martin
TY603 - 1D Establish a process that will identify services that may be performed more economically by contract services, targeting if possible tasks performed exclusively by certain units or sub-units.	John Cowan (NMC)



Improve BNP's Competitive Position - TY603

Description	Action Sponsor
TY603 - 1E Provide Nuclear Managers Committee with cost of service information for those tasks that may be performed by contractors.	Janet Crews
TY603 - 1F Review NMC contract services target groups and determine if there are any regulatory or training constraints for these tasks that would call into question economic viability.	Rich Lopriore/Denny Hicks
TY603 - 1G Perform an analysis of cost benefit of contracting designated work tasks utilizing data provided by Contract Services, Regulatory Affairs, and Training.	John Cowan
TY603 - 1H Perform a team effort to develop the BNP staffing plan thru calendar year 1999	John Cowan



Improve BNP's Competitive Position - TY603

Description	Action Sponsor
TY603 - 1I Develop and maintain succession and developmental plans.	John Cowan
TY603 - 1J Provide assistance as required to implement and maintain the BNP succession and career development plans.	Bo Lindgren (HR)
TY603 - 1K Ensure attendance of appropriate personnel at Business Concepts Training Workshop.	Denny Hicks

Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Reduce Regulatory Burden	*8/94*	*TY604*

Strategy:

Implement the Regulatory Burden Reduction Program at Brunswick. The program encompasses identifying and prioritizing opportunities to reduce the cost of compliance with regulatory requirements and commitments with balanced consideration of plant safety, reliability, economics, and protection of the environment. Develop and implement action plans to realize identified cost saving targets for the selected opportunities.

The program will be implemented in a manner that maximizes near-term success and cost savings which facilitates maintenance of a focused and positive NRC interface.

Impact/Benefits:

a) Elimination of unnecessary work

b) Reduction in O&M and Capital costs

c) An enhanced ability for management to make sound business decisions based on balanced consideration of plant safety, reliability, economics, and protection of the environment

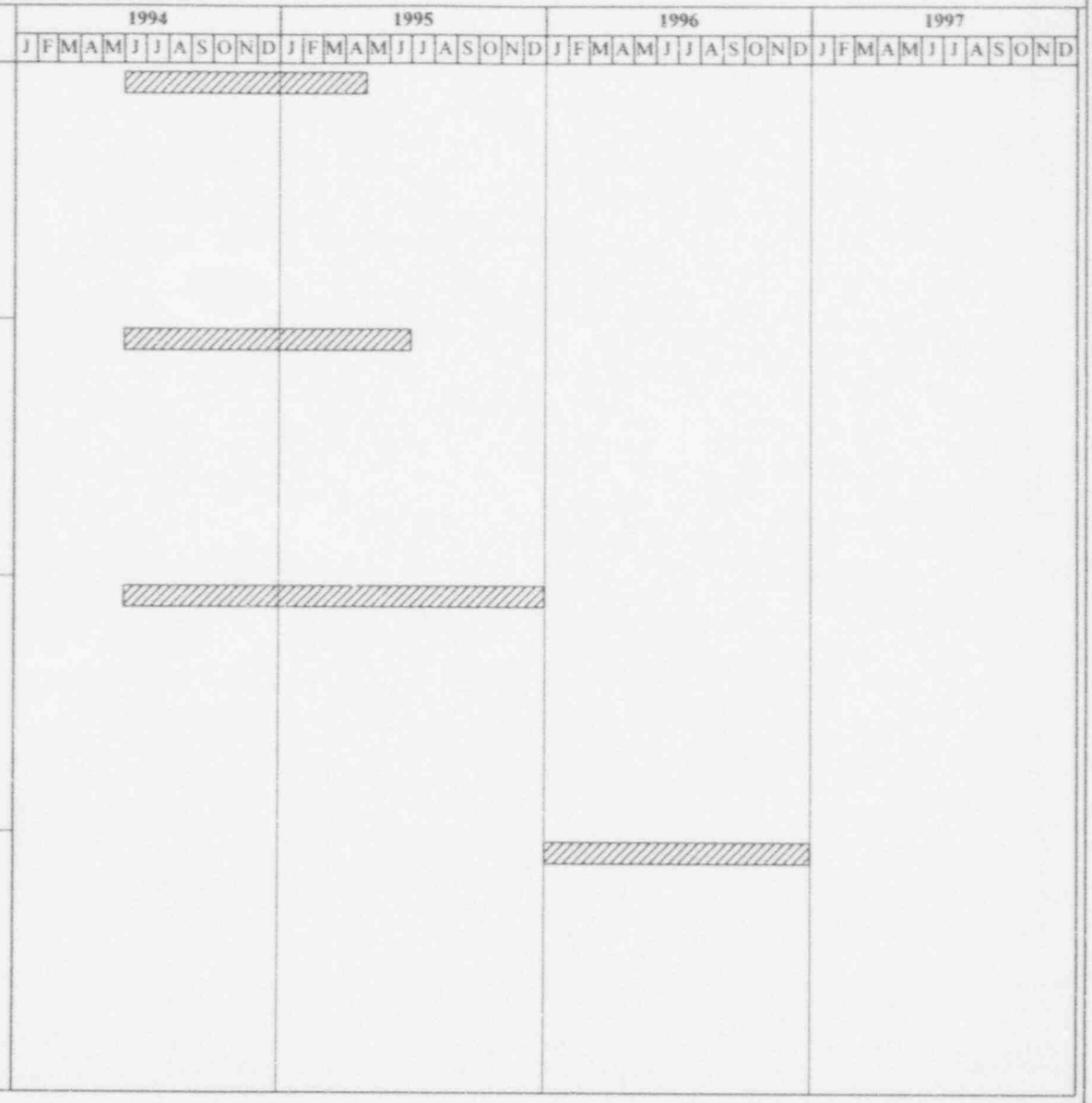
d) Improved efficiency and consistency in plant work practices

e) Reduced outage costs/schedules

Sponsor:	Priority:
Rich Lopriore	High

Reduce Regulatory Burden - TY604

Description	Action Sponsor
TY604 - 1A Support '95 outage (B110R1) cost/schedule reduction acitivities: e.g. MSLRM Scram/Isolation Function Elimination; Eliminate ILRT; Increase MSIV leakage.	Rich Lopriore
TY604 - 1B Implement regulatory burden reduction issues: Increase surveillance intervals from 30-90 days; implement hand geometry; increase turbine valve surveillance intervals; CAD system downgrade to non-safety related.	Rich Lopriore
TY604 - 1C Support reliability and operational flexibility improvements by eliminating unnecessary/burdensom regulatory items: Eliminate EPA power supply testing..., increase EDG surveillance requirement flexibility, extend remote shutdown panel...	Rich Lopriore
TY604 - 1D Implement additional burden reduction items in 1996 which will result in savings of > = $500,000.	Rich Lopriore



Brunswick Performance Improvement Initiative

Title:	Origin:	Number:
Improve Refueling Outage Management	*8/94*	*TY605*

Strategy:

Develop and implement an outage preparation and implementation program designed to continually reduce BNP outage lengths through the application of industry experience and improved performance.

Impact/Benefits:

a) Reduced outage durations

b) Reduced O&M and Capital Costs

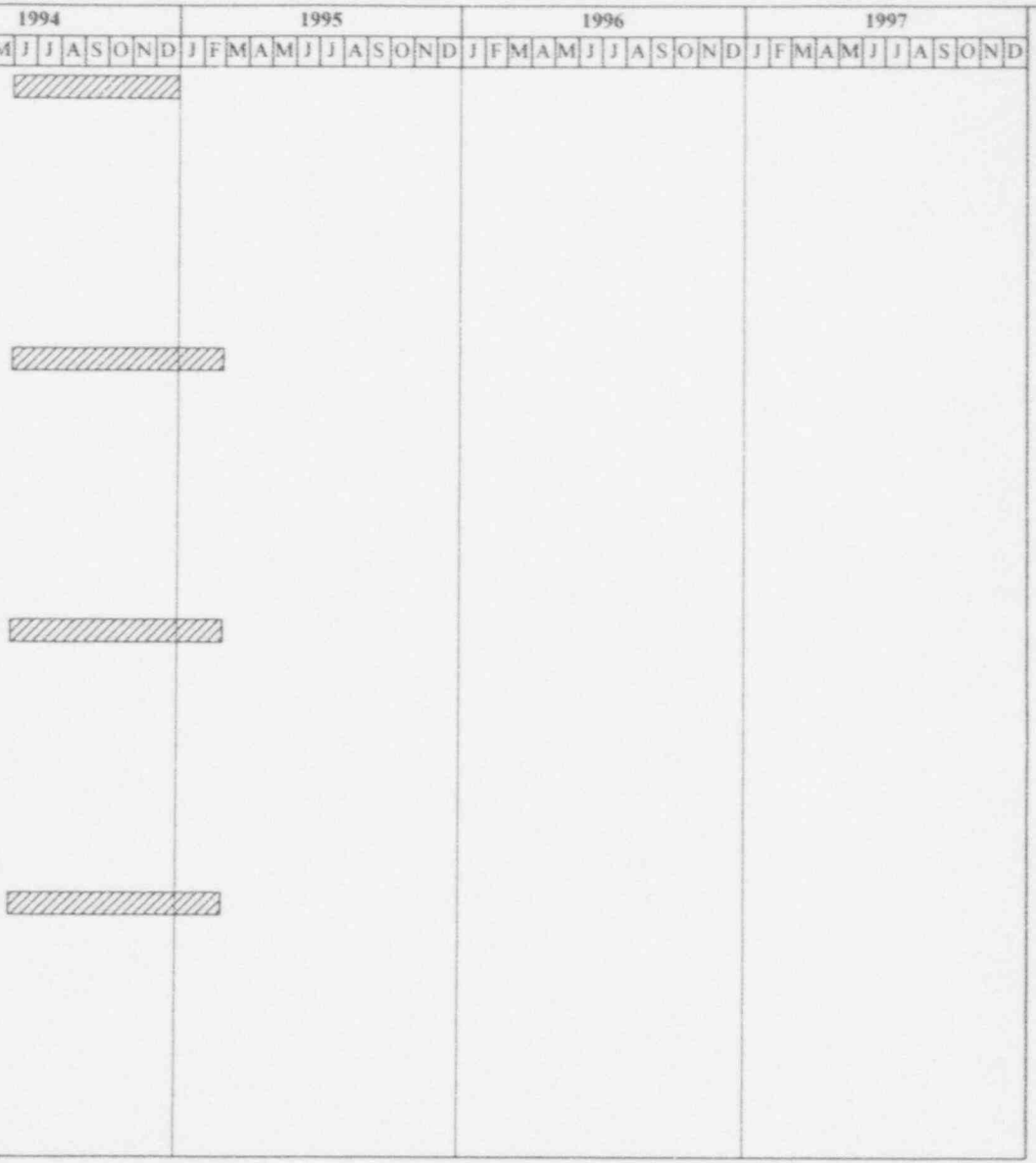
c) Longer plant runs

d) Reduced site exposure

Sponsor:	Priority:
John Paul Cowan	High

Improve Refueling Outage Management - TY605

Description	Action Sponsor
TY605 - 1A Develop a standard definition and priority sytem for performing on-line corrective and preventive maintenance.	Clay Warren/Bill Levis
TY605 - 1B Provide a scheduling tool and reporting process that meets the needs of all work groups. Establish schedule products for each work group's review and approval.	Clay Warren/Bill Levis
TY605 - 1C Develop a manageable outage schedule with milestones, effective buy-in, and status capability. Distribute preliminary outage schedule for review with milestones for B110R1.	Clay Warren/Bill Levis
TY605 - 1D Develop plans for outage resources including parts, manpower and coordination activities. Distribute histograms for resource requirements, parts required list and milestone schedule.	Clay Warren/Bill Levis

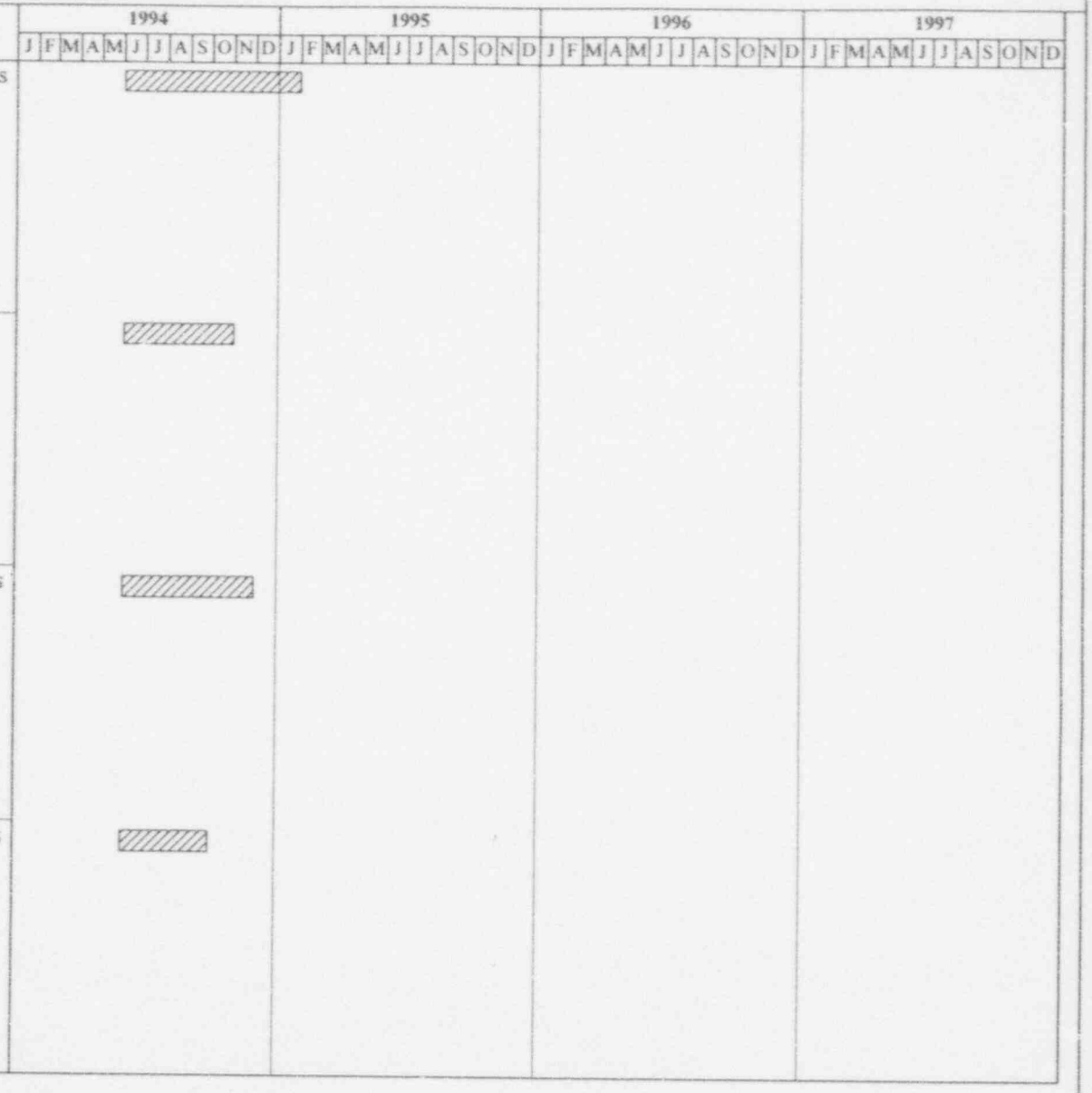


Improve Refueling Outage Management - TY605

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY605 - 1E Identify outage mods and projects early enough to allow for detailed planning.	Clay Warren/Bill Levis				
TY605 - 1F Enhance scope control process by revising BSP-35 to clearly identify responsibilities relative to emergent items (ie: daily review of WRJO's for outage impact).	Clay Warren/Bill Levis				
TY605 - 1G Provide early involvement of the Planning (work packages) Organization in the scope identification process.	Clay Warren/Bill Levis				
TY605 - 2A Ensure future outage contracts have incentive clauses to improve contractor performance and outage success.	Clay Warren/Bill Levis				

Improve Refueling Outage Management - TY605

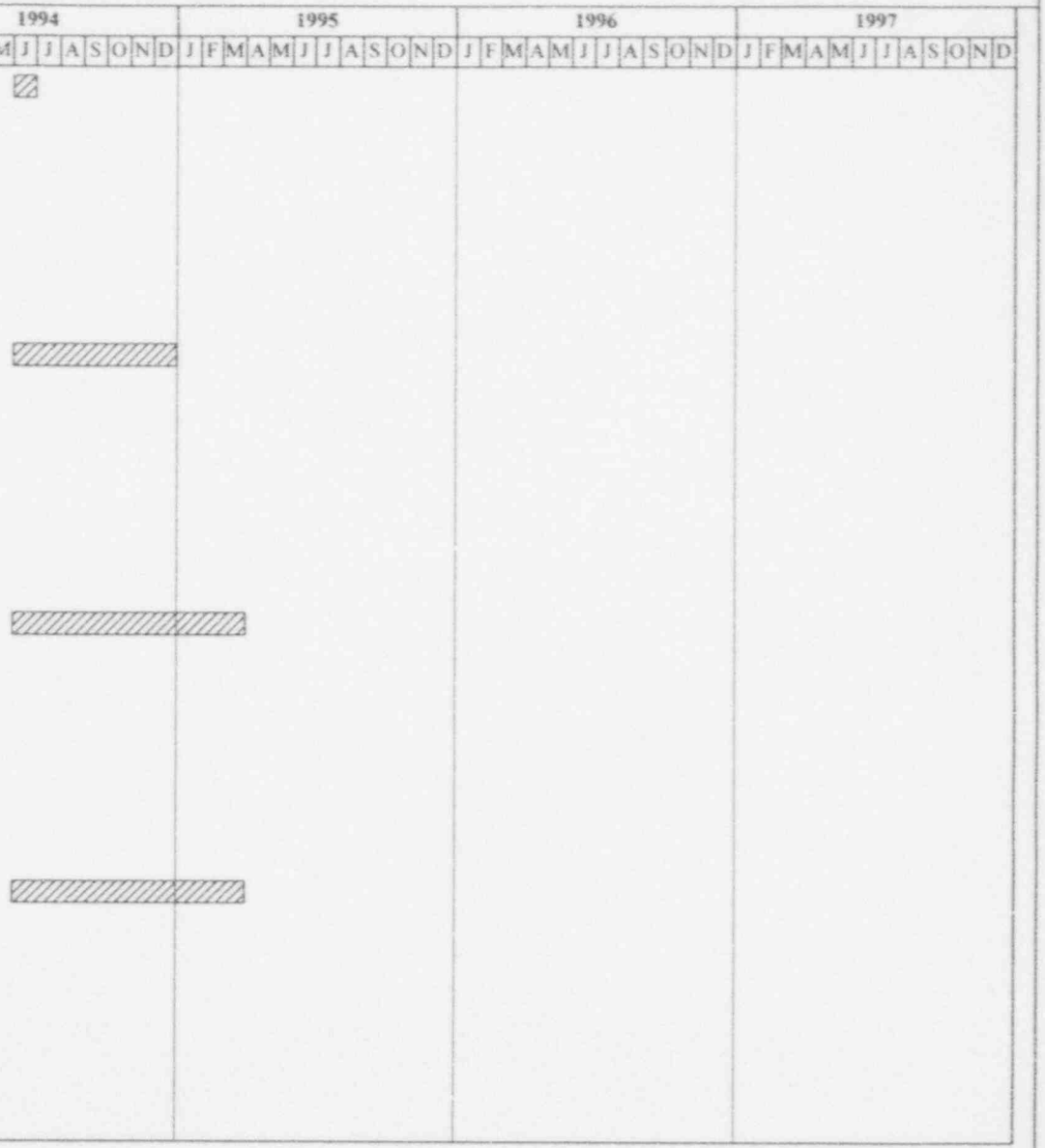
Description	Action Sponsor
TY605 - 2B Evaluate the procurement of improved reactor servicing tools and/or existing equipment upgrades to support shorter refueling outages.	Clay Warren/Bill Levis
TY605 - 2C Key outage personnel will visit and observe other utilities during the performance of planned "Short Duration" refuel outages this fall so that industry best practices can be incorporated into future outages.	Bill Levis
TY605 - 2D Evaluate routine preventive maintenance performed during refueling outages that does not require an outage for performance to reduce the number of PMs scheduled.	Clay Warren/Bill Levis
TY605 - 2E Evaluate/implement recommendations for improvement from INPO's recently completed outage review visit.	Clay Warren/Bill Levis



TY605.MPP

Improve Refueling Outage Management - TY605

Description	Action Sponsor
TY605 - 2F Set aggressive preplanning milestones that ensure site resources have adequate preparation time for outage activities. Issue at least one year prior to the outage start per BSP-35 guidelines.	Clay Warren/Bill Levis
TY605 - 2G Maximize preoutage work by performing extensive reviews and challenges of all outage projects. (Example: U2 RHR Valves)	Clay Warren/Bill Levis
TY605 - 2H Prestage/package materials required for outage activities in specific locations prior to the outage so that material availability can be validated.	George Warriner
TY605 - 2I Complete pre-outage training to all-hands on the outage schedule along with the weekly stand-down meeetings to encourage ownership and communications among site employees.	Clay Warren/Bill Levis



Improve Refueling Outage Management - TY605

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY605 - 2J Adopt a policy that all significant projects and modifications will require PRG approval to be implemented in refueling outages to ensure manageable work scope and minimal potential to extend outage duration.	John Cowan				
TY605 - 3A Utilize PLP-25 (Self-Assessment) to perform a post-outage assessment of B211R1 Refueling Outage within 60 days of outage completion.	Clay Warren/Bill Levis				
TY605 - 3B Perform project critiques on all major projects implemented uring Unit 2 refuel outage with emphasis on every cycle repeat projects.	Clay Warren/Bill Levis				
TY605 - 3C Document lessons learned from B211R1 and assign a responsible Unit Manager to resolve items needing corrective action prior to U1 spring '95 outage.	Clay Warren/Bill Levis				

Improve Refueling Outage Management - TY605

Description	Action Sponsor	1994 J F M A M J J A S O N D	1995 J F M A M J J A S O N D	1996 J F M A M J J A S O N D	1997 J F M A M J J A S O N D
TY605 - 3D Examine post-outage critiques from other utilities recognized by INPO as having superior programs that document outage lessons learned.	Clay Warren/Bill Levis	▨			
TY605 - 3E Continue active participation with BWR Owners Group Outage Mangement Committee to ensure that improvements in industry outage performance are considered for Brunswick Station.	Clay Warren/Bill Levis	▨	▨	▨	▨
TY605 - 3F Continue to encourage use of outage self-assessment forms by all site personnel to capture good practices and areas for improvement.	Clay Warren/Bill Levis	▨	▨	▨	▨

PROJECTS LISTING	
PROJECT#	PROJECT TITLE
	HVAC UPGRADE (FAIM #A0001666)
	SIMULATOR CORE THERMAL UPGRADE (FAIM #10000454)
	SIMULATOR INSTRUCTOR STATION (FAIM #10000453)
	TURBINE ROTOR REPLACEMENT (FAIM #10000621 & 10000623)
*00917I	EMERGENCY RESPONSE FACILITY ISOLATION SIGNAL - GROUP 10
00918A	REACTOR VESSEL WATER LEVEL INSTRUMENTATION UPGRADE
00925F	APPENDIX R, THERMOLAG FIRE WRAP ISSUE
*01538A	SERVICE WATER SYSTEM PIPING PHASE III
*01757A	PROCESS COMPUTER REPLACEMENT
*02164A	CORE THERMAL UPRATE
*02317A	REPLACE SHAFT DRIVEN OIL PUMP FOR REACTOR FEEDPUMP TURBINE WITH MOTOR DRIVEN PUMP(S)
02549A	SCREENWASH PUMP UPGRADE
*04042A	SEISMIC QUALIFICATION OF EQUIPMENT-NUREG 1030
04830A	MAINTAIN THE BSEP ENVIRONMENTAL QUALIFICATION PROGRAM
05092A	REACTOR BUILDING INSTRUMENT RACK REPAIR/UPGRADE
05307A	DC BATTERY LOAD STUDY
05644A	AC VOLTAGE DROP ANALYSIS
05806A	RADWASTE EFFLUENT RELEASE LINE REPLACEMENT
05892A	EFFECT OF ELECTRICAL SYSTEM VARIATIONS ON TURBINE GENERATOR TORSIONAL RESPONSE
*05983A	BATTERY ROOM ANNUNCIATOR ALARM INVESTIGATION
06156A	HIGH PRESSURE COOLANT INJECTION-REACTOR CORE ISOLATION COOLING HIGH STEAM FLOW
06202A	OFF-GAS DRAIN TANKS RESERVOIR
06650A	REACTOR PRESSURE VESSEL THERMAL CYCLING EVALUATION
06729A	DREDGE SPOILS DISPOSAL
*07148A	REPLACE HPCI, RCIC AND RPS TOPAZ INVERTERS
07208A	REMOVE/REPLACE OBSOLETE BAILEY RECORDERS
07438A	REPLACEMENT OF OFF-GAS RADIATION MONITORING RECORDERS
*07627A	EDG GOVERNOR REPLACEMENT

PROJECTS LISTING	
PROJECT#	**PROJECT TITLE**
07848A	REACTOR BUILDING ROOF VENT
*07862A	REPLACE LIGHTING AND COMMUNICATIONS UNINTERRUPTIBLE POWER SUPPLY
08262A	DRYWELL COOLERS LOSS OF COOLING ACCIDENT LOCKOUT OVERRIDE
*08893A	CONTAINMENT PENETRATIONS
*12420A	CONTROL BLDG HVAC CONDENSATE DRAIN REPAIR
*13447A	TURBINE UPGRADE
*13533A	THERMOLAG PROJECT
*13671A	ECCS SUCTION STRAINERS
31856B	FIRE BARRIER UPGRADE
80203A	DIESEL GENERATOR FUEL OIL LEVEL
81401A	FLOOR DRAIN FILTER RETROFIT
84489B	480-AC MOTOR PROTECTION MODIFICATION
84587A	RADWASTE SAMPLING SYSTEM UPGRADE
*B0014A	EMERGENT STRUCTURAL ISSUES
B0018A	PIPING DESIGN TURNOVER PROGRAM
B0019A	DESIGN BASIS RECONSTITUTION
BNT622	BNP PLANT BUILDING STEEL
G0015A	SMALL MODS
G0017A	DC VOLTAGE PROFILE STUDY
*G0024A	INVESSEL CORE SPRAY PIPING REPAIR
*G0029A	FEEDWATER SPARGER CRACKING ISSUE
G0050A	SERVICE WATER TASK
G0050J	DIESEL GENERATOR SERVICE WATER SUPPLY AND DISCHARGE PIPING REPLACEMENT
*G0058A	TURBINE UPRATE
G0075A	LOCAL POWER RANGE MONITOR CABLE REPLACEMENT IN DRYWELL
G0083A	INSTRUMENT AIR COMPRESSORS ALARM AND AIR PRESSURE SETPOINTS
G0096A	FUEL POOL GIRDER TENDON INSERVICE INSPECTION
*G0110A	ELECTRICAL DISTRIBUTION ADEQUACY/GDC-17
*G0140A	UPGRADE SECURITY COMPUTER AND CARD READER

PROJECTS LISTING	
PROJECT#	**PROJECT TITLE**
*G0180A	125/250 VDC BATTERY GROUND DETECTION IMPROVEMENTS
G0193A	REFRIGERANT REPLACEMENT UNIT 1 & UNIT 2
G0218A	MAKE TEMPORARY POWER FEEDS PERMANENT
*G0249A	TORUS LINER PRESERVATION
*G0251A	HYDROGEN WATER CHEMISTRY
M0066A	REFUEL BRIDGE UPGRADE
*M0121E	PROVIDE THERMAL OVERLOAD PROTECTION FOR AC MOTOR OPERATED VALVES
P0057B	SERVICE WATER AND CIRCULATING WATER INTAKE AREA ENHANCEMENT
P0057E	HOTSIDE-COLDSIDE WALKDOWN REPAIRS
*R0123A	CHEMICAL DECON
*R0123M	SPENT FUEL POOL COOLING ASSIST-PIPING & PENETRATIONS

*Indicates project change from May 4, 1994 update.

PROJECT CATEGORIZATION

Category I - Commitments

Represents projects that are necessary to comply with an explicit written obligation to a regulatory agency and any implicit actions resulting from these obligations. Changes to Category I projects will be approved by the Vice President, BNP in accordance with PLP-26, "Establishment of Commitments to Regulatory Agencies."

Category II - Non-Commitments

Represents other business related projects/modifications. Changes to Category II projects will be approved in accordance with the Nuclear Generation Group Manual, 303-05, Three Phase Project Approval and Authorization Process.

CATEGORY I & II PROJECTS LISTING		
PID NUMBER	PROJECT TITLE	COMMITMENT CATEGORY
00917I	EMERGENCY RESPONSE FACILITY ISOLATION SIGNAL - GROUP 10	I
00918A	REACTOR VESSEL WATER LEVEL INSTRUMENTATION UPGRADE	I
00925F	APPENDIX R, THERMOLAG FIRE WRAP ISSUE	I
01538A	SERVICE WATER SYSTEM PIPING PHASE III	I
04042A	SEISMIC QUALIFICATION OF EQUIPMENT-NUREG 1030	I
05092A	REACTOR BUILDING INSTRUMENT RACK REPAIR/UPGRADE	I
05644A	AC VOLTAGE DROP ANALYSIS	I
06156A	HIGH PRESSURE COOLANT INJECTION-REACTOR CORE ISOLATION COOLING HI-STEAM FLOW	I
13533A	THERMO-LAG FIRE WRAP ISSUE	I
B0014A	EMERGENT STRUCTURAL ISSUES	I
B0018A	PIPING DESIGN TURNOVER PROGRAM	I
B0019A	DESIGN BASIS RECONSTITUTION	I
BNT622	BNP PLANT BUILDING STEEL	I
G0017A	DC VOLTAGE PROFILE STUDY	I
G0024A	INVESSEL CORE SPRAY PIPING REPAIR	I
G0029A	FEEDWATER SPARGER CRACKING ISSUE	I
G0050J	DIESEL GENERATOR SERVICE WATER SUPPLY AND DISCHARGE PIPING REPLACEMENT	I
G0096A	FUEL POOL GIRDER TENDON INSERVICE INSPECTION	I
G0110A	ELECTRICAL DISTRIBUTION ADEQUACY/GDC-17	I
G0140A	UPGRADE SECURITY COMPUTER AND CARD READER	I
M0121E	PROVIDE THERMAL OVERLOAD PROTECTION FOR AC MOTOR OPERATED VALVES	I
P0057E	HOTSIDE-COLDSIDE WALKDOWN REPAIRS	I

CATEGORY I & II PROJECTS LISTING		
PID NUMBER	PROJECT TITLE	COMMITMENT CATEGORY
	HVAC UPGRADE (FAIM #A0001666)	II
	SIMULATOR CORE THERMAL UPGRADE (FAIM #10000454)	II
	SIMULATOR INSTRUCTOR STATION (FAIM #10000453)	II
	TURBINE ROTOR REPLACEMENT (FAIM #10000621 & 10000623)	II
01757A	PROCESS COMPUTER REPLACEMENT	II
02164A	CORE THERMAL UPRATE	II
02317A	REPLACE SHAFT DRIVEN OIL PUMP FOR REACTOR FEEDPUMP TURBINE WITH MOTOR DRIVEN PUMP(S)	II
02549A	SCREEN WASH PUMP UPGRADE	II
04830A	MAINTAIN THE BSEP ENVIRONMENTAL QUALIFICATION PROGRAM	II
05307A	DC BATTERY LOAD STUDY	II
05806A	RADWASTE EFFLUENT RELEASE LINE REPLACEMENT	II
05892A	EFFECT OF ELECTRICAL SYSTEM VARIATIONS ON TURBINE GENERATOR TORSIONAL RESPONSE	II
05983A	BATTERY ROOM ALARM INVESTIGATION	II
06202A	OFF-GAS DRAIN TANKS RESERVOIR	II
06650A	REACTOR PRESSURE VESSEL THERMAL CYCLING EVALUATION	II
06729A	DREDGE SPOILS DISPOSAL	II
07148A	REPLACE HPCI, RCIC AND RPS TOPAZ INVERTERS	II
07208A	REMOVE/REPLACE OBSOLETE BAILEY RECORDERS	II
07438A	REPLACEMENT OF OFF-GAS RADIATION MONITORING RECORDERS	II
07627A	EDG GOVERNOR REPLACEMENT	II
07848A	REACTOR BUILDING ROOF VENT	II
07862A	REPLACE LIGHTING AND COMMUNICATIONS UNINTERRUPTIBLE POWER SUPPLY	II
08262A	DRYWELL COOLERS LOSS OF COOLING ACCIDENT LOCKOUT OVERRIDE	II
08893A	CONTAINMENT PENETRATION	II
12420A	CONTROL BLDG HVAC CONDENSATE DRAIN REPAIR	II
13447A	TURBINE UPGRADE	II
13671A	ECCS SUCTION STRAINERS	II
31856B	FIRE BARRIER UPGRADE	II
80203A	DIESEL GENERATOR FUEL OIL LEVEL	II
81401A	FLOOR DRAIN FILTER RETROFIT	II
84489B	480-AC MOTOR PROTECTION MODIFICATION	II

CATEGORY I & II PROJECTS LISTING		
PID NUMBER	PROJECT TITLE	COMMITMENT CATEGORY
84587A	RADWASTE SAMPLING SYSTEM UPGRADE	II
G0015A	SMALL MODS	II
G0050A	SERVICE WATER TASK	II
G0058A	TURBINE UPRATE	II
G0075A	LOCAL POWER RANGE MONITOR CABLE REPLACEMENT IN DRYWELL	II
G0083A	INSTRUMENT AIR COMPRESSORS	II
G0180A	125/250 VDC BATTERY GROUND DETECTION IMPROVEMENTS	II
G0193A	BNP REFRIGERANT REPLACEMENT	II
G0218A	MAKE TEMPORARY POWER FEEDS PERMANENT	II
G0249A	TORUS LINER PRESERVATION	II
G0251A	HYDROGEN WATER CHEMISTRY	II
M0066A	REFUEL BRIDGE UPGRADE	II
P0057B	SERVICE WATER AND CIRCULATING WATER INTAKE AREA ENHANCEMENT	II
R0123A	RECIRCULATING SYSTEM DECONTAMINATION	II
R0123M	SPENT FUEL POOL COOLING ASSIST-PIPING & PENETRATIONS	II

MAJOR PROJECTS

EXECUTIVE SUMMARY

INTRODUCTION

Brunswick Nuclear Plant (BNP) continues to make improvements in the areas of system reliability, material condition of the plant, and management oversight of projects. These improvements directly contributed to the smooth and successful startup and operation of both units, and ensure long-term and sustained improvements in plant performance.

Management control of projects has improved with the implementation of the first phase of the Master Projects Plan (MPP). The MPP provides a decision making tool for management and the Plant Review Group (PRG) in selecting and scheduling projects for the development of the long range plan and budget. Phase II of the MPP, scheduled for completion by the end of 1994, will provide linkage and timing of project benefits to goal achievement; show impact project decisions on the budget; labor requirements and our plant performance. Additionally the MPP will provide indicators of priority and urgency; and communicate regulatory implications.

PLAN ACCOMPLISHMENTS

Twelve projects have been completed for both units since the May 1994 update of the BNP Three-Year Business Plan including: remote shutdown panel vessel level indication, feedwater control system replacement, condenser water box air removal system upgrade, replacement of residual heat removal system valves, reactor vessel level reference leg backfill modification installation, diesel generator starting and control air moisture removal, jet pump beam replacement, secondary containment atmospheric monitor and steam leak detector upgrades, CAD subsystem divisional separation, reactor vessel core shroud modification, and control room annunciator and control switch relocations (HED modifications). Additionally, the material condition of the service and circulating water intake structure, instrument racks, hydrogen water chemistry system, and several HVAC systems was upgraded.

CURRENT STATUS

On-line projects currently in progress include the Unit 1 four day tank level, radwaste permanent power, Unit 1 & 2 DC ground detections, security computer upgrade, Unit 1 on-line emergent structural repairs, conventional service water pump replacement, Unit 1 supplement spent fuel pool cooling piping installation, Unit 1 girder tendon inspection, and the operation work area upgrade. In addition, planning is in progress to support the B110R1 outage scheduled in the Spring of 1995.

FUTURE FOCUS

The future focus is the completed implementation of Phase II of the MPP, ensuring total cost and scheduling integration to be used as a tool for management and PRG to ensure trends of continuous improvements are maintained. BNP management is committed to ongoing plan implementation that is result based, focuses on improved plant performance, and ensures plant safety.

SUMMARY OF COMPLETED WORK:

Twelve (12) projects were completed; ten (11) as planned, one (1) earlier than planned.

PROJECT#	PROJECT TITLE	CAT.	EXPLANATION
00912D	Replace Rosemount Transmitters	I	Project completed as planned.
00925A	Remote Shutdown Panel Level Indication	I	Project completed as planned.
06249A	Diesel Generator Start & Control Air Moisture Removal	I	Project completed as planned.
G0010A	Replace E11-F003A-B & F0024A-B with Globe Valves	I	Project completed earlier than planned.
G0051A	Secondary Containment Atmospheric Monitor Modules and Steam Leak Detection System Upgrade	I	Project completed as planned.
G0156A	Provide CAD Subsystem Divisional Separation	I	Project completed as planned.
G0237A	Reactor Water Level Reference Leg Continuous Backfill	I	Project Completed as planned.
S0033B	Control Room Upgrade	I	Project completed as planned.
04688A	Feedwater Control System Replacement	II	Project completed as planned.
05429A	Water Box Air Removal System Upgrade	II	Air removal system completed in both units as planned.
12984A	Jet Pump Beam Replacement	II	Project completed as planned
G0250A	Reactor Vessel Core Shroud Modification	II	Project completed as planned.

PROJECTS CANCELLED:

Ten (10) projects included in the previous business plan update have been cancelled by the PRG due to issues being resolved through routine maintenance and engineering support, or other existing processes. Also, some projects have been cancelled because improved maintenance has eliminated the need for the design change. Four (4) of the cancelled projects were identified as under evaluation in the May 4, 1994 submittal.

PROJECT #	TITLE	CAT.	EXPLANATION
C5512A	Upgrade Replacement Equipment to NUREG 0588 Category I Requirements	I	Remaining activities to be performed by routine maintenance activities.
G0119A	Reactor Recirculation Valve Upgrade	I	Evaluation determined modification is not necessary. The hydraulic locking issue occurs only when the valve is in the safe (closed) position. Existing procedural guidelines are sufficient to address this issue.
01536A	Restore Cathodic Protection for Intake Structure	II	Project will be accomplished by maintenance activities.
03484A	HPCI Room C02 System Alarm	II	To be addressed via the Industrial Safety Process.
04031A	Residual Heat Removal Head Spray Removal	II	Project will be accomplished by Engineering Decommission Package.
04963A	Reactor Water Cleanup Pump	II	Project will be a direct replacement.
06094A	Cooling Upgrade for Drywell, Reactor Building, and Fuel Pool	II	Evaluation determined cooling upgrade at the project level is not required. Enhancements to the system are being handled under other projects.
08341A	RPV Shell Temperature Monitoring Thermocouple Cable Replacement	II	Project will be evaluated through the Engineering Evaluation Process.
F0025C	Equipment Database System	II	Remaining work will be completed via routine work process and EDBS program enhancements.
P0074A	Anti-Foulant Coatings in Circulating Water System	II	Project will be accomplished by Engineering activities.

PROJECTS UNDER EVALUATION

Sixteen (16) projects are undergoing further evaluation. Four (4) projects from the May 4, 1994 projects list are being re-evaluated. Seven (7) projects remain under evaluation from the May 4 update. Five (5) additional projects are being evaluated.

PROJECT #	TITLE	CAT.	EXPLANATION
B0060A	Miscellaneous Structural Steel Upgrade	I	Scope for Phase I is complete. Additional scope being identified under BNT622.
G0159A	RPV Invessel Irradiated Specimens	I	Define scope of project and submit to PRG
04699A	Salt Water Transfer Pump Replacement	II	Redefine scope of project and submit to PRG.
05503A	Replace 1-5A Feedwater Heater	II	Redefine scope of project and submit to PRG.
06407A	Improve Refuel Floor Fire Detection Access	II	Redefine scope of project and submit to PRG.
06661A	Traversing In-Core Probe System Upgrade	II	Redefine scope of project and submit to PRG.
07197A	Ten Year Inspection of Recirculation Pump Motors	II	Evaluate alternative methods of performing inspection and submit to PRG.
07250A	Eliminate Source and Intermediate Range Monitor Noise Spikes	II	Define the impact on plant operations and submit to PRG.
08048A	Setpoint Control Program	II	Redefine scope of a study and submit to PRG.
31377B	Spent Fuel Pool Repair	II	Redefine scope of project and submit to PRG.
77443A	Phase II Spent Resin Transfer System	II	Study being performed to address deficiencies in Spent Resin transfer system and to propose solutions to PRG.
04849A	Electrical Fire Pump Control	II	Redefine scope of project and submit to PRG.
B0078A	Emergency Fire Damper Position	II	Redefine scope of project and submit to PRG.
G0105A	Thermal-Hydraulic Instability	II	Define scope of project and submit to PRG.
G0161A	Bus Duct Cooling Fan Modification Unit Two	II	Define scope of a study and submit to PRG.
M0187A	Building Penetration Leakage	II	Define project scope and submit to PRG.

PROJECTS RESCHEDULED:

Twelve (12) projects have been rescheduled since the May 4, 1994 Three-Year Business Plan update.

PROJECT #	TITLE	CAT.	EXPLANATION
01538A	Service Water Piping Phase III	I	Original scope and schedule unchanged; new scope added and scheduled for completion June 1996.
G0096A	Fuel Pool Girder Tendon Inservice Inspection	I	Original schedule July 1995; new schedule December 1994.
G0140A	Upgrade Security Computer and Card Reader	I	Schedule change due to integration with Hand Geometry Access System project.
M0121E	Provide Thermal Overload Protection for AC Motor Operated Valves	I	Original schedule May 1996; new schedule is B212R1 refueling outage, June 1996, which is consistent with the existing commitment.
01757A	Process Computer Replacement	II	Original schedule June 1994; new schedule November 1994.
02317A	Replace Shaft Driven Oil Pump for Reactor Feed Pump Turbine with Motor Driven Pump(s)	II	Original schedule was B211R1; new schedule is B212R1 refueling outage, June 1996.
05983A	Battery Room HVAC	II	Original schedule was May 1994; new schedule December 1994.
07148A	Replace HPCI, RCIC & RPS Topaz Inverters	II	Original schedule May 1996; new schedule June 1996.
07438A	Replacement of Off-Gas Radiation Monitor Recorders	II	Original schedule December 1998; new schedule December 1999.
12420A	Control Building HVAC Condensate Drain Repair Study Phase	II	Original schedule June 1994; new schedule October 1994.
31856B	Fire Barrier Upgrade	II	Original schedule June 1994; new schedule December 1994.
G0249A	Torus Liner Preservation	II	Schedule change from Oct 1995 to B212R1 refueling outage, June 1996, reflects new outage schedule.

PROJECTS ADDED:

Six (6) projects have been added to the business plan.

PROJECT #	TITLE	CAT.
02164A	Core Thermal Uprate	II
07627A	EDG Governor Replacement	II
08893A	Containment Penetration	II
13447A	Turbine Upgrade	II
13533A	Thermo-Lag Fire Wrap Issue	I
13671A	ECCS Suction Strainers	II

EMERGENCY RESPONSE FACILITY ISOLATION SIGNALS - GROUP 10

I. PURPOSE AND SCOPE

This project addresses the need to add the Group 10 containment isolation signals to the Emergency Response Facility Information System (ERFIS) displays. The primary containment logic functions to ensure that the appropriate containment isolations occur in response to abnormal plant conditions. The Group 10 containment isolation signals should be remotely indicated at the Emergency Response Facility as required by NUREG 0737, Supplement 1, paragraph V. These isolation signals will also be added to the ERFIS (SPDS) display in Unit 1 and Unit 2 control rooms. This NUREG was implemented at BNP by the establishment of the ERFIS system. However, during the initial installation of the ERFIS system, the signals from the Group 10 isolation valves, which isolate the normal pneumatic supply to the reactor vessel drywell, were not included in the work scope. To satisfy the requirements of NUREG 0737 Supplement 1, the Group 10 isolation valves must be added to the ERFIS system. The project is under design and is planned for installation for Unit 1 during B110R1 and Unit 2 during B212R1. The successful installation of the Group 10 containment isolation signals would meet the requirements of NUREG 0737, Supplement 1, paragraph V.

II. EVALUATION

Schedule Index: 8 - There are no appreciable nuclear safety implications for this project. This initiative would provide additional information to the operators on the status of the instrument air containment isolation valves during scenarios involving reopening of main steam isolation valves and containment venting. It would also provide information on the status of containment integrity during events involving core damage and containment release. A nuclear scaling factor of 0.2 was assigned to this project based on low impact to the instrument air system and improved ability to monitor the status of containment integrity during a severe accident. The plant will be enhanced with the addition of the Group 10 Containment Isolation valves which will aid the operators performance in verifying plant conditions (0.2 x 8).

Economic Aspects: After installation of the Group 10 signals to ERFIS, there are no additional costs for this project.

Related Standards: This project relates to the Work Management Policy on operating parameters because it improves the operators' ability to monitor plant conditions.

Other Considerations: In order for this work to be accomplished, it must be scheduled during an outage and coordinated with other projects that may have an interface with 00917I. However, the display and database development can be accomplished during non-outage time periods. In order to address its commitments to NRC, CP&L has committed to complete this project.

III. CONCLUSION

Relative to other projects, this project has a lower Scheduling Index. However, this project will be completed because the Group 10 containment isolation signal indicators are required to be located in the ERFIS per NUREG 0737 and to meet the NRC commitment date.

IV. STATUS

The Implementation Phase has been approved by the Plant Review Group for Unit 1. The Unit 2 plant modification has been approved. Unit 1 plant modification is in the approval cycle.

PID 00917I
Category I

V. TARGET COMPLETION

Unit 1 B110
Unit 2 B212

PROJECT MANAGER	CRAIG MARCH
PID	009171

APPENDIX R THERMO-LAG FIRE WRAP ISSUE

I. PURPOSE AND SCOPE

The NRC has issued several Information Bulletins, Notices and a Generic Letter concerning the failures of Thermo-Lag 330-1 material to perform their intended fire protection function. CP&L has placed fire watches as compensatory measures in the areas containing this material until the material can be successfully tested or upgraded to provide the appropriate protection.

NUMARC has provided industry direction by coordinating this issue with the NRC and performing an industry testing program.

This material is located in the Control, Reactor, Service Water and Diesel Generator Buildings. The configurations range from small conduit wraps to large junction box enclosures.

II. EVALUATION

The NRC issued a revision to Generic Letter 92-08 requesting additional information concerning CP&L's configurations and plans for resolution of this issue. CP&L provided a response to this request on 2/14/94 outlining a plan to perform a Project Study and Testing Program.

The Project Study would review each configuration to determine to best possible option for resolution of the Thermo-Lag issue. This could include elimination of the Thermo-Lag through changes in CP&L's Safe Shutdown Methodology, rerouting the circuits, upgrading the existing Thermo-Lag or replacing the Thermo-Lag with a different fire wrap material.

The Test Program will consist of configurations not bounded by the current NUMARC Testing Program. This included large junction boxes. The Testing Program and Project Study will be performed in parallel to streamline the final resolution and implementation.

III. CONCLUSION

This project will continue to ensure resolution of Thermo-lag issues.

IV. STATUS

Project has been study phase approved by Plant Review Group.

V. TARGET COMPLETION

The response to Generic Letter 92-08, Supplement 1 outlined that CP&L would provide an integrated schedule within 90 days of NUMARC completing their testing program which is currently scheduled for September of 1994.

PROJECT MANAGER	STEVE HARDY
PID	00925F

SERVICE WATER SYSTEM PIPING PHASE III

I. PURPOSE AND SCOPE

This project upgrades the Service Water (SW) pumps for long term seismic qualification, with self-lubrication, and with improved thrust bearings. This SW pump modification eliminates the need for the SW lube water pumps, which will eventually be removed. The success criterion of this project is that no unit forced outages or plant deratings will be attributable to the SW system and the pumps meet long term seismic integrity. Also, the Reactor Building Closed Cooling Water (RBCCW) SW supply piping on both Units will be replaced in B110R1 and B212R1. The scope of this project includes replacement of those piping areas known to have corrosion damage.

II. EVALUATION

Schedule Index: 32 - This project moderately improves the availability of the SW system and therefore reduces the probability of core damage or containment release (0.5 x 32). The probability of a SW system train being out of service is included in the PRA and the project is judged to have a moderate positive impact on SW system availability. It eliminates the need for ASME Section XI Relief Request PR-05, which requests relaxation of required performance testing of the SW lube water pumps. Seismic upgrade and self-lubrication changes to the SW pumps will reduce the potential personnel safety hazards resulting from high SW pump maintenance (0.2 x 29). Finally, this project contributes to improvement in the operations and maintenance of the SW system and reduces the maintenance and testing requirements for the SW system; therefore, this project is considered an important plant enhancement (0.5 x 8).

Economic Aspects: The expected benefits of this project are future savings due to reduced maintenance requirements and, therefore, increased unit availability.

Related Standards: ISI testing of the SW lube water pumps will be eliminated and therefore simplify testing requirements of the SW system. This will close the relief request PR-05 on the SW lube water pumps, which is currently a commitment to the NRC. The outage-associated work of this project has been planned, scheduled, and carefully integrated with all other major SW projects.

Other Considerations: Upgrading SW pumps (and removing the SW Lube Water system) can be accomplished without an outage because of the redundancy of the SW system. Upgrades to the SW pumps are critical to meeting the NRC commitment date which are scheduled to be completed November 1994.

III. CONCLUSION

Eliminating the SW lube water system reduces ISI testing requirements and some Technical Specification considerations. This project will continue to ensure the service water pumps have long term seismic qualification, are designed for self-lubrication, and are backfitted with improved thrust bearings.

IV. STATUS

Projects have been design and implementation phase approved by the Plant Review Group. Currently seven of ten service water pumps are complete. The RBCCW/SW supply piping will be replaced in B110R1 and B212R1.

PID 01538A
Category I

V. TARGET COMPLETION

November 1994 for the committed portion of this project.
December 1995 for ripout of the Lube Water System.
June 1996 for RBCCW SW Supply Pipe Replacement

PROJECT MANAGER	CHRIS HUGHES
PID	01538A

SEISMIC QUALIFICATION OF EQUIPMENT - NUREG 1030

I. PURPOSE AND SCOPE

Methods to analyze the adequacy of equipment to withstand seismic events have changed in the years since the Brunswick Nuclear Plant was designed and constructed. Because of these changes in methodologies, the seismic margins of older equipment are unknown. NRC resolution of Unresolved Safety Issue (USI) A-46, "Seismic Qualification of Equipment in Operating Nuclear Power Plants", is promulgated in NRC Generic Letter 87-02 and requires all utilities whose plants are not qualified to current criteria to evaluate their electrical and mechanical equipment required for hot shutdown for adequate seismic qualification. The Seismic Qualification Utility Group (SQUG), of which CP&L is a member, developed general implementing guidance for performing the reviews. NRC approved the use of this guidance in a Safety Evaluation Report dated May 22, 1992. In addition, the NRC issued Generic Letter 88-20, "Individual Plant Examination for External Events (IPEEE) for Severe Accident Vulnerabilities". The generic letter requested each licensee to conduct an examination to establish the effects of seismic events, internal fires, high winds, floods, transportation, and nearby facility accidents. Licensees are also to confirm that there are no comparable plant-unique external events being excluded from examination.

The purpose of this project is to implement the resolution of USI A-46 by analyzing the seismic adequacy of Brunswick electrical and mechanical equipment required to accomplish and maintain the plant in a hot safe shutdown condition for 72 hours. Also included in the scope of this project are the evaluation of outliers and the scoping of modifications to address any deficient conditions found during the effort. The final product will be a report documenting the results of the review, including identification of deficiencies that may require correction. The seismic portion of the IPEEE will be performed under this project using a seismic margins methodology that screens components according to safety importance and seismic capacity against a peak ground acceleration of 0.03g. The option to perform a Probability Risk Assessment (PRA) will be maintained by gathering sufficient data for component fragility calculations.

This screening process will be performed concurrently with the USI A-46 program. Assurance that safety-related electrical and mechanical equipment can perform their intended functions during and following a seismic event or identification of corrective actions to resolve deficient conditions will constitute successful completion of this project. Further assurance of successful completion will be evidenced by NRC review and acceptance of Brunswick Nuclear Plant's implementation of USI A-46.

II. EVALUATION

Schedule Index: 30 - This project could have a significant impact on future analyses of external events. All plant systems could be affected by a seismic event and severe consequences could result if equipment is not assured of meeting the specified qualification criteria. This results in a significant impact on the core damage frequency due to seismic events (1.0 x 32). Verifying seismic qualification will require inspection and system walkdowns in radiation areas and result in exposure to workers. This exposure will not be made up by any ALARA benefits afforded by the project over the lifetime of the plant, therefore resulting in a negative ALARA scaling factor (-0.2 x 9).

Economic Aspects: The project requires a short-term investment to conduct component inspections and walkdowns, with no identified positive or negative economic benefits extending beyond the completion of the project.

Related Standards: The Work Management Policy on material condition of the plant is applicable to this project.

PID 04042A
Category I

Other Considerations: The project will be performed under the guidelines of the General Implementing Procedure (GIP) developed by SQUG. NRC approval of the procedure has been obtained. After the study is completed, a report will be prepared and submitted to NRC by June 30, 1995 that documents the results and describes the schedule for correcting any deficiencies identified during the review. Margins for the plant with respect to seismic events as required for the IPEEE analysis will also be established under this project.

III. CONCLUSION

Because the methods used to seismically qualify safety-related systems were not as capable as current methodologies, plant systems will be reviewed to assure the capability to perform their functions during and after a seismic event. The NRC has expressed its concerns on this issue and recommended actions to be taken by licensees in Generic Letter 87-02. SQUG, of which CP&L is a participant, submitted and received approval from the NRC on generic implementing guidance for reviewing seismic qualification of equipment. CP&L plans to complete and document the SQUG and related IPEEE reviews by June 30, 1995.

IV. STATUS

The inspections have been completed in Unit 2 and evaluations of equipment is ongoing. Inspections in Unit 1 will be performed on-line and during outage B110R1.

V. TARGET COMPLETION

June 1995 for both Units.

PROJECT MANAGER	CHUCK RAINES
PID	04042A

REACTOR BUILDING INSTRUMENT RACK REPAIR/UPGRADE

I. PURPOSE AND SCOPE

The original scope of this project addressed the Residual Heat Removal (RHR) instrument racks located on the -17' level of the Reactor Buildings. These instrument racks were rusting and needed to be repaired or replaced to prevent further degradation which could lead to a condition adverse to quality and safety. Pre-Startup work activities replaced three racks, and installed additional seismic restraints on five racks in each unit to support long term operability. All identified pre-startup work items have been successfully completed in Unit 1 and Unit 2. An engineering Study is in progress to determine the baseline corrosion of the five remaining instrument racks in each Unit on the -17' levels, and develop a plan for any corrective actions identified by this Study.

Success for this project will be the completion of any actions required to maintain the long term seismic qualification on U1/U2 instrument racks located in the Reactor Building -17' level, and to determine the means required to ensure that the rack mounted components will withstand a Design Basis Event.

II. EVALUATION

Schedule Index (SI): 14 - The SI is composed of the nuclear safety, unit availability, and ALARA categories. For nuclear safety there is a moderate improvement in the availability of systems of high importance (0.5 x 32). Unit availability has been increased since some instrument racks were repaired or replaced to maintain the plant in an operational condition conducive to quality and safety (0.2 x 12). There is a moderate negative impact on the ALARA category because work on these instrument racks resulted in approximately 18 man rem dose range (-0.5 x 9).

Economic Aspects: The expected benefits of this project are the improved material condition and reliability of the Reactor Building Instrument Racks. Additional benefits received will be reduced long term maintenance costs due to lower maintenance on the stainless steel instrument racks.

Related Standards: This project directly relates to the Work Management Policy for material condition. Action will be taken to remove and control the reoccurrence of corrosion at the cosmetic stage.

Other considerations: Any additional work identified for this project will have to be accomplished during outages. It will be necessary to coordinate this project with other RHR refurbishment and painting projects during these outages.

III. CONCLUSION

It is important for the material condition of the power plant not to degrade to the point where conditions could become adverse to both quality and safety. Therefore this project will be completed as scheduled to ensure the seismic qualification for the Reactor Building Instrument Racks is maintained.

IV. STATUS

Project has been study phase approved by the Plant Review Group. Study is nearing completion and appears that rack replacement will not be necessary with increased level of maintenance.

V. TARGET COMPLETION

May 1996.

PROJECT MANAGER LARRY WALTON
PID 05092A

AC VOLTAGE DROP ANALYSIS

I. PURPOSE AND SCOPE

Existing design basis calculations for the Brunswick Alternating Current (AC) electrical distribution system have been found, in some cases, to be unavailable or inadequate. The AC Voltage Drop Analysis project has been undertaken to establish current, readily accessible AC electrical distribution system design basis calculations. Calculations to be provided include load factor studies, control loop calculations, voltage/load flow/fault current calculations, cable ampacity (amperage capacity) calculations, emergency diesel generator loading calculations, grounding calculations, the fast bus transfer study, and a validation of the computer code used for voltage drop analysis (in accordance with NRC Branch Technical Position PSB-1). The 1991 electrical distribution system functional inspection reaffirmed the need to upgrade or develop certain calculations which are a part of this project. Once complete, this project will document the capability of the present AC distribution system, and provide a basis to support future modifications and 10 CFR 50.59 safety evaluations. In the event of a proposed change to the AC distribution system, documentation will be easily accessible to allow identification of potential equipment overloading, over or under voltage situations, non-selective tripping of overcurrent protective devices, excessive fault currents, emergency diesel generator overloading, or other design issues. The ability to quickly and accurately respond to design basis issues which may arise during an audit will be greatly enhanced.

II. EVALUATION

Schedule Index: 10 - Upgrade or development of design basis calculations is not expected to have a substantial effect on AC distribution system design or operation. However, the project includes additional calculations to establish diesel generator loading profiles. A more detailed analysis of the diesel generator load profile could result in procedural or hardware changes that would enhance the reliability of the EDG system. Because of the low impact on this system of high risk significance, a 0.2 nuclear safety scaling factor is assigned (0.2 x 32). This project should have no appreciable effect on personnel safety, unit availability, unit capacity, or ALARA, but should reduce research time on modifications and engineering evaluations and analyses (plant enhancement, 0.5 x 8).

Economic Aspects: Once this project is completed, no continued costs are anticipated. Ongoing resource savings are expected in the future, due to reduction of time spent on modification preparation and engineering evaluation.

Related Standards: The applicable Work Management Policy is design documentation.

Other Considerations: This project is related to B0019A, Design Basis Reconstitution, and G0110A, Electrical Distribution System Adequacy/GDC17. The original NRC commitment for this project was to complete analysis of MCC system selectivity by October 3, 1988. In 1991, an additional commitment was made to respond to NRC Inspection Report 91-09 by December 31, 1992. The calculations being developed presently either do not exist or need improvement.

III. CONCLUSION

This project will be completed as part of the design basis reconstitution effort. This project will provide a basis for ensuring operation of the plant within the design basis.

IV. STATUS

This project is design phase approved.

PID 05644A
Category I

V. TARGET COMPLETION

December 1994.

PROJECT MANAGER	TERRY BOWMAN
PID	05644A

HIGH PRESSURE COOLANT INJECTION/REACTOR CORE ISOLATION COOLING

I. PURPOSE AND SCOPE

Resolve problem of inaccurate High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) instrument readings caused by instrument piping vapor pockets. This project originated from LER #1-88-014 involving inadequate steam leak detection setpoints and the affect the loop seals had on these setpoints. The modification is to eliminate the loop seal.

II. EVALUATION

This project ensures proper HPCI/RCIC steam leak detection.

III. CONCLUSION

This project will be resolved as scheduled.

IV. STATUS

The Unit 1 plant modification has been completed. The Unit 2 Plant Modification (PM 88-022) was deleted form the B211R1 Outage. Measurements taken during the B211R1 will be used in an engineering evaluation that will justify canceling this project.

V. TARGET COMPLETION

Unit 1 Complete
Unit 2 B211R1

PROJECT MANAGER	PAUL FLADOS
PID	06156A

THERMO-LAG FIRE WRAP ISSUE

I. PURPOSE AND SCOPE

The purpose of this project is to develop options for a long-term solution to the Thermo-Lag fire wrap issue for BNP.

The NRC has issued several Information Bulletins, Notices and a Generic Letter concerning the failures of Thermo-Lag 330-1 material to perform their intended fire protection function. CP&L has placed fire watches as compensatory measures in the areas containing this material until the material can be successfully tested or upgraded to provide the appropriate protection.

NEI has provided industry direction by coordinating this issue with the NRC and performing an industry testing program.

The Thermo-Lag material is located in the Control, Reactor, Service Water and Diesel Generator Buildings. The configurations range from small conduit wraps to large junction box enclosures.

II. EVALUATION

The NRC issued a revision to Generic Letter 92-08 requesting additional information concerning CP&L's configurations and plans for resolution of this issue. CP&L provided a response to this request on 2/14/94 outlining a three phase plan. The three phases include an Option Development Phase, Test Plan Phase and a Implementation Phase.

The Option Development Phase will review each Thermo-Lag configuration to determine the best possible option for resolution of the Thermo-Lag issue. This could include elimination of the Thermo-Lag through changes in CP&L's Safe Shutdown Methodology, rerouting the circuits, upgrading the existing Thermo-Lag, replacing the Thermo-Lag with a different fire wrap material, and enhancing the defense in depth measures.

The Test Plan Phase will consist of configurations not bounded by the current NEI Testing Program. The scope of these configurations will be confirmed during the Option Development Phase and should include large junction boxes. NEI has identified that junction box testing will be considered a generic industry issue and may envelop some or all of CP&L's configurations.

III. CONCLUSION

The Option Development Phase will provide a detailed approach to resolving the Thermo-Lag issue at BNP. The remaining phases of the project will continue based on plant approval to ensure resolution of Thermo-Lag concerns.

IV. STATUS

The Project has been approved by the Plant Review Group to proceed with the Option Development Phase. Option development is approximately 60% complete.

V. TARGET COMPLETION

CP&L's response to Generic Letter 92-08, Supplement 1 committed to providing an integrated schedule within 90 days of NEI completing their testing program which is currently anticipated to be complete in the third quarter of 1994. Option Development is 60% complete.

PROJECT MANAGER	STEVE HARDY
PID	13533A

PID 13533A
Category I

EMERGENT STRUCTURAL REPAIRS

I. PURPOSE AND SCOPE

BNP initially responded to the pipe support issues of IEB 79-14 in 1979 and 1980. The Emergent Structural Repair project was initiated in 1986 to address other structural repairs for supports and miscellaneous steel used in the plant. In 1988, the project incorporated additional response to IEB 79-14 to provide enhancements to pipe supports needed in order for them to meet original design requirements.

Other work not related to IEB 79-14 has been added to this project. Examples of such emergent items are fire protection support upgrades, HVAC support upgrades, conduit support upgrades and resolution of STSI structural deficiencies identified by EWRs. These deficiencies require either verification of structural support seismic qualification or implementation of structural reinforcements or repairs that meet seismic requirements.

The Drilled-In Anchor Sampling Programs have been initiated as a result of NRC Notice of Deviation in Inspection Report (IR) 92-14. The Unit 1 and Unit 2 plant mods have been completed.

The Emergent Structural Modifications will be considered successful when all plant structures and supports with seismic qualifications or other safety related design criteria are found to conform consistently to those requirements over the remaining life of the plant. The level of emergent structural work will decline, and work on structural supports should be primarily the result of inspections or walkdowns and EWR resolutions. Scope for modification to conduit supports in the Unit 1 drywell, and STSI repairs have been issued into PM 93-029 and will be performed during outage B110R1. An Emergent Structural Modification for each unit should remain in-place for repair of other structural deficiencies identified as STSI.

II. EVALUATION

Schedule Index: 51 - This project is intended to assure the seismic qualification or requalification of supports for Category I and Category II structures and safety systems. This project exceeds the scope of the current nuclear safety Probabilistic Risk Assessment (PRA) model. Nevertheless, a special seismic review was performed by the CP&L PRA Group to assess the significance of identified structural support deficiencies. This assessment indicated that the structural support corrective actions included in this project have a high impact on reducing the risk of core damage (1.0 x 32). Unit availability is also impacted directly (1.0 x 12) since structural supports have been found in the plant that do not meet seismic requirements. Potential also exists for personnel hazards due to failed supports, primarily during an earthquake (0.2 x 29). As a result of this project, continued upgrades and plant inspections, system walkdowns, and maintenance practices will provide additional general enhancements to the plant (0.2 x 8).

Economic Aspects: This project has financial impacts due to the commitment to perform repairs to STSI structures and supports that must be seismically qualified.

Related Standards: This project is primarily related to the Work Management Policy for maintaining plant material conditions within design and licensing requirements.

Other Considerations: CP&L has met the commitment to the NRC to complete IEB 79-14 pipe support work by the end of outage B211R1. In addition, work under this project not related to the NRC commitment will continue past the commitment date, into outage B110R1.

III. CONCLUSION

This project assures continued compliance with regulatory requirements, primarily STSI seismic support requirements. The impacts on safety and plant system availability are significant and aggressive implementation is warranted.

IV. STATUS

Commitment to complete Unit 2 and Unit common STSI supports per letter NLS-93-136 was met during outage B211R1. Structural repairs will be performed on-line in 1994 and during outage B110R1 in 1995.

PM 93-029 Approved for implementation in 1994 - 1995.

PM 91-011 Approved for implementation in 1994-1995.

PM 91-041 Implementation complete, mod closeout in 1994.

PM 93-030 Approved for implementation in 1994 and 1995.

PM 92-082 Implementation complete, mod closeout in 1994.

PM 92-083 Implementation complete, mod closeout in 1994.

V. TARGET COMPLETION

PM 93-029	December 31, 1995
PM 91-011	December 31, 1995
PM 91-041	December 30, 1994
PM 93-030	December 31, 1995
PM 92-082	December 31, 1994
PM 92-083	December 31, 1994

PROJECT MANAGER	CHUCK RAINES
PID	B0014A

PIPING DESIGN TURNOVER PROGRAM

I. PURPOSE AND SCOPE

Some BSEP design drawings and calculations have been found to differ from the as-built condition of piping and related equipment in the plant. One of the primary causes of this problem is incomplete turnover of detailed design information from the architect/engineer. The Piping Design Turnover Program is locating, packaging, and turning over to CP&L the UE&C pipe stress and pipe support calculations for Brunswick. CP&L is reviewing the calculations that are safety related and, where needed, upgrading them. Where safety related design calculations are missing, they are being recreated. Also, some plant walk-downs are being conducted where needed to verify drawing information.

The Piping Design Turnover Program will result in over 5000 revised piping-support drawings. In addition, over 400 piping isometric drawings and supporting calculation packages will be provided. The BNP Piping Design Control organization will integrate data into existing plant information systems (NRCS and EDBS) and will establish procedures to assure continued integrity of design information. Following project completion, an audit will be conducted to verify the consistency among related drawings, calculations, and the as-built plant configuration. Also the administrative procedures for plant modifications will be updated to ensure continued maintenance of design basis documents.

II. EVALUATION

Schedule Index: 11 - This project has resulted in the changeout or modification of over 400 piping supports for safety systems. Of the 400 piping supports affected, about 200 involve the RHR system, including RHR service water. In most cases, these piping supports were adequate for their basic function, but they were not fully qualified. Thus, the actual impact of this project on RHR and service water system performance is considered to be low. However, because the RHR and service water system are high contributors to theoretical core melt frequency, a nuclear safety scaling factor of 0.2 is assigned (0.2 x 32). If design basis issues are not resolved, unit availability concerns could arise (0.2 x 12). Some personnel radiation exposure is incurred during walkdowns (0.2 x 9). The potential for increased efficiency in future design activities results in a significant plant enhancement (0.5 x 8).

Economic Aspects: The compiled design documents will improve efficiency in developing future modifications and in conducting operability evaluations. Long term maintenance of the affected piping design bases will be incorporated as a routine part of plant work that is already funded and staffed. The related data base management and design control activities are also already part of the routine plant work and staffing and are adequate to support long term requirements. Therefore, the net long term impact of this project is a reduction in BNP costs.

Related Standards: The applicable Work Management Policy for this project concerns design documentation.

Other Considerations: This type of documentation problem resulted in NRC IEB 79-14. Final closeout of IEB 79-14 issues and resolution of NCR S-86-021 are dependent on this project. The service water lubricating water and service water diesel generator supply and return systems are not within the scope of the NRC commitment. These systems are currently being modified and/or replaced; consequently, the associated design packages, prepared by CP&L, contain current design documentation.

III. CONCLUSION

This project will proceed as scheduled due to the importance of having accurate design basis documentation readily available.

IV. STATUS

This project has been approved by management.

V. TARGET COMPLETION

December 1994.

PROJECT MANAGER	SUSAN VANN
PID	B0018A

DESIGN BASIS RECONSTITUTION

I. PURPOSE AND SCOPE

CP&L has undertaken the Brunswick Design Basis Reconstitution Project to structure the design bases and calculations/analyses applicable to the plant systems and generic issues. The project includes the collection and consolidation of design basis information from the Architect/Engineer (UE&C), the NSSS supplier (General Electric), and from CP&L licensing, regulatory compliance, and engineering files. This compilation includes the review and turnover of applicable historical correspondence and calculations related to system/component design and regulatory requirements or commitments. The scope of this effort includes capturing data for Brunswick systems and generic issues. All information will be sorted and stored in a computer database to enhance retrievability and control. The NRC has shown a high level of interest in plant design basis reconstitution. This project meets the guidance of NUMARC 90-12, "Design Basis Program Guidelines." The 1992 NRC policy statement on design basis information indicates that a generic letter will be issued requesting a description of all licensee programs and that the SALP process will be modified to include assessment of licensee design basis programs. The current CP&L program is sufficient to meet all anticipated regulatory standards. Additionally, design basis control will be necessary to maintain the option of plant life extension beyond the current license expiration through the license renewal process. The project is expected to uncover potential discrepancies which must be evaluated. A programmatic approach to identify, confirm, prioritize, track, and close out each discrepancy has been developed. Once completed, the design basis for safety related systems, structures and components at Brunswick will be clearly established, easily retrievable, and fully controlled.

II. EVALUATION

Schedule Index: 24 - This project will resolve any discrepancies that arise as a result of the design basis reconstitution effort. Since the PRA model directly depends on the quality of plant design documentation, such discrepancies could invalidate important PRA assumptions and could impact calculated core damage frequency. Plant modifications to resolve discrepancies are expected to represent a moderate improvement to safety (0.5 x 32). The project should significantly reduce research time on modifications and engineering evaluations and analyses. The identification and disposition of potential discrepancies also represents a plant enhancement (1.0 x 8).

Economic Aspects: Once the upgrades of this project are complete, maintenance of design bases will be part of routine and are not considered as a part of this project. Ongoing resource savings are expected in the future, due to reduction of time spent on modification and engineering evaluation preparation.

Related Standards: The applicable Work Management Policy is that for design documentation.

Other Considerations: Writing of design basis documents was completed as scheduled in December 1993. Validation is expected to be completed by December 1995. Resolution of discrepancies is expected to continue through 1995 and 1996. The original NRC commitment date to complete the Brunswick Design Basis Reconstitution Project was December 1993; however, after further defining the work scope, the completion date was extended to December 1996. AC system and DC system calculation reconstitution efforts are covered in projects 05644A and G0017A, respectively.

III CONCLUSION

Efforts on this project will continue due to the importance of accurate and useful design basis documentation.

PID B0019A
Category I

IV. STATUS

This project is approved by management.

V. TARGET COMPLETION

Regulatory committed validations December 1995.
Total project December 1996.

PROJECT MANAGER	PAUL CAFALLERA
PID	B0019A

BNP PLANT BUILDING STEEL

I. PURPOSE AND SCOPE

The purpose of the BNP plant building steel verification program is to close out the Notice of Deviation in NRC Inspection Report (IR) 92-14. Licensee Event Report (LER) 1-88-35 and Unresolved Item (UI) 89-18-02 identified an overstress condition in one beam in each Reactor Building. In response, in 1990, CP&L began walkdowns of miscellaneous steel in the Reactor Building outside the drywell, under project B0060A, As-Built Verification of Miscellaneous Steel. In early 1992, in response to IR 92-14, CP&L expanded the program to include drywell platform steel (because of similarities with miscellaneous steel design and construction); this program is being accomplished in two phases. The Phase I Program consists of engineering walkdowns of miscellaneous steel inside the drywell, in the reactor building, and outside the drywell to categorize each steel member and connection as adequate or requiring further action. Those requiring further action were evaluated using restart criteria. The Phase II Program consists of analysis of representative platform sections in the drywell and in the Reactor Building outside the drywell using UFSAR criteria, documentation and verification of miscellaneous structural steel. The walkdowns associated with Phase I and the majority of Phase II have been completed.

Walkdowns and analyses performed to date have shown that, despite occasional minor construction variances, construction of miscellaneous steel in the Reactor Building outside the drywell is generally of good quality and none of the variances adversely affect safe plant operation. In the event that repairs or modifications are required, such work will be completed under the scope of projects B0060D and B0060E.

The success criteria for this program are that the structural steel affected by the program will satisfy the design requirements of the 1978 Edition of the AISC Specification for the Design, Fabrication, and Erection of Structural Steel Buildings, consistent with the Brunswick Plant Updated FSAR and that there will be greater assurance that plant drawings accurately reflect current as-built conditions.

II. EVALUATION

Schedule Index: (-13) - No nuclear safety problems have been found to date and none are expected; the purpose of this program is to verify that building steel meets design requirements in the updated FSAR. Nevertheless, even though the likelihood that a seismically-induced failure of a structural member could damage a safety-related system is very remote, such a failure could have an impact on a safety system function of high importance (0.2 x 32). The walkdowns necessary to implement the program will greatly increase the chance that a worker could be injured due to a fall or falling objects (-0.5 x 29) and will result in significant worker dose even though steps (such as the use of photographs) have been taken to minimize the accumulated dose for the project effort (-1 x 9). The added confidence in structural steel design margins and in the currency of design drawings and calculations, and the contribution these make to the efficiency of the modification process, represent a moderate plant enhancement (0.5 x 8).

Economic Aspects: This two-phase program has been undertaken to provide assurance that building steel meets design requirements in the updated FSAR. Once completed, this program will result in negligible continued financial costs. The updated drawings and calculations resulting from the program will make subsequent plant modifications, which relate to or interface with structural steel, easier and quicker to complete.

Related Standards: The Work Management Policies for material condition and design documentation apply to this program.

PID BNT622
Category I

Other Considerations: Walkdowns and photographs in the drywell require a plant outage to accomplish and were given priority attention during the forced Unit 1 and 2 outages. The evaluation portion of the Phase II Program will begin in late 1994, with the scheduled completion to be in December, 1995.

III. CONCLUSION

The Phase I Program is complete, as are the walkdowns for the Phase II Program. A minimal amount of walkdowns may still be required for selective platforms to determine actual locations of large piping attachments.

IV. STATUS

This project requires design phase approval by the Plant Review Group.

V. TARGET COMPLETION

December 1995.

PROJECT MANAGER	SUSAN VANN
PID	BNT-622

DC VOLTAGE PROFILE STUDY

I. PURPOSE AND SCOPE

Existing design basis calculations for the Brunswick DC electrical distribution system have been found, in some cases, to be unavailable or inadequate. The DC Voltage Profile Study has been undertaken to establish current, readily accessible DC electrical distribution system design basis calculations. Calculations to be provided include those to establish battery loading, DC distribution system voltage, battery charger sizing, DC system fault current and coordination, and DC system cable amperage capacity. The 1991 electrical distribution system functional inspection reaffirmed the need to upgrade or develop certain calculations which are a part of this project. Once complete, this project will document the capability of the present configuration and loading, and provide a basis to support future modifications and 10 CFR 50.59 safety evaluations. For a proposed change to the DC distribution system, documentation will be easily accessible to demonstrate whether a proposed change to the DC distribution system will cause overloading of components. The ability to quickly and accurately respond to design basis issues which may arise during an audit will be greatly enhanced.

II. EVALUATION

Schedule Index: 10 - Upgrade or development of design basis calculations is not expected to have a substantial effect on DC distribution system design or operation. However, the project includes additional calculations to analyze battery loading profiles. The results of these calculations could lead to procedural or hardware changes that would increase the plant's ability to withstand station blackout. A nuclear scaling factor of 0.2 is assigned because of this potential low impact on core damage frequency (0.2 x 32). This project should have no appreciable effect on personnel safety, unit availability, unit capacity, or ALARA, but should reduce research time on modifications and engineering evaluations and analyses (plant enhancement, 0.5 x 8).

Economic Aspects: Once this project is completed, no continued costs are anticipated. Ongoing resource savings are expected in the future due to reduction of time spent on modification and engineering evaluation preparation.

Related Standards: The applicable Work Management Policy is design documentation.

Other Considerations: The calculations being developed are required by the NRC and presently either do not exist or are not in a usable form for the Brunswick units. The original NRC commitment date (12/30/90) for completing this project was missed. This project is now scheduled for completion at the end of December 1994 based on its relative priority to other projects. This project is related to B0019A, Design Basis Reconstitution.

III. CONCLUSION

The DC Voltage Profile Study will proceed as scheduled to provide a basis for future modifications and safety evaluations of the DC electrical distribution system.

IV. STATUS

This project was approved by management.

V. TARGET COMPLETION

December 1994.

PROJECT MANAGER TERRY BOWMAN
PID G0017A

FEEDWATER SPARGER CRACKING ISSUE

I. PURPOSE AND SCOPE

NUREG-0619 requires frequent non-destructive examination (NDE) of the Feedwater (FW) nozzle blend radius regions and visual examination of the FW spargers to monitor potential crack growth in the vessel cladding. Both units are currently committed to examining the spargers every outage. As a result of such inspections, feedwater sparger cracking has been found.

The Unit 1 and Unit 2 sparger replacement scope includes removal and replacement of existing spargers, safe-ends, and portions of FW piping in the drywell. Both units will have the cladding removed from the FW nozzle blend radius regions. The spargers are cracking around the flow holes and around the circumferential welds which attach the sparger arms to the tee. During outages that are prior to sparger replacement, interim repairs may be performed to capture potential loose pieces in place. Prior to the interim repairs, as applicable, the regularly scheduled NDE will first be performed on the FW spargers, nozzle weld areas, and IGSCC susceptible weld joints. The success criteria for this project are the presence of no cracks (as determined by NDE/UT) and extended operation of both units without FW sparger problems.

II. EVALUATION

Schedule Index: 22 - Replacing the FW spargers is expected to reduce the potential for a breach of the Reactor Coolant Pressure Boundary (RCPB) and a Loss of Coolant Accident (LOCA). The likelihood of breaching the RCPB and causing a LOCA event is based on nuclear grade piping having no pre-existing flaws exceeding allowable limits. Therefore, this initiative is assessed to have a significant impact to a moderately important system, the RCPB (0.5 x 32).

Additionally, this project is a plant enhancement; it provides marginally improved unit availability and results in some ALARA benefits. This modification would constitute a plant enhancement in that it would considerably reduce the maintenance and inspection requirements of NUREG-0619 on the FW nozzle inner blend radius (0.2 x 8). There is a increased potential for a significantly longer unit down time from failed FW spargers if they are not replaced. Therefore, unit availability is expected to improve (0.2 x 12). Also, reducing the frequency of liquid penetrant inspections of the feedwater nozzle blend radius would reduce by sixteen hours the outage critical path time required to perform the examination. Reducing the inspection requirements would represent significant man-rem savings, although the actual FW sparger replacement work would expend approximately 190 man-rem for each unit. Radiation dose for each in-vessel inspection is approximately 7.9 man-rem and, given the estimated reduction in the inspection frequency, when a savings of approximately twenty inspections is realized, a net ALARA savings would result (0.2 x 9).

Economic Aspects: The expected benefits of this modification will be derived through personnel radiation exposure reductions, net unit availability increase, and savings due to reduced maintenance and inspections. It is expected that the baseload cost of FW sparger maintenance and inspections will be significantly reduced after replacement.

Related Standards: This project impacts the Work Management Policy regarding material condition.

Other Considerations: This modification can only be performed during a refueling outage, with a complete core offload. A contingency plan for repairs to the Unit 1 spargers is being prepared for outage B110R1. FW sparger replacement is scheduled for outage B212R1. It is estimated that at least three weeks of outage critical-path time is required to replace FW spargers. Decontamination of FW piping and the vessel should be performed prior to work to reduce exposure during FW sparger replacement. Unit 2 spargers were procured in 1982 and are available for installation (modification is required to accept new safe-end design). Unit 1 equipment will be ordered if replacement is deemed necessary.

III. CONCLUSION

Implementation of this project will reduce the frequency of inspections required by NUREG-0619. Unit reliability will be improved because of the reduced likelihood of FW sparger failure. There is a marginal benefit in ALARA savings and improved unit availability. However, the benefits are difficult to quantify. The July 1991 NRC commitment to evaluate the FW low flow controller evaluation per NUREG-0619 was met in June 1991.

IV. STATUS

Evaluation of the material condition of the Unit 1 spargers shows replacement may not be necessary. Unit 1 spargers will be repaired or replaced, as necessary, based on inspection of their material condition and engineering evaluations during the B110R1 outage.

Replacement of Unit 2 spargers is planned for outage B212R1.

V. TARGET COMPLETION

Unit 1, Outage B110R1.
Unit 2, Outage B212R1.

PROJECT MANAGER	CHUCK RAINES
PID	G0029A

DIESEL GENERATOR SERVICE WATER SUPPLY AND DISCHARGE PIPING REPLACEMENT

I. PURPOSE AND SCOPE

In order to meet requirements resulting from NRC Generic Letter 89-13, CP&L has undertaken a number of initiatives regarding inspection and testing of service water piping and components. The service water lines for the diesel generator jacket water heat exchangers have a history of high maintenance due to piping through-wall leaks. These leaks result from cement lining failure at weak spots or from erosion and corrosion of the piping. Leaks, eroded welds, and missing cement lining indicate that the piping is in a degraded condition. The potential for this piping becoming inoperable is of significant concern because of the stringent operability requirements for the diesel generators, which require service water for cooling during operation. In order to eliminate high ongoing maintenance costs, CP&L has chosen to undertake a major program to replace large portions of the service water system piping with new piping to improve resistance to salt water corrosion and bio-fouling.

The purpose of this project is to replace the existing cement-lined carbon steel service water piping to and from the diesel generator jacket water heat exchangers with copper-nickel piping. Also this project will throttle service water flow to the diesels in order to balance flow to other equipment cooled by the service water system.

Successful completion of the proposed modifications would be evidenced by the absence of corrosion and through-wall leaks in system piping and improved cooling water flow to other system loads.

II. EVALUATION

Schedule Index: 30 - Replacing the service water piping reduces maintenance and improves system reliability, thereby moderately improving the availability of the emergency diesel generators. Throttling of the service water flow to the diesels moderately increases the flow to other safety- related coolers and components that are served by the service water system while maintaining a significant margin of cooling flow to the emergency diesel generators. The result is a moderately positive impact on nuclear safety (0.5 x 32). Improved piping materials would reduce the maintenance required to maintain service water system availability and would prevent or minimize the potential for forced outages due to failures of the service water system or inoperability of the emergency diesel generators, resulting in a moderate impact on plant availability (0.5 x 12). Replacement of service water system piping would result in less frequent repair activities, more reliable system operation, and improved maintenance, providing a significant plant enhancement (1.0 x 8).

Economic Aspects: Analyses show that no significant cost savings are achieved by performing the installation in a dual-unit outage. The project reduces the probability of a forced dual-unit outage that might result due to service water unavailability impacting diesel generator operability. Long term costs will be reduced because improved piping materials will eliminate the increasing cost of inspection and repair caused by the deteriorating piping.

Related Standards: The Work Management Policy on material condition is applicable to this project.

Other Considerations: This project is an element of the Long Range Plan to significantly improve the reliability and performance of the service water system. It is also consistent with the Emergency Diesel Generator Enhancement Strategy goal to minimize out-of-service time and improve reliability. Installation must be performed during plant operation as well as over a series of outages.

In letter NLS-92-136, CP&L documented commitments from a meeting with NRC on May 12, 1992, and

answered questions from an NRC letter dated April 27, 1992. Commitment number 15 from enclosure 4 of NLS-92-136 was given in response to the NRC question.

III. CONCLUSION

To meet established commitments, this project will be completed as scheduled. This project is an element of the Long Range Plan for the service water system and is consistent with the Emergency Diesel Generator Enhancement Strategy goals.

IV. STATUS

This project has been implementation phase approved by the Plant Review Group. Unit 1 and Unit 2 supply piping and valves were tied into D/G 3 and D/G 4 in B211R1. Tie-ins to D/G 1 and D/G 2 will be completed in B110R1.

V. TARGET COMPLETION

Plant Mod 91-070 - December 1995
Plant Mod 91-071 - December 1995
Plant Mod 91-072 - June 1997

PROJECT MGR. CHRIS HUGHES
PID G0050J

FUEL POOL GIRDER TENDON IN-SERVICE INSPECTION

I. PURPOSE AND SCOPE

Each of the four spent fuel pool girders contains twelve pairs of post-tensioned tendons that serve as primary tension reinforcement for the girders. This project resulted from an NRC inspection report item that has been closed, but further work was initiated to address long term BNP inspection requirements for the fuel pool girders. Potential problem areas to be addressed include:

- loss of pre-stress force of the fuel pool girder tendons,

- loss of grease from the tendon anchorage grease caps, and

- corrosion of girder tendons.

More specifically, this project is to evaluate the long-term capacity of the girders as a result of the installation of high density fuel racks in the fuel pool, the effects of fuel pool water temperature on the material properties of the tendon wires, the potential for corrosion, and the effects of cyclical loading. The information previously available (i.e., design calculations, specifications, and industry literature) did not indicate that design margins were reduced or compromised; however, there are unknowns that could not be addressed by analysis. Nevertheless, it is felt that the important unknowns will not impact the design margin to current standards. At present, there is no inspection program for fuel pool girders.

The scope of this project involves writing and implementing a specification and procedure to inspect a percentage of the tendon sample wires, samples of tendon lubricant, and visible areas of girder concrete. Tendon sample wires will be tested and and analyzed for acceptability. Upon completion of inspection and testing, data analysis will be done. It is anticipated that a routine inspection and testing program with a periodicity of three to five years will be put in place following the analysis.

This project will initially be considered successful when the fuel pool girder tendon inspection requirements have been identified in the short term and the immediate inspections and adjustments have been implemented. The long term success of this project will be dependent on the ability of the inspection program to control the tendon material condition and to anticipate problems.

II. EVALUATION

Schedule Index: 16 - This inspection and testing project is not expected to affect nuclear safety (0 x 32). Without the inspection and testing to verify the design basis assumptions for the pool with high density storage racks, there may be personnel safety implications from the potential degradation of the fuel pool support girder strength (0.5 x 29). Also, since the original design assumptions could potentially be no longer appropriate and in need of correction, this project represents a plant enhancement (0.2 x 8).

Economic Aspects: This is no direct economic gain from this inspection and testing program. The project expenditure is a charge for economic-loss risk reduction. If a degraded condition is found upon inspection and testing, correcting the problem early could save many times the inspection and testing cost by avoiding expensive repairs.

Related Standards: This project impacts Work Management Policies for material condition and for management oversight and corrective actions. The inspection and testing is in line with the standard to ensure that adverse conditions, excluding those that are self revealing, shall be self identified an average of 90% of the time.

Other Considerations: The original NRC commitment date for completion of this project, December 31, 1986, was not met. The effort is now scheduled for completion by December 31, 1995.

III. CONCLUSION

Because this project yields a significant benefit in economic-loss risk reduction, it will be accomplished as scheduled.

IV. STATUS

Project has been implementation phase approved by the Plant Review Group.
Inspections are scheduled for the 3rd & 4th quarters of 1994.

V. TARGET COMPLETION

December 1994

PROJECT MGR. CHRIS HUGHES
PID G0096A

ELECTRICAL DISTRIBUTION SYSTEM ADEQUACY/GDC-17

I. PURPOSE AND SCOPE

As part of the Integrated Action Plan (IAP) that responded to the NRC Diagnostic Evaluation Team (DET) report of September 1989. Item D1 provided for a re-evaluation of the Brunswick electrical distribution system for compliance with 10 CFR 50, Appendix A, General Design Criterion 17 (GDC-17). This criterion requires that the plant emergency systems be able to respond to a loss of coolant accident and a coincident loss of all on site sources of AC power by having one source of off site electrical power immediately available. Also required is a second source of off site power that would be available in time to preclude exceeding fuel thermal limits. For Brunswick, this first source of off site power to each unit is provided through the respective startup auxiliary transformer (SAT). The second source of off site power is provided by back feeding through the unit auxiliary transformer (UAT), which takes several hours to accomplish. BNP and the NRC have agreed that BNP should enhance the off-site electrical distribution system to meet the current interpretation of GDC-17. This enhancement requires a faster way of providing the second off site source if needed.

In addition to GDC-17 compliance, additional concerns being addressed for the AC electrical distribution system include long term adequacy of switchyard voltage to meet emergency bus voltage requirements, and investigation into improving emergency diesel generator (EDG) Technical Specification (Tech Spec) restrictions through enhancements, which may include an additional on site emergency power source. Also the non-segregated bus ducts for each unit's existing SAT Y-windings will be upgraded to meet current system ampacity requirements.

Successful completion of G0110A will result in electrical distribution system design alternatives that meet the current interpretation of GDC-17.

II. EVALUATION

The study has resulted in three projects for each Unit, now in various phases of design and implementation. The three projects are; the replacement of the SAT-Y Winding non segregated bus duct with higher ampacity equipment, the installation of the Generator No Load Disconnect Switches to enhance the electrical distribution system to meet the current requirements of GDC-17 and the installation of Voltage Regulators to control the E Bus Voltage Level under conditions of heavy Grid load.

III. CONCLUSION

The studies have resulted in the following actions:

A. Installation of the Non Segregated Bus Duct in 1994 (Unit 2) and 1995 (Unit 1).

B. Design is in progress for the Generator No Load Disconnect Switch for instal' ⁻ in 1995 for Unit 1 and 1996 for Unit 2 . This installation includes logic changes to simpl. .he process of moving into UAT backfeed. This work will result in an enhanced electrical distribution system that meets the current interpretations of GDC-17.

C. Authorization has been approved to Design Voltage Regulators to control E Bus Voltage Levels. Installation completion is forecast in 1997 (Unit 2) and 1998 (Unit 1) to conform with the system load forecast. This addresses the issue of the long term adequacy of Switchyard Voltage to meet E bus voltage requirements.

D. The study to explore the alternative of adding an additional on site emergency power source is continuing with completion expected by July of 1994.

PID G0110A
Category I

IV. STATUS

The parts of this overall project are in various stages of approval through the Plant Review Group.

V. TARGET COMPLETION

PCN G0110C	1994	Unit 2	Non Seg Bus Duct Replacement (Completed)
PCN G0110B	1995	Unit 1	Non Seg Bus Duct Replacement
PCN G0110F	1995	Unit 1	Generator NLDS
PCN G0110G	1996	Unit 2	Generator NLDS
PCN G0110H	1998	Unit 1	Voltage Regulators
PCN G0110I	1997	Unit 2	Voltage Regulators
PCN G0110D	1994	Unit 1/2	Fifth Diesel Study

PROJECT MANAGER DAN MOORE
PID G0110A

UPGRADE SECURITY COMPUTER AND CARD READER

I. PURPOSE AND SCOPE

Most of the equipment that makes up the Brunswick security system has been in place since original plant construction. Developments in the design and use of such equipment have evolved such that new equipment and systems are available which provide higher reliability and would substantially reduce the types of failures currently experienced. These failures result in potential security problems and require large amounts of resources to compensate and correct. Additionally, the unique design of the Brunswick system is no longer fully supported by the original vendor. Because failures can affect large portions of the security system and because troubleshooting must currently be done at the component level, failures can result in delays for plant access. This represents an economic risk should failures occur during busy outage periods. Failures could require additional manning of access points until necessary repairs are effected.

The upgraded system equipment selection has been finalized with system hardware and software design currently in progress. The Security Access Control system is being upgraded with replacement of the security host computers, consoles, multiplexors, card readers, and Hand Geometry readers. The upgrades will consist of industry standard fault tolerant computers communicating to distributed intelligence multiplexors via high speed fiber optic communication links. A majority of the fiber optic cables, planned for and pulled during previous security modifications, will be used for the multiplexor communication link. During installation of the multiplexors and the monitored devices, security compensatory guard personnel will be required. New access cards will be prepared on the upgraded Polaroid Photo ID system for all badged personnel. Additionally, training of computer, maintenance, and security personnel will be required.

System performance, maintenance, spare parts availability, and the reduced reliance on contractor software support will greatly improve the security system. Following installation and an initial trial period, reportable events due to failures of the card reader access control subsystem should decrease to less than one third of that of the three previous years.

II. EVALUATION

Schedule Index: 8 - This project should have no appreciable effect on nuclear safety, personnel safety, unit availability, unit capacity, or ALARA. A high plant enhancement scaling factor is assigned because the expected reduction in security events and reduced nuisance to all badged personnel will result in higher system reliability (1.0 x 8).

Economic Aspects: Increased security system reliability and reduced maintenance and procurement effort for individual repair and routine activities should result. Reliance on contractors for software support will be eliminated. Security, technical, and computer software staff time, along with management attention following failure events, should be significantly reduced. The nuisance impact of access control failures and security events on all badged personnel should decrease. Addition of the Hand Geometry function to this project will provide for significant cost reductions in Security labor, and enhance the access control functions of the overall system.

Related Standards: The applicable Work Management Policy is material condition.

Other Considerations: The schedule for completion of this project was provided to the NRC staff in an exemption request submitted on July 29, 1994.

III. CONCLUSION

Although the schedule index is relatively low, this project is important. Failure of the card reader control subsystem could have a major impact on plant access and require expensive and labor intensive compensatory action.

IV. STATUS

Project has been implementation phase approved by the Plant Review Group. Design is scheduled for completion in August, 1994. The Factory Acceptance Test for the new Computer hardware/software system is scheduled for September, 1994. Implementation is scheduled to begin in October, 1994. Final system acceptance and availability runs are scheduled for completion in the 2nd quarter, 1995.

V. TARGET COMPLETION

June 1995

PROJECT MGR.	LARRY WALTON
PID	G0140A

PROVIDE THERMAL OVERLOAD PROTECTION FOR AC MOTOR OPERATED VALVES

I. PURPOSE AND SCOPE

Thermal overload protection for valve actuator motors addresses one part of the overall program to upgrade the operational reliability of motor operated valves (MOV). Thermal overloads are used to protect the actuator motors from excessive electrical current, especially in the case where the MOV is stuck (either shut or open) and the motor does not have enough power to overcome the problem. Without thermal overload protection, when the valve is stuck, the motor starting currents remain high, severely damaging the motor windings and making manual operation of the valve the only option.

The basis for not using thermal overload protection was the assumption that the use of protective devices (such as thermal overloads) having the capability to interrupt power to safety-related valves would increase the risk that the valves would not operate during accident conditions, assuming the protective devices themselves might malfunction and prevent valve operation. It was considered better to let a motor destroy itself while attempting to operate the valve. The current industry approach and NRC guidance (NUREG 1296, "Thermal Overload Protection for Electric Motors on Safety-Related Motor-Operated Valves") is to assure that motor overload protection is set and maintained in a manner that assures motor-winding protection and, also, avoids spurious valve operation. This approach allows resetting of electrical breakers and thus, allows another attempt by operating personnel to reposition the valve after the condition causing the stuck valve is corrected.

This project is primarily to install thermal overload protection for motor operated valve AC motors and to replace motor control cabinet breakers which have reached their environmental qualification end of life. To support this project, collateral engineering work is needed to assure setpoint consistency and breaker coordination among the approximately 125 MOVs per unit. Also, once the new setpoints are established, recalculation of the corresponding torque values is required for each valve actuator in order to assure that the valve can be operated under all design conditions without causing spurious thermal overload actuations. All of the affected safety related MOVs and the associated breakers were identified using the Equipment Data Base System, assuring coverage of all of the applicable safety equipment. Examples of systems affected by this project include core spray (CSS), high pressure coolant injection (HPCI), reactor core isolation cooling (RCIC), reactor water cleanup (RWC), reactor building closed cooling water (RBCCW), standby gas treatment (SGT), main steam (MS), and containment atmospheric control (CAC).

This project will be successful when the operational reliability of MOVs improves and valve actuator motors are no longer damaged under stuck-valve (stalled-motor) conditions.

II. EVALUATION

Schedule Index: 28 - This project is directly related to assuring the availability of several safety systems, including residual heat removal, service water, main steam, core spray, high pressure coolant injection, and reactor core isolation cooling (0.5 x 32). Since it has been determined that lack of overload protection has probably resulted in higher MOV motor failure rates at BSEP, this condition has most likely indirectly contributed to plant outages in the past. Consequently, unit availability is enhanced (0.5 x 12) through increased operational reliability of most of the safety-related MOVs. Likewise, this project provides potential plant enhancements (0.5 x 8) by reducing the level of corrective maintenance, post-maintenance testing, and MOV troubleshooting required for a large number of safety-related valves. This is particularly important due to the high impact such work has on outages. Finally, although the project itself will require some additional exposure to radiation during its implementation, reduced levels of MOV inspection, troubleshooting, and maintenance over the rest of the life of the plant are expected to compensate for this (0.2 x 9).

PID M0121E
Category I

Economic Aspects: Improved plant availability and fewer actuator motor replacements are expected to compensate for the cost of this project. No long term additional costs are anticipated as a result of this project for maintenance except routine preventive maintenance.

Related Standards: This project directly is related to the Work Management Policy for material condition.

Other Considerations: The remaining thermal overload work will be accomplished before the completion of outages B110R1 and B212R1 to fulfill CP&L's commitments to the NRC. Also, this project is related to M0121O, MOV Testing, which is a long term effort and does not directly impact the M0121E thermal overload work.

III. CONCLUSION

This project will be completed as scheduled during outages B110R1 and B212R1.

IV. STATUS

The Unit 1 projects for B110R1 have been implementation phase approved by the Plant Review Group. The Unit 2 projects will require implementation phase approval by the Plant Review Group for future outage scope (B212R1). Unit PM's have been approved.

V. TARGET COMPLETION

B110R1 (June 1995)
B212R1 (June 1996)

PROJECT MGR. LARRY WALTON
PID M0121E

MATERIAL CONDITION WALKDOWN

I. PURPOSE AND SCOPE

The purpose of this project is to identify, categorize, and repair plant material discrepancies not being addressed under other projects. Under this project, approximately 2000 discrepancies were identified during plant walkdowns. A list of detailed walkdown items in plant locations that are high radiation areas during plant operation (hot side) and a list of walkdown items in all other normally accessible areas (cold side) have been developed. The plant material discrepancies on these lists have been further categorized, and the appropriate corrective actions will be taken. The plant's Technical Support Group and the Nuclear Engineering Department have evaluated and categorized all of the walkdown items. The largest segment of items is related to conduit and structural supports. Other discrepancies include mechanical maintenance items, fire hazards, and housekeeping issues. Some of the discrepancies can be resolved directly under the routine work request process. Those discrepancies requiring design and/or documentation changes are being accomplished under this project or under other appropriate projects such as PID B0014A, Emergent Structure Repair. The success criteria of this project are elevated inspection and material condition standards for the plant.

II. EVALUATION

Schedule Index: 17 - Walkdowns have identified discrepancies that could affect plant safety-related systems. Some of the approximately 2000 items may be operability concerns for safety-related systems. For example, some of the discrepancies are cable tray and conduit supports for class 1E systems. Also, feedwater heater support problems were identified during the walkdowns. Therefore, this project has a positive effect on nuclear safety (0.2 x 32). During the comprehensive walkdowns, industrial safety deficiencies (including some fire hazards) were identified; correction of these will result in improved personnel safety (0.2 x 29). Raising the standard of the plant's comprehensive walkdown inspection program is an important contributor to upgrading and maintaining the material condition of the nuclear plant - a plant enhancement (0.5 x 8). Finally, performing the walkdowns will result in a person-rem expenditure with no future person-rem savings projected (0.2 x 9). The net expected benefits of this program are not readily quantifiable.

Related Standards: The applicable Work Management Policies are those for management oversight and corrective actions, material condition, and housekeeping.

Other Considerations: This project augments the periodic inspections required by Administrative Instructions AI 96, "Drywell Inspection and PNSC Outage Prestartup Checklist Instruction," and AI 114, "Management Field Walkdowns."

III. CONCLUSION

This project provides a process for identifying and resolving plant material discrepancies. This project was initiated during the B108F9 and B210F6 outages and will continue until all identified walkdown work not covered by other projects is completed.

IV. STATUS

This project has been implementation phase approved by the Plant Review Group.

V. TARGET COMPLETION

December 1994.

PROJECT MANAGER STUART BYRD
PID P0057E

PID P0057E
Category I

HVAC UPGRADE

I. PURPOSE AND SCOPE

There are currently numerous open work items for the heating, ventilation, and air conditioning (HVAC) systems at Brunswick. Of these items, the highest priority work pertains to HVAC material upgrades in the Reactor Building and in the Control Building. Noteworthy examples of material conditions requiring resolution under the scope of this project are listed below:

Approximately 200 feet of ductwork in (100 feet in each Reactor Building) is corroded beyond repair. The corroded ductwork is located in the overhead area of the 20 feet elevation. This corrosion is caused by continual condensation. This duct requires replacement and insulation to preclude future condensation and corrosion. Also, many of the HVAC duct supports are either bent, missing, or loose.

The Control Building intake plenum base is corroded through wall in several places.

The Control Building supply and return roll filters (sitewide) do not work properly and have to be manually advanced. Excessive leakage of unfiltered air occurs due to corroded media frames.

The Reactor Building supply fan vortex dampers are corroded and obsolete. This corrosion has caused damper binding and has tripped HVAC. The supply fan discharge dampers have no rubber seals, therefore backflow through idle fan causes reverse rotation of fan blades and a possible fan breaker trip could result when the fan is started.

Successful completion of this project will result in increased HVAC system efficiency and reliability.

II. EVALUATION

Schedule Index: 15 - Upgrading the material condition of HVAC systems at Brunswick will be a significant plant enhancement (1.0 x 8). Concerning nuclear safety, HVAC systems are modeled in the PRA. Failure of individual HVAC systems have the potential to fail plant systems. Individual system failures are generally not significant with respect to mitigation of accidents; however, the cumulative effects of the degradation of HVAC systems could result in a negative effect on nuclear safety. It is, therefore, judged that this project will result in an overall low positive effect on nuclear safety (0.2 x 32). HVAC systems in general provide support functions for many plant systems. The inability to cool certain plant areas, particularly the Reactor Building, could result in a loss of unit generation. During the summer months when the temperatures in the Reactor Building are elevated and a loss of Reactor Building ventilation occurs, a potential threat exists for a PCIS Group 1 isolation on high temperature in the MSIV pit. Additionally, cooling components for safety-related equipment (i.e., RHR Room Coolers) have a potential to place the plant in restrictive LCOs. Therefore, this project has a low positive impact on unit availability (0.2 x 12). This project would therefore result in a low negative scaling factor for ALARA (-0.2 x 9).

Economic Aspects: The cost of this project will be offset by reduced long-term HVAC maintenance costs and longer, more reliable operation of systems cooled by these HVAC systems.

Related Standards: This project is primarily related to the Work Management Policy for material condition. This project will bring HVAC systems up to design conditions and ensure long-term reliability.

FAIM A0001666
Category II

Other Considerations: There is an NRC commitment associated with a portion of this project - to complete the development of DR 90-0143 related to vortex dampers in the Reactor Building by December 31, 1992. The DR will be completed on the committed schedule.

III. CONCLUSION

Work is complete on the 200 feet of the reactor building duct work in both units. Control building intake plenum is in implementation. Parts are on site. Roll filters are being replaced with pleated cartridge filters and is approximately 50% complete. The reactor building supply vortex and isolation dampers are being replaced. Design and procurement is complete.

IV. STATUS

This project is implementation phase approved by the Plant Review Group.

V. TARGET COMPLETION

December 1995.

PROJECT MANAGER HOWARD LINDSEY

SIMULATOR CORE-THERMAL MODEL UPGRADE

I. PURPOSE AND SCOPE

Replace the existing simulator core-thermal software model to improve training on core and vessel dynamics during start-up, transient, and accident conditions.

II. EVALUATION

The current simulator core-thermal model was developed for the existing ENCORE computer. The computation limitations of the ENCORE required a compromise in simulation accuracy and computer execution time requirements. This limits the accuracy and degree of training on many core and thermal conditions.

III. CONCLUSION

The approved simulator computer upgrade to a current technology SGI Challenge computer greatly reduces the required compromise on execution time. This permits an upgraded core-thermal model which improves training in several areas:

A. Nuclear instrumentation response during startup training; steady state and transient response during simulation of accident conditions; containment and radiation monitoring system performance under degraded core conditions; recirculation pump start transient and start logic failures; and provides for realistic demonstration of thermal stratification during low flow conditions.

B. New capabilities have been added: Modeling of Boron stratification allows for demonstration of EOP guidelines for boron injection during ATWS conditions; addition of recirculation pump and jet pump cavitation; and permits modeling of individual instrument reference legs allowing for simulation of reference leg flashing, out-gassing, reference leg refill; and pressurization of reference leg with mis-operation of reference leg backfill system.

IV. STATUS

Project requires implementation phase approval by the Plant Review Group.

V. TARGET COMPLETION

June 1995.

PROJECT MANAGER WILLIAM GEISE
PID

FAIM 10000454
Category II

SIMULATOR INSTRUCTOR STATION/COMPUTER UPGRADE

I. PURPOSE AND SCOPE

Replace the 8 year old Encore computer with a current technology SGI Challenge computer to improve simulator reliability.

Add 6 instructor stations/ work stations to replace the 13 year old instructor station and provide independent means of development, testing, and instructing, without interfering with training on the main simulator.

II. EVALUATION

The outdated simulator computer system failures interrupt training and examinations

Increased training demand usage has resulted in limited accessibility for scenario development, maintenance and certification testing.

III. CONCLUSION

An upgrade of the simulator computer to current technology, and the addition of extra instructor stations will address the problems above plus provide other benefits:

A. Reduce reliance on contractor support

B. Potential for API reduction in 1995/1996 time frame

C. New enhanced user-friendly instructor system will enable cross training of more instructors.

IV. STATUS

Project has been approved for implementation by management.

Simulator outage is scheduled for November/December 1994 to enable installation and testing.

V. TARGET COMPLETION

December 24, 1994.

PROJECT MANAGER WILLIAM GEISE
PID

FAIM 10000453
Category II

TURBINE ROTOR REPLACEMENT

I. PURPOSE AND SCOPE

The purpose of this project is to upgrade the turbine by replacing the LP-A and LP-B monoblock rotors on Unit 1 and LP-A on Unit 2.

II. EVALUATION

The rotor replacement extends the life of the turbine and potentially reduces the turbine valve testing frequency. The turbine upgrade is intended to improve the reliability and performance of the units.

III. CONCLUSION

CP&L will install the monoblock rotors. A study other turbine-related equipment upgrades is being performed under PID 13447A.

IV. STATUS

Unit 1 project is being prepared for implementation during outage B110R1; Unit 2 is projected for implementation during outage B212R1.

V. TARGET COMPLETION

December 1996

PROJECT MANAGER	DAN MOORE
PID	N/A

FAIM 10000621 &
FAIM 10000623
Category II

PROCESS COMPUTER REPLACEMENT

I. PURPOSE AND SCOPE

Brunswick's Honeywell 4010 process computers are the oldest installed and functioning reactor core monitoring computers in the United States. They were designed with technology which has become outdated and cannot be readily supported by the manufacturer. Also, technician training services and spare parts are no longer provided by Honeywell. Spare parts can be obtained at this time from third party sources; however, supplies are subject to depletion without notice. Although the many computer outages have not yet impacted the associated unit generation, their frequency has been rising, increasing the probability of startup delays or shutdowns.

The process computer's primary function, core monitoring, is currently dependent on and limited by the existing P1 software provided only by General Electric Corporation (GE). This software is less versatile and accurate than the variety of software now being written for DEC VAX (versus Honeywell) computers. In addition, limitations in fuel vendor selection are caused by the core monitoring software being GE-specific and less efficient than other available software. These fuel vendor limitations are considered to be a major disadvantage of the present system. In addition, as more complex fuel is used in the reactor core, it becomes increasingly difficult to predict the effects of core power adjustments, resulting in slower reactor startups and power adjustments than would be possible with a more capable system. The existing process computer system does not have sufficient capacity to accommodate the upgraded software needed.

The basic scope of the plant process computer replacement (PPCR) project is to transfer the functions currently being performed by the existing process computer to a system that has greater hardware/software capability, expansion capability, reliability, and maintainability. The existing process computer functions will be upgraded to perform more advanced computing and monitoring using the latest computer graphic capabilities. The new hardware includes front-end data acquisition equipment, data links, high speed DEC network interfaces to existing VAX computers, additional VAX systems, special purpose interfaces for the existing plant data system, and new operator consoles. Only the existing Honeywell input/output (I/O) cabinets will remain, serving as the interface between the plant sensors and the new data acquisition system. The new software includes the CPU's operating system licenses, data acquisition and data validation software, new core monitoring software, applications specific software, and system integration software that coordinates and monitors the entire system. Engineering services to support this project include providing documentation, testing, installation, training, conversion planning, and project management. The testing and evaluation phase for the new system is extensive. After the new system's operation has been adequately verified, the existing Honeywell 4010 computer will be disconnected and removed using a phased approach. A long list of goals and success criteria have been established to confirm the adequacy of the new system. Abandonment and/or removal of the Honeywell process components will be a major milestone to indicate that important goals are being satisfied.

II. EVALUATION

Schedule Index: 13 - The process computer replacement is considered a non-safety related modification. Although it can be argued that the equipment is not safety related, the dependence of operators on the system output may have safety implications during operation. It is reasonable to predict that the graphic display benefits and predictive capability of the new system (especially as related to secondary plant process parameters) will reduce the frequency of secondary plant event sequence initiators (such as low condenser vacuum) relative to the frequency values considered in the PRA (0.2 x 32). The reliability, availability, and maintainability of the new system is expected to be much better than the previous system. As time goes on, the probability of unit downtime or startup delays increases with the old system (0.2 x 12). The

computer replacement is viewed as a significant enhancement for the personnel who need to use it, resulting in a plant enhancement (0.5 x 8).

Economic Aspects: The current 20 year old computer system can not last much longer without support from the vendor, so investment in a replacement is inevitable. The largest probable economic benefit is that the new system is much less likely to delay return to service after a refueling outage because of process computer system failures. It has been estimated that such a failure would result in a one to seven day increase in startup time. Also important is that the new core monitoring software, which will not run on the old computer, will permit CP&L to purchase fuel from more than one nuclear fuel supplier, enhancing competitive pricing. Finally, upon project completion, long-term system maintenance costs are expected to be reduced somewhat due to the increased availability of spare parts.

Related Standards: This project is related to Work Management Policies for material condition, operating parameters, and management oversight and corrective action. The PPCR project will improve the reliability, availability, and maintainability of the process computer systems, allowing better operational control.

Other Considerations: Other improvements in the ability of operators to monitor and tune the operation of the plant require the installation of the new process computer system. It is anticipated that there will be measurable improvement in plant availability and net generation as a result of these additional enhancements.

III. CONCLUSION

Unit 1 and Unit 2 Process Computer System replacement has been accomplished, with Availability Runs in progress for both Unit systems. The process computer replacement will result in improved plant availability and allow better operational control.

IV. STATUS

Both Unit 1 and Unit 2 systems are in service (Partial Operability on both systems). This project is in final stages of system testing and availability runs.

V. TARGET COMPLETION

November, 1994

PROJECT MANAGER	LARRY WALTON
PID	01757A

CORE THERMAL UPRATE

I. PURPOSE AND SCOPE

This project will gain a 3.9 percent thermal power uprate (from 2436 MWt to 2531 MWt) by reducing unnecessary conservatisms in the core thermal-hydraulic analysis. Actual core design will not change, but higher power operation will be authorized. Higher full power operation will be achieved by using modified rod patterns. An increase in steam and feedwater flow through the corresponding systems and components will be achieved; however, no increase in core recirculation flow will be necessary. Sufficient margins exist for turbine operation at greater steam flow. The BSEP generators are rated at 849 MWe. Currently, maximum power output for rated core thermal power is about 800 MWe. Generator rated output power is not expected to be exceeded. Other systems will be affected by thermal uprate, and analysis is necessary in the general areas of LOCA loads, increased decay heat, NPDES compliance, corrosion rate changes, setpoint changes, valve closure capability, blowdown pipe support loadings, and system performance at higher pressures. General Electric is preparing the safety analysis to demonstrate continued reactor safety. A license amendment request will be submitted to NRC in order to enable operation at higher power. CP&L is allowing for an 12 month review of the amendment request by NRC. Successful completion of this project will result in licensed operation at higher capacity with no decrease in safety or reliability.

II. EVALUATION

The goal of this project is a substantial increase in plant electrical capacity. Core thermal-hydraulic analysis will demonstrate continued nuclear safety at higher power, or no licensing submittal will be made. Higher power level could increase the decay heat removal requirements following a plant trip. This increase in decay heat removal requirements would be small and therefore would not result in a significant effect on nuclear safety.

Economic Aspects: Costs of this project are partially offset by General Electric under the settlement agreement. Once complete, no appreciable additional funding will be necessary under this project, though additional revenue should be gained throughout plant life due to increased plant output.

Related Standards: To the extent that it impacts productivity and efficiency, this project is most closely related to Work Management Policies for material condition and operating parameters.

Other Considerations: Project G0058A addresses turbine power uprate (increased steam throttling efficiency) and is thus related to core thermal uprate. These two projects are considered separately because the project interdependence is limited.

III. CONCLUSION

This project will increase unit capacity but is dependent on successful completion of a number of smaller projects and analyses. An unfavorable outcome of one or more of these subtasks could negate the benefits of the project. Because implementation of this project also requires a favorable licensing action from NRC, coordination with other licensing issues and initiatives is necessary.

PID 02164A
Category II

REPLACE SHAFT DRIVEN OIL PUMP FOR REACTOR FEEDPUMP TURBINE WITH MOTOR DRIVEN PUMP(S)

I. PURPOSE AND SCOPE

This project is to assess and implement the installation of redundant motor driven oil pumps for the reactor feedwater pump turbines (RFPT). The RFPT main shaft driven oil pumps have been unreliable, with limited operating range, and have had a difficult and expensive repair and maintenance history. Due to the unreliable operation of the main shaft driven oil pumps, a single motor driven auxiliary oil pump must be continuously operated to maintain RFPT oil system pressure requirements. The recent failure of a single motor driven auxiliary oil pump resulted in the loss of over $100,000 in generating revenue (18 hours of reduced power). The recommendation to correct this problem involves adding two new motor driven oil pumps, one of which will replace the current motor driven auxiliary oil pump; the shaft driven oil pump will be disabled. The success of this project will be improved plant availability, capacity, and a reduction in maintenance costs for the RFPTs.

II. EVALUATION

Schedule Index: 30 - The prevention of power reductions due to failures in the present RFPT system and lost generation time will increase the unit capacity (1.0 x 10). The plant will also be enhanced by the improved maintenance and lower repair costs for the proposed upgrade to the RFPT oil pumps (1.0 x 8). Nuclear safety is somewhat improved with a more reliable feedwater system which will reduce the potential for a loss of feedwater transient (0.2 x 32). The addition of the motor driven auxiliary oil pumps for the RFPTs could prevent previous unit power reductions associated with the present system thus increasing unit availability (0.5 x 12).

Economic Aspects: The economics of replacing a difficult and expensive to maintain RFPT main shaft driven oil system with a more reliable and easier to maintain oil system are positive. In addition to the savings in maintenance, there is also a savings in generating capacity with increased reactor feedwater reliability. Just one failure of the RFPT auxiliary oil system cost 18 hours of reduced generating capacity or $100,000 of lost revenue. The cost of upgrading both units could be economically justified with the prevention of potential lost generating revenue over the balance of plant life. Long term maintenance costs would be reduced relative to the present RFPT oil system.

Related Standards: Replacing the RFPT oil pumps with a more reliable system would meet the Work Management Policy on material condition. This policy is met by maintaining and improving the reliability and productivity of the Brunswick Nuclear Plant with a more reliable reactor feedwater system.

Other Considerations: Because this project requires the reactor feedwater system to be inoperable for the replacement of the RFPT oil pumps the work would have to be performed during an outage.

III. CONCLUSION

The project is scheduled to allow adequate time for design and outage planning. The replacement of the RFPT shaft driven oil pumps with motor driven oil pumps would result in increased plant capacity, availability and reduce the maintenance cost of the reactor feedwater system. The added reliability of the reactor feedwater system will also enhance the safety of the Brunswick Nuclear Plant.

IV. STATUS

Implementation of Unit 1 is scheduled during the B110R1. Implementation of Unit 2 has been rescheduled to B212R1.

V. TARGET COMPLETION

Unit 1 - B210R1
Unit 2 - B212R1

PROJECT MANAGER	DENNIS COOPER
PID	02317A

MAINTAIN THE BSEP ENVIRONMENTAL QUALIFICATION PROGRAM

I. PURPOSE AND SCOPE

The Brunswick Environmental Qualification (EQ) Program ensures continued compliance with 10 CFR 50.49,the NRC environmental qualification rule. Since the establishment of the Brunswick EQ program, numerous and significant issues have arisen which have the potential to affect portions of the program. Some of these issues are ongoing. Review, evaluation, and revision of affected qualification documentation is necessary to ensure the quality of the EQ files and support continued qualification of equipment. Fourteen Engineering Work Requests (EWRs) have been specified at different times to address various EQ concerns. All 14 of these EWRs are consolidated in this project. Additionally, other EQ issues will be addressed under this project. For example, resolution of Limitorque Motor Operated Valve issues and the establishment of an environmental specification for plant harsh environment areas are two important initiatives. At the completion of this project, Brunswick should have resolved each of the issues currently within the scope of this project and received final NRC acceptance of each resolution.

II. EVALUATION

Schedule Index: 10 - If EQ activities identify necessary improvements to systems, structures or components, some contribution to nuclear safety may result. However, such improvements are unlikely and, should they occur, will have small overall impact on the reliability of systems important to plant risk (0.2 x 32). If any equipment upgrades result from EQ activities, a similar, small improvement may be seen in plant availability (0.2 x 12). Maintenance of the EQ program records should make future analysis of equipment easier (plant enhancement, 0.2 x 8). No appreciable effect is anticipated to personnel safety, unit capacity (EQ must support plant uprate, but does not determine it), or ALARA.

Economic Aspects: This project addresses a number of discreet, one-time issues which have arisen relative to EQ. While the level of effort associated with EQ should decrease as these issues are resolved, other issues are likely to be identified in the future. Maintenance of the Brunswick EQ Program is an ongoing effort which must continue until final plant shutdown and decommissioning (PCN 01657A accounts for this routine activity).

Other Considerations: This overall program is required by 10 CFR 50.49. Power uprate will require some high energy line break reanalysis due to expected primary system pressure and temperature changes. The generation of an environmental specification will assure that power uprate parameters are well documented in the BNP EQ design basis.

III. CONCLUSION

Continuation of this project is necessary for compliance with 10 CFR 50.49, and the current schedule will be maintained. Four EWR's remain to be resolved this year. These EWR's include development of an EQ Specification, preparing revision to QDP-2 for test report traceability, revisions to QDP for Valcor SOV's, and revisions to Rosemount Transmitter QDP's.

IV. STATUS

This project has been design phase approved by the Plant Review Group.

V. TARGET COMPLETION

December, 1994.

PROJECT MANAGER JIM MCPADDEN
PID 04830A

PID 04830A
Category II

BATTERY ROOM ANNUNCIATOR ALARM INVESTIGATION

I. PURPOSE AND SCOPE

Several problems have been identified regarding ventilation of the Battery Room. A Temporary Condition exists for the Control Room annunciators for the ventilation fan flow switches due to spurious alarms during conditions of minimum design flow through the Battery Room. Other problems have been identified regarding the control of temperature in the Battery Room to assure that battery cell temperatures remain above the Technical Specification limits required to ensure that adequate battery capacity is available. The only indication to the operator that ventilation flow is not adequate is dropping Battery Room temperature, which indicates that heater elements have tripped due to overheating under the reduced flow. Because there is no remote indication for the status of the heater elements, confirmation of this condition requires an operator to spend 20 minutes climbing among the cables above the battery room to determine if the heater elements are energized. These deficiencies are symptomatic and point to the need for defining and achieving overall balance, control, and indication of ventilation flow through the Battery Room. This project will implement modifications to the air flow measurement system for the Battery Room that will provide accurate and reliable indication of battery room temperature in the Control Room, balance battery room ventilation flow to design requirements, eliminate spurious annunciation at low flow, and maintain battery room temperature within normal operating range under all operating conditions. The success of this project will be evidenced by annunciation in the Control Room without spurious alarms and ventilation improvements that maintain temperatures in the Battery Room within the Technical Specification limits under all expected conditions.

II. EVALUATION

Schedule Index: 14 - Resolving the ventilation problems will simplify and streamline the ventilation controls for the Battery Room, eliminate spurious alarms, and decrease the extraneous work requests generated by low flow conditions in the ventilation system for the battery, thus providing positive impact on plant enhancement (1 x 8). The intent of this project is to improve the availability of the station batteries by implementing ventilation controls to maintain temperatures in the Battery Rooms within the limits of the Technical Specifications. Since common cause failure of the batteries is a major contributor to failure of the DC Power System, improved monitoring of temperatures in the battery room is expected to have a moderate to high impact on DC Power System availability. Therefore, a nuclear scaling factor of 0.2 is assigned to this initiative (0.2 x 32).

Economic Aspects: The cost of implementing the modifications expected to result from this project will be recovered in reduced costs for extraneous maintenance and upkeep on the ventilation systems for the Battery Rooms.

Related Standards: The Work Management Policy on material condition applies to this project.

Other Considerations: The existing Temporary Condition for ventilation flow annunciation will be cleared during the current dual-unit outage. However, this modification will not require an outage for implementation. A battery ventilation flow test was conducted in August 1992 to identify specific deficiencies in ventilation controls and instrumentation that require permanent design solutions to resolve.

III. CONCLUSION

Based on the project information available at this time, the study for this project has already identified several benefit producing recommendations and, therefore, implementation will continue.

PID 05983A
Category II

IV. STATUS

Project has been implementation phase approved by the Plant Review Group, and scheduled for implementation in the 4th quarter, 1994.

V. TARGET COMPLETION

December 31, 1994.

PROJECT MANAGER	DAN MOORE
PID	05983A

OFF-GAS DRAIN TANKS RESERVOIR

I. PURPOSE AND SCOPE

The electrical level control and indication systems for the off-gas drain tank (OGDT) and its loop seal reservoir have had a history of problems that have initiated several incidents resulting in loss of main condenser vacuum. Some of these incidents have led to power reductions or reactor scrams. The control failures and other material deficiencies in the system are caused, in part, by the high humidity in the residual heat removal (RHR) room (17 foot elevation) where the OGDT is located. For example, the humidity causes corrosion of exposed carbon steel solenoid valve linkages, interfering with loop seal reservoir drain and makeup valve operation. Failure of these valves to operate properly will cause condensate to backup into the system, eventually leading to loss air ejector condensing capability and, thus, loss of condenser vacuum. Operator response to loss of vacuum incidents is hindered by the current indication and control system since determining whether this system is the cause is unusually difficult. This is because of the lack of remote and accurate level indications for the OGDT and loop seal reservoir. Also, to determine the level in the OGDT, the operator must enter a contaminated area and check the high level alarm annunciator. Even if a high level is indicated, the operator must then try to start the OGDT pumps. Failure of the drain pump to start indicates a low level in the OGDT, leading to the conclusion that the loop seal reservoir level control system is causing a problem. Also, the high level alarm for the OGDT is also not reliable, since the alarm has failed to annunciate when the drain pump and level control malfunction. Other control and indication related deficiencies have been identified during investigations of loss of condenser vacuum incidents. The scope of the project includes installing two float-type liquid drainers with associated piping in place of the electrical level control valves for the OGDT, installing a manual drain from the OGDT loop seal reservoir, replacing reed switch level indicators with magnetic float type liquid level indicators (with remote annunciators), and modifying piping to eliminate hold-up points for condensate. These modifications will provide more reliable level control to prevent water from backing up in the off-gas 30-minute hold-up line and will provide remote mechanical indication of water level in the off-gas drain tank. Successful implementation of this project will be evidenced by a reduction in loss of condenser vacuum events caused by the off-gas system and consistent, reliable level indication for the off-gas drain tank and the loop seal line reservoir.

II. EVALUATION

Schedule Index: 27 - Removing the potential for loop seal line blockage increases plant availability by reducing the potential for loss of condenser vacuum events that have resulted in reactor scrams (1.0 x 12). The deficiencies being corrected have also caused power reductions at BNP in the past. Implementing this project has a positive impact on plant capacity by reducing the potential for such power reductions in the future (0.5 x 10). The reduced potential for the off-gas system to cause a loss of condenser vacuum event has a low positive impact on nuclear safety due to the improved availability of the condenser as a heat sink when decay heat removal is required (0.2 x 32). Correcting long-standing problems in the off-gas system for which special plant procedures were developed has a moderately positive impact on plant enhancement (0.5 x 8).

Economic Aspects: Reactor scrams and power reductions due to loss of condenser vacuum can result in one or two days of lost generating capacity each time the off-gas drain tank and loop seal reservoir malfunction. Implementation of this project will have no substantial impact on the long term costs of system maintenance of the off-gas system.

Related Standards: The Work Management Policies on material condition and operating parameters are applicable to this project.

PID 06202A
Category II

Other Considerations: This project includes modifications that must be implemented during an outage.

III. CONCLUSION

Problems with the off-gas system drain tank valves and associated piping has, on several occasions, caused reactor scrams and power reductions. Implementing this project will correct system reliability deficiencies and will enhance the ability of the operator to determine system conditions. This project will be completed as scheduled or earlier, if feasible.

IV. STATUS

This project is currently scheduled in the B110R1. Design in progress.

V. TARGET COMPLETION

May 1996.

PROJECT MANAGER	CRAIG MARCH
PID	06202A

DREDGE SPOILS DISPOSAL

I. PURPOSE AND SCOPE

This project is required to ensure that proper methods and locations for the disposal of the spoil material are identified and prepared for the next dredging operation. Usage of any new spoil areas, or modifications to the existing areas, will require permit revision subject to the State of North Carolina and the Corps of Engineers approval.

II. EVALUATION

Dredging the intake canal is required approximately every five years to maintain design depth in the canal, thereby ensuring that proper flow characteristics and capacities can be maintained.

III. CONCLUSION

This project is needed to maintain plant reliability.

IV. STATUS

Plant Review Group approved.

V. TARGET COMPLETION

December 1998.

PROJECT MANAGER	Martin Dalla-Pozza
PID	06729A

REPLACE HPCI, RCIC, AND RPS TOPAZ INVERTERS

I. PURPOSE AND SCOPE

The purpose of this project is to resolve the spare parts and reliability issues associated with Topaz inverters. Topaz inverters are presently used in a variety of systems for DC to AC conversion to allow control, logic and instrumentation functions to be performed with AC power. The installed models are no longer available and the original manufacturer will not refurbish the units. Additionally, replacement parts are unavailable. This has affected the availability of the high pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) systems. Initially, all component loads supplied by the HPCI and RCIC Topaz inverters will be removed. Then, the Topaz inverters and components will be replaced with a simplified DC to DC power distribution system. The function of all the system components originally supplied by the inverters will be the same. New DC HPCI and RCIC flow controllers will be procured. New power supplies will be procured that will feed the remaining instruments after the inverter loads are removed. The desired state at the completion of this project is to have available, in place of the obsolete Topaz inverters, reliable power supplies that are qualified for the environment to which they are exposed. The success criterion of this project is the elimination of HPCI and RCIC systems unavailability due to the failure of the Topaz inverter.

II. EVALUATION

Schedule Index: 13 - This initiative moderately improves the availability of the HPCI and RCIC systems. Flow control improvements do not have a major impact on HPCI or RCIC reliability. Based on the PRA model, the HPCI system is a system of relatively low importance. However, when combined with the RCIC system, the HPCI system is weighted higher. Therefore, a nuclear safety scaling factor of 0.2 was assigned to this initiative (0.2 x 32). Further, this initiative corrects the failure of Topaz inverters in the HPCI and RCIC systems which has a potential for a loss of unit availability. The potential loss of unit availability would be most likely caused by entering a HPCI and/or RCIC inoperable LCO (0.2 x 12). Finally, this modification is a medium positive impact on plant enhancement in that it contributes to improvement in the maintenance and operations of the HPCI and RCIC systems (0.5 x 8). Maintenance work-arounds such as replacing individual components within Topaz inverters would be avoided, and the elimination of Topaz inverter failures would enhance system operation.
Economic Aspects: The estimated cost of the project includes the RCIC and HPCI modifications. The expected benefits of this project are the improved material condition and reliability of the RCIC and HPCI systems. The changes in the routine periodic maintenance costs as a result of this initiative are difficult to quantify. The maintenance cost will diminish but maintenance will clearly be required for the new equipment.

Related Standards: The Work Management Policy on material condition is applicable to this project.

Other Considerations: The critical short term work to be completed is the RCIC and HPCI Topaz inverter change out. Other related work is also in progress. The feedwater Topaz inverters are being removed under PID 04688A. The RCIC and HPCI steam leak detection system Topaz inverters are being replaced with a NUMAC digital system under PID G0051A.

III. CONCLUSION

The RCIC and HPCI modifications will be implemented as scheduled. This initiative improves the availability of the RCIC and HPCI systems and helps reach availability goals for those systems. It also will enhance the plant material condition by upgrading critical plant systems with components that are currently available.

IV. STATUS

This project has been design phase approved by the Plant Review Group. Plant mod is in approval cycle.

V. TARGET COMPLETION

June 1996.

PROJECT MANAGER	LARRY WALTON
PID	07148A

REMOVE AND REPLACE OBSOLETE BAILEY SR-1310 AND SR-1110 RECORDERS

I. PURPOSE AND SCOPE

Currently the BSEP control rooms have Bailey narrow range chart recorders which have been obsolete since 1974 and for which the spare parts are depleted. This project is currently replacing some of the recorders in the control rooms for both of the Brunswick Units. Some of the recorders have regulatory related operational requirements and are in need of parts which could impact plant operations. The installation of new recorders will help prevent plant operations from being impacted. Existing Bailey recorders are to be replaced with Leed & Northrup Speedomax models 131, 132, or 133 narrow range chart recorders. Successful completion of this project would allow the Control Room operators to properly document important plant parameters which will allow continued plant operations and also reduce out of service recorders.

II. EVALUATION

Schedule Index: 6 - The only categories are affected by this project are plant enhancement and unit availability. Changing out the existing recorders will enable the operator to have a more reliable means to diagnose off gas problems. However, this improvement will have no appreciable impact on nuclear safety (0 x 32). The plant would be enhanced with ensured indication of plant parameters and improved operator effectiveness (0.5 x 8). There is a potential for the plant availability to be reduced if those recorders required by regulatory considerations are out of service for lack of parts (0.2 x 12).

Economic Aspects: The cost of routine maintenance and calibration of the recorders will likely be reduced. The expected benefits of the replacement of the obsolete Bailey recorders are reduced maintenance and improved operator performance.

Related Standards: Applicable Work Management Policies for this project are material condition and operating parameters. Having new long-term (20 yrs) reliable recorders would meet the policy of continuously monitoring operating plant parameters.

Other Considerations: Some of the plant systems' recorders will need to be replaced during a plant outage because of their location in the Control Room and the importance of that system to plant operation. The stock of replacement parts for these recorders at the BSEP is depleted; therefore it is advisable to replace them at the scheduled dates.

III. CONCLUSION

The project will continue at the scheduled rate and will be completed by November 1997. Replacement of the old recorders will prevent the possible loss of vital equipment during power plant operations.

IV. STATUS

Project requires design phase approval by the Plant Review Group.

V. TARGET COMPLETION

November 1997.

PROJECT MANAGER DAN MOORE
PID 07208A

EDG GOVERNOR REPLACEMENT

I. PURPOSE AND SCOPE

The existing governors on the Emergency Diesel Generators (EDG) are obsolete and are no longer available from the original or other supplier. Repair and rebuild of Brunswick spare governors is now possible on a limited parts available basis. Future repair of the governors by the vendor will not be available.

The scope of this project is to replace the existing Class 1E governors with new style Class 1E digital control equipment.

II. EVALUATION

The existing governors are obsolete. Certified Class 1E parts are no longer available to the vendor for rebuilding and recertifying existing governor Control Circuit Boards, Motor Operated Potentiometers and Actuators. Parts will not be available in the event of failure. Future EDG operability may be impacted. BNP Maintenance does not have the technical expertise or the tool and facilities to overhaul or repair and recertify this equipment. Expected benefits are to reduce maintenance expense and to increase EDG reliability.

III. CONCLUSION

Proceed with the design to install new style governors on each Emergency Diesel Generator.

IV. STATUS

The Unit 1 and Unit 2 projects are design phase approved by the Plant Review Group.

V. TARGET COMPLETION

May 1996

PROJECT MANAGER Dan Moore
PID 07627A

REPLACE LIGHTING AND COMMUNICATIONS UNINTERRUPTIBLE POWER SUPPLY

I. PURPOSE AND SCOPE

This project will replace the existing obsolete lighting and communications uninterruptible power supply (UPS) system with a more modern and maintainable system. The lighting and communications UPS system supplies 120/208V AC power to the plant paging and intercom system, the plant evacuation and fire alarm system, lighting in the Control Room and other critical areas, and the plant card reader and security system (e.g., the explosive entrance detectors and security computer system). The UPS system was originally installed in 1973 and has become a significant maintenance problem due to normal equipment aging. Support from the original manufacturer (Static Products Incorporated, now International Power Machines) has been declining and will continue to erode due to the unavailability of the spare parts for this obsolete equipment. In order to maintain the functions of the UPS system, it is crucial that the current hardware be replaced with a modern system for which part support is available.

The initial phase of the project identified the new system and vendor to replace the existing lighting and communication UPS system. The project will be successful if the UPS system maintenance costs are reduced and the system reliability is improved. Also, the equipment modernization process itself should not unnecessarily impact plant operations or personnel safety.

II. EVALUATION

Schedule Index: 23 - Plant lighting and the plant paging system are very important to successful operator actions during recovery from any potential accident. Since operator actions are critical in preventing and mitigating core damage, the replacement of the lighting and communications UPS impacts nuclear safety scaling factor (0.2 x 32). Personnel safety is improved by this project due to the potential lost time accident that could occur if the evacuation and fire alarms were to be without power. Loss of plant communications could also have the potential for a lost time accident (0.5 x 29). There is also some potential for unnecessary radiation exposure if the plant intercoms and alarms are unavailable due to a loss of power (0.2 x 9).

Economic Aspects: The present system is obsolete and spare parts are becoming increasingly scarce. A new UPS will allow continued safe plant operation and will reduce maintenance costs as compared with the present installed system.

Related Standards: The Work Management Policy applicable to this project is plant material condition.

Other Considerations: Because of the importance of the UPS system, it is critical that replacement of this equipment is done in a manner that will not have any adverse impacts on plant sec . 'ty or vital alarms. This project is not outage dependent.

III. CONCLUSION

Installation of a new lighting and communications UPS system is needed to support continued efficient plant operational control. System maintenance costs for the current obsolete equipment will also be reduced. This project will be completed as scheduled and will allow orderly modernization of the lighting and communications UPS system.

PID 07862A
Category II

CONTROL BUILDING HVAC CONDENSATE DRAIN REPAIR STUDY PHASE

I. PURPOSE AND SCOPE

Inadequate insulation on ducts and inadequate drain line slope set up the condition for water to spill into the CB HVAC mechanical equipment room floor. This project will eliminate the standing water problem on the floor of the Mechanical Equipment Room.

II. EVALUATION

Standing water on the floor of the mechanical equipment room has no safety impact but does degrade the material condition of the plant.

III. CONCLUSION

Prepare a Study that identifies the cause(s) of water accumulation on the floor of the Mechanical Equipment Room and recommends appropriate corrective action(s).

IV. STATUS

Study has been compiled and is in NED review. Study presentation to the PRG is forecast for Mid-October following completion of preliminary plant reviews.

V. TARGET COMPLETION

Study completes October, 1994.

PROJECT MANAGER	Craig March
PID	12420A

TURBINE UPGRADE

I. PURPOSE AND SCOPE

Contract authorization XS80380083 (LP Rotor Replacement) includes several modifications on turbine-related systems. This project was established to install these modifications, including replacement of turbine turning gear motors, installation of RFPT lube oil vapor extractors, installation of full flow lube oil filters, and replacement of RFPT governors with electronic Woodward governors. As study phases are completed and approved on each modification, individual "sub- projects" will be established for the design phases.

II. EVALUATION

Econom. spects: These modifications are intended to correct current problems which require excessive maintenance, difficulties in replacement of obsolete parts, and unreliable equipment.

Other Considerations: All of these modifications will require outages for installation.

III. CONCLUSION

These modifications are expected to provide decreased maintenance requirements and increased equipment reliability.

IV. STATUS

This project is currently in the study phase.

V. TARGET COMPLETION

June 1997

PROJECT MANAGER Bill Biggs
PID 13447A

ECCS SUCTION STRAINER

I. PURPOSE AND SCOPE

The purpose of this project is to resolve the ongoing concerns relative to the potential for post-LOCA debris plugging of ECCS suction strainers in BWRs. The NRC has issued Bulletin 93-02, Supplement 1 which requested utilities complete certain near-term actions and support the BWROG's project for long-term resolution of this issue. The BWROG is currently performing testing to determine the extent of the project and recommend the solution to the long-term issue. The purpose of this project is to work with the BWROG in modeling the suction strainer performance specifically for Brunswick and implement a long-term solution for this issue.

II. EVALUATION

Economic Aspects: The project costs will depend on the final scope of work. The project is currently in the study phase. Modification requirements, if any, will be identified at the conclusion of the study phase.

Related Standards: This project supports the Work Management Policy of maintaining safety system availability and design basis requirements.

Other Considerations: If modifications are required as a result of the BWROG's recommendations and plant specific modeling, they will have to be accomplished during outages.

III. CONCLUSION

The recommendations of the BWROG and the plant specific modeling of suction strainer performance will determine the type and the extent of modifications, if any, to ensure compliance with long-term cooling requirements.

IV. STATUS

The PRG approved the study phase in July 1994.

V. TARGET COMPLETION

Study Phase - December, 1994

PROJECT MANAGER	J. E. Harrell
PID	13671A

FLOOR DRAIN FILTER RETROFIT

I. PURPOSE AND SCOPE

Liquid radwaste processing was originally designed to be accomplished by two process paths, a floor drain system for "dirty" liquid waste and a waste collector system for "clean" liquid waste. A previous modification on the original floor drain filter system did not achieve the desired performance objectives and resulted in an inoperable floor drain filter. The inoperable condition of the floor drain filter leaves the waste collector system as the only path for processing liquid radwastes. Since the waste collector filter is designed for processing "clean" waste water, the presence of oil-containing water causes frequent changeouts of the waste collector filter elements that are costly and incur unnecessary expenditure of person-rem. The resin precoat is exhausted much more rapidly due to the current operating lineup, thereby generating extra costs and solid radwaste to ship off the site. Extended failures of the waste collector system could result in a dual unit shutdown because of an inability to process liquid radwaste.

The purpose of this project is to modify the floor drain filter to restore the filter to its original, functional design. This will restore the floor drain system to service and provide separate paths for processing liquid radwastes, thereby improving the operation of the waste collector filters, reducing the frequency of filter changeouts, and providing an alternate path for processing all liquid radwastes in the event one of the systems becomes inoperable.

Successful completion of this project will be evidenced by demonstrated ability to process all liquid radwaste through either the floor drain system or the waste collector system and by a reduction in the frequency of element changeouts in the waste collector filter.

II. EVALUATION

Schedule Index: 12 - Returning the floor drain filter to its original design will return the waste processing systems to their normal configurations and intended uses, provide redundancy in waste processing paths, and restore the ability to maintain cleanliness in the waste collector system, resulting in a significant plant enhancement (1.0 x 8). Returning the floor drain system to service reduces the possibility of a dual unit shutdown due to an inability to store or process radwaste for extended periods (0.2 x 12). This project will reduce the filter maintenance related radiation exposures caused by mixed stream processing (0.2 x 9).

Economic Aspects: Retrofitting the floor drain filter will reduce the routine costs of cleaning the waste collector system to remove oil impurities that the system was not designed to handle it.

Related Standards: The Work Management Policy applicable to this project is material condition.
Other Considerations: The modification does not require an outage to implement.

III. CONCLUSION

In inoperability of the floor drain filter causes all liquid radwaste to be processed through the waste collector system, which is designed to process only "clean" radwaste, and causes increased costs for maintenance and cleaning of the waste collector system. Additionally, the lack of redundant processing paths presents a potential for forcing unit shutdown if the waste collector system is inoperable for three or more days. Restoring the floor drain filter to its original design offers immediate economic and material benefits, so this project will be implemented as scheduled.

PID 81401A
Category II

RADWASTE SAMPLING SYSTEM UPGRADE

I. PURPOSE AND SCOPE

The BSEP radwaste sample system monitors some of the major sources of potential reactor water impurities, including the condensate demineralizers and processed makeup water. The radwaste sampling system has experienced several long term and repetitive problems. Many sample points have been plugged for years. Conductivity recorders normally track as many as 7 variables, but they print data on only 8% of the chart paper range, making data analysis difficult. In addition, conductivity monitor failures cause the plant to enter LCOs frequently. In 1989, INPO issued finding CY.1-1, stating, in part: "The conductivity monitors and recorders for the condensate filters and demineralizers located in the radwaste control room do not provide information useful for controlling the operation of the systems. Also, the radwaste demineralizer conductivity monitor has been inoperable for several years. The operators do not have indication when the demineralizer resin is exhausted and when impurities are sent to the waste sample tank."

This project will be successful when the upgraded system is in place and fully operable; E&RC staff have accurate chemistry data to work with; and more proactive chemistry, filter, and resin management is demonstrated.

II. EVALUATION

Schedule Index: 15 - The plant is significantly enhanced by allowing plant personnel the ability to monitor critical chemistry parameters as well as prevent continual maintenance on obsolete equipment (1.0 x 8). Completion of this project is expected to result in a net savings of 16.3 person-rem (0.5 x 9). Of the four chloride intrusion monitors identified in technical specifications, two are made inoperative by failure of the sample chiller. If the other two are out of service, then the unit must be brought to hot shutdown within 12 hours. This potential causes a minor concern for loss of unit availability (0.2 x 12). Although this project will significantly improve the ability to monitor chemistry of important makeup water supply systems, there is insufficient evidence to indicate that improvements in water quality of important safety systems would result in significant reduction of corrosion or other beneficial effects that might improve nuclear safety (0.0 x 32).

Economic Aspects: Due to radwaste processing costs and current chemistry practices, this project is expected to result in a cost savings of $2.8 million over the remaining life of the plant. General plant maintenance costs are expected to be somewhat lower following completion of this project.

Related Standards: The Work Management Policies applicable to this project are material condition and operating parameters.

Other Considerations: Sample temperature is a critical parameter for accurate analysis. The FSAR states that the temperature of samples undergoing in-line analysis is designed to be maintained automatically at 77 degrees F (+ or - 1 degree). Technical specification limits are given at 25 degrees C (77 degrees F). The temperature is controlled at the sample station by the chiller system, which has been very unreliable. The INPO finding CY.1-1 is being tracked by FACTS Numbers 89B0905, 89B0906, and 90B1031. Closure of the INPO finding has been rescheduled several times. Most of the work can be done while the units are on line. Addition or tie-in of some sample points, especially from the condensate system, may require an outage. A presently recommended option involves radwaste sample station replacement with a station prefabricated off site by a vendor. If this option is accepted, off site fabrication time must be scheduled between design approval and installation.

III. CONCLUSION

This project is important to proper monitoring of reactor water chemistry and will be completed as scheduled. The conditions warranting action have been present since 1985 and resulted in a 1989 INPO finding that is still open.

IV. STATUS

Project is design phase approved by the Plant Review Group.

V. TARGET COMPLETION

July 1996

PROJECT MGR.	CHRIS HUGHES
PID	84587A

TURBINE UPRATE

I. PURPOSE AND SCOPE

This project improves BSEP efficiency by reducing main turbine throttling losses. The BSEP turbines have four inlet valves to the first stage. When operated in full admission, each of the four valves throttle equally to control steam flow to the turbine. In partial arc admission, two or three of the valves operate wide open at full power and control is obtained by throttling the remaining valve(s). Partial arc admission is more efficient at full power (for the same steam flow and reactor power) because throttling losses are less.

Operation in partial arc admission results in more uneven stresses than operation in full arc admission. The High Pressure Turbines in both units have been modified to strengthen the High Pressure Rotors for operation in partial arc operation.

Unit 2 was converted to partial arc admission during the fall of 1991. During subsequent operation, turbine oscillations due to control problems at high power necessitated a 75% power operation limit. These problems were addressed and corrected. Unit 2 is now in three admission partial arc operation and has demonstrated successful operation during the last run. Minor remaining control issues are being addressed.

Turbine output is affected by a number of factors, including circulating water temperature, but preliminary estimates are that conversion to partial arc admission has resulted in about 1.5% increase in turbine output.

This project included feedwater flow nozzle calibration testing to verify actual feedwater flow to the reactor.

II. EVALUATION

The feedwater flow nozzle calibration test resulted in a decrease of power output in Unit 2 and an increase of power in Unit 1.

Unit 2 performance testing indicates that the increased power output attributable to partial arc operation is about 8.5 MWe. It is expected that the conversion of Unit 1 will also produce about 1.5% increase in power output. These increases are significant in that additional power output is achieved without increases in fuel or operating expense.

Economic evaluations show that the project is very beneficial. The evaluations will improve as the Low Pressure Rotors (with improved efficiency) are installed. The Low Pressure Turbine contribution to improved efficiency have now been included in these economic evaluations as the low pressure rotors are not a part of this project.

This project is most closely related to the Work Management Policy for material condition, particularly with regard to optimizing plant productivity.

This project to uprate the turbines is related to the core thermal uprate, PID 02164A. The nuclear safety and licensing considerations are more significant for core thermal uprate. These two projects are considered separately because of their different natures.

III. CONCLUSION

The Unit 1 project will be completed as scheduled to substantially increase turbine capacity. The Unit 2 project is complete with two exceptions. Data is being collected and evaluated at the 100% power level to resolve a minor control problem. In addition, tests to enable the performance of control and stop valve testing at higher power levels is scheduled to complete in August 1994.

IV. STATUS

The Unit 2 project is implementation phased approved and the Unit 1 project is design phase approved by the Plant Review Group.

V. TARGET COMPLETION

August 1994	Unit 2
June 1995	Unit 1

PROJECT MANAGER	DAN MOORE
PID	G0058A

125/250 VDC BATTERY GROUND DETECTION IMPROVEMENTS

I. PURPOSE AND SCOPE

Electrical ground detection problems on the 125/250 VDC electrical system have delayed startup and have consumed hundreds of man-hours in repairs and alternative measures to detect and isolate (locate) grounds. The primary cause of these problems is that the 125/250 VDC electrical system ground detectors are inaccurate, unreliable, and obsolete. Repairs to the detectors are costly and difficult to perform since the repairs are performed at the component level and replacement parts are difficult to obtain. Frequent maintenance on ground detectors also increases the potential for creating circuit problems and increases general degradation of the detectors' circuit boards. Deficient and inaccurate control room annunciations have resulted in the need for ground readings to be taken manually on each shift. In addition to these hardware problems, the lack of a firm design basis for the setpoints of the detectors results in numerous man-hour expenditures to trace and isolate grounds that may be of little importance.

This project will provide a technical basis for the ground detection system requirements and will establish reasonable and maintainable annunciation setpoints. The scope of this project also includes researching industry ground detection systems to identify and select the most suitable system. Selection criteria will include maintenance, annunciation, and ground isolation considerations.

Successful completion of this project includes developing a valid setpoint design basis, which is to be accomplished by evaluating the electrical operating values for various DC components and by reviewing industry standards, BSEP system configuration, and the associated PRA implications. The success of the system upgrade will ultimately be measured in terms of man-hours saved on isolating grounds and repairing failed detectors, by a decrease in false control room annunciations, and by a significant increase in the probability of the detectors remaining calibrated.

II. EVALUATION

Schedule Index: 20 - Although AC electrical power is used for most safety-related equipment, DC power is used for certain safety-related equipment and instrumentation in the event of a loss of all onsite and offsite AC electrical power (station blackout). Improved ground detection techniques providing real-time detection and more rapid location of system faults provides more assurance that the DC system will supply power to vital equipment when required, resulting in some positive impact on nuclear safety (0.2 x 32). A major reason for identifying and removing electrical grounds is to provide safe working conditions for personnel and to ensure proper and safe operation of plant electrical equipment. Therefore, improving the reliability of ground detection assists operators in assuring that no unnecessary conditions exist to endanger personnel or plant equipment (0.2 x 29). Improved ground detection and isolation techniques will reduce the effort needed to identify and correct sources of electrical grounds, resulting in a moderate plant enhancement (0.5 x 8). Finally, the capability to more efficiently establish the source of a ground will reduce plant radiological area entries needed to perform ground detection, reducing the personnel radiation exposure currently expended in performing this activity (0.2 x 9).

Economic Aspects: Upgraded ground detection has substantial potential economic benefits. Upgrading of the ground detection system should alleviate the potential for delayed startup due to problems with detecting and isolating DC grounds. The costs that can be saved are evidenced by the approximately 1000 man-hours spent on such activities during a delayed startup of Units 1 and 2 in 1991. In addition, the need to perform manual ground detection could be removed, resulting in additional cost savings and improved productivity.

Related Standards: The Work Management Policies applicable to this study are material condition, design

documentation, and operating parameters.

Other Considerations: None

III. CONCLUSION

Because of the significant benefits this project is expected to yield, it will be accomplished as scheduled.

IV. STATUS

Project has been implementation phase approved by the Plant Review Group. Plant mod is in approval cycle.

V. TARGET COMPLETION

December 1994

PROJECT MGR.	DAN MOORE
PID	G0180A

BNP REFRIGERANT REPLACEMENT

I. PURPOSE AND SCOPE

This project is currently in the study phase to assess one of the potential impacts on BNP of the Clean Air Act. Federal law now supports the United Nations protocol to gradually phase out production of chlorofluorocarbons (CFC) refrigerants by the year 2000, but this date could be moved up (by presidential directive) to as early as 1995. The objective is to protect the Earth's ozone layer. Current CFC production is limited to the level produced in 1986. Under current law, this level will be reduced by 20 percent in 1993, 50 percent in 1995, and 85 percent in 1997, with production of new CFCs ending entirely no later than the year 2000. Manufacturers have indicated that production will end in 1995, regardless of federal law. The U.S. Clean Air Act also bans intentional venting of CFCs as of July 1, 1992. Enforcement of this law is the responsibility of the Environmental Protection Agency (EPA). The primary refrigerants used in BNP cooling systems are CFCs, so the availability of replacement refrigerants will be increasingly important as CFC production is restricted and terminated. Also, maintenance on cooling systems is already more difficult due to the venting restriction. The initial objective of this project is to identify and evaluate the impacts of using alternate refrigerants in the affected plant systems. Once the study phase has been completed, plant physical modifications must be developed and carried out expeditiously. The project may include increasing near term inventories of CFC refrigerants in plant storage as physical plant adjustments are planned and carried out. The relative refrigeration cycle effectiveness of alternate refrigerants will very likely impact cooling system design capabilities, requiring equipment changes. In particular, this project addresses Turbine Building chillers, Drywell chillers, Control Building chillers, Augmented Off-Gas (AOG) Building filter chillers, and the Training Building simulator chillers. Other plant equipment, vehicles, and buildings are also affected. This project will be successful if all refrigerant related Clean Air Act constraints are implemented without impacting plant operations.

II. EVALUATION

Schedule Index: 12 - This project does not impact any systems important in preventing core damage (0.0 x 32). Nevertheless, failure to comply with and anticipate the effects of the regulation would have a major impact on unit availability (1.0 x 12). Much of the impact depends on the availability of alternative refrigerants as the phaseout of CFC production continues. The worst case situation could involve plant shutdown due to inadequate cooling system capacity, but this would be a gradual and controlled management action. Although no outage has yet resulted from this Clean Air Act requirement, this is a strong possibility requiring immediate action.

Economic Aspects: The cost of CFC refrigerants is expected to increase significantly as the supply of CFCs is reduced and as Federal excise taxes on CFCs are increased to discourage CFC use. Deferral of this study and the resultant modifications could eventually lead to increased procurement costs and operating restrictions (including plant shutdown), but this would be gradual and dependent on availability and conservation of CFCs. No significant long term impact is expected after required studies and modifications are completed.

Related Standards: This study is primarily related to Work Management Policies for regulatory compliance (nonNRC) and material condition. Impacts on maintaining material condition involve a fundamental design change for plant cooling systems. Therefore, to maintain design capabilities (functional requirements), forward-looking design evaluations and timely cooling system modifications are required.

Other Considerations: The CFC issue affects all CP&L facilities. For CP&L nuclear plants, this project will be addressed systematically, thus avoiding possible limitations or restrictions on the use of cooling systems affecting equipment important to safety or basic plant operational requirements. In addition to impacts on the operation of electronic equipment, loss of cooling system operation can impact the capabilities of other systems. For example, with the loss of AOG cooling, the efficiency of the charcoal absorbers is reduced, resulting in higher radiation release levels.

III. CONCLUSION

CP&L will pursue this study and any resulting hardware modifications. Complete and timely chiller system design capacity validations (using alternative refrigerants) are needed. Where system hardware upgrades or other modifications are needed to critical chiller systems, their vigorous implementation will be required.

IV. STATUS

Study phase has been approved by Plant Review Group.

V. TARGET COMPLETION

Complete the study phase in August 1994.

PROJECT MANAGER	DENNIS COOPER
PID	G0193A

TORUS LINER PRESERVATION

I. PURPOSE AND SCOPE

The purpose of this project is to complete preservation of the torus liner and components. Successful completion of this project will help ensure that the liner will maintain integrity for the life of the plant.

This project includes draining, inspection, and preservation of the Unit 2 Torus. Inspections will include UT measurements of the liner at previously tested location and pit depth measurements to quantify the localized corrosion rate.

II. EVALUATION

The key assumption is the liner will not last the life of the plant due to localized pitting corrosion. This assumption is based upon the results obtained from underwater inspections on the Unit 1 torus liner. Conditions are expected to be similar for the Unit 2 liner. The reason for excluding the vapor zone from the preservation project is that it is not subject to localized pitting corrosion, and that it will last the remainder of plant life in their present condition.

III. CONCLUSION

The torus liner will be refurbished during the next two refueling outages.
Preservation began on Unit 2 Torus during the B211R1 refuel outage and is approximately 50% complete.

IV. STATUS

The project has been implementation phase approved by the Plant Review Group.

V. TARGET COMPLETION

Unit 1 - B110R1
Unit 2 - B212R1

PROJECT MANAGER STUART BYRD
PID G0249A

HYDROGEN WATER CHEMISTRY

I. PURPOSE AND SCOPE

Upgrade the Units 1 & 2 Hydrogen Water Chemistry systems to allow the systems to inject enough hydrogen to provide full core suppression of Intergranular Stress Corrosion Cracking (IGSCC) for short periods of time for evaluation of possible future continuous full core suppression injection (referred to a high injection rate, or about 3 ppm of H2 in feedwater). Actual anticipated operating injection rates in the near future are expected to be substantially lower (referred to as moderate injection rates, or 1.2-1.6 ppm of H2), however, due to anticipated need for shielding not yet installed on the moisture separator reheaters (MSRs). In addition, it is possible that the desired effects of full core suppression of IGSCC in the vessel may be obtainable through the use of moderate injection rates coupled with other emerging technologies (e.g., noble metal coatings).

Project Objectives or Goals and Expected Benefits:

1) Mitigate IGSCC in susceptible material in the reactor vessel and attached piping by controlling the electrochemical potential (ECP) and dissolved oxygen concentration in the reactor water.

2) Prevent extended outages and costly in-vessel component repairs and/or replacements (such as the Unit 1 shroud repair), due to IGSCC.

II. EVALUATION

See project scope and purpose.

III. CONCLUSION

Industry testing has indicated that this project as described will provide full suppression of IGSCC at a "liveable" radiation level however, it has not been proven over an extended period of time in an operating plant.

Based on the above, the scope of the original project has been reduced from a continuous 100 scfm injection rate to a continuous 40 scfm rate with provisions for short duration 100 scfm runs.

IV. STATUS

Implementation phase and initial testing is complete. 100scfm testing remains.

V. TARGET COMPLETION

December 1994.

PROJECT MANAGER	CRAIG MARCH
PID	G0251A

REFUEL BRIDGE UPGRADE

I. PURPOSE AND SCOPE

Refuel bridge upgrades in both units are required in order to increase reliability and safety during outage critical path defueling and reloading. Malfunctions of various refuel bridge equipment have resulted in outage delays.

This project upgrades or replaces the refuel bridge equipment having the most number of failures. For example, this project replaces the mast assembly, platform drive system, control systems, air compressor, and hose take up reels with more reliable equipment. Also, the main hoist motor is being refurbished, the load cells are being replaced with solid state strain gauge type load cells with a continuous digital readout. Several other reliability enhancements are being made in the compressed air system. Obsolete positioning equipment will be removed.

The major part of the work has been completed. The remaining work is to incorporate lessons learned in both Units.

This project will be successful when outage delays due to refuel bridge equipment malfunctions and failures are eliminated.

II. EVALUATION

Unit availability is affected due to refuel bridge failures extending outage critical paths. Refueling operations are outside the limitations of the PRA model since the current model does not consider plant shutdown conditions.

Nevertheless, refueling accidents are analyzed in the FSAR and are important to nuclear safety. Since the refuel bridge is used in refueling operations with heavy loads over the core and fuel pool, nuclear safety is impacted directly. Personnel safety is also directly impacted due to hoist reliability concerns. A reduction in personnel exposure to radiation is expected due to reduced maintenance requirements in the associated radiation areas. This project is a plant enhancement since it replaces obsolete equipment and reduces maintenance requirements.

Economic Aspects: Costs due to outage delays and maintenance requirements will be significantly reduced by this project.

Related Standards: This project is related to Work Management Policies for material condition and outage management.

Other Considerations: This project does not require an outage to accomplish the physical modifications but does require an outage for in core testing. This project addresses work on Unit 1 under PCN M0066A and, under PCN M0067B, the work on Unit 2.

III. CONCLUSION

The overall benefits of this upgrade project are significant in that due to improved reliability of the equipment, delays are expected to be reduced during critical path activities of defueling and reloading. This project will be accomplished as scheduled.

PID M0066A
Category II

IV. STATUS

Project is implementation phase approved by the Plant Review Group.

V. TARGET COMPLETION

Unit 2 July 1994
Unit 1 June 1995.

PROJECT MANAGER	DAN MOORE
PID	M0066A

SERVICE AND CIRCULATING WATER INTAKE AREA ENHANCEMENT

I. PURPOSE AND SCOPE

This is a comprehensive project to restore the material condition of the Service Water System (SWS) and Circulating Water System (CWS) intake areas and structures. The purpose of the SWS is to provide water from the Cape Fear River for lubrication and cooling of equipment in the Turbine Building, Reactor Building, Diesel Generator Building, Chlorination System, and the CWS. The SWS supplies a nuclear header and a conventional header. The purpose of the CWS is to provide water from the Cape Fear River for the main condenser. Due to the relatively humid and corrosive saltwater environment, the physical plant areas and equipment associated with these systems require continued upkeep and preservation. The project includes such work as upgrades to corroded steel structural components, platforms, conduit, cable trays, and handrails; piping repairs and replacement; general repairs to non-corrosive components; refurbishment of instrumentation and control systems; and general area improvements. The objectives of this project are to correct current material problems in the intake areas and to establish effective inspection and maintenance programs that prevent future, significant deficiencies.

The success criteria for this project are that the specified restoration work is completed as planned and that the associated equipment and general areas are returned to a corrosion-free condition.

II. EVALUATION

Schedule Index: 30 - This project is largely a plant enhancement, but it also affects other attributes. Enhancement of the SWS intake area will improve the system's availability in the event of an accident. If this project is not completed and the intake area not maintained on a continuing basis, the increased probability of a single SWS train being out of service would have a moderate impact on overall SWS availability. Since the SWS is designed to cool critical safety system components directly and can be cross-connected to the residual heat removal system in an emergency to provide additional reactor core flooding capability, this system is very important to nuclear safety. Consequently, this project provides moderate improvement in the availability of a highly important core-damage protection system (0.5 x 32). Corroded platforms and handrails are potential sources of personnel injury; therefore, this project will avoid current conditions from developing into a future concern in this area (0.2 x 29). Unit availability could be affected, but the gradual nature of the degradation and the general ability to make temporary repairs make this a low impact (0.2 x 12). Problems in the CWS can lead to loss of flow to the main turbine condenser, requiring turbine shutdown or loss of thermal efficiency (0.2 x 10). In addition, the SWS intake area facilities are frequently and readily identified as deteriorated, and these conditions are an indication of inadequate maintenance (0.5 x 8).

Economic Aspects: Long-term maintenance of these facilities will require additional annual expenditures above previous maintenance efforts. Thus, the base maintenance program will be expanded in parallel with these improvements in order to meet this obligation. Failure to maintain this equipment could lead to more extensive SWS and CWS problems, and potential damage of equipment cooled or served by these systems.

Other Considerations: Even though each unit has its own SWS and CWS, the intake facilities are common to both units and will require outage work to accomplish some of the electrical work, especially for controls. It is expected that a significant portion of the structural work can be done with the units in operation. Nevertheless, some of the structural work may also be more readily accomplished during outages.

III. CONCLUSION

Failure to maintain control of the material condition of the SWS and CWS facilities could lead to system failures requiring plant shutdown. Deterioration of the intake structure and associated equipment is usually gradual enough that any resultant system failures would be identified during normal operations and would primarily affect unit availability and capacity. Therefore, from a nuclear safety perspective, refurbishment and continued maintenance of these facilities is considered to be mandatory but not urgent. Nevertheless, since continued deterioration of these facilities could result in unit shutdowns, this project is being implemented as scheduled.

IV. STATUS

This project has been implementation phase approved by the Plant Review Group. This project is approximately 80% complete.

V. TARGET COMPLETION

92-103	December 1995.
93-021	December 1995.

PROJECT MANAGER	CHRIS HUGHES
PID	P0057B

REACTOR RECIRCULATION SYSTEM CHEMICAL DECONTAMINATION

I. PURPOSE AND SCOPE

Chemical decontamination of reactor recirculation system (RRS) is currently performed every refueling outage due to the proven and immediate dose savings which will result. The RRS is the largest single contributor to drywell dose rates during outages. The RHR and RWCU systems have a lesser impact on site total exposure such that chemical decontamination of these systems will be performed initially and not planned to be repeated in near term subsequent years. Dose rates and exposures from these systems will be monitored such that follow-up decontaminations can be planned as necessary.

II. EVALUATION

This project is expected to save 240 person-rem.

III. CONCLUSION

This project will be accomplished as scheduled.

IV. STATUS

The B211R1 outage portion of this project is complete. The remaining work involves disposal of waste resin. The resin has been sampled and will be disposed of when the sample results are received. This should be done by October 1994.

V. TARGET COMPLETION

Ongoing

PROJECT MANAGER	JAY TERRY
PID	R0123A

SPENT FUEL POOL COOLING ASSIST - PIPING & PENETRATIONS

I. PURPOSE AND SCOPE

Currently, the spent fuel cooling system is not capable of providing cooling for a full core off load until approximately 32 days after shutdown; therefore, the Residual Heat Removal (RHR) system must remain in operation during significant portions of outages which require full core off-load in order to provide adequate cooling. This requirement inhibits RHR system maintenance and prolongs outages. Temporary heat exchangers and cooling towers can be used to supplement the existing spent fuel cooling system and accomplish this cooling function, allowing increased flexibility for RHR maintenance. Since a core off load can be accomplished in about 10 days, the supplemental cooling capability can save about 22 days of outage time. The scope of this project is to install permanent auxiliary fuel pool cooling system penetrations, piping, and valves in the Unit 1 Reactor Building. Unit 2 installation is complete. When this project is completed, the permanent piping may be connected to supplemental spent fuel cooling equipment during refueling outages. Installation and operation of the SSFPC equipment is performed by project R0123I.

II. EVALUATION

Schedule Index: 18 - The use of permanent piping significantly improves the viability of using an alternate spent fuel pool cooling system. This allows RHR system maintenance flexibility during outages; this minimizes the length of refueling outages, increasing unit availability (1.0 x 12). Permanently installed piping minimizes the need to install and remove temporary system piping, reducing radiation exposure (0.5 x 9). The use of permanent piping and the increased availability of the RHR system without extensive temporary cooling system setup work constitute a plant enhancement (0.2 x 8).

Economic Aspects: The use of permanent piping for supplemental spent fuel pool cooling is more cost effective than the use of temporary piping. Overall, the use of the alternative cooling system for spent fuel cooling allows increased RHR system maintenance and decontamination flexibility, significantly reducing the length of refueling outages.

Related Standards: This project is related to Work Management Policies for human resources and outage management.

Other Considerations: The scope of this project is limited to the installation of permanent piping and valves for the supplemental cooling system.

III. CONCLUSION

This project will significantly increase the viability of using supplemental cooling of the spent fuel pool, allowing reductions in the length of refueling outages as a result of not having to operate the RHR system for this purpose. The savings are significant, so this project will be completed as scheduled.

IV. STATUS

Design is complete and installation will start in August 1994. Project is implementation phase approved by the Plant Review Group. Prefabrication of piping and supports is 60% complete.

V. TARGET COMPLETION

December 1994

PROJECT MANAGER	CHUCK RAINES
PID	R0123M

SMALL PROJECT LISTING		
PID NUMBER	PROJECT TITLE	TARGET COMPLETION
00918A	REACTOR VESSEL WATER LEVEL INSTRUMENTATION UPGRADE	12/94
02549A	SCREEN WASH PUMP UPGRADE	12/94
05307A	DC BATTERY LOAD STUDY	12/94
*05806A	RADWASTE EFFLUENT RELEASE LINE REROUTE	12/96
*05892A	EFFECT OF ELECTRICAL SYSTEM VARIATIONS ON TURBINE GENERATOR TORSIONAL RESPONSE	12/95
*06650A	REACTOR PRESSURE VESSEL THERMAL CYCLING EVALUATION	12/94
*07438A	REPLACEMENT OF OFF-GAS RAD MONITOR RECORDERS	12/99
07848A	REACTOR BUILDING ROOF VENT	12/94
08262A	DRYWELL COOLERS LOCA OVERRIDE	12/94
08893A	CONTAINMENT PENETRATIONS	06/96
31856B	FIRE BARRIER UPGRADE	12/94
80203A	DIESEL GENERATOR OIL LEVEL ANNUNCIATOR	12/94
84489B	480 VOLT VITAL MCC REWORK	12/94
G0015A	SMALL MODS	12/96
G0024A	INVESSEL CORE SPRAY PIPING REPAIR	05/96
G0050A	SERVICE WATER TASK ACTIVITIES	12/94
G0075A	LOCAL POWER RANGE MONITOR CABLE REPLACEMENT	12/95
G0083A	INSTRUMENT AIR COMPRESSORS	12/94
G0218A	MAKE TEMPORARY POWER FEEDS PERMANENT	12/95

* These projects require design and implementation phase approval by the Plant Review Group. Other projects are design and implementation phase approved.