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 MURLEY, T.E. Office of Nuclear Reactor Regulation, Director (Post 870411 R

SUBJECT: Forwards semiannual rept for plan for integrated scheduling of plant mods for facility. I

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Iowa Electric Light and Power Company

November 5, 1990

NG-90-2457

Dr. Thomas E. Murley
Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Station P1-137
Attention: Document Control Desk
Washington, D.C. 20555

Subject: Duane Arnold Energy Center
Docket No.: 50-331
Op. License No.: DPR-49
Semi-annual Report for the "Plan for the Integrated
Integrated Scheduling of Plant Modifications for the
Duane Arnold Energy Center"
Reference: D. Mineck letter to T. Murley dated May 3, 1990,
NG-90-1073
File: A-278

Dear Dr. Murley:

This letter and attachments provide the semi-annual report required by Section V.A. of the "Plan for the Integrated Scheduling of Plant Modifications for the Duane Arnold Energy Center" (the Plan). This report summarizes our progress in implementing Schedule A and B items, identifies the changes since the last report, summarizes the reasons for schedule changes, and provides updated schedules.

Attachment 1 is a summary of progress in implementing the items listed in Schedules A and B. It lists the eighteen items which have been completed since the last update (referenced above).

Attachment 2 identifies the changes since the last report. These revisions include changes to the Item Descriptions of four items, the revision of three Schedule commitment dates and the addition of twenty new Schedule B items. One Schedule B item has been deleted since our last report. The reasons for the schedule date changes are stated in Attachment 3.

Updated Schedules A and B are included as Attachment 4. For each item listed, the specific implementation date is stated and reference to the Nuclear Regulatory Commission (NRC) correspondence supporting this date. When available, references to NRC correspondence are cited for IELP-initiated items listed in Schedule B. Also, brief descriptions of those Schedule B items, which are not specifically described in other correspondence are included as Attachment 5.

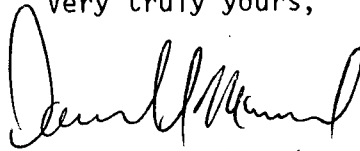
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Dr. Thomas Murley
NG-90-2457
November 5, 1990
Page 2

Please contact this office if you have any questions or comments concerning this submittal.

Very truly yours,



Daniel L. Mineck
Manager, Nuclear Division

DLM/DJM/pjv+

Attachments: 1. Summary of Progress in Implementing Schedule A and B Items
2. Changes in Schedules
3. Summary of Reasons for Schedule Changes
4. Updated Schedules A and B
5. Description of selected Schedule B items

cc: D. Mienke
L. Liu
L. Root
R. McGaughy
J. R. Hall (NRC-NRR)
A. Bert Davis (Region III)
NRC Resident Office
Commitment Control Nos. 890237, 900081, 870105, 890219, 890216, 890213,
890416, 890407, 890411, 890412, 890413, 860393,
890214, 890218, 830309, 890418, 900128, 89217

Summary of Progress in Implementing Schedule A and B Items

The following items, as listed on the Schedules A and B transmitted with the May 3, 1990 semi-annual report, have been completed during this reporting period:

Schedule A

Currently, there are no items listed on Schedule A.

Schedule B

- Security System Upgrades
 - Perimeter Intrusion Detection System Upgrade
 - Main Plant Perimeter Barrier
 - Intake Structure Perimeter Barrier
- Emergency Response Capabilities (Supplement 1 to NUREG 0737)
 - Detailed (Supplement 1) CRDR
 - Phase 3 Long Term Enhancements
- LPCI Swing Bus Enhancements Phase II
- Motor Operated Valve Operator Upgrades (IEB 85-03 and Supplement 1 to IEB 85-03)
- RWCU Piping Replacement
- Safety-Related Service Water Program (GL-89-13)
- Drill/Exercise Utilization of Control Room Simulator
 - Trial Use of Simulator
- HPCI Availability Improvements
 - Component Modification/Upgrades
 - System/Component Assessment Study
- MSIV Internals Improvement
- Post Event Reconstruction (GL83-28, Item 1.2)
 - Verify Completion of Containment Isolation
- Recirc Pump Shaft Replacement (Both Pumps)

- Replacement of Extraction Steam Pipe to 3A/3B Feedwater Heaters
- SPDS Enhancements
- Steam Leak Detection System Upgrades
 - Phase 1: System Performance Improvements
 - (NOTE: See page 1 Attachment 2 for item description change)
- Ultrasonic Examination of Reactor Vessel Beltline Region Welds.
Dimensional Survey
 - (NOTE: See page 1 Attachment 2 for item description change)
- Control Building HVAC and Chillers
 - Phase 1: Control Building HVAC Improvements
 - (NOTE: See page 1 Attachment 2 for item description change)

Changes in Schedules

Changes to the Schedules fall into four categories: revised descriptions of items, revised completion dates, addition of new items and deletion of items.

I. Item Descriptions

<u>Current Item Description</u>	<u>Revised Item Description</u>
---------------------------------	---------------------------------

Schedule A

Currently, there are no items listed on Schedule A.

Schedule B

- | | |
|--|--|
| • Steam Leak Detection Upgrades | • Steam Leak Detection (SLD) Upgrades
Phase 1: System Performance Improvements (Completed)
Phase 2: Technical Specification Change Evaluation |
| • Control Building HVAC and Chillers | • Control Building HVAC and Chillers
Phase 1: Control Building HVAC Improvements (Completed)
Phase 2: Control Building (Battery Room) HVAC Enhancements. |
| • Ultrasonic Examination of Reactor Vessel Beltline Region Welds

Dimensional Survey

Feasibility Study Position Paper and Drawing Development | • Ultrasonic Examination of Reactor Vessel Beltline Region Welds

Phase 1: Dimensional Survey (completed)

Phase 2: Feasibility Study Position Paper and Drawing Development

Phase 3: Vessel Weld Examination |
| • Technical Specifications Improvement

Short-term Enhancements

Long-term Improvements | • Technical Specifications Improvements

Short-term Enhancements

Phase 1:
Phase 2:

Long-term Improvements |

II. Schedule Changes

<u>Description</u>	<u>Current Completion Date</u>	<u>Revised Completion Date</u>
<u>Schedule A</u>		
Currently, there are no items on Schedule A.		
<u>Schedule B</u>		
•Verification of Safety-Related Ductwork	December 31, 1990	June 30, 1991
•Verification of Seismic Adequacy of Mechanical and Electrical Equipment (USI A-46, GL 87-02)	Prior to Cycle 12 Startup/NG-88-3209 to NRC	Prior to Cycle 13 Startup/NG-90-2457 to NRC
•Emergency Response Data System (GL 89-15)	Schedule not yet certain	June 30, 1991

III. New Items

<u>Description</u>	<u>Completion Date</u>
--------------------	------------------------

Schedule A

There are no new items added to Schedule A.

Schedule B

NRC Items

- | | |
|--|---|
| <ul style="list-style-type: none"> ▪ Off-site Dose Assessment Manual (ODAM)
Revision Schedule | <p>June 30, 1992</p> |
| <ul style="list-style-type: none"> ▪ Core Stability Studies (BN 88-07) | <p>June 30, 1991</p> |
| <ul style="list-style-type: none"> ▪ Vendor Information Project (GL 90-03) <ul style="list-style-type: none"> Phase 1: Vendor Information Project Phase 2: Verification of Safety-Related
Equipment Vendor Manuals Phase 3: Verification of Non-Safety-Related
Equipment Vendor Manuals | <p>March 31, 1991
 June 15, 1991
 December 21, 1991</p> |

IELP Initiative Items

- | | |
|--|--|
| <ul style="list-style-type: none"> ▪ Verification of Safety-Related HVAC Ductwork | <p>June 30, 1991</p> |
| <ul style="list-style-type: none"> ▪ Telemetry for Emergency Siren | <p>December 31, 1993</p> |
| <ul style="list-style-type: none"> ▪ Comprehensive Procurement Initiative <ul style="list-style-type: none"> Evaluation Implementation | <p>July 1, 1991
 July 1, 1992</p> |
| <ul style="list-style-type: none"> ▪ Service Water System Enhancements <ul style="list-style-type: none"> River Water Supply Pumps River Sediment Management System | <p>December 31, 1993
 March 31, 1993</p> |
| <ul style="list-style-type: none"> ▪ Replace Two Electro-Hydraulic Control (EHC) Pumps | <p>Prior to Cycle 12 Startup</p> |
| <ul style="list-style-type: none"> ▪ Configuration Management Plan | <p>Schedule not yet certain</p> |
| <ul style="list-style-type: none"> ▪ Scram Frequency Reduction | <p>Schedule not yet certain</p> |
| <ul style="list-style-type: none"> ▪ Long-term Instrument and Control Strategy <ul style="list-style-type: none"> Digital Feedwater Control Analog Trip System Program Study | <p>Prior to Cycle 12 Startup
 Schedule not yet certain</p> |

III. New Items (Continued)

Description

Completion Date

Schedule B

- | | |
|---|--------------------------|
| ▪ Spent Fuel Storage Improvements/Study | March 31, 1991 |
| ▪ Metrology Lab | Schedule not yet certain |
| ▪ Facility Upgrade Study | Schedule not yet certain |
| ▪ Self-Initiated Safety System Functional Inspection (SSFI) | June 30, 1991 |

IV. Items Deleted

Description

Reason for Deletion

Schedule A

Currently, there are no items on Schedule A.

Schedule B

Zinc Injection

The Zinc Injection project was canceled due to a lack of industry success in implementing this program. However, if technological improvements develop we will consider adding this project in the future.

Summary of Reasons for Schedule Changes

<u>Item Description</u>	<u>Change</u>	<u>Explanation</u>
<u>Schedule A</u>		
Currently, there are no items on Schedule A.		
<u>Schedule B</u>		
•Verification of Safety-Related Ductwork	December 31, 1990 to June 30, 1991	This project could have been completed on time. However, it would have required shifting resources from other projects that are considered to be higher priority. Therefore, we have changed the completion date of this project. Based on the positive results to date and completion of inaccessible areas during the outage, the revised schedule is justified.
•Verification of Seismic Adequacy of Mechanical and Electrical Equipment (USI A-46, GL 87-02)	Prior to Cycle 12 Startup to Prior to Cycle 13 Startup	We have changed the completion date of this project due to delays in the issuance of the Generic Implementation Procedure (GIP), Revision 2, Safety Evaluation Report (SER).
•Emergency Response Data System (GL 89-15)	Schedule not yet certain to June 30, 1991	The schedule has been revised to reflect our plans to complete this project in the first half of 1991.

November 5, 1990

1990 1991 1992 1993 1994 1995

← Cycle 11 → ■ ← Cycle 12 → ■ ← Cycle 13 → ■ ← Cycle 14

SCHEDULE A

No items in Schedule A.

SCHEDULE B

NRC Items

- Security System Upgrades

- Security Computer System Upgrade

-----•December 31, 1992

- Access Control Upgrade

-----•December 31, 1992

- Station Blackout Rule Compliance

- Schedule Submittal required by 10 CFR 50.63(c)(4)

(Note 4)

- RCIC Turbine Insulation

-----•Prior to Cycle 12 Startup/NG-90-0757 to NRC

- Control Room Lighting Improvements

-----•Prior to Cycle 12 Startup/NG-90-0757 to NRC

- Procedure Changes

-----•June 30, 1991/NG-90-0757 to NRC

- Containment Performance Improvements

- Hardened Wetwell Vent (GL 89-16)

-----•December 31, 1992/
NG-89-2886 to NRC

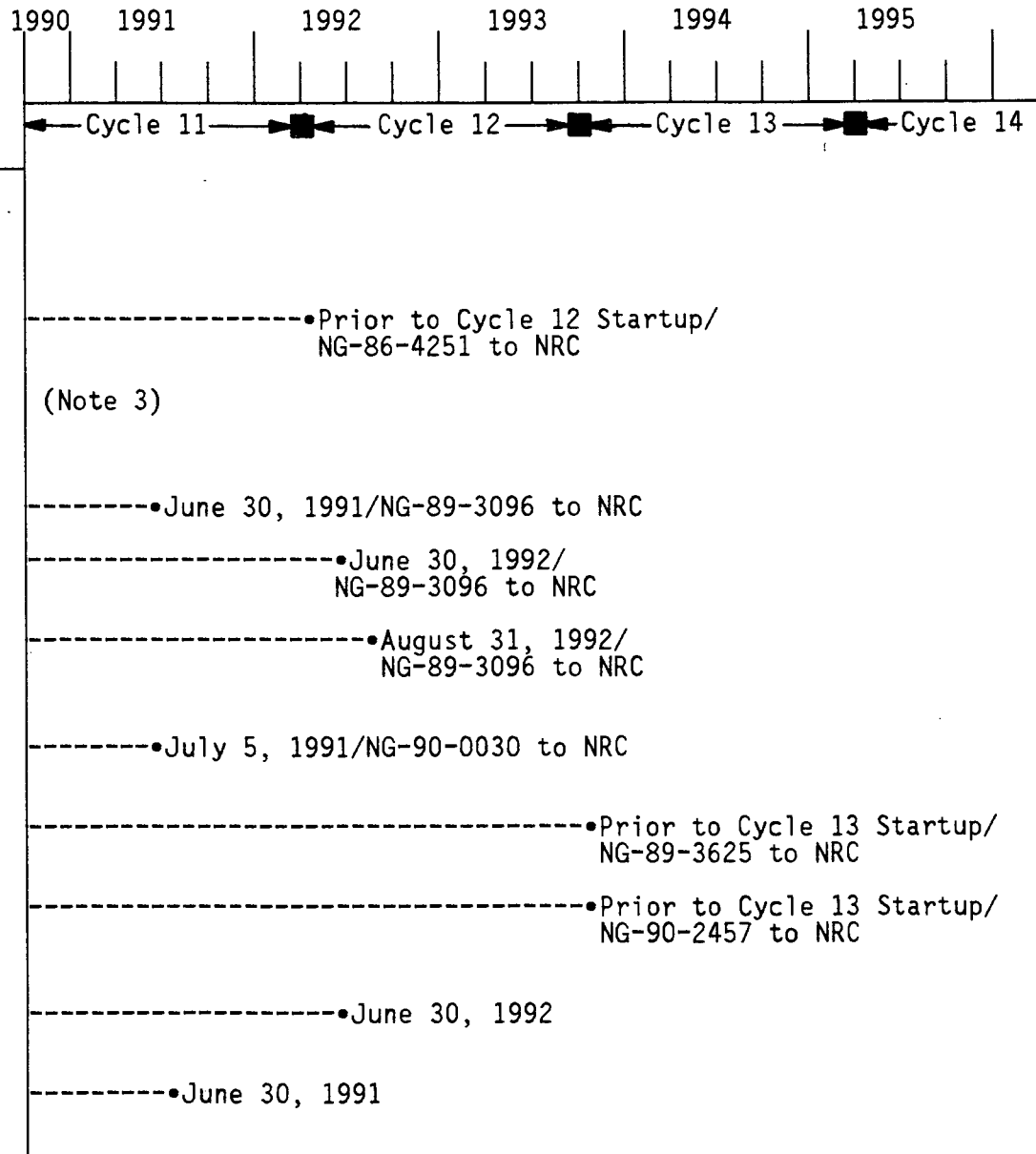
- Other Containment Performance Improvements

(Note 5)

- Emergency Diesel Generator Reliability Program

---•December 31, 1990

November 5, 1990



SCHEDULE B (Continued)

- Emergency Response Capabilities (Supplement 1 to NUREG-0737)

Detailed (Supplement 1) CRDR

Phase 4 Long Term Enhancements

Regulatory Guide 1.97 Enhancements

- Individual Plant Examination

Initial Level I PRA

Containment Performance Analysis

Report Submittal

- Inservice Testing Program Modifications (GL 89-04)

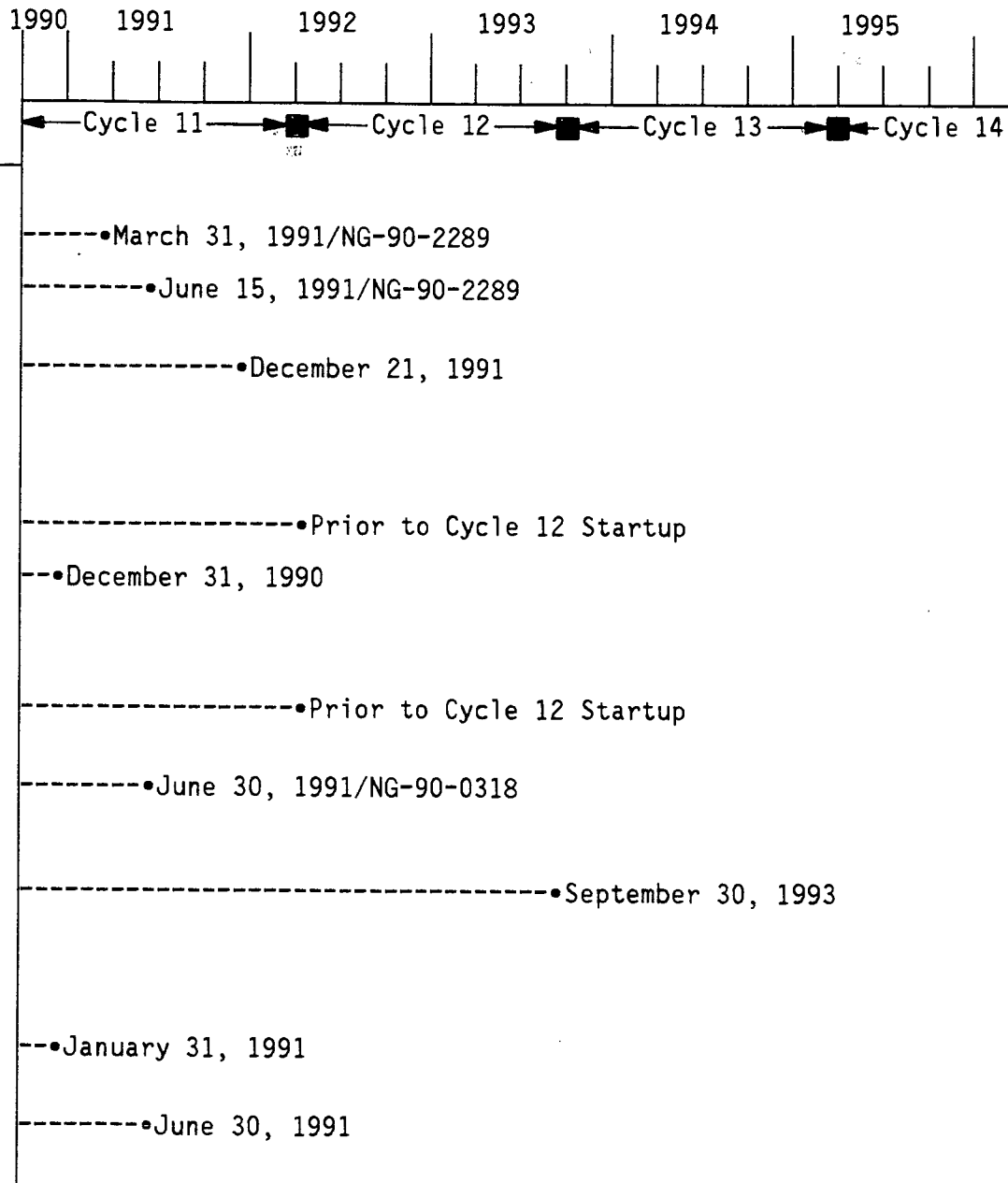
- Safety-Related MOV Operability/Testing (GL 89-10)

- Verification of Seismic Adequacy of Mechanical and Electrical Equipment (USI A-46, GL 87-02)

- Off-site Dose Assessment Manual (ODAM) Revision Schedule

- Core Stability Studies (BN 88-07)

November 5, 1990



SCHEDULE B (Continued)

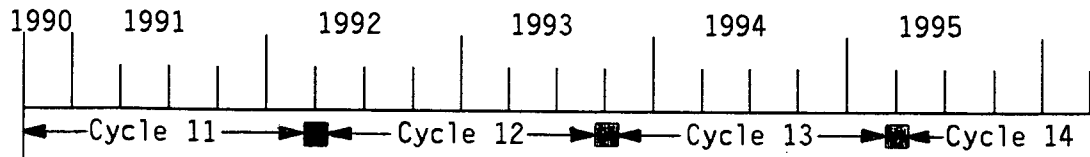
• Vendor Information Project (GL 90-03)

- Phase 1: Vendor Information Control Procedure
- Phase 2: Verification of Safety-Related Equipment Vendor Manuals
- Phase 3: Verification of Non-Safety-Related Equipment Vendor Manuals

IELP Initiative Items

- Additional 161kV Service Breaker -----•Prior to Cycle 12 Startup
- Implement Bill of Materials (BOM) Program ---•December 31, 1990
- Control Building HVAC and Chillers
 - Phase 2: Control Building (Battery Room) HVAC Enhancements -----•Prior to Cycle 12 Startup
- Verification of Safety-Related HVAC Ductwork -----•June 30, 1991/NG-90-0318
- Design Basis Program
 - Phase I - ECCS and Selected Safety-Related Systems -----•September 30, 1993
- Drill/Exercise Utilization of Control Room Simulator
 - Permanent Use of Simulator ---•January 31, 1991
- Emergency Response Data System (GL 89-15) -----•June 30, 1991

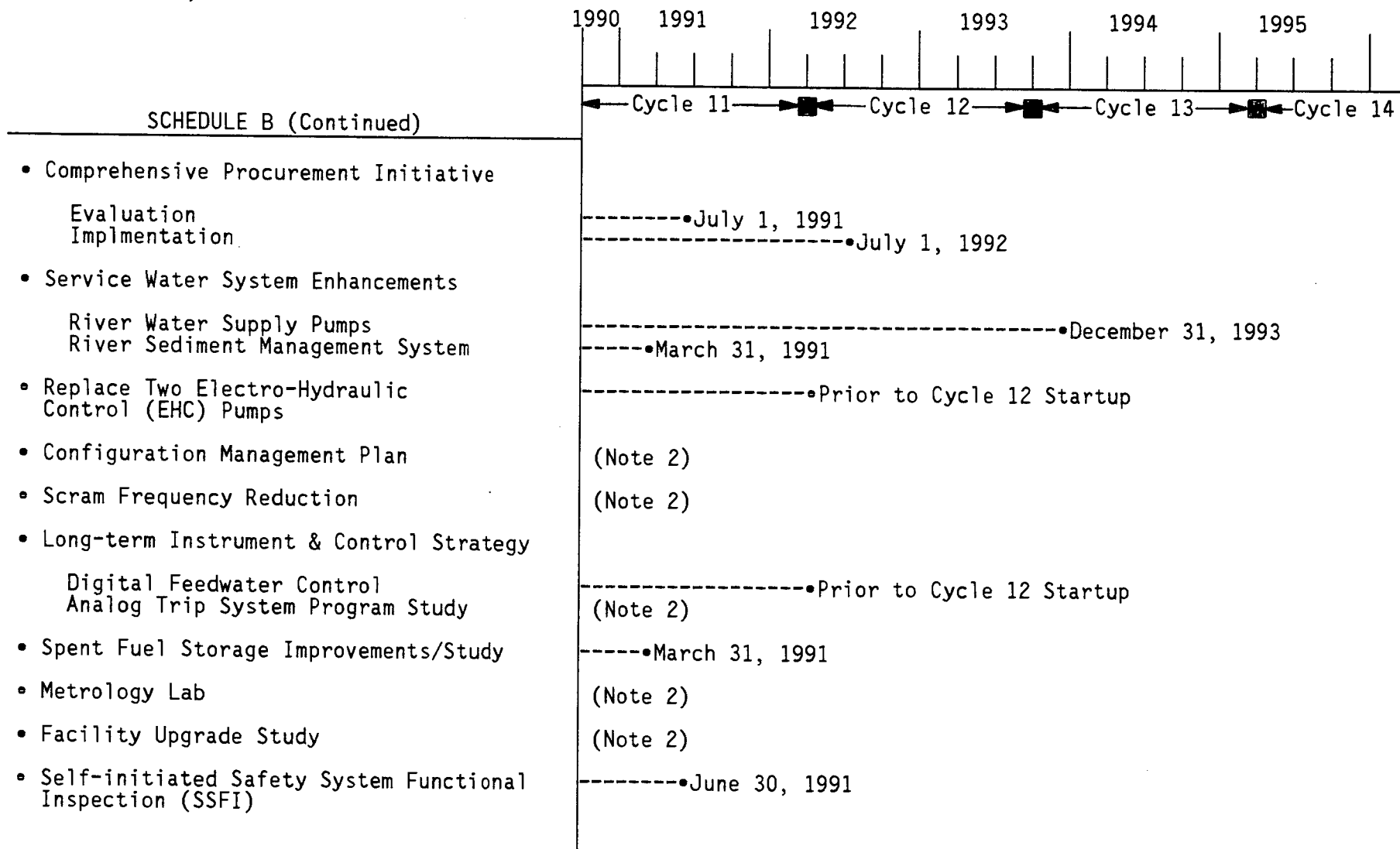
November 5, 1990



SCHEDULE B (Continued)

- Shielding Study for Revised Hydrogen Water Chemistry Program • Prior to Cycle 12 Startup
- Hydrogen Water Chemistry Oxygen/Hydrogen Generator (Note 2)
- Plant Life Extension (Note 2)
- Power Systems Analysis -----• December 31, 1991
- Reliability Centered Maintenance (RCM) Pilot Study ---• December 31, 1990
- Severe Accident Management (Note 1)
- Steam Leak Detection (Note 2)
 - Phase 2: Evaluation of Isolation Setpoints
- Technical Specifications Improvement (Note 1)
 - Short-term Enhancements
 - Phase 1: ---• December 31, 1990
 - Phase 2: -----• December 31, 1991
 - Long-term Improvements
- Ultrasonic Examination of Reactor Vessel Beltline Region Welds (Note 1)
 - Phase 2: Feasibility Study, Position Paper and Drawing Development -----• June 30, 1991
 - Phase 3: Vessel Weld Examination (Note 2)
- Telemetry for Emergency Sirens -----• December 31, 1993

November 5, 1990



Note 1: Schedule not yet certain, awaiting promulgation of NRC requirements/guidance.

Note 2: Schedule not yet certain, potential IELP initiative item.

Note 3: Schedule not yet certain, evaluation of scope in progress, (NG-89-0057).

Note 4: Schedule not yet certain. Due within 30 days of the notification provided in accordance with 10 CFR 50.63(c)(3).

Note 5: Schedule not yet certain. Potential improvements to be evaluated during Individual Plant Evaluation as requested by Generic Letter 89-16.

I. NRC Items

▪ Security System Upgrades

Security Computer System and Access Control Update

The Physical Security Computer System (PSCS) project consists of upgrading the main security computer hardware, the Central Alarm Station/Secondary Alarm Station (CAS/SAS) operator's consoles, access control, and the Video Switching Sub-system (VSS). The major functions provided by the PSCS will be access control, alarm monitoring and annunciation, security record storage and report generation, security material issue control, and simulator/training.

The PSCS will be a real time, database management system utilizing distributed intelligent processing at both multiplexers and remote control panels. A separate computer will be provided for use as a maintenance lab for testing of both hardware and software components and as a simulator for training purposes.

A new video switching and control system will be provided and will interface with existing fixed and pan/tilt/zoom (PTZ) cameras. The video switching system will become a subsystem to the PSCS and will receive inputs from the host security computers. These inputs will be processed into the proper form for alarm camera/monitor call-up, Close-Circuit Television Camera (CCTV) sequencing, and provide control outputs as required to operate camera equipment and auxiliary functions.

▪ Station Blackout Rule Compliance

RCIC Turbine Insulation

The RCIC Turbine is being insulated in order to maintain the RCIC room temperature at or below acceptable levels during a Station Blackout event.

Control Room Lighting

This project involves upgrading DC-powered overhead lighting in order to improve Control Room illumination during a Station Blackout.

Procedure Changes

The project involves reviewing and revising our Station Blackout Procedures to provide operators with better guidance during a Station Blackout event. Additionally, System Control Center Procedures are being reviewed and revised to ensure that they are in agreement with changes in the operations procedures to ensure that site power is restored as quickly as possible.

▪ Emergency Diesel Generator (EDG) Reliability Program

The Program consists of a detailed compliance review of our existing Diesel Generator Reliability Program and documentation of our compliance with guidance recently issued by the Nuclear Management and Resources Council (NUMARC) and the NRC on emergency diesel generator (EDG) reliability programs. This program will identify any problem areas or open items that should be resolved to achieve full compliance.

Those guidance documents referenced above are:

1. NRC Regulatory Guide 1.155
2. NRC Regulatory Guide 1.9
3. NUMARC 87-00 Appendix D
4. NUMARC Appendix D Topical Report

▪ Emergency Response Capabilities

Phase 4

Completion of Phase 3 resolved all safety significant Human Engineering Deficiencies (HEDs). Phase 4 will incorporate human factor considerations in areas such as:

1. Rod Block Monitors and Recorders
2. Condenser vacuum breakers
3. Lighting and Switch locations
4. Indicator scales
5. Control room atmospheric monitoring
6. Control room annunciator panels

▪ Off-Site Dose Assessment Manual (ODAM) Revision Schedule

The purpose of this project is to address discrepancies and implement improvements to the ODA M that were identified in the NRC Safety Evaluation of the ODA M (reference: J. Hall Letter to L. Liu dated August 17, 1990).

▪ Core Stability Studies (BN88-07)

We are pursuing a plant-specific study on core thermal-hydraulic stability in conjunction with two other BWRs comparable to our core size. The purpose of this study is to demonstrate that, due to the relatively small size of the DAEC core, unique options are available for addressing the NRC Bulletin. Additionally, we are following developments in the BWR Owners Group (BWROG) study of this subject.

- Vendor Information Project (GL 90-03)

- Phase 1: Vendor Information Control Procedure

- A division-level procedure will be issued to establish requirements for collection, review, and utilization of data from vendors and other industry sources.

- Phase 2: Verification of Safety-Related Equipment Vendor Manuals

- A review will be conducted to assure that up-to-date vendor manuals are available for safety-related equipment. The manual for each item of safety-related equipment will be identified and recorded in a computer data base. The vendor will be contacted, where possible, to either verify that our library has the current revision of that manual or to obtain the correct revision.

- Phase 3: Verification of Non-Safety-Related Equipment Vendor Manuals.

- The same effort described in Phase 2 for safety-related equipment will be completed for non-safety-related equipment.

II. IELP INITIATIVE ITEMS

- Additional 161KV Service Breaker

- The purpose of this project is to:

- 1. Eliminate a single-failure which results in a Loss Of Off-Site Power (LOOP).
 2. Reduce maintenance and repair restrictions on the East 161KV bus and startup transformer feeder breaker.
 3. Increase reliability of the startup transformer feed to a breaker-and-a-half* scheme which is consistent with all the other 161 KV loads and lines.

- *A breaker-and-a-half scheme consists of three breakers in series between two main buses with two circuits connected between the three breakers. This arrangement allows for a circuit to be taken out of service for maintenance purposes while still supplying power to the other circuit. In normal operation both circuits are energized.

- Implement Bill of Materials (BOM) Program

- The main goals of the Bill of Materials Project is to improve the on-site availability of critical parts as well as improve the responsiveness and efficiency of material support at the Duane Arnold Energy Center (DAEC).

- The BOM Project for the DAEC is being accomplished in phases. The first phase was an independent assessment of the materials program at DAEC. The assessment recommended development of an integrated BOM program at DAEC and provided the program definition.

The second phase of the project is the development of procedures for controlling the development and update of a BOM for each piece of equipment and the scope of the equipment to be included in the program. The BOM for each piece of equipment contains those critical characteristics of that equipment that must be specified on the procurement documents to the equipment vendor, such as operating characteristics, industry code requirements, seismic requirements, environmental qualification requirements etc. Once the BOM program procedures are in place and the scope of equipment is identified, the actual implementation of the program will be an on-going activity.

▪ Control Building HVAC and Chillers

Phase 1: Control Building HVAC Improvements (Completed)

The purpose of this project is to redistribute air flows and provide equipment changes to obtain positive pressure in those areas of the Control Building required to be isolated when the Control Building HVAC system is operating in the isolation mode. Those areas of the Control Building are:

- Control Room Complex including the Computer and Security Rooms
- East and West Switchgear Rooms, and
- HVAC Mechanical Equipment Room

The Control Room Complex must remain habitable during all plant operational modes. The Switchgear Rooms and the HVAC Mechanical Equipment Room must remain isolated as they provide return air paths to Control Building HVAC System and could potentially introduce contamination into the system.

Phase 2: Control Building (Battery Room) HVAC Enhancements

The purpose of this project is to provide additional cooling capacity and to modify ducting in the Battery Rooms in order to maintain a temperature that maximizes battery life.

▪ Verification of Safety-Related Ductwork

This project is a visual inspection of Safety-Related Ductwork to verify the physical integrity of the ductwork and the condition of functional components, for example, dampers. This project is being performed as a result of deficiencies described in NRC Inspection Report 50-331/89026.

- Design Basis Program

- Phase I-ECCS and Selected Safety Systems

The intent of establishing a Design Basis Program is to organize and collate the design bases information with supporting design information that provides for each system, structure, or component the rationale or "whys" for their functional requirements and controlling parameters. The design bases include assumptions, numerical values and other information used in the design of any system, structure, or component to assure that functional and regulatory goals are met. Design bases will be stated in concise terms and will focus on the specific functions or bounding parameters of each system, structure, or component. To this end, the objectives of the Design Basis Program are to assemble information concerning structures, systems, and components which are important to safety through:

1. an organized review of functional requirements and controlling (bounding) parameters for each structure, system, or component.
2. a comprehensive list of references that support the DAEC's functional requirements and controlling (bounding) parameters.

- Drill/Exercise Utilization of Control Room Simulator

- Permanent Use of Simulator

The object of this project is to use the DAEC Training Simulator to reproduce accident scenarios during Emergency Drill Exercises. The use of the simulator provides more realistic accident situations to drill personnel in a real time atmosphere. Additionally, use of the simulator minimizes interfering with the normal operation of the plant.

- Emergency Response Data System (GL 89-15)

The Emergency Response Data System (ERDS) is being established to provide data from the DAEC to the NRC through a direct link with the plant's computers. ERDS will permit a direct, real-time transfer of data from the DAEC plant computers to the NRC Operations Center. The system will be designed to be activated at the plant during an emergency which has been classified at an ALERT or higher level. The NRC portion of ERDS will receive, sort and file the data. The users will include the NRC Operations Center, the NRC Region III Office, and, if requested, the State of Iowa. The currently installed Emergency Notification System will be used to supplement ERDS data.

▪ Shielding Study for Revised Hydrogen Water Chemistry Program

This project's goal is to determine the feasibility of increasing hydrogen injection rates into the primary system coolant. A demonstration test was performed which determined the amount of additional hydrogen which would have to be injected into the primary coolant system to protect certain reactor vessel internals from the effects of Intergranular Stress Corrosion Cracking (IGSCC). The results of this demonstration test indicated the need for additional plant shielding due to the increased radiation levels from the additional hydrogen injection. This study will:

1. Determine the additional shielding requirements at various injection rates, such that the zone limits per UFSAR 12.3.1 are met, and perform a cost estimate of the design and construction costs associated with the additional shielding requirements.
2. Evaluate plant radiation levels due to the effects of component shielding as well as bulk shielding.
3. Determine the effects of additional hydrogen injection at the site boundary via skyshine measurements.

▪ Hydrogen Water Chemistry Oxygen/Hydrogen Generator

The oxygen/hydrogen generators main purpose will be to produce hydrogen for the Hydrogen Water Chemistry Program at the plant. Producing hydrogen on-site will reduce the amount of hydrogen which is presently being delivered to the site. Development of this project is dependent upon the results of the Shielding Study for Revised Hydrogen Water Chemistry. If the decision is made to increase the hydrogen injection rates, installation of an oxygen/hydrogen generator will be considered.

▪ Plant Life Extension

The Plant Life Extension (PLEX) project at the DAEC is aimed at obtaining an extended operating life for the plant. To accomplish this goal, the project will identify those Systems, Structures and Components (SSC) susceptible to age-related degradation and develop strategies to counter those effects. The project consists of three phases: 1) Planning - development of a project plan and screening for SSC that warrant detailed life extension analyses; 2) Evaluation - detailed analyses of SSC subject to age-related degradation and implementation of aging management programs; 3) Application - preparation of the NRC submittal for license renewal.

The DAEC PLEX program is in phase 1. We plan to issue the DAEC PLEX Program Plan and initiate a material sampling program to assess the condition of age susceptible SSC and screen those SSC for analyses.

▪ Power Systems Analysis

The project scope consists of the DAEC's safety and non-safety-related AC and DC electrical distribution systems. The project scope overview includes:

1. Performing an initial AC power distribution system analysis, performing a DC power distribution system analysis and implementing the Emergency Diesel Generator (EDG) transient analysis. A computerized model of the plant's electrical distribution system will be developed from these analyses. The initial model will focus on the main electrical distribution system and major loads.
2. Implementing short-term programmatic controls to maintain the electrical equipment data base developed in item 1 until the full program is completed.
3. Developing a new data base on the Computerized History and Maintenance Planning System (CHAMPS) which combines the existing data with the electrical equipment data base generated in items 1 and 2. The new data base will be called the Site Power Utilization Records (SPUR). Implementing the development of the required SPUR software.
4. Expanding the computer model to include the remaining lower-voltage AC circuits, motor overloads, and breaker and fuse coordination schemes.
5. Implementing the long term programmatic controls, and initiating the replacement of existing plant documents with the SPUR data base.

▪ Reliability Centered Maintenance (RCM) Pilot Study

Reliability Centered Maintenance is a methodology for optimizing the effectiveness of an equipment maintenance program. Our RCM Pilot Study consists of learning the methodology of RCM and then assessing RCM's effectiveness if applied to DAEC's operating and maintenance requirements. The Main Feedwater system and the EDG system will be the initial systems analyzed in the study.

▪ Severe Accident Management

We are currently following industry and regulatory developments for direction in outlining a Severe Accident Management Program. We recognize that the Individual Plant Examination (IPE) will provide guidance in developing a program to manage severe accidents, i.e., those beyond the plant's design basis.

Consequently, this program is dependant upon completion of the IPE, as well as other industry initiatives such as those being done by EPRI, NUMARC, etc.

- Steam Leak Detection (SLD) Upgrades

- Phase 1: System Performance Improvements (Completed)

- The purpose this project is to improve the SLD system performance by eliminating the need to lift leads for performing surveillance testing, reducing signal noise effects in the system, relocating temperature elements and relays, and installing burnout protection in those switches currently without such protection.

- Phase 2: Evaluation of Isolation Setpoints

- We are currently reviewing design documents to determine whether SLD isolation setpoints need to be revised.

- Technical Specification Improvement Program

- Short-Term Enhancements

- The short-term enhancements of the Technical Specifications Program is divided into two phases that consists of preparation of Technical Specification (TS) amendment requests derived from a combination of the NRC line-item Improvement in Technical Specification Generic Letters (GL) and Iowa Electric-identified improvements. The identified changes are listed under their respective phase as follows.

- Phase 1:

- GL 88-06: Removal of Organization Charts

- GL 88-12: Removal of Fire Protection Requirements

- GL 88-16: Removal of Cycle-Specific Parameter Limits

- GL 89-14: Removal of the 3.25 Limit on Extending Surveillance Intervals

- RTS-228: Elimination of conditional surveillance requirements on multi-train systems and adoption of the current NRC Standard Technical Specifications LCO times and Action Statements for these systems.

- Phase 2:

- GL 89-01: Removal of Radiological Effluent TS (RETS)

- RTS-186: Reverification and reformatting of Instrumentation Tables and Implementation of the BWR Owners' Group topical reports on extending surveillance intervals and allowed outage time for RPS, ECCS, Control Rod Block and PCIS instrumentation.

- RTS-218: Elimination of the Primary Containment Isolation signal on Main Steamline High Radiation. The justification for this change has been submitted as a Licensing Topical Report by the BWR Owners' Group and is currently under review by the NRC staff.
- RTS-232: Increase the allowable leakage rate limit for the Main Steamline Isolation Valves (MSIV) during the performance of 10 CFR Part 50, Appendix I testing and eliminate the requirement for the MSIV-Leakage Control System. The justification for this change has been submitted as a Licensing Topical Report by the BWR Owners' Group and is currently under review by the NRC staff.

Please note the division of short-term enhancements into two phases was required to adequately communicate our goals in this project and to allow sufficient time to prepare the TS change submittals which are dependent upon BWR Owners' Group submittals.

Long-Term Improvements

The long-term program consists of a comprehensive program to rewrite TS based upon the NRC Interim Policy Statement on TS Improvements. The program will utilize the guidance from the final NRC-approved version of the BWR Owners' Group Improved TS topical report.

- Ultrasonic Examination of Reactor Vessel Beltline Region Welds

- Feasibility Study, Position Paper and Drawing Development

- Phase 1: the dimensional study of beltline region welds has been completed. Phase 2: the feasibility study, Position Paper and Drawing Development has been initiated. We are reviewing Reactor Pressure Vessel (RPV) records, determining governing requirements and regulations (required by ASME Section XI 1989 Edition), and developing an examination program in preparation for conducting a 10 year ISI examination of the RPV. Phase 3: performance of vessel examination.

- Telemetry for Civil Defense Sirens

The addition of telemetry to the Emergency Planning Public Notification System sirens will provide several benefits and an increase in the level of system control. Some of the benefits are:

1. The status of siren system at any time.
2. Determination that a particular siren has been activated.
3. Identity of the loss of AC power to a system sector.

In addition, this system will assist us in minimizing or preventing problems similar to those described in NRC IN 90-34.

- Comprehensive Procurement Initiative

The purpose of implementing this program is to minimize the impact of fraudulent activities by an equipment supplier and to provide long-term resolution to plant and NRC concerns relating to procurement activities. In order to meet these objectives we are developing and implementing a program that encompasses the NUMARC guidelines mentioned above.

Evaluation

Our current procurement program will be evaluated to identify where improvements can be made by implementing the NUMARC guidelines.

Implementation

Upon completion of the Evaluation phase, we will implement the recommendations into our procurement process and procedures.

- Service Water System Enhancements

River Water Pumps

The purpose of this project is to procure a replacement River Water Pump to allow on-line rebuilding of the River Water Pumps.

The spare pump will allow for systematic refurbishment of the four installed pumps on an individual basis. For example: the spare pump will replace one of the installed pumps; the pump that was replaced by the spare will be refurbished; the refurbished pump will then replace the next installed pump requiring refurbishment; this sequence of events will continue until all pumps including the spare are refurbished. This method of refurbishment will minimize the time a pump is removed from service.

River Sediment Management System

The purpose of the project is to reduce the maintenance costs associated with sediment intrusion into the service water systems by installing flow-direction vanes (Iowa Vanes) and a retaining wall at our intake structure.

- Replace Two Electro-Hydraulic Control (EHC) Pumps

Replacement parts for the current pumps are becoming increasingly difficult to obtain. Therefore, we are considering replacing the pumps with those from another vendor for which replacement parts and pumps are readily available.

▪ Configuration Management Plan

The purpose of this project is to design and implement a program to achieve comprehensive control of the updating and maintenance of plant documents. The large amount of change in regulations, design, and procedures that occur for a nuclear plant over a period of time presents a difficult task to ensure that all affected procedures, drawings, equipment specifications and other controlled documents are updated to reflect the change. This project will provide us with a program to manage the required document changes through a comprehensive electronic data base system. Initially, we are installing an electronic scanning device to place all plant drawings in the electronic data base.

▪ Scram Frequency Reduction

The purpose of this project is to examine and implement improvements to lower the scram rate of our plant. In 1989, we formed a Scram Frequency Reduction group to review plant operating experience and industry reports to identify improvements in equipment, communications, procedures, and personnel training that can be made to reduce our scram rate in order to be consistent with industry goals. An example of an improvement that has been implemented is: we converted some turbine trip logic from single incidence to coincident logic (e.g. two-out-of-three logic) in the most-recent refueling outage.

▪ Long-term Instrument and Control Strategy

Digital Feedwater Control

The purpose of this project is to upgrade the present feedwater control system to a new digital control system. This project is a direct result of the scram frequency reduction effort described above. Digital control will allow us to incorporate new technological improvements in instrumentation and computerized system control, thereby improving the system's reliability.

Analog Trip System Program Study

The purpose of this project is to determine whether installation of an analog trip system will provide an effective way to reduce scrams, particularly those which occur during Surveillance Testing. The installation of an Analog Trip System will require a substantial amount of resources; therefore, we will be closely examining industry reports and plant operating experience regarding this subject. The conclusion of this study is dependent upon the experience gained from installing the digital feedwater control system.

▪ Spent Fuel Storage Improvements/Study

At our present rate of fuel discharge, the spent fuel pool storage racks will be full within 7 operating cycles and we will lose the ability to do full-core off loads within 4 operating cycles. Therefore, we are currently evaluating three options for obtaining additional spent fuel storage. The options are:

1. Re-racking our spent fuel pool with higher density racks,
2. Fuel consolidation,
3. Alternatives in above-ground dry storage systems.

▪ Metrology Lab

The purpose of this project is to establish a laboratory for calibrating our measuring and test equipment (M&TE) with control over the ambient conditions, such as temperature and relative humidity. Currently, the calibration of M&TE is performed in areas where it is difficult to repeat calibration results on a regular basis, due to less than adequate control of temperature and relative humidity.

▪ Facility Upgrade Study

This study will be conducted to determine the alternatives for increasing on-site facility space for plant, engineering and support staff.

▪ Self-Initiated Safety System Functional Inspection (SSFI)

A self-initiated SSFI, using inspection techniques similar to the NRC SSFI inspection module, will be conducted. This inspection involves reviewing the design and implementation of a plant Safety System, which has yet to be determined, and the adequacy of associated engineering and technical support.