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Power Generation Department

Georgia Power
the southern electric system

NED-83-499

October 5, 1983

Director of Nuclear Reactor Regulation
Attention: Mr. John F. Stolz, Chief
Operating Reactors Branch No. 4
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2
PLANT HATCH OUTAGE SCHEDULES

Gentlemen:

In recent weeks Georgia Power Company (GPC) has been developing a schedule and work plan for Plant Hatch Units 1 and 2. On September 28, 1983, GPC management presented this schedule to the NRC. The purpose of this letter is to document GPC's schedule for major activities and outages as presented at the September 28th meeting. A copy of each slide that was shown is included as an attachment.

Due to our experiences with intergranular stress corrosion cracking (IGSCC), and the industry's experience, we have taken a hard look at developing a more permanent, long-term solution. This examination included consideration of the current state of technology in the application of weld overlays and in Ultrasonic Testing of pipe flaws, the economics of replacement versus increased inspections and repairs, the availability of material and craft personnel, etc. We have concluded that in the case of Plant Hatch Unit 2, although circumferential cracking was extensively indicated, there was no safety implication for intermediate term continued operation. However, it appears that pipe change out is a foregone conclusion. The decision then was not whether to replace the pipe, but a question of when to replace.

In the case of Hatch Unit 2, we believe that pipe replacement:

(1) Provides the most positive solution for the IGSCC problem with significant improvements in materials and design;

(2) Enables better operations management by avoiding future schedular concerns regarding subsequent inspections; and

(3) Although it puts us early on the learning curve, it enables us to achieve our objective of minimizing impact on GPC.

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We made this decision even though we had taken appropriate mitigating steps. We continue to trust the weld overlay process, and believe that its application is good for at least five years. The issues are questions of economics and operational flexibility. We conclude that timely action is warranted to reduce overall impact. Consequently, our plan is to change out the Plant Hatch Unit 2 recirculation piping as soon as possible.

With this understanding, we had been developing a schedule and work plan, and had made a presentation to our senior management at the end of August. A number of considerations went into planning such a major outage. A primary consideration was to not plan concurrent outages of both Hatch units. With this in mind we looked for a way to keep Hatch 1 available during the long change out period when Hatch 2 would be out of service. The option given the most consideration was to derate Hatch 1 to enable it to operate until Hatch 2 was returned to service, avoid a summer, 1984, scheduled outage, and to provide our plant people a much need breather between major outages. Our plan was, therefore, to shut down Hatch 2 for piping replacement and have it return to service by summer, 1984, and then remove Hatch 1 from service for refueling after the summer of 1984.

This plan was in the process of being evaluated in greater detail when Hatch 1 experienced an increase in offgas levels over the Labor Day weekend. The unit has since been held to 70% power and offgas levels have been reduced to pre-Labor Day values. The unit could be operated in this mode and still meet the planned goals mentioned above. We believe, however, that this would only make future plant modifications and plant operation more difficult. We think it is more prudent to replace the leaking fuel as soon as possible, as we did in October, 1981.

With this in mind, the plan which was presented to the NRC on September 28, 1983, addressed the replacement of recirculation piping, the replacement of leaking fuel assemblies, and the associated outage schedule for the two Hatch units over the next twelve to eighteen months.

As can be seen from the attached copies of the slides which were presented, we are proposing schedules for three outages between now and fall, 1984. We propose a core reconstitution outage for Unit 1, similar to that performed in October, 1981, to begin the first week of November, 1983. That outage is expected to last five weeks. Following the year end holiday season, a Unit 2 refuel/pipe replacement outage would be scheduled to begin in January, 1984, and last approximately six months. A Unit 1 refuel/plant modifications outage would then be scheduled for fall, 1984.

The primary reason for the Unit 1 core reconstitution outage in 1983 would be to replace leaking fuel. A scram discharge volume modification will also be completed in compliance with an earlier NRC order.

The Unit 2 refuel/pipe replacement/plant modification outage scheduled to begin January, 1984, would include the following major activities:

(1) Refuel
(2) Recirculation Pipe Replacement
(3) Scram Discharge Volume Modification
(4) Pipe Whip Restraint Additions
(5) Fire Protection (10 CFR 50, Appendix R) [begin work]
(6) Equipment Qualification
(7) Safety Parameter Display System/Emergency Operating Facility [begin work]

This Unit 2 outage is expected to last approximately six months.

The Unit 1 refuel/plant modification outage is currently scheduled to begin mid-September, 1984. This outage would include the following major activities:

(1) Refuel
(2) Recirculation Pipe Inspection
(3) Torus Attached Piping
(4) Fire Protection (10 CFR 50, Appendix R) [begin work]
(5) Equipment Qualification
(6) Safety Parameter Display System/Emergency Operating Facility [begin work]

This Unit 1 outage is currently schelduled as a nominal two-month outage.

In order to support the Unit 2, 1984 outage, GPC requests relief from the order requiring a recirculation pipe inspection in 1983. Instead, GPC proposes to replace the recirculation piping during the outage beginning in January, 1984. GPC also requests an extension of the orders requiring scram discharge volume modifications and pipe whip restraint installation by December 31, 1983. These modifications would then be completed during the Unit 2 outage.

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To support the Unit 1 1983 core reconstitution outage, GPC requests timely NRC review of its Technical Specifications submittal resulting from a change in the core configuration. During this very short outage, which is primarily for the purpose of replacing leaking fuel, GPC does not plan to perform an inspection of the recirculation piping. Some of the reasons for not performing an inspection at that time are:

1. The I&E Bulletin 82-03 inspection as performed at Hatch Unit 1 in October-December 1982 met the intent of I&E Bulletin 83-02 because:

   a. qualifications of personnel were performed at Battelle;

   b. the scope of exams exceeded the requirements of I&E Bulletin 83-02 whereas:

      1. Bulletin 83-02 required a minimum of ten welds to be inspected on pipes 20" diameter (twenty-three Recirculation & Residual Heat Removal welds were examined on Unit 1);

      2. Bulletin 83-02 required a minimum of ten riser welds to be examined (twenty-one welds were examined on Unit 1); and

      3. Bulletin 83-02 required that two sweepolet welds nearest the end caps be examined (four welds were examined on Unit 1).

   c. examination techniques and procedures were essentially the same;

   d. many of the personnel performing examinations at Hatch Unit 2 were the same as those who performed examinations at Hatch Unit 1 (particularly the lead Level II and Level III individuals responsible for evaluation of indications).

2. Experienced examination personnel might be unavailable due to the amount of cracking observed throughout the industry and the anticipated radiation exposure obtained through augmented inspections during the last quarter of the year at other BWRs.

3. Examinations would be restricted due to fuel movement during the brief outage.

4. Reactor Coolant System (RCS) leakage detection has been augmented and no problem has been observed.

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Consequently, based on the above, GPC concludes that adequate inspections have been performed and no further inspections should be required at this time.

GPC plans to proceed with this proposed schedule. We request that the NRC provide a timely response if it is unable to support this schedule in part or in full.

Very truly yours,

H. C. Nix
General Manager and
Acting Vice President

DLT/mb

Enclosure

xc: H. C. Nix, Jr.
Senior Resident Inspector
J. P. O'Reilly, (NRC-Region II)

Integrated Schedule for Plant Hatch Recirculation Piping and Leaking Fuel Replacement

Georgia Power
E.I. Hatch Nuclear Plant

PLANT HATCH

Agenda

I. Introduction & Purpose

II. Outage Schedules

III. Major Activities

A. 1983 Hatch-1 Core Reconstitution

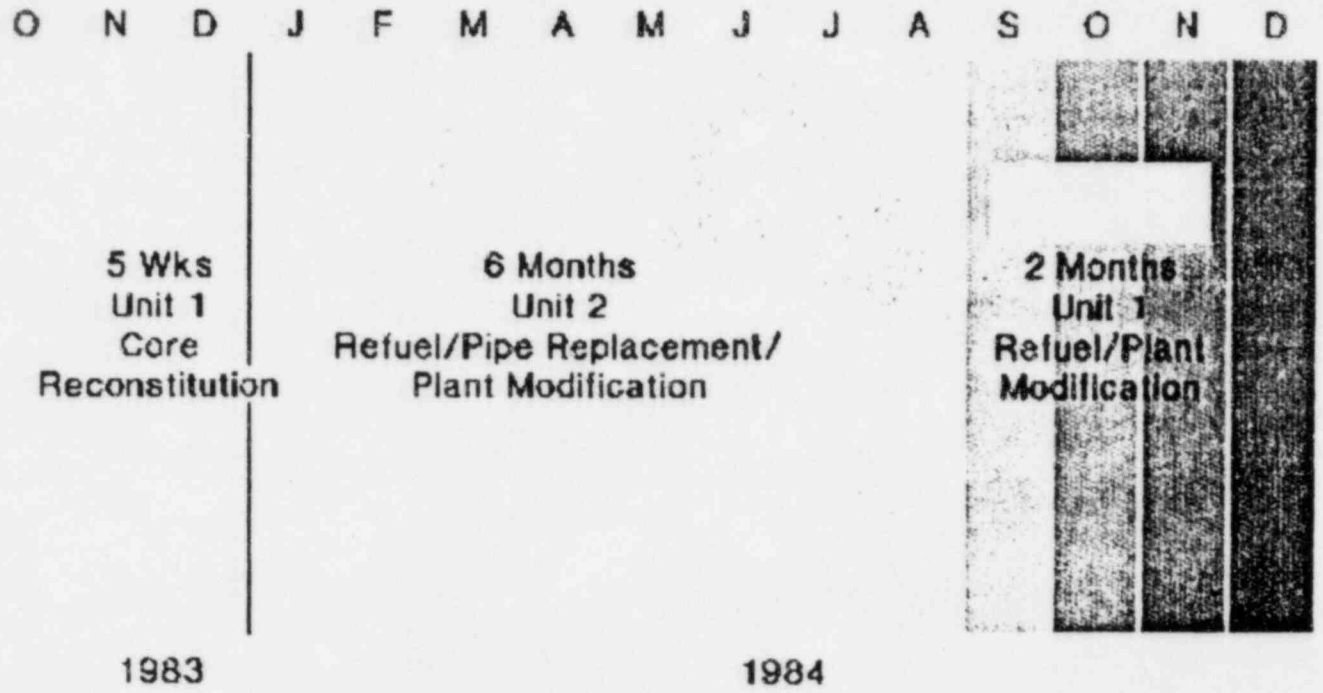
B. 1984 Hatch-2 Refuel/Pipe Replacement/ Plant Modifications

C. 1984 Hatch-1 Refuel/Plant Modifications

IV. Summary Discussion

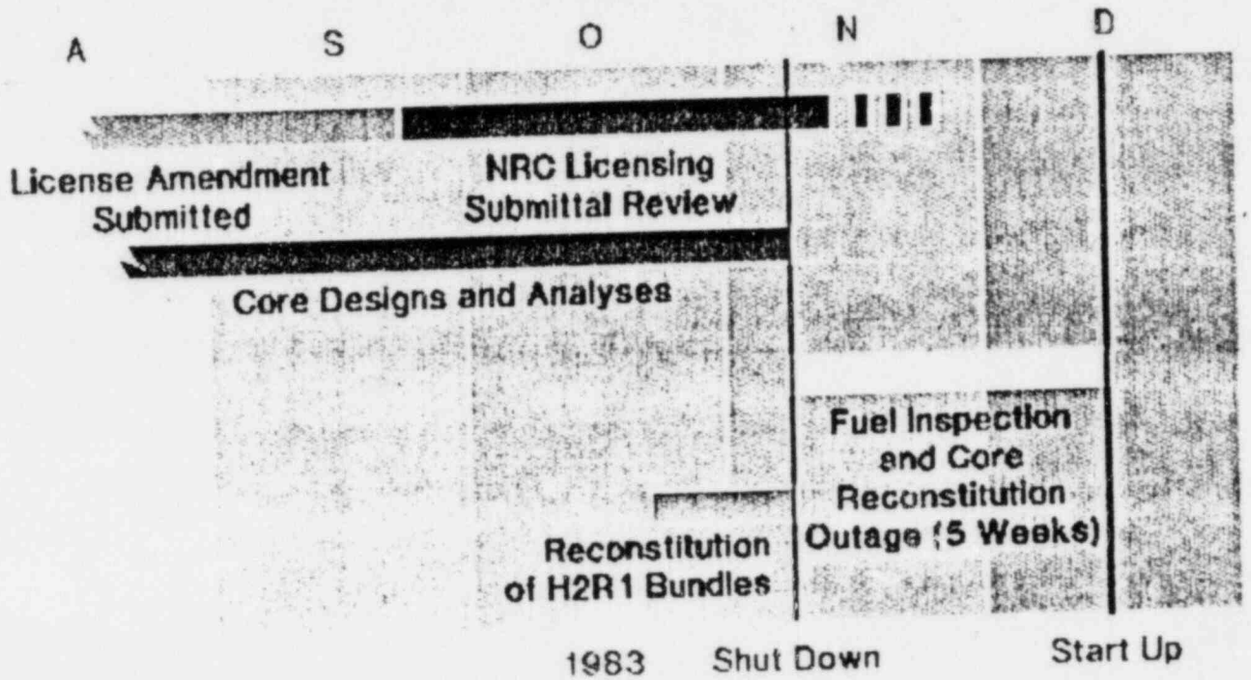
PLANT HATCH

Planned Plant Hatch Outage Schedules



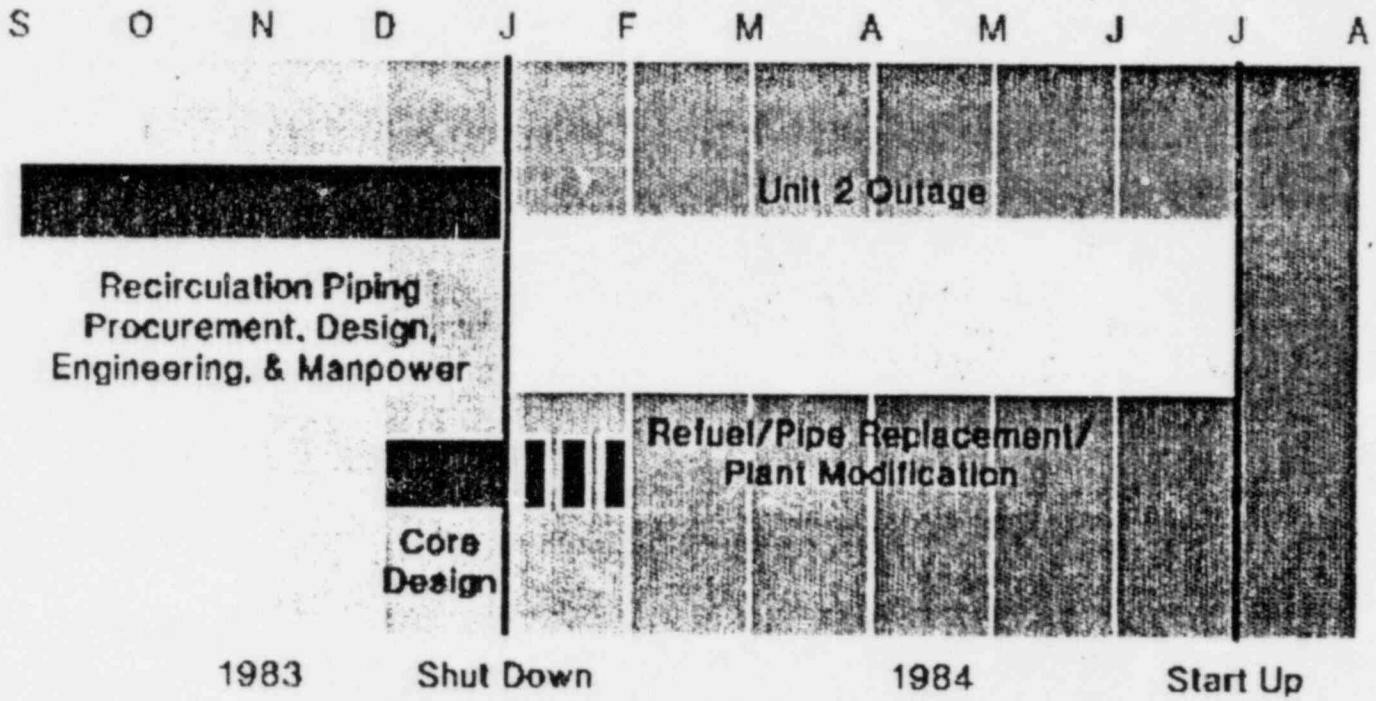
PLANT HATCH UNIT 1

Core Reconstitution Outage



PLANT HATCH UNIT 2

Refuel/Pipe Replacement/Plant Modification Outage

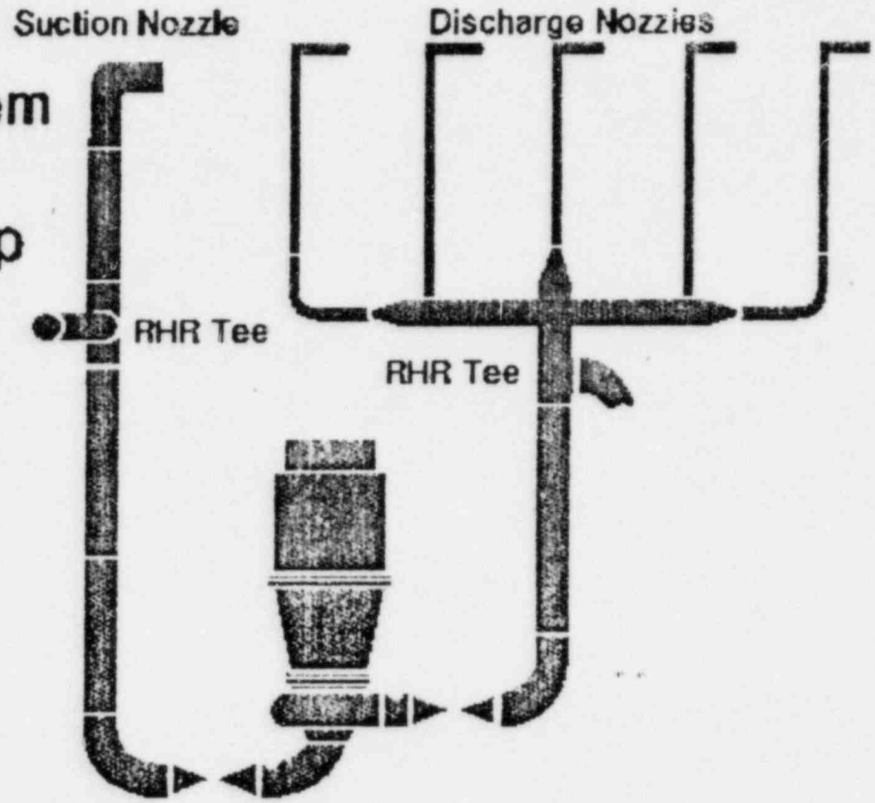


PLANT HATCH

Recirculation System

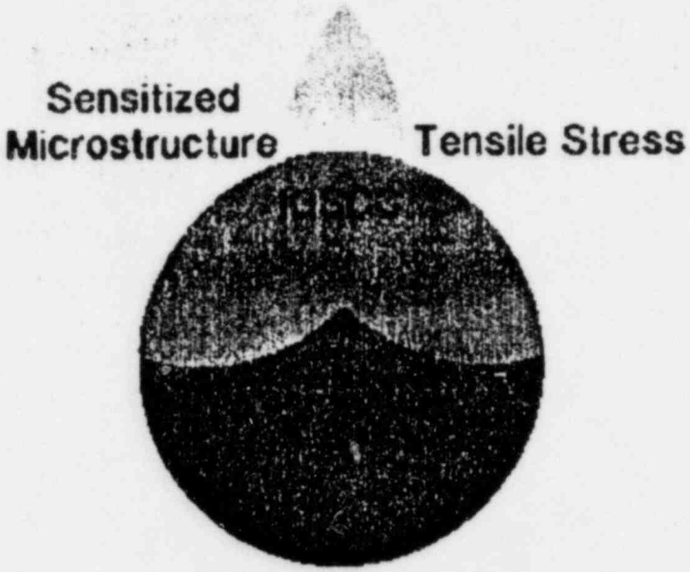
Typical of One Loop

Two Loops in Plant



PLANT HATCH

Model for IGSCC



PLANT HATCH

Microstructure/Sensitization Related Remedies

- Material
  - 316 SS Nuclear
- Solution Heat Treatment

PLANT HATCH

Stress Improvement Remedies

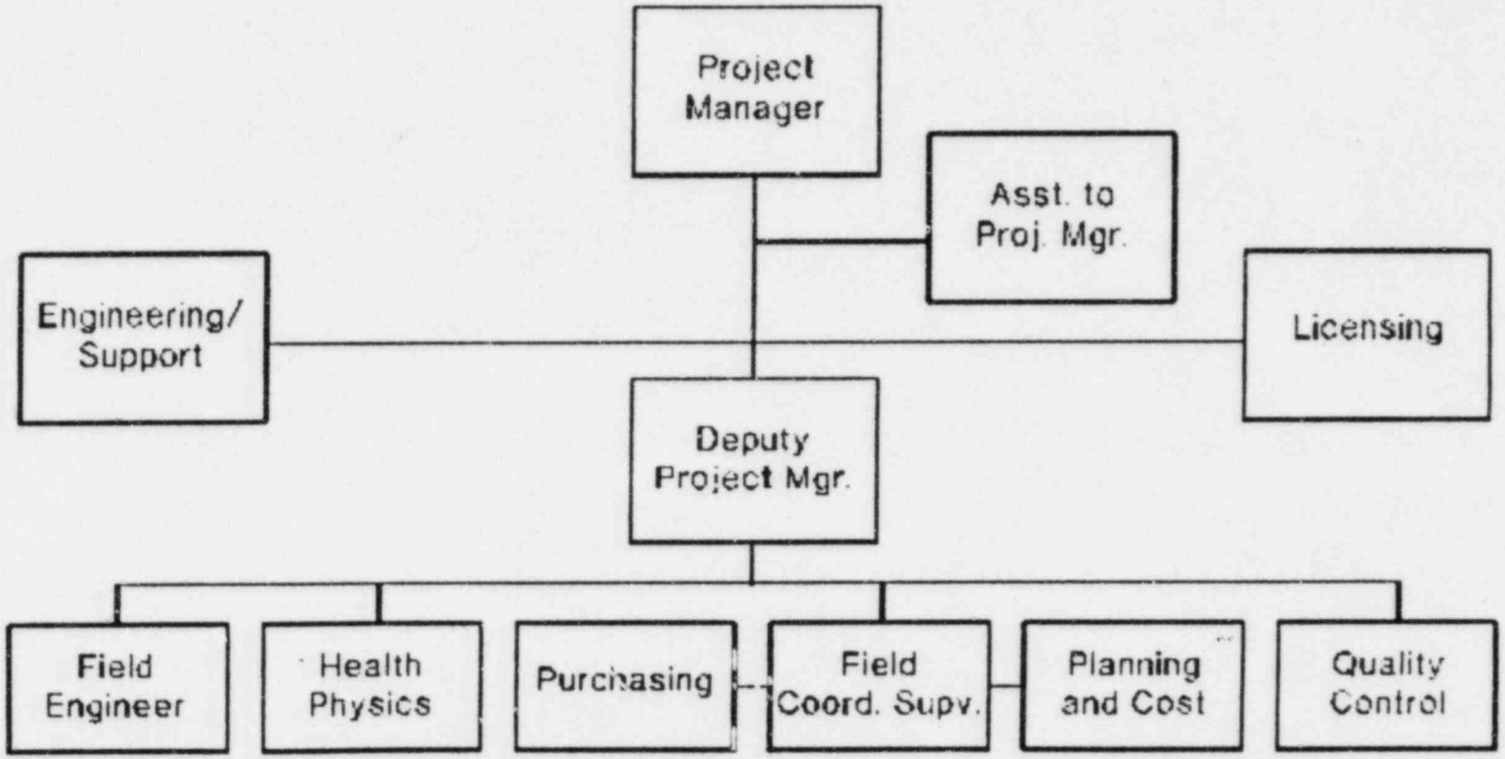
- Induction Heating Stress Improvement (IHSI)
- Last Pass Heat Sink Welding (LPHSW)
- Heat Sink Welding (HSW)

PLANT HATCH UNIT 2

Pipe Replacement Scope

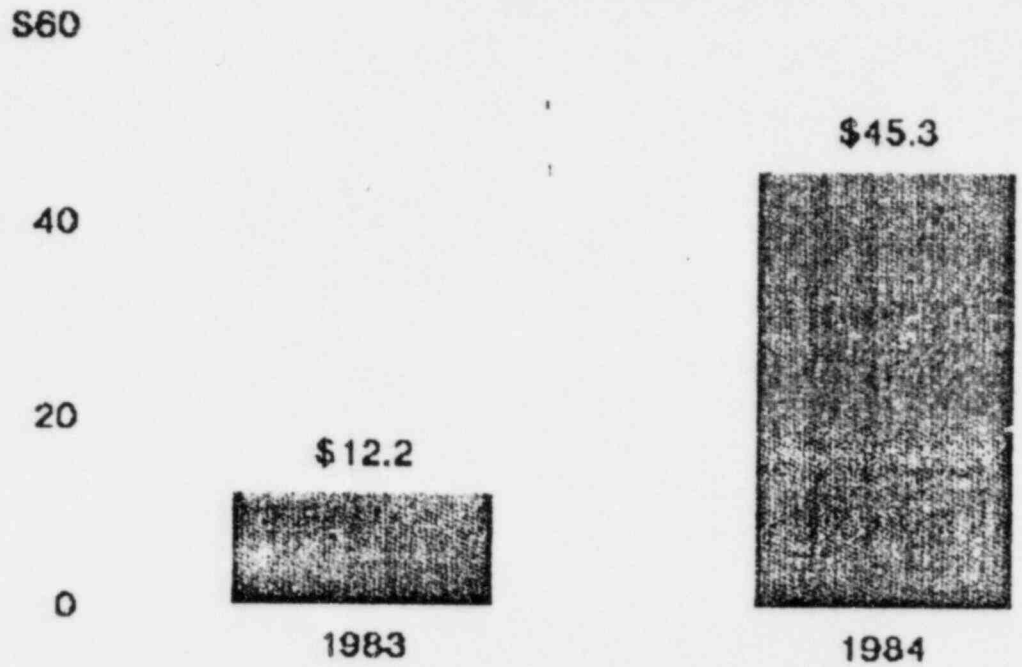
Six Months Outage
to Begin January 1984

PLANT HATCH
Recirculation Piping Replacement Project



PLANT HATCH UNIT 2

Capital Budget
(Dollars in Millions)



Total Hatch-2 Budget: $57.5M

PLANT HATCH UNIT 1

Refuel/Plant Modifications Outage

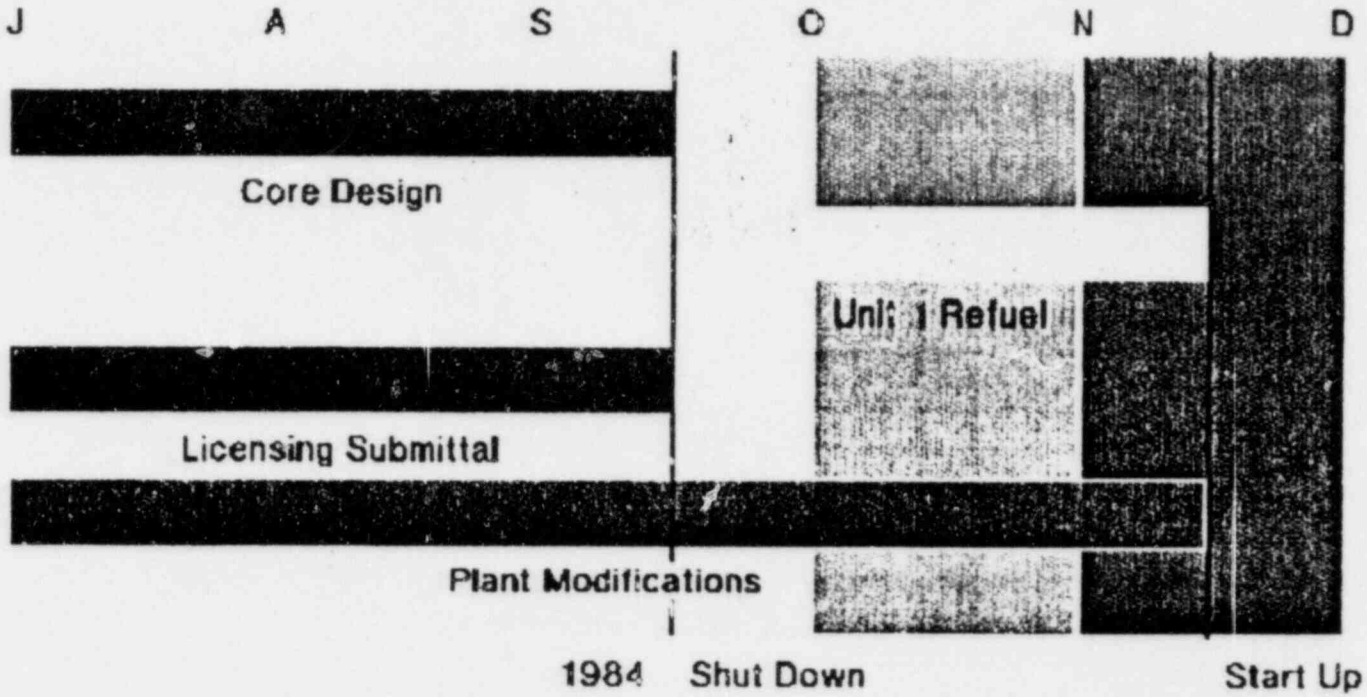


IMAGE EVALUATION TEST TARGET (MT-3)

150mm

6"

PLANT HATCH UNIT 1

Core Reconstitution (1983)

1. Core Reconstitution
2. SCRAM Discharge Volume Modification

PLANT HATCH UNIT 2

Refuel/Pipe Replacement/ Plant Modifications (1984)

1. Refuel
2. Pipe Replacement *(No 1983 Inspection)
3. SCRAM Discharge Volume Modification *(May Need Extension)
4. Pipe Whip Restraints *(May Need Extension)
5. Fire Protection (10 CFR 50, Appendix R)
6. Equipment Qualification
7. Safety Parameter Display System/Emergency Operating Facility

*NRC Concurrence Requested

PLANT HATCH UNIT 1

Refuel/Plant Modifications (1984)

1. Refuel
2. Pipe Inspection
3. Torus Attached Piping
4. Fire Protection (10 CFR 50, Appendix R)
5. Equipment Qualification
6. Safety Parameter Display System/Emergency Operating Facility

PLANT HATCH

Summary of NRC Concurrence Items

Unit 1:
- 1983 Core Reconstitution Outage
- NRC Licensing Support

Unit 2:
- No 1983 Inspection
- Short Extensions if Needed
  - SCRAM Discharge Volume Modifications
  - Pipe Whip Restraints
- NRC Licensing Support

PLANT HATCH UNIT 1

Reason for Not Inspecting During Hatch-1 Core Reconstitution

- Plant Hatch 1 IEB 82-03 Inspection Meets Intent of IEB 83-02
- Potential Unavailability of Experienced Examination Personnel
- Some Examinations Restricted Due to Fuel Movements
- Reactor Coolant System Leakage Detection Has Been Augmented