H. B. ROBINSON

STEAM ELECTRIC PLANT

UNIT NO. 2

SAFETY INJECTION SYSTEM RECOVERY PLAN

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SAFETY INJECTION SYSTEM RECOVERY PLAN

SUBMITTED BY: _____

REVIEWED BY: _____

APPROVED BY: _____

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SAFETY INJECTION SYSTEM RECOVERY PLAN

I. Purpose

Safety Injection (SI) Pump "B" has repeatedly failed performance tests due to foreign material blockage of the limiting flow orifice in the pump recirculation piping. This blockage also prevented the establishment of the minimum recirculation flows needed to assure reliability of the pump during periods when the pump is not flowing water to the reactor coolant system (RCS). During periods of operation under minimum recirculation flow conditions, this recirculation flow provides the only source of cooling to the pump.

The purposes of the recovery efforts are as follows:

1. Identify the foreign material and the potential impact it may have on plant safety systems.

2. Identify possible entry points of the foreign material, its possible present locations, and a method to retrieve or flush material from the system, as appropriate.

3. Evaluate potential damage and assure potentially effected Emergency Core Cooling System (ECCS) equipment is operable and can be relied upon during any flow condition.

4. Assure that the potential presence of foreign material will not impact the operability of plant systems or components in the future.

5. Identify the root cause of the problem and the corrective actions which will be taken to preclude recurrence.

II. Scope

The reactor will remain in cold shutdown until all activities are completed, thereby ensuring the reliability and operability of the SI System. These activities include:

1. Removal and inspection of both SI pump minimum flow recirculation line orifices.

2. Full flow testing of each SI pump to assure no damage effecting pump performance has occurred as a result of the passage of the material through the pumps, or as a result of running the pumps with obstructed minimum flow recirculation lines.

3. Consultation, as necessary, with the SI pump vendor to determine the potential impacts of the material passing through the pump, or due to pump operation with obstructed minimum flow recirculation lines.

4. High velocity flush of the SI pumps to assure the pumps are free of foreign material.

5. Analysis of the material found in the pumps and orifices, and an evaluation of the materials potential effects on system components.

6. Evaluation, examination, or testing of choke points within any potentially effected systems to determine the presence and effect of foreign material.

7. Addition of strainers or other modifications to portions of systems where blockage due to materials could cause a future problem, if all material is not recovered.

8. Visual inspection of the interior of tanks, components, and piping determined through evaluation to potentially contain foreign material.

9. Documentation of the evaluation of areas, piping, and components determined not to require visual inspection.

10. Cleaning of the Refueling Water Storage Tank (RWST) and any other piping or components found to have foreign material present.

11. Removal of foreign material found through inspection that could effect the reliability of related systems or components.

II. Scope (Continued)

12. Review and approval of methods, processes, and plans by site management.

13. Assessment of the scope, plan, processes, methodology, and results by a special, independent, corporate investigation team.

14. Review of all results, evaluations, and conclusions by the Plant Nuclear Safety Committee prior to plant restart.

III. SI Pump Recovery and Operability

A. Inspection of SI pump orifices and recirculation piping

1. SI Pump "B"

a. Removed piping and orifice and determined source of blockage.

b. Blockage was determined to be one thin piece of white plastic, approximately 1/2 inch diameter; similar to foreign material discovered during investigations in July 1992.

c. Analysis of material confirmed it is Delrin, the same material found in previous investigations.

2. SI Pump "A"

a. Removal of piping and orifice to be completed prior to strainer modification.

b. Visual inspection, removal and analysis of any material found in completing the above.

B. Pump Testing

1. Purpose

a. Determine if SI Pump "B" was degraded after operation for approximately 6 minutes at "dead-headed" conditions with no measurable recirculation flow.

b. Determine if SI Pump "A" was degraded after trending indicated potentially decreasing recirculation flow rates.

c. Determine if passage of foreign material (Delrin) through the SI Pump(s) affected pump performance.

d. Flush foreign material from the SI Pumps and associated piping.

B. Pump Testing (Continued)

2. Methodology

a. SI Pumps "A" and "B" were tested at increasing flowrates in accordance with Special procedure, SP-1157, "SI Pump Flow Test." A copy of this flow test procedure is provided for informational purposes under Tab 4. This procedure resulted in the operation of each SI pump at various flowrates by setting up a special recirculation flowpath where SI Pump "C" had been removed.

b. The common discharge header for the SI pumps was connected to the common suction line for all three pumps by a temporary mechanical "jumper." The SI Pump "C" discharge check valve internals were removed to eliminate this valve as a source of flow restriction. The SI Pump "C" discharge and suction lines were then connected using the temporary piping "jumper" containing a throttle valve to control flow, and strainer to catch debris. (Reference the SI flow drawing provided under Tab 3.)

3. Parameters

a. Each SI pump was operated separately at various flowrates:

30 - 40 gpm Minimum Flow Recirculation

Experienced leakage through throttle valve which resulted in an actual flow of approximately 50 to 100 gpm

100 - 200 gpm + 60 gpm recirc
220 - 320 gpm + 60 gpm recirc
325 - 475 gpm + 60 gpm recirc

Recirculation flow was derived from the tested pump plus the additional recirculation flow associated with the "C" minimum flow recirculation line.

B. Pump Testing (Continued)

4. Acceptance Criteria and Evaluation

a. An Engineering Evaluation to evaluate data from the SI Pump test was prepared (reference Engineering Evaluation No. 92-127 provided under Tab 7). This evaluation compared pump curves from the flow test with previously established curves. The pump flow data was within acceptable range for SI System analysis and compared favorably to previous test data.

b. SI Pump vibration data was compared with past data and acceptable vendor data.

c. The SI Pump Vendor Technical Representative was present during all testing to observe pump operation.

C. Flushing

1. Methodology

SI Pump flushing was performed as part of the SI Pump flow testing under SP-1157. An inline screen with approximately 1/8 inch openings was installed in the piping "jumper." Each pump was flushed for approximately 20 minutes at up to 450 gpm. The flush was to be repeated if any Delrin was recovered.

2. Analysis of Captured Material

Captured material included a small piece of polyethylene, approximately 3/4" X 1/4" X 0.001", and a piece of weld splatter from carbon steel, approximately 1/8" diameter. (The weld splatter was determined to be from the temporary piping "jumper" which was made of carbon steel.) No Delrin was discovered.

IV. Long Term Operability - Installation of Permanent Strainers

A. Purpose

To provide permanent strainers, upstream of the respective SI Pumps' minimum flow recirculation line orifices, to preclude a foreign-material-caused flow obstruction.

B. Methodology and Scope

Under the Nuclear Engineering Department modification procedure, a plant modification will be developed, reviewed, and installed. This modification will provide separate strainers for each SI Pump minimum flow recirculation line, thereby addressing concerns of the Plant Nuclear Safety Committee and plant management regarding the long term protection of the SI Pumps.

Reference plant modification, MOD-1134, provided under Tab 5.

C. Size, Capacity, and Design Basis

The strainer unit consists of a strainer basket assembly with 2688 holes of 0.125" diameter. The unit is designed to capture the equivalent of two 10" diameter, 1/16" thick pieces of Delrin with a reduction in recirculation flow of less than 1%. The unit also has a vent and drain valve installed to facilitate removal of captured debris.

D. Acceptance Testing

The strainer units will receive radiographic testing on all welds, and a hydrostatic test prior to installation.

Plant procedure OST-151, "Safety Injection System Component Test (Quarterly)," will be performed to assure proper recirculation flows and pump performance. A leak test will be performed on the strainer installation welds.

V. System Cleanliness Review

A. Scope and Methodology

It was assumed that the Delrin plastic was a foreign material that could have been introduced into plant systems from any point. An inspection team was established to evaluate data, and to inspect and retrieve foreign material from areas determined from evaluations.

During the course of the investigation, certain facts were uncovered that provided a basis for the inspection scope. These facts are provided to ensure a common basis of understanding, and are included as Attachment 1 to this Plan.

B. Areas Evaluated and Exempted from Visual Inspection and Further Cleanup

For a variety of reasons, certain plant systems, components, or areas were determined to not require visual inspection, further cleanup, or flushing.

These systems, areas, and components are identified in Attachment 2 to this Plan, along with the associated basis or justification.

C. Areas Evaluated and Determined to Require Visual Inspection

Review and evaluation identified a number of systems, components, or areas that required visual inspection. These systems, components, or areas are identified in Attachment 3.

VI. Independent Reviews

A. Plant management reviews

Due to the significance of the activities to be performed, routine updates and reviews are performed to ensure management controls are maintained throughout the recovery process.

Additionally, no physical changes or encroachments of the SI or other primary systems shall occur without the written approval of the Plant General Manager and the Manager - Outages and Modifications (or their designated representatives).

It is expected that the Vice President of the Robinson Nuclear Project Department will be appropriately informed of recovery activities, such that discretionary intervention may be initiated in a timely manner consistent, with the evolutions planned or in progress.

B. Independent corporate review team

The processes, methodologies, decisions, and conclusions which occurred during the July and August occurrences shall be reviewed by an independent corporate team to assess adequacy of total work scope and analyses. This team consists of personnel from the Nuclear Services Department (Corporate Maintenance and Technical Support), and from the Nuclear Engineering Department.

Results of this review will be reported to the Senior Vice President - Nuclear Generation Group, as well as to site senior management and the Plant Nuclear Safety Committee.

C. Plant Nuclear Safety Committee

The Plant Nuclear Safety Committee will review methods, processes, results, conclusions and decisions relative to operability and reliability of the Safety Injection System prior to start-up from the current outage.

VII. Root Cause Evaluation

A. Event Description

A summary of factors is listed below that describes the basic issues that lead to the entry of the foreign material into the piping system. Through tracing materials used on site, which was associated with special tool development, the likely source of the material and its entry point were determined. The material was used by craftsmen for special tool development with one sheet of this material procured for the Robinson site. It was confirmed through interviews that the construction crew on Modification 1087, RHR Mini-Flow Recirculation line modification, had experienced problems resulting from inadequate purge during the welding process. They employed the use of the plastic sheet material to attempt a mechanical line block for a purge dam. The line was sufficiently large to attempt the installation of these plastic dams. However it was determined the material was too difficult to stabilize in the line and this effort was abandoned. The material was left in the room as trash material. During the completion of the job one craftsman did note using the material again to protect the seats to the check valves, but said he did remove the material from the valve.

During closure of the line the Quality Control personnel employed the use of a camera to inspect the lines for cleanliness. This was preformed by inserting the camera into the vertical line and looking down and up through the open check valve. This did not include inserting the camera beyond the elbow below the valve, and they were not able to see around the elbow into the horizontal run. The valve was closed and the system refilled for testing and return to service. During testing and operation it's assumed that the material was shattered and pumped through the RHR system. It's also theorized that some of the material was deposited behind the SI-863A valve which was a dead leg projecting at a right angle away from the main flow path. This made a natural trap for some of the material. Later, when the cavity was drained, the valve was opened and the material swept toward the RWST and by the SI suction header. At the header, a fragment(s) was deposited by an eddy current effect in the flow as it passed over the header opening. Soon after that deposition the SI testing moved the material into the B SI pump where it was discovered during testing in July.

A. Event Description (Continued)

The additional blockage in August was thought not to be a new piece, but a residual that was too large to enter the recirculation line during the flush in July. Subsequent use of the SI pumps eroded the material sufficiently to allow it to enter the recirculation line during August. It was originally thought the material was broken into very small pieces by the SI pump and the material would easily enter the piping. This observation was determined by the Delrin fragments found in the orifice and the pump during July. The piece recovered in August was small enough to enter the piping of the recirculation line and traverse to the office. No other material has since been recovered from the pump. The only other material located has been in the RWST as expected and previously communicated.

B. Causal Factors

1. Craftsmen did not comply with area cleanliness per MMM-010, Cleanliness Requirements. As part of the procedure they failed to have material evaluated by Technical Support before use, did not maintain proper control of material by allowing its entrance into the RHR system, and did not maintain documentation of material being installed and removed from the system.

2. The Quality Control inspection failed to identify the foreign material during the cleanliness inspection. This was due to the decision to use the camera to reduce exposure and not having specific guidance to ensure coverage of the potentially effected areas. The piping run was vertical and terminated in the lower section with an elbow into the RHR heat exchanger outlet head.

C. Corrective Actions to Prevent Recurrence

The following is a list of corrective actions to preclude recurrence:

1. Revise MMM-010 to clarify use of daily entry logs when a modification is the controlling document. This changes the "should" statements to "shall" to prevent optional use of the procedures requirements.

2. Revise MMM-010 to provide guidelines to describe when remote camera inspections will be required on inaccessible portions of the horizontal piping runs located under vertical piping.

3. Revise Corporate Welding Manual Section NW-06, Purging Gas to include direction for installation, removal, and documentation of insoluble purge blocks.

4. Revise MMM-010 to clarify procedure intent.

5. Revise MIU work instructions to insure the presence of supervision at all times during work activities which invoke MMM-010 daily entry log.

6. Train MIU craft in the latest revisions to MMM-010 and Corporate Welding Manual revisions.

Items 3 and 4 have been completed, while the remaining items are currently in progress. To preclude repetition during the completion of the corrective actions, directives were issued to craft personnel to consider the "SHOULDS" to be "SHALLS" relative to the requirements of the cleanliness procedure, MMM-010. Additionally, the Quality Assurance group has been requested to monitor the use of the cleanliness procedure requirements and area housekeeping associated with this recovery effort.

Facts Providing a Basis for the Scope of System Cleanliness Inspections

1. The only purchase of the Delrin material was two (2) pieces, each 12 inches by 48 inches by 1/16 inch.

2. Delrin was issued to personnel during Refueling Outage No. 14.

3. Valve lineups were correct during outage evolutions.

4. Delrin plastic went through SI Pump "B."

5. Flow is always to the SI Pumps from the 16" normal suction pipe.

6. Plastic could not leave the RWST based on the flow velocities experienced since the refueling outage.

7. Plastic was not introduced between the SI Pumps and the RWST.

8. Valve SI-887 was not disassembled during the refueling outage.

9. Valves SI-863 A & B were not disassembled during the refueling outage.

10. Valves SI-891 A & B were never opened under flow conditions.

11. The RHR minimum flow recirculation does not flow backwards.

12. No reverse flow occurred through valves RHR-782 and RHR-783.

13. Some pieces found in the SI System were too large to pass through the RHR Heat Exchangers. Plastic may have been introduced downstream of the RHR Heat Exchangers:

    - The plastic was used during work on RHR-782.

    - If the plastic was introduced from RHR-782, it could migrate to the SI suction piping and RWST via SI-863A which was open for cavity drain down in the refueling outage.

14. Valves RHR-757 A & B were not disassembled during the refueling outage.

15. The plastic was not introduced from the Primary Sample System.

16. The RHR pump cross-tie and isolation valves were not disassembled.

Facts Providing a Basis for the Scope of System Cleanliness Inspections (Continued)

17. RHR-753 A & B were disassembled, but are installed in a horizontal run of piping.

18. The RHR pumps were not disassembled during the refueling outage.

19. The plastic did not enter from the containment sump.

20. The plastic did not enter from the reactor vessel.

21. Valves RHR-862 A & B were not disassembled during the refueling outage.

22. RHR-743 was opened for flow.

Areas Evaluated and Exempted from Visual Inspection and Further Cleanup

Reactor Coolant System

Due to its chemical composition and physical properties, it was determined that, had the Delrin material entered the RCS, it would decompose. Additionally, the chemical content and properties of the material and its remnants have been determined not to be harmful to system components. Visual inspections and cleanup were determined to be unnecessary.

Residual Heat Removal to Chemical and Volume Control System Purification Line

Material entering this line has a number of points susceptible to plugging. These include HCV-142, CVC-205 A & B, FE-150, etc. Plugging at any of these points could result in lost or diminished RHR purification capability. While this is undesirable, it does not affect capability to maintain core cooling, nor does it affect the operability of the ECCS.

Material passing these obstacles and reaching the CVCS Nonregenerative Heat Exchanger might result in some minor plugging. Given the quantity of material in question, the extent of fouling possible would be minimal, and would not result in any significant temperature increase to the CVCS filters and demineralizers.

Any material passing through the valves and other equipment discussed above would be routed to, and captured by either the Reactor Coolant System filter or the CVCS demineralizers. Neither of these potential occurrences would result in any adverse impact to plant safety.

Based upon the above, the presence of foreign material in the RHR line to CVCS purification line may pose minor impacts to purification capability, but would not result in the loss of any plant safety function. Therefore, no inspections or cleanup were determined to be necessary.

Spent Fuel Pool Cooling System

Visual inspection and cleanup of this system is not required due to the low flow rate from the RWST and the demineralizer in the system flowpath. If material had entered this line, it would be trapped by the demineralizer.

Areas Evaluated and Exempted from Visual Inspection and Further Cleanup (Continued)

CVCS Charging Pump Suction

The Charging Pumps took suction from the RWST during the August 22 loss of offsite power event.

Visual inspection is not required based upon the following:

- The 4 inch supply line is elevated 90 degrees off the center of the 16 inch RWST outlet piping.
- Charging Pump suction was only taken from the RWST during the August 22 event; flow rates during this line-up were less than 3.8 feet/second through the 4 inch line, and less than 0.5 feet/second through the 16 inch line.
- Flow rates are too low to move plastic into the Charging Pump suction line from the RWST.

Areas Evaluated and Determined to Require Visual Inspection

RHR System Piping

Evidence to date points to the introduction of the material into the SI System originating in the RHR System.

Due to the large volume of water flushed to the RWST as part of refueling cavity drain-down during the refueling outage, the length of time that the RHR System has operated, the size of the various flow restrictions in the system, and the physical arrangement of the system, no further inspection or flushing was determined to be required.

Further, due to the physical orientation of the piping, the majority of the plastic not pumped to the RCS would have collected upstream of valves SI-863 A or B during the system refill and modification acceptance testing. Any material which did not collect behind SI-863 A or B would have been dispersed as follows:

1. Entered the old RHR minimum flow recirculation line (FE-608)

   The old recirculation line has been operating satisfactorily, indicating that there is no obstruction, and is not a point of significance.

2. Entered the RCS

   The same conclusions as previously discussed relative to the plastic's chemical properties apply here also.

3. Entered the new minimum flow recirculation piping

   This would have caused the plastic to have been trapped at the flow control valves, SI-915 and SI-916. These valves are cage valves that would act as a strainer. Modification acceptance test proved no blockage existed in these valves.

Review indicated that "dead legs" existed that have not been inspected or flushed in the connection points between the RHR and high-head SI systems. Specifically, the piping isolated by valves SI-863 B, SI-891 C, and SI-891 D would not normally receive flow. Although these lines were evaluated as having a low potential for debris collection, the effected portions of these lines will be flushed or inspected.

Areas Evaluated and Determined to Require Visual Inspection (Continued)

Refueling Water Storage Tank

This areas was determined to be the most likely location for material deposition due to the volume of water pumped to the RWST as part refueling cavity draindown during the refueling outage.

As such, the RWST was internally inspected by Divers as follows:

- Nearly 100% visual inspection by divers; inspection recorded on Video Tape using underwater camera
- Line 16-SI-151R-4 (SI/RHR) inspected approximately 20 feet, up to tank isolation valve SI-864A.
- Line 6-SI-151R-41 (SFPC Suction) nozzle inspection

Based on this inspection, the following items were retrieved to be analyzed:

- Three pieces of plastic (Delrin)
- Small cotton towel
- String (18 to 24 inches long)
- Approximately 1/2 inch long piece of plastic lanyard

Other items identified were not retrieved for analysis, but will be removed as part of the RWST cleaning which will be performed using Special Procedure, SP-1160 (reference Tab 4).

The video tape was reviewed, and all retrieved material will be analyzed or evaluated for impact on systems and components, including flowpath blockage potential.

Safety Injection and Containment Spray Pump Suction Header

Delrin plastic was found in the discharge flow orifice of the SI Pump "B", indicating it had passed through the pump.

As such, a camera inspection was performed of drained lines in the suction header from the RWST outlet piping to the Containment Spray Pumps, including the individual SI and Containment Spray Pump suction lines.

Additionally, portions of the SI Pump suction piping has been flushed using SP-1157 (reference Tab 4).

Areas Evaluated and Determined to Require Visual Inspection (Continued)

RWST Outlet Piping to the RHR (Low-Head SI) System

Inspection of this piping was warranted for the same reasons as SI and Containment Spray Pump suction lines.

As such, an underwater camera inspection of the header from the RWST outlet to the RHR System suction isolation valves is planned. This activity will be performed under Special Procedure, SP-1161 (reference Tab 4). The ability to successfully perform this inspection may be limited due to the potential for piping restrictions which may interfere with the ability to successfully maneuver the remote inspection equipment.

Safety Injection Pump Discharge Piping

Delrin has been found in the discharge flow orifice of SI Pump "B".

As such, the common discharge header from SI Pumps "A" and "B" was flushed using SP-1157 (reference Tab 4). Also, the SI Pump "B" discharge piping was visually inspected using a remote camera.

No further inspections have been identified as being required at this time based on the following:

- The SI Pump recirculation flow orifices will be protected by the installation of permanent strainers by modification, MOD-1134 (reference Tab 5).

- The SI System Hot Leg Injection flow orifice, FE-940, has a diameter of 2.8 inches, which is large enough to be of no concern.

- The SI System Cold Legs Injection flow orifice, FE-943, has a diameter of 2.8 inches, which is large enough to be of no concern.

- The SI System to CVCS Boric Acid Storage Tanks flow orifice, FE-934, was removed from service by modification, MOD-888.

- The IVSW system supplies SI-867 A (B1-SI-1501R-203), and can also be aligned to SI-870 A & B and SI-868 A & B. However, IVSW is normally isolated from these by SI-883 W, and SI-883 L which is locked closed. No motive force is available to introduce material into this piping. This area is also not seen as a problem because the IVSW function would not likely be affected by foreign material. (Any material which migrated into line under no pressure would not be likely to impede IVSW flow. Also, having this material injected between valve discs by IVSW would not be expected to degrade this function.)

Areas Evaluated and Determined to Require Visual Inspection (Continued)

Safety Injection Pump Discharge Piping (Continued)

- The SI System return to RWST isolation valve, SI-895P, is a small diameter (3/4") globe valve, but is normally isolated. This test line has no safety significance.

- The SI System bypass line (3/4-SI-1501R-117) is small enough to be of concern, but is normally isolated by a locked closed valve, SI-895 T. No motive force is available to introduce material into this small diameter piping, and any pieces which migrated into this piping would not be likely to impede flow. Further, this test line has no safety significance.

- Valve SI-895 U is a 3/4 inch globe valve in the test line around the Boron Injection Tank back to the RWST. This line is used in Operations Surveillance Tests, but is not required for the SI function. This line also has no safety significance.

- Flow orifices, FE-933 & FE-932, are flow elements on the SI Hot Leg Injection lines. These are "straight pipe" elements, and would not present a collection or restriction point for foreign material.

- Piping line 1-SI-1501R-27 is the supply to the SI Accumulators. This line is normally isolated by SI-883 R, and is not considered to be a problem since the accumulators are normally pressurized. The injection path from the Accumulators to the RCS is via large bore piping.

- Valve SI-849 is a 3/4 inch check valve in the test return line from the Hot Leg Injection line back to the RWST. This line is isolated by locked closed valves SI-895 V and 895 F. There is no motive force for foreign material to be introduced, and blockage would cause no safety significant concerns.

Areas Evaluated and Determined to Require Visual Inspection (Continued)

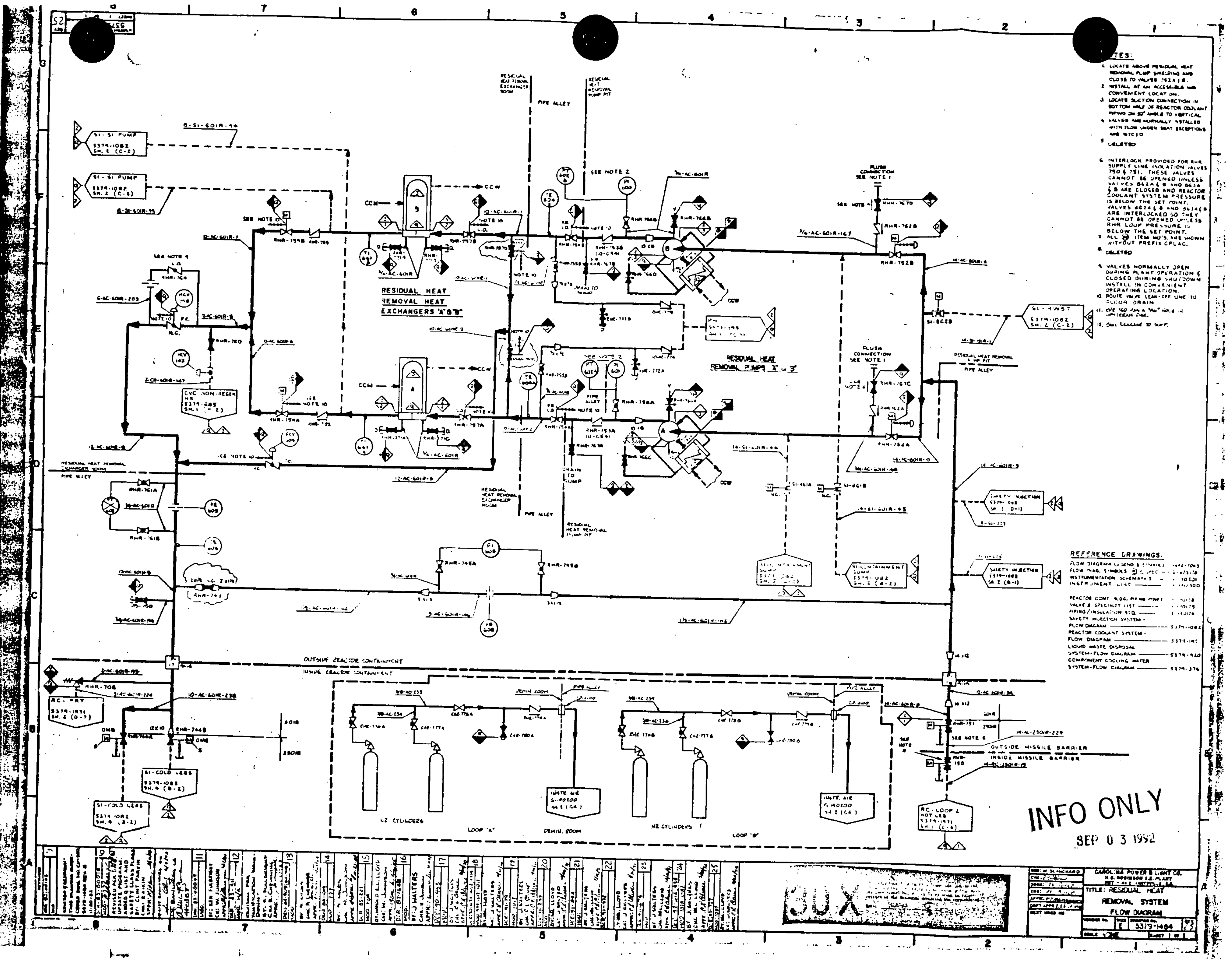
Containment Spray Pump Discharge

The Containment Spray Pump discharge lines have been inspected from SI-890 A & B discharge check valves to the pump discharge nozzle.

Additionally OST-352, "Containment Spray System Component Test (Quarterly)," performance has demonstrated that the eductor is not blocked.

Based on evidence of the recovered Delrin, any material occurring downstream of the SI Pumps is small in size.

Further inspection of the Containment Spray System is not considered necessary, since piping downstream of the pump discharge valves is isolated during pump testing.


RESIDUAL HEAT REMOVAL HEAT EXCHANGERS "A" & "B"
RESIDUAL HEAT REMOVAL PUMPS "A" & "B"
NOTES:
1. LOCATE ABOVE RESIDUAL HEAT REMOVAL PUMP SHIELDING AND CLOSE TO VALVES 752A & B.
2. INSTALL AT AN ACCESSIBLE AND CONVENIENT LOCATION.
3. LOCATE SUCTION CONNECTION IN BOTTOM HALF OF REACTOR COOLANT PIPING ON 50° ANGLE TO VERTICAL.
4. VALVES ARE NORMALLY INSTALLED WITH FLOW UNDER SEAT EXCEPTIONS ARE 157C&D
5. DELETED
6. INTERLOCK PROVIDED FOR RHR SUPPLY LINE ISOLATION VALVES 750 & 751. THESE VALVES CANNOT BE OPENED UNLESS VALVES 862A & B AND 863A & B ARE CLOSED AND REACTOR COOLANT SYSTEM PRESSURE IS BELOW THE SET POINT. VALVES 862A & B AND 863A & B ARE INTERLOCKED SO THEY CANNOT BE OPENED UNLESS RHR LOOP PRESSURE IS BELOW THE SET POINT.
7. ALL ITEM NO'S ARE SHOWN WITHOUT PREFIX CPL&C.
8. DELETED
9. VALVES NORMALLY OPEN DURING PLANT OPERATION & CLOSED DURING SHUTDOWN INSTALL IN CONVENIENT OPERATING LOCATION.
10. ROUTE VALVE LEAK-OFF LINE TO FLOOR DRAIN
REFERENCE DRAWINGS.
OUTSIDE REACTOR CONTAINMENT
INSIDE REACTOR CONTAINMENT
OUTSIDE MISSILE BARRIER
INSIDE MISSILE BARRIER
N2 CYLINDERS
LOOP "A"
LOOP "B"
DEMIN. ROOM
PIPE ALLEY
CAROLINA POWER & LIGHT CO.
H.B. ROBINSON S.E. PLANT
TITLE: RESIDUAL HEAT REMOVAL SYSTEM FLOW DIAGRAM
5379-1484
INFO ONLY
SEP 0 3 1992

OUTSIDE REACTOR CONTAINMENT

INSIDE REACTOR CONTAINMENT

NOTES:

ACCUMULATOR A

ACCUMULATOR 3

ACCUMULATOR C

C.S.P. ROOM

OUTSIDE

REACTOR SUMP

INSIDE REACTOR CONTAINMENT

OUTSIDE REACTOR CONTAINMENT

INFO ONLY

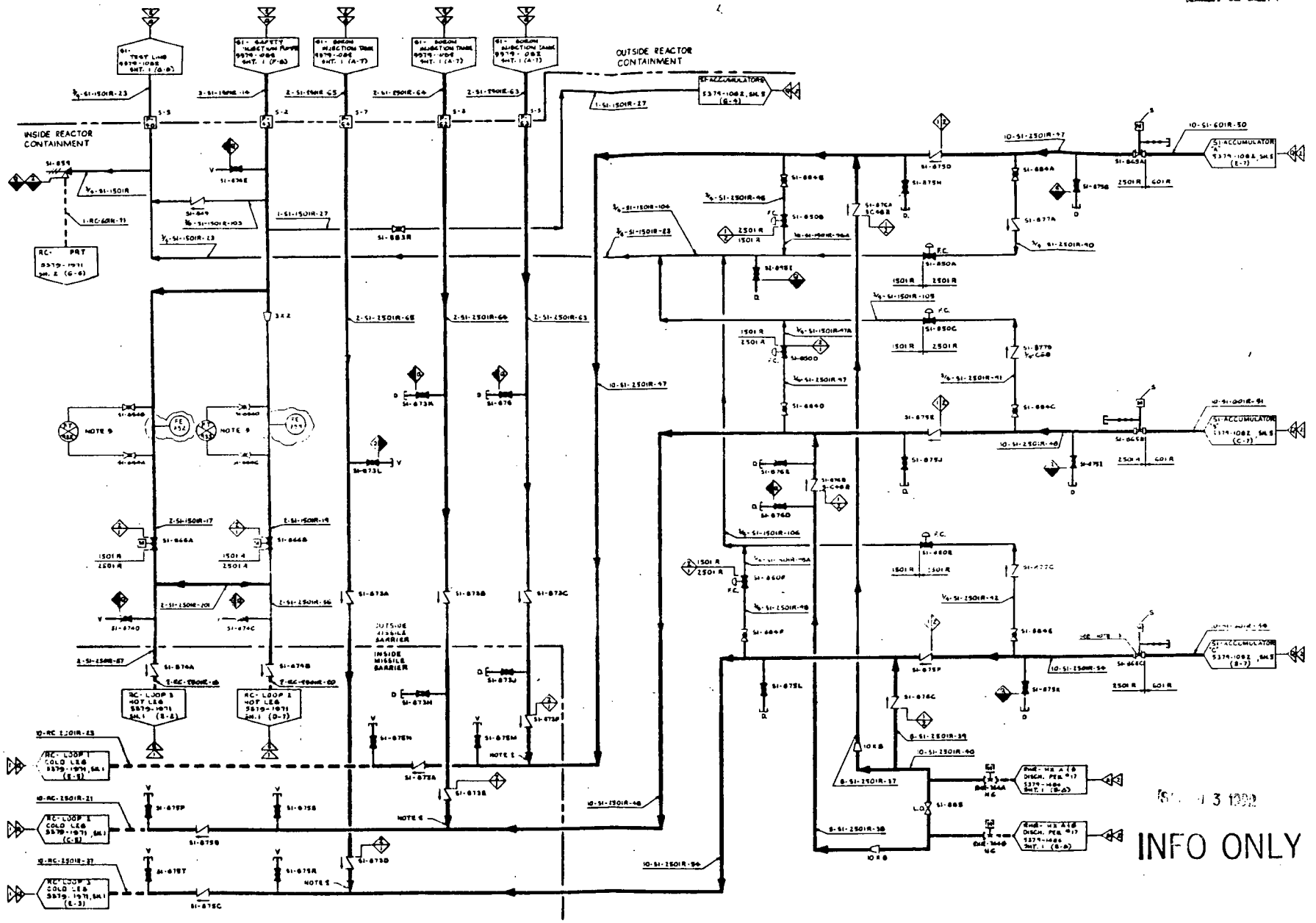
SEP 0 3 1982

CAROLINA POWER & LIGHT CO.
H.B. ROBINSON S.E. PLANT
SHEARON HARRIS NUCLEAR POWER PLANT

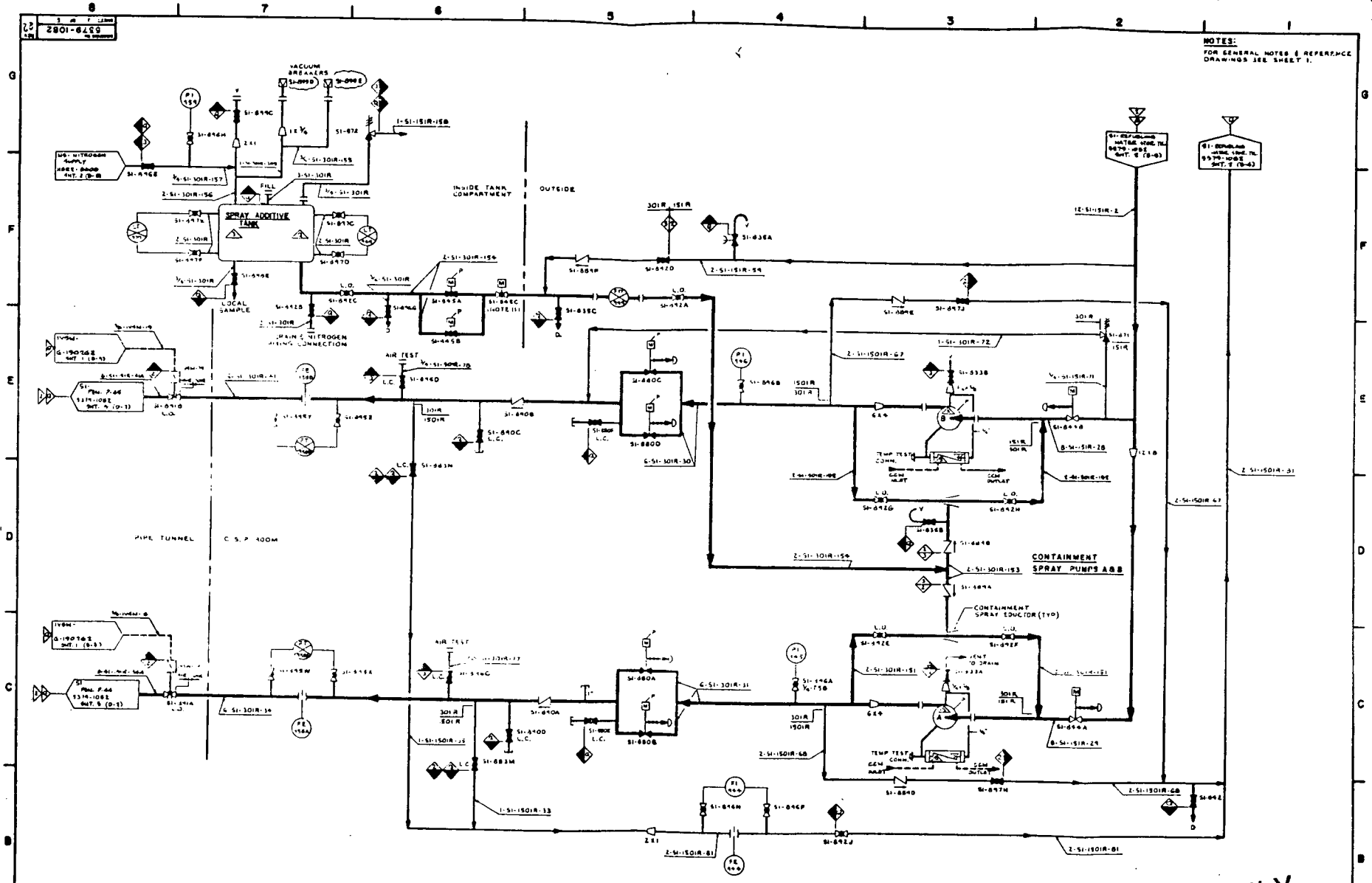
TITLE: SAFETY INJECTION SYSTEM FLOW DIAGRAM

SIZE E | 5379-1082 | REV 28

SCALE NONE | SHEET 5 OF 5


OUTSIDE REACTOR CONTAINMENT
INSIDE REACTOR CONTAINMENT
OUTSIDE MISSILE BARRIER
INSIDE MISSILE BARRIER
NOTE 5
NOTE 6
NOTE 7
INFO ONLY

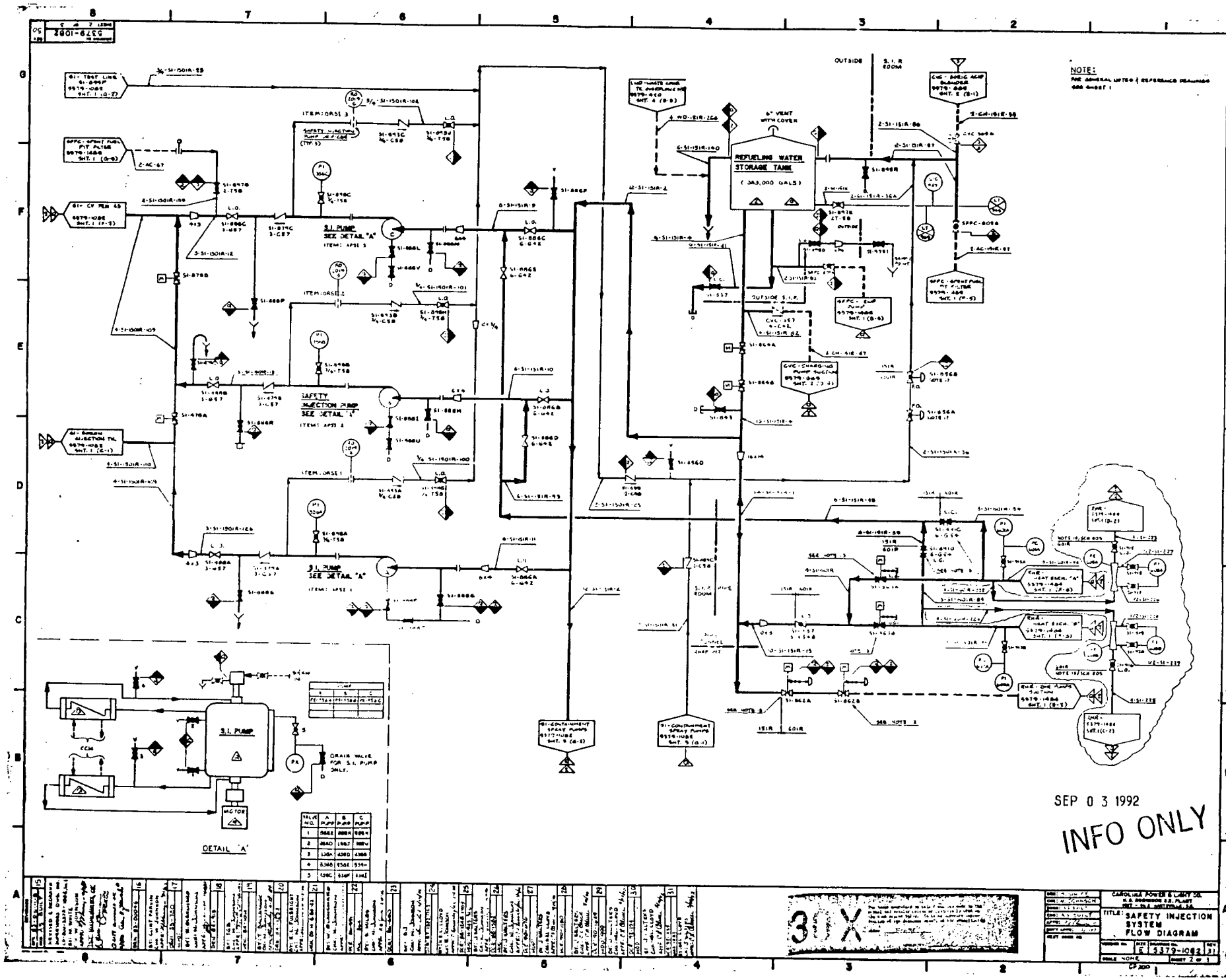
30X

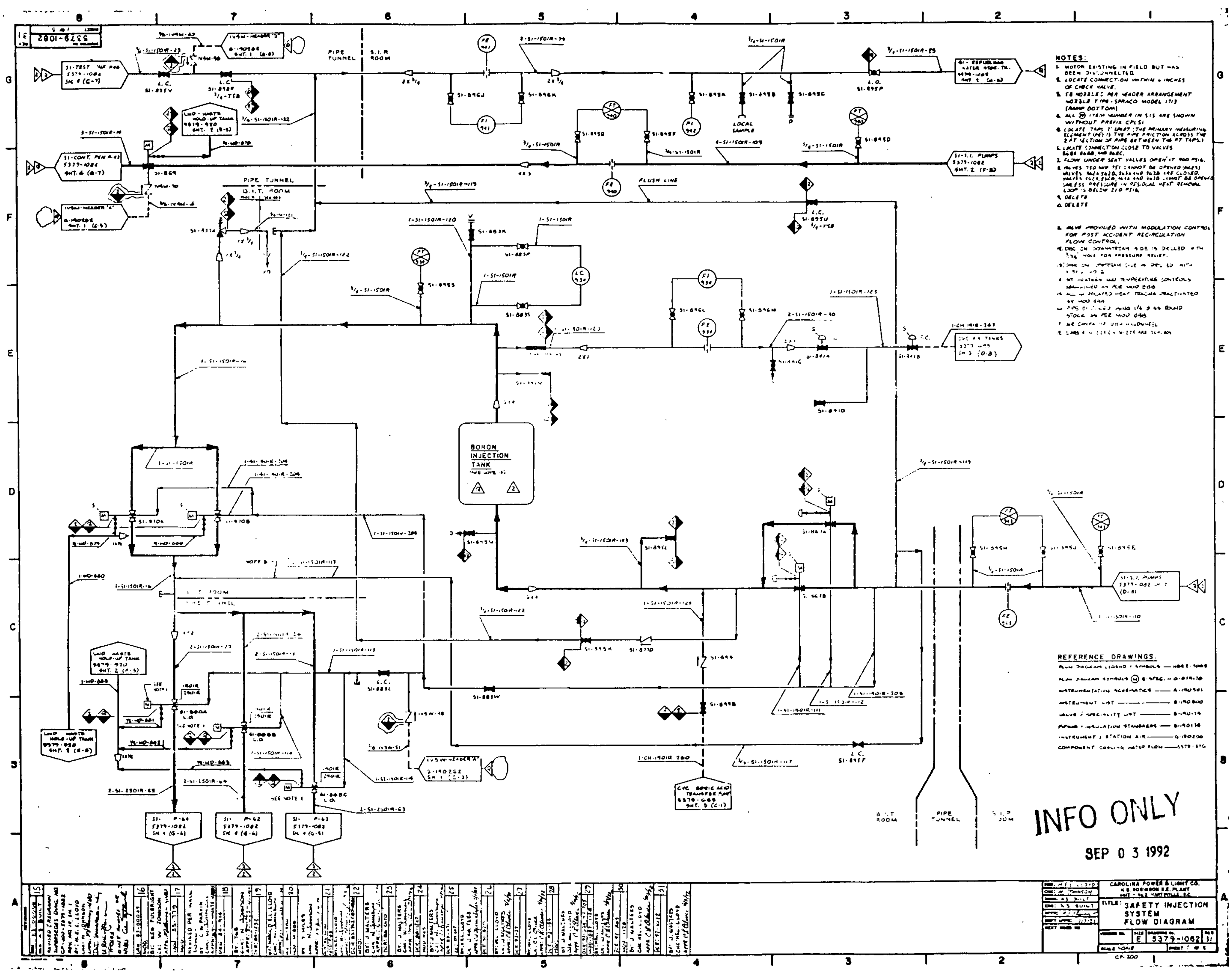


30X

CAROLINA POWER & LIGHT CO.

TITLE: SAFETY INJECTION SYSTEM FLOW DIAGRAM


REFUELING WATER STORAGE TANK
(383,000 GALS)
S.I. PUMP
SEE DETAIL "A"
SAFETY INJECTION PUMP
SEE DETAIL "A"
S.I. PUMP
SEE DETAIL "A"
OUTSIDE S.I.R. ROOM
S.I.R. ROOM
NOTE:
6" VENT WITH COVER
DETAIL "A"
S.I. PUMP
DRAIN VALVE FOR S.I. PUMP ONLY.
MOTOR
SEP 0 3 1992
INFO ONLY
3X
CAROLINA POWER & LIGHT CO.
H. B. ROBINSON S.E. PLANT
UNIT - NO. 2 HARTSVILLE, S.C.
TITLE: SAFETY INJECTION SYSTEM FLOW DIAGRAM
5379-1082
SCALE: NONE
SHEET 2 OF 3


NOTES:
1. MOTOR EXISTING IN FIELD BUT HAS BEEN DISCONNECTED
2. LOCATE CONNECTION WITHIN 6 INCHES OF CHECK VALVE.
4. ALL ITEM NUMBER IN SIS ARE SHOWN WITHOUT PREFIX CPLSI
7. FLOW UNDER SEAT VALVES OPEN AT 900 PSIG.
DELETE
DELETE
VALVE PROVIDED WITH MODULATION CONTROL FOR POST ACCIDENT RECIRCULATION FLOW CONTROL.
BORON INJECTION TANK
PIPE TUNNEL
LOCAL SAMPLE
FLUSH LINE
REFERENCE DRAWINGS.
INSTRUMENT & STATION AIR — G-190200
INFO ONLY
SEP 0 3 1992
CAROLINA POWER & LIGHT CO.
TITLE: SAFETY INJECTION SYSTEM FLOW DIAGRAM
E
5379-1082
SCALE NONE
CP-200

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP-1157

SI PUMP FLOW TEST

REVISION 0

Effective Date 8-29-92

Expiration Date 9-29-92

RECOMMENDED BY: [signature] for N. F. Page — 8-29-92

Manager - Technical Support — Date

APPROVED BY: Roy H. Chambers — 8/29/92

Plant General Manager — Date

CONTROLLED RECIPIENT ID 001

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
Table of Contents	0
4 through 28	0

TABLE OF CONTENTS

1.0 PURPOSE

1.1 The purpose of this procedure is to provide instructions necessary to run "A" and "B" Safety Injection Pumps and obtain flow/pressure test data that will ensure the pumps have not degraded.

1.1.1 SI Pump suction pressure will be measured from test gauges installed on Drain Valves SI-888G and SI-888H.

1.1.2 SI Pump discharge pressure will be measured from test gauges installed in place of PI 956A and PI 956B.

1.1.3 The recirculation flow rate will be measured from Controlotron (Ultrasonic Flow Meter) installed on mini-flow Line 2-SI-151R-87.

1.1.4 Loop flow rate will be measured from Controlotron equipment installed on 4-SI-1501R-109 (excludes mini-flow).

1.1.5 RWST water level will be recorded so a static suction pressure can be calculated.

1.1.6 Water temperature in the respective flow loops will be measured directly via a thermowell in the temporary test line to ensure a maximum temperature of 170 F is not exceeded.

2.0 REFERENCES

2.1 5379-1082, Safety Injection System Flow Diagram

2.2 SP-1152, SI Pump "B" Recirculation Line

2.3 OST-151, Safety Injection System Component Test

2.4 Technical Specifications

2.5 UFSAR

2.6 SP-986, Safety Injection System Flow Test

2.7 SP-1080, Safety Injection System Flow Test

2.8 OP-202, Safety Injection and Containment Vessel Spray System

2.9 OST-154, Safety Injection System High Head Check Valve Test

2.10 SD-002, Safety Injection

2.11 OP-903, Service Water System

2.12 OP-006, Pressurizer PORV Pneumatic System/LTOPP

2.13 PLP-037, Conduct of Infrequently Performed Tests or Evolutions

3.0 PREREQUISITES

3.1 The unit is being maintained in cold shutdown.

3.2 The following activities have been performed by Maintenance under Work Requests.

3.2.1 Internals from "C" SI Pump Discharge Check Valve, SI-879C, have been removed and the bonnet has been reinstalled.

3.2.2 The bracket installed in place of "C" SI Pump for seismic continuity has been removed to facilitate installation of the temporary test piping arrangement.

3.2.3 The temporary test piping arrangement has been fabricated and installed for connecting the "C" SI Pump Suction and discharge lines. Generally, this will consist of a 3" X 4" reducer, throttling valve (4"), strainer, thermowell, and piping and flanges as needed. WR is to include specific instruction to ensure that all piping and equipment installed on the SI Pump Discharge side of the throttle valve and the valve be rated for at least 1500 psi. Suction side piping and peripherals are to be a minimum of 150 psi class. Strainer is to be installed on low pressure side of the test throttle valve (See Attachment 8.4).

3.2.4 Insulation has been removed as needed to facilitate the installation of controlotron equipment on the SI Pump Piping.

3.3 Component Cooling Water Supply is available for Safety Injection Pumps seal water heat exchangers.

3.4 The Service Water System is available for Safety Injection Pumps thrust bearing coolers.

3.5 A valid RWP has been obtained for work to be performed in the Radiation Control Area.

3.0 PREREQUISITES (Continued)

3.6 This procedure has been reviewed against the requirements of PLP-037 and determined to be a "Case Three" activity. No further management involvement is required.

_____ _____

Unit / Section Manager Date

3.7 This revision is the latest revision and has been verified against the Revision Status List.

_____(Print) _____ _____

Name Signature Date

3.8 The Shift Supervisor has given his permission to conduct this test

_____ _____

Shift Supervisor Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 The principles of ALARA shall be used when planning and performing work in the Radiation Control Area.

4.2 This procedure will operate the "A" and "B" SI pumps for an extended period of time with only minimum recirc flow (about 40 to 60 gpm) providing cooling for the test loop. Water temperature shall be continually monitored to ensure that pump/piping temperatures do not exceed 170 F.

4.3 Steps not applicable shall be marked N/A.

4.4 The following are the Westinghouse recommended start cycle limitation for the SI pump motors:

4.4.1 With motor cold, 3 consecutive starts allowed.

4.4.2 With motor at operating temperature, 2 consecutive starts are allowed.

4.4.3 If motor run time between starts is 15 minutes or more, restarting is acceptable up to the recommended maximum of eight starts per day.

4.4.4 If motor run time between starts is less than 15 minutes, additional starts should not be made prior to 60 minutes, if consecutive starts per 4.4.1 and 4.4.2 are exceeded.

4.0 PRECAUTIONS AND LIMITATIONS (Continued)

4.5 The performance of this test must be coordinated with other plant evolutions such that the minimum equipment operability requirements of the Technical Specifications are met.

4.6 Due to potential elevated temperature in the associated SI piping and its effect on pump cavitation do not allow the RWST level to fall below 50 percent while the Safety Injection Pumps are running to assure significant NPSH margin.

4.7 Pressure gauges used in this procedure shall provide results accurate to within 0.5 percent of full scale.

4.8 Valve lineups conducted for this test will require modification of the existing clearance on "C" SI Pump. Ensure that required personnel are available to allow modification of this LCTR prior to commencing the test.

4.9 An RCS vent path must be established per OP-006 prior to racking in any SI Pump Breaker.

4.10 During periods when the SI Pumps are in operation, RCS pressure, PRT pressure/level should be closely monitored to ensure that flow from the SI Pump is not entering the RCS in an uncontrolled or unmonitored manner.

5.0 SPECIAL TOOLS AND EQUIPMENT

5.1 Contact Pyrometer with a minimum range of 0-200 degrees F.

5.2 Portable Controlotron Ultrasonic flow measurement equipment as needed to monitor flow on a single 4" line

5.3 Portable radios (or equivalent) as needed to communicate between the SI Pump Room, Control Room, and Recirc Line Controlotron location outside the Aux Bldg.

5.4 Two calibrated test gauges with minimum ranges of 0-2000 psig with pulsation dampeners or throttling valves.

5.5 Two calibrated test gauges with ranges of -30" Hg to 60 psig.

5.6 One calibrated test gauge with minimum range of 0-200 psig with pulsation dampener or throttling valve. This is to be connected to the test pipe with an isolation valve and a vent valve.

5.7 Vibration detector

6.0 ACCEPTANCE CRITERIA

6.1 This test will operate the SI Pumps over a range of flow conditions and collect data at several points. Due to the nature of the test, no specific acceptance criteria is given at this time. Subsequent to performance of this SP, data collected will be analyzed and evaluated against historical pump performance data (collected via OSTs, other special procedures, etc.) to ascertain the condition of the pump(s). This will be evaluated in EE 92-127.

7.0 PROCEDURE

7.1 INITIAL CONDITIONS INITIALS

7.1.1 VERIFY all prerequisites in Section 3.0 are met. _____

7.1.2 RECORD the equipment identification number and calibration dates for the following instrumentation and test equipment:
(Permanently installed equipment shall have been calibrated within 22.5 months. Test equipment shall have been calibrated within 12 months. If any instruments or test equipment are out of calibration, have them recalibrated before proceeding with this test.)

Instrument		Calibration Date
LI-948, RWST Level Indicator		_____
LT-948, RWST Level Transmitter		_____
0 - 2000 psig gauge	No. _____	_____
0 - 2000 psig gauge	No. _____	_____
0 - 200 psig gauge	No. _____	_____
-30" Hg - 60 psig gauge	No. _____	_____
-30" Hg - 60 psig gauge	No. _____	_____
Vibration Detector	No. _____	_____
Contact Pyrometer	No. _____	_____

7.1.3 VERIFY that Cooling Water flow from the Safety Injection Pumps Seal Water Heat Exchanger, as indicated on FI-658, is greater than 50 gpm.
RECORD actual flow. FI-658 _____ gpm _____

7.1 INITIAL CONDITIONS cont'd INITIALS

7.1.4 VERIFY proper thrust bearing cooling flow to the Safety Injection Pumps by ensuring Thrust Bearing Cooling Outlet Valves SW-513 and SW-515 are at least 1/2 turn open.

SW-513 _____

SW-515 _____

7.1.5 VERIFY proper oil levels in each Safety Injection Pump to be tested.

Pump "A": Front Bowl _____

Rear Bowl _____

Pump "B": Front Bowl _____

Rear Bowl _____

7.1.6 VERIFY that calibrated test gauges have been installed on the following locations:

	Location	Range	Number	
7.1.6.1	SI-888G.	30"Hg - 60 psig	_____	_____
7.1.6.2	PI-956A	0-2000 psig	_____	_____
7.1.6.3	SI-888H.	30"Hg - 60 psig	_____	_____
7.1.6.4	PI-956B.	0-2000 psig	_____	_____
7.1.6.5	Spool Piece	0 - 200 psig	_____	_____

7.1.7 MEASURE from floor to gauge centerline and record gauge elevation corrections.

	Location	Distance	
7.1.7.1	ref. 7.1.6.1	_____	_____
7.1.7.2	ref. 7.1.6.2	_____	_____
7.1.7.3	ref. 7.1.6.3	_____	_____
7.1.7.4	ref. 7.1.6.4	_____	_____

7.1.8 VERIFY that Ultrasonic Flow Rate Instrument is installed on SI Pump "C" Line 4-SI-1501R-109 and personnel are available to take readings.

_____

7.1	INITIAL CONDITIONS cont'd	INITIALS
7.1.9	VERIFY that Ultrasonic flow Rate Instrument is installed on Mini Flow Line 2-SI-151R-87 and personnel are available to take readings.	_____
7.1.10	Verify the contact pyrometer is installed in the test spool piece.	_____
7.1.11	VERIFY RWST purification pump STOPPED.	_____
7.1.12	VERIFY SFPC-805B, RWST Return Valve. CLOSED.	_____

7.1 INITIAL CONDITIONS cont'd INITIALS

7.1.13 Perform the following valve line up for the Safety Injection System Flow Test:

Valve	Description	Position	INITIALS
SI-864A	RWST Dschg.	OPEN	
SI-864B	RWST Dschg.	OPEN	
SI-886A	SI Pump "A" Suction Isolation	LOCKED OPEN	
SI-886B	SI Pump "B" Suction Isolation	LOCKED OPEN	
SI-886C	SI Pump "C" Suction Isolation	CLOSED	
SI-886E	RHR HX Outlet to "C" SI Pump	CLOSED	
SI-898G	SI Pump "A" Recirculation Isol	LOCKED OPEN	
SI-898H	SI Pump "B" Recirculation Isol	LOCKED OPEN	
SI-898J	SI Pump "C" Recirculation Isol	OPEN	
SI-856A	Hi Hd SI Test Line to RWST	OPEN	
SI-856B	Hi Hd SI Test Line to RWST	OPEN	
SI-888A	SI Pump "A" Discharge Isolation	LOCKED OPEN	
SI-888B	SI Pump "B" Discharge Isolation	LOCKED OPEN	
SI-888C	SI Pump "C" Discharge Isolation	CLOSED	
SI-888F	SI Pump "A" Drain	CLOSED	
SI-888T	SI Pump "A" Drain	CLOSED	
SI-878A	SI Pump Dschg Hdr Cross-Conn	OPEN	
SI-878B	SI Pump Dschg Hdr Cross-Conn	OPEN	
SI-867A	Boron Inj. Tank Inlet	CLOSED	
SI-867B	Boron Inj. Tank Inlet	CLOSED	
SI-869	Loops 2 & 3 Hot Leg Inj. Shutoff	CLOSED	
SI-895U	Boron Inj. Tnk Bypass to SI Test Line	LOCKED CLOSED	
SI-895T	Boron. Inj. Tank Bypass	LOCKED CLOSED	
SI-888S	SI Pump A Drain	CLOSED	
SI-888I	SI Pump B Drain	CLOSED	
SI-888R	SI Pump B Drain	CLOSED	
SI-878C	SI Pumps Discharge Vent	CLOSED	
SI-898C	SI Pump C PI 956C Isolation	CLOSED	
SI-888P	SI Pump C Drain	CLOSED	
SI-897G	SFPC Loop to SI Hdr Isol	CLOSED	
SI-867A	Boron Inj Tank Inlet Vlv Bkr MCC-5	OPEN	
SI-869	SI Pmp Disch Hot Leg Inj Bkr MCC-5	OPEN	
SI-867B	Boron Inj Tank Inlet Vlv Bkr MCC-6	OPEN	
SI-883W	SI-870A & B Leakoff Isolation	CLOSED	
	Temporary Test Vent Valve	CLOSED	
	Temporary Test Throttle Valve	CLOSED	

7.1.14 DISPATCH persons to the SI pump room to operate the SI pump and Test Throttle Valve as required. _____

****

CAUTION

High levels of pump noise may affect radio communications with the control room.

****

7.1.15 ESTABLISH communications between Control Room and SI Pump Room and the mini flow line at the RWST. _____

7.0 PROCEDURE

7.2 Safety Injection Pump "B" Flow Test INITIALS

7.2.1 OPEN SI-886C, SI Pump "C" Suction Isolation _____

7.2.2 OPEN SI-888C, SI Pump "C" Discharge Isolation _____

7.2.3 RECORD RWST level as read on level indicator LI-948
RWST Level _____% _____

7.2.4 OPEN SI-888H, SI Pump "B" Drain. _____

7.2.5 VERIFY OPEN SI-898B, SI Pump B PI-956B Isolation. _____

7.2.6 CALCULATE and Record SI Pump "B" Suction Pressure as follows:
$\frac{\text{(Step 7.2.3)} \times \text{(32.5 Ft)}}{100}$ -1.1 Ft X (0.4335 PSI/Ft) = ____PSI
_____

7.2.7 Install a drain hose on the Temporary Test Vent valve to an available floor drain. _____

7.2.8 Install a drain hose on SI-886F, SI Pumps Suction Vent and route to an available floor drain. _____

7.2.9 OPEN Temporary Test Throttle Valve _____

7.2.10 Crack OPEN Temporary Test Vent Valve to vent the Temporary Test Piping. THEN, CLOSE Temporary Test Vent Valve. _____

7.2.11 Crack OPEN SI-886F, SI Pumps Suction Vent to vent the suction header. THEN, CLOSE SI-886F. _____

7.2.12 CLOSE Temporary Test Throttle Valve _____

****

CAUTION

An RCS vent path must be established per OP-006 prior to racking in any SI Pump Breaker.

****

7.2.13 RACK IN "B" Safety Injection Pump Breaker 52/29B. _____

****

CAUTION

IF FLOW IS NOT DETECTED UPON PUMP START IN STEP 7.2.14, THE SI PUMP SHOULD BE STOPPED IMMEDIATELY TO PRECLUDE THE POSSIBILITY OF PUMP DAMAGE. THE SI PUMP SHOULD ALSO BE STOPPED IMMEDIATELY IF AT ANY TIME DURING THIS TEST TOTAL RECIRCULATION FLOW DROPS BELOW 30 GPM OR AN ABRUPT CHANGE IN RECIRCULATION FLOW RATE INDICATES BLOCKAGE OF THE RECIRCULATION FLOW PATH(S).

****

7.2.14 START "B" Safety Injection Pump and RECORD the time started.

Time Started _____ _____

7.2.15 VERIFY that flow has been detected by the ultrasonic flow meter on the SI mini flow line to the RWST. _____

7.2.16 After SI Pump "B" has operated a minimum of 2 minutes, CLOSE SI-898J and RECORD the data on Attachment 8.2. This test point generates data with only recirculation line flow.

_____

NOTE

Time of pump operation for data points is at the discretion of the Test Coordinator unless specified in the procedure.

****

CAUTION

CONTINUOUS MONITORING OF RECIRC PIPING TEMPERATURE WILL ASSURE ADEQUATE COOLING IS MAINTAINED. THE PUMP SHALL BE STOPPED IF WATER TEMPERATURE EXCEEDS 170 F AS INDICATED ON THE TEST PIPING TEMPERATURE READING. A SUDDEN INCREASE IN PUMP DISCHARGE PRESSURE OR REDUCTION IN FLOW MAY INDICATE A BLOCKED STRAINER. THE PUMP SHALL BE STOPPED IF THE STRAINER IS SUSPECTED OF BEING BLOCKED.

****

7.2.17 OPEN SI-898J, SI Pump "C" Recirculation Isolation _____

7.2.18 SLOWLY OPEN the Test Throttle Valve to achieve a flow rate of 150 gpm +/- 50 gpm as read on ultrasonic flow meter on 4-SI-1501R-109

_____

7.2.19 Allow SI Pump "B" to operate until flow is stable and RECORD data on Attachment 8.2. _____

7.2.20 SLOWLY OPEN the Test Valve to achieve a flow rate of 270 gpm +/- 50 gpm as read on the ultrasonic flow meter on 4-SI-1501R-109. _____

7.2.21 Allow SI Pump "B" to operate until flow is stable and RECORD data on Attachment 8.2. _____

7.2.22 SLOWLY open the Test Valve to achieve a flow rate of 400 gpm +/- 75 gpm as read on the ultrasonic flow meter on 4-SI-1501R-109. _____

7.2.23 Allow SI Pump "B" to operate until flow is stable and RECORD data on Attachment 8.2. _____

7.2.24 STOP "B" Safety Injection Pump and record time stopped.
Time Stopped _____ _____

7.2.25 CLOSE Test Throttle Valve. _____

7.2.26 RACK OUT "B" SI Pump Bkr 52/29B. _____

7.2.27 Obtain Clearance for "C" SI Pump to allow removal of Temporary Test Piping. This should include closure of SI 898J, SI-886C, SI-888C and SI-886E as a minimum and allow draining via SI-888P. _____

7.2.28 Remove Temporary Test Piping to allow removal/ inspection of strainer. _____

7.2.29 Inspect strainer for debris and document results on Attachment 8.5. _____

7.2.30 Reinstall the Temporary Test Piping and the strainer. _____

7.2.31 VERIFY CLOSED, Temporary Test Piping Vent Valve. _____

7.2.32 CANCEL the clearance on the "C" SI pump to allow the Temporary Test Piping to be used.

NOTE

If repetative flushes are made per 7.2.33, attach additional sheets as required to document their performance. Identify each flushing iteration by denoting its number at the top of those pages, including data sheet attachments (ie., reflush 1 , etc.).

7.2.33 IF strainer cleanliness from 7.2.29 is unacceptable as determined by the Test Coordinator / Management, THEN return to Step 7.2.1 and repeat Section 7.2.

7.2.34 IF strainer cleanliness from 7.2.29 is acceptable as determined by the Test Coordinator / Management, THEN go to Section 7.3.

7.0 PROCEDURE

7.3 Safety Injection Pump "A" Flow Test INITIALS

7.3.1 VERIFY Open SI-886C, SI Pump "C" Suction Isolation _____

7.3.2 VERIFY Open SI-888C, SI Pump "C" Discharge Isolation _____

7.3.3 RECORD RWST level as read on level indicator LI-948

RWST Level _____% _____

7.3.4 OPEN SI-888G, SI Pump "A" Drain. _____

7.3.5 VERIFY OPEN SI-898A, SI Pump A PI-956A Isolation. _____

7.3.6 CALCULATE and Record SI Pump "A" Suction Pressure as follows:

$\frac{\text{(Step 7.3.3)}}{100} \times (32.5 \text{ Ft}) - 1.1 \text{ Ft} \times (0.4335 \text{ PSI/Ft}) =$ ____PSI

_____

7.3.7 Install a drain hose on the Temporary Test Vent valve to an available floor drain. _____

7.3.8 Install a drain hose on SI-886F, SI Pumps Suction Vent and route to an available floor drain. _____

7.3.9 OPEN Temporary Test Throttle Valve _____

7.3.10 Crack OPEN Temporary Test Vent Valve to vent the Temporary Test Piping. THEN, CLOSE Temporary Test Vent Valve. _____

7.3.11 Crack OPEN SI-886F, SI Pumps Suction Vent to vent the suction header. THEN, CLOSE SI-886F. _____

7.3.12 Close Temporary Test Throttle Valve _____

****

CAUTION

An RCS vent path must be established per OP-006 prior to racking in any SI Pump Breaker.

****

7.3.13 RACK IN "A" Safety Injection Pump Breaker 52/21C. _____

****

CAUTION

IF FLOW IS NOT DETECTED UPON PUMP START IN STEP 7.3.14, THE SI PUMP SHOULD BE STOPPED IMMEDIATELY TO PRECLUDE THE POSSIBILITY OF PUMP DAMAGE. THE SI PUMP SHOULD ALSO BE STOPPED IMMEDIATELY IF AT ANY TIME DURING THIS TEST TOTAL RECIRCULATION FLOW DROPS BELOW 30 GPM OR AN ABRUPT CHANGE IN RECIRCULATION FLOW RATE INDICATES BLOCKAGE OF THE RECIRCULATION FLOW PATH(S)

****

7.3.14 START "A" Safety Injection Pump and RECORD the time started.

Time Started _____ _____

7.3.15 VERIFY that flow has been detected by the ultrasonic flow meter on the SI mini flow line to the RWST. _____

7.3.16 After SI Pump "A" has operated a minimum of 2 minutes, CLOSE SI-898J and RECORD the data on Attachment 8.3. This test point generates data with only recirculation line flow.

_____

NOTE

Time of pump operation for data points is at the discretion of the Test Coordinator unless specified in the procedure.

****

CAUTION

CONTINUOUS MONITORING OF RECIRC PIPING TEMPERATURE WILL ASSURE ADEQUATE COOLING IS MAINTAINED. THE PUMP SHALL BE STOPPED IF WATER TEMPERATURE EXCEEDS 170 F AS INDICATED FROM THE TEST PIPING TEMPERATURE READING. A SUDDEN INCREASE IN PUMP DISCHARGE PRESSURE OR REDUCTION IN FLOW MAY INDICATE A BLOCKED STRAINER. THE PUMP SHALL BE STOPPED IF THE STRAINER IS SUSPECTED OF BEING BLOCKED.

****

7.3.17 OPEN SI-898J, SI Pump "C" Recirculation Isolation _____

7.3.18 SLOWLY OPEN the Test Throttle Valve to achieve a flow rate of 150 gpm +/- 50 gpm as read on ultrasonic flow meter on 4-SI-1501R-109.

_____

7.3.19 Allow SI Pump "A" to operate until flow is stable and RECORD data on Attachment 8.3. _____

7.3.20 SLOWLY OPEN the Test Valve to achieve a flow rate of 270 gpm +/- 50 gpm as read on the ultrasonic flow meter on 4-SI-1501R-109. _____

7.3.21 Allow SI Pump "A" to operate until flow is stable and RECORD data on Attachment 8.3. _____

7.3.22 SLOWLY open the Test Valve to achieve a flow rate of 400 gpm +/- 75 gpm as read on the ultrasonic flow meter on 4-SI-1501R-109. _____

7.3.23 Allow SI Pump "A" to operate until flow is stable and RECORD data on Attachment 8.3. _____

7.3.24 STOP "A" Safety Injection Pump and record time stopped.

Time Stopped _____ _____

7.3.25 CLOSE Test Throttle Valve. _____

7.3.26 RACK OUT "A" SI Pump Bkr 52/21C. _____

7.3.27 Obtain Clearance for "C" SI Pump to allow removal of Temporary Test Piping. This should include closure of SI 898J, SI-886C, SI-888C and SI-886E as a minimum and allow draining via SI-888P. _____

7.3.28 Remove Temporary Test Piping to allow removal/ inspection of strainer. _____

7.3.29 Inspect strainer for debris and document results on Attachment 8.5. _____

7.3.30 Reinstall the Temporary Test Piping and the strainer. _____

7.3.31 VERIFY CLOSED, Temporary Test Piping Vent Valve. _____

7.3.32 Remove the clearance on the "C" SI pump to allow the Temporary Test Piping to be used. _____

NOTE

If repetative flushes are made per 7.3.33, attach additional sheets as required to document their performance. Identify each flushing iteration by denoting its number at the top of those pages, including data sheet attachments (ie., reflush 1 , etc.).

7.3.33 IF strainer cleanliness from 7.3.29 is unacceptable as determined by the Test Coordinator / Management, THEN Return to Step 7.3.1 and repeat Section 7.3. _____

7.3.34 IF strainer cleanliness from 7.3.29 is acceptable as determined by the Test Coordinator / Management, THEN go to Section 7.4. _____

7.4 Restoration INITIALS

7.4.1 Perform the following component restoration:

VALVE	DESCRIPTION	POSITION	INIT	VERI
SI-888C	SI Pump C Discharge Isol.	CLOSED	____	____
SI-886C	SI Pump C Suction Isol.	CLOSED	____	____
SI-898J	SI Pump C Recirc. Isol.	CLOSED	____	____
SI-888H	SI Pump B Drain	CLOSED	____	____
SI-888G	SI Pump A Drain	CLOSED	____	____
SI-867A	Boron Inj. Tank Inlet	OPEN	____	____
SI-867B	Boron Inj. Tank Inlet	OPEN	____	____
SI-869	Loops 2&3 Hot Leg Inj. Shutoff	CLOSED	____	____

COMPONENT				
SI-867A	Boron Inj Tank Inlet Vlv Bkr MCC-5	CLOSED	____	____
SI-869	SI Pmp Disch Hot Leg Inj Bkr MCC-5	CLOSED	____	____
SI-867B	Boron Inj Tank Inlet Vlv Bkr MCC-6	CLOSED	____	____

7.4.2 NOTIFY appropriate personnel to remove temporary ultrasonic flow instrumentation. _____

7.4.3 Verify test gauges and tubing are removed from test points. _____

7.4.4 Permanent gauges at PI-956A and PI-956B are restored to pretest configuration.

PI-956A Installed _____

PI-956B Installed _____

7.4.5 Test gauges installed at pump suction and discharge have been post test calibrated. _____

7.4.6 Remove "C" SI Pump from service per OWP SI-3. _____

7.4.7 Check valve SI-879C has been restored to its pretest condition. _____

7.4.8 The temporary test piping installed in place of SI Pump "C" has been removed and the seismic support arrangement for SI pump "C" has been restored to pretest condition. _____

7.4.9 Maintenance has been notified to replace insulation on locations removed to facilitate controlotron installation. _____

7.5 Records

7.5.1 Upon completion of all applicable steps of this special procedure, it shall be transmitted to the records vault for storage as a permanent record under File Number 2080. Post Test Equipment Calibration Data Sheets shall be included in this transmittal.

8.0 ATTACHMENTS

8.1 Pump Vibration Data Collection Points

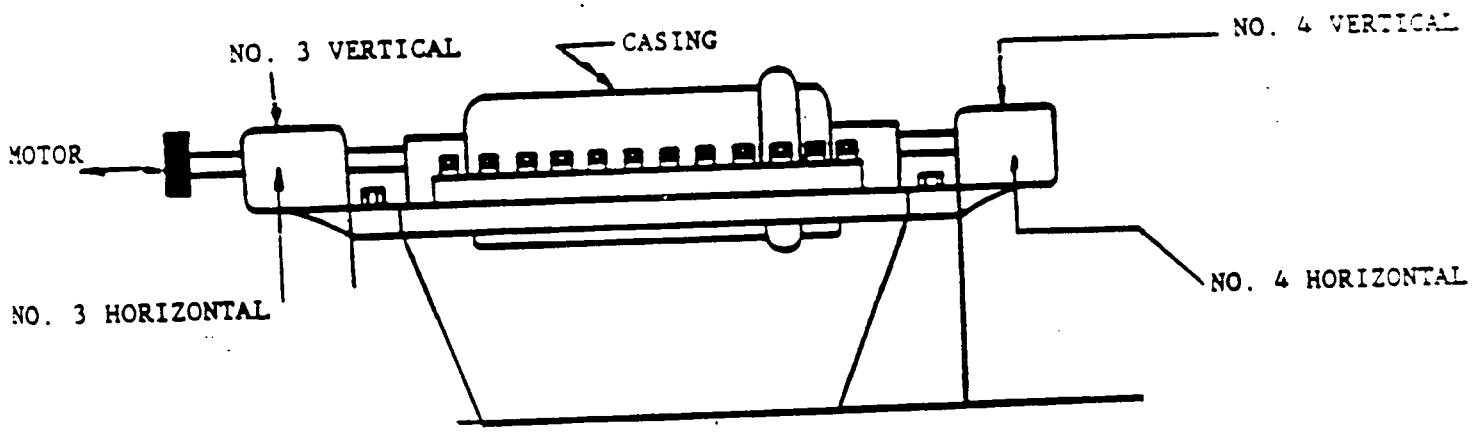
8.2 SI Pump "B" Test Data

8.3 SI Pump "A" Test Data

8.4 Temporary Test Piping Arrangement Diagram

8.5 Special Procedure Certification and Review Form

PUMP VIBRATION DATA COLLECTION POINTS



"B" SI PUMP TEST DATA

PARAMETER	INST note	PT.1	PT.2	PT.3	PT.4	NOTES
TIME						
RWST LEVEL (%)	LI 948					
PSIG in	(A)					
	(B)					
PSIG out	(C)					
D/P (PSIG)	(D)					
RECIRC FLOW GPM	(E)					
UT FLOW (GPM)	(E)					
VIBRATION 3H	N/A					
VIBRATION 3V	N/A					
VIBRATION 4H	N/A					
VIBRATION 4V	N/A					
CASING VIBRATION	N/A					

Notes: N/A any information not obtainable.

(A) Test gauge 30"HG to 60 psig
(B) Calculate suction pressure:

$$P = \left[\frac{(\text{RWST level \%}) \times (32.5 \text{ ft})}{100} - 1.1 \text{ ft}\right] \times (.4335 \text{ psi/ft})$$

(C) Test gauge 0-2000 psig
(D) Diff. Pressure is calculated from discharge pressure - suction pressure.
(E) Ultrasonic Flow Instrumentation

COMMENTS

"A" SI PUMP TEST DATA

PARAMETER	INST note	PT.1	PT.2	PT.3	PT.4	NOTES
TIME						
RWST LEVEL (%)	LI 948					
PSIG in	(A)					
	(B)					
PSIG out	(C)					
D/P (PSIG)	(D)					
RECIRC FLOW GPM	(E)					
UT FLOW GPM	(E)					
VIBRATION 3H	N/A					
VIBRATION 3V	N/A					
VIBRATION 4H	N/A					
VIBRATION 4V	N/A					
CASING VIBRATION	N/A					

Notes: N/A any information not obtainable.

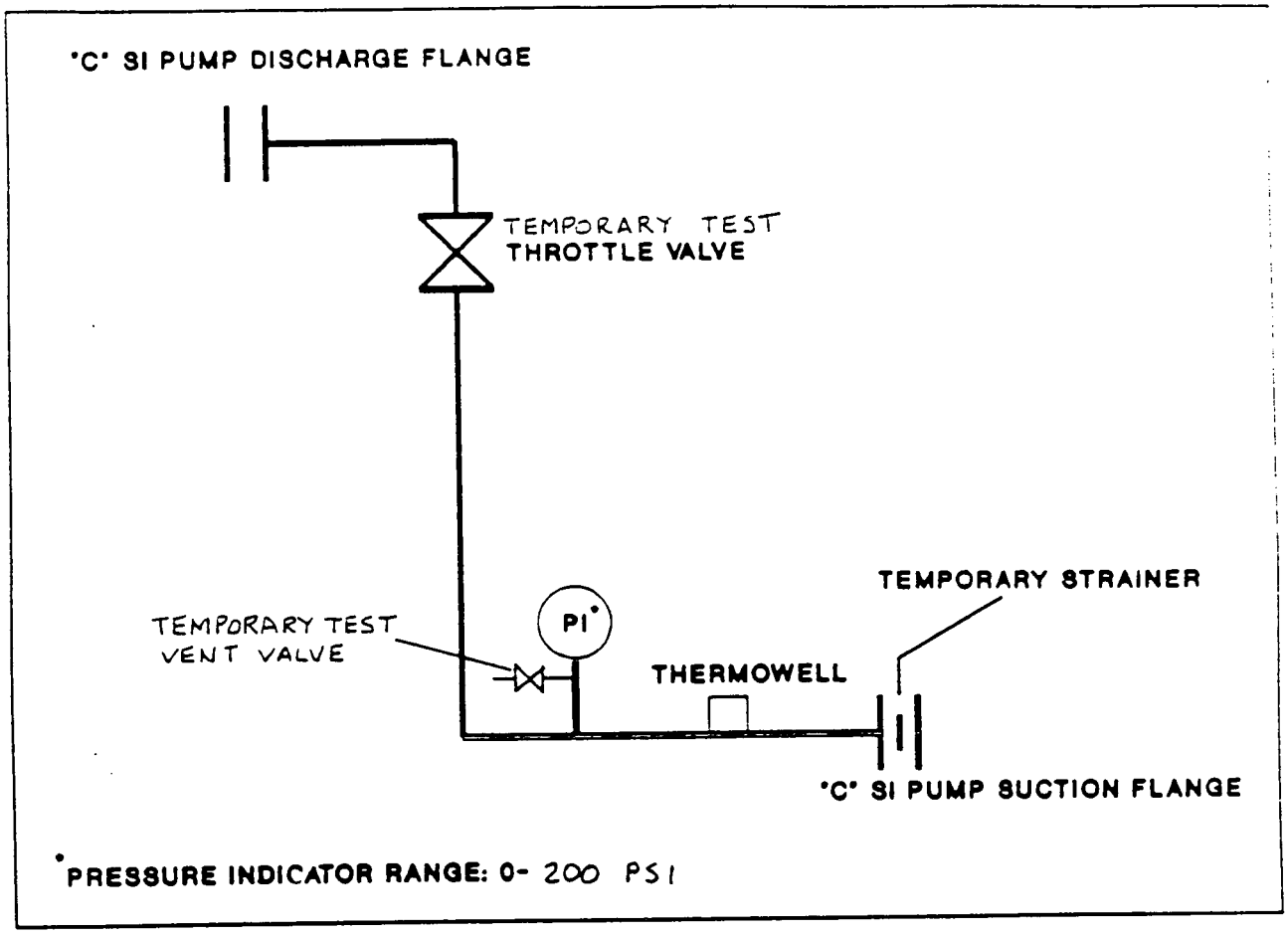
(A) Test gauge 30"HG to 60 psig
(B) Calculate suction pressure:

$$P = \left[\frac{(\text{RWST level \%}) \times (32.5 \text{ ft})}{100} - 1.1 \text{ ft}\right] \times (.4335 \text{ psi/ft})$$

(C) Test gauge 0-2000 psig
(D) Diff. Pressure is calculated from discharge pressure - suction pressure.
(E) Ultrasonic Flow Instrumentation

COMMENTS

TEMPORARY TEST PIPING ARRANGEMENT DIAGRAM



SPECIAL PROCEDURE

CERTIFICATION AND REVIEW FORM

	Initials	Name (Print)	Date
Test Performed By	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

Test Complete : Date _____ Time _____

Test Satisfactory: Yes / No (Circle One)

Reviewed by _____ Date _____

Test Coordinator

Comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Approved By _____ Date _____

SI System Engineer

CAROLINA POWER AND LIGHT COMPANY
H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE
SP-1158
REFUELING WATER STORAGE TANK
INSPECTION FOR FOREIGN MATERIAL

REVISION 0

Effective Date 8-28-92

Expiration Date 9-28-92

RECOMMENDED BY: _____ 8-25-92
Manager - Technical Support Date

APPROVED BY: Ray H. Chambers 4/28/92
General Manager Date

CONTROLLED
RECIPIENT
ID 001

LIST OF EFFECTIVE PAGES

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TABLE OF CONTENTS

1.0 Purpose

The purpose of this Special Procedure is to inspect the Refueling Water Storage Tank for foreign material and obtain sample if any exist, using divers.

2.0 References

2.1 AP-035, Technical Specification Interpretations

2.2 PLP-012 - Confined Space Program

2.3 PLP-016, Radiation Work Permit Program

2.4 PLP-017, ALARA Program

2.5 PLP-037, Conduct of Infrequently Performed Tests or Evolutions.

2.6 PLP-047, Foreign Material Exclusion Area Program

2.7 RMP-001, Records and Q.A. Records Storage

2.8 OMM-005, Clearance and Test Request

2.9 OP-202, Safety Injection and Containment Vessel Spray System

2.10 5379-1082, Sht 2, Safety Injection System Flow Diagram

2.11 FPP-010, Fire Protection Procedure, Housekeeping Controls

2.12 MMM-010, Cleanliness and Flushing Requirements

2.13 MIP-306, Temporary Power

3.0 Responsibilities

3.1 Technical Support is responsible for the following:

* Initialization and Approval of this Special Procedure.
* Design and performance of this Special Procedure.

3.2 Modification Implementation (MI) is responsible for erecting and removing scaffolding, and assisting divers performing the inspection.

3.0 Responsibilities (Cont'd)

3.3 Operations is responsible for system clearances and system alignment.

3.4 E&RC shall be responsible for issuing Radiation Work Permits, Decon Instructions and providing instructions, as well as Radiological HOLDPOINTS for all/any foreign material retrieved from the RWST.

3.5 Fire Protection is responsible for providing Confined Space Permits, as required.

3.6 QC is responsible for performing Independent Verification of RWST manway closing and cleanliness verification for the manway opening per MMM-010.

4.0 Prerequisites

4.1 Permission is to be obtained from Operations before performing any work per this Special Procedure.

4.2 Ensure all required tools and manpower are available.

4.3 Brief Operations' Shift Supervisor prior to starting work as to equipment affected, clearances required, estimated duration of work, and any other pertinent information.

4.4 Obtain Radiation Work Permits (RWP) prior to starting work on all work in the Radiation Control Area, as required.

4.0 Prerequisites (Cont'd)

4.5 Proper utilities shall be provided in the work area, which include but are not limited to, work platforms, exhaust fans, lighting, etc.

4.6 Obtain any required permits per Plant Operating Manual

4.7 Scaffolding and entrance installed per approved plant procedures.

4.8 A & B Boric Acid Transfer Pumps available per OP-301.

4.9 Primary Water Pumps available per OP-915.

4.10 Charging and Makeup System available per OP-301.

4.11 Greater than 3080 gallons of Boric Acid is available in the Boric Acid Tanks.

4.12 Greater than 30,000 gallons of water is in the Primary Water Storage Tank.

5.0 Precautions & Limitations

5.1 The Reactor shall be in cold shutdown and the RCS shall be depressurized.

5.2 This procedure/activity has been screened in accordance with PLP-037 criteria and determined to be a Case Three procedure/activity. No additional management involvement is required.

5.3 Only Plant Operations personnel are permitted to operate plant equipment or systems.

5.4 ALARA considerations shall be practiced at all times.

5.5 All key control, radiation control, and other procedures shall be followed at all times.

5.0 Precautions & Limitations (Cont'd)\

5.6 Before starting any work, necessary provisions to prevent interference of any kind with plant operations shall be made.

5.7 Only personnel assigned to perform this Special Procedure should be present near the Refueling Water Storage Tank, during the performance of this Special Procedure. All unnecessary personnel will be restricted from the area. Other activities within the area will be limited, as determined by the Shift Supervisor.

5.8 All applicable safety requirements addressed in the CP&L Safety Manual shall be strictly adhered to at all times.

5.9 Restoration of temporary connections to plant systems and equipment shall be per plant procedures.

5.10 No hot work is to be performed under this Special Procedure without the approval of the Fire Protection Staff.

5.11 During the performance of this Special Procedure, the entrance to the Refueling Water Storage Tank (RWST) upper manway shall be posted with red and black taping with a sign as follows: "Confined Space - Divers Entry Only".

5.12 Scaffolding at the RWST and a entrance from the Muffler Deck to the top of the RWST shall be used during the performance of this Special Procedure.

5.13 All lighting used during the performance of this Special Procedure will be provided by the divers. Temporary Power will be provided for the divers, as needed, per MIP-306.

5.0 Precautions & Limitations (Cont'd)

5.14 All foreign materials retrieved from the RWST shall be considered contaminated and surveyed prior to removal from the RWST per E&RC direction.

5.15 Valves LCV-115B and CVC-358 will be controlled under a separate local clearance controlled by the Shift Supervisor. In the event that plant conditions require the use of the water contained in the RWST to support core cooling, the Shift Supervisor will notify the person responsible for the divers to immediately remove all personnel from the tank, cancel the Shift Supervisors local clearance, and proceed to use the contents of the RWST as necessary.

5.16 Minimize the amount of Demineralized Water used for rinsing down the diver exiting the RWST (Step 9.12) to preclude the dilution of the required RWST Boron Concentration.

5.17 Prior to entering the RWST, ensure all equipment that is to enter the RWST has been rinsed off with Demin Water to prevent chlorides, etc. from entering the RWST.

6.0 General Requirements

6.1 All procedures, drawings, codes, and standards, etc., referenced in this procedure shall be the latest revision unless otherwise stated.

6.2 Sections and Steps may be worked in any logical order, except steps marked "HOLDPOINT" which must be worked in the sequence given in the text.

6.3 The Shift Supervisor and Technical Support Supervisor shall be made aware of any problems that arise.

6.0 General Requirements (Cont'd)

6.4 No Confined Space Permit is needed during the performance of this Special Procedure. The Divers are to observe all safety precautions per normal OSHA requirements for divers.

7.0 Special Tools/Equipment

7.1 As Required - Portable means of lowering Diver into RWST

7.2 As Required - Diving Equipment (Supplied by Divers)

7.3 As Required - Underwater Camera (Supplied by Divers)

8.0 Acceptance Criteria

8.1 There is no Acceptance Criteria for this Special Procedure.

8.2 The inspection criteria for this Special Procedure is as follows:

1. Type of Foreign Materials
2. Size of Foreign Materials

8.3 Should foreign material be found in the RWST, Technical Support will analyze the material for any other corrective actions needed.

9.0 Procedure

NOTE

This procedure has been screened in accordance with PLP-037 criteria and determined to be a Case Three procedure/activity. No additional management involvement is required.

_____ _____

Unit/Section Manager Signature Date

9.0 Procedure (Cont'd)

9.1 This copy of this Special Procedure has been verified to be the latest revision.

_____ / _____

Tech Support Date

9.2 Obtain the Shift Supervisors permission to inspect the Refueling Water Storage Tank.

_____ / _____

Shift Supervisor Date

9.3 Verify that all prerequisites in Section 4.0 are complete.

_____ / _____

Technical Support Date

9.4 Verify the following valve/breaker positions to isolate the RWST prior to entry:

CVC-365B, Boric Acid From Blender - CLOSED

_____ / _____

OPS Date

SFPC-805B, RWST Return - CLOSED

_____ / _____

OPS Date

SI-856A, Hi Hd SI Test Line to RWST - CLOSED

_____ / _____

OPS Date

SI-856A, Hi Hd SI Test Line to RWST - HANDWHEEL ENGAGED

_____ / _____

OPS Date

SI-856B, Hi Hd SI Test Line to RWST -CLOSED

_____ / _____

OPS Date

9.0 Procedure (Cont'd)

SI-856B, Hi Hd SI Test Line to RWST - HANDWHEEL ENGAGED

_____/_____
OPS Date

SI-864A, RWST Disch. Valve - CLOSED

_____/_____
OPS Date

SI-864B, RWST Disch. Valve - CLOSED

_____/_____
OPS Date

SI-864A, RWST Disch. Valve Breaker MCC-5 - OPEN

_____/_____
OPS Date

SI-864B, RWST Disch. Valve Breaker MCC-6 - OPEN

_____/_____
OPS Date

SFPC-805A, RWP Pump Suction from RWST - CLOSED

_____/_____
OPS Date

LCV-115B, Emerg. Makeup to Chg Suction - CLOSED

_____/_____
OPS Date

IA-3061, IA to LCV-115B - CLOSED

_____/_____
OPS Date

CVC-358, RWST to Charging Pump Suction - CLOSED

_____/_____
OPS Date

52/21C, Safety Injection Pump A Breaker - RACKED OUT

_____/_____
OPS Date

9.0 Procedure (Cont'd)

52/22B, E1 Supply to SI Pump B Breaker - RACKED OUT

_____ / _____

OPS Date

52/19A, Containment Spray Pump A Breaker - RACKED OUT

_____ / _____

OPS Date

52/29B, E2 Supply to SI Pump B Breaker - RACKED OUT

_____ / _____

OPS Date

52/23B, Safety Injection Pump C Breaker - RACKED OUT

_____ / _____

OPS Date

52/25C, Containment Spray Pump B Breaker - RACKED OUT

_____ / _____

OPS Date

9.5 Ensure HVE-2A or HVE-2B is in operation.

_____ / _____

OPS Date

9.6 Open breaker on MCC-5 for Aux Bldg. Supply Fan HVS-1.

_____ / _____

OPS Date

9.7 Establish Foreign Material Exclusion Area, per PLP-047, at the entrance of the walkway to the RWST.

_____ / _____

Technical Support Date

9.0 Procedure (Cont'd)

NOTE

Prior to entrance into the RWST, a local clearance will be placed on all components listed in step 9.4 with the following conditions:

* Valves LCV-115B and CVC-358 will be placed in the closed position under a Shift Supervisors clearance.
* All of the remaining components listed in step 9.4 will be placed under a local clearance and that clearance will be held by a person responsible for the divers in the RWST.

9.8 Request a clearance on the components listed in step 9.4 per the NOTE above and record the LCTR No.

LCTR No. _____

LCTR No. _____

_____ / _____

Technical Support Date

9.9 Cut the lock and open the RWST upper manway.

_____ / _____

MI Date

_____ / _____

OPS Date

9.10 Lower one (1) diver into the RWST to perform the inspection.

9.11 During the inspection, retrieve samples of foreign materials found in the RWST, if possible. Ensure samples are surveyed by E&RC Personnel prior to removal from the RWST.

9.0 Procedure (Cont'd)

CAUTION

MINIMIZE THE AMOUNT OF DEMINERALIZED WATER USED FOR RINSING DOWN THE DIVER EXITING THE RWST (STEP 9.12) TO PRECLUDE THE DILUTION OF THE REQUIRED RWST BORON CONCENTRATION.

9.12 Hoist the diver out of the RWST slowly, ensure that the diver is rinsed with demin water prior the exiting the RWST.

_____ / _____

E&RC Date

9.13 Contact QC and prior to closing the RWST, verify that all foreign objects (diving equip., camera, etc.) taken into the RWST have been removed from the tank. QC shall sign below verifying cleanliness at the manhole opening per MMM-010

_____ / _____

HOLDPOINT QC Date

9.14 If a new gasket is needed, make the gasket using old gasket to determine thickness and material.

9.15 Lock closed the RWST upper manway cover. QC shall sign below for Independent Verification.

HOLDPOINT _____ / _____

OPS Date

INDEPENDENT VERIFICATION _____ / _____

QC Date

9.16 Release the clearance requested in step 9.8.

_____ / _____

Technical Support Date

9.0 Procedure (Cont'd)

9.17 Verify the following valves/breakers in their proper position to restore the RWST after inspection:

CVC-365B, Boric Acid From Blender - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SFPC-805B, RWST Return - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-856A, Hi Hd SI Test Line to RWST Valve - HANDWHEEL DISENGAGED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-856A, Hi Hd SI Test Line to RWST Valve - OPEN

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-856B, Hi Hd SI Test Line to RWST Valve - HANDWHEEL DISENGAGED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

9.0 Procedure (Cont'd)

SI-856B, Hi Hd SI Test Line to RWST Valve - OPEN

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-864A, RWST Disch. Valve - OPEN

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-864B, RWST Disch. Valve - OPEN

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-864A, RWST Disch. Valve Breaker MCC-5 - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-864B, RWST Disch. Valve Breaker MCC-6 - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SFPC-805A, RWP Pump Suction from RWST - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

9.0 Procedure (Cont'd)

LCV-115B, Emerg. Makeup to Chg Suction - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

LCV-115B, Emerg. Makeup to Chg Suction - AUTO

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

IA-3061, IA to LCV-115B - OPEN

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

CVC-358, RWST to Charging Pump Suction - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

52/21C, Safety Injection Pump A Breaker - RACKED OUT

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

52/22B, E1 Supply to SI Pump B Breaker - RACKED OUT

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

9.0 Procedure (Cont'd)

52/19A, Containment Spray Pump A Breaker - RACKED OUT

_____ / _____

OPS Date

INDEPENDENT VERIFICATION _____ / _____

OPS Date

52/29B, E2 Supply to SI Pump B Breaker - RACKED OUT

_____ / _____

OPS Date

INDEPENDENT VERIFICATION _____ / _____

OPS Date

52/23B, Safety Injection Pump C Breaker - RACKED OUT

_____ / _____

OPS Date

INDEPENDENT VERIFICATION _____ / _____

OPS Date

52/25C, Containment Spray Pump B Breaker - RACKED OUT

_____ / _____

OPS Date

INDEPENDENT VERIFICATION _____ / _____

OPS Date

9.18 Close breaker on MCC-5 for Aux. Bldg. Supply Fan HVS-1

_____ / _____

OPS Date

INDEPENDENT VERIFICATION _____ / _____

OPS Date

9.19 Inform the Shift Supervisor that this Special Procedure has been completed.

_____ / _____

Technical Support Date

9.0 Procedure (Cont'd)

9.20 This Special Procedure shall be forwarded to the vault after completion for permanent storage under file number 2080.

9.0 Procedure (Cont'd)

9.21 QC Inspectors, Operations, E&RC, MI, and Technical Support

Name(Print)	Initial	Signature	Date

COMMENTS _____

Reviewed by: _____ / _____
System Engineer Date

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP-1159

SAFETY INJECTION AND CONTAINMENT VESSEL SPRAY SYSTEMS INSPECTION FOR FOREIGN MATERIAL

REVISION 0

Effective Date 8/30/92

Expiration Date 2/28/93

RECOMMENDED BY: [signature] 8-30-92

Manager - Technical Support — Date

APPROVED BY: Roy H. Chambers 8/30/92

General Manager — Date

CONTROLLED RECIPIENT ID 001

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TABLE OF CONTENTS

1.0 Purpose

The purpose of this Special Procedure is to inspect the Safety Injection (SI) and Containment Vessel Spray (CS) Systems for foreign material.

2.0 References

2.1 PLP-016, Radiation Work Permit Program

2.2 PLP-017, ALARA Program

2.3 PLP-037, Conduct of Infrequently Performed Tests or Evolutions.

2.4 PLP-047, Foreign Material Exclusion Area Program

2.5 RMP-001, Records and Q.A. Records Storage

2.6 OMM-005, Clearance and Test Request

2.7 OP-202, Safety Injection and Containment Vessel Spray System

2.8 5379-1082, Safety Injection System Flow Diagram

2.9 FPP-010, Fire Protection Procedure, Housekeeping Controls

2.10 MMM-010, Cleanliness and Flushing Requirements

2.11 MIP-306, Temporary Power Program

3.0 Responsibilities

3.1 Technical Support is responsible for the following:

* Initialization and Approval of this Special Procedure.
* Design and performance of this Special Procedure.
* System Inspections

3.2 Maintenance is responsible for disassembly and assembly of system components by Work Request and Authorization (WR&A) and to provide additional support as needed, by Technical Support.

3.0 Responsibilities (Cont'd)

3.3 Modification Implementation (MI) is responsible for scaffolding and providing support to maintenance, as required.

3.4 Operations is responsible for system clearances and system alignment.

3.5 E&RC shall be responsible for issuing Radiation Work Permits, Decon Instructions and providing instructions, as well as Radiological HOLDPOINTS for all/any foreign material retrieved from the SI & CS Systems.

3.6 QC is responsible performing all normal plant inspections per approved plant procedures and documenting the inspection(s) per the individual WR&A.

4.0 Prerequisites

4.1 Permission is to be obtained from Operations before performing any work per this Special Procedure.

4.2 Ensure all required tools and manpower are available.

4.3 Brief Operations' Shift Supervisor prior to starting work as to equipment affected, clearances required, estimated duration of work, and any other pertinent information.

4.4 Obtain Radiation Work Permits (RWP) prior to starting work on all work in the Radiation Control Area, as required.

4.0 Prerequisites (Cont'd)

4.5 Proper utilities shall be provided in the work area, which include but are not limited to, scaffolding, exhaust fans, lighting, taping barriers , etc.

4.6 Obtain any required permits per Plant Operating Manual

4.7 A & B Boric Acid Transfer Pumps available per OP-301.

4.8 Primary Water Pumps available per OP-915.

4.9 Charging and Makeup System available per OP-301.

4.10 Greater than 3080 gallons of Boric Acid is available in the Boric Acid Tanks.

4.11 Greater than 30,000 gallons of water is in the Primary Water Storage Tank.

5.0 Precautions & Limitations

5.1 The Reactor shall be in cold shutdown and the RCS shall be depressurized.

5.2 This procedure/activity has been screened in accordance with PLP-037 criteria and determined to be a Case Three procedure/activity. No additional management involvement is required.

5.3 Only Plant Operations personnel are permitted to operate plant equipment or systems.

5.4 ALARA considerations shall be practiced at all times.

5.0 Precautions & Limitations (Cont'd)

5.5 All key control, radiation control, and other procedures shall be followed at all times.

5.6 Before starting any work, necessary provisions to prevent interference of any kind with plant operations shall be made.

5.7 Only personnel assigned to perform this Special Procedure should be present in the work area during the performance of this Special Procedure. All unnecessary personnel will be restricted from the area. Other activities within the area will be limited, as determined by the Shift Supervisor and/or Technical Support.

5.8 All applicable safety requirements addressed in the CP&L Safety Manual shall be strictly adhered to at all times.

5.9 Restoration of temporary connections to plant systems and equipment shall be per plant procedures.

5.10 Temporary Power will be provided, as needed, per MIP-306.

5.11 **All foreign materials retrieved from the SI and CS Systems shall be considered contaminated and surveyed prior to removal from the SI & CS Systems per E&RC direction.**

5.12 **CV integrity is not required during the performance of this Special Procedure.**

5.0 Precautions & Limitations (Cont'd)

5.13 Prior to entering the SI and CS Systems, ensure all equipment that is to enter the systems has been rinsed off with Demin Water to prevent chlorides, etc. from entering the systems.

6.0 General Requirements

6.1 All procedures, drawings, codes, and standards, etc., referenced in this procedure shall be the latest revision unless otherwise stated.

6.2 Sections and Steps may be worked in any logical order.

6.3 The Shift Supervisor and Technical Support Supervisor shall be made aware of any problems that arise.

6.4 Numerous SI and CS System(s) Inspections can be performed in parallel. Each Entry Point shall require a separate Attachment 10.1.

7.0 Special Tools/Equipment

7.1 As Required - Portable camera equipment

8.0 Acceptance Criteria

8.1 There is no Acceptance Criteria for this Special Procedure.

8.2 The inspection criteria for this Special Procedure is as follows:

1. Type of Foreign Materials
2. Size of Foreign Materials

8.0 Acceptance Criteria (Cont'd)

8.3 Should foreign material be found in the SI and/or CS System(s), Technical Support will analyze the material for any other corrective actions needed.

9.0 Procedure

NOTE

This procedure has been screened in accordance with PLP-037 criteria and determined to be a Case Three procedure/activity. No additional management involvement is required.

_____ _____

Unit/Section Manager Signature Date

9.1 This copy of this Special Procedure has been verified to be the latest revision.

_____ / _____

Tech Support Date

9.2 Obtain the Shift Supervisors permission to inspect the SI and CS Systems.

_____ / _____

Shift Supervisor Date

9.3 Verify that all prerequisites in Section 4.0 are complete.

_____ / _____

Technical Support Date

9.0 Procedure (Cont'd)

NOTE

The valve alignment listed below identifies and positions all of the boundary valves in their required positions. Once this lineup has been performed, the portions of the system that are to be inspected/examined will have to be drained.

9.4 Verify the following valve/breaker positions to isolate the SI and CS Systems for inspection:

SI-864A, RWST Disch. Valve - CLOSED

_____/_____

OPS Date

SI-864A, RWST Disch. Valve Breaker MCC-5 - OPEN

_____/_____

OPS Date

SI-856A, Hi Hd SI Test Line to RWST - CLOSED

_____/_____

OPS Date

SI-856A, Hi Hd SI Test Line to RWST - HANDWHEEL ENGAGED

_____/_____

OPS Date

SI-856B, Hi Hd SI Test Line to RWST -CLOSED

_____/_____

OPS Date

SI-856B, Hi Hd SI Test Line to RWST - HANDWHEEL ENGAGED

_____/_____

OPS Date

SI-897G, SFPC Loop to SI Hdr. Isolation - CLOSED

_____/_____

OPS Date

9.0 Procedure (Cont'd)

SI-891C, RHR Pump Discharge to SI Pumps B & C - LOCKED CLOSED

_____/_____

OPS Date

SI-891D, RHR Pump Discharge to SI Pumps B & C - LOCKED CLOSED

_____/_____

OPS Date

SI-863A, RHR Loop Recirc. - CLOSED

_____/_____

OPS Date

SI-863A, RHR Loop Recirc. Breaker MCC-5 - OPEN

_____/_____

OPS Date

SI-863B, RHR Loop Recirc. - CLOSED

_____/_____

OPS Date

SI-863B, RHR Loop Recirc. Breaker MCC-6 - OPEN

_____/_____

OPS Date

SI-862A, RHR Loop RWST Isol. - CLOSED

_____/_____

OPS Date

SI-862A, RHR Loop RWST Isol. Breaker MCC-5 - OPEN

_____/_____

OPS Date

SI-862B, RHR Loop RWST Isol. - CLOSED

_____/_____

OPS Date

SI-862B, RHR Loop RWST Isol. Breaker MCC-6 - OPEN

_____/_____

OPS Date

9.0 Procedure (Cont'd)

SI-845A, Cont. Spray Additive TK. Dschg. - CLOSED

_____/_____

OPS Date

SI-845A, Cont. Spray Additive Tk. Dschg. Breaker MCC-5 - OPEN

_____/_____

OPS Date

SI-845B, Cont. Spray Additive TK. Dschg. - CLOSED

_____/_____

OPS Date

SI-845B, Cont. Spray Additive Tk. Dschg. Breaker MCC-6 - OPEN

_____/_____

OPS Date

SI-869, SI Hot Leg Header - CLOSED

_____/_____

OPS Date

SI-869, SI Hot Leg Header Breaker MCC-5 - OPEN

_____/_____

OPS Date

SI-867A, BIT Inlet - CLOSED

_____/_____

OPS Date

SI-867A, BIT Inlet Breaker MCC-5 - OPEN

_____/_____

OPS Date

SI-867B, BIT Inlet - CLOSED

_____/_____

OPS Date

SI-867B, BIT Inlet Breaker MCC-6 - OPEN

_____/_____

OPS Date

9.0 Procedure (Cont'd)

SI-895T, Boron Injection Tank Bypass - LOCKED CLOSED

_____/_____

OPS Date

SI-895K, High Head SI Cold Leg Header to Test Line Isolation - CLOSED

_____/_____

OPS Date

SI-883W, SI-870A & B Leakoff Isolation - CLOSED

_____/_____

OPS Date

SI-898F, SI Test Line Isolation - LOCKED CLOSED

_____/_____

OPS Date

SI-891A, CS Pump A Discharge Isolation - CLOSED

_____/_____

OPS Date

SI-891B, CS Pump B Discharge Isolation - CLOSED

_____/_____

OPS Date

52/21C, Safety Injection Pump A Breaker - RACKED OUT

_____/_____

OPS Date

52/22B, E1 Supply to SI Pump B Breaker - RACKED OUT

_____/_____

OPS Date

52/29B, E2 Supply to SI Pump B Breaker - RACKED OUT

_____/_____

OPS Date

52/23B, Safety Injection Pump C Breaker - RACKED OUT

_____/_____

OPS Date

9.0 Procedure (Cont'd)

52/19A, Containment Spray Pump A Breaker - RACKED OUT

_____/_____

OPS Date

52/25C, Containment Spray Pump B Breaker - RACKED OUT

_____/_____

OPS Date

9.5 Request a clearance on the components listed in step 9.4 and record the LCTR No. Include on this clearance all vents and drains that are necessary for piping to be inspected.

LCTR No. _____

_____/_____

Technical Support Date

9.6 SI and CS Inspection

9.6.1 Technical Support determines Inspection Point of Entry and record on Attachment 10.1

9.6.2 Technical Support initiate WR&A and record WR&A No. on Attachment 10.1.

9.6.3 Technical Support obtains Point of Entry Approvals from the Outage Manager and General Manager.

9.6.4 Maintenance and/or MI, using approved plant procedures, provide Inspection Point of Entry per the WR&A listed on Attachment 10.1.

9.0 Procedure (Cont'd)

9.6.5 Technical Support establish Foreign Material Exclusion Area, per PLP-047, at the Point of Entry.

9.6.6 Technical Support perform Inspection of the SI and/or CS System(s). Record the component(s) (line, valve, etc.) description of the inspection boundary on Attachment 10.1.

9.6.7 Retrieve samples of foreign materials found in the SI and/or CS System(s), if possible, per E&RC's direction.

9.6.8 Technical Support record the results of the inspection in the Comments Section of Attachment 10.1.

9.6.9 Technical Support notify RNP Management of inspection results.

9.6.10 Per Technical Supports direction, Maintenance and/or MI, using approved plant procedures, restore Inspection Point of Entry per the WR&A listed on Attachment 10.1.

9.7 Release the clearance requested in step 9.5.

_____ / _____

Technical Support Date

9.8 **Perform** OP-202 Attachment 9.1 for SI and CV Spray components/valves outside of the Containment Vessel and **verify** the following components in their proper position to restore the SI and CS Systems after inspection:

9.0 Procedure (Cont'd)

SI-864A, RWST Disch. Valve Breaker MCC-5 - CLOSED

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

SI-856A, Hi Hd SI Test Line to RWST - HANDWHEEL DISENGAGED

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

SI-856B, Hi Hd SI Test Line to RWST - HANDWHEEL DISENGAGED

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

SI-863A, RHR Loop Recirc. Breaker MCC-5 - CLOSED

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

SI-863B, RHR Loop Recirc. Breaker MCC-6 - CLOSED

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

SI-862A, RHR Loop RWST Isol. Breaker MCC-5 - CLOSED

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

9.0 Procedure (Cont'd)

SI-862B,RHR Loop RWST Isol. Breaker MCC-6 - CLOSED

_____ / _____
OPS Date

INDEP. VERIFY _____ / _____
OPS Date

SI-845A, Cont. Spray Additive Tk. Dschg. Breaker MCC-5 - CLOSED

_____ / _____
OPS Date

INDEP. VERIFY _____ / _____
OPS Date

SI-845B, Cont. Spray Additive Tk. Dschg. Breaker MCC-6 - CLOSED

_____ / _____
OPS Date

INDEP. VERIFY _____ / _____
OPS Date

SI-867A, Bit Inlet Breaker MCC-5 - CLOSED

_____ / _____
OPS Date

INDEP. VERIFY _____ / _____
OPS Date

SI-867B, Bit Inlet Breaker MCC-6 - CLOSED

_____ / _____
OPS Date

INDEP. VERIFY _____ / _____
OPS Date

52/21C, Safety Injection Pump A Breaker - RACKED OUT

_____ / _____
OPS Date

INDEP. VERIFY _____ / _____
OPS Date

9.0 Procedure (Cont'd)

52/22B, E1 Supply to SI Pump B Breaker - RACKED OUT

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

52/29B, E2 Supply to SI Pump B Breaker - RACKED OUT

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

52/23B, Safety Injection Pump C Breaker - RACKED OUT

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

52/19A, Containment Spray Pump A Breaker - RACKED OUT

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

52/25C, Containment Spray Pump B Breaker - RACKED OUT

_____/_____
OPS Date

INDEP. VERIFY _____/_____
OPS Date

9.9 **Inform the Shift Supervisor that this Special Procedure has been completed.**

_____/_____
Technical Support Date

9.0 Procedure (Cont'd)

9.10 This Special Procedure shall be forwarded to the vault after completion for permanent storage under file number 2080.

9.0 Procedure (Cont'd)

9.11 Operations and Technical Support

Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date

COMMENTS _____

Reviewed by: _____/_____
System Engineer Date

SAFETY INJECTION AND CONTAINMENT VESSEL SPRAY SYSTEM
INSPECTION DATA SHEET

(Step 9.6.1)
Point of Entry _____

(Step 9.6.2)
WR&A _____

(Step 9.6.3)*
Approvals: _____/_____ _____/_____
OUTAGE MANAGER Date GENERAL MANAGER Date

(Step 9.6.5)
PLP-047 Established _____/_____
Technical Support Date

(Step 9.6.6)
Inspection Boundary: _____

(Step 9.6.7)
Samples Retrieved: ( ) YES ( ) NO

(Step 9.6.8)
COMMENTS: _____

(Step 9.6.10) Restore _____/_____
Technical Support Date

* Approvals can be per TeleCon

CAROLINA POWER AND LIGHT COMPANY
H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE
SP - 1160
REFUELING WATER STORAGE TANK
CLEANING AND INSPECTION

REVISION 0

Effective Date 9/3/92

Expiration Date 3/2/93

RECOMMENDED BY: J A Padgett — Manager - E&RC — 9-3-92 — Date

APPROVED BY: R H Hamilton — General Manager — 9/3/92 — Date

CONTROLLED
RECIPIENT
ID 001

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TABLE OF CONTENTS

1.0 Purpose

The purpose of this Special Procedure is to clean/inspect the Refueling Water Storage Tank for foreign material, using a Super Scavenger Remote Underwater Cleaning and Inspection Vehicle ("ARD").

2.0 References

2.1 AP-035, Technical Specification Interpretations

2.2 PLP-012 - Confined Space Program

2.3 PLP-016, Radiation Work Permit Program

2.4 PLP-017, ALARA Program

2.5 PLP-037, Conduct of Infrequently Performed Tests or Evolutions.

2.6 PLP-047, Foreign Material Exclusion Area Program

2.7 RMP-001, Records and Q.A. Records Storage

2.8 OMM-005, Clearance and Test Request

2.9 OP-202, Safety Injection and Containment Vessel Spray System

2.10 5379-1082, Sht 2, Safety Injection System Flow Diagram

2.11 FPP-010, Fire Protection Procedure, Housekeeping Controls

2.12 MMM-010, Cleanliness and Flushing Requirements

2.13 MIP-306, Temporary Power

2.14 Vender Operator Manual for the Super Scavenger Remote Underwater Cleaning and Inspection Vehicle.

2.15 MIP-107, Scaffolding Procedure

3.0 Responsibilities

3.1 E&RC is responsible for the following:

* Initialization and Approval of this Special Procedure.
* Design and performance of this Special Procedure.
* Issuing Radiation Work Permits
* Decon activities

3.0 Responsibilities (Cont'd)

* Providing instruction, as well as Radiological HOLDPOINTS for all/any equipment/material retrieved from the RWST.

3.2 Modification Implementation (MI) is responsible for erecting/removing scaffolding, and assisting where needed during the cleaning and inspection process.

3.3 Operations is responsible for system clearances and system alignment.

3.4 Fire Protection is responsible for providing Confined Space Permits, as required.

3.5 QC is responsible for performing Independent Verification of RWST manway closing and cleanliness verification for the manway opening per MMM-010.

3.6 Maintenance is responsible for changing out filters on the portable filtration skid.

4.0 Prerequisites

4.1 Permission is to be obtained from Operations before performing any work per this Special Procedure.

4.2 Ensure all required tools and manpower are available.

4.3 Brief Operations' Shift Supervisor prior to starting work as to equipment affected, clearances required, estimated duration of work, and any other pertinent information.

4.4 Ensure portable filtration system is set up according to ATTACHMENT 10.1 "Portable Filtration Skid Diagram".

4.0 Prerequisites (Cont'd)

4.5 Ensure system is set up according to ATTACHMENT 10.2 "RWST clean-up schematic".

4.6 System integrity should be verified prior to starting filtration process, using primary water with primary water pump operating.

4.7 Obtain Radiation Work Permits (RWP) prior to starting work in the Radiation Control Area.

4.8 Proper utilities shall be provided in the work area, which include but are not limited to, work platforms, exhaust fans, lighting, etc.

4.9 Obtain any required permits per Plant Operating Manual

4.10 Scaffolding and entrance installed per approved plant procedures.

4.11 Ensure that the storm drains on the Muffler Deck and around the base of the RWST are covered to prevent spillage into them during the cleaning and inspection process.

4.12 Ensure that the portable filtration skid is properly shielded according to ALARA procedures.

4.13 Ensure all equipment that is to enter the RWST has been rinsed off with Demin Water to prevent chlorides, etc. from entering the RWST.

5.0 Precautions & Limitations

5.1 The Reactor shall be in cold shutdown and the RCS shall be depressurized.

5.2 This procedure/activity has been screened in accordance with PLP-037 criteria and determined to be a Case Three procedure/activity. No additional management involvement is required.

5.3 Only Plant Operations personnel are permitted to operate plant equipment or systems.

5.0 Precautions & Limitations (Cont'd)

5.4 ALARA considerations shall be practiced at all times.

5.5 All key control, radiation control, and other procedures shall be followed at all times.

5.6 Before starting any work, necessary provisions to prevent interference of any kind with plant operations shall be made.

5.7 Only personnel assigned to perform this Special Procedure should be present near the Refueling Water Storage Tank, during the performance of this Special Procedure. All unnecessary personnel will be restricted from the area. Other activities within the area will be limited, as determined by the Shift Supervisor.

5.8 All applicable safety requirements addressed in the CP&L Safety Manual shall be strictly adhered to at all times.

5.9 Restoration of temporary connections to plant systems and equipment shall be per plant procedures.

5.10 No hot work is to be performed under this Special Procedure without the approval of the Fire Protection Staff.

5.11 During the performance of this Special Procedure, the entrance to the Refueling Water Storage Tank (RWST) upper manway shall be posted with red and black taping with a sign as follows: "Confined Space - No Entry".

5.12 Scaffolding at the RWST and a entrance from the Muffler Deck to the top of the RWST shall be used during the performance of this Special Procedure.

5.13 All lighting used during the performance of this Special Procedure will be used in support of the Super Scavenger Robot Assembly ("ARD"). Temporary Power will be provided for the "ARD", as needed, per MIP-306.

5.0 Precautions & Limitations (Cont'd)

5.14 All equipment/materials retrieved from the RWST shall be considered contaminated and surveyed prior to removal from the RWST per E&RC direction.

5.15 Minimize the amount of Demineralized Water used for rinsing down the "ARD" exiting the RWST (Step 9.12) to preclude the dilution of the required RWST Boron Concentration.

5.16 If any leaks that can not be contained develop, stop pumping and evaluate the conditions.

5.17 Filters will be changed at 15 to 20 psi for differential pressure and/or an exposure rate of 10 R/hr.

5.18 Prior to system disassembly it will be drained to a radwaste drain.

6.0 General Requirements

6.1 All procedures, drawings, codes, and standards, etc., referenced in this procedure shall be the latest revision unless otherwise stated.

6.2 Sections and Steps may be worked in any logical order, except steps marked "HOLDPOINT" which must be worked in the sequence given in the text.

6.3 The Shift Supervisor and Manager - E&RC shall be made aware of any problems that arise.

6.4 No Confined Space Permit is needed during the performance of this Special Procedure.

7.0 Special Tools/Equipment

7.1 Transfer pumps

7.2 Super Scavenger Robot Assembly ("ARD")

7.3 Transfer hose

7.4 Cameras

7.5 Portable Filtration skid

8.0 Acceptance Criteria

8.1 The Acceptance Criteria for this Special Procedure is that the RWST will be free of material to the best ability of the Super Scavenger.

9.0 Procedure

NOTE

This procedure has been screened in accordance with PLP-037 criteria and determined to be a Case Three procedure/activity. No additional management involvement is required.

_____ _____

Unit/Section Manager Signature Date

9.0 Procedure (Cont'd)

9.1 This copy of this Special Procedure has been verified to be the latest revision.

_____ / _____
E&RC Date

9.2 Obtain the Shift Supervisors permission to clean/inspect the Refueling Water Storage Tank using the "ARD".

_____ / _____
Shift Supervisor Date

9.3 Verify that all prerequisites in Section 4.0 are complete.

_____ / _____
E&RC Date

9.4 Verify the following valve/breaker positions to isolate the RWST prior to entry:

CVC-365B, Boric Acid From Blender - CLOSED

_____ / _____
OPS Date

SFPC-805B, RWST Return - CLOSED

_____ / _____
OPS Date

SI-856A, Hi Hd SI Test Line to RWST - CLOSED

_____ / _____
OPS Date

SI-856A, Hi Hd SI Test Line to RWST - HANDWHEEL ENGAGED

_____ / _____
OPS Date

SI-856B, Hi Hd SI Test Line to RWST -CLOSED

_____ / _____
OPS Date

9.0 Procedure (Cont'd)

SI-856B, Hi Hd SI Test Line to RWST - HANDWHEEL ENGAGED

_____/_____

OPS Date

SI-864A, RWST Disch. Valve - CLOSED

_____/_____

OPS Date

SI-864B, RWST Disch. Valve - CLOSED

_____/_____

OPS Date

SI-864A, RWST Disch. Valve Breaker MCC-5 - OPEN

_____/_____

OPS Date

SI-864B, RWST Disch. Valve Breaker MCC-6 - OPEN

_____/_____

OPS Date

SFPC-805A, RWP Pump Suction from RWST - CLOSED

_____/_____

OPS Date

RWST Purification Pump Breaker MCC-1 - OPEN

_____/_____

OPS Date

52/21C, Safety Injection Pump A Breaker - RACKED OUT

_____/_____

OPS Date

9.0 Procedure (Cont'd)

52/22B, E1 Supply to SI Pump B Breaker - RACKED OUT

_____/_____

OPS Date

52/19A, Containment Spray Pump A Breaker - RACKED OUT

_____/_____

OPS Date

52/29B, E2 Supply to SI Pump B Breaker - RACKED OUT

_____/_____

OPS Date

52/23B, Safety Injection Pump C Breaker - RACKED OUT

_____/_____

OPS Date

52/25C, Containment Spray Pump B Breaker - RACKED OUT

_____/_____

OPS Date

9.5 Ensure HVE-2A or HVE-2B is in operation.

_____/_____

OPS Date

9.6 Open breaker on MCC-5 for Aux Bldg. Supply Fan HVS-1.

_____/_____

OPS Date

9.7 Establish Foreign Material Exclusion Area, per PLP-047, at the entrance of the walkway to the RWST.

_____/_____

E&RC Date

9.0 Procedure (Cont'd)

NOTE

Prior to the "ARD" entering into the RWST, a local clearance will be placed on all components listed in step 9.4 with the following conditions:

* All of the components listed in step 9.4 will be placed under a local clearance and that clearance will be held by a person responsible for the "ARD" in the RWST.

9.8 Request a clearance on the components listed in step 9.4 per the NOTE above and record the LCTR No.

LCTR No. _____

_____ / _____

E&RC Date

9.9 Unlock and open the RWST upper manway.

_____ / _____

E&RC Date

9.10 Lower the "ARD" into the RWST to perform the clean-up/ inspection as per vendor recommendations.

9.11 All equipment/materials retrieved from the RWST shall be considered contaminated and surveyed prior to removal from the RWST per E&RC direction.

9.0 Procedure (Cont'd)

CAUTION

MINIMIZE THE AMOUNT OF DEMINERALIZED WATER USED FOR RINSING DOWN THE "ARD" EXITING THE RWST (STEP 9.12) TO PRECLUDE THE DILUTION OF THE REQUIRED RWST BORON CONCENTRATION.

9.12 Hoist/remove the "ARD" out of the RWST slowly, ensure that the "ARD" is rinsed with demin water prior to exiting the RWST.

_____ / _____

E&RC Date

9.13 Contact QC and prior to closing the RWST, verify that all equipment/objects ("ARD", camera, etc.) taken into the RWST have been removed from the tank. QC shall sign below verifying cleanliness at the manhole opening per MMM-010.

_____ / _____

HOLDPOINT QC Date

9.14 Close and lock the RWST upper manway cover. QC shall sign below for Independent Verification.

_____ / _____

E&RC Date

INDEPENDENT VERIFICATION _____ / _____

QC Date

9.15 **Release the clearance requested in step 9.8.**

_____ / _____

E&RC Date

9.0 Procedure (Cont'd)

9.16 Verify the following valves/breakers in their proper position to restore the RWST after inspection:

CVC-365B, Boric Acid From Blender - CLOSED

_____/_____
OPS Date

INDEPENDENT VERIFICATION _____/_____
OPS Date

SFPC-805B, RWST Return - CLOSED

_____/_____
OPS Date

INDEPENDENT VERIFICATION _____/_____
OPS Date

SI-856A, Hi Hd SI Test Line to RWST Valve - HANDWHEEL DISENGAGED

_____/_____
OPS Date

INDEPENDENT VERIFICATION _____/_____
OPS Date

SI-856A, Hi Hd SI Test Line to RWST Valve - OPEN

_____/_____
OPS Date

INDEPENDENT VERIFICATION _____/_____
OPS Date

SI-856B, Hi Hd SI Test Line to RWST Valve - HANDWHEEL DISENGAGED

_____/_____
OPS Date

INDEPENDENT VERIFICATION _____/_____
OPS Date

9.0 Procedure (Cont'd)

SI-856B, Hi Hd SI Test Line to RWST Valve - OPEN

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-864A, RWST Disch. Valve - OPEN

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-864B, RWST Disch. Valve - OPEN

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-864A, RWST Disch. Valve Breaker MCC-5 - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SI-864B, RWST Disch. Valve Breaker MCC-6 - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

SFPC-805A, RWP Pump Suction from RWST - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

9.0 Procedure (Cont'd)

RWST Purification Pump Breaker MCC-1 - CLOSED

_____ / _____
OPS Date

INDEPENDENT VERIFICATION

_____ / _____
OPS Date

52/21C, Safety Injection Pump A Breaker - RACKED OUT

_____ / _____
OPS Date

INDEPENDENT VERIFICATION

_____ / _____
OPS Date

52/22B, E1 Supply to SI Pump B Breaker - RACKED OUT

_____ / _____
OPS Date

INDEPENDENT VERIFICATION

_____ / _____
OPS Date

9.0 Procedure (Cont'd)

52/19A, Containment Spray Pump A Breaker - RACKED OUT

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

52/29B, E2 Supply to SI Pump B Breaker - RACKED OUT

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

52/23B, Safety Injection Pump C Breaker - RACKED OUT

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

52/25C, Containment Spray Pump B Breaker - RACKED OUT

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

9.17 Close breaker on MCC-5 for Aux. Bldg. Supply Fan HVS-1

_____ / _____
OPS Date

INDEPENDENT VERIFICATION _____ / _____
OPS Date

9.18 Inform the Shift Supervisor that this Special Procedure has been completed.

_____ / _____
E&RC Date

9.0 Procedure (Cont'd)

9.19 This Special Procedure shall be forwarded to the vault after completion for permanent storage under file number 2080.

9.0 Procedure (Cont'd)

9.20 QC Inspectors, Operations, and E&RC

Name(Print)	Initial	Signature	Date

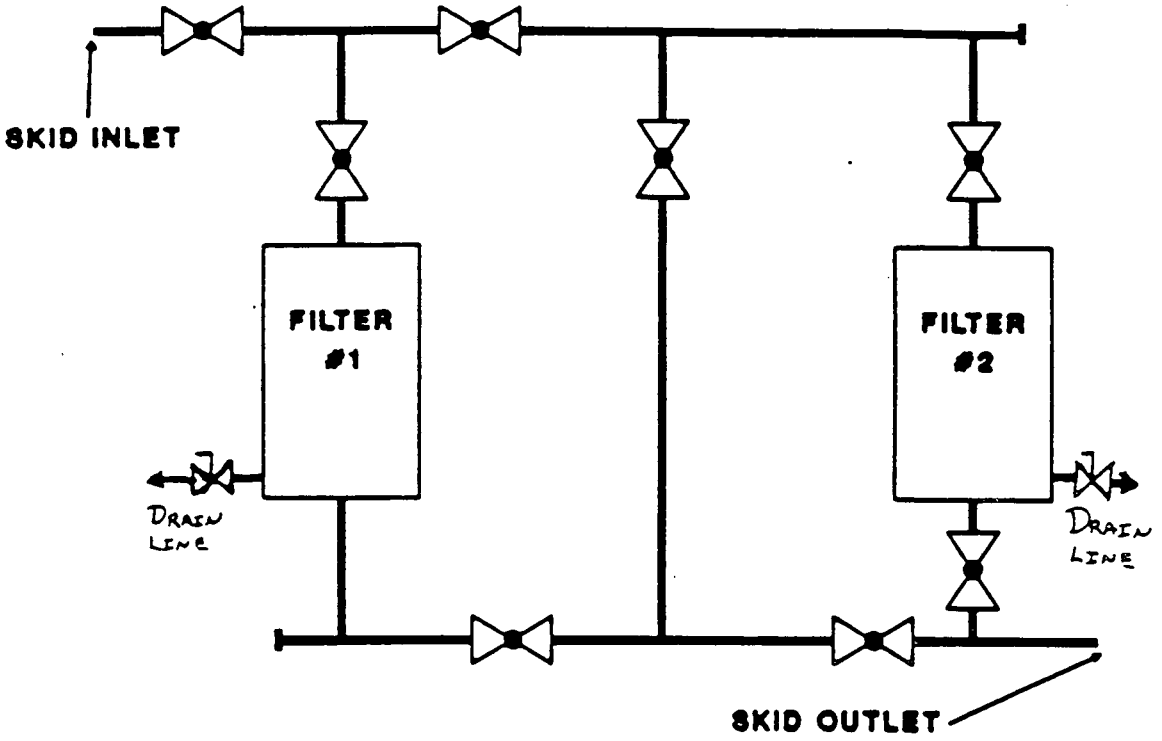
COMMENTS _____

Completed by: _____ / _____
Proj. Coord. Date

Reviewed by: _____ / _____
Manager - E&RC Date

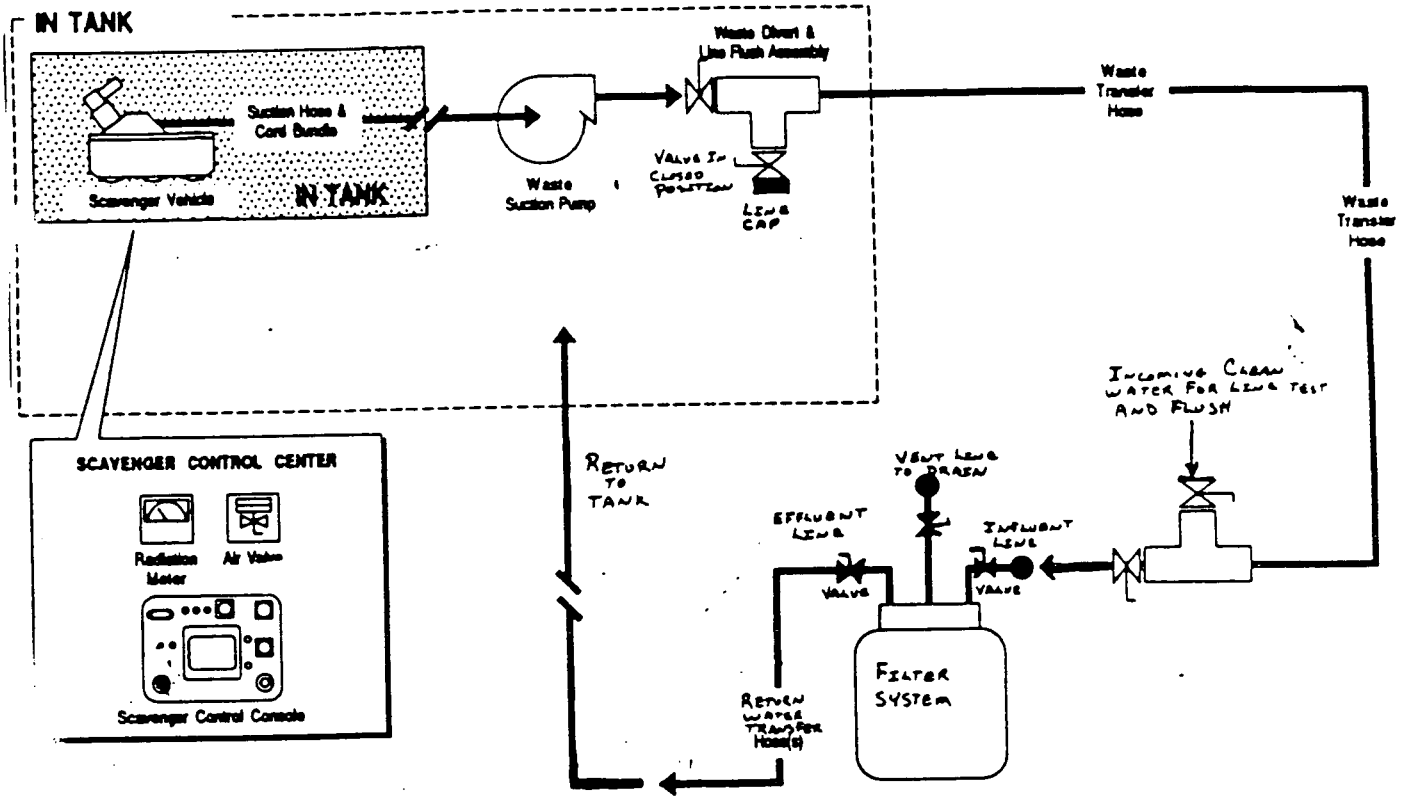
10.0 Attachments

PORTABLE FILTRATION SKID DIAGRAM



Typical Layout

RWST CLEAN-UP SCHEMATIC



Typical Layout

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE
SP-1161
REFUELING WATER STORAGE TANK AND SAFETY INJECTION SYSTEM INSPECTION FOR FOREIGN MATERIAL

REVISION 0

Effective Date 9-3-92

Expiration Date 10-5-92

RECOMMENDED BY: _____ 9/3/92
Manager - Technical Support — Date

APPROVED BY: _____ 9/3/92
General Manager — Date

CONTROLLED
RECIPIENT
ID _____

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TABLE OF CONTENTS

1.0 Purpose

The purpose of this Special Procedure is to inspect the Safety Injection suction line from the Refueling Water Storage Tank to SI-862A for foreign material and obtain sample if any exist, using divers and remote cameras.

2.0 References

2.1 AP-035, Technical Specification Interpretations

2.2 PLP-012 - Confined Space Program

2.3 PLP-016, Radiation Work Permit Program

2.4 PLP-017, ALARA Program

2.5 PLP-037, Conduct of Infrequently Performed Tests or Evolutions.

2.6 PLP-047, Foreign Material Exclusion Area Program

2.7 RMP-001, Records and Q.A. Records Storage

2.8 OMM-005, Clearance and Test Request

2.9 OP-202, Safety Injection and Containment Vessel Spray System

2.10 5379-1082, Sht 2, Safety Injection System Flow Diagram

2.11 FPP-010, Fire Protection Procedure, Housekeeping Controls

2.12 MMM-010, Cleanliness and Flushing Requirements

2.13 MIP-306, Temporary Power

3.0 Responsibilities

3.1 Technical Support is responsible for the following:

* Initialization and Approval of this Special Procedure.
* Design and performance of this Special Procedure.

3.0 Responsibilities (Continued)

3.2 Modification Implementation (MI) is responsible for erecting and removing scaffolding, and assisting divers performing the inspection.

3.3 Operations is responsible for system clearances and system alignment.

3.4 E&RC shall be responsible for issuing Radiation Work Permits, Decon Instructions and providing instructions, as well as Radiological HOLDPOINTS for all/any foreign material retrieved from the RWST or suction piping.

3.5 Fire Protection is responsible for providing Confined Space Permits, as required.

3.6 QC is responsible for performing Independent Verification of RWST manway closing and cleanliness verification for the manway opening per MMM-010.

4.0 Prerequisites

4.1 Permission is to be obtained from Operations before performing any work per this Special Procedure.

4.2 Ensure all required tools and manpower are available.

4.3 Brief Operations' Shift Supervisor prior to starting work as to equipment affected, clearances required, estimated duration of work, and any other pertinent information.

4.0 Prerequisites (Continued)

4.4 Obtain Radiation Work Permits (RWP) prior to starting work on all work in the Radiation Control Area, as required.

4.5 Proper utilities shall be provided in the work area, which include but are not limited to, work platforms, exhaust fans, lighting, etc.

4.6 Obtain any required permits per Plant Operating Manual

4.7 Scaffolding and entrance installed per approved plant procedures.

4.8 A & B Boric Acid Transfer Pumps available per OP-301.

4.9 Primary Water Pumps available per OP-915.

4.10 Charging and Makeup System available per OP-301.

4.11 Greater than 3080 gallons of Boric Acid is available in the Boric Acid Tanks.

4.12 Greater than 30,000 gallons of water is in the Primary Water Storage Tank.

4.13 Prior to entering the RWST, ensure all equipment that is to enter the RWST has been rinsed off with Demin Water to prevent chlorides, etc. from entering the RWST.

5.0 Precautions & Limitations

5.1 The Reactor shall be in cold shutdown and the RCS shall be depressurized.

5.2 This procedure/activity has been screened in accordance with PLP-037 criteria and determined to be a Case Three procedure/activity. No additional management involvement is required.

5.0 Precautions & Limitations (Continued)

5.3 Only Plant Operations personnel are permitted to operate plant equipment or systems.

5.4 ALARA considerations shall be practiced at all times.

5.5 All key control, radiation control, and other procedures shall be followed at all times.

5.6 Before starting any work, necessary provisions to prevent interference of any kind with plant operations shall be made.

5.7 Only personnel assigned to perform this Special Procedure should be present near the Refueling Water Storage Tank, during the performance of this Special Procedure. All unnecessary personnel will be restricted from the area. Other activities within the area will be limited, as determined by the Shift Supervisor.

5.8 All applicable safety requirements addressed in the CP&L Safety Manual shall be strictly adhered to at all times.

5.9 Restoration of temporary connections to plant systems and equipment shall be per plant procedures.

5.10 No hot work is to be performed under this Special Procedure without the approval of the Fire Protection Staff.

5.11 During the performance of this Special Procedure, the entrance to the Refueling Water Storage Tank (RWST) upper manway shall be posted with red and black taping with a sign as follows: "Confined Space - Divers Entry Only".

5.0 Precautions & Limitations (Continued)

5.12 Scaffolding at the RWST and a entrance from the Muffler Deck to the top of the RWST shall be used during the performance of this Special Procedure.

5.13 All lighting used during the performance of this Special Procedure will be provided by the divers. Temporary Power will be provided for the divers, as needed, per MIP-306.

5.14 All foreign materials retrieved from the RWST and/or the suction piping, shall be considered contaminated and surveyed prior to removal from the RWST per E&RC direction.

5.15 Valves LCV-115B and CVC-358 will be controlled under a separate local clearance controlled by the Shift Supervisor. In the event that plant conditions require the use of the water contained in the RWST to support core cooling, the Shift Supervisor will notify the person responsible for the divers to immediately remove all personnel from the tank, cancel the Shift Supervisors local clearance, and proceed to use the contents of the RWST as necessary.

5.16 Minimize the amount of Demineralized Water used for rinsing down the diver exiting the RWST (Step 9.12) to preclude the dilution of the required RWST Boron Concentration.

6.0 General Requirements

6.1 All procedures, drawings, codes, and standards, etc., referenced in this procedure shall be the latest revision unless otherwise stated.

6.0 General Requirements (Continued)

6.2 Sections and Steps may be worked in any logical order, except steps marked "HOLDPOINT" which must be worked in the sequence given in the text.

6.3 The Shift Supervisor and Technical Support Supervisor shall be made aware of any problems that arise.

6.4 No Confined Space Permit is needed during the performance of this Special Procedure. The Divers are to observe all safety precautions per normal OSHA requirements for divers.

7.0 Special Tools/Equipment

7.1 As Required - Portable means of lowering Diver into RWST

7.2 As Required - Diving Equipment (Supplied by Divers)

7.3 As Required - Underwater Camera (Supplied by CP&L under seperate contract)

8.0 Acceptance Criteria

8.1 There is no Acceptance Criteria for this Special Procedure.

8.2 The inspection criteria for this Special Procedure is as follows:

1. Type of Foreign Materials
2. Size of Foreign Materials

8.3 Should foreign material be found in the RWST or suction piping, Technical Support will analyze the material for any other corrective actions needed.

9.0 Procedure

NOTE

This procedure has been screened in accordance with PLP-037 criteria and determined to be a Case Three procedure/activity. No additional management involvement is required.

_____ _____

Unit/Section Manager Signature Date

9.1 This copy of this Special Procedure has been verified to be the latest revision.

_____ / _____

Tech Support Date

9.2 Obtain the Shift Supervisors permission to inspect the Refueling Water Storage Tank and suction piping.

_____ / _____

Shift Supervisor Date

9.3 Verify that all prerequisites in Section 4.0 are complete.

_____ / _____

Technical Support Date

9.4 Operations verify the following valve/breaker positions to isolate the RWST and suction piping prior to entry:

COMPONENT	DESCRIPTION	POSITION	INITIALS
CVC-365B	BORIC ACID FROM BLENDER	CLOSED	
SFPC-805B	RWST RETURN	CLOSED	
SI-856A	Hi Hd SI Test Line to RWST	CLOSED	
SI-856A	Hi Hd SI Test Line to RWST	HANDWHEEL ENGAGED	
SI-856B	Hi Hd SI Test Line to RWST	CLOSED	
SI-856B	Hi Hd SI Test Line to RWST	HANDWHEEL ENGAGED	
SI-864A	RWST Disch. Valve	OPEN	
SI-864B	RWST Disch. Valve	OPEN	
SI-864A	RWST Disch. Valve BREAKER MCC-5	OPEN	
SI-864B	RWST Disch. Valve BREAKER MCC-6	OPEN	
RWST PURIFICATION PUMP	RWST Purification Pump Breaker MCC-1	OPEN	
SFPC-805A	RWP Pump Suction from RWST	CLOSED	
LCV-115B	Emerg. Makeup to Chg Suction	CLOSED	
IA-3061	IA to LCV-115B	CLOSED	

9.0 Procedure (Continued)

COMPONENT	DESCRIPTION	POSITION	INITIALS
CVC-358	RWST to Charging Pump Suction	CLOSED	
SI-843	RWST Outlet Line Drain	CLOSED _____ CAP INSTALLED	_____
SI-886C	RWST to SI Pump, Pump "C" Suction	CLOSED	
SI-886B	RWST to SI Pump, Pump "B" Suction	CLOSED	
SI-886A	RWST to SI Pump, Pump "A" Suction	CLOSED	
SI-863A	RHR Loop Recirc	CLOSED	
SI-863A	RHR Loop Recirc BREAKER MCC-5	OPEN	
SI-863B	RHR Loop Recirc	CLOSED	
SI-863B	RHR Loop Recirc BREAKER MCC-6	OPEN	
SI-887	RHR Pump Discharge to SI & CV Spray Pump Suction	CLOSED	
SI-862A	RHR Loop RWST Isol.	CLOSED	
SI-862A	RHR Loop RWST Isol. BREAKER MCC-5	OPEN	

9.0 Procedure (Continued)

COMPONENT	DESCRIPTION	POSITION	INITIALS
SI-862B	RHR Loop RWST Isol.	CLOSED	
SI-862B	RHR Loop RWST Isol. BREAKER MCC-6	OPEN	
SI-835A	Spray Additive Flow Eductor Test Valve	CLOSED	
SI-844A	Containment Spray Pump "A" Inlet	CLOSED	
SI-844A	Containment Spray Pump "A" Inlet BREAKER MCC-5	OPEN	
SI-844B	Containment Spray Pump "B" Inlet	CLOSED	
SI-844B	Containment Spray Pump "B" Inlet BREAKER MCC-6	OPEN	
SI-892D	Spray Additive Flow Eductor Test Valve	CLOSED	
52/21C	Safety Injection Pump A Breaker	Racked Out	
52/22B	E1 Supply to SI Pump B Breaker	Racked Out	
52/19A	Containment Spray Pump A Breaker	Racked Out	

9.0 Procedure (Continued)

COMPONENT	DESCRIPTION	POSITION	INITIALS
52/29B	E2 Supply to SI Pump B Breaker	Racked Out	
52/23B	Safety Injection Pump C Breaker	Racked Out	
52/25C	Containment Spray Pump B Breaker	Racked Out	

9.5 Ensure HVE-2A or HVE-2B is in operation.

_____/_____

OPS Date

9.6 Open breaker on MCC-5 for Aux Bldg. Supply Fan HVS-1.

_____/_____

OPS Date

9.0 Procedure (Continued)

9.7 Establish Foreign Material Exclusion Area, per PLP-047, at the entrance of the walkway to the RWST.

_____ /_____

Technical Support Date

NOTE

Prior to entrance into the RWST, a local clearance will be placed on all components listed in step 9.4 with the following conditions:

* Valves LCV-115B, IA-3061, and CVC-358 will be placed in the closed position under a Shift Supervisors clearance.
* All of the remaining components listed in step 9.4 will be placed under a local clearance and that clearance will be held by a person responsible for the divers in the RWST.

9.8 Request a clearance on the components listed in step 9.4 per the NOTE above and record the LCTR No.

LCTR No. _____

LCTR No. _____

_____ /_____

Technical Support Date

9.0 Procedure (Continued)

9.9 UNLOCK and OPEN the RWST upper manway.

_____ / _____

E&RC Date

_____ / _____

OPS Date

9.10 Lower one (1) diver into the RWST to perform the inspection.

9.11 During the inspection, retrieve samples of foreign materials found in the RWST or suction piping, if possible. Ensure samples are surveyed by E&RC Personnel prior to removal from the RWST.

CAUTION

MINIMIZE THE AMOUNT OF DEMINERALIZED WATER USED FOR RINSING DOWN THE DIVER EXITING THE RWST (STEP 9.12) TO PRECLUDE THE DILUTION OF THE REQUIRED RWST BORON CONCENTRATION.

9.12 Hoist the diver out of the RWST slowly, ensure that the diver is rinsed with demin water prior the exiting the RWST.

_____ / _____

E&RC Date

9.0 Procedure (Continued)

9.13 Contact QC and prior to closing the RWST, verify that all foreign objects (diving equip., camera, etc.) taken into the RWST have been removed from the tank. QC shall sign below verifying cleanliness at the manhole opening per MMM-010

HOLDPOINT

_____ / _____
QC Date

9.14 Lock closed the RWST upper manway cover. QC shall sign below for Independent Verification.

HOLDPOINT

_____ / _____
E&RC Date

INDEPENDENT VERIFICATION

_____ / _____
QC Date

9.15 Release the clearance requested in step 9.8.

_____ / _____
Technical Support Date

9.16 Operations verify the following valves/breakers in their proper position to restore the RWST after inspection:

9.0 Procedure (Continued)

COMPONENT	DESCRIPTION	POSITION	INITIALS	VERIFIED BY
CVC-365B	BORIC ACID FROM BLENDER	CLOSED		
SFPC-805B	RWST RETURN	CLOSED		
SI-856A	Hi Hd SI Test Line to RWST	OPEN		
SI-856A	Hi Hd SI Test Line to RWST	HANDWHEEL DISENGAGED		
SI-856B	Hi Hd SI Test Line to RWST	OPEN		
SI-856B	Hi Hd SI Test Line to RWST	HANDWHEEL DISENGAGED		
SI-864A	RWST Disch. Valve	OPEN		
SI-864B	RWST Disch. Valve	OPEN		
SI-864A	RWST Disch. Valve BREAKER MCC-5	CLOSED		
SI-864B	RWST Disch. Valve BREAKER MCC-6	CLOSED		
RWST PURIFICAT ION PUMP	RWST Purification Pump Breaker MCC-1	CLOSED		
SFPC-805A	RWP Pump Suction from RWST	CLOSED		
LCV-115B	Emerg. Makeup to Chg Suction	AUTO _____ CLOSED	_____	_____
IA-3061	IA to LCV-115B	OPEN		

9.0 Procedure (Continued)

COMPONENT	DESCRIPTION	POSITION	INITIALS	VERIFIED BY
CVC-358	RWST to Charging Pump Suction	CLOSED		
SI-843	RWST Outlet Line Drain	CLOSED _____ CAP INSTALLED	_____	_____
SI-886C	RWST to SI Pump, Pump "C" Suction	CLOSED		
SI-886B	RWST to SI Pump, Pump "B" Suction	LOCKED OPEN		
SI-886A	RWST to SI Pump, Pump "A" Suction	LOCKED OPEN		
SI-863A	RHR Loop Recirc BREAKER MCC-5	CLOSED		
SI-863A	RHR Loop Recirc	CLOSED		
SI-863B	RHR Loop Recirc BREAKER MCC-6	CLOSED		
SI-863B	RHR Loop Recirc	CLOSED		
SI-887	RHR Pump Discharge to SI & CV Spray Pump Suction	LOCKED OPEN		

9.0 Procedure (Continued)

COMPONENT	DESCRIPTION	POSITION	INITIALS	VERIFIED BY
SI-862A	RHR Loop RWST Isol. BREAKER MCC-5	CLOSED		
SI-862A	RHR Loop RWST Isol.	CLOSED		
SI-862B	RHR Loop RWST Isol. BREAKER MCC-6	CLOSED		
SI-862B	RHR Loop RWST Isol.	CLOSED		
SI-835A	Spray Additive Flow Eductor Test Valve	CLOSED		
SI-844A	Containment Spray Pump "A" Inlet BREAKER MCC-5	CLOSED		
SI-844A	Containment Spray Pump "A" Inlet	OPEN		
SI-844B	Containment Spray Pump "B" Inlet BREAKER MCC-6	CLOSED		
SI-844B	Containment Spray Pump "B" Inlet	OPEN		
SI-892D	Spray Additive Flow Eductor Test Valve	CLOSED		

9.0 Procedure (Continued)

COMPONENT	DESCRIPTION	POSITION	INITIALS	VERIFIED BY
52/21C	Safety Injection Pump A Breaker	Racked Out		
52/22B	E1 Supply to SI Pump B Breaker	Racked Out		
52/19A	Containment Spray Pump A Breaker	Racked Out		
52/29B	E2 Supply to SI Pump B Breaker	Racked Out		
52/23B	Safety Injection Pump C Breaker	Racked Out		
52/25C	Containment Spray Pump B Breaker	Racked Out		

9.17 Close breaker on MCC-5 for Aux Bldg. Supply Fan HVS-1.

_____/_____

OPS DATE

INDEPENDENT VERFICATION_____/_____

OPS DATE

9.18 Inform the Shift Supervisor that this Special Procedure has been completed.

_____/_____

Technical Support Date

9.19 This Special Procedure shall be forwarded to the vault after completion for permanent storage under file number 2080.

9.0 Procedure (Continued)

9.20 QC Inspectors, Operations, E&RC, MI, and Technical Support

Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date
Name(Print)	Initial	Signature	Date

COMMENTS _____

_____

_____

_____

_____

_____

Reviewed by: _____ / _____

System Engineer Date

CAROLINA POWER & LIGHT COMPANY FORM 3

NUCLEAR PLANT MODIFICATION TRAVELER	[ ] BNP UNIT NUMBER [ ] HNP 2 [X] RNP	PROJECT NUMBER 92-255/00	MODIFICATION NUMBER M-1134

ABSTRACT

TITLE: INSTALL PERMANENT STRAINERS IN SI PUMP RECIRCULATION LINES

REASON FOR MOD: To prevent orifice plugging

[ ] MODIFICATION
[X] EMERGENCY MOD
[ ] DOCUMENT CHANGE ONLY

SYSTEM NUMBER(S): 2080

QUALITY CLASSIFICATION:	YES	NO	IMPACT:
[X] A. Q-LIST OR AFFECTS Q-LIST	[ ]	[X]	UNREVIEWED SAFETY QUESTION
[ ] B. REG. GUIDE 1.29 OR 1.97	[ ]	[X]	TECH SPEC CHANGE
[ ] C. RADWASTE-Q	[X]	[ ]	FSAR CHANGE
[ ] D. FIRE PROTECTION-Q	[ ]	[X]	SIGNIFICANT ENVIRONMENTAL IMPACT
[ ] E. NON-Q	[ ]	[X]	MAJOR RADWASTE MODIFICATION
[ ] OTHER _____			

DESIGN REVIEWS/APPROVALS

LEAD ENGINEER	Walt Steen	8-30-92
[X] DESIGN VERIFICATION	Duane P. Etheridge	DATE 9-1-92
[ ] TECHNICAL		DATE
10CFR50.59 REVIEW	(See Safety Review Package)	
QUALITY ASSURANCE	Duane P. Etheridge	9-1-92 DATE

DESIGN RELEASE

PRINCIPAL ENG/ENG SUPERVISOR	SEE ATTACHED TRAVELER FOR SIGNATURE	DATE

PLANT REVIEWS/APPROVALS

REQ	NOT REQ	REVIEW	COMPLETED	DATE
[X]	[ ]	ALARA	RC Williams	9-1-92
[X]	[ ]	E&RC	RC Williams	9-1-92
[X]	[ ]	FIRE PROTECTION	RC Williams	9-1-92
[X]	[ ]	INSTALLATION	Kenneth Davis	9-1-92
[X]	[ ]	ISI	RC Williams	9-1-92
[ ]	[X]	MAINTENANCE - ELECTRICAL		
[X]	[ ]	MAINTENANCE - MECHANICAL	RC Williams	9-1-92
[X]	[ ]	OPERATIONS/HUMAN FACTORS	RC Williams	9-1-92
[ ]	[X]	PNSC		
[ ]	[X]	SECURITY		
[X]	[ ]	SYSTEM ENGINEER	RC Williams	9-1-92
[X]	[ ]	TRAINING/SIMULATOR	RC Williams	9-1-92
[X]	[ ]	OTHER QVS	[illegible]	9-1-92
[X]		REVIEW COORDINATOR	RC Williams	9-1-92

APPROVAL

Ray H. Chandler 9/2/92
PLANT GENERAL MANAGER DATE

INDEPENDENT SAFETY REVIEWS

REQ	NOT REQ	REVIEW	COMPLETED	DATE
[ ]	[X]	CNSR (Prior to Implementation) REF:		
[X]	[ ]	CNSR (Review documented on Closeout Sheet - NPMP Form 15)		
[ ]	[X]	NRC (Prior to Implementation) REF:		

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NUCLEAR PLANT MODIFICATION TRAVELER	[ ] BNP UNIT NUMBER [ ] HNP 2 [X] RNP	PROJECT NUMBER 92-255/00	MODIFICATION NUMBER M-1134

ABSTRACT

TITLE: INSTALL PERMANENT STRAINERS IN SI PUMP RECIRCULATION LINES

REASON FOR MOD: To prevent orifice plugging

[ ] MODIFICATION
[X] EMERGENCY MOD
[ ] DOCUMENT CHANGE ONLY

SYSTEM NUMBER(S): 2080

QUALITY CLASSIFICATION:
- [X] A. Q-LIST OR AFFECTS Q-LIST
- [ ] B. REG. GUIDE 1.29 OR 1.97
- [ ] C. RADWASTE-Q
- [ ] D. FIRE PROTECTION-Q
- [ ] E. NON-Q
- [ ] OTHER _____

YES	NO	IMPACT:
[ ]	[X]	UNREVIEWED SAFETY QUESTION
[ ]	[X]	TECH SPEC CHANGE
[X]	[ ]	FSAR CHANGE
[ ]	[X]	SIGNIFICANT ENVIRONMENTAL IMPACT
[ ]	[X]	MAJOR RADWASTE MODIFICATION

DESIGN REVIEWS/APPROVALS

LEAD ENGINEER	Walt Steen	8-30-92 DATE
[X] DESIGN VERIFICATION [ ] TECHNICAL		DATE
10CFR50.59 REVIEW	(See Safety Review Package)	
QUALITY ASSURANCE		DATE

DESIGN RELEASE

PRINCIPAL ENG/ENG SUPERVISOR	G. W. Chapman	0100 9-2-92 DATE

PLANT REVIEWS/APPROVALS

REQ	NOT REQ	REVIEW	COMPLETED	DATE
[X]	[ ]	ALARA		
[X]	[ ]	E&RC		
[X]	[ ]	FIRE PROTECTION		
[X]	[ ]	INSTALLATION		
[X]	[ ]	ISI		
[ ]	[X]	MAINTENANCE - ELECTRICAL		
[X]	[ ]	MAINTENANCE - MECHANICAL		
[X]	[ ]	OPERATIONS/HUMAN FACTORS		
[ ]	[X]	PNSC		
[ ]	[X]	SECURITY		
[X]	[ ]	SYSTEM ENGINEER		
[X]	[ ]	TRAINING/SIMULATOR		
[X]	[ ]	OTHER _____		
[X]		REVIEW COORDINATOR		

APPROVAL

_____ PLANT GENERAL MANAGER _____ DATE

INDEPENDENT SAFETY REVIEWS

REQ	NOT REQ	REVIEW	COMPLETED	DATE
[ ]	[X]	CNSR (Prior to Implementation) REF:		
[X]	[ ]	CNSR (Review documented on Closeout Sheet - NPMP Form 15)		
[ ]	[X]	NRC (Prior to Implementation) REF:		

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NUCLEAR PLANT MODIFICATION TRAVELER(CON'T)	[ ] BNP UNIT NUMBER [ ] HNP 2 [X] RNP	PROJECT NUMBER 92-255/00	MODIFICATION NUMBER M-1134

DESIGN ORGANIZATION INTERNAL APPROVALS

Signatures below indicate that the appropriate areas of concern for the listed discipline/specialty group have been satisfactorily incorporated into the above document.

Discipline	Applicable	Not Applicable	Signature/Date
MECHANICAL	[X]	[ ]	9/1/92
ELECTRICAL	[ ]	[X]	
I&C	[ ]	[X]	
CIVIL/STRUCTURAL	[X]	[ ]	Steven R. Bostian 9/1/92
SEISMIC	[X]	[ ]	9-1-92
MATERIALS	[X]	[ ]	9/1/92
APPENDIX R	[X]	[ ]	9/1/92 9/1/92
ENVIRONMENTAL QUAL.	[ ]	[X]	
HUMAN FACTORS/MECH	[X]	[ ]	9-1-92

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SECTION A
CONTENTS CONTROL

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B4	0	F8	0		
B5	0				
		G1	0		
C1	0	G2	0		
C2	0	G3	0		
C3	0	G4	0		
C4	0				
C5	0				
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C7	0				
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SECTION	DESCRIPTION
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B	PROJECT SUMMARY
C	INSTALLATION SUPPORT DOCUMENTS Quality Classification Evaluation Bill of Materials Spare Parts List Safety Review Package (Attachment)
D	INSTALLATION DRAWINGS Drawing List Installation Drawings
E	INSTALLATION INSTRUCTIONS
F	TESTING REQUIREMENTS
G	PLANT DOCUMENTATION REVISIONS

SECTION B
PROJECT SUMMARY

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1.0 Problem and Scope

1.1 Original - Recent past history has seen the plant placed in an LCO because "B" SI pump failed its quarterly surveillance test, OST-151, due to foreign material obstruction in the orifice and check valve in the pump recirculation line. This resulted in the pump being declared inoperable and an LCO. It is proposed that permanent in-line strainers be installed in all three SI pump recirculation lines to preclude such obstruction in the future and to facilitate removal of foreign material from the system.

1.2 Scope - To provide a strainer design that will prevent the orifices from plugging.

1.3 Evolution to Present - On 7-8-92, during OST-151, for SI Pump "B", it was discovered that recirculation flow was restricted. Subsequent investigation and repair indicated that foreign material had inadvertently entered the system. The plastic material (Delrin) was used as a grinding dam to trap grinding debris and protect valve seats during welding in a RFO 14 modification. Temporary strainers were constructed and installed in the SI pump recirculation line between the SI pump and the flow controlling orifice. The system was flushed until no additional material was collected in the temporary strainers. On 7-12-92 OST 151 was rerun with both "A" and "B" pumps passing. On 8-14-92 PIR 92-255/00 was initiated to install permanent in-line strainers in all three SI pump recirculation lines. On 8-24-92 NED was requested to provide engineering assistance with SI pump flow strainers.

2.0 Recommended Solution

2.1 History/Root Cause -

Cause of Event - Original plant design did not provide equipment to prevent plugging of the SI pump recirculation line flow control orifices. The original design was based on the requirements for RHR fluid chemistry. During an RFO 14 modification, it is believed that foreign material was introduced into the RCS system. Subsequent operation of system pumps is believed to have fragmented the material with some of the material becoming lodged in 'B' SI pump recirculation line flow control orifice.

2.2 General Description - The recommended solution is to install a strainer assembly with flush and vent valves in each of the SI pump recirculation lines between the restricting orifice and the SI pump. The purpose of the strainers is to prevent plugging of the restricting orifice while having an insignificant effect on recirculation line flows. It is recommended that the strainer assemblies and seismic supports for SI Pumps "A" and "B" be fabricated and installed by this modification. The strainer assembly and support for SI Pump "C" should be fabricated and placed in storage until "C" SI Pump is installed. A field revision to Mod-1134 shall be initiated to install "C" strainer and support.

2.3 Major Equipment - No major equipment is required for this modification.

2.4 Control Features - No changes are being made to any controls.

2.5 System Operations - No change to system operation required by this modification.

2.6 Unit Performance - No change in unit performance.

2.7 Plant Impact - Addition of recirculation line strainers does not impact SI Pump operation. The new strainers may require flushing on a as needed schedule.

2.8 ALARA -- Installation of the new SI pump recirculation line strainers creates the same potential as existing process filters which are changed/cleaned when radiation levels dictate the necessity. The new strainers will be maintained /cleaned in the same manner. The strainers have the potential to collect crud during flow through the recirculation line. The strainers are designed with vent and drain connections for flushing.

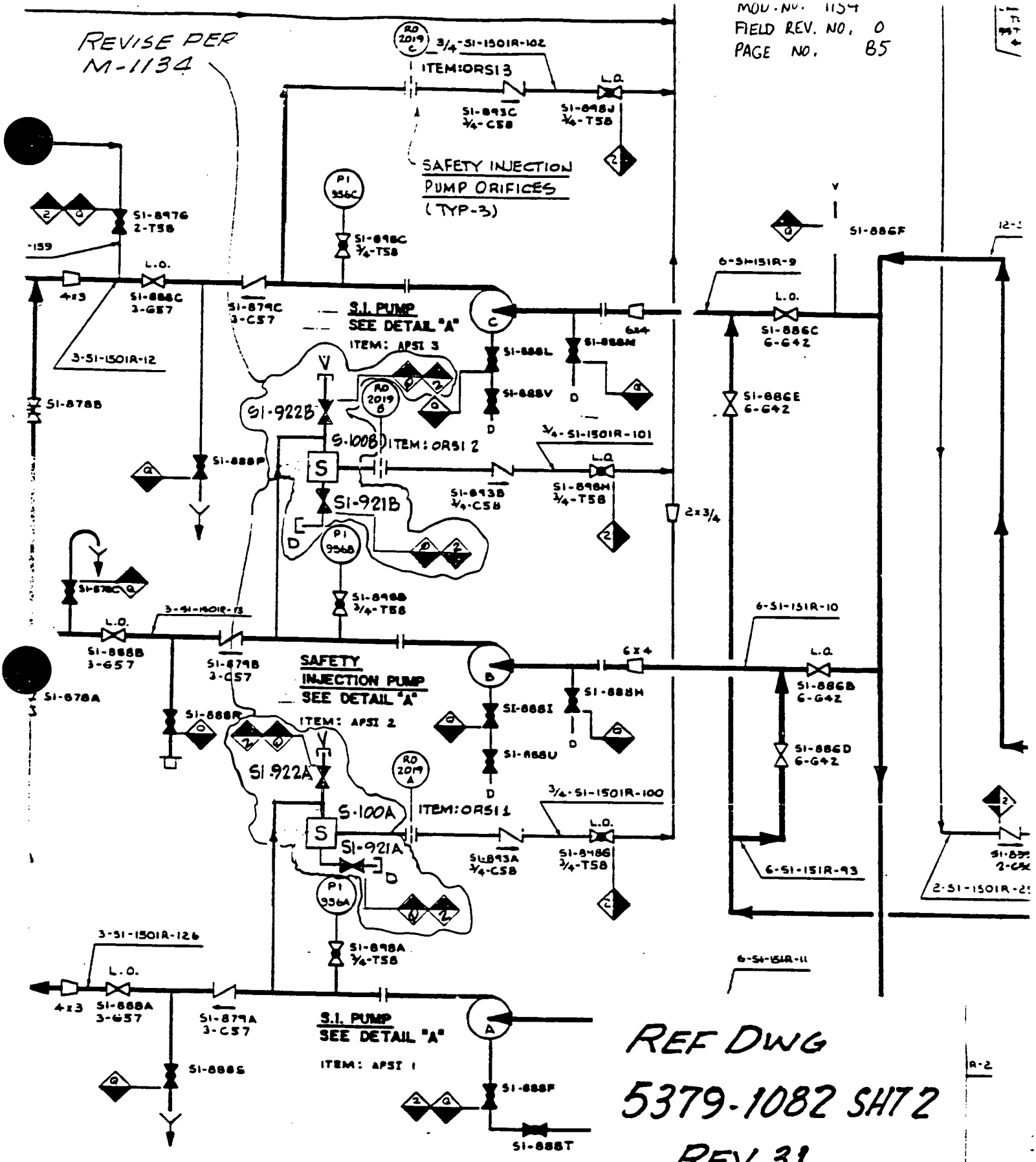
2.9 Component Life Expectancy - The new strainers have a 40-year life

2.9 Component Life Expectancy - The new strainers have a 40-year life expectancy.

3.0 Alternatives A suction line strainer was considered but investigation revealed potential single failure concerns.

MOD. NO. 1154
FIELD REV. NO. 0
PAGE NO. B5

REVISE PER M-1134



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5379-1082 SHT 2
REV. 31

FIG, NO, M-1134-01
8/31/92

SECTION C
INSTALLATION SUPPORT DOCUMENTS

Uncontrolled Copy
For Information Only

Quality Classification Evaluation

This Modification is Q Class (Safety-Related), excluding the piping downstream of the strainer vent valves and excluding the piping downstream of the strainer drain valves. The strainer supports are Q seismic.

Form 5

BILL OF MATERIAL

Mod. No. 1134
Field Rev. No. 0
Page No. C.3

Installation				Design			Q Status	
Item	Quan. / Units	PO Number	NIRF/Req. by	Part No.	Description	Spec./CODID	Buy	Use
1	1LF EA. / 3		MIU	738-703-47	6"ϕ PIPE SCH. 80S. SMLS	ASTM A 312 TP 304	Q	Q
2	6 / 1 EA.			738-700-24	6"ϕ PIPE CAP, SCH. 80S BW	ASTM A-403 WP 304		
3	6 / 1EA			736-357-65	3/4"ϕ - 3000# SW HALF COUPLING	ASTM A-182 F 316		
4	3 / 1EA			715-149-62	1"ϕ 3000# SW HALF COUPLING	ASTM A-182 F-304		
5.	3 / 1EA			738-703-54	BASKET HOPPER 4'ϕ PIPE CAP SCH 10S	ASTM A 403 WP 304		
6.	3 / 1 EA.	P.O. 589649			BASKET, 4" ϕ PIPE SCH 10S	ASTM A 312 TP 304		
7.	3 / 1EA			738-704-95	1/4" THK. PLATE, SS,	ASTM A 240 TP 316		
8.	9LF			738-702-71	3/4"ϕ SS PIPE, SMLS SCH 80S	ASTM A 312 TP 304		
9.	3 / 1EA			715-841-89	1"ϕ x 2" LONG SCH. 80S. (PE×TE)	ASTM A 312 TP 304		NOT Q

Form

BILL OF MATERIAL

Mod. No. 1134
Field Rev. No. 0
Page No. C9

Installation				Design			Q Status	
Item	Quan. Units	PO Number	NIRF/Req. by	Part No.	Description	Spec./CGID	Buy	Use
10.	3 EA.		MIU	715-841-89	1"ϕ x 2" LG PIPE NIPPLE SCH 80S SMLS (PE×PE)	ASTM A-312 TP 316	Q	Q
11	3 EA			724-473-45	1 1/2"ϕ x 2" LG PIPE NIPPLE SCH 80S SMLS (PE×TE)	ASTM A 312 TP 304	NON-Q	NON-Q
12	3 EA				1 1/2"ϕ x 2" LG PIPE NIPPLE SCH. 80S (TE×TE)	ASTM A 312 TP 304	Q	Q
13	3 EA			738-704-61	3/4" x 1/2" RED INS, SW, 3000#	ASTM A-182 F 304	Q	Q
14	3 EA			716-500-06	1"ϕ PIPED CAP (THR'D) 3000#	ASTM A-182 F 316	NON Q	NON Q
15	3 EA			716-499-82	1 1/2"ϕ PIPE CAP (THR'D) 3000#	ASTM A-182 F316	NON-Q	NON-Q
16	3 EA			715-152-33	3/4"ϕ 45° SW ELBOW 3000#	ASTM A-182 F-304	Q	Q
17.	9 EA			737-488-16	3/4"ϕ 90° SW ELBOW 3000#	ASTM A-182 F-304	Q	Q
18	3 EA			738-696-38	1"ϕ GATE VALVE 1500#, SW. F316	MFR STD.	Q	Q

Form 5

BILL OF MATERIAL

Mod. No. 1134
Field Rev. No. 0
Page No. C5

Installation				Design			Q Status	
Item	Quan. / Units	PO Number	NIRF/Req. by	Part No.	Description	Spec./COID	Buy	Use
19.	3 / 1EA		MIU	738-704-87	1/2" ϕ GATE VALVE, SW, 1500#, F316	MFR STD.	Q	Q
20.	3 / 1 EA.			720-338-06	3/4" TEE SW 3000#	ASTM A182 F304	Q	Q
21.	3 / 1 EA.			728-556-79	1" 90° ELBOW SW 3000#	ASTM A182 F304	Q	Q
22.	9 / 1 EA.			716-500-89	3/4" PIPE CAP SW 3000#	ASTM A182 F316	Q	Q
23.	AR		RNP		INSULATION AND JACKETING PER TMM-018	MFR STD	Q	Q

Form

CIVIL
BILL OF MATERIAL

Mod. No. 1134
Field Rev. No. 0
Page No. C6

Installation				Design				
Item	Quan. Units	PO Number	NIRF/Req. by	Part No.	Description	Spec./CGID	Q Status Buy	Q Status Use
1	1 EACH		MIU	716-372-35	PLATE, S, 1/2" x 4" x 8"	ASTM-A36 OR ASME SA-36	Q	Q
2	8 EACH		MIU	733-342-37	BOLT, MAXI, 1.2" X 8 1/4" EMBED LENGTH = 6"	MFR-STD	Q	Q
3	1 EACH		MIU	733-265-30	STEEL, TU, 3 X 3 X 1/4" X 20'	ASTM A500 GR B	Q	Q
4	1 EACH		MIU	715-429-71	PLATE, S, 1" X 4' X 8'	ASTM A36 OR ASME SA-36	Q	Q
5	4 EACH		MIU	736-331-09	BOLT, U, 5/8" X 6", FIG 137N	MFR-STD	Q	Q

SPARE PARTS LIST

Form 5a

Mod. No. M-1134
Field Rev. No. 0
Page No. C7

Modification Affected Equipment	Modification Required Spare	Quantity	Q-class	CP&L Part Number	Stock Level[1]	NIRF Initiation Date	Recommended Vendor	Associated Purchase Order
Valve, 1/2" Gate,1500#	Gasket, SPI, 1/2, 1500#	5	AUG Q	738-710-63	A	8-31-92	VOGT	7C2054

[1] Enter "A" for items being added to Plant stock, "D" for items being deleted from Plant stock, "LC" for items currently stocked but require a stock level change and "NC" for items which are currently stocked but no changes are required.

SAFETY REVIEW COVER SHEET

DOCUMENT NO. M-1134 REV. NO. 0

DESCRIPTION OR TITLE: SAFETY INJECTION LINE PIPE/STRAINER

1. Assigned Responsibilities:

   Safety Analysis Preparer: JAMES D. WILLIAMSON

   Lead 1st Safety Reviewer: JAMES D. WILLIAMSON

   2nd Safety Reviewer: Duane P. Etheridge

2. Safety Analysis Preparer: Complete PART I, SAFETY ANALYSIS

   Safety Analysis Preparer James D. Williamson / 9-1-92
   SIGNATURE DATE

3. Lead 1st Safety Reviewer: Complete Part II, Item Classification.

4. Lead 1st Safety Reviewer: Part III may be completed. If either question 1 or 2 is "yes," then Part IV is not required.

5. Lead 1st Safety Reviewer: Determine which DISCIPLINES are required for review of this item (including own) and mark the appropriate block(s) below.

DISCIPLINES Required:	(Print Name)	Signature/Date (Step 7)
[ ] Nuclear Plant Operations		
[ ] Nuclear Engineering		
[■] Mechanical	JAMES D. WILLIAMSON	James D. Williamson 9-1-9
[ ] Electrical		
[ ] Instrumentation & Control		
[■] Structural	(SEE STRUCTURAL SAFETY EVALUATION)	9-1-9
[■] Metallurgy	(SEE MATERIALS SAFETY EVALUATION)	9-1-9
[ ] Chemistry/Radiochemistry		
[ ] Health Physics		
[ ] Administrative Controls		

6. A QUALIFIED SAFETY REVIEWER will be assigned for each DISCIPLINE marked in step 5 and his/her name printed in the space provided. Each person listed shall perform a SAFETY REVIEW and provide input into the Safety Review Package.

7. The Lead 1st Safety Reviewer will assure that a Part III or Part IV is completed (see step 4 above) and a Part VI if required (see 9.d of Part II). Each person listed in step 5 shall sign and date next to his/her name in step 5, indicating completion of a SAFETY REVIEW.

8. 2nd Safety Reviewer: Perform a SAFETY REVIEW in accordance with Section 8.0.

   2nd Safety Reviewer Duane P. Etheridge Date 9/1/92

   DISCIPLINE: MECHANICAL

9. PNSC review required? If "yes," attach Part V and mark reason below:

	Yes	No
[ ] Potential UNREVIEWED SAFETY QUESTION	[ ]	[X]
[ ] Question 9 of Part IV answered "Yes"		
[ ] Other (specify):		

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PART I: SAFETY ANALYSIS
(See instructions in Section 8.4.1)
(Attach additional sheets as necessary.)

DOCUMENT NO. M-1134 REV. NO. 0

DESCRIPTION OF CHANGE: (SEE ATTACHMENT A-1, 4 pages)

ANALYSIS: (SEE ATTACHMENT A-1, 4 pages)

REFERENCES: (SEE ATTACHMENT A-1, 4 Pages)

10CFR50.59 PROGRAM MANUAL
ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

PART II: ITEM CLASSIFICATION

DOCUMENT NO. M-1134 REV. NO. 0

		Yes	No
1.	Does this item represent:		
	a. A change to the facility as described in the SAFETY ANALYSIS REPORT?	[ ]	■
	b. A change to the procedures as described in the SAFETY ANALYSIS REPORT?	[ ]	■
	c. A test or experiment not described in the SAFETY ANALYSIS REPORT?	[ ]	■
2.	Does this item involve a change to the individual plant Operating License or to its Technical Specifications?	[ ]	■
3.	Does this item require a revision to the FSAR?	■ FSAR 6.3	[ ]
4.	Does this item involve a change to the Off-Site Dose Calculation Manual?	[ ]	■
5.	Does this item constitute a change to the Process Control Program?	[ ]	■
6.	Does this item involve a major change to a Radwaste Treatment System?	[ ]	■
7.	Does this item involve a change to the Technical Specification Equipment List (BSEP and SHNPP only)?	[ ]	■
8.	Does this item impact the NPDES Permit (all 3 sites) or constitute an "unreviewed environmental question" (SHNPP Environmental Plan, Section 3.1) or a "significant environmental impact" (BSEP)?	[ ]	■
9.	Does this item involve a change to a previously accepted:		
	a. Quality Assurance Program	[ ]	■
	b. Security Plan (including Training, Qualification, and Contingency Plans)?	[ ]	■
	c. Emergency Plan?	[ ]	■
	d. Independent Spent Fuel Storage Installation license? (If "yes," refer to Section 8.4.2, "Question 9," for special considerations. Complete Part VI in accordance with Section 8.4.6)	[ ]	■

SEE SECTION 8.4.2 FOR INSTRUCTIONS FOR EACH "YES" ANSWER.

REFERENCES. List FSAR and Technical Specification references used to answer questions 1-9 above. Identify specific reference sections used for any "Yes" answer.

UFSAR SECTIONS: 3.2 3.6 6.2 6.3.2 6.3.3 15.6.5
TECH SPEC: 4.5 & BASIS
OST-151
MOD-1134 DBD

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10CFR50.59 PROGRAM MANUAL
ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

Page 4 of 6

PART III: UNREVIEWED SAFETY QUESTION DETERMINATION SCREEN

DOCUMENT NO. M-1134 REV. NO. 0

		Yes	No
1.	Is this change fully addressed by another completed UNREVIEWED SAFETY QUESTION determination? (See Sections 7.2.1, 7.2.2.5, and 7.9.1.1)	[]	[X]

REFERENCE DOCUMENT: N/A REV. NO. N/A

		Yes	No
2.	For procedures, is the change a non-intent change which only (check all that apply): (See Section 7.2.2.3) N/A	[X]	[]

[] Corrects typographical errors which do not alter the meaning or intent of the procedure; or,

[] Adds or revises steps for clarification (provided they are consistent with the original purpose or applicability of the procedure); or,

[] Changes the title of an organizational position; or,

[] Changes names, addresses, or telephone numbers of persons; or,

[] Changes the designation of an item of equipment where the equipment is the same as the original equipment or is an authorized replacement; or,

[] Changes a specified tool or instrument to an equivalent substitute; or,

[] Changes the format of a procedure without altering the meaning, intent, or content; or

[] Deletes a part or all of a procedure, the deleted portions of which are wholly covered by approved plant procedures?

If the answer to either Question 1 or Question 2 in PART III is "Yes," then PART IV need not be completed.

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10CFR50.59 PROGRAM MANUAL
ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

PART IV: UNREVIEWED SAFETY QUESTION DETERMINATION

DOCUMENT NO. M-1134 REV. NO. 0

Using the SAFETY ANALYSIS developed for the change, test or experiment, as well as other required references (LICENSING BASIS DOCUMENTATION, Design Drawings, Design Basis Documents, codes, etc.), the preparer of the Unreviewed Safety Question Determination must directly answer each of the following seven questions and make a determination of whether an UNREVIEWED SAFETY QUESTION exists.

A WRITTEN BASIS IS REQUIRED FOR EACH ANSWER

		Yes	No
1.	May the proposed activity increase the probability of occurrence of an accident evaluated previously in the SAFETY ANALYSIS REPORT? (SEE ATTACHMENT A-2, 2 PAGES)	[]	[X]
2.	May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT? (SEE ATTACHMENT A-2, 2 PAGES)	[]	[X]
3.	May the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT? (SEE ATTACHMENT A-2, 2 PAGES)	[]	[X]
4.	May the proposed activity increase the consequence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT? (SEE ATTACHMENT A-2, 2 PAGES)	[]	[X]
5.	May the proposed activity create the possibility of an accident of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT? (SEE ATTACHMENT A-2, 2 PAGES)	[]	[X]

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10CFR50.59 PROGRAM MANUAL
ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

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PART IV: (Continued)

DOCUMENT NO. M-1134 REV. NO. 0

		Yes	No
6.	May the proposed activity create the possibility of a malfunction of equipment important to safety of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT? (SEE ATTACHMENT A-2, 2 PAGES)	[ ]	[X]
7.	Does the proposed activity reduce the margin of safety as defined in the basis of any Technical Specification? (SEE ATTACHMENT A-2, 2 PAGES)	[ ]	[X]
8.	Based on the answers to questions 1 - 7, does this item result in an UNREVIEWED SAFETY QUESTION? If the answer to any of the questions 1-7 is "Yes," then the item is considered to constitute an UNREVIEWED SAFETY QUESTION.	[ ]	[X]
9.	Is PNSC review required for any of the following reasons?	[ ]	[X]

If, in answering question 1 or 3 "No," it was determined that the probability increase was small relative to the uncertainties; or, in answering question 2 or 4 "No," it was determined that the doses increased, but the dose was still less than the NRC ACCEPTANCE LIMIT; or, in answering question 7 "No," a parameter would be closer to the NRC ACCEPTANCE LIMIT, but the end result was still within the NRC ACCEPTANCE LIMIT; then PNSC review is required.

REFERENCES: (SEE ATTACHMENT A-2, 2 PAGES)

This Unreviewed Safety Question Determination is for the following DISCIPLINE(s): (Additional Part IV forms may be included as appropriate.)

- [ ] Nuclear Plant Operations
- [ ] Nuclear Engineering
- [X] Mechanical
- [ ] Electrical
- [ ] Instrumentation & Control
- [ ] Structural
- [ ] Metallurgy
- [ ] Chemistry/Radiochemistry
- [ ] Health Physics
- [ ] Administrative Controls

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ATTACHMENT A-1
PART I: SAFETY ANALYSIS - MECHANICAL

MODIFICATION M-1134, REV. 0
SAFETY INJECTION LINE PIPE/STRAINER

DESCRIPTION OF CHANGE:

This modification safety analysis will address adding a strainer to each of the three (3/4-SI-1501R-100, 3/4-SI-1501R-101, and 3/4-SI-1501R-102) 3/4-inch lines branching off the respective three (3-SI-1501R-126, 3-SI-1501R-13, and 3-SI-1501R-12) 3-inch discharge lines of the Safety Injection pumps. Each strainer will be located in the 3/4-inch recirculation piping between the pump's 3-inch discharge pipe and the recirculation orifice respectively. The initial issue of the modification will only install strainers in two of the Safety Injection Pump's recirculation lines but this analysis will address all three. The Mechanical changes include the following:

1. The modification of existing 3/4-inch pipes to accommodate the new strainers.
2. The addition of three strainers.
3. The addition of six vent and drain valves, two for each strainer.
4. The addition of strainer supports.
5. The Safety Injection Flow Diagram No. 5379-1082, Sht. 2.
6. The Piping Plan Drawing G190282
7. The Updated Final Safety Analysis Report
8. Safety Injection System DBD No. DBD/R87038/SD02

ANALYSIS:

General Statement:

The Strainers will be fabricated with "Q" material. Each Strainer is considered a section of pipe and will be fabricated and tested in accordance with the Power Piping Code ANSI B31.1, 1967 Edition. The strainer is composed of a 6-inch, schedule 80S, Stainless Steel outer shell with two schedule 80S pipe caps. The strainer inner basket is composed of a 4-inch, schedule 10S, Stainless Steel pipe, drilled with 1/8-inch holes, and one schedule 10S pipe cap. The outer shell will be provided with a 3/4-inch 3000# inlet and outlet, and a 1-inch 3000# drain connection. The strainer design was hydraulically analyzed in Calc. No. RNP-M/MECH-1468 using the existing 3/4-inch piping design pressure, temperature, and flow rate. The strainer purpose is to protect the pump recirc orifice from plugging which protects the pump from damage due to operation under no flow conditions.

Analysis:

The philosophy for safety analyses of a system requires that undetectable failures of components be included along with single active failures in assessing a plants ability to mitigate design basis events. One of several methods of avoiding a requirement to assume an undetected failure in a system is periodic testing. A testing frequency is established to ensure that undetected faults do not occur between periodic tests which could threaten the operability of a system (or portion thereof) when its safety function is required. The Safety Injection Pumps are tested periodically. Between tests, they are inactive. This mod was initiated because the Safety Injection Pump system changed performance between two very closely spaced tests from acceptable recirc flow to unacceptable recirc flow due to a plugged recirculation orifice. This means that the pump experienced an undetected fault over a much shorter period of time than the periodic test frequency.

The safety significance of the potential for unexpected blockage of the recirc flow path for the Safety Injection Pumps is for events where High Head Safety Injection is required but RCS pressure remains high enough during the early stages of the event so that no flow can be delivered to the RCS. Any flow would then have to pass through the recirc lines until the RCS pressure reduced to a value where flow could be delivered to the RCS. If one or more recirc lines were unexpectedly blocked, then the potential exists for loss of one or more Safety Injection Pumps in addition to the normally postulated loss of a pump through a single active failure, prior to the time when RCS pressure would allow the credited Safety Injection flow. Examples of design basis events of this type are Small Break LOCA, Steam Generator Tube Rupture and Main Steam Line Break.

This mod installs another component in the recirculation line of each Safety Injection Pump. This component (a strainer) reduces the probability that the pump will experience restricted flow conditions due to a plugged recirculation orifice. The design of the strainer is such that it can accommodate a quantity of debris and still permit acceptable recirc flow for the pump it serves. This is a better condition than having just an

unprotected recirculation orifice in the line which cannot accommodate any appreciable amount of debris without plugging. Therefore the probability of pump damage is reduced and consequently the probability of failure of a Safety Injection Pump is reduced.

Procedurally, per EPP-9, operations closes off the Safety Injection Pump miniflow recirculation flow path from the control room prior to continuing safety injection using recirculation from the reactor building sump (recirculation to cold leg phase). In addition, the procedure requires that an operator also verify that both of the air operated isolation valves have closed. This provides dual isolation of the common Safety Injection Pump miniflow line to the RWST prior to initiation of recirculation phase of safety injection. This isolation of the common pump miniflow recirc flow path would prevent reactor coolant from flowing through these strainers during the recirculation phase and therefore no crud traps exist by design.. Because the strainer is designed to allow for drainage of the dead space at the bottom of the basket area and a vent and drain are provided to allow for cleaning any crud deposited in the strainer through leakage or error could be removed. No radiological analysis is necessary to address the additional piping volume added to the Safety Injection system in the Safety Injection Pump room by this modification.

Common mode failure of the three strainers could occur if a sufficiently large volume of debris were released into the Safety Injection piping to plug all three strainers. This is much less probable with the strainers installed by this mod because a much smaller quantity of debris could block recirc flow from all three Safety Injection Pumps with the present design.

The particle size of debris passing through the strainer is designed to be smaller than the recirculation orifice throat. Pieces passing through the strainer whose long dimension exceeds the size of the orifice throat could theoretically be oriented in the flow stream such that partial blocking of the orifice could occur, however this probability is more than offset by the reduced chance of these pieces ever getting to the orifice to begin with, because of the strainer action.

The basis for discounting undetected failures for the Safety Injection Pumps will still be the periodic test of the pumps. The system does not now have installed instrumentation which can detect reduced flow in the recirc line and this mod will not change that. The addition of the strainer will not require a need for installed instrumentation nor will it require an increase in the frequency of the periodic test(s).

The design basis of this mod requires a nominal design recirc flow rate of 35 gpm for the equipment in this modification. The strainer was designed (Calc. No. RNP-M/MECH-1468) to accommodate a significant quantity of debris and still offer low enough flow resistance to have minimal effect on overall system resistance. Available test data were used to compare the present configuration flow with calculated post-modification flows to show this minimal effect. Flow testing will be used to validate the calculation(s) and this testing will be the verification of the design. During the periodic pump test (OST-151) the miniflow recirc flowrate is validated using a portable plant flow instrument.

Because the operation of the valves installed by this modification will be controlled by procedure and the fact that all of the equipment installed by this mod is in an area in the auxiliary building whose ventilation flows to the plant stack, there is no probability of an unmonitored or uncontrolled release of radioactivity created by this modification.

The requirements of the project DBD are sufficient to assure that the mechanical components are of high quality and acceptable for this modification.

REFERENCES:

UFSAR SECTIONS: 3.2, 3.6, 6.2, 6.3.2, 6.3.3, 15.6.5
TECH SPEC SECTION: 4.5 & BASIS
OST-151
EPP-9
Flow Diagram No. 5379-1082, Sht. 2.
Piping Plan Drawing G190282
Mod 1134 DBD R92-255/00
Safety Injection System DBD No. DBD/R87038/SD02

UNREVIEWED SAFETY QUESTION DETERMINATION

1. **May the proposed activity increase the probability of occurrence of an accident evaluated previously in the SAFETY ANALYSIS REPORT?**

   The strainers, valves, piping and supports are being installed per MOD 1134 to meet the seismic and safety related requirements of the Safety Injection System. This modification will not jeopardize the mechanical integrity of the system or plant and does not affect the mechanical qualification of the system. Therefore, this proposed activity does not increase the probability of an analyzed accident.

2. **May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT?**

   Modification to the Safety Injection system does not change the initial set of conditions or assumptions of an accident related to the mechanical characteristics. It does not increase the uncertainty in any analysis. There is no mechanical affect on accident mitigation systems. Single failure criterion is maintained. Therefore, the consequences of an analyzed accident are not increased.

3. **May the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT?**

   The material and mechanical qualification of the strainers, valves, piping and supports associated with the proposed activity meets the mechanical design requirements of the FSAR for safety related and seismic application. Therefore, the proposed activity does not affect the probability of an analyzed equipment malfunction important to safety.

4. **May the proposed activity increase the consequences of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT?**

   The initial conditions and assumptions for equipment malfunctions related to the mechanical characteristics are not affected by the modification to the Safety Injection system. The strainers, valves, piping, and supports associated with the proposed change are mechanically and seismically qualified. This proposed activity meets the mechanical design requirements of the FSAR for safety related, seismic, and single failure criterion. Therefore, the consequences of an equipment malfunction are not increased.

5. **May the proposed activity create the possibility of an accident of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT?**

   The changes proposed by this modification are to improve the safety injection recirc reliability by reducing the risk of plugging. Improving the recirc reliability will improve the systems ability to perform the intended design function. Therefore, this proposed activity does not create a possibility of an accident of a different type evaluated previously in the safety analysis report.

6. **May the proposed activity create the possibility of a malfunction of equipment important to safety of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT?**

   The changes proposed by this modification are to improve the safety injection recirc reliability by reducing the risk of plugging. Improving the recirc reliability will improve the systems ability to perform the intended design function. Therefore, this proposed activity does not create a possibility of a malfunction of equipment important to safety of a different type evaluated previously in the safety analysis report.

7. **Does the proposed activity reduce the margin of safety as defined in the basis of any Technical Specification?**

   This proposed modification does not contradict or decrease the margin of safety as defined in the basis section of any Technical Specification.

REFERENCES:

UFSAR Sections: 3.2, 3.6, 6.2, 6.3.2, 6.3.3, 15.6.5
TECH SPEC Section: 4.5 & Basis
EPP-9
OST-151
Mod-1134 DBD R92-255/00
Safety Injection System DBD No. DBD/R87038/SD02

SAFETY REVIEW COVER SHEET

DOCUMENT NO. M 1134 REV. NO. 0

DESCRIPTION OR TITLE: SI LINE PIPE / STRAINER

1. Assigned Responsibilities:

   Safety Analysis Preparer: D.W. HUGHES

   Lead 1st Safety Reviewer: D.W. HUGHES

   2nd Safety Reviewer: S.R. BOSTIAN

2. Safety Analysis Preparer: Complete PART I, SAFETY ANALYSIS

   Safety Analysis Preparer Daryl W Hughes / 8.28.92
   SIGNATURE DATE

3. Lead 1st Safety Reviewer: Complete Part II, Item Classification.

4. Lead 1st Safety Reviewer: Part III may be completed. If either question 1 or 2 is "yes," then Part IV is not required.

5. Lead 1st Safety Reviewer: Determine which DISCIPLINES are required for review of this item (including own) and mark the appropriate block(s) below.

DISCIPLINES Required:	(Print Name)	Signature/Date (Step 7)
[] Nuclear Plant Operations		
[] Nuclear Engineering		
[] Mechanical		
[] Electrical		
[] Instrumentation & Control		
■ Structural	D.W. HUGHES	Daryl W Hughes 8-28-92
[] Metallurgy		
[] Chemistry/Radiochemistry		
[] Health Physics		
[] Administrative Controls		

6. A QUALIFIED SAFETY REVIEWER will be assigned for each DISCIPLINE marked in step 5 and his/her name printed in the space provided. Each person listed shall perform a SAFETY REVIEW and provide input into the Safety Review Package.

7. The Lead 1st Safety Reviewer will assure that a Part III or Part IV is completed (see step 4 above) and a Part VI if required (see 9.d of Part II). Each person listed in step 5 shall sign and date next to his/her name in step 5, indicating completion of a SAFETY REVIEW.

8. 2nd Safety Reviewer: Perform a SAFETY REVIEW in accordance with Section 8.0.

   2nd Safety Reviewer Steven R. Bostian Date 8/28/92

   DISCIPLINE: STRUCTURAL

9. PNSC review required? If "yes," attach Part V and mark reason below:

	Yes	No
	[]	■

   [] Potential UNREVIEWED SAFETY QUESTION
   [] Question 9 of Part IV answered "Yes"
   [] Other (specify): _____

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ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

PART I: SAFETY ANALYSIS
(See instructions in Section 8.4.1)
(Attach additional sheets as necessary.)

DOCUMENT NO. M 1134 REV. NO. 0

DESCRIPTION OF CHANGE: SEE PAGE 3

ANALYSIS: SEE PAGE 3

REFERENCES:

SEE PAGE 3

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STRUCTURAL / SEISMIC EQUIPMENT QUALIFICATION / STRESS

DOCUMENT NO. M-1134 REV. NO. 0

DESCRIPTION OF CHANGE:

This modification adds a strainer in each of the 3/4-inch line that comes off the 3-inch discharge line of the Safety Injection pumps "A" and "B". A strainer in the 3/4-inch line that comes off the 3-inch discharge line of the Safety Injection pump "C" may be added at a later date without affecting the safety analysis/review. The structural changes include the following:

1. The modification of existing pipe to accommodate the strainer.
2. The addition of strainers.
3. The addition of supports for the strainers.
4. The addition of valves.

ANALYSIS:

The strainer outer section will be fabricated from 6-inch diameter schedule 80 pipe with end caps. The internal section (strainer portion) will be fabricated from 4-inch schedule 10 SS pipe. The internal pipe will be perforated to make the strainer portion. The strainer has a 3/4-inch pipe connection to the top & side and a 1-inch pipe connection at the bottom. The strainer is considered as a section of pipe and is evaluated as a portion of the piping system in the pipe stress analysis. The pipe stress analysis is documented in calculation RNP-C/STRS-1186. This calculation also addresses the structural integrity of the strainer portion and the modifications to the existing pipe to accommodate the strainer. The pipe stress analysis takes credit for a new support that will be added to the strainer. The evaluation of the support is documented in calculation RNP-C/SPPT-1791. The new 1-inch gate valves and 1/2-inch gate valves are Class 1500# valves and are designed in accordance with ASME Class 1 and Class 2 requirements, respectively. The seismic evaluation of the valves is documented in calculation RNP-C/EQ-1251.

The changes per this modification, as listed above are acceptable from a Civil/Structural view point.

REFERENCES:

Mod 1134, Rev. 0
RNP-C/STRS-1186, Rev. 0
RNP-C/SPPT-1791, Rev. 0
RNP-C/EQ-1251, Rev. 0
SK-1134-M-2000, Rev A (HBR2-11119)
SK-1134-M-2001, Rev A
SK-1134-M-2002, Rev A

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PART II: ITEM CLASSIFICATION

DOCUMENT NO. M 1134 REV. NO. 0

		Yes	No
1.	Does this item represent:		
a.	A change to the facility as described in the SAFETY ANALYSIS REPORT?	[]	[X]
b.	A change to the procedures as described in the SAFETY ANALYSIS REPORT?	[]	[X]
c.	A test or experiment not described in the SAFETY ANALYSIS REPORT?	[]	[X]
2.	Does this item involve a change to the individual plant Operating License or to its Technical Specifications?	[]	[X]
3.	Does this item require a revision to the FSAR?	[]	[X]
4.	Does this item involve a change to the Off-Site Dose Calculation Manual?	[]	[X]
5.	Does this item constitute a change to the Process Control Program?	[]	[X]
6.	Does this item involve a major change to a Radwaste Treatment System?	[]	[X]
7.	Does this item involve a change to the Technical Specification Equipment List (BSEP and SHNPP only)?	[]	[X]
8.	Does this item impact the NPDES Permit (all 3 sites) or constitute an "unreviewed environmental question" (SHNPP Environmental Plan, Section 3.1) or a "significant environmental impact" (BSEP)?	[]	[X]
9.	Does this item involve a change to a previously accepted:		
a.	Quality Assurance Program	[]	[X]
b.	Security Plan (including Training, Qualification, and Contingency Plans)?	[]	[X]
c.	Emergency Plan?	[]	[X]
d.	Independent Spent Fuel Storage Installation license? (If "yes," refer to Section 8.4.2, "Question 9," for special considerations. Complete Part VI in accordance with Section 8.4.6)	[]	[X]

SEE SECTION 8.4.2 FOR INSTRUCTIONS FOR EACH "YES" ANSWER.

REFERENCES. List FSAR and Technical Specification references used to answer questions 1-9 above. Identify specific reference sections used for any "Yes" answer.

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PART III: UNREVIEWED SAFETY QUESTION DETERMINATION SCREEN

DOCUMENT NO. M 1134 REV. NO. 0

		Yes	No
1.	Is this change fully addressed by another completed UNREVIEWED SAFETY QUESTION determination? (See Sections 7.2.1, 7.2.2.5, and 7.9.1.1)	[]	■

REFERENCE DOCUMENT: _____ _____ REV. NO. _____

		Yes	No
2.	For procedures, is the change a non-intent change which only (check all that apply): (See Section 7.2.2.3)	[]	■

[] Corrects typographical errors which do not alter the meaning or intent of the procedure; or,

[] Adds or revises steps for clarification (provided they are consistent with the original purpose or applicability of the procedure); or,

[] Changes the title of an organizational position; or,

[] Changes names, addresses, or telephone numbers of persons; or,

[] Changes the designation of an item of equipment where the equipment is the same as the original equipment or is an authorized replacement; or,

[] Changes a specified tool or instrument to an equivalent substitute; or,

[] Changes the format of a procedure without altering the meaning, intent, or content; or

[] Deletes a part or all of a procedure, the deleted portions of which are wholly covered by approved plant procedures?

If the answer to either Question 1 or Question 2 in PART III is "Yes," then PART IV need not be completed.

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CP&L SAFETY REVIEW PACKAGE Page 6 of 11

PART IV: UNREVIEWED SAFETY QUESTION DETERMINATION

DOCUMENT NO. M 1134 REV. NO. 0

Using the SAFETY ANALYSIS developed for the change, test or experiment, as well as other required references (LICENSING BASIS DOCUMENTATION, Design Drawings, Design Basis Documents, codes, etc.), the preparer of the Unreviewed Safety Question Determination must directly answer each of the following seven questions and make a determination of whether an UNREVIEWED SAFETY QUESTION exists.

A WRITTEN BASIS IS REQUIRED FOR EACH ANSWER

		Yes	No
1.	May the proposed activity increase the probability of occurrence of an accident evaluated previously in the SAFETY ANALYSIS REPORT? SEE PAGE 8	[]	■
2.	May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT? SEE PAGE 8	[]	■
3.	May the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT? SEE PAGE 8	[]	■
4.	May the proposed activity increase the consequence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT? SEE PAGE 8	[]	■
5.	May the proposed activity create the possibility of an accident of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT? SEE PAGE 9	[]	■

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ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE Page 7 of 11

PART IV: (Continued)

DOCUMENT NO. M 1134 REV. NO. 0

		Yes	No
6.	May the proposed activity create the possibility of a malfunction of equipment important to safety of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT?	[ ]	■
	SEE PAGE 9		
7.	Does the proposed activity reduce the margin of safety as defined in the basis of any Technical Specification?	[ ]	■
	SEE PAGE 9		
8.	Based on the answers to questions 1 - 7, does this item result in an UNREVIEWED SAFETY QUESTION? If the answer to any of the questions 1-7 is "Yes," then the item is considered to constitute an UNREVIEWED SAFETY QUESTION.	[ ]	■
9.	Is PNSC review required for any of the following reasons?	[ ]	■

If, in answering question 1 or 3 "No," it was determined that the probability increase was small relative to the uncertainties; or, in answering question 2 or 4 "No," it was determined that the doses increased, but the dose was still less than the NRC ACCEPTANCE LIMIT; or, in answering question 7 "No," a parameter would be closer to the NRC ACCEPTANCE LIMIT, but the end result was still within the NRC ACCEPTANCE LIMIT; then PNSC review is required.

REFERENCES:
SEE PAGE 9

This Unreviewed Safety Question Determination is for the following DISCIPLINE(s): (Additional Part IV forms may be included as appropriate.)

[ ] Nuclear Plant Operations
[ ] Nuclear Engineering
[ ] Mechanical
[ ] Electrical
[ ] Instrumentation & Control
■ Structural
[ ] Metallurgy
[ ] Chemistry/Radiochemistry
[ ] Health Physics
[ ] Administrative Controls

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UNREVIEWED SAFETY QUESTION DETERMINATION

1. **May the proposed activity increase the probability of occurrence of an accident evaluated previously in the SAFETY ANALYSIS REPORT?**

   The strainers, valves, piping and strainer supports that are being installed per Mod 1134 are seismically qualified for safety related/seismic application. This proposed activity does not jeopardize the structural integrity of the system or plant and does not affect the seismic qualification of the system. Therefore, this proposed activity does not increase the probability of an analyzed accident.

2. **May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT?**

   The modification to the Safety Injection system does not change the initial conditions or assumptions of an accident related to structural characteristics. It does not increase uncertainty in an analysis. There is no structural affect on accident mitigation systems. Single failure criterion is being maintained. Therefore, the consequences on an analyzed accident are not affected.

3. **May the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT?**

   The seismic qualification of the strainers, valves, piping and strainer supports associated with the proposed activity meets the seismic design requirements of the FSAR for safety related/ seismic application. Therefore, the proposed activity does not affect the probability of an analyzed equipment malfunction.

4. **May the proposed activity increase the consequences of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT?**

   The initial conditions and assumptions for equipment malfunctions related to structural characteristics are not affected by the modification to the Safety Injection system per Mod 1134. The strainers, valves, piping and strainer supports associated with the proposed activity have been seismically qualified. This proposed activity meets the seismic design requirements of the FSAR for safety related/seismic application. Single failure criterion is being maintained. Therefore, the consequences of an equipment malfunction are not affected.

5. **May the proposed activity create the possibility of an accident of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT?**

The equipment/system design parameters have not changed from a structural/seismic view point. The configuration meets the seismic design requirements of the FSAR. This proposed activity does not create a possibility of an accident of a different type than previously evaluated.

6. **May the proposed activity create the possibility of a malfunction of equipment important to safety of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT?**

The equipment/system design parameters have not changed from a structural/seismic view point. The configuration meets the seismic design requirements of the FSAR. This proposed activity does not create a possibility of a malfunction of equipment important to safety of a different type than previously evaluated.

7. **Does the proposed activity reduce the margin of safety as defined in the basis of any Technical Specification?**

This proposed activity does not contradict or decrease conservatism of the basis section of the Technical Specification.

REFERENCES:

RNP-C/STRS-1186
RNP-C/SPPT-1791
FSAR Sections 3.2, 3.7, 6.3.2, 6.3.2.2.17, 15.0, 15.1.5
Tech Spec Sections 3.3.1, 4.5.1.1, 5.5

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PART V: PNSC REVIEW

DOCUMENT NO. M 1134 REV. NO. 0

Determination/Evaluation:

Action Taken:

Basis:

PNSC Chairman: Date:

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PART VI: ISFSI CHANGES (10CFR72.48)

DOCUMENT NO. M 1134 REV. NO. 0

		Yes	No
1.	Does this item represent:		
	a. A change to the Independent Spent Fuel Storage Installation (ISFSI) as described in the ISFSI Safety Analysis Report?	[]	■
	b. A change to the procedures as described in the ISFSI Safety Analysis Report?	[]	■
	c. A test or experiment not described in the ISFSI Safety Analysis Report?	[]	■
2.	Does this item involve a change to the license conditions incorporated in the ISFSI Operating License?	[]	■
3.	Does this item result in a significant increase in occupational exposure?	[]	■
4.	Does this item result in a significant unreviewed environmental impact?	[]	■

SEE SECTION 8.4.6 FOR INSTRUCTIONS FOR EACH "YES" ANSWER.

REFERENCES. List ISFSI SAR and Technical Specification references used to answer questions 1 and 2 above. Identify specific reference sections used for any "Yes" answer.

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M-1134

SAFETY REVIEW COVER SHEET

DOCUMENT NO. M-1134 REV. NO. 0

DESCRIPTION OR TITLE: SAFETY INJECTION LINE PIPE/STRAINER

1. Assigned Responsibilities:

   Safety Analysis Preparer: Charles H. Griffin

   Lead 1st Safety Reviewer: Charles H. Griffin

   2nd Safety Reviewer: Duane P. Etheridge

2. Safety Analysis Preparer: Complete PART I, SAFETY ANALYSIS

   Safety Analysis Preparer _____ / 9-1-92
   SIGNATURE DATE

3. Lead 1st Safety Reviewer: Complete Part II, Item Classification.

4. Lead 1st Safety Reviewer: Part III may be completed. If either question 1 or 2 is "yes," then Part IV is not required.

5. Lead 1st Safety Reviewer: Determine which DISCIPLINES are required for review of this item (including own) and mark the appropriate block(s) below.

DISCIPLINES Required:	(Print Name)	Signature/Date (Step 7)
[ ] Nuclear Plant Operations		
[ ] Nuclear Engineering		
[ ] Mechanical		
[ ] Electrical		
[ ] Instrumentation & Control		
[ ] Structural		
[■] Metallurgy	Charles H. Griffin	9-
[ ] Chemistry/Radiochemistry		9-1-
[ ] Health Physics		
[ ] Administrative Controls		

6. A QUALIFIED SAFETY REVIEWER will be assigned for each DISCIPLINE marked in step 5 and his/her name printed in the space provided. Each person listed shall perform a SAFETY REVIEW and provide input into the Safety Review Package.

7. The Lead 1st Safety Reviewer will assure that a Part III or Part IV is completed (see step 4 above) and a Part VI if required (see 9.d of Part II). Each person listed in step 5 shall sign and date next to his/her name in step 5, indicating completion of a SAFETY REVIEW.

8. 2nd Safety Reviewer: Perform a SAFETY REVIEW in accordance with Section 8.0.

   2nd Safety Reviewer Duane P. Etheridge Date 9/1/92

   DISCIPLINE: MECHANICAL

9. PNSC review required? If "yes," attach Part V and mark reason below:

	Yes	No
[ ] Potential UNREVIEWED SAFETY QUESTION	[ ]	[X]
[ ] Question 9 of Part IV answered "Yes"		
[ ] Other (specify): _____		

10CFR50.59 PROGRAM MANUAL
ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

PART I: SAFETY ANALYSIS
(See instructions in Section 8.4.1)
(Attach additional sheets as necessary.)

DOCUMENT NO. Mod Package M-1134 REV. NO. 0

DESCRIPTION OF CHANGE: (See Attachment A-1, 2 pages)

ANALYSIS: (See Attachment A1, 2 pages)

REFERENCES: (See Attachment A1, 2 pages)

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ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

PART II: ITEM CLASSIFICATION

DOCUMENT NO. M-1134 REV. NO. 0

		Yes	No
1.	Does this item represent:		
	a. A change to the facility as described in the SAFETY ANALYSIS REPORT?	X	[ ]
	b. A change to the procedures as described in the SAFETY ANALYSIS REPORT?	X	[ ]
	c. A test or experiment not described in the SAFETY ANALYSIS REPORT?	[ ]	X
2.	Does this item involve a change to the individual plant Operating License or to its Technical Specifications?	[ ]	X
3.	Does this item require a revision to the FSAR?	X	[ ]
4.	Does this item involve a change to the Off-Site Dose Calculation Manual?	[ ]	X
5.	Does this item constitute a change to the Process Control Program?	[ ]	X
6.	Does this item involve a major change to a Radwaste Treatment System?	[ ]	X
7.	Does this item involve a change to the Technical Specification Equipment List (BSEP and SHNPP only)?	[ ]	N/A
8.	Does this item impact the NPDES Permit (all 3 sites) or constitute an "unreviewed environmental question" (SHNPP Environmental Plan, Section 3.1) or a "significant environmental impact" (BSEP)?	[ ]	X
9.	Does this item involve a change to a previously accepted:		
	a. Quality Assurance Program	[ ]	X
	b. Security Plan (including Training, Qualification, and Contingency Plans)?	[ ]	X
	c. Emergency Plan?	[ ]	X
	d. Independent Spent Fuel Storage Installation license? (If "yes," refer to Section 8.4.2, "Question 9," for special considerations. Complete Part VI in accordance with Section 8.4.6)	[ ]	X

SEE SECTION 8.4.2 FOR INSTRUCTIONS FOR EACH "YES" ANSWER.

REFERENCES. List FSAR and Technical Specification references used to answer questions 1-9 above. Identify specific reference sections used for any "Yes" answer. See "References" in Attachment A1

Yes answers apply to:
FSAR Sections 6.4.1.1.1.4, 6.3.2.2.17, and 6.1.1.

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ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

PART III: UNREVIEWED SAFETY QUESTION DETERMINATION SCREEN

DOCUMENT NO. M-1134 REV. NO. 0

	Yes	No
1. Is this change fully addressed by another completed UNREVIEWED SAFETY QUESTION determination? (See Sections 7.2.1, 7.2.2.5, and 7.9.1.1)	[]	[X]

REFERENCE DOCUMENT: N/A REV. NO. N/A

	Yes	No
2. For procedures, is the change a non-intent change which only (check all that apply): (See Section 7.2.2.3) N/A	[]	[]

[] Corrects typographical errors which do not alter the meaning or intent of the procedure; or,

[] Adds or revises steps for clarification (provided they are consistent with the original purpose or applicability of the procedure); or,

[] Changes the title of an organizational position; or,

[] Changes names, addresses, or telephone numbers of persons; or,

[] Changes the designation of an item of equipment where the equipment is the same as the original equipment or is an authorized replacement; or,

[] Changes a specified tool or instrument to an equivalent substitute; or,

[] Changes the format of a procedure without altering the meaning, intent, or content; or

[] Deletes a part or all of a procedure, the deleted portions of which are wholly covered by approved plant procedures?

If the answer to either Question 1 or Question 2 in PART III is "Yes," then PART IV need not be completed.

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10CFR50.59 PROGRAM MANUAL
ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

PART IV: UNREVIEWED SAFETY QUESTION DETERMINATION

DOCUMENT NO. M-1134 REV. NO. 0

Using the SAFETY ANALYSIS developed for the change, test or experiment, as well as other required references (LICENSING BASIS DOCUMENTATION, Design Drawings, Design Basis Documents, codes, etc.), the preparer of the Unreviewed Safety Question Determination must directly answer each of the following seven questions and make a determination of whether an UNREVIEWED SAFETY QUESTION exists.

A WRITTEN BASIS IS REQUIRED FOR EACH ANSWER

		Yes	No
1.	May the proposed activity increase the probability of occurrence of an accident evaluated previously in the SAFETY ANALYSIS REPORT? (See Attachment A2, 2 pages)	[ ]	[X]
2.	May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT? (See Attachment A2, 2 pages)	[ ]	[X]
3.	May the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT? (See Attachment A2, 2 pages)	[ ]	[X]
4.	May the proposed activity increase the consequence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT? (See Attachment A2, 2 pages)	[ ]	[X]
5.	May the proposed activity create the possibility of an accident of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT? (See Attachment A2, 2 pages)	[ ]	[X]

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ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

PART IV: (Continued)

DOCUMENT NO. M-1134 REV. NO. 0

		Yes	No
6.	May the proposed activity create the possibility of a malfunction of equipment important to safety of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT? (See Attachment A2, 2 pages)	[ ]	X
7.	Does the proposed activity reduce the margin of safety as defined in the basis of any Technical Specification? (See Attachment A2, 2 pages)	[ ]	X
8.	Based on the answers to questions 1 - 7, does this item result in an UNREVIEWED SAFETY QUESTION? If the answer to any of the questions 1-7 is "Yes," then the item is considered to constitute an UNREVIEWED SAFETY QUESTION.	[ ]	X
9.	Is PNSC review required for any of the following reasons?	[ ]	X

If, in answering question 1 or 3 "No," it was determined that the probability increase was small relative to the uncertainties; or, in answering question 2 or 4 "No," it was determined that the doses increased, but the dose was still less than the NRC ACCEPTANCE LIMIT; or, in answering question 7 "No," a parameter would be closer to the NRC ACCEPTANCE LIMIT, but the end result was still within the NRC ACCEPTANCE LIMIT; then PNSC review is required.

REFERENCES: (See Attachment A2, 2 pages)

This Unreviewed Safety Question Determination is for the following DISCIPLINE(s): (Additional Part IV forms may be included as appropriate.)

- [ ] Nuclear Plant Operations
- [ ] Nuclear Engineering
- [ ] Mechanical
- [ ] Electrical
- [ ] Instrumentation & Control
- [ ] Structural
- [X] Metallurgy
- [ ] Chemistry/Radiochemistry
- [ ] Health Physics
- [ ] Administrative Controls

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M-1134

ATTACHMENT A-1
PART I: SAFETY ANALYSIS - MATERIALS

MODIFICATION M-1134, REV. 0
SAFETY INJECTION LINE PIPE/STRAINER

DESCRIPTION OF CHANGE:

This modification safety analysis will address adding a strainer to eac of the three (3/4-SI-1501R-100, 3/4-SI-1501R-101, and 3/4-SI-1501R-102 3/4-inch lines branching off the respective three (3-SI-1501R-126, 3-SI-1501R-13, and 3-SI-1501R-12) 3-inch discharge lines of the Safet Injection pumps. Each strainer will be located in the 3/4-inc recirculation piping between the pump's 3-inch discharge pipe and the recirculation orifice respectively. The initial issue of the modification will only install strainers in two of the Safety Injectio Pump's recirculation lines. This analysis is valid for the installatio of one, two, or three strainers.

ANALYSIS:

Each strainer is considered a section of pipe and will be fabricated and tested in accordance with the Power Piping Code ANSI B31.1, 1967 Editio and ASME Code Section XI (1986 Edition, No Addenda). NDE requirements for the weld joints actually exceeds ANSI B31.1 requirements. The strainer is composed of a 6-inch, schedule 80S, stainless steel outer shell with two schedule 80S pipe caps. The strainer inner basket is composed of a 4-inch, schedule 10S, Stainless Steel pipe, drilled with 1/8-inch holes, and one schedule 10S pipe cap. The outer shell will be provided with a 3/4-inch 3000# inlet and outlet, and appropriate vent and drain connections. The strainer purpose is to protect the pump recirc orifice from plugging which protects the pump from damage due to operation under no flow conditions.

The strainers will be fabricated with "Q" material. Piping and pipe component materials comply with piping classification 1501. The wetted surfaces of the strainers will be fabricated of austenitic stainless steel materials in compliance with FSAR Sections 6.1.1, 6.3.2.2.11, 6.3.2.2.17 and 6.3.2.4. The only exception is that supplemental ultrasonic testing requirements were not invoked (as required by Sections 6.1.1.1.1.4, 6.3.2.2.17 of the FSAR) on the 6-inch diameter pressure boundary end caps purchased as ASTM A403 material. **This will require changes to the FSAR**; however, this is not a safety concern since the pipe lines into which the strainers are actually installed are 3/4-inch diameter pipe lines, and the fittings are being purchased as "Q" material with certified test reports (i.e., These are not 6-inch diameter pipe lines, and worst case fluid leakage through one of these end caps could not possibly exceed the volume/rate possible for the 3/4-inch pipe lines.). Piping and valves are designed to the same quality group, code class and seismic category as the process lines to which they are connected.

FSAR Section 6.1.1 includes NDE requirements on original valve components such as liquid penetrant testing of the body, bonnet, and discs. The FSAR will need to be changed to accommodate the valves to be installed with this MOD which may not have been inspected by liquid penetrant examination.

FSAR Section 6.1.1 also specifies ASME Code Section VIII for NDE requirements and acceptance criteria of butt weld joints. This modification package is invoking ASME Code Section III for liquid penetrant examinations and ANSI B31.1 for radiography (where applicable). The FSAR section will be revised.

None of the noted differences between the MOD and the FSAR are significant safety issues, considering the small size of the pipe line into which the strainer is being installed (3/4-inch diameter).

The installation of the strainers changes neither the process nor the function of the SI Pump Recirculation Lines.

The changes per this modification, as listed above, are acceptable from a Materials Engineering viewpoint.

REFERENCES:

UFSAR SECTIONS: 3.2, 6.2, 6.3.2.2.11, 6.3.2.2.17, 6.3.2.3, 6.3.2.4, Section 15 index
TECH SPEC SECTION: Index, 3.3.1, 4.5 & BASIS
Mod 1134 DBD R92-255/00
SD-02
Safety Injection System DBD No. DBD/R87038/SD02

M-1134

UNREVIEWED SAFETY QUESTION DETERMINATION

1. **May the proposed activity increase the probability of occurrence of a accident evaluated previously in the SAFETY ANALYSIS REPORT?**

   The strainers, valves, piping and supports are being installed per MOD 1134 to meet the seismic and safety related requirements of the Safety Injection System. This modification will not jeopardize the integrity of the system. This proposed activity does not increase the probability of an analyzed accident.

2. **May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT?**

   The chosen materials and methods of fabrication will be in accordance with accepted Codes and standards. The MOD does not increase the uncertainty in any analysis. Therefore, the consequences of an analyzed accident are not increased.

3. **May the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT?**

   The installation of the strainers changes neither the process nor the function of the SI Pump Recirculation Lines. Therefore, the proposed activity does not affect the probability of an analyzed equipment malfunction important to safety.

4. **May the proposed activity increase the consequences of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT?**

   The installation of the strainers changes neither the process nor the function of the SI Pump Recirculation Lines. The consequences of an equipment malfunction are not increased.

5. **May the proposed activity create the possibility of an accident of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT?**

   The changes proposed by this modification will improve the safety injection recirc reliability by reducing the risk of plugging. The change will improve the systems ability to perform the intended design function. The proposed activity does not create a possibility of an accident of a different type evaluated previously in the safety analysis report.

6. **May the proposed activity create the possibility of a malfunction of equipment important to safety of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT?**

   The changes proposed by this modification will improve the safety injection recirc reliability by reducing the risk of plugging. The change will improve the systems ability to perform the intended design function. The proposed activity does not create a possibility of a

malfunction of equipment important to safety of a different type evaluated previously in the safety analysis report.

7. **Does the proposed activity reduce the margin of safety as defined in the basis of any Technical Specification?**

The modification does not reduce the margin of safety as defined in the basis section of any Technical Specification.

REFERENCES:

UFSAR SECTIONS: 3.2, 6.2, 6.3.2.2.11, 6.3.2.2.17, 6.3.2.3, 6.3.2.4, Section 15 index
TECH SPEC SECTION: Index, 3.3.1, 4.5 & BASIS
Mod 1134 DBD R92-255/00
SD-02
Safety Injection System DBD No. DBD/R87038/SD02

SECTION D
INSTALLATION DRAWINGS

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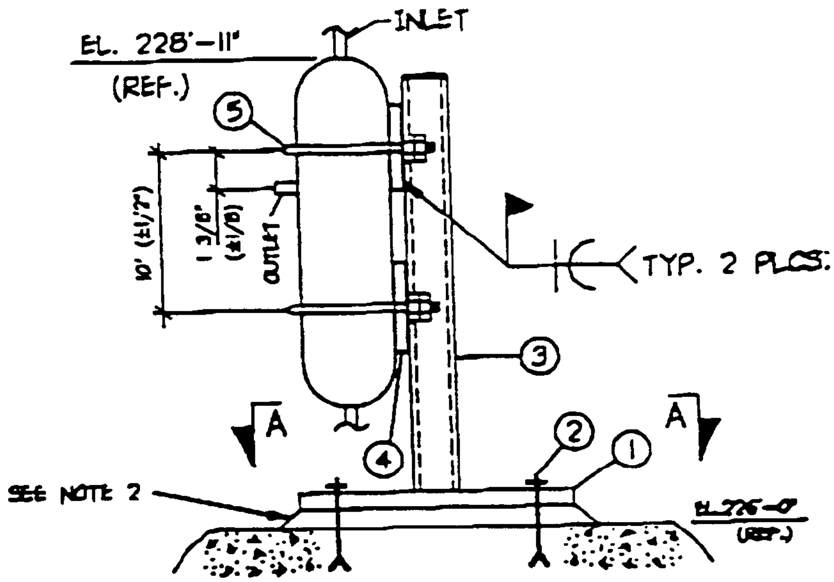
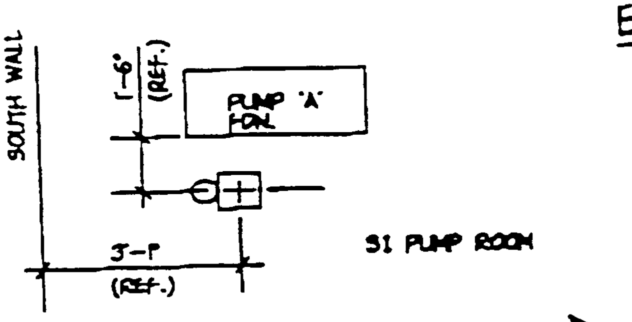
For Information Only

Drawing No.	Rev.	Title
SK-1134-M-2000	B	Safety Injection Pump Recirc Strainer
SK-1134-M-2001	B	Demolition Plan Safety Injection System Safety Injection Pump Room
SK-1134-M-2002	B	Piping Plan Safety Injection Sys. Safety Injection Pump Room
SK-1134-C-1000 SHT 1	B	Strainer Support - SI Pump Room, RAB El. 226'-0", SI Recirc. Line Pipe/Strainer Pump "A"
SK-1134-C-1000 SHT 2	A	Strainer Support - SI Pump Room, RAB El. 226'-0", SI Recirc. Line Pipe/Strainer Pump "A"
SK-1134-C-1001 SHT 1	B	Strainer Support - SI Pump Room, RAB El. 226'-0", SI Recirc. Line Pipe/Strainer Pump "B"
SK-1134-C-1001 SHT 2	A	Strainer Support - SI Pump Room, RAB El. 226'-0", SI Recirc. Line Pipe/Strainer Pump "B"
SK-1134-C-1002 SHT 1	C	Strainer Support - SI Pump Room, RAB El. 226'-0", SI Recirc. Line Pipe/Strainer Pump "C"
SK-1134-C-1002 SHT 2	B	Strainer Support - SI Pump Room, RAB El. 226'-0", SI Recirc. Line Pipe/Strainer Pump "C"

ITEM NO.	QTY	CP&L PART NO.	DESCRIPTION (B)
1	1	716-372-35	PLATE 1/2 X 14 1/4" X 1'-2 1/4" (CTS)
2	4	———	DRILLCO MAXI-BOLT 1/2"⌀ (MIN. EMB.= 6")
3	1	733-265-30	TS 3 X 3 X 1/4 X 3'-0" (CTS)
4	2	715-429-71	PLATE 1 X 4" X 0'-10" LG.
5	2	736-331-09	GRINNELL FIG. 137N U-BOLT (5/8 X 6)
6	1	733-265-30	TS 3 X 3 X 1/4 X 2'-0" (CTS)



ELEV. LOOK'G WEST



LOCATION PLAN

NOTES:
1. INSTALL PER CPL-HBR2-C-OIL
2. GROUT PER CM-618.
3. INSTALL GRINNELL U-BOLTS TO TIGHT FIT AROUND PIPE. USE TORQUE VALVES PER CPL-HBR2-C-OIL
4. INSTALL CAP PLATES PER CPL-HBR2-C-OIL

REFERENCE DOCUMENTS

PIPE DWG.
MECH. DWG. RNP-C/STRS-1856
STRESS CALC.
SUPPORT CALC. RNP-C/SPPT-1791

REV	DATE	DESCRIPTION						
B	9/1/92	REVISE BOM						
A	8/24/92	ISSUE PER PM 1134						
REV	DATE	DESCRIPTION	DRN	CHK	CHK	DV	OPC	OPPE

CAP-ILE-1061

PROFESSIONAL ENGINEER:
QUALITY LEVEL: SAFETY RELATED

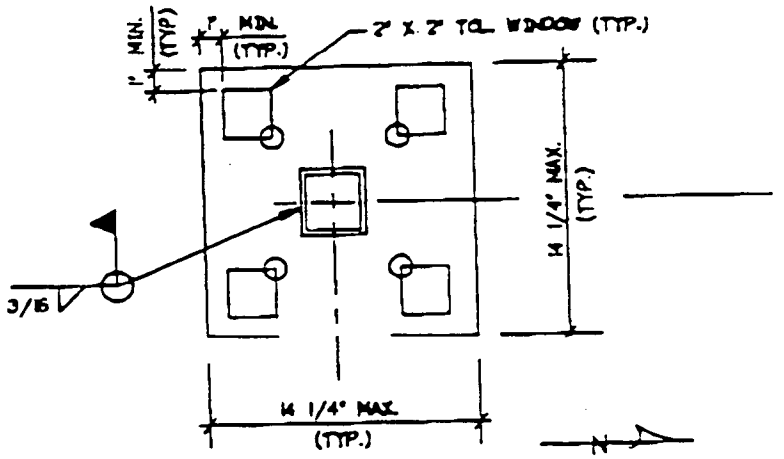
CAROLINA POWER & LIGHT COMPANY
NUCLEAR ENGINEERING DEPARTMENT
CP&L

PLANT: ROBINSON NUCLEAR PROJECT - UNIT 2 SCALE: NONE

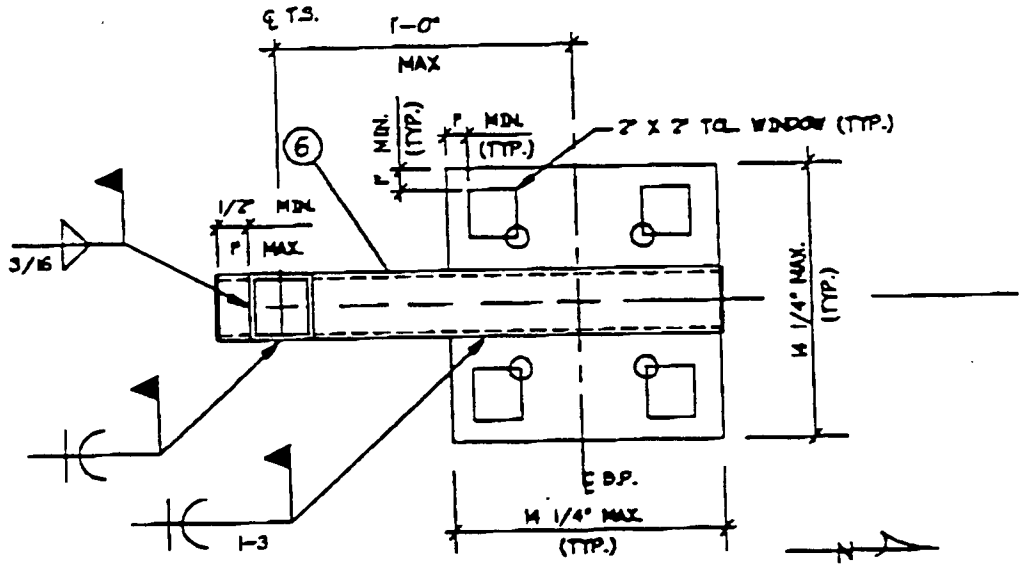
TITLE: STRAINER SUPPORT
SI PUMP ROOM, RAB, EL 226'-0"
SI RECIRC. LINE PIPE/STRAINER
PUMP 'A'

PLANT DWG. NO. REV. SHT. OF

SKETCH NO. SK-1134-C-1000 SHT. 1 OF 2



SECTION A-A



SECTION A-A

(OPTIONAL)

REV	DATE	DESCRIPTION	DRN	DSN	CHK	DV	DPE	DPPE
A	8/29/02	ISSUE PER PIN 1134	JMD	SAB	[illegible]	[illegible]	[illegible]	[illegible]

CADFILE: JMD61

PROFESSIONAL ENGINEER: _____

QUALITY LEVEL: SAFETY RELATED

CAROLINA POWER & LIGHT COMPANY
NUCLEAR ENGINEERING DEPARTMENT

CP&L

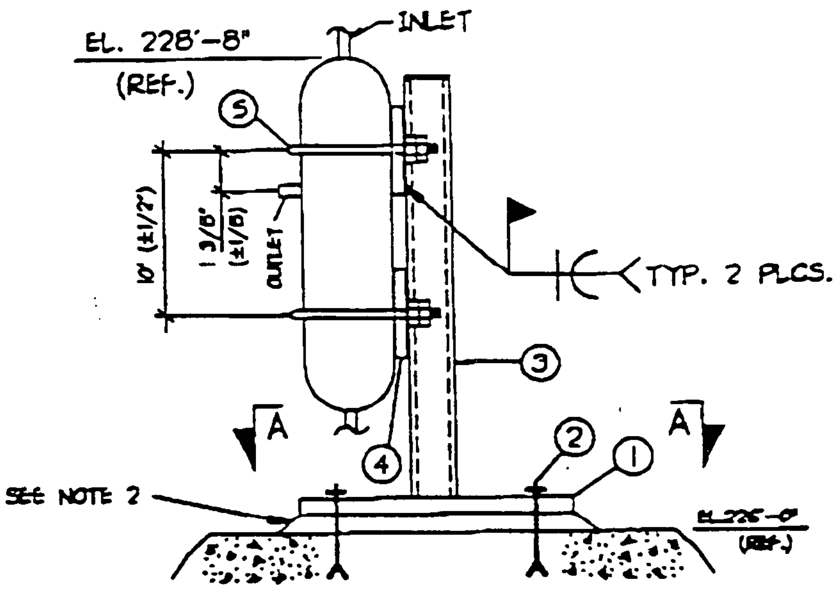
PLANT: ROBINSON NUCLEAR PROJECT - UNIT 2 | SCALE: NONE

TITLE:
STRAINER SUPPORT
SI PUMP ROOM, RAB. EL. 226'-0"
SI RECIRC. LINE PIPE/STRAINER
PUMP "A"

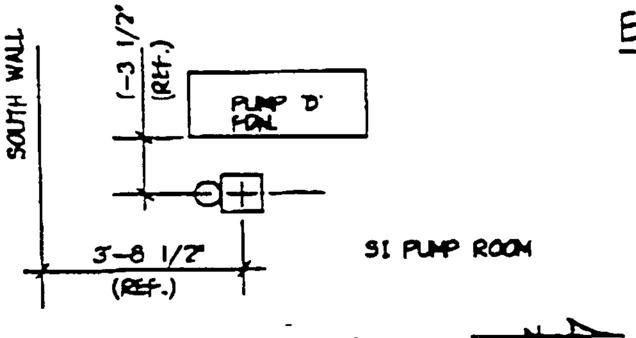
PLANT DWG. NO. | REV. | SHT: OF

MOD SKETCH NO.: SK-1134-C-1000 | SHT: 2 OF 2

ITEM NO.	QTY	CP&L PART NO.	(B) DESCRIPTION
1	1	716-372-35	PLATE 1/2 X 14 1/4" X 1'-2 1/4" (CTS)
2	4	———	DRILLCO MAXI-BOLT 1/2"⌀ (MIN. EMB.= 6")
3	1	733-265-30	TS 3 X 3 X 1/4 X 3'-0" (CTS)
4	2	715-429-71	PLATE 1 X 4" X 0'-10" LG.
5	2	736-331-09	GRINNELL FIG. 137N U-BOLT (5/8 X 6)
6	1	733-265-30	TS 3 X 3 X 1/4 X 2'-0" (CTS)



ELEV. LOOK'G WEST



LOCATION PLAN

NOTES:
1. INSTALL PER CPL-HBR2-C-011.
2. GROUT PER CM-618.
3. INSTALL GRINNELL U-BOLTS TO TIGHT FIT AROUND PIPE. USE TORQUE VALVES PER CPL-HBR2-C-011
4. INSTALL CAP PLATES PER CPL-HBR2-C-011

REFERENCE DOCUMENTS

PIPE DWG. ______
MECH. DWG. ______
STRESS CALC. RNP-C/STRS-1186
SUPPORT CALC. RNP-C/SPPT-1791

REV	DATE	DESCRIPTION	DWN	DSN	CHK	DIV	DPE	DPPE
B	9/1/92	REVISE BOM	JMD	SRB	BB	33	MD	[illegible]
A	8/29/92	ISSUE PER FM 134	JMD	[illegible]	BB	BB	[illegible]	[illegible]

CADFILE: M062

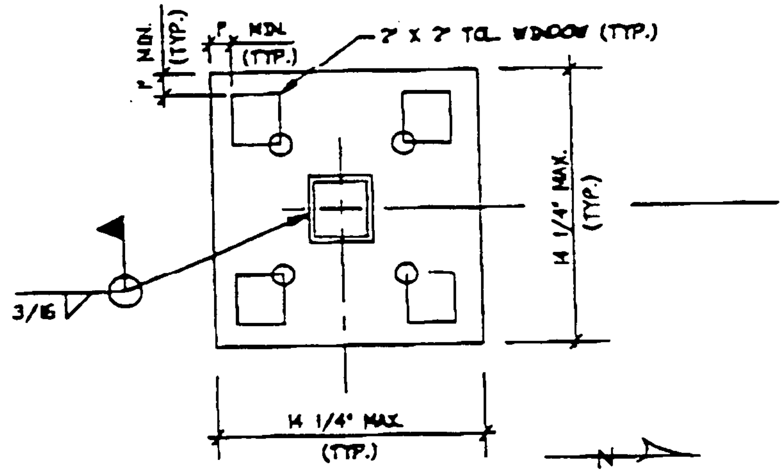
PROFESSIONAL ENGINEER: ______
QUALITY LEVEL: SAFETY RELATED

CAROLINA POWER & LIGHT COMPANY
NUCLEAR ENGINEERING DEPARTMENT
CP&L

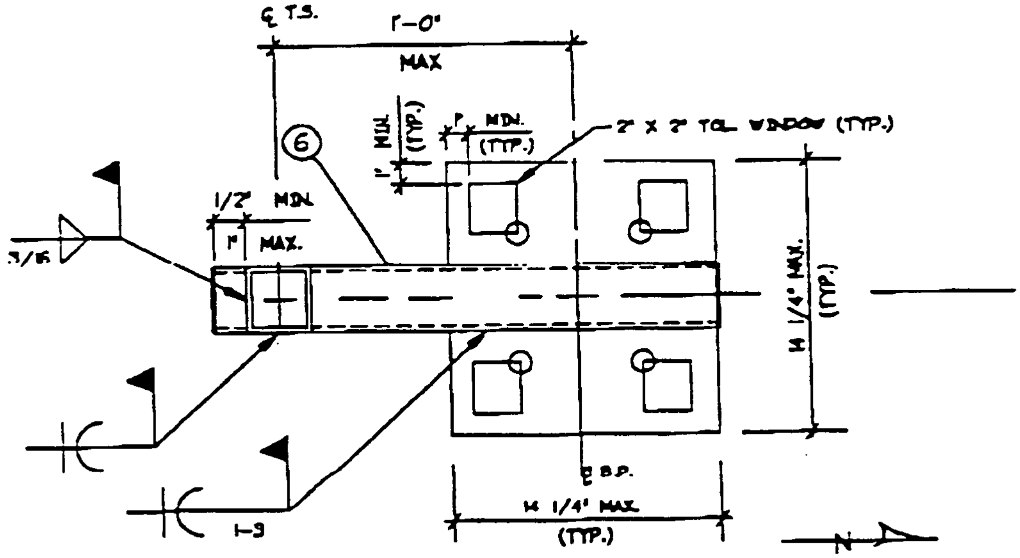
PLANT: ROBINSON NUCLEAR PROJECT - UNIT 2
SCALE: NONE

TITLE: STRAINER SUPPORT
SI PUMP ROOM, RAB, EL. 226'-0"
SI RECIRC. LINE PIPE/STRAINER
PUMP 'D'

PLANT DWG. NO. | REV. | SHT: of
NED SKETCH NO. SK-134-C-1001 | SHT: 1 of 2



SECTION A—A



SECTION A—A

(OPTIONAL)

REV	DATE	DESCRIPTION	DWN	DSN	CHK	DV	DPE	DPPE
A	8/29/92	ISSUE PER PM 1134	JHD	SAP				

CADFILE:JHD62

PROFESSIONAL ENGINEER: ____________

QUALITY LEVEL: SAFETY RELATED

CAROLINA POWER & LIGHT COMPANY
NUCLEAR ENGINEERING DEPARTMENT

CP&L

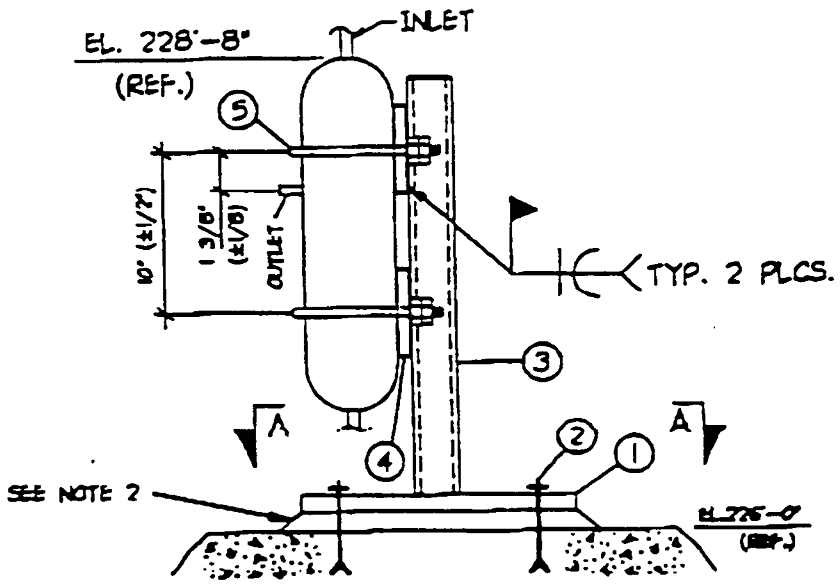
PLANT: ROBINSON NUCLEAR PROJECT - UNIT 2 | SCALE: NONE

TITLE: STRAINER SUPPORT
SI PUMP ROOM, RAB, EL. 226-0"
SI RECIRC. LINE PIPE/STRAINER
PUMP B

PLANT DWG. NO. | REV. | SHT: OF

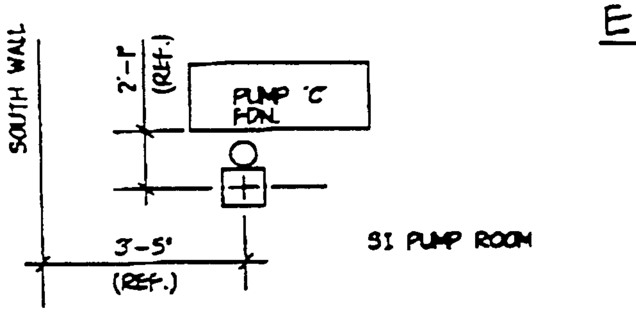
MOD SKETCH NO. SK-1134-C-1001 | SHT: 2 OF 2

ITEM NO.	QTY	CP&L PART NO.	(C) DESCRIPTION
1	1	716-372-35	PLATE 1/2 X 14 1/4" X 1'-2 1/4" (CTS)
2	4	———	DRILLCO MAXI-BOLT 1/2"⌀ (MIN. EMB.= 6")
3	1	733-265-30	TS 3 X 3 X 1/4 X 3'-0" (CTS)
4	2	715-429-71	PLATE 1 X 4" X 0'-10" LG.
5	2	736-331-09	GRINNELL FIG. 137N U-BOLT (5/8 X 6)
6	1	733-265-30	TS 3 X 3 X 1/4 X 2'-0" (CTS)



ELEV. LOOK'G NORTH

(MAY BE ROTATED AS REQD.)



LOCATION PLAN

NOTES:
1. INSTALL PER CPL-HBR2-C-011.
2. GROUT PER CM-618.
3. INSTALL GRINNELL U-BOLTS TO TIGHT FIT AROUND PIPE. USE TORQUE VALVES PER CPL-HBR2-C-011.
4. INSTALL CAP PLATES PER CPL-HBR2-C-011

REFERENCE DOCUMENTS

PIPE DWG. ______
MECH. DWG. ______
STRESS CALC. RNP-C/STRS-1186
SUPPORT CALC. RNP-C/SPPT-1791

REV	DATE	DESCRIPTION	DWN	DSN	CHK	DV	OPE	OPPE
C	9/1/92	REVISED BOM	JWD	SRB	BB	BB	JWD	
B	8/30/92	ONLY REMOVED HOLD	SRB	SRB	ME	ME	N/A	GRC DD
A	8/29/92	ISSUE PER PM 134	JWD	SRB	BB	BB	DJD	GRC DJD

PROFESSIONAL ENGINEER: ______

QUALITY LEVEL: SAFETY RELATED

CAROLINA POWER & LIGHT COMPANY
NUCLEAR ENGINEERING DEPARTMENT

CP&L

PLANT: ROBINSON NUCLEAR PROJECT - UNIT 2

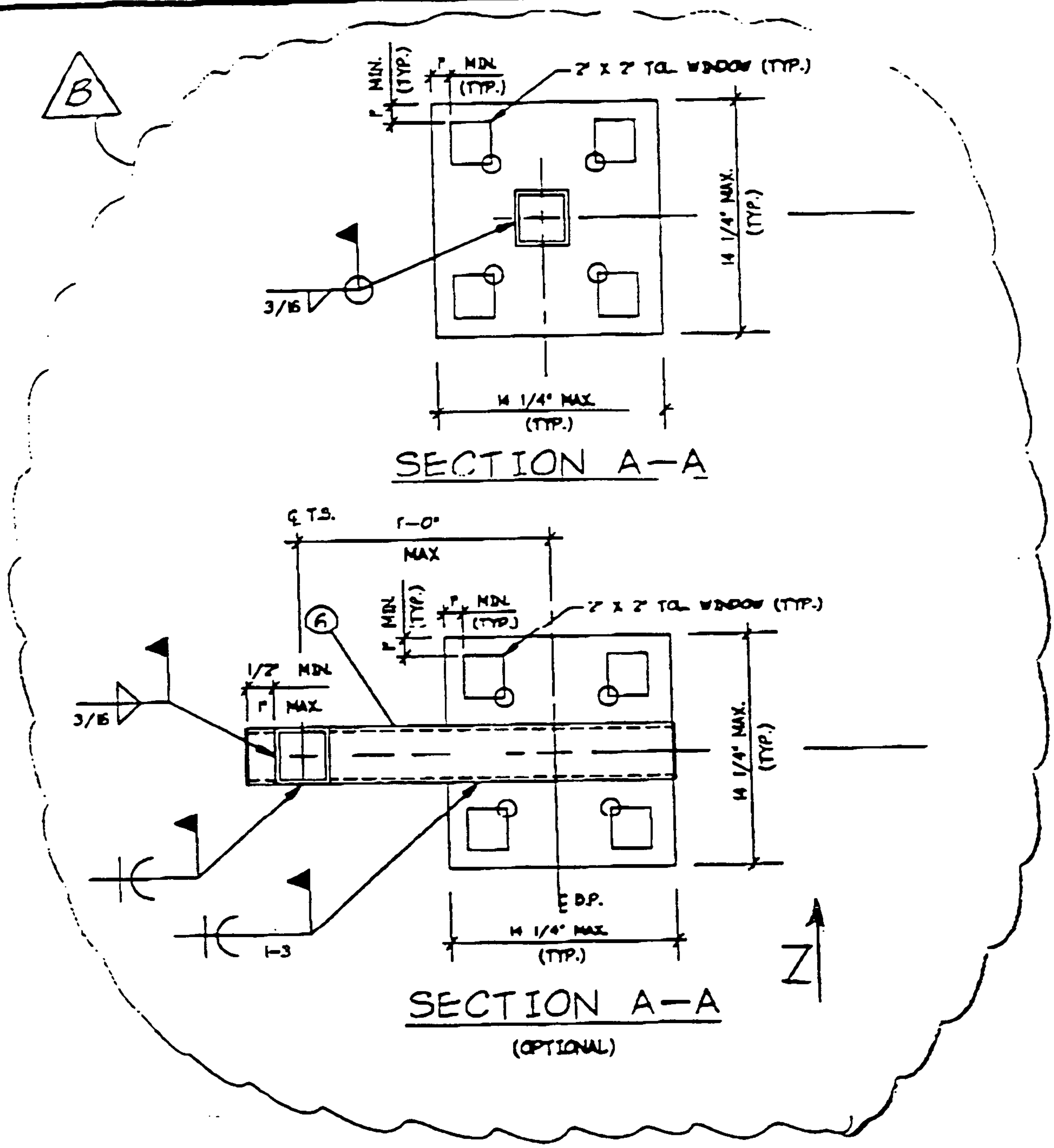
SCALE: NONE

TITLE: STRAINER SUPPORT
SI PUMP ROOM, RAB, EL 226'-0"
SI RECIRC LINE PIPE/STRAINER
PUMP 'C'

PLANT DWG. NO. | REV. | SHT: of

MOD SKETCH NO. SK-134-C-1002 | SHT: 1 of 2

CAP-92-E-0063



PROFESSIONAL ENGINEER:

QUALITY LEVEL: SAFETY RELATED

CAROLINA POWER & LIGHT COMPANY
NUCLEAR ENGINEERING DEPARTMENT

CP&L

PLANT: ROBINSON NUCLEAR PROJECT - UNIT 2

SCALE: NONE

TITLE: STRAINER SUPPORT
SI PUMP ROOM, RAB, EL 226'-0"
SI RECIRC. LINE PIPE/STRAINER
PUMP 'C'

REV	DATE	DESCRIPTION	DWN	DSN	CHK	DV	DPE	DPPE
B	8/30/92	ONLY REMOVED 'HOLD'	SRB	SRB	ME	ME	NA	GRC
A	8/29/92	ISSUE PER PM 134	JMD	SRB	BB	[illegible]	[illegible]	[illegible]

PLANT DWG. NO. | REV. | SHT: OF

MOD SKETCH NO. SK-1134-C-1002 | SHT: 2 OF 2

CADFILE: JMD63

SECTION E
INSTALLATION INSTRUCTIONS

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TABLE OF CONTENTS

1. INTRODUCTION

1.1 This section contains the necessary instructions required for prefabrication of strainer subassemblies S-100A, -100B, and -100C, partial removal of recirculation lines A & B and the installation of strainer subassemblies S-100A & B as associated with the SI Pump A, B & C recirculation lines.

1.2 The work outlined in the modification may proceed in any logical sequence provided the following guidelines are met:

1.2.1 Prerequisites listed are completed prior to continuing the next activity.

1.2.2 Plant Procedures are followed.

1.2.3 Plant Operating and Safety Procedures are followed.

1.2.4 Do not violate any holdpoints.

2. RESPONSIBILITIES

2.1 Nuclear Engineering Department

2.1.1 Provide plant modification engineering, engineering support, and modification turnover reviews.

2.1.2 Provide appropriate drawings of strainers and incorporate into plant drawings.

2.2 RNP Modifications Project (Liaison)

2.2.1 Responsible for reviewing all prerequisites, precautions, and general requirements contained in this instruction.

2.2.2 Coordinate the review of modification package, monitor its installation, turnover and closeout the modification package.

2.2.3 Ensure that the design evaluations are completed for any deviation from the design package.

2.3 RNP Modifications Implementation Unit (MIU)

2.3.1 Procure all Bill of Material items.

2.3.2 Perform all aspects of the modification installation and assign a responsible representative to approve work activities as required by this package.

2.3.3 Provide personnel as required to support plant modification installation and acceptance testing.

2.3.4 Assemble the documentation package for turnover and closeout.

2.3.5 Prepare weld map drawings (with construction and inspection sequence for fabrication of strainers), Weld Data Reports (WDRs) and Structural Weld Data Reports (SWDRs).

2.3.6 Verify that the removal of existing plant equipment conforms to design documents and drawings.

2.3.7 Obtain clearances as required to perform work.

2.3.8 MIU to provide as-built mark-ups upon installation completion.

2.4 RNP Operations

2.4.1 Perform all equipment operations and work required by the clearances in accordance with this modification package, including any testing activities.

2.4.2 Provide all clearances required for this modification in accordance with OMM-005.

2.5 Quality Control QC

2.5.1 Perform inspections and verifications as detailed in this procedure.

2.6 Maintenance

2.6.1 Provide personnel to support MIU installation as deemed necessary by the requirements of this modification.

2.7 E&RC Personnel

2.7.1 Support MIU to the extent necessary in accordance with the requirements of this modification.

3. GENERAL REQUIREMENTS

3.1 Notify the Shift Supervisor of the scope, locations, and duration of the work to be performed.

3.2 Obtain all required clearances prior to initiation of any work activity.

3.3 All work required by this modification shall be completed in a safe and qualified manner in accordance with the latest plant procedures and all applicable plant standards and procedures.

3.4 Work instruction steps need not be completed in their entirety or sequentially, except as noted, however all work required by a particular step must be completed prior to sign-off.

3.5 MIU is to verify that all demolition, fabrication, and installation activities can be accomplished as required by this modification prior to work start.

3.6 The Liaison shall be made aware of any problems or discrepancies during fabrication and/or installation. In the absence of the Liaison, notify the cognizant engineer/designer.

3.7 Contact with or removal of existing asbestos insulation is to be governed by the CP&L Corporate Asbestos Program.

3.8 Welding shall be performed in accordance with the CP&L Corporate Welding Manual.

3.9 References

All procedures/documents listed or referenced herein shall be the latest unless otherwise noted. Procedures that shall be adhered to include, but are not limited to:

1. OMM-002 - Fire Protection Manual
2. OMM-005 - Clearance and Test Request
3. NOT USED
4. NOT USED
5. FPP-010 - Housekeeping Controls
6. CWM - Corporate Welding Manual
7. NDEP-601 - Visual Examination of Piping System And Component Welds At Nuclear Power Plants
8. MMM-006 - Calibration Program
9. MMM-007 - Control of Welding/Brazing and Heat Treatment
10. MMM-010 - Cleanliness and Flushing Requirements
11. MMM-016 - Torquing Procedure
12. MMM-020 - Control of Portable Measuring Equipment
13. MMM-028 - Control of Field Issued Material
14. MIP-100 - General Handling
15. MIP-101 - Concrete Expansion Anchor Bolt Installation
16. MIP-200 - Installation and Inspection of Equipment, Supports, and Components
17. PLP-037 - Conduct of Infrequently Performed Tests or Evolutions
18. PLP-047 - Foreign Material Exclusion Area Program
19. MOD-004 - Plant Drawing Preparation, Revision and Approval
20. OWP-016 - Operations Work Procedure, Safety Injection System
21. OP-202 - Operating Procedure, Safety Injection and Containment Vessel Spray System
22. OMM-018 - Caution Tags

23. RNP Technical Specifications, Section 3.0
24. ANSI N45.2.1, 1973
25. USAS B31.1, Pressure Piping Code, 1967 Edition
26. ASME B&PV Code Section XI, 1986 Edition, No Addenda
27. CPL-HBR2-C-011, Rev. 1 - Specification for Civil Inspection Requirements
28. CM-618 - Grouting
29. NDEP-201 - Liquid Penetrant Examination (Visible Dye, Solvent, Removable)
30. QVS-301 - Mechanical Inspection
31. QVS-305 - Support Inspection
32. MMM-009 - Operation, Testing and Inspection of Cranes and Material Handling Equipment
33. CPL-HBR2-S-001, Specification for Standard Supports, Rev. 4 or Later
34. NDEP-101 - Radiographic Examination, Dated 4/27/81
35. CM-613 - Coatings
36. ANSI B31.1, Pressure Piping Code, 1986 Edition

3.10 Inspection attributes and a general guideline for installation practices for civil/structural work associated with this modification shall be per CPL-HBR2-C-011.

3.11 The removal of existing piping may begin only after the system is properly cleared and isolated (i.e., opened/isolation valves closed, etc.).

3.12 Should a step in this installation instruction be deemed not necessary and/or cannot be performed, the step shall be marked "N/A", a justification statement issued, signed and dated by NED or the Liaison Engineer.

3.13 Any calibrated equipment used in the performance of this procedure shall be calibrated in accordance with applicable plant procedures.

3.14 Torque values for studs and bolts for hangers, supports and restraints shall be as specified by the applicable drawing or CPL-HBR2-C-011.

3.15 QC inspections of the piping configuration shall be in accordance with QVS-301 unless noted otherwise.

4. PREREQUISITES

4.1 Prior to work start, permission and clearances shall be obtained from Operations Shift Supervisor.

4.2 MIU should ensure all required tools and manpower are available.

4.3 Brief the Operations Shift Supervisor prior to starting work as to equipment affected, clearances required, estimated duration of work, and any other pertinent information.

4.4 Obtain Radiation Work Permits (RWP) prior to starting any work involving equipment and components located in Radiation Control areas.

4.5 MIU shall verify the applicable piping and components have been prefabricated and hydrostatically tested in the shop prior to installation.

4.6 Proper utilities shall be provided in the work area including work platforms, radiation shielding, lighting, welding equipment, and supplies, as required. Restoration of temporary connections to plant systems and equipment shall be per plant procedures.

4.7 The Plant shall be in COLD SHUTDOWN when installation procedures, other than the prefabrication of piping assemblies, are performed.

4.8 The applicable portions of the SI Pump recirculation piping shall be drained prior to demolition of SI Pump recirculation lines.

4.9 Obtain any required permits per Plant Operating Manual.

4.10 Ensure that PLP-047 is still in effect for the SI Pump Room work area, if not initiate PLP-047.

5. PRECAUTIONS AND LIMITATIONS

5.1 All applicable safety requirements addressed in the CP&L Safety Manual shall be strictly adhered to at all times.

5.2 Only Plant Operations personnel are permitted to operate plant equipment or systems. Operation of equipment or systems by NED, MIU, or Contract personnel is prohibited.

5.3 When removing piping, equipment, and/or components, good ALARA practices shall be followed. All piping, equipment, and components being removed should be treated as potentially contaminated.

5.4 Cutting or grinding on existing pipe shall be coordinated with E&RC personnel.

5.5 All key control, radiation control, and other procedures shall be followed at all times.

5.6 Contact E&RC personnel for temporary radiation monitoring, as applicable.

5.7 ALARA considerations shall be practiced at all times. Intended work areas shall be surveyed and temporary shielding installed, if necessary.

5.8 The new piping should be prefabricated outside radiation areas as much as possible. Weld inspections should be performed outside radiation areas as much as possible.

5.9 "Testing Requirements" (Section F) shall be implemented for this project.

5.10 The following Fire Protection Procedures shall be followed as appropriate (Reference OMM-002).

1. FP-003 - Control of Transient Combustibles
2. FP-004 - Duties of a Fire Watch
3. FP-005 - Hot Work Permits
4. FP-006 - Handling of Flammable Liquids and Gases
5. FP-010 - Housekeeping Controls

5.11 The effluent from all vent and drain lines shall be routed to appropriate containers or drains as directed by E&RC personnel.

5.12 Prior to work start, necessary provisions to prevent interferences of any kind with plant operation shall be made.

5.13 All prefabricated piping assemblies shall be cleaned per MMM-010 prior to installation.

5.14 All pipe welds shall be inspected in accordance with NDEP-601 and NDEP-201. Acceptance criteria shall be in accordance with ANSI B31.1, 1986. Any weld reinforcements shall be in accordance with ANSI B31.1, 1986.

5.15 All applicable radiation protection precautions and procedures shall be observed in accordance with HBR Unit 2 requirements, to ensure radiation exposure is as low as reasonably achievable.

5.16 Any time a component has been opened and work is not actually being performed, the exposed opening should be covered with a clean suitable covering for protection.

5.17 Obtain and remove clearances as required by this modification.

5.18 Prior to work start, necessary provisions shall be made to prevent breach of fire protection zones.

5.19 All work required by this modification shall be coordinated with Operations so as not to restrict the performance and operation of plant systems and/or components. Prior to performance of work, obtain permission of the Shift Supervisor.

6. INSTALLATION INSTRUCTIONS

6.1 Prefabrication of SI Pump "A" and "B" Recirculation Line Strainers Subassemblies

6.1.1 Prefabricate the SI Pump Recirculation Line Strainers, S-100A and -100B and associated piping, to the extent practical, in accordance with drawings SK-1134-M-2000 & 2002.

"A" Subassembly _____ _____
MIU Representative Date

"B" Subassembly _____ _____
MIU Representative Date

6.1.2 Have QC inspect and verify that the welds are acceptable and document on a Weld Data Report (WDR). MIU shall verify that the inspected welds have been documented as acceptable, and then sign below.

"A" Subassembly _____ _____
MIU Representative Date

"B" Subassembly _____ _____
MIU Representative Date

6.1.3 Perform Hydrostatic Test(s) of the "A" and "B" strainer subassemblies IAW Section F of this modification. MIU shall verify that hydrostatic testing has been completed and documented as acceptable, and then sign below.

"A" Subassembly _____ _____
MIU Representative Date

"B" Subassembly _____ _____
MIU Representative Date

6.1.4 Upon successful completion of fabrication and hydrostatic testing of SI Pump Recirculation Line Strainer SI-100A and -100B Subassemblies, all open end connections/ports shall be covered with end caps or plugged appropriately. Maintain cleanliness as required in accordance with MMM-010.

6.2 Prefabrication of SI Pump C Recirculation Line Strainer Subassembly

6.2.1 Prefabricate the SI Pump Recirculation Line Strainer, S-100C, and associated piping, to the extent practical, in accordance with drawings SK-1134-M-2000 and -2002.

6.2.2 Have QC inspect and verify that the welds are acceptable and document on a Weld Data Report (WDR). MIU shall verify that the inspected welds have been documented as acceptable, and then sign below.

_____ _____
MIU Representative Date

6.2.3 Perform Hydrostatic Test of the "C" Strainer Subassembly in accordance with Section F of this modification. MIU shall verify that hydrostatic testing has been completed and documented as acceptable, and then sign below.

_____ _____
MIU Representative Date

6.2.4 Upon successful completion of fabrication and hydrostatic testing of SI Pump "C" Strainer Subassembly, S-100C, all open end connections/ports shall be covered with end caps or plugged appropriately. Maintain cleanliness as required in accordance with MMM-010.

6.3 Prefabrication of SI Pump "A", "B", and "C" Strainer Supports

6.3.1 Prefabricate new strainer supports in accordance with drawings SK-1134-C-1000, -1001, and -1002. All welding shall be performed in accordance with the CP&L Corporate Welding Manual.

_____ _____
MIU Representative Date

6.3.2 Have QC inspect and verify all shop welds on the prefabricated supports for weld acceptability in accordance with Specification CPL-HBR2-C-011, NDEP-613, CWM, and applicable drawings. MIU shall verify that the inspected welds have been documented as acceptable, and then sign below.

SI Pump "A" Strainer Support

_____ _____
MIU Representative Date

SI Pump "B" Strainer Support

_____ _____
MIU Representative Date

SI Pump "C" Strainer Support

_____ _____
MIU Representative Date

6.4 Partial Demolition of SI Pump A & B Recirculation Piping

6.4.1 Obtain the Shift Supervisor's permission to start work.

_____ _____
Operations Shift Supervisor Date

6.4.2 Obtain a clearance to isolate the Safety Injection System (SIS) header in accordance with OMM-005.

NOTE 1: The purpose of this clearance is to isolate the SI Pumps A & B recirculation lines to allow demolition and installation.

LCTR No._____

_____ _____
MIU Representative Date

6.4.3 Drain system for demolition via SI Pump Casing Drains SI-888F, -888T, -888I and -888U.

****

CAUTION

REMOVAL OF INSULATION TO BE IN ACCORDANCE WITH ASBESTOS HANDLING PRACTICES AND PROCEDURES.

****

6.4.4 Remove insulation in area of demolition and installation.

6.4.5 Remove existing piping between cutlines as shown on drawing SK-1134-M-2001.

_____ _____
MIU Representative Date

6.4.6 Coordinate and perform removal of potentially contaminated piping material from SI Pump Room in accordance with applicable radwaste control procedures.

_____ _____
MIU Representative Date

HOLDPOINT Verify that the SI Pump A & B Strainer Subassemblies have been fabricated and successfully hydrostatically tested prior to installation.

_____ _____
MIU Representative Date

6.4.7 Verify that the SI Pump C Strainer Subassembly has been fabricated and successfully hydrostatically tested prior to placing in Class C storage for future installation.

_____ _____
MIU Representative Date

6.5 Installation of Strainer S-100A and S-100B and Associated Piping and Valves

6.5.1 Ensure the connecting ends of existing SI Pump "A" and "B" recirculation lines are suitable for the new installation.

_____ _____
MIU Representative Date

6.5.2 Install the new strainer subassemblies and remaining piping as shown on the drawing SK-1134-M-2002. Weld in accordance with CP&L corporate welding manual.

_____ _____
MIU Representative Date

6.5.3 Have QC visually inspect welds in accordance with NDEP-601 and document on a WDR from the CWM.

_____ _____
MIU Representative Date

6.5.4 Have QC perform a liquid penetrant inspection and document it in accordance with NDEP-201.

_____ _____
MIU Representative Date

6.6 Installation of Strainer S-100A and S-100B Supports

6.6.1 Install Strainers Supports S-100A and S-100B as shown on Drawings SK-1134-C-1000 and SK-1134-C-1001.

NOTE: Strainer S-100C support is to be placed in Level C storage for future installation.

The supports shall be installed according to criteria in CPL-HBR2-C-011 and documented per MIP-200.

_____ _____
MIU Representative Date

6.6.2 Upon successful installation of strainers and supports cancel clearances and proceed to section F of this modification.

_____ _____
MIU Representative Date

6.6.3 As-built drawing mark-ups to be completed prior to step 6.7.

_____ _____
MIU Representative Date

6.7 Installation of Insulation

NOTE: No insulation will be installed prior to system flow test.

6.7.1 Insulation to be re-installed in accordance with plant standards and practices.

_____ _____
MIU Representative Date

6.8 Work Completion

6.8.1 Verify successful completion of installation, Steps 6.1 through 6.7. Notify Shift Supervisor of completion of work.

_____ _____
MIU Representative Date

SECTION F
TESTING REQUIREMENTS

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TABLE OF CONTENTS

AT-1 - ACCEPTANCE TEST
STRAINER AND PIPING SUBASSEMBLY
WELD INSPECTION

TESTING REQUIREMENTS - Section 1

SECTION 1 OF THIS PROCEDURE HAS BEEN SCREENED IN ACCORDANCE WITH PLP-037, CONDUCT OF INFREQUENTLY PERFORMED TESTS OR EVOLUTIONS CRITERIA. A DETERMINATION OF "NOT APPLICABLE" FOR SECTION 1 WAS REACHED. SUBSEQUENT SECTIONS WILL REQUIRE FURTHER SCREENING PER PLP-037 CRITERIA.

1. Strainer and Piping Subassembly Weld Inspection

1.1 PURPOSE

Weld inspections of the strainers, components and piping shall be performed in accordance with ANSI B31.1 Power Piping Code, 1986, No Addenda requirements herein and ASME Section XI prior to the hydrostatic pressure test.

1.2 REFERENCES for Section 1

1.2.1 ANSI B31.1, Power Piping Code 1986, No Addenda.

1.2.2 Pipe and Related Products Material Requirements, CPL-HBR2-M-047, Rev. 1.

1.2.3 ASME B&PV Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components, 1986 Edition

1.2.4 Modification Drawing

1.2.4.1 HHSI Pump Recirculation Line Strainer, SK-1134-M-2000, latest revision.

1.2.4.2 HHSI Pump Recirculation Line Piping Plan, SK-1134-M-2002, latest revision.

1.2.5 Corporate NDE Manual

1.2.5.1 Procedure NDEP-101, Radiographic Examination, dated 4/27/81.

1.2.5.2 Procedure NDEP-201, Liquid Penetrant Examination (Visible Dye, Solvent Removable), dated 4/27/81.

1.2.5.3 Procedure NDEP-429, Ultrasonic Examination of Welds (ASME), dated 8/31/92.

1.2.5.4 Procedure NDEP-613 VT-3 Visual Examination of Nuclear Power Plant Components.

1.2.6 H. B. Robinson Unit 2 Plant Operating Manual

1.2.6.1 Procedure MOD-005, Plant Modifications.

1.2.6.2 Nuclear Plant Modification Program, Revision 4.

1.3 RESPONSIBILITIES

1.3.1 NDE Services shall verify that the RT and UT inspections meet the acceptance criteria specified in References 1.2.5.

1.3.2 QC shall verify that the VT and PT inspections meet the acceptance criteria specified in References 1.2.5.

1.3.3 Responsibilities shall be in accordance with the Plant Operating Manual (Ref. 1.2.6) and current RNP interface documents.

1.4 GENERAL REQUIREMENTS

1.4.1 Radiographic examination of the pressure boundary welds in the strainers is required in accordance with Reference 1.2.1, Appendix A, Section 1.1.4.

1.4.1.1 Radiographic weld inspection of the piping subassemblies is exempt from the requirements of Reference 1.2.1 where the attachment is made by fillet welding or the wall thickness is less than 0.250" (Ref. 1.2.1, Appendix A, Section 1.1.4, Note 4).

1.4.2 Ultrasonic inspections of the pressure boundary welds in the strainers are required in accordance with Reference 1.2.3, Article IWC-2000, Table IWC-2500-1, Category C-F-1. Welds requiring UT are identified on Weld Data Reports (WDR).

1.4.2.1 Ultrasonic weld inspection of the piping subassemblies is exempt from the requirements of Reference 1.2.3 where the attachment by welding involves a pipe size less than 2".

1.4.3 Liquid Penetrant root pass and finished weld inspections of the pressure boundary welds in the strainers and the Class 1501R piping are required in accordance with Reference 1.2.1, Appendix A, Section 1.1.4, and Reference 1.2.3. Welds requiring PT are identified on WDR.

1.4.3.1 Liquid Penetrant root pass weld inspection of the piping subassemblies is exempt from the requirements of Reference 1.2.1 where the wall thickness is less than 0.250". (Ref. 1.2.1, Appendix A, Section 1.1.4, Note 5 and Ref. 1.2.3, Subparagraphs IWC-1221 b and d).

1.4.4 All strainer internal component welds are required to have a Liquid Penetrant Examination of the finished weld. Welds requiring PT are identified on WDR.

1.5 ACCEPTANCE CRITERIA

1.5.1 The piping, valves and components specified in this project are classified as Class 2. Acceptance Criteria specified in ASME Section XI (Ref. 1.2.3) and Corporate NDE Manual (Refs. 1.2.5) shall be applied to the examinations required in the section.

1.6 PROCEDURE STEPS FOR WELD INSPECTION AND VERIFICATION

1.6.1 SI Pump A, B, & C Recirculation Line

1.6.1.1 Liquid Penetrant examination of the finished welds on the internal components of Strainer S-100A, B, & C shall be performed by QC in accordance with the requirements of Reference 1.2.1.

MIU Representative _____ Date _____

1.6.1.2 Liquid Penetration examination of the root pass welds on Strainers S-100A, B, & C shall be performed by QC in accordance with the requirements of Reference 1.2.1.

MIU Representative _____ Date _____

1.6.1.3 Liquid Penetration examination of the finished welds on Strainers S-100A, B, & C and finished welds in Line 3/4-SI-1501R-100, -101 & -102 shall be performed by QC in accordance with the requirements of Reference 1.2.1 and 1.2.3.

MIU Representative _____ Date _____

1.6.1.4 Radiographic examination of the finished welds in Strainer shall be performed by NDE Services in accordance with the requirements of Reference 1.2.1. Welding requiring RT are identified on WDR.

MIU Representative _____ Date _____

1.6.1.5 Ultrasonic examination of the two finished 6" butt welds on Strainer S-100A, B & C shall be performed by NDE Services in accordance with the requirements of Reference 1.2.3. Welds requiring UT are identified on WDR.

MIU Representative _____ Date _____

1.6.1.6 Completion of weld inspections; including radiographic examination, ultrasonic examination and liquid penetrant examination, of Strainer S-100A, B, & C and Line 3/4-SI-1501R-100, -101, & -102 shall be verified by MIU to be in accordance with the criteria stated in References 1.2.3 and 1.2.5 and verified acceptable in accordance with the Weld Data Reports (WDRs).

MIU Representative _____ Date _____

1.6.1.7 Liquid Penetrant examination of the finished field welds Line 3/4-SI-1501R-100, -101, & -102 shall be performed by QC in accordance with the requirements of Reference 1.2.1.

NOTE: Field welds shall include the welds in vent and drain lines, as applicable.

MIU Representative _____ Date _____

1.6.1.8 AT-1 Completed.

MIU Representative _____ Date _____

SUMMARY

AT-2 Acceptance Test - Strainer Assembly Hydrostatic Pressure Testing

The Pressure Test of the Strainer Subassemblies shall be performed with a minimum test pressure of 2,625 psig in accordance with code requirement. The testing media (fluid) shall be of a quality consistent with the Reactor Coolant System fluid. The only components not subject to this test are the vent and drain tailpipes and those piping portions required for field tie-in at S-100A,B,&C.

SUMMARY

AT-3 Acceptance Test - In-Service Leak Test

A Leak Test of the Strainer and Piping Installation shall be performed in conjunction with a performance of OST-151. This In- Service test is in addition to the requirements of AT-2.

SUMMARY

AT-4 Acceptance Test - Strainer and Piping Flow Capacity per OST-151

Flow Test of the Strainer and Recirculation Piping Installation shall be performed in conjunction with a performance of OST-151. Flow Test shall demonstrate that the strainer does not significantly change the resistance characteristics of the HHSI Pumps Recirculation Lines. The Acceptance Criteria will be based on SI Pump flow data, previous flow test data. Insignificant change shall be defined as 1 gpm or less. The acceptance flow rate for "A" SI Pump Recirculation Line will be (TBD). The acceptance flow rate for "B" SI Pump Recirculation Line will be (TBD).

SECTION G
PLANT DOCUMENT REVISIONS

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PLANT DOCUMENT REVISION SHEET

MOD NO. M-1134
FIELD REVISION NO. 0
PAGE NO. G2

DOCUMENT NUMBER	DOCUMENT TITLE	UPDATE BEFORE OPERA-BILITY	*RECORD OF REVISION
OP-202	Safety Injection and Containment	Yes	
	Vessel Spray System		
OST-151	Safety Injection System	Yes	
	Component Test (Quarterly)		
OWP-016	Safety Injection System (SI)	Yes	
FSAR	Flow Diagram, Safety Injection	No	
FIG No.	System Sheet 1		
6.3.2-1			
SD-002	System Description, Safety Injection	No	
OST-155	Safety Injection System Integrity Test	Yes	

*For later use in tracking completion of the revision.

PDREVSHT.134

DESIGN DOCUMENT REVISION SHEET

MOD NO. M-1134
REVISION NO. 0
PAGE NO. G3

DOCUMENT NUMBER	DOCUMENT TITLE	UPDATE BEFORE OPERA-BILITY	*RECORD OF REVISION
CML	RNPD Unit 2 Valve List	No	

*For later use in tracking completion of the revision. DDRVSHT.134

DRAWING REVISION SHEET

MOD NO. M-1134
REVISION NO. 0
PAGE G4

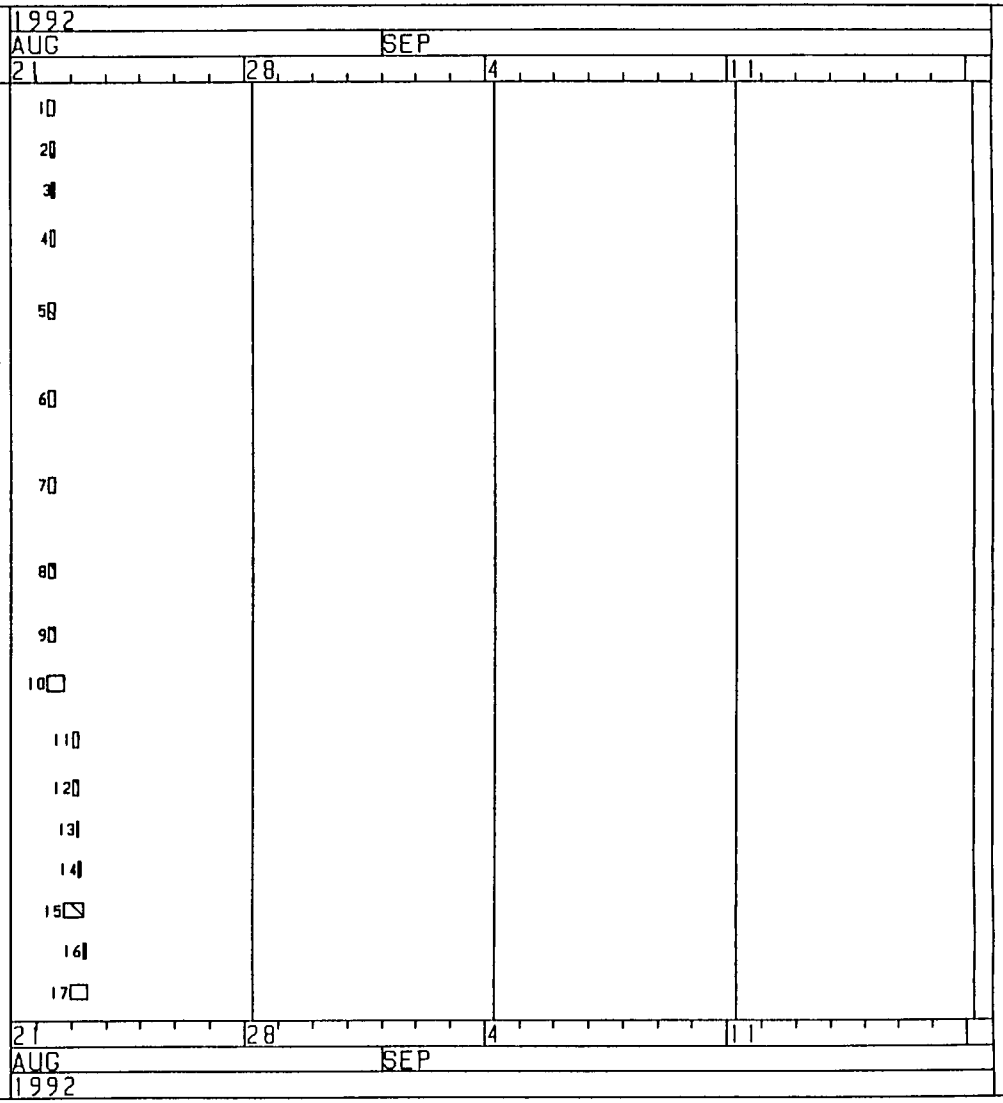
DRAWING NUMBER	DRAWING TITLE	UPDATE BEFORE OPERA-BILITY	*RECORD OF REVISION
5379-1082 Sht 2	Safety Injection System Flow Diagram	Yes	
G-190282	Safety Injection System - Plan Sheet 2	No	

*For later use in tracking completion of the revision.

DWGREVSH.134

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
1	1 1	STABILIZE UNIT	22-AUG-92:12	4	OPER	-	GFO3
2	2 2A	RECIRC. CONDENSATE & FEEDWATER SYSTEMS FOR COOLDOWN	22-AUG-92:12	2	OPER	-	GFO3
3	3 2B	GP-006 - BORATE RCS TO HOT SHUTDOWN CONCENTRATION	22-AUG-92:12	1	OPER	-	GFO3
4	4 2C	CLOSE MSIV'S, BREAK CONDENSER VACUUM, SHUTDOWN FEED & CONDENSATE SYSTEMS	22-AUG-92:12	2	OPER	-	GFO3
5	728 0157	OST-157 - SAFETY INJECTION AND CONTAINMENT SPRAY SYSTEMS VALVE TEST (COLD SHUTDOWN >48 HOURS UNLESS PREVIOUSLY COMPLETED WITHIN 90 DAYS) (PRIOR TO PLANT HEAT-UP)	22-AUG-92:12	4	OPER	2	GFO4
6	729 0160	OST-160 - HOT LEG, COLD LEG, AND RHR COLD LEG CHECK VALVE BACK LEAKAGE TEST (REFUELING AND/OR COLD SHUTDOWN) (PRIOR TO REACTOR START-UP)	22-AUG-92:12	4	OPER	2	GFO4OST
7	730 0205	OST-205 - STEAM AFW SYSTEM VALVE TEST (COLD SHUTDOWN IF OST-202 HAS NOT BEEN PERFORMED WITHIN THE REQUIRED INTERVAL) (PRIOR TO PLANT HEAT-UP)	22-AUG-92:12	4	OPER	2	GFO4
8	765 0052	OST-052 - RCS LEAKAGE TEST AND EXAMINATION FOLLOWING AN OPENING OF THE PRIMARY SYSTEM (REFUELING AND/OR START-UP INTERVAL) (PRIOR TO REACTOR START-UP)	22-AUG-92:12	4	OPER	2	GFO4
9	766 0110	OST-110 - BORIC ACID PUMPS ISI FLOW TEST	22-AUG-92:12	4	OPER	2	GFO4
10	29 1A	INVESTIGATE CAUSE OF FORCED OUTAGE AND ESTABLISH PLAN OF CORRECTIVE ACTION AS REQUIRED	22-AUG-92:19	12	OPER	-	GFO3
11	5 3	TAKE CLEARANCES ON SYSTEMS/COMPONENTS AS REQUIRED FOR MAINTENANCE	23-AUG-92:05	4	OPER	-	GFO3
12	36 3A5	PLACE TURBINE LUBE OIL SYSTEM BACK-IN-SERVICE	23-AUG-92:05	4	OPER	2	GFO3
13	50 2ALFP1	LC-1534 - RESEAL DRAIN PLUG (1A MSR DRN TNK)	23-AUG-92:05	1	ME	1	
14	37 3A6	PLACE TURBINE ON TURNING GEAR	23-AUG-92:06	1	OPER	2	GFO3
15	110 OPER004	OP-603 - RESTORE ELECT DISTRIBUTION SYSTEM LINE-UPS FOR NORMAL POWER	23-AUG-92:08	13	OPER TECH	1 1	
16	59 2ALAT1	REPLACE RELIEF VALVE SGB-RV-1 -SG BD 'A' HTX TUBE SIDE RELIEF-	23-AUG-92:10	2	ME TECH	2 1	
17	65 2ALIZ1	'A' MAIN FEED PUMP - CHECK ALIGNMENT WHEN IT IS HOT-	23-AUG-92:11	12	ME TECH	3 1	



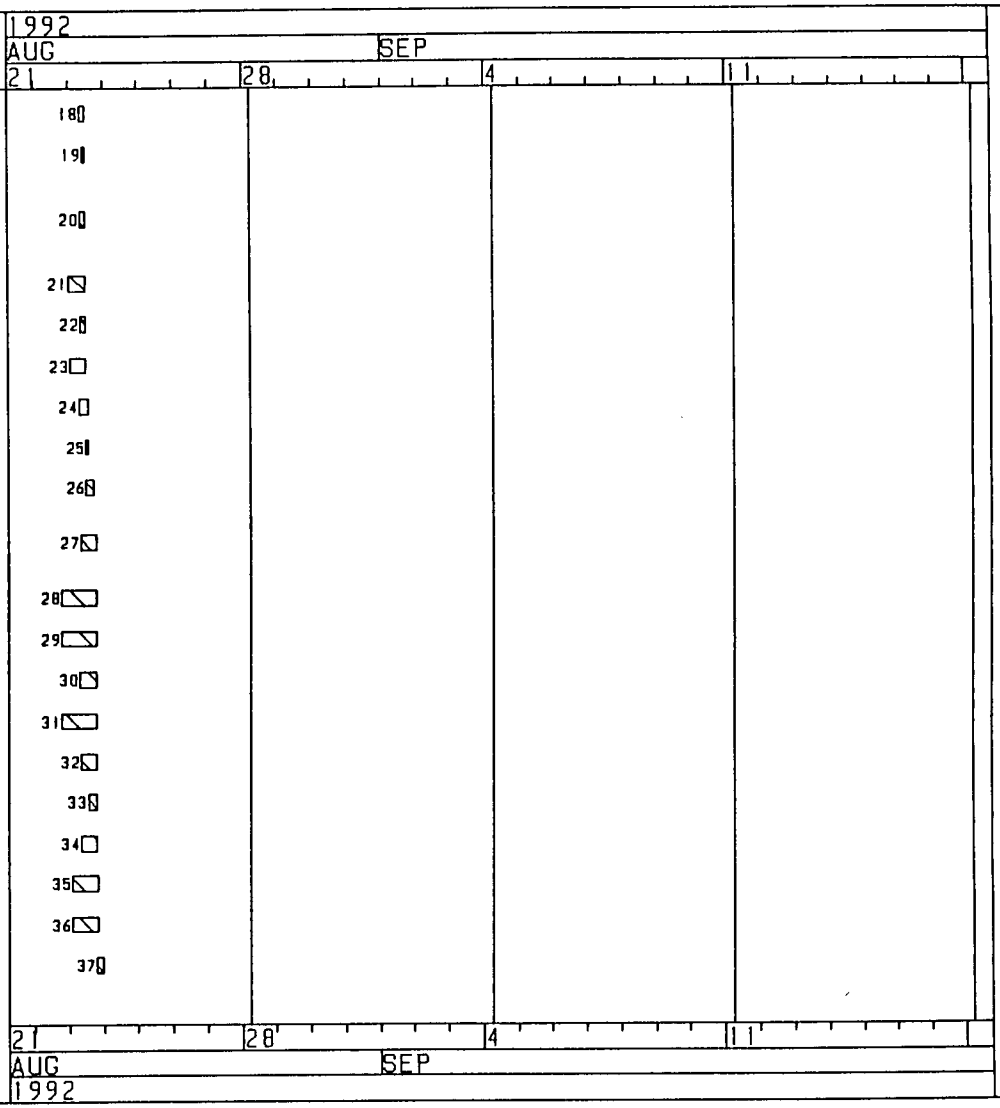
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
18	57 2AKSWI	RESET N35 AND N36 ROD STOP AND HIGH LVL TRIP SETPOINTS	23-AUG-92:12	4	EL TECH	2 1	
19	61 2ALAUI	REPLACE RELIEF VALVE SGB-RV-2 -SG BD 'B' HTX TUBE SIDE RELIEF-	23-AUG-92:12	2	ME TECH	2 1	
20	79 2AKSGI	V2-20A - INVESTIGATE/REPAIR PROBLEM CAUSING HANDWHEEL TO TURN WHILE CYCLING VALVE ELECTRICALLY AFTER NORMAL FEEDWATER RESTORED (NEED TECH SUPPORT PRIOR TO START WORK)	23-AUG-92:12	4	ME TECH	2 1	
21	92 TECH002	DEVELOP SLEEVE 65 PLAN	23-AUG-92:12	12	TECH	1	
22	107 SUBW001	INSPECT MAIN & AUXILIARY TRANSFORMERS	23-AUG-92:12	4	SUBW TECH	- -	
23	128 TECH005	INVESTIGATE PROBLEM WITH RVI-1,RVI-2 & RVI-3 INDICATION	23-AUG-92:12	11	TECH	1	
24	101 TECH004	INVESTIGATE SW PIPING LEAK FOR POSSIBLE REPAIRS (TURBINE BLDG)	23-AUG-92:13	6	TECH	1	
25	63 2ALAWI	REPLACE RELIEF VALVE SGB-RV-3 -SG BD 'C' HTX TUBE SIDE RELIEF-	23-AUG-92:14	2	ME TECH	2 1	
26	67 2ALJAI	'A' COND PUMP - CHECK ALIGNMENT	23-AUG-92:17	5	ME TECH	2 1	
27	53 2ACJUI	REPAIR/REPLACE THE FLOAT VALVE DOWNSTREAM OF LO-9A -LEAKING BY AND CAUSES THE BOWSER TO OVERFLOW WITH OIL-	23-AUG-92:19	11	ME	2	
28	55 2AHTEI	'A' HTR DRN PMP - REPAIR GROUND WIRE	23-AUG-92:19	24	MIE	2	
29	86 OPER001	PRESSURIZER PORV LEAK RATE TESTING	23-AUG-92:19	24	OPER TECH	1 1	
30	89 TECH001	INVESTIGATE 'B' MFP MOTOR OIL LEAK	23-AUG-92:19	12	TECH	1	
31	95 TECH003	PERFORM TURBINE-GENERATOR INSPECTION	23-AUG-92:19	24	TECH	1	
32	98 OPER002	PERFORM CONDENSATE SYSTEM INSPECTION	23-AUG-92:19	11	OPER TECH	1 1	
33	116 OPER005	RESTORE NORMAL FEEDWATER SYSTEM TO SERVICE	23-AUG-92:19	6	OPER	1	
34	125 2ALQTI	REPAIR EXCITER RTD'S TE-4017, TE-4018, TE-1362 & TE-4020	23-AUG-92:19	11	EL	2	
35	119 2ALRLI	REPAIR 2A MSR DRAIN TK TUBING	23-AUG-92:20	18	ME	2	
36	122 2ALRDI	REPAIR 2A MSR DRAIN TK SIGHT GLASS	23-AUG-92:20	18	ME	2	
37	47 2AKIN2	SGB-102A - REPLACE VALVE	23-AUG-92:23	4	ME QC	2 1	



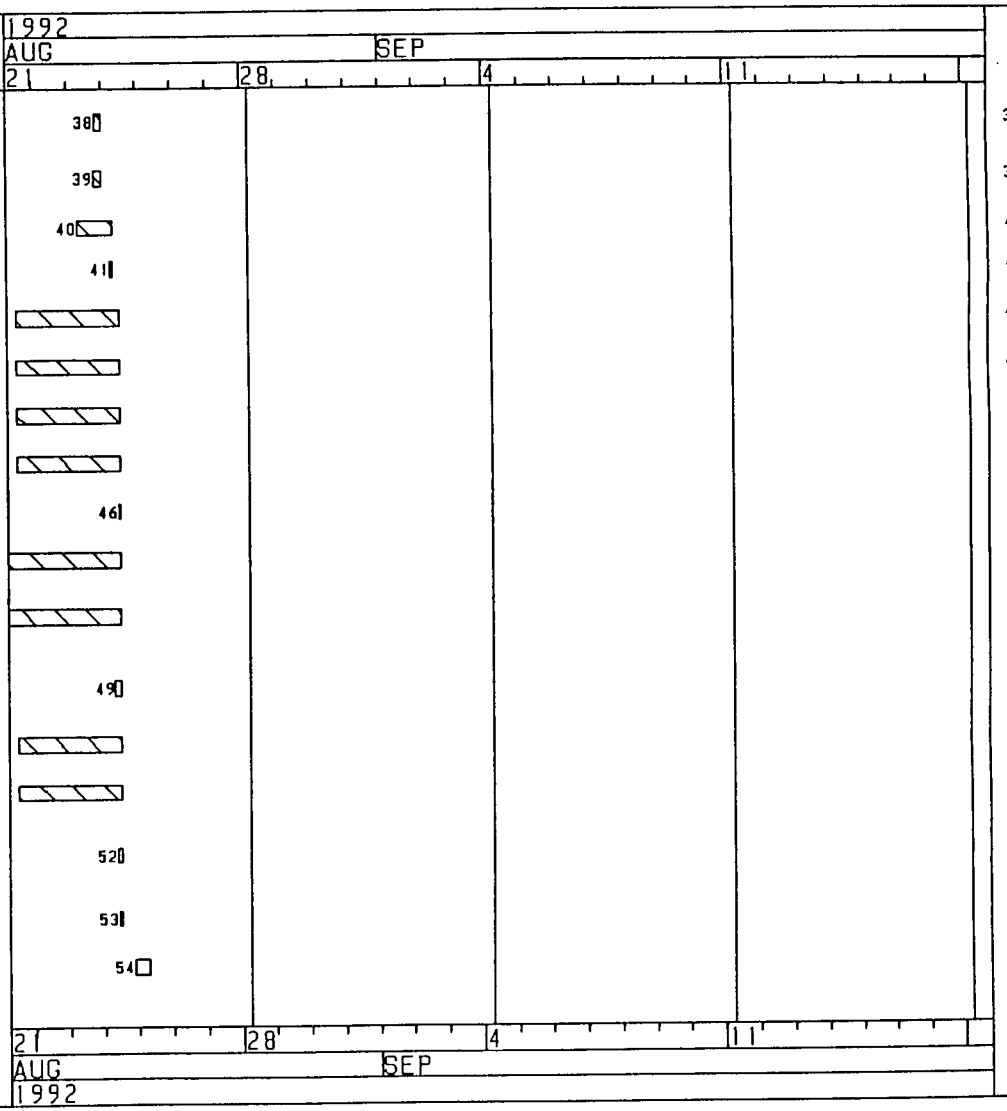
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # / PREFIX	ACTIVITY DESCRIPTION	START / FINISH	DU	CRAFT	QTY	CODE
38	26 31	TAKE CLEARANCES ON SYSTEMS/COMPONENTS AS REQUIRED FOR PLANT MAINTENANCE	23-AUG-92:24	4	OPER	-	GFO3
39	77 2AKCR2	TCV-1447 - INVESTIGATE/REPAIR PROBLEM WITH THE EXHAUST HOOD SPRAY VALVE	23-AUG-92:24	5	EL	2	
40	34 3A1	ROTATE TURBINE SHAFT, PLACE ON TURNING GEAR & MAINTAIN AS REQUIRED	24-AUG-92:07	24	OPER	2	GFO3
41	35 3A2	TAKE TURBINE OFF TURNING GEAR	24-AUG-92:07	1	OPER	2	GFO3
42	222 2ALYL1	REPAIR WINDOW & ROOF LEAK ON MIU COORDINATOR TRAILER, PROTECTED AREA YARD	24-AUG-92:12	8	MIC	-	
43	224 2AMBU1	REPAIR AIR CONDITIONER & DOOR ON HP TRAILER T431, TRAILER CITY	24-AUG-92:12	8	MIC	-	
44	228 2AMFB1	RELOCATE VENDING MACHINES FROM TRAILER CITY TO WAREHOUSE & O&M BLDG SITE	24-AUG-92:12	8	RADD SECU	- -	
45	406 M1111020	M1111 - INSTALL ELB-118 & ELB-119 SUPPORTS, BATCH TK RM	24-AUG-92:12	8	MIE MIC	8 2	M1111
46	465 M1111120	M1111 - CANCEL CLEARANCE ON MCC-5, COMPARTMENT 3B (THIS BREAKER IS TO REMAIN IN THE OPEN POSITION)	24-AUG-92:12	1	MIE OPER	1 1	M1111
47	481 M1111260	M1111 - COMPLETE LAYOUT & REBAR SCAN WALLS & CEILING, BATCH TK RM	24-AUG-92:12	32	MIC	2	M1111
48	542 M1126008	M1126 - WWT ACID PUMPS - REMOVE CONTROLLERS, INSTALL MANUAL CONTROLS & CANCEL LCT 'B' ACID PUMP.	24-AUG-92:12	18	MIE	2	M1126
49	547 M1126012	M1126 - WWT ACID PUMPS - MANUAL CONTROL OPERABILITY TESTING	24-AUG-92:12	4	MIE LEU TECH OPER	2 1 1 1	M1126
50	627 M9720005	M972 DCN 8 - LAYOUT SUPPORT, UNIT 1 INTAKE STRUCTURE	24-AUG-92:12	8	MIM	2	M0972
51	683 M972P003	M972 DCN 8 - INSTALL APPROX 40LF FLUSH LINE FOR UNIT 1 HYPOCHLORITE SYSTEM	24-AUG-92:12	8	MIM	3	M0972
52	700 M972V002	M972 DCN 8 - REMOVE INSULATION FROM HYPOCHLORITE LINES AT CHECK VALVE REPLACEMENT LOCATION AT INTAKE STRUCTURE	24-AUG-92:12	3	IN SECU	2 -	M0972
53	732 0161	OST-161 - ACCUMULATOR AND CHECK VALVE OPERABILITY TEST (COLD SHUTDOWN) (PRIOR TO PLANT HEAT-UP)	24-AUG-92:12	2	OPER	2	GFO4
54	134 2AWKF1	PT-4001 - CLEAN OIL FROM CONDUIT GOING TO TRANSMITTER (EH OIL)	25-AUG-92:07	10	ME EL	2 2	



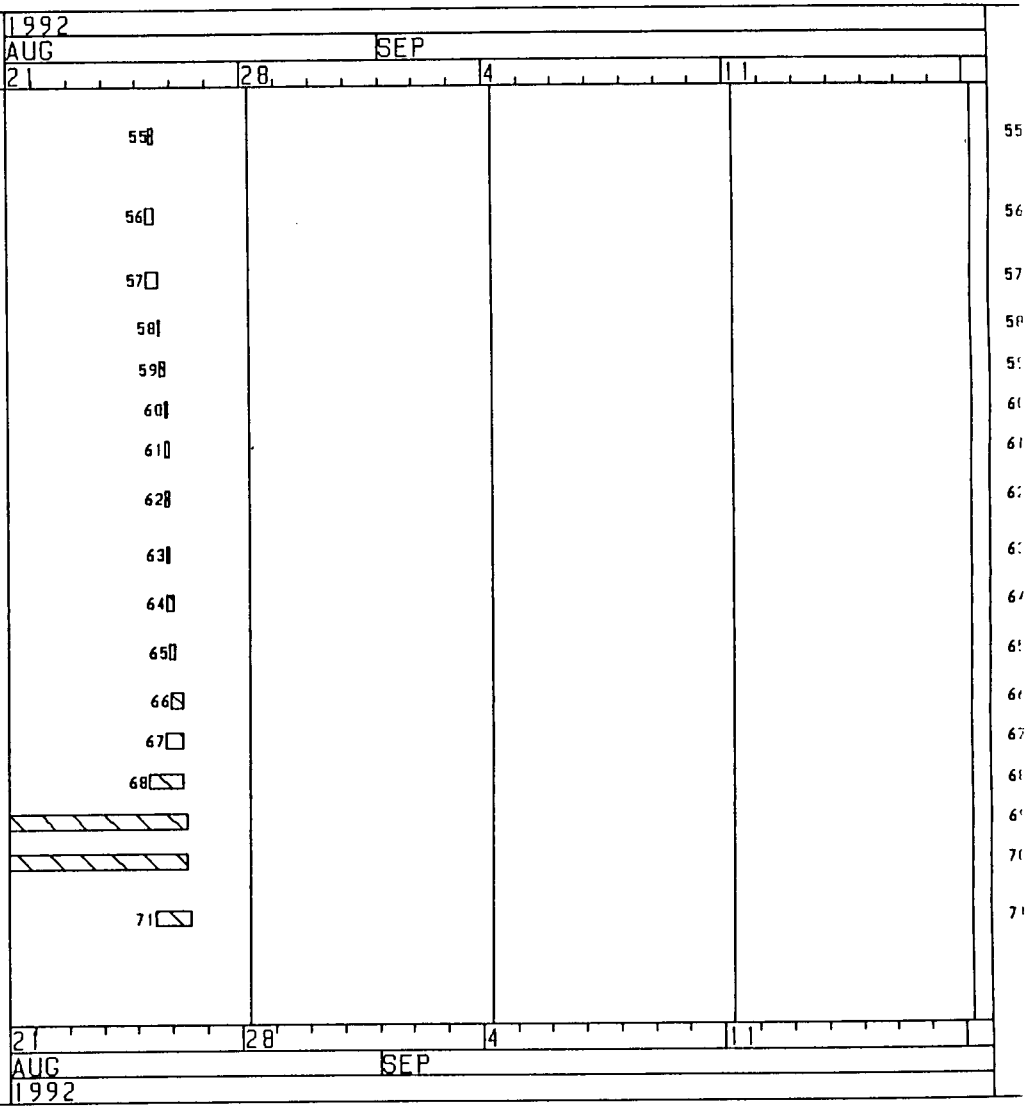
ACTIVITY

CRITICAL ACTIVITY

IO 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
55	549 M1126014	M1126 - WMT ACID PUMPS - WALKDOWN & TURNOVER	25-AUG-92:12	2	MIE OPER TECH LEU EL	1 1 1 1 1	M1126
56	702 M972V003	M972 DCN 8 - OBTAINE LCTR ON UNIT 2 HYPOCHLORITE LINE FREEZE PROTECTION FOR CHECK VALVE REPLACEMENT, INTAKE STRUCTURE	25-AUG-92:12	5	MIE	2	M0972
57	632 M9720007	M972 DCN 8 - LAYOUT 2 BASEPLATES FOR CHECK VALVE SUPPORTS, UNIT 2 INTAKE STRUCTURE	25-AUG-92:15	8	MIM	2	M0972
58	733 2G	GP-007 - COOLDOWN RCS TO BELOW 350F/375#	25-AUG-92:16	1	OPER	-	GF04
59	734 2H	GP-007 - PLACE RHR IN SERVICE	25-AUG-92:19	3	OPER	-	GF04
60	166 2AKDPI	FCV-4204A -SG'A'BLDN FLOW RATE CONT-REPAIR LEAKING TUBING	25-AUG-92:21	2	EL	2	
61	142 2AKTNI	RELABEL CABLES FOR FIC-154,FIC-155 & FIC-156 (ACR #920054)	25-AUG-92:22	3	EL CVEN	2 -	
62	160 2AJWPI	4KV ROOM -A RCP CUBICLE-REPAIR/REMOVE SOUND POWERED PHONE JACK	25-AUG-92:22	3	EL	2	
63	735 2I	CLOSE MSIV'S, BREAK CONDENSER VACUUM, SHUTDOWN FEED & CONDENSATE SYSTEMS	25-AUG-92:22	2	OPER	-	GF04
64	736 2J	GP-007 - COOLDOWN RCS TO BELOW 200F	26-AUG-92:01	5	OPER	-	GF04
65	762 32	TAKE CLEARANCES ON SYSTEMS/COMPONENTS AS REQUIRED FOR PLANT MAINTENANCE	26-AUG-92:02	4	OPER	-	GF04
66	131 2ABUX6	FW-6C - INSTALL OPERATOR (AWAITING PARTS)	26-AUG-92:07	8	ME TECH	2 1	
67	775 2L	GP-007 - COOLDOWN, DEPRESSURIZE & DRAIN RCS (IF REQUIRED)	26-AUG-92:07	12	OPER	1	GF04
68	810 2AMPGI	LP TURBINE RUPTURE DISCS - PERFORM INSPECTION	26-AUG-92:07	23	ME TECH	2 1	
69	206 2AHLG5	REPAIR STORAGE TRAILERS IN RCA	26-AUG-92:10	224	MIM	-	MISCMIM
70	214 2AKTZ2	REPAIR LEAKING ROOF ON HP TRAILER T431, TRAILER CITY	26-AUG-92:10	80	MIC	-	MISCC
71	833 CASK100	OPS LOAD CASK - REMOVE SFP WALL & ROOF (RWP'S 920124, 920125, 920126, 920127, 920128)	26-AUG-92:12	24	TECH SECU RADC OPER	1 1 1 1	MISC



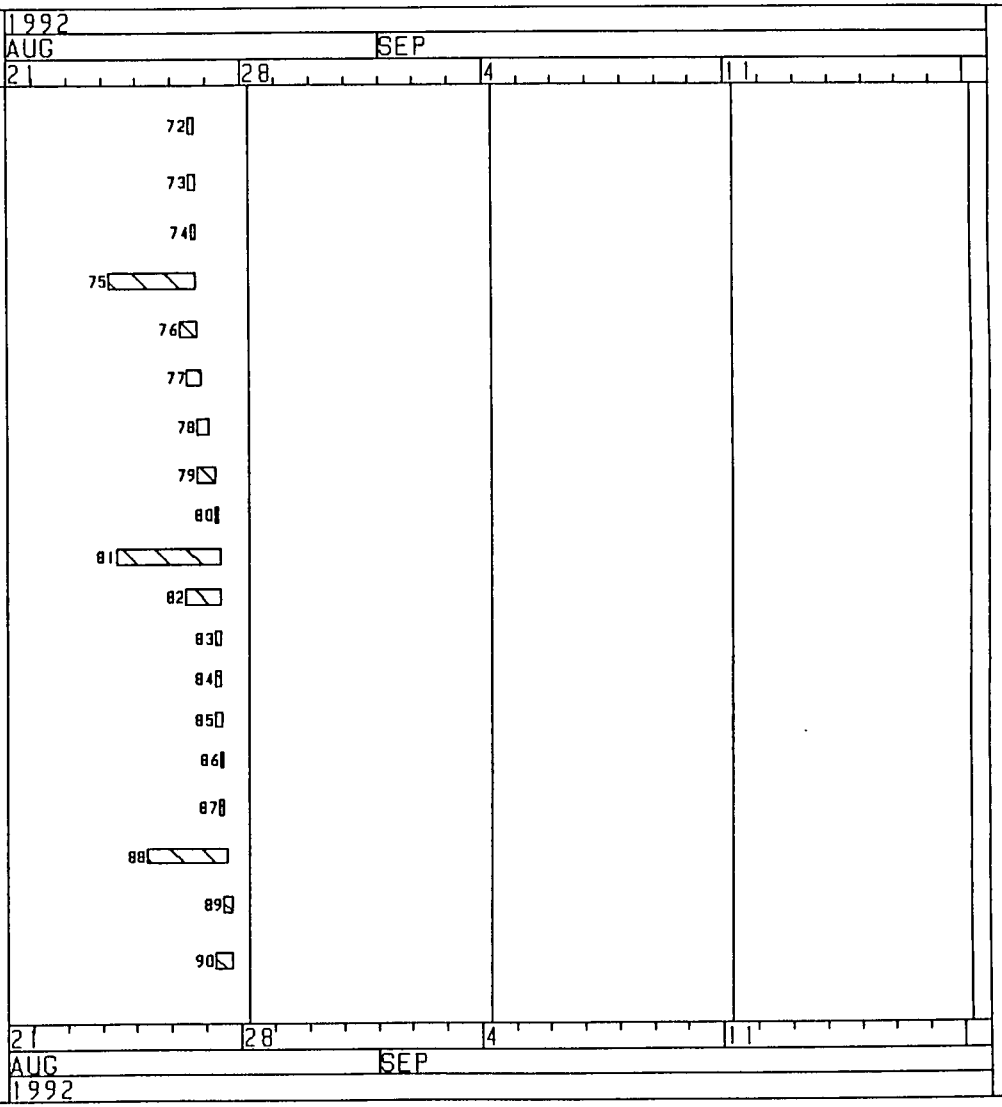
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
72	139 2AKBD1	REPAIR PROBLEM WITH 'C' FLUX MAP DETECTOR	26-AUG-92:16	4	EL RADC TECH CVEN	4 1 1 -	
73	929 2AJV001	'C' STATION BATTERY -PERFORM INSPECTION (PM-426 E-QL-016)	26-AUG-92:17	5	EL	2	
74	932 2ADK008	'C' STATION SECURITY & ERFIS BATTERIES -PERFORM INSPECTION-(PM-425 E-W-012)	26-AUG-92:17	3	EL	2	
75	990 BISYS010	SP-1157 SI PUMP FLOW TEST - PREPARE & RELEASE DRAFT COPY OF PROCEDURE	26-AUG-92:17	60	TECH	1	SIFLW
76	822 CASK020	MOVE CASK TO DECON ROOM - DECON CASK - FILL CASK WITH WATER - DETENSION CASK HEAD	26-AUG-92:18	12	TECH RADC SECU	1 1 1	MISC
77	175 2AKYN1	SW PMP 'C'- ASSIST TECH SUPPORT WITH BALANCING OF PUMP AND MOTOR	26-AUG-92:21	10	ME TECH	2 1	
78	874 2AWLB1	HVH-7B - REPAIR SW LEAK (MDAFW PMP RM)	27-AUG-92:02	8	ME QC SECU	2 1 1	
79	922 RWST001	HANG CLEARANCE ON THE RWST FOR INTERNAL INSPECTIONS	27-AUG-92:06	12	OPER	1	GF04
80	819 2AWAJ1	FCV-1330B - REPAIR AIR LEAKS ON LINES TO ACTUATOR	27-AUG-92:08	2	ME	2	
81	226 2AWDY1	REPAIR FLOOR OF ADMIN TRAILER T420, TRAILER CITY	27-AUG-92:10	24	MIC	-	MISCC
82	803 MI125001	MI125 - AS-BUILT RPI SOLA XFMR, TURBINE MEZZ	27-AUG-92:10	8	MIE	1	MI125
83	813 2AWQE1	ES-12 - REPACK VALVE	27-AUG-92:10	4	ME	2	
84	883 2HRC001	INSPECT EH OIL RESERVOIR MAGNETIC PLUGS	27-AUG-92:10	4	ME	2	
85	169 2ALKT4	FW-246B -REPLACE VALVE -'B'MFP PUMP CASING DRAIN VALVE	27-AUG-92:11	5	ME QC	2 1	
86	862 2AEXF2	SGB-37F - REMOVE INSULATION ('C' SGBD HTX)	27-AUG-92:12	2	IN	2	
87	1062 TURB020	TURB/GEN - CHECK FOR H2 LEAK	27-AUG-92:12	3	ME TMCI TECH	2 1 1	TURB
88	433 MI111033	MI111 - LABEL & VERIFY CONDUITS IN BATCH TK ROOM FOR CONDUIT REMOVAL	27-AUG-92:15	24	MIE QC	2 1	MI111
89	826 CASK040	DECON/DRAIN CASK - FILL W/HELIUM - PERFORM HELIUM LEAK TEST - LOCKWIRE SLEEVE NUTS - DECON CASK	27-AUG-92:18	6	TECH RADC SECU	1 1 1	MISC
90	828 CASK060	LOAD CASK ON RAILCAR -SWITCH CASKS -MOVE TO DECON ROOM/DECON CASK - FILL W/WATER - DETENSION CASK HEAD	27-AUG-92:18	12	TECH RADC SECU	1 1 1	MISC



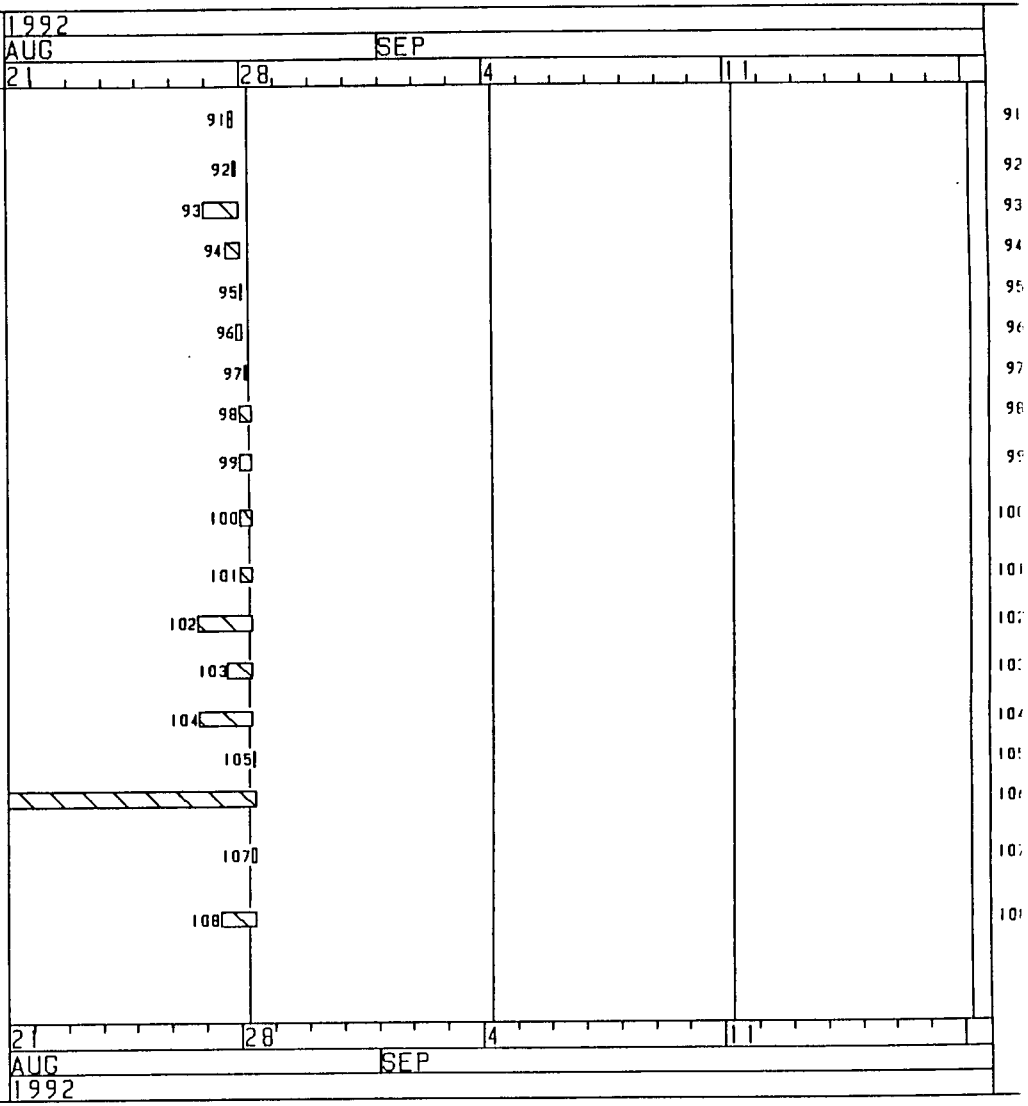
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
91	1059 TURB010	TURB/GEN - REMOVE EE OS	27-AUG-92:20	3	ME TMCI TECH	2 1 1	TURB
92	1318 OST302A	OST-302 - SERVICE WATER SYS COMP. TEST	27-AUG-92:22	2	OPER TECH	1 1	GFD4OST
93	190 2AKUA4	ES-4A - REPAIR FURMANITED LEAK (ABOVE 6A FW HTR)	27-AUG-92:23	24	ME	2	
94	1064 TURB030	TURB/GEN - VENT & PURGE GENERATOR	27-AUG-92:24	10	OPER	1	TURB
95	1065 TURB040	TURB/GEN - DISCONNECT SW TO EXCITOR COOLER	28-AUG-92:01	1	TMCI	2	TURB
96	1067 TURB050	TURB/GEN - REMOVE EXCITER HOUSE	28-AUG-92:01	3	TMCI	2	TURB
97	1069 TURB060	TURB/GEN - REMOVE GEN-EXC LAGGING	28-AUG-92:04	1	TMCI	2	TURB
98	859 2AEXF1	SGB-37F - REPOSITION VALVE TO AVOID INTERFERANCE	28-AUG-92:07	8	ME QC	2 1	
99	941 2AKGG1	HVH-1 CWS -INVESTIGATE PROBLEM WITH LVL NOT CHANGING DURING OST-901	28-AUG-92:07	8	EL RADC CVEN	2 1 -	
100	944 2AKGG3	HVH-4 CWS -INVESTIGATE PROBLEM WITH LVL NOT CHANGING DURING OST-901	28-AUG-92:07	8	EL RADC CVEN	2 1 -	
101	947 2ALKR1	HVH-2 CWS -INVESTIGATE PROBLEM WITH LVL NOT CHANGING DURING OST-901	28-AUG-92:07	8	EL RADC CVEN	2 1 -	
102	995 SISY6030	ERECT SCAFFOLDING & BUILD TENT AT RWST FOR INSPECTION	28-AUG-92:07	37	MIC	8	SIPDI
103	1122 SISY6050	REMOVE INSULATION FROM 'A' & 'B' SI PUMP COMMON DISCHARGE LINE FOR SP-1157 CONTROLATRON INSTALLATION	28-AUG-92:07	4	IN	1	SIFLW
104	1232 ACHGPMP	REPAIR 'A' CHARGING PUMP	28-AUG-92:07	36	ME QC	2 1	
105	1071 TURB070	TURB/GEN - REMOVE VIBRATION PROBE	28-AUG-92:09	1	TMCI	1	TURB
106	299 M1044070	M1044 - OBTAIN FUNDING FOR PROJECT	28-AUG-92:10	480	LEU	1	M1044
107	301 M1064NAA	M1064 - CV 3RD LEVEL - WALKDOWN FTS CONTROL PANEL FOR FIELD VERIFICATION TO SUPPORT FIELD REV 13	28-AUG-92:10	3	MIE NED CVEN	- - -	M1064
108	630 M9720006	M972 DCN 8 - REBAR SCAN, DRILL & INSTALL 2-3/8INCH WAXIBOLTS, UNIT 1 INTAKE STRUCTURE	28-AUG-92:10	8	MIC	2	M0972



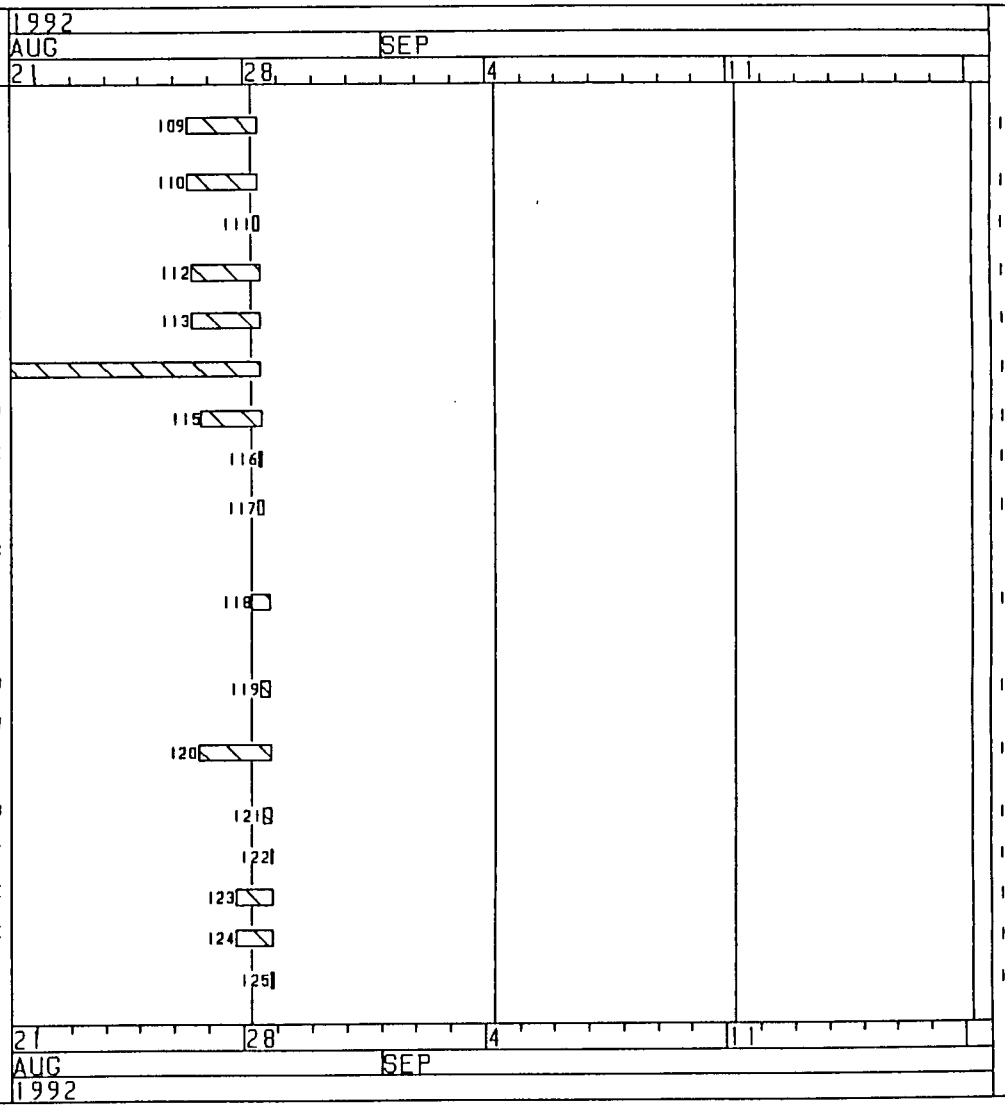
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SDS FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
109	806 MI113002	MI113 - AS-BUILT COMPONENTS IN CV PENET AREA FOR SW PENET REPLMT, CV 1ST LEVEL & PIPE ALLEY	28-AUG-92:10	16	LEU NED MIM CVEN	1 4 2 -	MI113
110	807 MI104	MOD 1104 - WALKDOWN ON FIRST LEVEL CV FOR SUPPORTS (CONTACT MIKE ERNO)	28-AUG-92:10	16	NED CVEN	2 -	MI104
111	865 2AEXF3	SGB-37F - REPLACE INSULATION ('C' SGBD HTX)	28-AUG-92:11	4	IN	2	
112	178 2AJNR1	SI-883I - REPLACE VALVE ('B' ACCUM VENT)	28-AUG-92:12	48	ME QC CVEN	2 1 -	
113	220 2ALTT1	BUILD CONTAINER/CRATE FOR MI064 MOCK-UP MODEL	28-AUG-92:12	16	MIC	-	MISCC
114	545 MI126010	MI126 - MWT ACID PUMPS - REMOVE REMAINING CONDUIT, SUPPORTS & WIRING	28-AUG-92:12	48	MIE	2	MI126
115	1133 SISYS100	PROCURE PARTS FOR 'C' SI PUMP JUMPER	28-AUG-92:13	42	ME	1	SIFLW
116	1357 SISYS280	MANAGEMENT MEETING TO REVIEW RWST INSPECTION/ENTRY	28-AUG-92:13	2	TECH	1	SIPOI
117	1347 2AJZR1	AMSAC CONTROLLER -INVESTIGATE PROBLEM WITH TROUBLE LIGHT ON LOCAL PANEL	28-AUG-92:14	4	EL	2	
118	824 CASK030	DETENSION HEAD - REMOVE SFP WALL AND ROOF - MOVE CASK TO SFP - REMOVE CASK HEAD AND STORE - REINSTALL WALL AND ROOF - OPS LOAD CASK - REMOVE WALL AND ROOF - INSTALL CASK HEAD - MOVE CASK TO DECON - REINSTALL WALL AND ROOF (RWP'S 920124, 920125)	28-AUG-92:18	12	TECH RADC SECU OPER	1 1 1 1	MISC
119	1074 TURB090	TURB/GEN - REMOVE LP LAGGING	28-AUG-92:18	6	TMCI	2	TURB
120	991 SISYS020	SP-1157 SI PUMP FLOW TEST - REVIEW & APPROVE PROCEDURE	28-AUG-92:19	50	TECH OPER CHEM RADD ME	1 1 1 1 1	SIFLW
121	1072 TURB080	TURB/GEN - REMOVE CROSSOVER SPOOL	28-AUG-92:19	5	ME TMCI	2 -	TURB
122	1317 351R370	CONTAINMENT INTEGRITY NOT REQ'D	28-AUG-92:20	1	OPER	1	GFD4OST
123	1351 SISYS260	SET-UP CONTAMINATION ZONE FOR RWST INSPECTION	28-AUG-92:20	25	RADD	1	SIPOI
124	1354 SISYS270	SP-1158 - REVIEW & APPROVE RWST INSPECTION SPECIAL PROCEDURE	28-AUG-92:20	25	TECH OPER	1 1	SIPOI
125	1301 2ALBC1	PRV-1598 V/P -REPLACE HEATER CABLE FOR THE VALVE POSITIONER	28-AUG-92:21	2	EL	2	



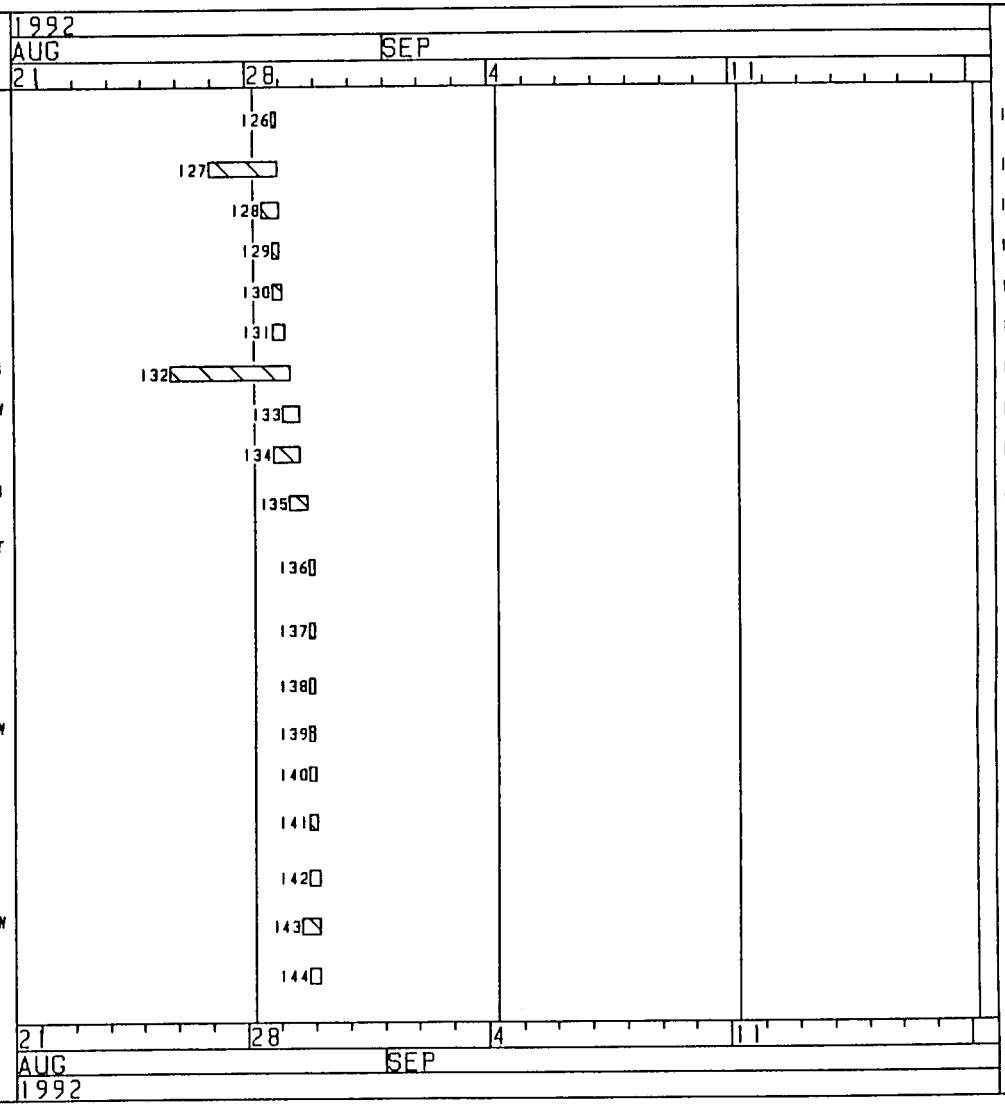
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 805 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
126	1304 2AKTCI	TI-141 -CVCS LP LTDN RELIEF HI TEMP- INVESTIGATE PROBLEM WITH ANNUNCIATOR ALARMING	28-AUG-92:22	3	EL	2	
127	193 2ALKY2	REPAIR FURWAINTED LEAK ON MS MANWAY COVER	28-AUG-92:23	48	ME	2	
128	847 2AGTWI	MS-160 - REPLACE VALVE (SDAFW PMP)	28-AUG-92:24	12	ME QC	2 1	
129	853 2AIAGI	LCV-1003A - REPAIR U-BOLT FOR SUPPORT ('A' RCDT PMP)	28-AUG-92:24	5	ME CVEN	2 -	
130	838 2AWQKI	FI-110 -BA BYPASS FLOW INDICATOR-PEGGED HIGH,INVESTIGATE AND REPAIR	29-AUG-92:01	6	EL	2	
131	1503 2AWTMI	52/1B - CLEAN & INSPECT BREAKER (BUSS 1 BST A MAIN BREAKER)	29-AUG-92:03	8	EL	2	
132	965 MI134050	MI134 - DEVELOP & RELEASE BOM FOR PARTS PROCUREMENT	29-AUG-92:07	84	NED	1	MI134
133	1132 SISYS090	SHOP FAB PIPING ASSEMBLY FOR 'C' SI PUMP JUMPER	29-AUG-92:13	12	ME	2	SIFLW
134	1509 2AMUMI	ASSIST WITH DEGASSING RCS	29-AUG-92:13	18	ME	2	
135	1166 MI134180	MI134 - LAYOUT & REBAR SCAN FOR 'A' & 'B' SI PUMP DISCHARGE STRAINER SUPPORT BASEPLATES	29-AUG-92:18	12	MIW MIC	2 2	MI134
136	727 0109	OST-109 - CVC-266 BACK LEAKAGE TEST (COLD SHUTDOWN >48 HOURS UNLESS PREVIOUSLY COMPLETED WITHIN 90 DAYS) (PRIOR TO PLANT HEAT-UP)	29-AUG-92:23	4	OPER	2	GFO4OST
137	1307 2AIJSI	TURNING GEAR SYSTEM -REPLACE AMP METER FOR TURBINE TURNING GEAR MOTOR	29-AUG-92:23	4	EL	2	
138	1313 2AMMYI	FCV-1425 -MDAFW FLOW CONTROL VALVE-INVESTIGATE/REPAIR PROBLEM WITH DUAL INDICATION WHEN SHUT	29-AUG-92:23	4	EL	2	
139	1521 SISYS112	SI-879C - REMOVE INTERNALS FOR FLOW TEST (C SI PMP DISCH CHECK)	29-AUG-92:23	4	ME TECH	2 1	SIFLW
140	1485 2AWFHI	DETERMINATE SPARE CABLES IN MANWAY AT INTAKE	29-AUG-92:24	5	EL	2	
141	1310 2AMPXI	LTOPP -INVESTIGATE PROBLEM WITH ERFIS INDICATION READING LESS THAN RTGB INDICATORS	30-AUG-92:01	6	EL	2	
142	163 2AITUI	MCC-115KR) FEED TO LP-26 TRANSFORMER -REPLACE WIRE ON C-PHASE	30-AUG-92:02	7	EL	2	
143	1137 SISYS110	INSTALL PIPING ASSEMBLY FOR 'C' SI PUMP JUMPER	30-AUG-92:02	12	ME	2	SIFLW
144	1544 2AKIQ2	LT-115 -CVCS VCT LVL TRANSMITTER-REPLACE TRANSMITTER	30-AUG-92:03	8	EL QC RADC	2 1 1	



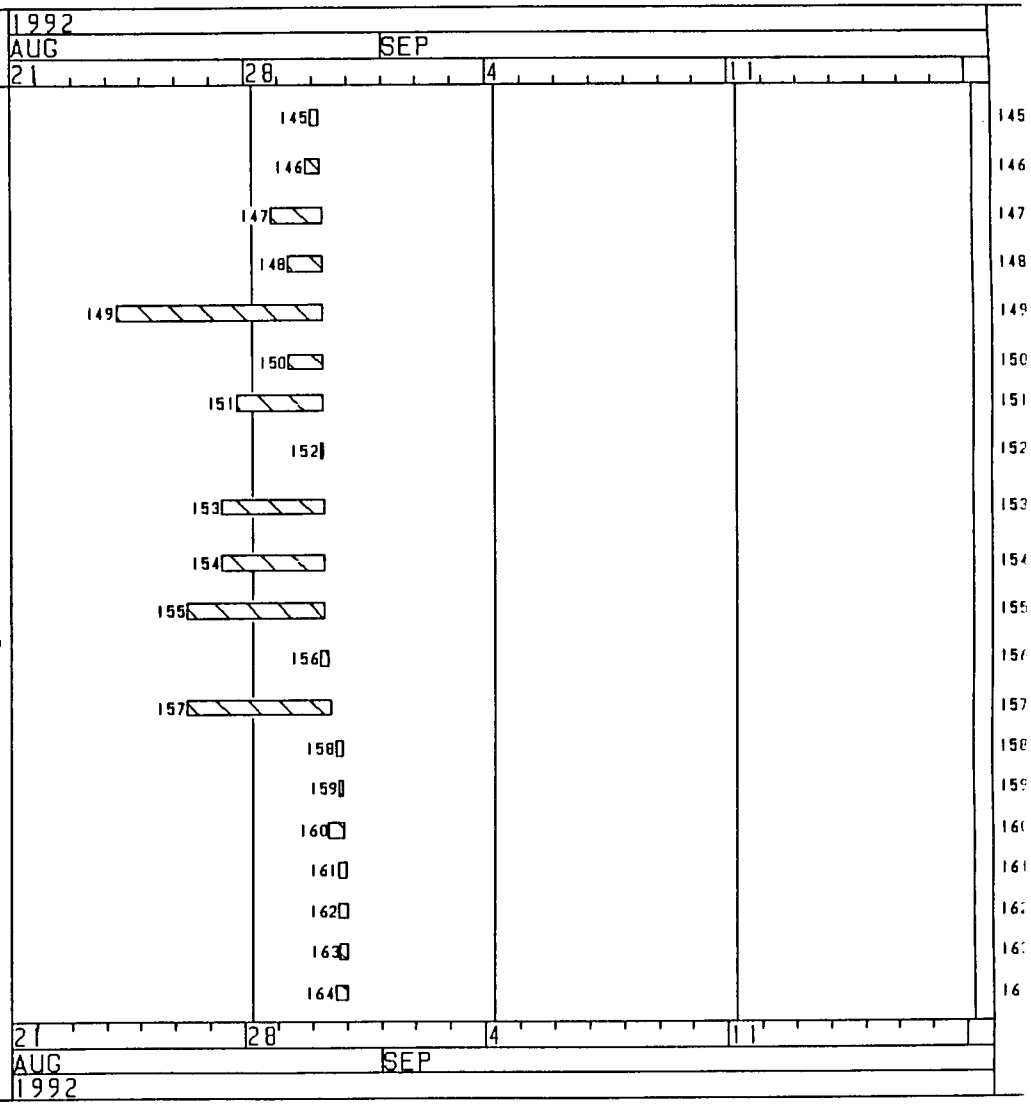
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
145	1547 2AMPJ1	8I-8798 -8I PMP 'B'DISCH CHECK VLV -REASSEMBLE VALVE	30-AUG-92:04	5	ME QC RADC	2 1 1	SIFLW
146	1399 2AIJL1	ELECTRICAL PENETRATION FQ1 AND C10 -CHECK BEND RADIUS ON CABLES	30-AUG-92:05	10	EL	2	
147	1129 SIBYS080	INSTALL TEMPORARY STRAINER IN 'B' 8I PUMP RECIRCULATION LINE AS PER EE 92-114	30-AUG-92:07	36	ME	2	SIFLW
148	1146 SIBYS140	GP-1158 - PERFORM RWST INSPECTION WITH DIVERS & CAMERAS	30-AUG-92:07	24	TECH	1	SIPDI
149	1148 SIBYS150	PROVIDE ESCORTS & SUPPORT AS REQUIRED FOR THE 8I SYSTEM POTENTIAL DAMAGE INSPECTION TEAM	30-AUG-92:07	144	MIC	2	SIPDI
150	1341 20	GP-007 - DEGASSIFY RCS	30-AUG-92:07	24	OPER CHEM	1 1	GFD40ST
151	1473 GPWTT	SUPPLY PERSONNEL TO WATCH TARP & TENT FOR RWST	30-AUG-92:07	60	MIC	1	SIPDI
152	1494 2ALLN1	TI-2040 - REPLACE BOWSER OIL TEMPERATURE INDICATOR (REQUIRES OIL DRAINED)	30-AUG-92:07	2	EL	2	
153	145 2AGQB1	LT-460 - REPLACE TRANSWITTER (PZR LVL)	30-AUG-92:08	36	EL QC CVEN	3 1 -	
154	157 2AGQT1	LT-485 - REPLACE TRANSWITTER - ('B' S/G NARROW RANGE LVL)	30-AUG-92:08	36	EL QC CVEN	3 1 -	
155	938 2AEF001	PERFORM SECURITY TAMPER PM (PM-401 E-Q-005)	30-AUG-92:08	48	EL SECU	3 1	
156	1565 GAUGES	SP-1157 -INSTALL TEST GAUGES MR # 92AMUA1,92AMTZ1,92AMTT1,92AMTU1,92A MUY1	30-AUG-92:11	6	EL TECH	2 1	SIFLW
157	1160 MI134240	MI134 - SHOP PAINT STEEL FOR STRAINER SUPPORTS AS REQ'D	30-AUG-92:12	36	MIC	2	MI134
158	950 2ARA362	PERFORM AIR FILTER PM TO HVE-13,14 & 15, HVAC-1 AND B ME A/C	30-AUG-92:20	4	ME	2	
159	1006 2AIC008	PERFORM PEDISTAL GRINDERS INSPECTION	30-AUG-92:20	2	ME	2	
160	187 2AKAJ4	MS-12 - REPAIR FURMANITED LEAK (WHEN CV INTEG NR)	30-AUG-92:21	10	ME	2	
161	1003 2AFV008	PM ROUTE M-W-004 B/G/E INSPECTION	30-AUG-92:23	5	ME	2	
162	1000 2AFT008	PM ROUTE M-W-002 B/G/E INSPECTION	30-AUG-92:24	6	ME	2	
163	1018 2AFR009	PM ROUTE M-W-001 B/G/E INSPECTION	30-AUG-92:24	5	ME	2	
164	1221 2AFU009	PM ROUTE M-W-003 B/G/E INSPECTION	30-AUG-92:24	8	ME	2	



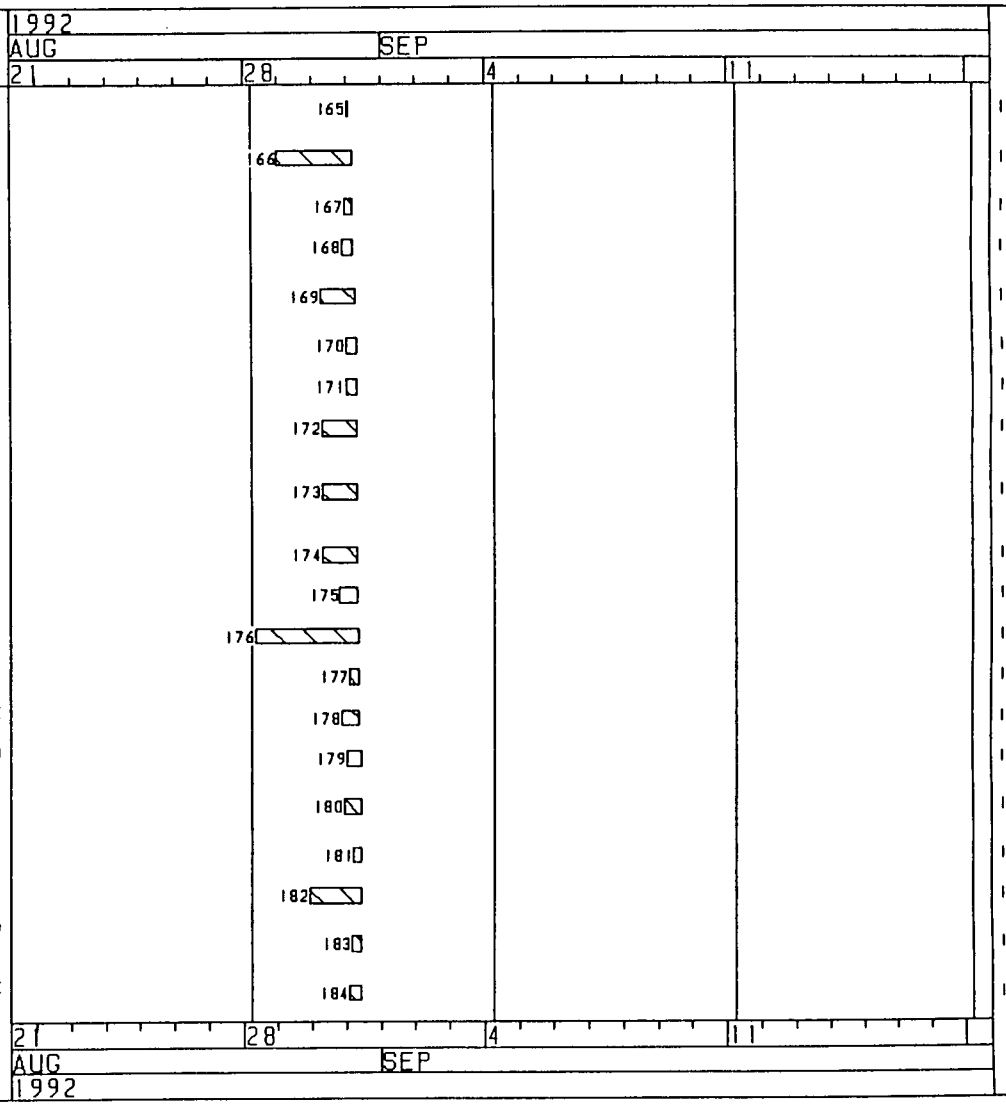
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
165	1363 2ALTQ1	PERFORM MST-913 DUE ON 8/31/92	31-AUG-92:02	1	EL	2	
166	963 M1134030	M1134 - HAVE 3 SI PUMP STRAINER PARTS MACHINED AT SONOCO	31-AUG-92:05	53	MIM MATC QC	1 1 1	M1134
167	1141 SISYS120	REMOVE 'C' SI PUMP PIPING JUMPER (AFTER FLOW TEST IS COMPLETE)	31-AUG-92:05	6	ME	2	SIFLW
168	1535 SISYS122	SI-879C - REPLACE INTERNALS AFTER FLOW TEST (C SI PMP DISCH CHECK)	31-AUG-92:05	8	ME QC	2 1	SIFLW
169	1881 SISYS370	SP-1159 - PREPARE, REVIEW & APPROVE SPECIAL PRECEDURE FOR SI & CV SPRAY SYSTEM INSPECTIONS	31-AUG-92:06	24	TECH OPER	1 1	SIPDI
170	1076 TURB110	TURB/GEN - REMOVE EE HAND HOLE COVER	31-AUG-92:07	3	TMCI	2	TURB
171	1080 TURB130	TURB/GEN - REMOVE U H EE BRG BRK	31-AUG-92:07	3	TMCI	2	TURB
172	1119 CASK055	TENSION CASK HEAD AND DECON	31-AUG-92:07	12	TECH RADD	1 1	
173	1125 SISYS060	SP-1157 - SI PUMP FLOW TEST - PERFORM FULL FLOW TEST	31-AUG-92:07	24	TECH OPER ME SECU RADC	1 1 2 1 1	SIFLW
174	1154 1AMIA1	ASSIST SYSTEM ENGINEER TO AS-BUILT RPI SYSTEM	31-AUG-92:07	24	EL TECH	1 1	
175	1559 SISYS06A	BUILD SCAFFOLDING IN SI PUMP ROOM FOR SI-844A & SI-880B	31-AUG-92:07	12	MIC	6	SIPDI
176	1432 2AKYE3	FW-8C - REMOVE FURWANITE & REPLACE BONNET GASKET	31-AUG-92:08	72	ME QC	2 1	
177	1491 2ALBW1	INSTALL PROTECTOR AROUND DOOR KNOB TO WHUT ROOM (CONTACT LARRY NEWMAN)	31-AUG-92:08	6	ME RADD	2 1	
178	1539 SISYS061	ESTABLISH INSPECTON BOUNDARIES/DRAIN SYSTEM	31-AUG-92:08	12	OPER TECH	1 1	SIPDI
179	1038 TURB210	TURB/GEN - INSTALL L/H HYDROGEN GLAND CASING	31-AUG-92:10	6	TECH TMCI	1 3	TURB
180	1360 1AQDUG	PERFORM BEFORE-USE AND AFTER-USE CALIBRATION OF TEST GAUGES FOR MOD-972	31-AUG-92:10	12	EL	1	
181	1396 2AMBT1	52/7A -PERFORM PM ON BREAKER	31-AUG-92:10	5	EL	2	
182	1497 2AMLX1	N-31 - REPLACE POT	31-AUG-92:10	36	EL	2	
183	1582 GAUGES01	SP-1157 -REMOVE TEST GAUGES WR # 92AMUA1,92AMTZ1,92AMTT1,92AMTU1,92A MUY1	31-AUG-92:10	6	EL TECH	2 1	SIFLW
184	1585 SISYS290	REMOVE TENT USED FOR RWST INSPECTION FROM D/G MUFFLER DECK	31-AUG-92:10	8	MIC	6	SIPDI



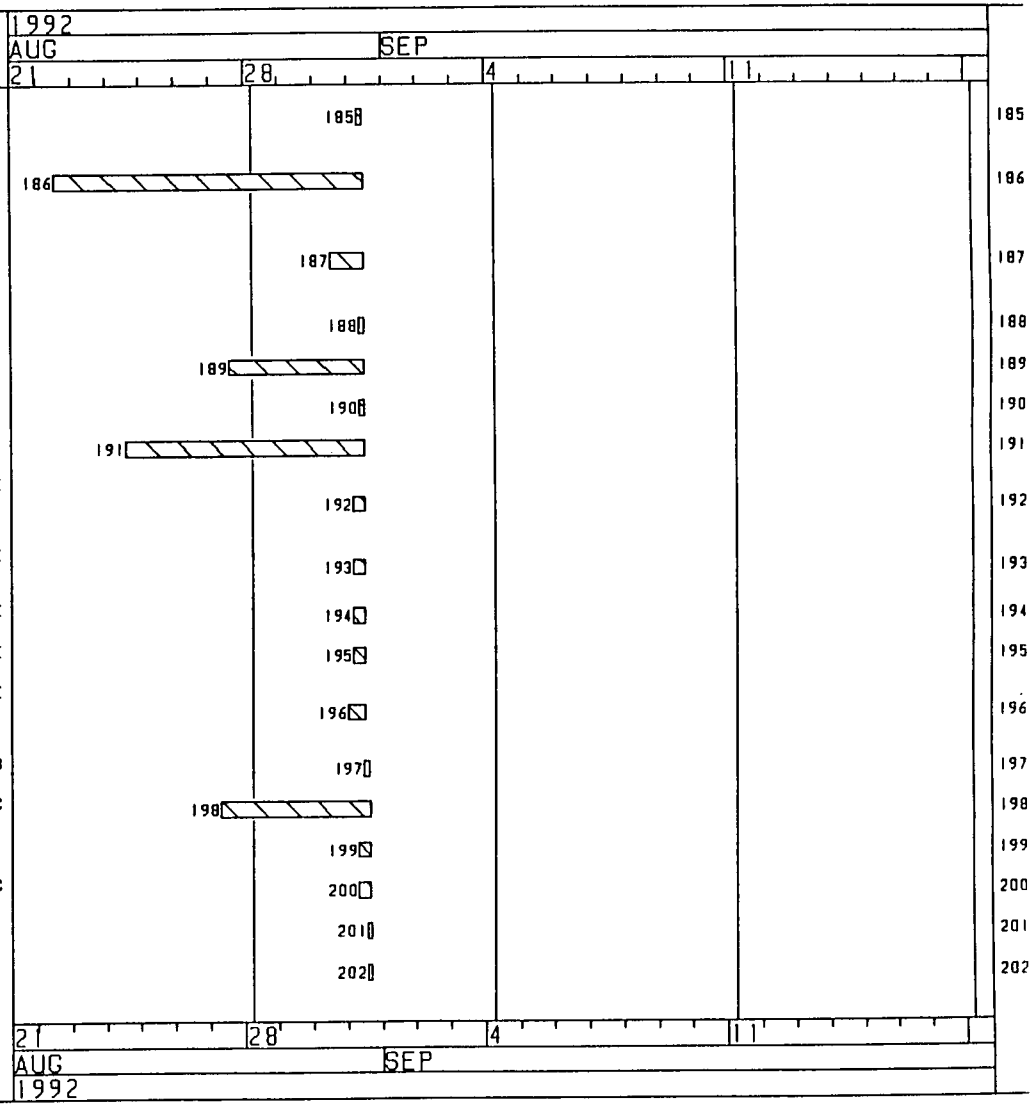
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
185	919 98KW9080	OST-908 - COMP. COOLING SYSTEM COMP TEST - PERFORM WHEN ONLY 1 CCW PUMP REQ'D FOR COOLING	31-AUG-92:11	4	OPER	2	GF04OST
186	181 SIPMP	SUPPORT SI PUMP INVESTIGATION/REPAIRS	31-AUG-92:12	216	ME TECH NED LEU	1 - 1 1	SIPDI
187	831 CASK090	DRAIN CASK - FILL WITH HELIUM - PERFORM HELIUM LEAK TEST - LOCKWIRE SLEEVE NUTS - DECON CASK - LOAD ON RAILCAR (RWP'S 920124, 920125, 920126, 920127, 920128)	31-AUG-92:12	12	TECH SECU RADC	1 1 1	MISC
188	904 2AFW008	PERFORM LADDER INSPECTION	31-AUG-92:12	4	IN	2	
189	916 2ALSS1	PAINT DEMIN WATER LINES BEHIND PRIMARY WATER TANK	31-AUG-92:12	15	PA	2	
190	1042 TURB230	TURB/GEN - INSTALL HYDROGEN SEAL RING	31-AUG-92:12	4	TECH TMCI	1 2	TURB
191	1231 2ALEX1	SANDBLAST & PAINT PIPING FOR TEMPORARY SPENT FUEL PIT COOLING	31-AUG-92:12	38	PA	2	
192	1527 SIBYS064	SI-880D - PERFORM INTERNAL INSPECTION OF VALVE (B CV SPRAY PUMP DISCH) (PENDING GASKET MATERIAL)	31-AUG-92:12	8	ME TECH QC	2 1 1	SIPDI
193	1531 SIBYS066	SI-880B - PERFORM INTERNAL INSPECTION OF VALVE (A CV SPRAY PMP DISCH)	31-AUG-92:12	8	ME TECH QC	2 1 1	SIPDI
194	1562 SIBYS06B	BUILD SCAFFOLDING IN SI PUMP ROOM FOR SI-880D	31-AUG-92:12	8	WIC	6	SIPDI
195	1572 SIBYS06D	REMOVE SCAFFOLDING FOR SI-880D	31-AUG-92:12	8	WIC RADC	6 1	SIPDI
196	1618 SIBYS320	SP-1159 - DISSASSEMBLE SI-880D FOR SYSTEM INSPECTION & REASSEMBLE AFTER INSPECTION COMPLETED (PENDING GASKET MATERIAL)	31-AUG-92:12	12	ME TECH QC	2 1 1	SIPDI
197	1043 TURB240	TURB/GEN - INSTALL U/H GLANE CASING	31-AUG-92:14	3	TECH TMCI	1 2	TURB
198	198 2AAEI1	CIVIL PERSONNEL ATTEND FIREWATCH TRAINING, TRAILER CITY	31-AUG-92:15	24	WIC	-	MISCC
199	892 2AQN001	'A' & 'B' D/G - REFILL DESSICANT IN AIR DRYERS	31-AUG-92:15	8	ME	2	
200	1588 2AAEI2	MIU FIREWATCH TRAINING CLASS	31-AUG-92:15	8	WIC	2	MISCC
201	1447 2ALSY1	'B' D/G - OBTAIN OIL SAMPLE	31-AUG-92:16	3	ME	2	
202	1450 2AGNS1	'B' D/G - REPAIR LEVEL INDICATOR ON FUEL OIL DAY TANK	31-AUG-92:16	3	ME	2	



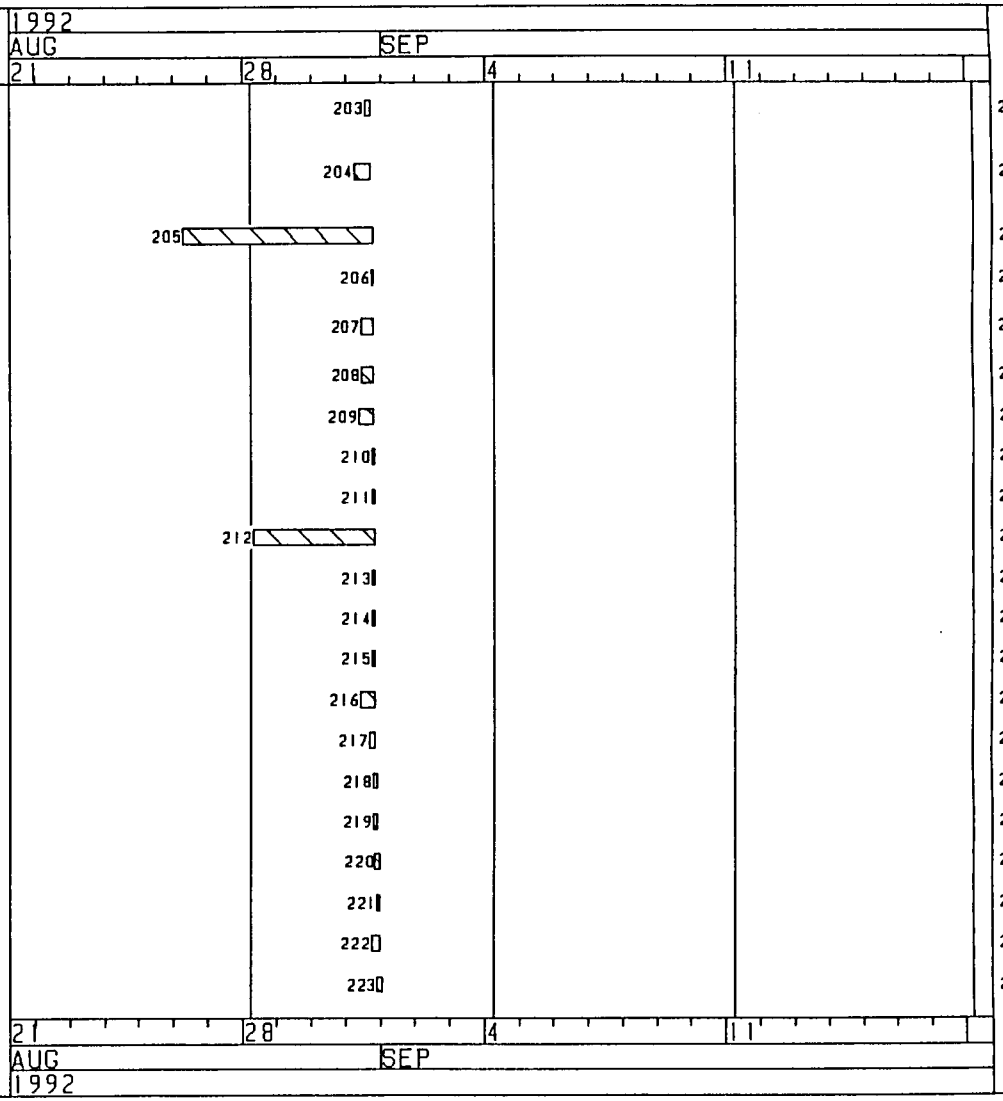
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ S05 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
203	886 2ARW001	'B' D/G - PERFORM QUARTERLY INSPECTION	31-AUG-92:17	4	ME	2	
204	1431 2AMRSI	WCCU 1B - ASSIT WITH CALIBRATION (92AMRSI, 92AMRUI)	31-AUG-92:17	11	ME EL TECH NED SECU	2 2 1 1 1	MISC
205	964 MI134040	MI134 - DEVELOP & RELEASE MOD FOR REVIEW	31-AUG-92:19	132	NED	1	MI134
206	1078 TURB120	TURB/GEN - UNBOLT U H GLAND CASE	31-AUG-92:19	1	TMCI	2	TURB
207	1329 98KR9260	OST-926 - BACKLEAKAGE CHECK ON THE CCW CHECK VALVES TO THE RCP THERMAL BARRIERS	31-AUG-92:19	8	OPER RADO	2 2	GFO4OST
208	1441 2AMCUI	'B' D/G - REPAIR LEAK ON AFTER COOLANT HTX	31-AUG-92:19	8	ME	2	
209	1444 2ALJQI	'B' FUEL OIL TRANSFER PMP - CLEAN INLET STRAINER	31-AUG-92:19	10	ME QC	2 1	
210	184 2ALLGI	IVSW-13 - REPLACE VALVE (2ND LVL AUX BLDG) (WHEN CV INTEG NR)	31-AUG-92:20	2	ME	2	
211	953 2AFQ008	PERFORM VIB/TEMP/INSP OF CCW & CHARGING PUMPS	31-AUG-92:20	2	ME	2	
212	996 SISY6040	DETERMINE SCOPE OF SI SYSTEM COMPONENT INSPECTION	31-AUG-92:20	85	TECH NDE	1 1	SIPDI
213	1009 2FHB009	MONITOR VIBRATION OF RCP'S FROM CONTROL ROOM	31-AUG-92:20	2	ME	2	
214	1012 2HOK001	PERFORM INSPECTION OF SHOP CRANE	31-AUG-92:20	2	ME	2	
215	1015 2HOL001	INSPECT HOIST IN I&C SHOP	31-AUG-92:20	2	ME	2	
216	1456 2AJWY1	'B' D/G AIR INTAKE - REPAIR HANDLE ON DOOR	31-AUG-92:20	10	ME	2	
217	1673 2AMWL3A	SP-1159 - ELECTRICALLY DISCONNECT SI-844A	31-AUG-92:20	4	EL	2	SIPDI
218	1044 TURB250	TURB/GEN - SET U/H EXCITER END BRG BRACKET	31-AUG-92:22	3	TECH TMCI	1 3	TURB
219	1082 TURB140	TURB/GEN - REMOVE H2 GLAND CASE	31-AUG-92:22	3	TMCI	2	TURB
220	1075 TURB100	TURB/GEN - REMOVE #8 BRG U/H	31-AUG-92:23	3	TMCI	2	TURB
221	1118 TURB150	TURB/GEN - REMOVE H2 SEAL RING	31-AUG-92:23	1	TMCI	2	TURB
222	1550 2AMW01	LCV-1003A -RCDT- REPAIR AIRLINE LEAK AT ISOLATION VALVE	31-AUG-92:23	5	ME RADC	2 1	
223	1045 TURB260	TURB/GEN - LIFT GEN. ROTOR WEIGHT	1-SEP-92:01	3	TECH TMCI	1 3	TURB



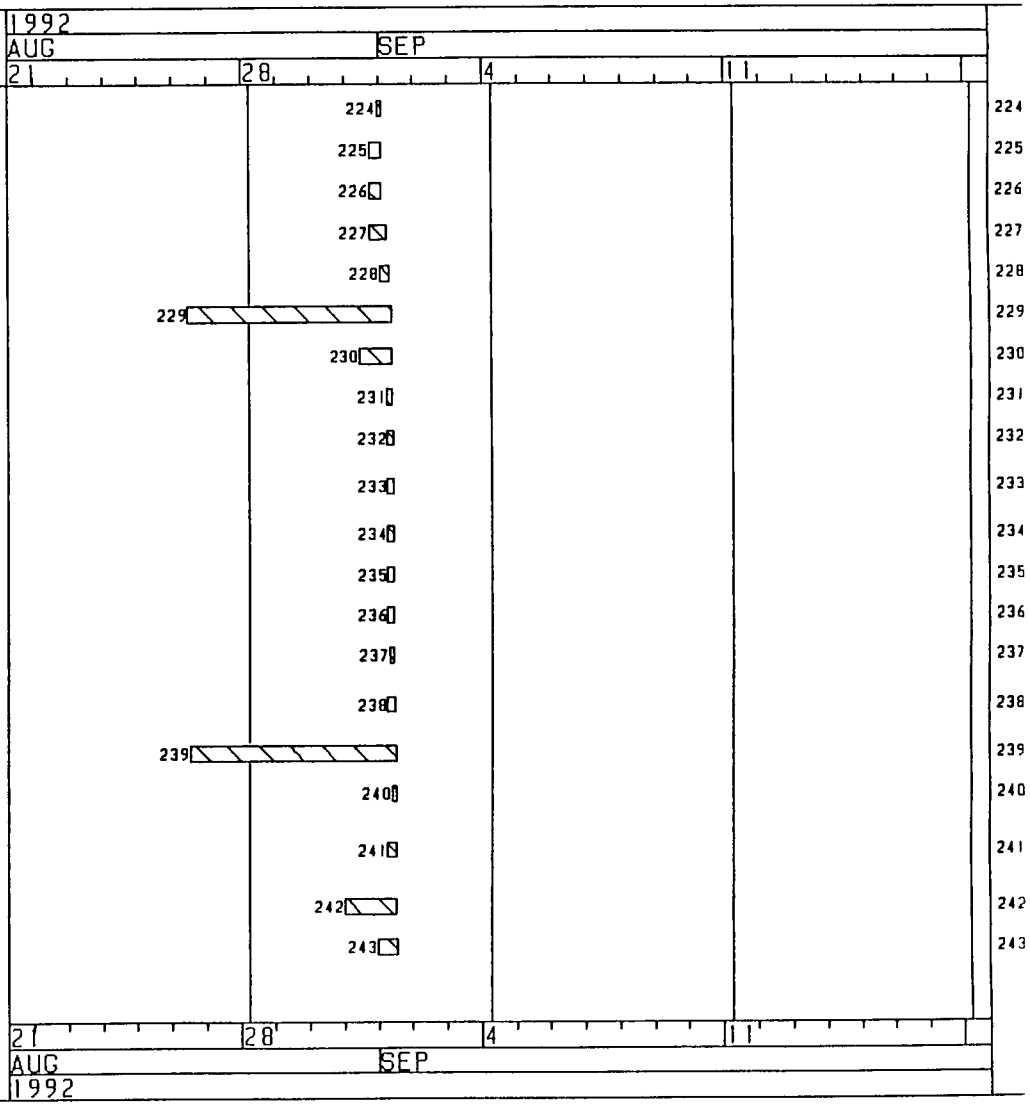
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
224	1085 TURB170	TURB/GEN - REMOVE L H H2 GLAND CASE	1-SEP-92:02	3	TMCI	2	TURB
225	1603 2AMTYI	REPAIR FI-414 RCP LOOP A FLOW (RTGB)	1-SEP-92:02	8	EL	2	MISC
226	1606 2ALUHI	CHANGE 9 BISTABLE WINDOWS	1-SEP-92:02	8	EL	2	MISC
227	1600 2AWFWI	REPAIR SC-151 TUBING (CHARGING PUMP A LOW SPEED ALARM)	1-SEP-92:06	12	EL	2	MISC
228	1027 2AFY009	PERFORM COND. BALL CHANGEOUT	1-SEP-92:07	6	ME	2	
229	171 2ALKT6	FW-246B - REPLACE INSULATION ('B' MFP)	1-SEP-92:09	30	IN	2	
230	910 2ALGSI	PAINT ENTRANCE DOORS TO SFP ROOM	1-SEP-92:09	6	PA	2	
231	1087 TURB190	TURB/GEN - CLEAN JOINTS OF PARTS	1-SEP-92:09	3	TMCI TC	2 1	TURB
232	1030 2AIB362	INSPECT TURBINE LUBE OIL STRAINER	1-SEP-92:10	4	ME	2	
233	1244 2GLJ003	CHECK PA SYSTEM IN E6RC BLDG 375, O&M BLDG 320, CONSTRUCTION BLDG T-331	1-SEP-92:10	4	EL	2	
234	1268 2HP0003	PERFORM INSPECTION OF WCCU-1A	1-SEP-92:10	4	EL	2	
235	1271 2HP0003	PERFORM INSPECTION OF WCCU-1B	1-SEP-92:10	4	EL	2	
236	1295 2BYD362	CALIBRATE THE VCT PRESS INSTRUMENTATION LOOP 117	1-SEP-92:10	4	EL	2	
237	1453 1AMZYI	DA-33B - REPLACE CHECK VALVE (B D/G STARTING AIR COMP)	1-SEP-92:10	3	ME QC	2 1	
238	1405 2ALMLI	TURBINE LOW VACUUM -INVESTIGATE PROBLEM WITH THE INCORRECT ALARM COMING IN DURING OST-551	1-SEP-92:11	5	EL TECH	2 1	
239	962 MI134010	MI134 - RELEASE APPROVED DESIGN FOR FABRICATION OF STRAINERS & SUPPORTS	1-SEP-92:12	144	NEO LEU	1 1	MI134
240	1036 TURB200	TURB/GEN - GLUE GASKET TO GLAND CASING	1-SEP-92:12	3	TECH TMCI	1 2	TURB
241	1402 2AJQWI	TURBINE ZERO SPEED ALARM -INVESTIGATE PROBLEM WITH ALARM NOT COMING IN WHEN TURBINE WENT OFF GEAR	1-SEP-92:12	6	EL TECH	2 1	
242	1647 SISYS325	DEVELOP PLAN & SCHEDULE FOR CLEANING THE RWST	1-SEP-92:12	36	RADD	2	SIPOI
243	1084 TURB160	TURB/GEN - MACHINE SEAL RING	1-SEP-92:13	10	TMCI	2	TURB



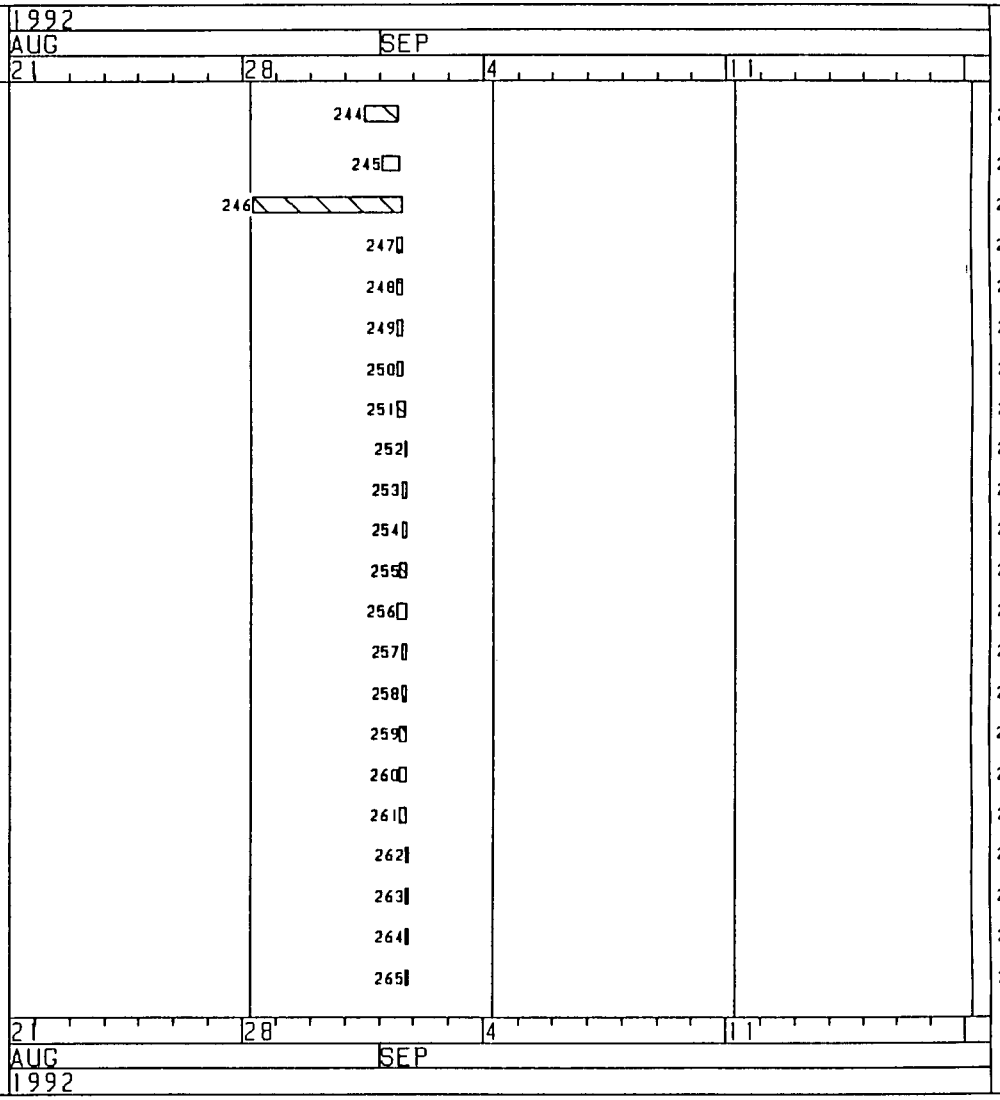
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # / PREFIX	ACTIVITY DESCRIPTION	START / FINISH	DU	CRAFT	QTY	CODE
244	1224 2FWG361	PERFORM INSPECTION OF SPENT FUEL CASK CRANE, NEW FUEL CRANES & SPENT FUEL POOL CRANES	1-SEP-92:13	8	ME	2	
245	1682 2AWZP1	ALIGN 'B' SI PUMP & MOTOR	1-SEP-92:14	12	ME	2	SIFLW
246	200 2AAEI1A	MECHANICAL PERSONNEL ATTEND FIREWATCH TRAINING, TRAILER CITY	1-SEP-92:15	24	MIW	-	MISCW
247	1046 TURB270	TURB/GEN - BOLT U/H EE BRG BRACKET	1-SEP-92:15	3	TECH TMCI	1 3	TURB
248	1250 2HPG002	PERFORM INSPECTION OF SECURITY GATE 1	1-SEP-92:16	4	EL	2	
249	1253 2HPH002	PERFORM INSPECTION OF SECURITY GATE 2	1-SEP-92:16	4	EL	2	
250	1256 2HPI002	PERFORM INSPECTION OF SECURITY GATE 3	1-SEP-92:16	4	EL	2	
251	1241 2HNT001	IGC SHOP HOIST INSPECTION	1-SEP-92:17	5	EL	2	
252	1040 TURB220	TURB/GEN - MEGGER GLAND CASING	1-SEP-92:18	1	TECH TMCI	1 2	TURB
253	1047 TURB280	TURB/GEN - SET GENERATOR ROTOR IN BEARING	1-SEP-92:18	3	TECH TMCI	1 3	TURB
254	1048 TURB290	TURB/GEN - BOLT U/H HYDROGEN GLAND CASE	1-SEP-92:18	3	TECH TMCI	1 3	TURB
255	1049 TURB300	TURB/GEN - PUMP EE BEARING BRACKET JOINTS	1-SEP-92:18	4	TECH TMCI	1 2	TURB
256	1051 TURB320	TURB/GEN - INSTALL CROSSOVER SPOOL	1-SEP-92:18	6	TECH TMCI	1 3	TURB
257	1053 TURB340	TURB/GEN - INSTALL U/H #8 BEARING	1-SEP-92:18	3	TECH TMCI	1 3	TURB
258	1054 TURB350	TURB/GEN - INSTALL AND SET EE OIL SEAL	1-SEP-92:18	3	TECH TMCI	1 2	TURB
259	1259 2HPJ002	PERFORM INSPECTION OF SECURITY GATE 8	1-SEP-92:18	4	EL	2	
260	1262 2HPK002	PERFORM INSPECTION OF SECURITY GATE 12	1-SEP-92:18	4	EL	2	
261	1265 2HPL002	PERFORM INSPECTION OF SECURITY GATE 'N'	1-SEP-92:18	4	EL	2	
262	1199 2HRU001	CHANGE EH OIL POLISHING FILTER 'A'	1-SEP-92:20	2	ME	2	
263	1202 2HRV001	CHANGE EH OIL POLISHING FILTER 'B'	1-SEP-92:20	2	ME	2	
264	1203 2HRW001	CHANGE EH OIL AUXILIARY FILTER 'A'	1-SEP-92:20	2	ME	2	
265	1206 2HRX001	CHANGE EH OIL AUXILIARY FILTER 'B'	1-SEP-92:20	2	ME	2	



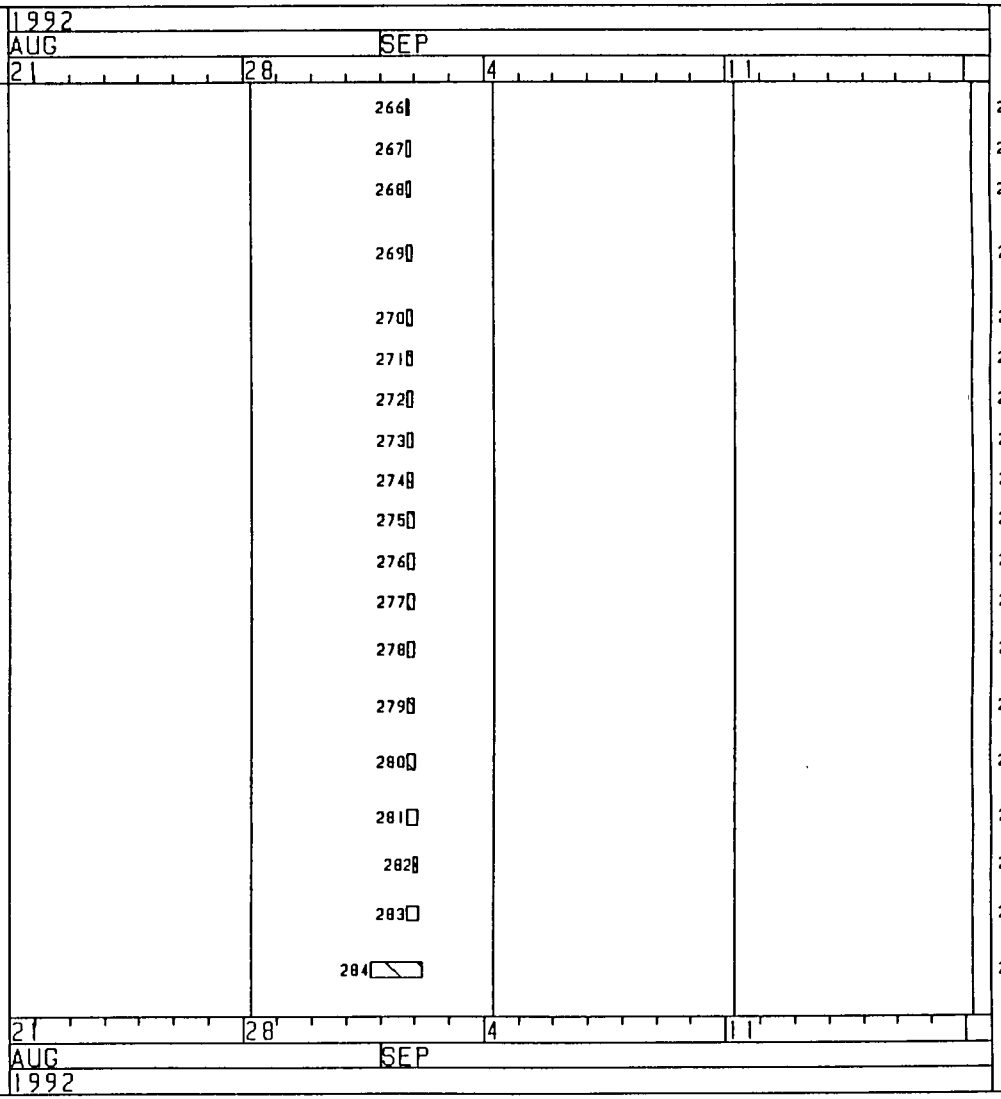
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
266	1372 2ALYE1	INSTALL BATTERY IN FDAP A1	1-SEP-92:20	2	EL	2	
267	1193 2HRS004	CHANGE EH OIL UNLOADER BANK 'A' FILTERS	1-SEP-92:21	3	ME	2	
268	1196 2HRT001	CHANGE EH OIL UNLOADER BANK 'B' FILTERS	1-SEP-92:21	3	ME	2	
269	1033 2ALG362	PERFORM VIB/TEMP/INSP OF SEAL OIL PMPS, HTR DRN PMPS, CONDENSATE PMPS, DEMIN WATER PMP, MAIN FEED PMP, PRIMARY AIR COMP, DEEP WELL PMPS & 'C' INST AIR COMP.	1-SEP-92:22	4	ME	2	
270	1375 2AMJE1	PERFORM CALIBRATION OF TT-302A WITH DECADE BOX AT THE RTD.	1-SEP-92:22	4	EL	2	
271	1378 2AMJH1	PERFORM CALIBRATION OF TT-302B WITH DECADE BOX AT THE RTD	1-SEP-92:22	4	EL	2	
272	1459 2ALLQ1	LO-43 - INSPECT CHECK VALVE (BOWSER FILTER CAGE)	1-SEP-92:22	4	ME	2	
273	1462 2BER515	LUBE OIL FILTER PUMP - CHECK COUPLING ALIGNMENT	1-SEP-92:22	4	ME	2	
274	1627 2AGTW3	MS-160 - REPLACE INSULATION	1-SEP-92:22	4	IN	2	
275	151 2AKBN1	PS-955A - REPAIR DUAL INDICATION WHEN SHUT	1-SEP-92:23	5	EL ME	3 2	
276	154 2AKBP1	PS-955B - REPAIR DUAL INDICATION WHEN SHUT	1-SEP-92:23	5	EL ME	3 2	
277	889 2AHZ361	PERFORM CONTAINMENT & RHR PIT MONTHLY LUBRICATION	1-SEP-92:23	5	ME CVEN	2 -	
278	1024 2ADE362	PERFORM VIB/TEMP/INSP OF VAPOR EXT'S, EH OIL PMPS, GLAND STEAM EXT & COND VACUUM PUMPS	1-SEP-92:23	5	ME	2	
279	1408 2AMQZ1	'B'EDG -INVESTIGATE PROBLEM WITH 'B' DAY TANK FUEL OIL SOLENOID LEAKING BY (EV-1963B1)	1-SEP-92:23	5	EL	2	
280	148 2AKGS1	INVESTIGATE PROBLEM WITH VT-429D -Y SHAFT SENSOR ON 'B' RCP- OK LIGHT IS OUT	1-SEP-92:24	6	EL TECH CVEN	2 1 -	
281	841 2AJNW1	VT-429E -'B' RCP VIBRATION SENSOR- INVESTIGATE PROBLEM WITH GAP VOLTAGE ON PHASE PROBE	2-SEP-92:01	7	EL RADC CVEN	2 1 -	
282	1381 2ALTG1	PERFORM MST-007 DUE ON 9/2/92	2-SEP-92:01	2	EL	2	
283	1630 2AMSE1	VT-439A -RCP 'C' X PROBE- INVESTIGATE PROBLEM WITH ERRATIC READINGS	2-SEP-92:02	8	EL RADC CVEN	2 1 -	
284	1741 2AMZM1	INSPECT,EVALUATE & REASSEMBLE SI-890A (SI PMP RM)	2-SEP-92:05	36	ME TECH QC	2 1 1	SIPOI



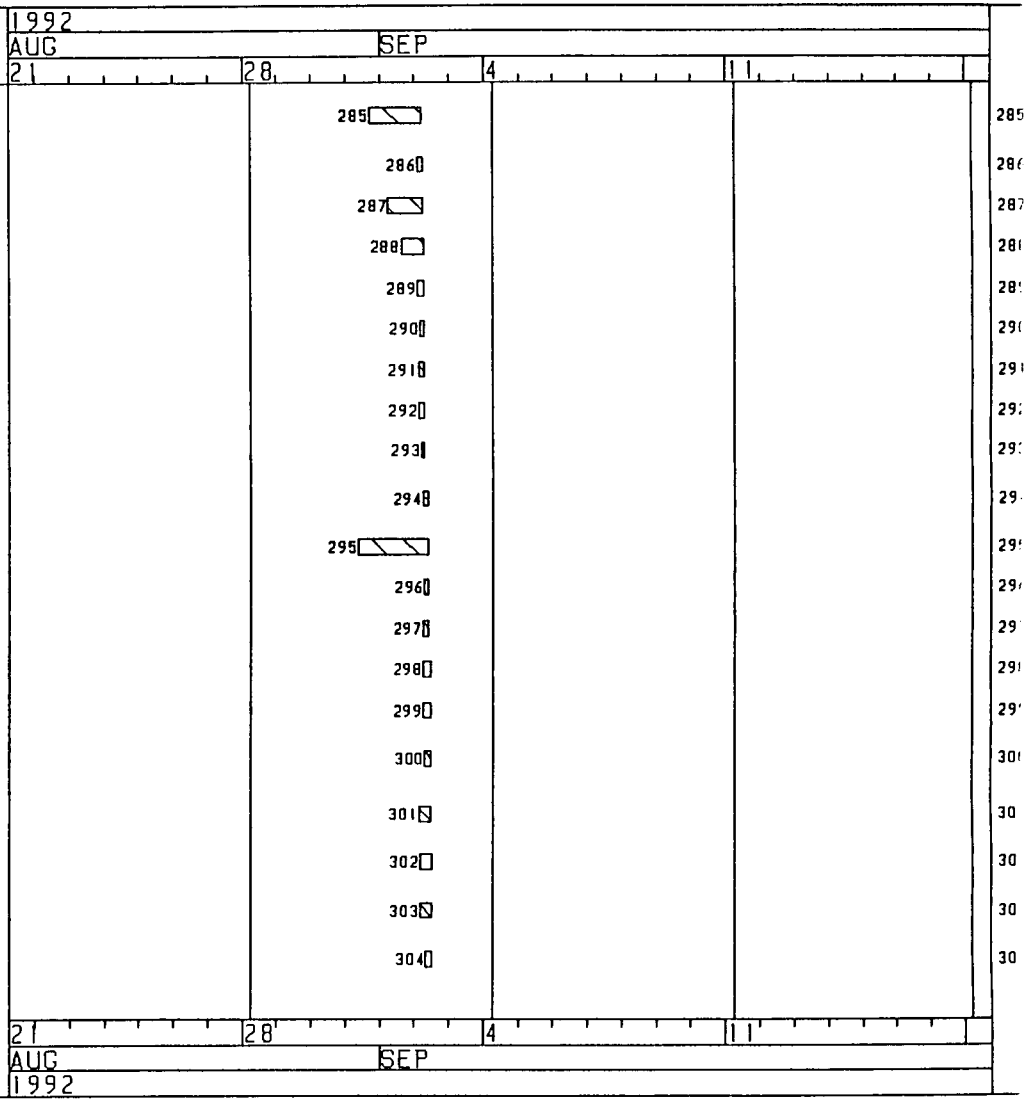
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
285	1744 2AWZN1	INSPECT,EVALUATE & REASSEMBLE SI-8908 (SI PMP RM)	2-SEP-92:05	36	ME TECH QC	2 1 1	SIPOI
286	768 0253	OST-253 - RHR PUMP FLOW TEST (COLD SHUTDOWN) (PRIOR TO PLANT HEAT-UP)	2-SEP-92:06	4	OPER	2	GFO4OST
287	967 M1134070	M1134 - REVIEW, DESIGN VERIFY & APPROVE MOD	2-SEP-92:06	24	LEU NED	1 1	M1134
288	850 9ACDF1	'A' D/G - REPLACE CRIMPED TUBING ON FUEL OIL HAND PRIME PUMP	2-SEP-92:07	16	ME QC	2 1	
289	907 2AKYK2	LT-182 & LT-183 - REPLACE INSULATION (CVCS MONITOR TNK 'A')	2-SEP-92:07	5	IN	2	
290	913 2ALSL1	REPAIR INSLUATION ON 90 AT TOP OF LADDER ON PRIMARY WATER TANK	2-SEP-92:07	3	IN	2	
291	959 2ALSX1	REPAIR INSULATION AT PRIMARY WATER STORAGE TANK	2-SEP-92:07	4	IN	2	
292	1218 2HQN001	INSPECT RHR PIT HOIST	2-SEP-92:07	4	ME	2	
293	1792 2AIUG1	REPLACE AIR TUBING AT IA-309 (AT RX COOLANT DRN TNK)	2-SEP-92:07	2	ME CVEN	2 1	
294	1274 2ADN363	REPLACE SERVICE AIR COMP. AIR FILTER CHECK LIST E-007 PM ROUTE E-MO-008	2-SEP-92:09	3	EL	1	
295	1621 1AQPB1	SEAL OIL VAPOR EXTRACTOR DRAIN VENT - ROUTE LINE TO DRUM	2-SEP-92:09	16	ME	2	
296	1795 2AKZJ1	REPAIR AIR LEAK AT CONTROL CABINET ON MANIPULATOR CRANE	2-SEP-92:09	2	ME CVEN	2 1	
297	1212 2HQM001	PERFORM INSPECTION OF BATCH TANK ROOM HOIST	2-SEP-92:10	4	ME	2	
298	1247 2HNP001	MECHANICAL MAINTENANCE SHOP CRANE INSPECTION	2-SEP-92:11	5	EL	2	
299	1280 2HNS001	BATCH TANK ROOM HOIST INSPECTION	2-SEP-92:11	5	EL	2	
300	1517 M1074001	MOD-1074 - TRAINING	2-SEP-92:11	4	LEU MIE RADC	1 1 1	M1074
301	1553 2AIJL2	ELECTRICAL PENETRATION F01 & C10 - REMOVE SCAFFOLDING FROM NORTH CABLE VAULT	2-SEP-92:11	8	MIC	6	MISCC
302	877 2ALMY1	RHR-744A - CHECK FOR OIL LEAKS IN OPERATOR	2-SEP-92:12	8	ME CVEN	2 -	
303	880 2ALMZ1	RHR-744B - CHECK FOR OIL LEAKS IN OPERATOR	2-SEP-92:12	8	ME QC CVEN	2 1 -	
304	956 2ALSU1	REPLACE INSULATION AT 4A FWH	2-SEP-92:12	4	IN	2	



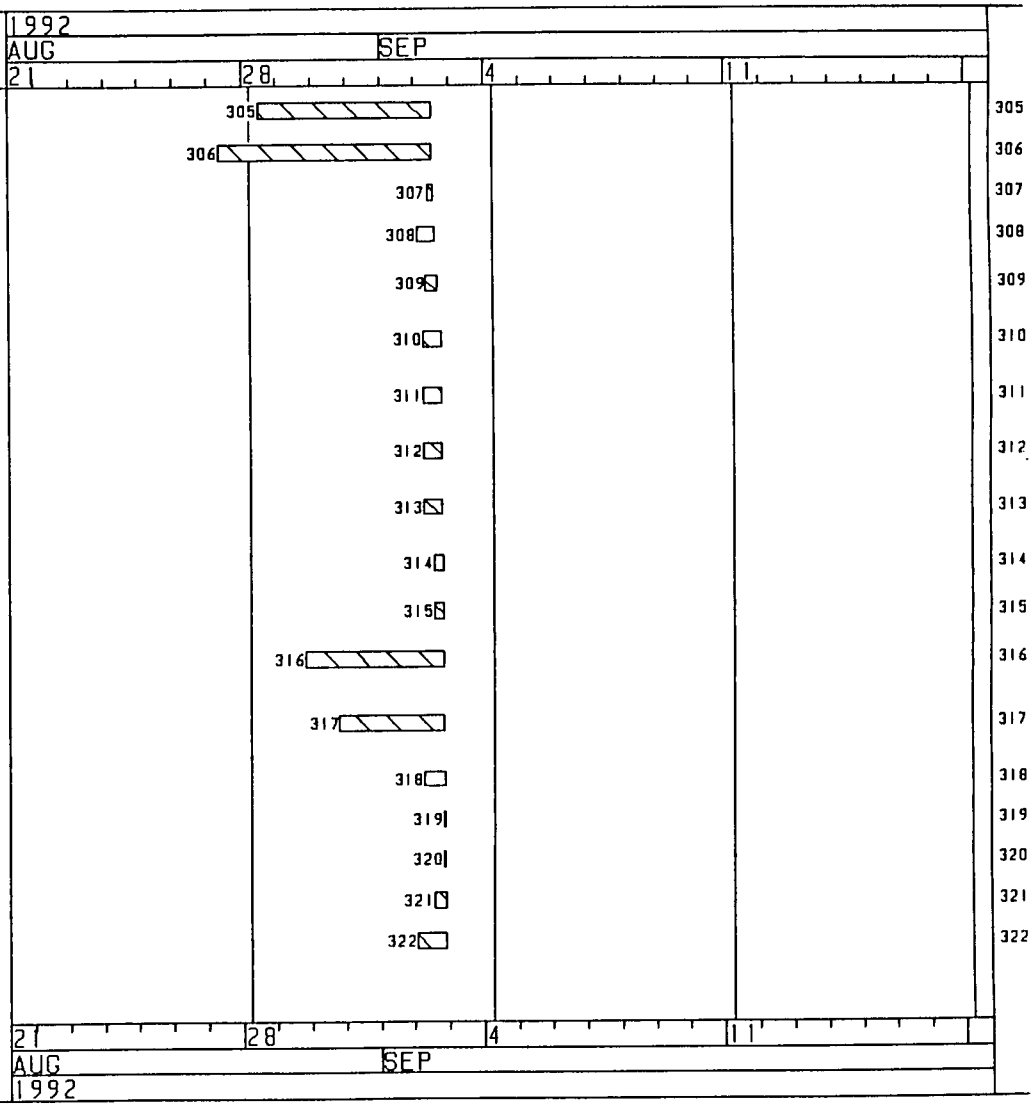
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
305	1435 2AKYE4	FW-8C - REPLACE INSULATION	2-SEP-92:12	24	IN	2	
306	1768 2AMUH1	REPLACE INSULATION ON TURBINE CROSSOVER PIPING	2-SEP-92:12	36	IN	2	
307	1230 2AHX365	PERFORM INTAKE EQUIPMENT MONTHLY LUBRICATION	2-SEP-92:13	4	ME SECU	2 1	
308	856 0AKYL1	SNUBBER #102 - REBUILD SNUBBER (ON MAIN STEAM LINE AT CONDENSER)	2-SEP-92:14	12	ME	2	
309	1165 M1134170	M1134 - OBTAIN LCTR ON 'A' & 'B' SI PUMP DISCHARGE & DRAIN PIPING FOR STRAINER INSTALLATION	2-SEP-92:16	8	MIW OPER	1 1	M1134
310	1638 2AMYX1	SI-861B -CV SUMP RECIRC SUCTION VLV-SET OPEN TORQUE SWITCH TO 4	2-SEP-92:18	12	EL TECH QC	2 1 1	
311	1783 2ALSR1	MCC-5(11F)-SI-863A RHR DISCH VLV BREAKER-INVESTIGATE/REPAIR PROBLEM WITH DIM INDICATING LIGHTS	2-SEP-92:18	12	EL	2	
312	1786 2ALST1	MCC-5(11B)-BAST 'A'HTRS BREAKER-INVESTIGATE/REPAIR PROBLEM WITH DIM INDICATING LIGHTS	2-SEP-92:18	12	EL	2	
313	1789 2ALSW1	MCC-5(7J) -CTMT SPRAY B PMP DISCH V88QC BREAKER-INVESTIGATE/REPAIR PROBLEM WITH DIM INDICATING LIGHTS	2-SEP-92:18	12	EL	2	
314	1476 SUBSTA01	CLEAN AND INSPECT UAT AND SUT JUNCTION BOXES AND RE-GASKET AS REQ'D (ROTATE & ORIENT 2 BOXES)	2-SEP-92:19	6	TECH SUBM	1 2	SUBST
315	1479 SUBSTA02	DETERMINE CAUSE OF 'C' PHASE MAIN TRANSORMER UV RELAY NOT RESETTING	2-SEP-92:19	6	TECH SUBM	1 2	SUBST
316	1609 SISYS300	SP-1159 - PERFORM SI & CV SPRAY SYSTEM INSPECTIONS AS PER SPECIAL PROCEDURE	2-SEP-92:19	96	TECH	3	SIPDI
317	1803 2AMWN2	PROVIDE TEMPORARY POWER SUPPORT AS REQUIRED FOR THE SI SYSTEM POTENTIAL DAMAGE INVESTIGATION TEAM CAMERA INSPECTIONS	2-SEP-92:19	72	MIE	2	SIPDI
318	871 2AMPY1	MS-353A - REPAIR PACKING LEAK (WHEN CV INTEG NR)	2-SEP-92:20	14	ME	2	
319	1887 2AMYU1	'A' COND VACUUM PUMP - OBTAIN OIL SAMPLES (92AMYU1,92AMYY1)	2-SEP-92:20	1	ME	2	
320	1890 2AMYW1	'B' COND VACUUM PUMP - OBTAIN OIL SAMPLES (92AMYW1,92AMZA1)	2-SEP-92:20	1	ME	1	
321	1209 2CCP363	REPLACE THE LUBE OIL PARTICAL FILTERS	2-SEP-92:21	8	ME	2	
322	1369 2AMKY1	EGRC BLDG FIRE TROUBLE - TROUBLESHOOT ALARM CYCLING	2-SEP-92:21	8	EL	2	



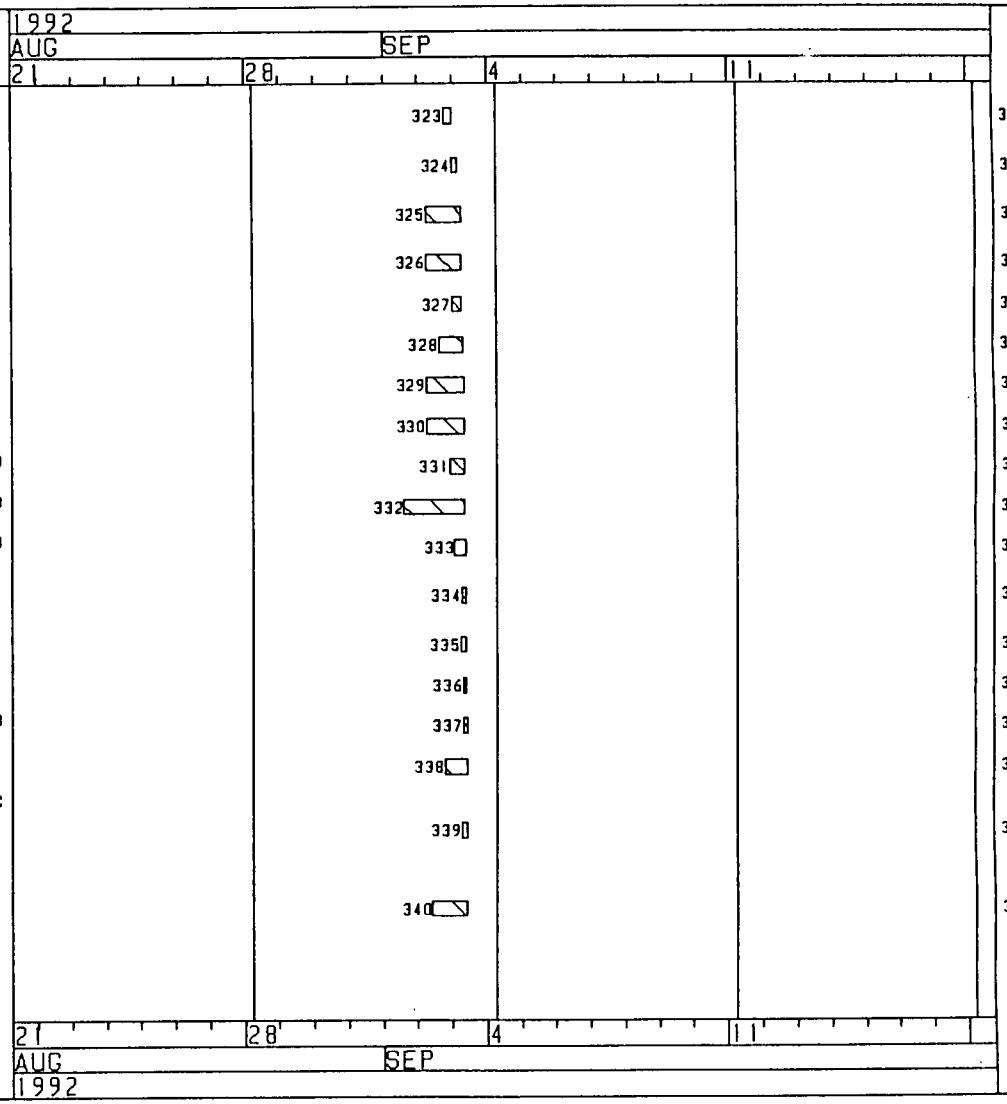
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
323	1633 SPP0131	SPP-013 -RX PROT SIGNAL SIMULATION-INSTALL SIMULATION NEEDED TO PERFORM MSTS	2-SEP-92:24	6	EL	2	
324	1384 2ALTU1	PERFORM MST-014 AND MST-015 DUE ON 9/3/92	3-SEP-92:03	3	EL	2	
325	1167 MI134190	MI134 - INSTALL MAXIBOLTS FOR 'A' & 'B' SI PUMP DISCHARGE STRAINER SUPPORT BASEPLATES	3-SEP-92:06	24	MIC QC	2 1	MI134
326	1172 MI134125	MI134 - PREFAB 'A' & 'B' SI PUMP STRAINER SUPPORTS	3-SEP-92:06	24	MIW QC	3 1	MI134
327	1366 2ALTR1	PERFORM MST-451 DUE ON 9/1/92	3-SEP-92:06	6	EL	2	
328	1277 2FDF009	SECURITY EXPLOSIVE DETECTOR FILTER INSPECTION CHECK LIST E-059	3-SEP-92:07	4	EL	2	
329	898 2HPT003	WCCU-1A - PERFORM WEEKLY INSPECTION	3-SEP-92:08	14	WE SECU	2 1	
330	901 2HPU003	WCCU-1B - PERFORM WEEKLY INSPECTION	3-SEP-92:08	14	WE SECU	2 1	
331	1052 TURB330	TURB/GEN - INSTALL THRUST BEARING	3-SEP-92:08	6	TECH TWCI	1 3	TURB
332	1086 TURB180	TURB/GEN - REPAIR THRUST BRG RTD'S (92AKGE3 FOR MECHANICAL)	3-SEP-92:08	34	TWCI OPER	1 1	TURB
333	1056 TURB370	TURB/GEN - INSTALL EXCITER HOUSE	3-SEP-92:09	4	TECH TWCI	1 3	TURB
334	1283 2ADK009	CHECK 'C' STATION, SECURITY, AND ERFIS BATTERIES PM-425 PM ROUTE E-N-012	3-SEP-92:09	3	EL	2	
335	1893 2ALHY1	52/21C - INSPECT BREAKER ('A' SI PMP)	3-SEP-92:09	4	EL	2	
336	1899 2AKJE1	LC-1506 - PROPERLY SECURE AIR LINE (4A FWH)	3-SEP-92:09	2	EL	2	
337	1057 TURB380	TURB/GEN - CONNECT SW TO EXCITER COOLER	3-SEP-92:10	3	TECH TWCI	1 2	TURB
338	1227 2APP364	PERFORM INSPECTION OF EDF/TSC DIESEL (92APP364, 92BJT364)	3-SEP-92:10	16	ME	2	
339	1428 2AWRQ1	WCCU 1A - ASSIST WITH CALIBRATION (92AWRQ1, 92AWRR1)	3-SEP-92:10	4	ME SECU EL TECH NED	2 1 2 1 1	MISC
340	1777 TE4007	TE-4007 -TG FRONT THRUST BEARING TEMP-INVESTIGATE/REPAIR PROBLEM WITH THE TEMPERATURE INSTRUMENT ** WR # 92AKGE2 AND 92ALJR2 **	3-SEP-92:10	12	EL TECH	2 1	



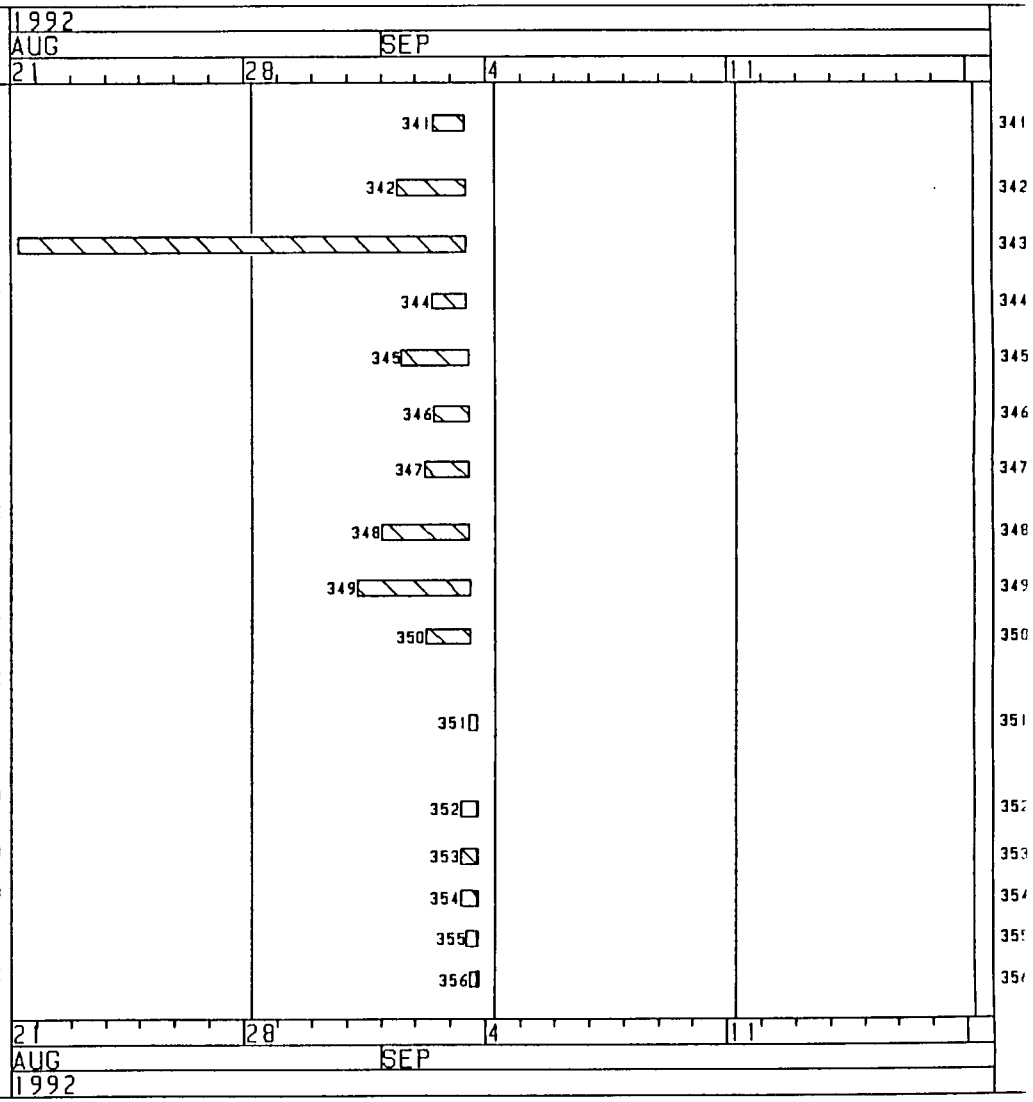
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
341	1780 TE4008	TE-4008 -TG REAR THRUST BEARING TEMP-INVESTIGATE/REPAIR PROBLEM WITH THE TEMPERATURE INSTRUMENT ** WR # 92AKGF2 AND 92ALZF1 **	3-SEP-92:10	10	EL TECH	2 1	
342	377 MI111005	MI111 - REMOVE EXISTING TUBING SUPPORTS AND TEMP SUPPORT TUBING, BATCH TK RM	3-SEP-92:11	16	MIM QC	3 1	MI111
343	435 MI111034	MI111 - REMOVE EXISTING CONDUIT/SUPPORTS FROM BATCH TANK ROOM.	3-SEP-92:11	72	MIE QC	2 1	MI111
344	1597 2AKAJ7	REMOVE SCAFFOLDING ON TURB MEZZ LEVEL SOUTHSIDE OF CATWALK FOR 6-MS-10 LINE REPLACEMENT	3-SEP-92:11	8	MIC	6	MISCC
345	1524 SISY8062	SI-844A -INSPECT,EVALUATE & REASSEMBLE VALVE (RWST DISCH)	3-SEP-92:12	46	ME TECH QC	3 1 -	SIPOI
346	1822 MI134250	MI134 - REMOVE INSULATION FROM 'A' & 'B' SI PUMP RECIRC LINES, SI PUMP ROOM	3-SEP-92:12	12	IN	2	MI134
347	1831 MI134280	MI134 - PREPARE & RELEASE FIELD REV 1 FOR SHOP HYDROTEST, ISLT & FLOW TEST	3-SEP-92:12	30	NED	1	MI134
348	1884 SISY8380	SP-1160 - PREPARE, REVIEW & APPROVE SPECIAL PROCEDURE FOR RWST CLEANING	3-SEP-92:12	60	RADD TECH OPER CHEM	1 1 1 1	SIPOI
349	895 2AFX009	PERFORM WEEKLY LUBRICATION	3-SEP-92:13	30	ME	2	
350	1808 SP1160A	SP1160 - SET UP FILTRATION PUMPS, ETC FOR RWST CLEAN-UP	3-SEP-92:13	18	RADD RADC ME	1 1 4	SIPOI
351	1811 SP1160B	SP1160 - INSPECTION AND CLEANUP OF RWST	3-SEP-92:18	6	RADD RADC DECN MIC ME OPER QC	1 1 1 4 2 1 1	SIPOI
352	1050 TURB310	TURB/GEN - AIR TEST GENERATOR	3-SEP-92:19 3-SEP-92:19	12	TECH TMCI OPER	1 2 1	TURB
353	1055 TURB360	TURB/GEN - INSTALL GEN/EXC LAGGING	3-SEP-92:19 3-SEP-92:19	12	TECH TMCI	1 3	TURB
354	1058 TURB390	TURB/GEN - REPLACE LP-LP LAGGING	3-SEP-92:19 3-SEP-92:19	12	TECH TMCI	1 3	TURB
355	1774 2AMZC1	SI-859 -REPLACE MISSING 'U'BOLT NUTS ON RELIEF VALVE PIPE SUPPORT	3-SEP-92:19 3-SEP-92:19	8	ME	1	
356	1819 SP1160A1	SP1160 - ESTABLISH CLEARANCE FOR RWST INSP AND CLEANING	3-SEP-92:19 3-SEP-92:19	6	OPER	2	SIPOI



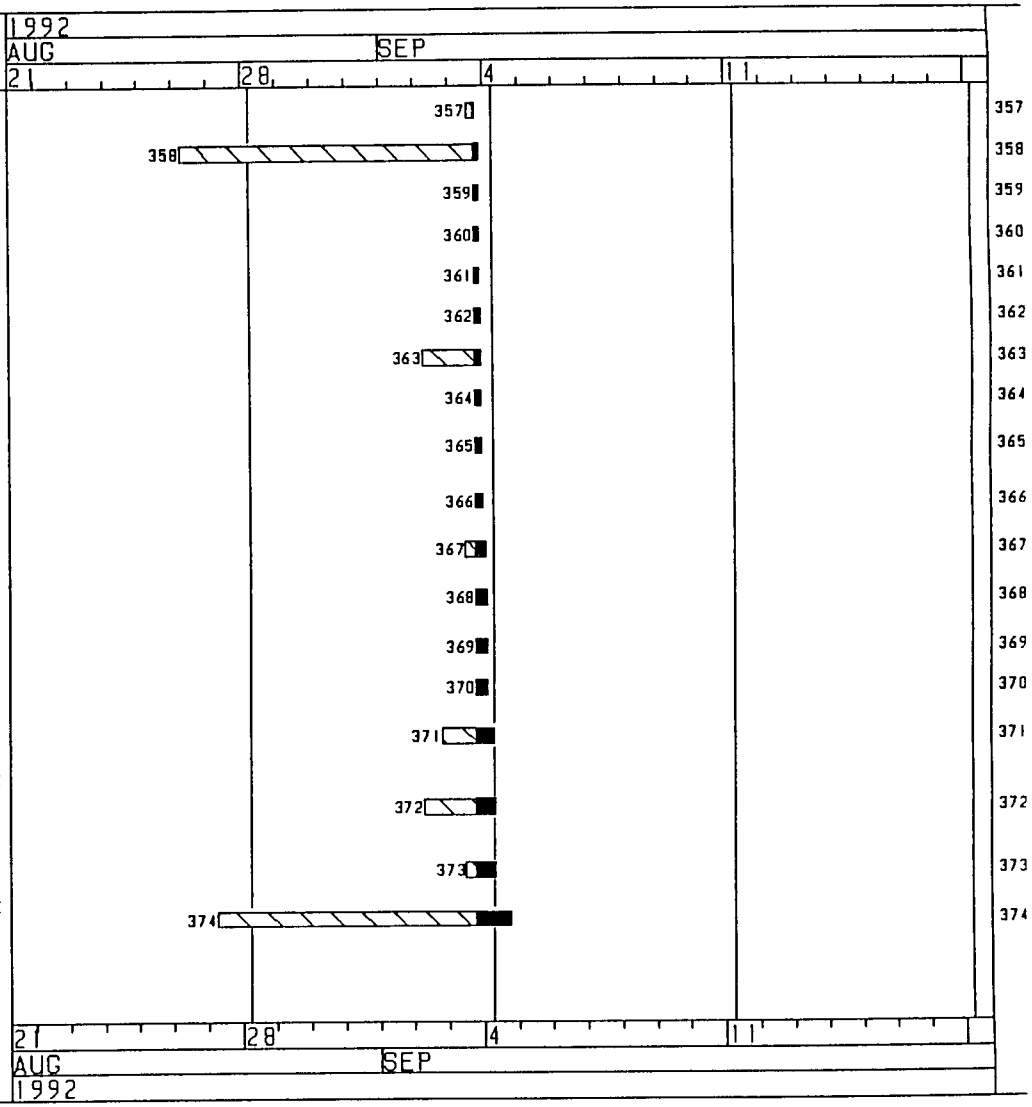
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
357	2052 TURB400	TURB/GEN - PLACE TURBINE ON TURNING GEAR	3-SEP-92:19 3-SEP-92:19	6	OPER TECH	1 1	TURB
358	966 MI134060	MI134 - HAVE STRAINER PARTS MACHINED AT SONOCO	3-SEP-92:19 3-SEP-92:20	206	MIW MATC	1 1	MI134
359	1387 2AMEU1	CLEAN 'A' FIELD FLASH BATTERIES AS NEEDED	3-SEP-92:19 3-SEP-92:21	3	EL	2	
360	1390 2AMEW1	CLEAN 'B' FIELD FLASH BATTERIES AS NEEDED	3-SEP-92:19 3-SEP-92:21	3	EL	2	
361	1771 2AMPY2	MS-353A MO -MS-V1-3A BYPASS VLV- PERFORM ELECTRICAL PORTION OF PMTR	3-SEP-92:19 3-SEP-92:21	3	EL TECH	2 1	
362	1676 2AMWL3B	SP-1159 - ELECT RECONNECT BI-844A	3-SEP-92:19 3-SEP-92:22	4	EL QC	2 1	SIPDI
363	1750 2ABMQ1	'A' CCW PUMP - REPLACE SHAFT SEAL	3-SEP-92:19 3-SEP-92:22	40	ME QC	2 1	
364	1896 2AMQW1	TR-604 - TROUBLESHOOT PEN 3 OF RHR TEMPERATURE RECORDER	3-SEP-92:19 3-SEP-92:22	4	EL	2	
365	2058 2ANDX1	HEAT TRACE CKT 34 -INVESTIGATE/REPAIR PROBLEM WITH PRIMARY READING LOW	3-SEP-92:19 3-SEP-92:22	4	EL	2	
366	738 WORK	WORK ACTIVITIES AS AUTHORIZED BY FORCED OUTAGE WORKLISTS FOR PLANT CONDITIONS 2 & 3	3-SEP-92:19 3-SEP-92:23	5			GFO4
367	1438 2AKBK5	HDV-276A - REPLACE BONNET GASKET (FURMANITED)	3-SEP-92:19 4-SEP-92:01	14	ME	2	
368	1488 2AMTI1	ASSIST TECH SUPPORT WITH MEASURING CURRENT AT 52/15B - 480V BUS 3 MAIN SUPPLY BREAKER	3-SEP-92:19 4-SEP-92:02	8	EL TECH	2 1	
369	1506 2AMTN1	52/3A - CLEAN & INSPECT BREAKER (BUSS 1 MCC-1)	3-SEP-92:19 4-SEP-92:02	8	EL	2	
370	1902 1AIXAJ	MOD-1074 - ASSIST WITH CABLE PENETRATION MOD	3-SEP-92:19 4-SEP-92:02	8	EL	2	
371	844 2AJFW1	HVE-3 - ASSIST TECH SUPPORT WITH VIBRATION TESTING	3-SEP-92:19 4-SEP-92:06	36	ME QC CVEN	2 1 -	
372	1869 SISYS350	SP-1161 - PREPARE, REVIEW & APPROVE SPECIAL PROCEDURE FOR RWST DISCHARGE HEADER	3-SEP-92:19 4-SEP-92:06	48	TECH RADD CHEM OPER NED	1 1 1 1 1	SIPDI
373	2070 2ANCP1	'B' SW BOOSTER PUMP - REASSEMBLE AFTER INSPECTION	3-SEP-92:19 4-SEP-92:07	20	ME TECH	2 2	
374	1151 SISYS160	PROVIDE TEMPORARY POWER SUPPORT AS REQUIRED FOR THE RWST INSPECTION/CLEANING	3-SEP-92:19 4-SEP-92:18	204	MIE	2	SIPDI



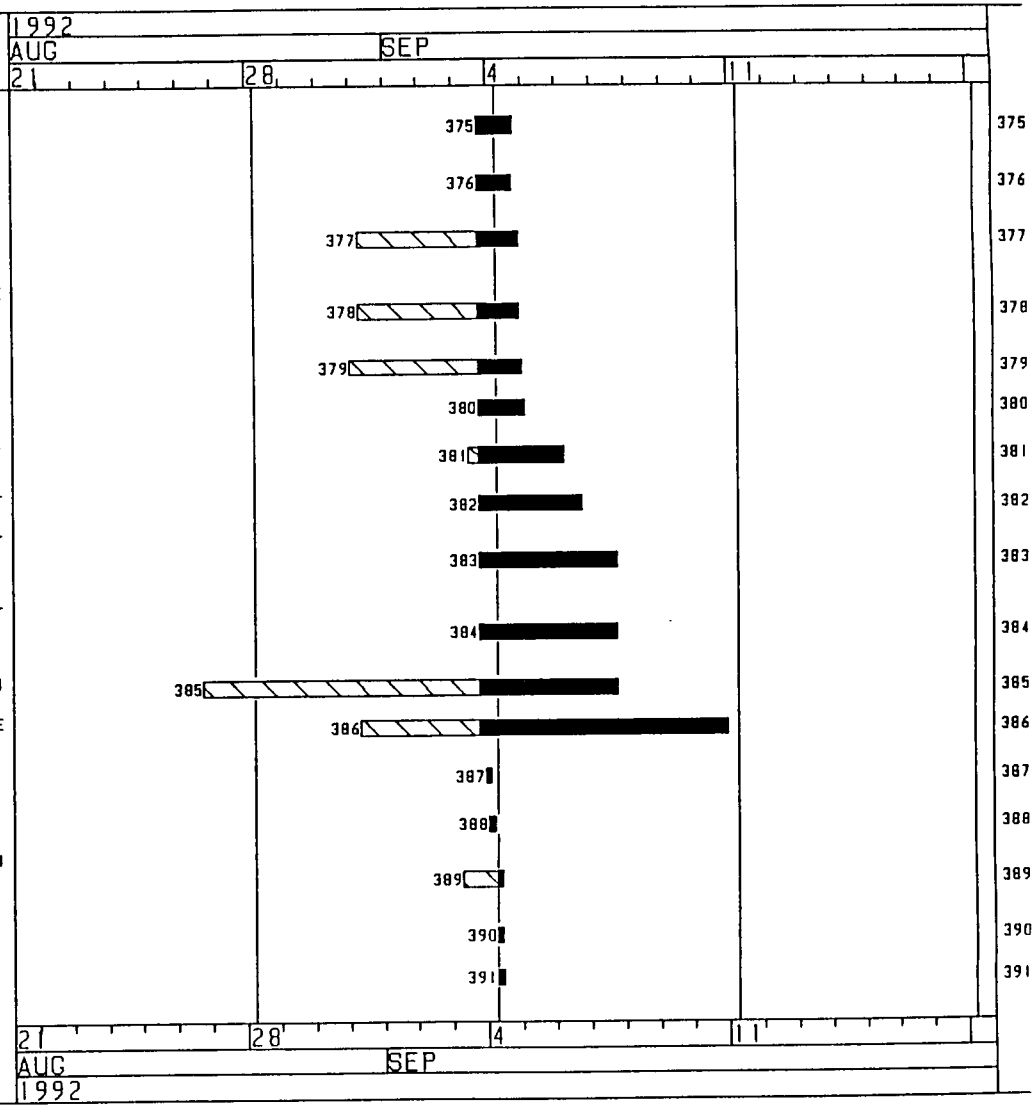
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SDS FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
375	1834 MI134290	MI134 - REVIEW, RESOLVE COMMENTS & APPROVE FIELD REV 2 FOR SHOP HYDROTEST, IN-SERVICE LEAK TEST & FLOW TEST	3-SEP-92:19 4-SEP-92:18	24	LEU NED	1 1	MI134
376	2055 TURB410	TURB/GEN - CO2 PURGE & FILL GENERATOR W/ HDYDROGEN	3-SEP-92:19 4-SEP-92:18	24	OPER TECH	2 1	TURB
377	1612 GISYS310	SP-1161 - PROVIDE ESCORTS & SUPPORT FOR CTS INC. CONTRACTOR TO PERFORM VIDEO INSPECTIONS OF RWST DISCHARGE HEADER INSPECTION	3-SEP-92:19 4-SEP-92:22	112	MIC	2	SIPDI
378	1659 GISYS330	SP-1161 - ESTABLISH PLP-047 AREAS AS REQUIRED TO SUPPORT INSPECTION OF THE RWST DISCHARGE HEADER INSPECTION	3-SEP-92:19 4-SEP-92:22	112	MIC	2	SIPDI
379	935 2ALHL1	PERFORM DAILY WSTS (101,102,801,902,912)	3-SEP-92:19 4-SEP-92:24	60	EL	1	
380	926 2AFK353	PERFORM PORTABLE HEATER INSPECTION -E-YA-004-	3-SEP-92:19 5-SEP-92:02	20	EL	2	
381	1161 MI134130	MI134 - PREFAB, VT, PT, UT & RT 'A' & 'B' SI PUMP STRAINERS	3-SEP-92:19 6-SEP-92:04	65	MIM QC NDE	5 1 1	MI134
382	737 2K	GP-007 - RCS PURIFICATION	3-SEP-92:19 6-SEP-92:16	70	OPER	-	GF04OST
383	769 0702	OST-702 - ISI SECONDARY SIDE VALVE TEST (COLD SHUTDOWN >48 HOURS UNLESS PREVIOUSLY COMPLETED WITHIN 90 DAYS) (PRIOR TO PLANT HEAT-UP)	3-SEP-92:19 7-SEP-92:18	96	OPER	2	GF04OST
384	770 0703	OST-703 - ISI PRIMARY SIDE VALVE TEST (COLD SHUTDOWN >48 HOURS UNLESS PREVIOUSLY COMPLETED WITHIN 90 DAYS) (PRIOR TO PLANT HEAT-UP)	3-SEP-92:19 7-SEP-92:18	96	OPER	2	GF04OST
385	971 MI134120	MI134 - REVISE & APPROVE OP-202, ONP-016 & OST-151	3-SEP-92:19 7-SEP-92:18	288	TECH OPER	1 1	MI134
386	1650 2AMZE1	INSTALL OR REMOVE TEMPORARY POWER AS REQUIRED FOR FORCED OUTAGE	3-SEP-92:19 10-SEP-92:23	256	MIE	2	MISCE
387	2061 2ABWQ2	'A'CCW PMP -ASSIST IN PERFORMING PWTR AFTER MECHANICAL WORK IS COMPLETE	3-SEP-92:23 4-SEP-92:02	4	EL TECH	2 1	
388	1393 2ALTW1	PERFORM WST-003 & WST-016 DUE ON 9/4/92	4-SEP-92:01 4-SEP-92:05	5	EL	2	
389	1662 MI074020	MI074 - CUT-OUT SAMPLE & RESPLICE CABLE AT PENET D8 (I&C WR 91AIXAJ), CV IST LEVEL	4-SEP-92:07 4-SEP-92:09	15	MIE EL QC CVEN	2 2 1 1	MI074
390	1918 2ALCA1	DG DIESEL ALARM PANEL - TROUBLESHOOT ALARMS NOT FLASHING	4-SEP-92:07 4-SEP-92:10	4	EL	2	
391	1286 2HNQ001	RHR PIT HOIST INSPECTION	4-SEP-92:07 4-SEP-92:11	5	EL	2	



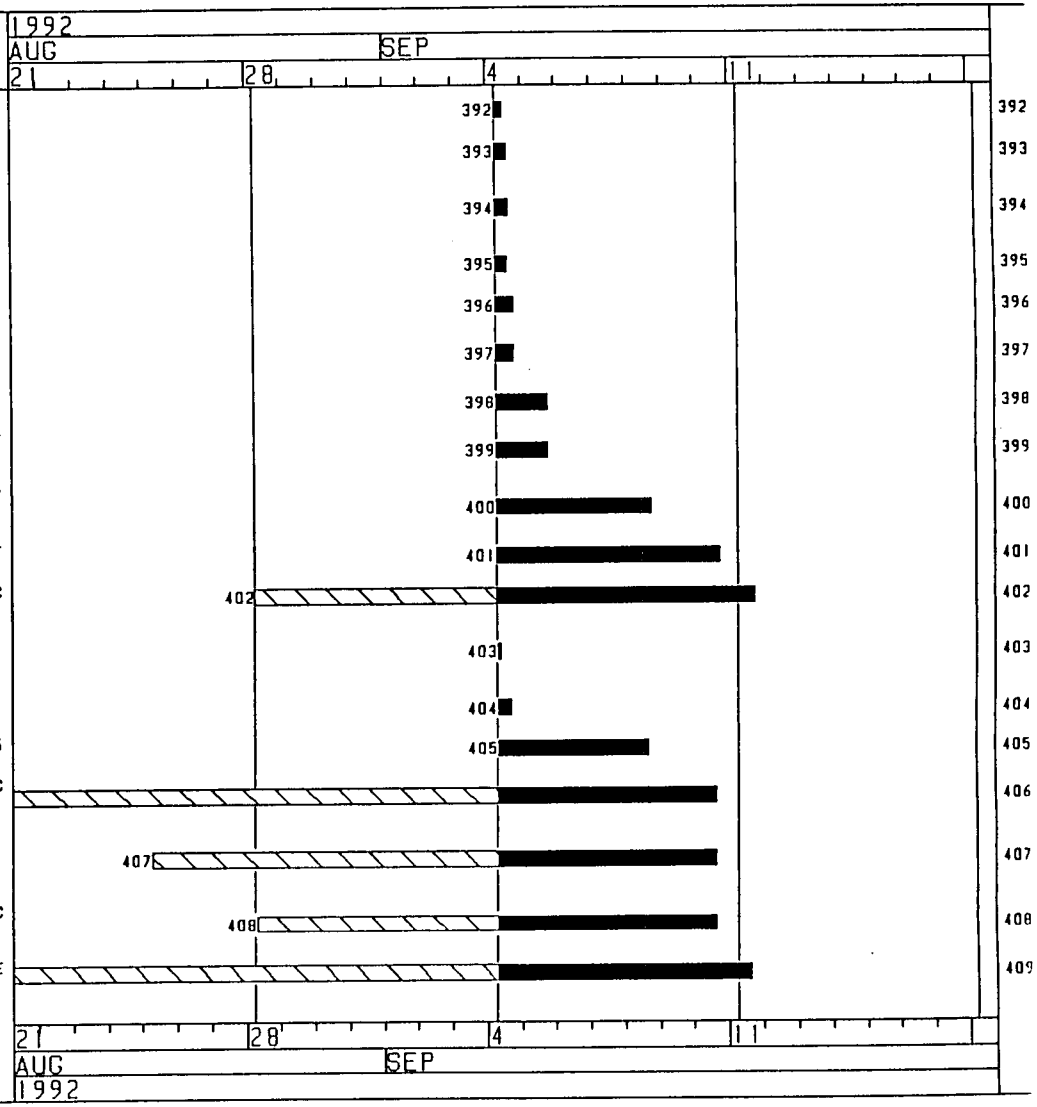
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SDS FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
392	1952 1ALLH1	H2 SEAL OIL FILTER - REPLACE PACKING AT FILTER HANDLE	4-SEP-92:07 4-SEP-92:12	6	ME	2	
393	1298 2AWNM1	REMOVE PRESENT LABELS ON MCC-16 SO NEW LABLES CAN BE INSTALLED	4-SEP-92:07 4-SEP-92:14	8	EL OPER	2 1	
394	1813 SP1160C	SP-1160 - REMOVE RWST CLEANING EQUIPMENT	4-SEP-92:07 4-SEP-92:14	8	RADD RADC DECN MIC	1 1 1 4	SIPDI
395	1949 1ALYF1	H2 SEAL OIL FILTER - REPAIR LEAK AT INLET FLANGE	4-SEP-92:07 4-SEP-92:14	8	ME	2	
396	1556 2AMRZ1	REMOVING HAY BARNS ON TURBINE	4-SEP-92:07 4-SEP-92:18	12	MIC	1	MISCC
397	1872 SISY6360	SP-1161 - PERFORM RWST DISCHARGE HEADER INSPECTION WITH DIVERS & CAMERAS AS PER SPECIAL PROCEDURE	4-SEP-92:07 4-SEP-92:18	12	TECH RADD DECN	3 1 1	SIPDI
398	1930 OST207P	OST-207 - OPERATIONS REVISE PROCEDURE FOR MDAFW PUMP FLOW TEST	4-SEP-92:07 5-SEP-92:18	24	OPER	1	GFO4OST
399	1939 OST165P	OST-165 - OPERATIONS REVISE PROCEDURE FOR FORWARD FLOW CHECK OF SI-849	4-SEP-92:07 5-SEP-92:18	24	OPER	1	GFO4OST
400	1936 OST151P	OST-151,155,OP-202,OWP-016 - OPERATIONS REVISE PROCEDURES FOR SI TESTING	4-SEP-92:07 8-SEP-92:18	60	OPER	1	GFO4OST
401	1933 OST251P	OST-251 - OPERATIONS REVISE PROCEDURE FOR RHR COMPONENT TEST	4-SEP-92:07 10-SEP-92:18	84	OPER	1	GFO4OST
402	1411 NEDELECT	NED - ELECTRICAL DEVICE & CABLES AS-BUILT	4-SEP-92:07 11-SEP-92:18	132	NED CVEN	1 -	MISC
403	457 MI111070	MI111 - OBTAIN PHASE ROTATION OF BATT CHG A-1. INSURE 'A' BATT CHGR IS SELECTED & OPEN AC/DC FEED BKRS TO A-1 CHGR	4-SEP-92:08 4-SEP-92:09	2	MIE QC	2 1	MI111
404	1624 2AKAJ5	MS-10 - REPLACE INSULATION	4-SEP-92:08 4-SEP-92:15	8	IN	2	
405	551 MI126016	MI126 - MNT ACID PUMPS - DECLARE MOD OPERABLE	4-SEP-92:08 8-SEP-92:15	24	LEU	1	MI126
406	208 2AHQE1	TRANSPORT TRAILERS TO & FROM THE MICROWAVE AREA TO THE RCA FOR REPAIRS.	4-SEP-92:08 10-SEP-92:15	608	SECU RADD MIC	- - -	MISCC
407	426 MI111030	MI111 - MODIFY EXISTING/FAB SPECAIL SUPPORTS INSTALL IN BATCH TANK ROOM. OBTAIN LCTR ON LP-27 CKTS 22 & 35 BATCH TANK ROOM.	4-SEP-92:08 10-SEP-92:15	96	MIE MIM MIC	2 2 2	MI111
408	1157 2AHLG1	REPAIR 1 RADIATION EQUIPMENT STORAGE TRAILER & DECON EQUIPMENT IN RCA YARD	4-SEP-92:08 10-SEP-92:15	72	MIC MIE	3 1	MISCC
409	721 MISCE001	PERFORM E39 WALKDOWNS FOR FUTURE PROJECTS	4-SEP-92:08 11-SEP-92:15	296	MIE	-	MISCE



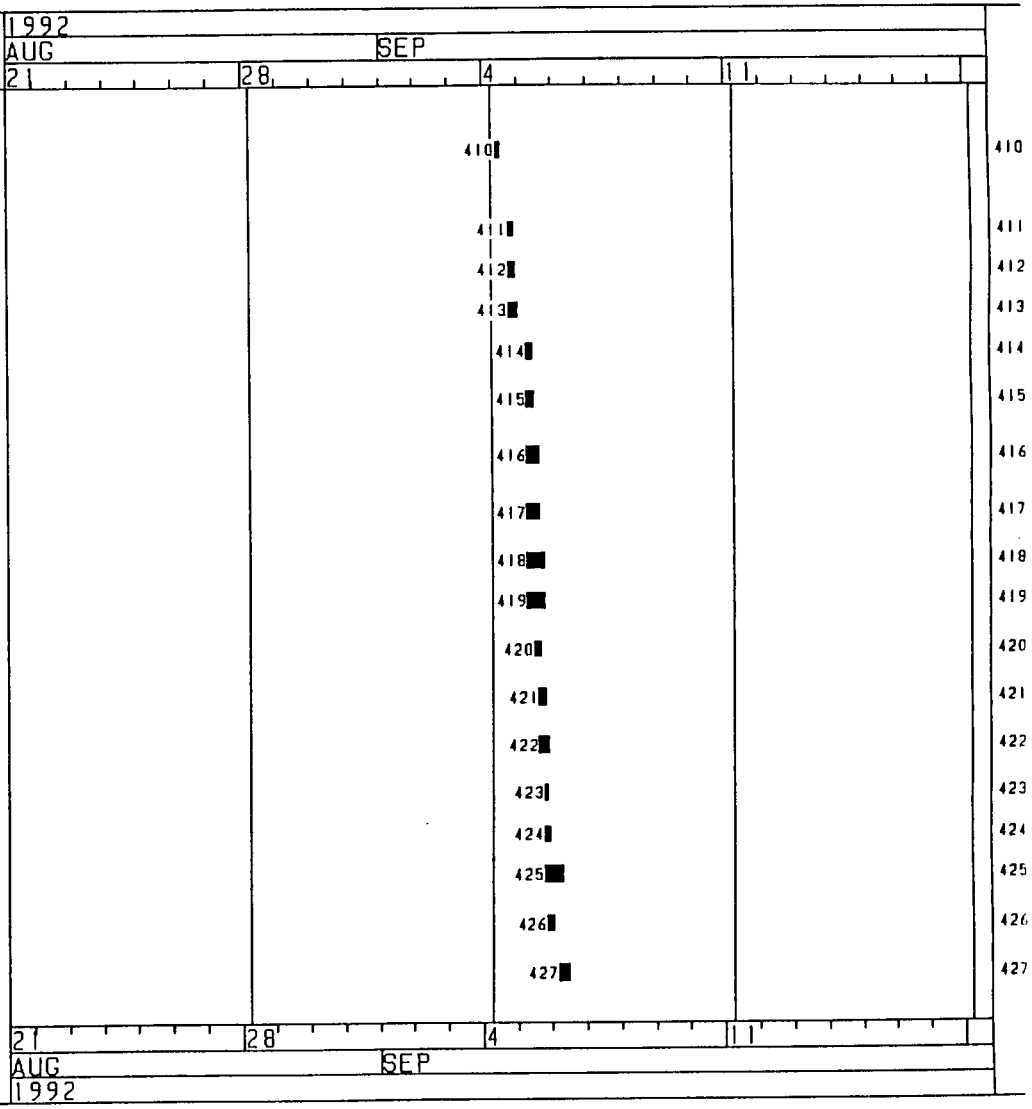
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # / PREFIX	ACTIVITY DESCRIPTION	START / FINISH	DU	CRAFT	QTY	CODE
410	1836 MI074030	MI074 - TURNOVER REVIEW MEETING AT 11:00 IN THE WIU CONFR RM & WALKDOWN CV 1ST LEVEL	4-SEP-92:11 4-SEP-92:13	3	LEU EL WIE OPER QC TECH NED	1 1 1 1 1 1 1	MI074
411	1903 2AMPF1	LC-1509 - REPAIR AIR LEAK ON CONTROLER (6B FWH)	4-SEP-92:19 4-SEP-92:21	3	EL	1	
412	1906 2AMPP1	'A' CHG PMP - REPAIR FLEX CONDUIT GOING TO SUCTION STABELIZER	4-SEP-92:19 4-SEP-92:22	4	EL	2	
413	1946 DRAINSG	DRAIN "A,B,C" S/G TO 75% WIDE RANGE FOR OST-207	4-SEP-92:19 4-SEP-92:24	6	OPER CHEM	1 1	
414	1921 2ALXI1	CALIBRATE CVCS HOLDUP TANKS PRESSURE INDICATORS	5-SEP-92:07 5-SEP-92:10	4	EL	2	
415	767 0207	OST-207 - MOTOR DRIVEN AFW PUMP FLOW TEST (COLD SHUTDOWN) (PRIOR TO PLANT HEAT-UP)	5-SEP-92:07 5-SEP-92:11	5	OPER	2	GFO4OST
416	1576 SISYS067	ALIGN SI & CV SPRAY SYSTEMS OUTSIDE CV (AFTER ALL INSPECTIONS ARE COMPLETE)	5-SEP-92:07 5-SEP-92:14	8	OPER	2	SIPOI
417	1579 SISYS068	ALIGN SW & CCW SYSTEMS IN SI PUMP ROOM (AFTER ALL INSPECTIONS ARE COMPLETE)	5-SEP-92:07 5-SEP-92:14	8	OPER	2	SIPOI
418	1143 SISYS130	REMOVE SCAFFOLD AT RWST	5-SEP-92:07 5-SEP-92:18	12	MIC RADD	8 1	SIPOI
419	2067 SISYS390	SP-1161 - REMOVE RWST INSPECTION EQUIPMENT & CLEAN-UP AS REQ'D	5-SEP-92:07 5-SEP-92:18	12	MIC RADD	4 1	SIPOI
420	1466 2ALXH1	'A' MDAFW PMP - CHECK ALIGNMENT AFTER OST IS RUN	5-SEP-92:12 5-SEP-92:15	4	ME TECH SECU	2 1 1	
421	1679 2AMWL3C	SP-1159 - PERFORM VOTES TEST ON SI-844A	5-SEP-92:15 5-SEP-92:18	4	EL TECH	2 1	SIPOI
422	1328 98KR3570	OST-357 - CV SPRAY PUMP DISCHG CHECK VALVES SI-890A & B FORWARD FLOW TEST	5-SEP-92:15 5-SEP-92:20	6	OPER CHEM	2 1	SIPOI
423	1912 2AEZN1	REPLACE COND HOTWELL DRAIN PMP DRIP COVER	5-SEP-92:19 5-SEP-92:20	2	EL	2	
424	1909 2AMQX1	'A' ICCM - TROUBLESHOOT "CH A ICCM SYS MALF" ANNUNCIATOR	5-SEP-92:19 5-SEP-92:22	4	EL	2	
425	1568 SISYS06C	REMOVE SCAFFOLDING IN SI PUMP ROOM FOR SI-844A	5-SEP-92:19 6-SEP-92:06	12	MIC RADC	6 1	SIPOI
426	2091 SISYS400	EST-058 - SI-890A & B CHECK VALVE LEAK INSPECTION, BACKFLOW/CLOSURE TEST	5-SEP-92:21 5-SEP-92:24	4	OPER TECH	1 1	SIPOI
427	1170 MI134220	MI134 - PERFORM PRE-TEST CALIBRATION OF TEST GAUGES	6-SEP-92:05 6-SEP-92:10	6	EL	2	MI134



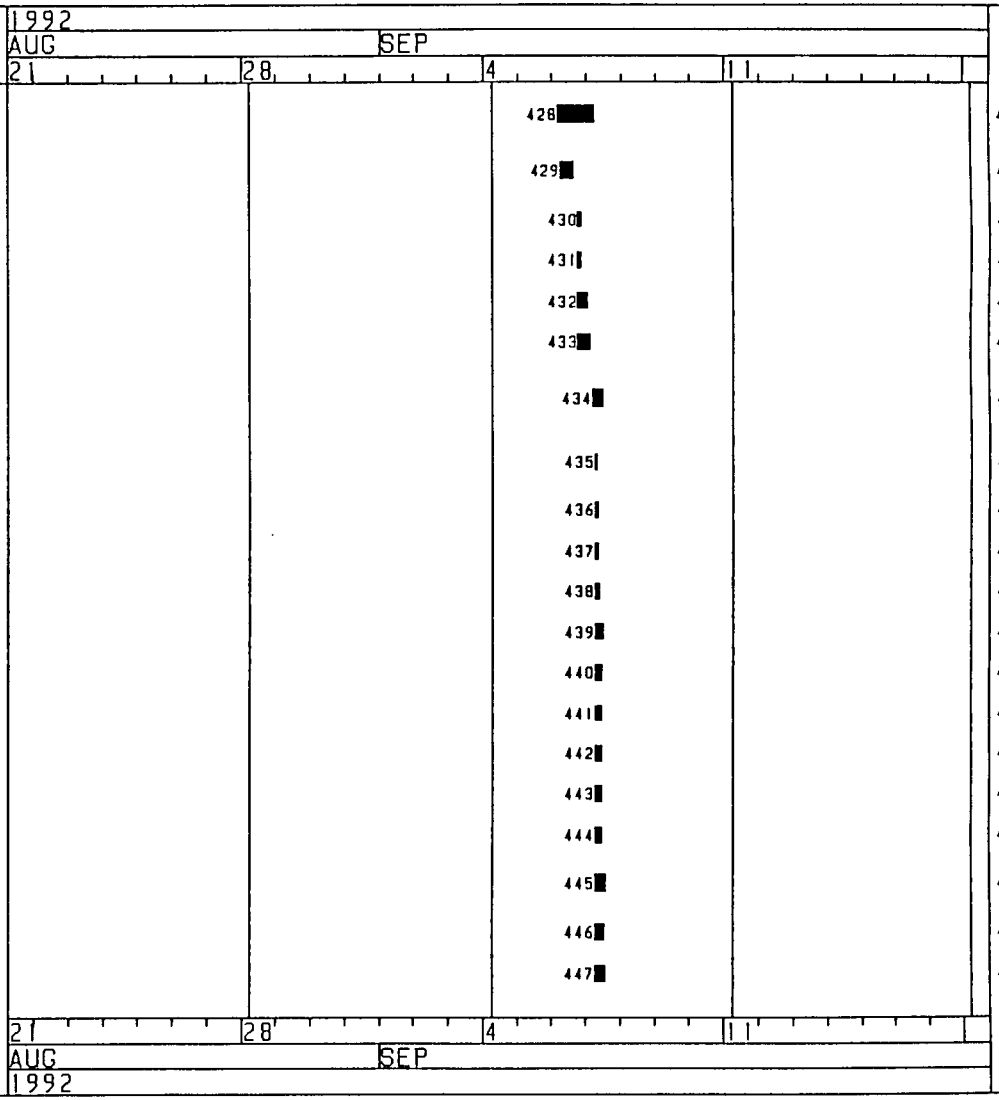
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SDS FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
428	1162 MI134140	MI134 - PREFAB, VT, PT & MWM-010 INSPECT 'A' & 'B' SI PUMP STRAINER PIPING ASSEMBLIES	6-SEP-92:05 7-SEP-92:04	24	MWM QC	4 1	MI134
429	1942 MI134310	MI134 - CUT & PREP 'A' & 'B' SI PUMP RECIRC LINES FOR STRAINER INSTALLATION	6-SEP-92:07 6-SEP-92:14	8	MWM	3	MI134
430	1215 2HSC001	CLEAN THE GENERATOR HYDROGEN REGULATOR FILTER	6-SEP-92:19 6-SEP-92:20	2	ME	2	
431	1915 0AALI1	CE-10309A & B - CLEAN SENSER (COND POLISHER)	6-SEP-92:19 6-SEP-92:20	2	EL	2	
432	868 1AQSX1	CC-704B - REPLACE VALVE ('B' CCW PMP DISCH PI)	6-SEP-92:19 6-SEP-92:24	6	ME QC	2 1	
433	1955 2ALHZ1	INSPECT H2 GAS REGULATORS AT GAS SHED	6-SEP-92:19 7-SEP-92:02	8	ME OPFP	2 1	
434	1163 MI134150	MI134 - INSTALL GASKETS IN 3 - 1/2INCH VALVES (92AMXK1) & PACK 3 - 1INCH VALVES (92AMXK2), IN MIU FAB SHOP	7-SEP-92:05 7-SEP-92:10	6	ME	2	MI134
435	2028 2ADC020	PERFORM EXCITER DIODE AND ROTOR GROUNDING DEVICE INSPECTION(PM E-M-002)	7-SEP-92:07 7-SEP-92:07	1	EL	2	
436	1709 2AIC009	PERFORM PEDESTAL GRINDERS INSPECTION	7-SEP-92:07 7-SEP-92:08	2	ME	2	
437	1753 2AFQ009	PERFORM VIB/TEMP/INSP OF CCW AND CHARGING PUMPS	7-SEP-92:07 7-SEP-92:08	2	ME	2	
438	1724 2AFW009	PERFORM LADDER INSPECTION	7-SEP-92:07 7-SEP-92:09	3	IN	2	
439	816 2ALYB2	MS-V1-3A - REPAIR STEAM LEAK AT ALLEN HEAD SET SCREW	7-SEP-92:07 7-SEP-92:10	4	ME	2	
440	2007 2BTQ371	PI-945 AND PI-946 -SIS CV SPRAY DISCH PRESS GAUGES- CALIBRATE	7-SEP-92:07 7-SEP-92:10	4	EL	2	
441	2010 2BTS371	PI-956A,B,C -SI PUMPS DISCH PRESS GAUGES-CALIBRATE	7-SEP-92:07 7-SEP-92:10	4	EL	2	
442	1701 2HNR003	LUBRICATE NEW FUEL LIFT	7-SEP-92:07 7-SEP-92:11	5	ME	2	
443	1712 2AFR010	PM ROUTE M-M-001 B/G/E INSPECTION	7-SEP-92:07 7-SEP-92:11	5	ME	2	
444	1721 2AFV009	PM ROUTE M-M-004 B/G/E INSPECTION	7-SEP-92:07 7-SEP-92:11	5	ME	1	
445	1636 SPP0132	SPP-013 -RX PROT SIGNAL SIMULATION-REMOVE SIMULATION AFTER MSTS	7-SEP-92:07 7-SEP-92:12	6	EL	2	
446	1715 2AFT009	PM ROUTE M-M-002 B/G/E INSPECTION	7-SEP-92:07 7-SEP-92:12	6	ME	1	
447	1718 2AFU010	PM ROUTE M-M-003 B/G/E INSPECTION	7-SEP-92:07 7-SEP-92:13	7	ME	1	



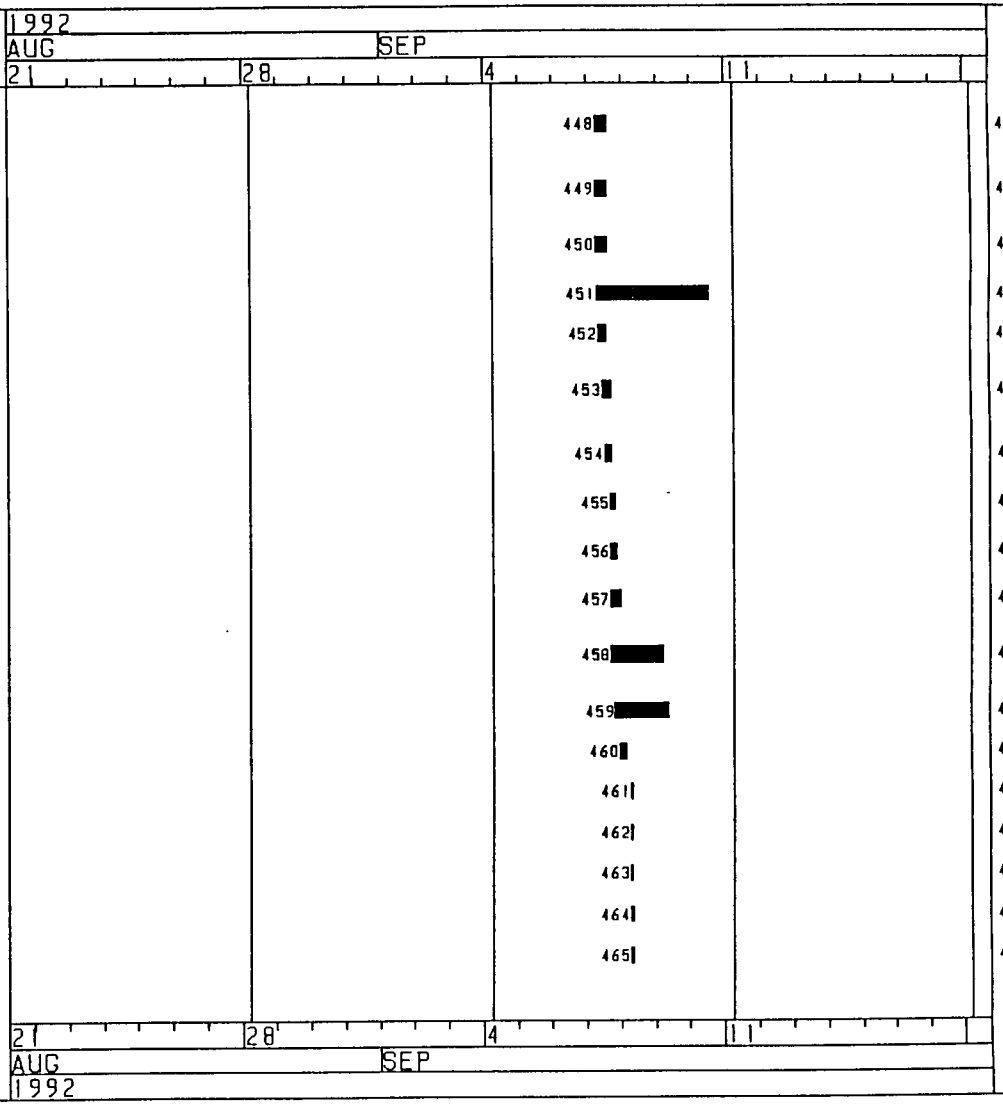
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
448	1330 98KR9300	OST-930 - BACKLEAKAGE CHECK ON THE LTOPP N2/AIR CHECK VALVES AT THE ACCUMULATORS ON THE PRESSURIZER CUBICLE	7-SEP-92:07 7-SEP-92:14	8	OPER RADD	2 1	GFO4OST
449	2004 2HRP001	ASSIST PM STAFF PERFORM MOTOR MONITORING ON THE SERVICE WATER PUMP MOTORS	7-SEP-92:07 7-SEP-92:14	8	EL TECH SECU	2 1 1	
450	2013 2BVY371	PC-611,PI-612,PI-639A-C,PI-640A-C -CCW PUMPS PRESS INSTRUMENTS-CALIBRATE	7-SEP-92:07 7-SEP-92:14	8	EL	2	
451	1727 2AFX010	PERFORM WEEKLY LUBRICATION	7-SEP-92:08 10-SEP-92:13	30	ME	1	
452	1641 2AMNR1	REINSTATE SAFEGUARDS	7-SEP-92:09 7-SEP-92:12	4	EL OPER	2 1	
453	1164 M1134160	M1134 - HYDROTEST 'A' & 'B' SI PUMP STRAINER/PIPING ASSEMBLIES, TURB GROUND FLOOR AT DEMIN PUMP VALVE DW-253	7-SEP-92:11 7-SEP-92:16	6	MIM QC OPER	4 1 1	M1134
454	6 10	CANCEL CLEARANCES & PLACE SYSTEMS/COMPONENTS BACK-IN-SERVICE AS REQUIRED FOR PLANT STARTUP	7-SEP-92:13 7-SEP-92:16	4	OPER	-	GFO3OST
455	32 11	ESTABLISH CONDENSER VACUUM	7-SEP-92:17 7-SEP-92:19	3	OPER	2	GFO3OST
456	1798 010	MST-010 - SOURCE RANGE TRIP LOGIC (PRIOR TO START UP FROM FORCED OUTAGE)	7-SEP-92:17 7-SEP-92:20	4	EL	2	GFO1
457	1171 M1134230	M1134 - PERFORM POST-TEST CALIBRATION OF TEST GAUGES	7-SEP-92:17 7-SEP-92:22	6	EL	2	M1134
458	968 M1134080	M1134 - INSTALL 'A' & 'B' STRAINER/PIPING ASSEMBLIES & SUPPORTS	7-SEP-92:17 9-SEP-92:04	36	MIM MIC QC RADD	4 2 1 1	M1134
459	7 11A	FW/CONDENSATE CLEAN-UP TO STEAM GENERATOR FEED SPECS	7-SEP-92:20 9-SEP-92:07	36	OPER	-	GFO3OST
460	2034 2AMOM1	PERFORM MST-004(PZR PRESS PROT) AND MST-005(PZR WTR LVL PROT)	7-SEP-92:23 8-SEP-92:03	5	EL	2	
461	1702 2APO372	PERFORM AIR FILTER PM TO BATTERY & S/G SAMPLE ROOMS	8-SEP-92:07 8-SEP-92:07	1	ME	2	
462	1733 2ALB372	PERFORM DEFICIENCY TAG STATION INSPECTION	8-SEP-92:07 8-SEP-92:07	1	ME	1	
463	1765 2FNB010	MONITOR VIBRATION OF THE RCP'S FROM THE CONTROL ROOM	8-SEP-92:07 8-SEP-92:07	1	ME	2	
464	1686 2HBA001	'A' COND VACUUM PMP - CLEAN MOTIVE AIR VALVE SCREEN	8-SEP-92:07 8-SEP-92:08	2	ME	2	
465	1689 2HSB001	'B' COND VACUUM PMP - CLEAN MOTIVE AIR VALVE SCREEN	8-SEP-92:07 8-SEP-92:08	2	ME	2	



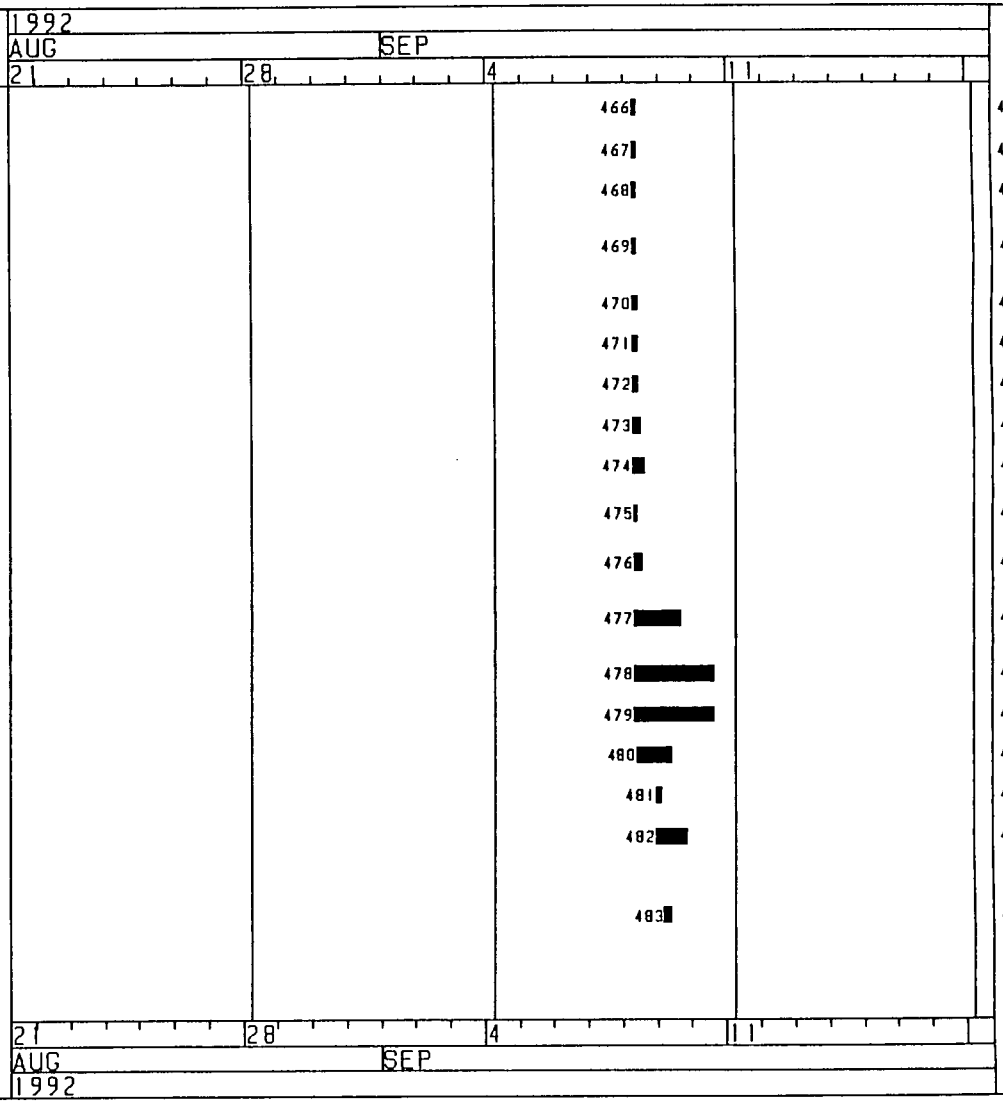
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
466	1695 2HPB002	'C' SW PMP - PERFROM VIB/TEMP/INSP.	8-SEP-92:07 8-SEP-92:09	3	ME SECU	2 1	
467	1703 2HPT004	WCCU-1A - PERFORM WEEKLY INSPECTION	8-SEP-92:07 8-SEP-92:09	3	ME SECU	2 1	
468	1706 2HPU004	WCCU-1B - PERFORM WEEKLY INSPECTION	8-SEP-92:07 8-SEP-92:09	3	ME SECU	2 1	
469	1756 2APL372	PERFORM VIB/TEMP/INSP OF MG SETS, STATION AIR COMP, SW BOOSTER PMPS, INST AIR COMP, SF PIT COOLING PMPS & WASTE GAS COMP.	8-SEP-92:07 8-SEP-92:09	3	ME	2	
470	1292 2BYB362	CALIBRATE THE BORIC ACID FILTER INLET AND OUTLET PRESSURE GAUGES	8-SEP-92:07 8-SEP-92:10	4	EL	2	
471	2016 2HPD004	PERFORM INSPECTION OF WCCU-1A	8-SEP-92:07 8-SEP-92:10	4	EL	2	
472	2019 2HPQ004	PERFORM INSPECTION OF WCCU-1B	8-SEP-92:07 8-SEP-92:10	4	EL	2	
473	1692 2AFY010	PERFORM COND. BALL CHANGEOUT	8-SEP-92:07 8-SEP-92:12	6	ME	2	
474	2031 2ADD010	PERFORM MISC. BLDG INSPECTION (PM E-BN-003)	8-SEP-92:07 8-SEP-92:14	8	EL SECU	1 1	
475	459 M1111080	M1111 - OBTAIN LCTR ON MCC 5 COMPT 3B, DETERMINATE,REMOVE & INSPECT BATT CHGR A-1 CABLE C2955N-GA	8-SEP-92:08 8-SEP-92:09	2	MIE OPER QC	2 1 1	M1111
476	1839 SISY8340	SI SYSTEM RESTORATION STATUS MEETING WITH NRC	8-SEP-92:08 8-SEP-92:11	4	MGMT NRC	1 1	SIPDI
477	634 M9720008	M972 DCN 8 - REBAR SCAN, DRILL & INSTALL 4-3/8INCH MAXIBOLTS FOR CHECK VALVE SUPPORTS, UNIT 2 INTAKE STRUCTURE	8-SEP-92:08 9-SEP-92:15	16	MIC QC	2 1	M0972
478	359 M1104001	M1104 FIELD REV 11 - MODIFY PACV SUPPORT IN PIPE ALLEY	8-SEP-92:08 10-SEP-92:15	24	MIW QC	3 1	M1104
479	719 MISCC002	SUPPORT SPENT FUEL SHIPMENT	8-SEP-92:08 10-SEP-92:15	32	MIC	-	MISCC
480	455 M1111060	M1111 - MEGGER, TERMINATE & INSPECT CABLE C2955N-GA AT MCC-16 COMPT 2H	8-SEP-92:10 9-SEP-92:09	8	MIE QC	2 1	M1111
481	2040 2AMD01	PERFORM MST-022 (SAFEGUARDS TRAIN 'A')	8-SEP-92:23 9-SEP-92:02	4	EL OPER	3 1	
482	2037 2AMZ01	PERFORM MST-011 (REACTOR PROTECTION AT 'O' PWR)	8-SEP-92:23 9-SEP-92:20	10	EL OPER	3 1	
483	969 M1134100	M1134 - WALKDOWN & TURNOVER MOD	9-SEP-92:05 9-SEP-92:08	4	LEU MIW OPER ME TECH QC RADD	1 1 1 1 1 1 1	M1134



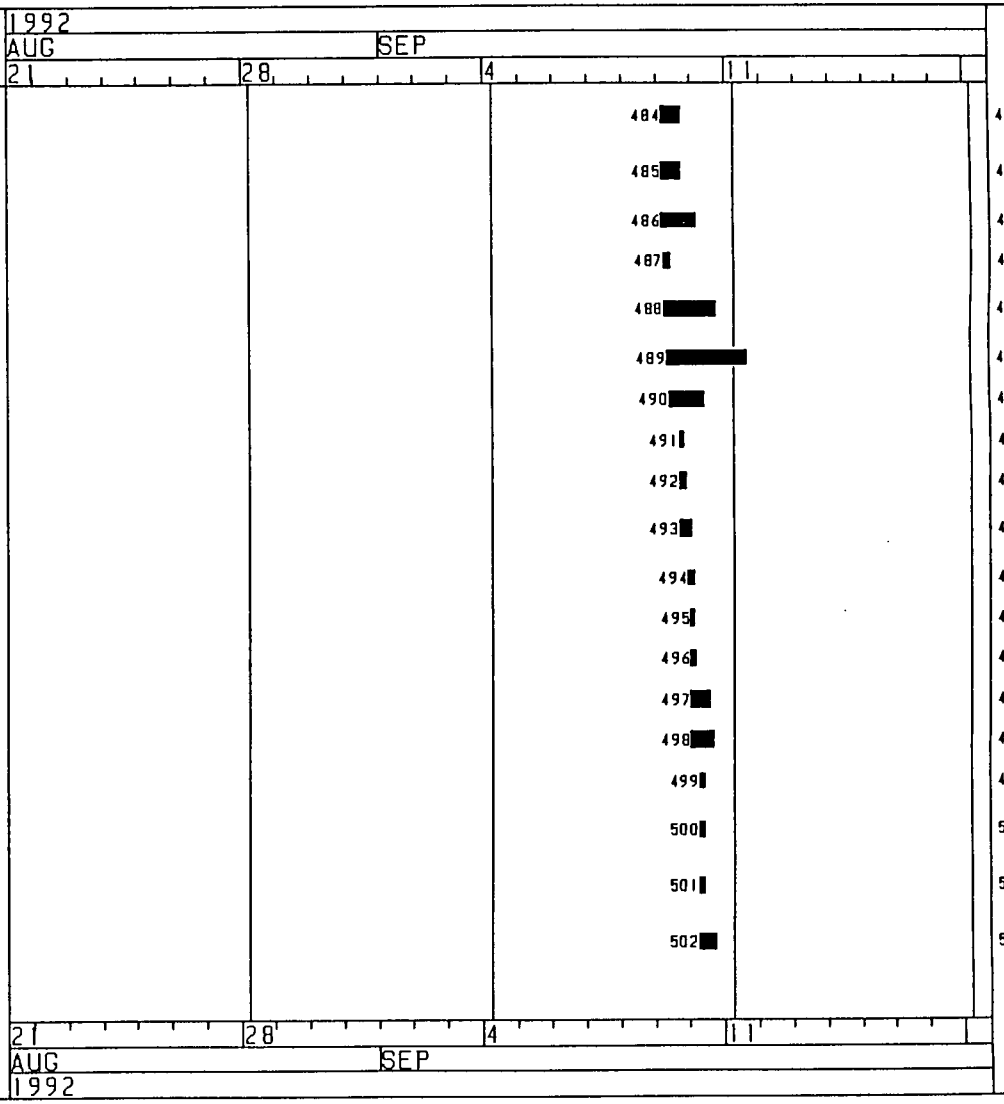
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # / PREFIX	ACTIVITY DESCRIPTION	START / FINISH	DU	CRAFT	QTY	CODE
484	1168 / M1134200	M1134 - QC & ANI FINAL REVIEW 'A' & 'B' SI PUMP STRAINER/PIPING/SUPPORT WOR'S & SWOR'S	9-SEP-92:05 / 9-SEP-92:16	12	QC / MIW	1 / 1	M1134
485	1644 / M1134085	M1134 - CANCEL LCTR'S ON SI PUMPS, PERFORM LINE-UP'S FOR ACCEPTANCE TESTING & VENT SYSTEM	9-SEP-92:05 / 9-SEP-92:16	12	OPER	2	M1134
486	1169 / M1134210	M1134 - COMPLETE PUNCHLIST ITEMS & PAINTING, SI PUMP ROOM	9-SEP-92:05 / 10-SEP-92:04	24	MIW / MIC	2 / 2	M1134
487	2022 / 2FDF010	SECURITY EXPLOSIVE DETECTOR FILTER INSPECTION CHECK LIST E-059	9-SEP-92:07 / 9-SEP-92:10	4	EL	2	
488	1828 / M1134270	M1134 - PRESOAK & GROUT 'A' & 'B' SI PUMP STRAINER SUPPORT BASEPLATES, SI PUMP ROOM	9-SEP-92:07 / 10-SEP-92:18	24	MIC / QC	2 / 1	M1134
489	1021 / 2HKJ361	PERFORM TURBINE CRANE INSPECTION	9-SEP-92:08 / 11-SEP-92:15	24	ME	2	
490	463 / M1111110	M1111 - CANCEL LCTR ON MCC 5 COMPT 3B & MCC 16 COMPT 2H	9-SEP-92:10 / 10-SEP-92:09	8	MIE / QC	4 / 1	M1111
491	1324 / OST151A	OST-151 - SAFETY INJECTION SYSTEM COMPONENT TEST	9-SEP-92:17 / 9-SEP-92:18	2	OPER / TECH	1 / 1	GFD4OST
492	1482 / OST165A	OST-165 - FORWARD FLOW CHECK OF SI-849	9-SEP-92:17 / 9-SEP-92:20	4	OPER / TECH	2 / 2	GFD4OST
493	989 / M1134090	M1134 - PERFORM 'A' & 'B' SI PUMP STRAINER ACCEPTANCE TESTING. NOTIFY OPS OF PRELIMINARY ACCEPTANCE.	9-SEP-92:17 / 9-SEP-92:24	8	TECH / OPER	1 / 1	M1134
494	2043 / 2AMDS1	PERFORM MST-023 (SAFEGUARDS TRAIN 'B')	9-SEP-92:23 / 10-SEP-92:02	4	EL / OPER	3 / 1	
495	1316 / 35A01900	ESTABLISH CV INTEGRITY FOR PLANT HEAT UP	10-SEP-92:01 / 10-SEP-92:01	1	OPER	3	GFD4OST
496	1747 / 2AMZM2	REPLACE INSULATION ON SI-890A & SI-890B, SI PUMP ROOM	10-SEP-92:01 / 10-SEP-92:03	3	IN	2	SIPDI
497	970 / M1134110	M1134 - DECLARE MOD OPERABLE	10-SEP-92:01 / 10-SEP-92:12	12	LEU / OPER	1 / 1	M1134
498	739 / 10C	GP-001 - RUN RCP'S FOR HEAT-UP	10-SEP-92:01 / 10-SEP-92:15	15	OPER	-	GFD4OST
499	1698 / 2BHZ374	EOF BLDG AIR COMP - CHANGE OIL & CHECK BELTS	10-SEP-92:07 / 10-SEP-92:09	3	ME	2	
500	1762 / 2BJP374	CHANGE OIL IN ACID METERING PMPS, COND POLISHER CAUSTIC PMPS, CAUSTIC RECLAIM PMPS & ACID RECLAIM PMPS	10-SEP-92:07 / 10-SEP-92:09	3	ME	2	
501	2025 / 2ADK010	CHECK 'C' STATION, SECURITY, AND ERFIS BATTERIES PM-425 PM ROUTE E-M-012	10-SEP-92:07 / 10-SEP-92:09	3	EL	2	
502	1127 / SISYS070	REPLACE INSULATION ON 'A' & 'B' SI PUMP COMMON DISCHARGE LINE, SI PUMP ROOM	10-SEP-92:07 / 10-SEP-92:18	12	IN	2	SIPDI



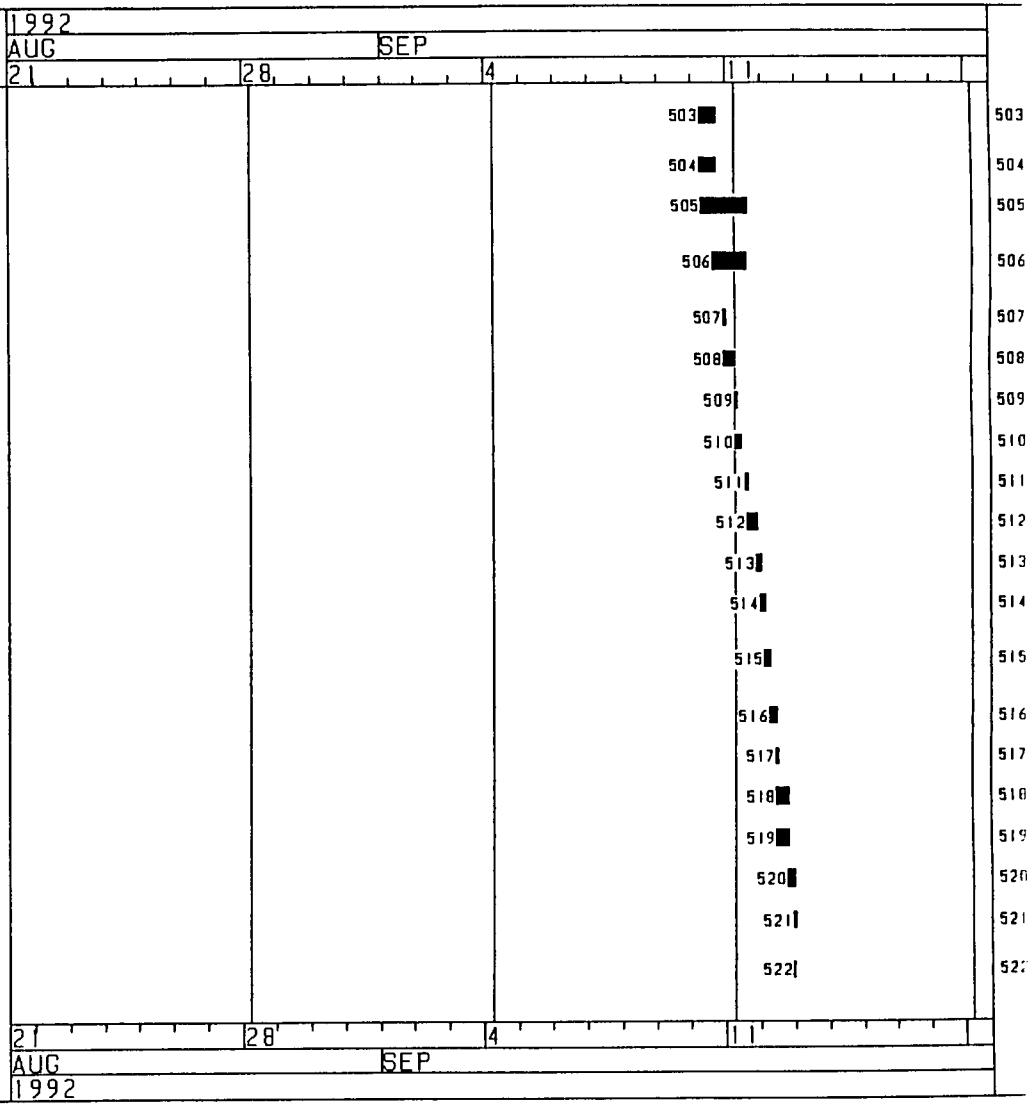
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE TASKS

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
503	1825 MI134260	MI134 - REPLACE INSULATION ON 'A' & 'B' SI PUMP RECIRC LINES, SI PUMP ROOM	10-SEP-92:07 10-SEP-92:18	12	IN	2	MI134
504	2001 2AEU374	BENCH CHECK SPARE NIS POWER SUPPLIES(PM E-SY-008)	10-SEP-92:07 10-SEP-92:18	12	EL	1	
505	347 MI095201	MI095 - ESTABLISH EQUIP PROTECTION PER MIP-108	10-SEP-92:08 11-SEP-92:15	16	MIW OPER	1 1	MI095
506	740 10D	GP-002 - PULL RODS, INCREASE RCS TEMPERATURE, ESTABLISH PZR BUBBLE & OBTAIN MANAGEMENT APPROVAL TO EXCEED RCS>200 DEGREES	10-SEP-92:16 11-SEP-92:13	22	OPER	-	GFD4DST
507	2046 2AWDU1	PERFORM WBT-904 (SEISWIC MONITORING SYSTEM)	10-SEP-92:23 10-SEP-92:24	2	EL	1	
508	1289 2DKU361	CALIBRATE SEISMOGRAPH RECORDER 'B'	10-SEP-92:23 11-SEP-92:06	8	EL	2	
509	1759 2ARS002	PERFORM AIR FILTER PM TO CONDENSATE & MAIN FEED PUMPS	11-SEP-92:07 11-SEP-92:08	2	ME	2	
510	1730 2AHY375	PERFORM OUTSIDE & TURBINE BLDG MONTHLY LUBRICATION	11-SEP-92:07 11-SEP-92:10	4	ME	1	
511	741 10E	GP-002 - RCS HEAT-UP TO 200F	11-SEP-92:14 11-SEP-92:14	1	OPER	-	GFD4DST
512	742 10F	GP-002 - RCS HEAT-UP TO 350F/350#	11-SEP-92:15 11-SEP-92:20	6	OPER	-	GFD4DST
513	743 10G	GP-002 - REMOVE RHR FROM SERVICE	11-SEP-92:21 11-SEP-92:23	3	OPER	-	GFD4DST
514	744 10H	GP-002 - RCS HEAT-UP TO 410F/1000#	11-SEP-92:24 12-SEP-92:02	3	OPER	-	GFD4DST
515	745 0159	OST-159 - ACCUMULATOR CHECK VALVE BACK LEAKAGE TEST (REFUELING AND/OR START-UP INTERVAL) (PRIOR TO REACTOR START-UP)	12-SEP-92:03 12-SEP-92:05	3	OPER	2	GFD4DST
516	746 10J	GP-002 - RCS HEAT-UP TO 547F/2235#	12-SEP-92:06 12-SEP-92:10	5	OPER	-	GFD4DST
517	1321 OST101A	OST-101 - CHEM AND VOL CONT SYS COMPONENT TEST	12-SEP-92:11 12-SEP-92:12	2	OPER TECH	1 1	GFD4DST
518	747 10K	GP-003 - COMPLETE PRE-CRITICAL CHECKS & OST'S	12-SEP-92:11 12-SEP-92:18	8	OPER	-	GFD4DST
519	772 PTS	BLOWDOWN INSTRUMENT LINES AS REQUIRED	12-SEP-92:11 12-SEP-92:18	8	EL	4	GFD4
520	8 11B	GP-003 - DILUTE RCS TO CRITICAL BORON CONCENTRATION	12-SEP-92:19 12-SEP-92:22	4	OPER	-	GFD3DST
521	9 12	GP-003 - TAKE REACTOR CRITICAL	12-SEP-92:23 12-SEP-92:23	1	OPER	-	GFD3DST
522	10 067	EST-067 - INTERMEDIATE RANGE DETECTOR SETPOINT DETERMINATION (EACH REACTOR STARTUP)	12-SEP-92:23 12-SEP-92:23	1	TECH OPER	2 1	GFD3



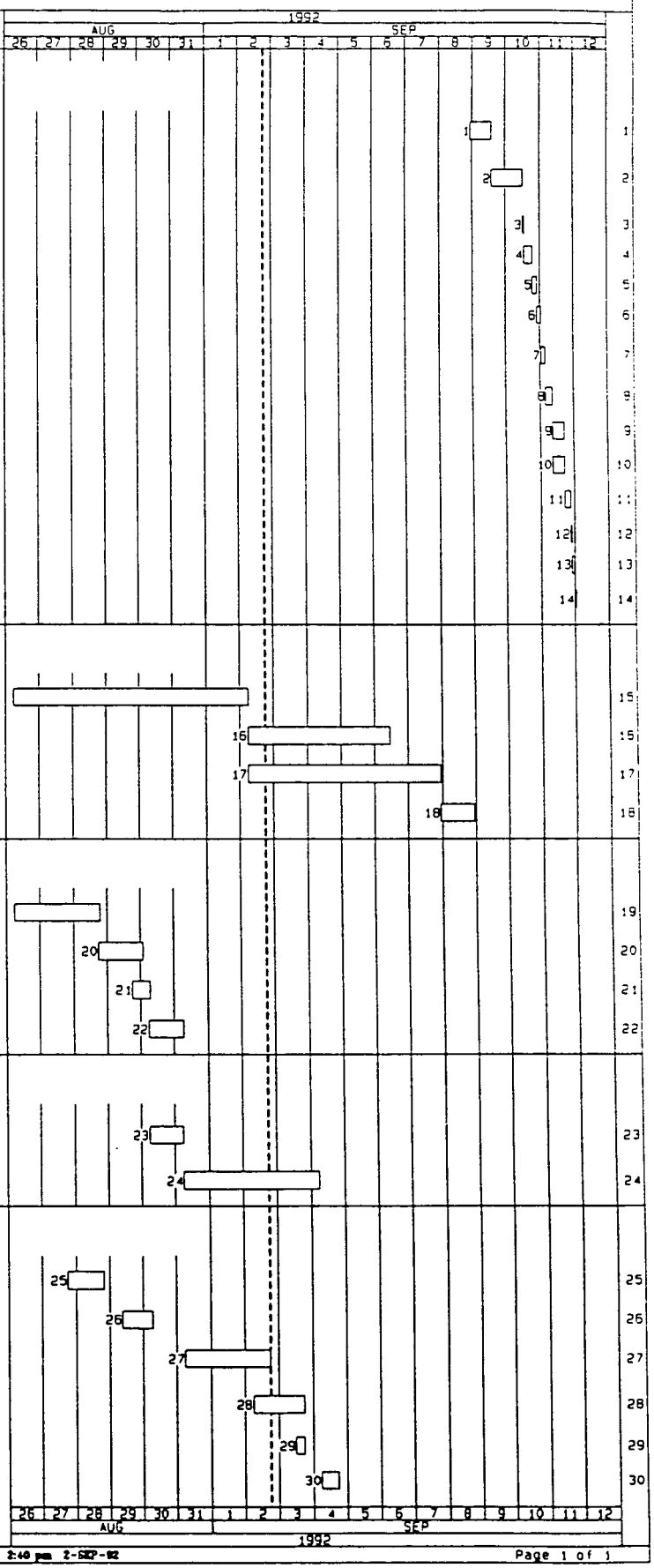
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 605 FIL PLTFORC/FORCGANT

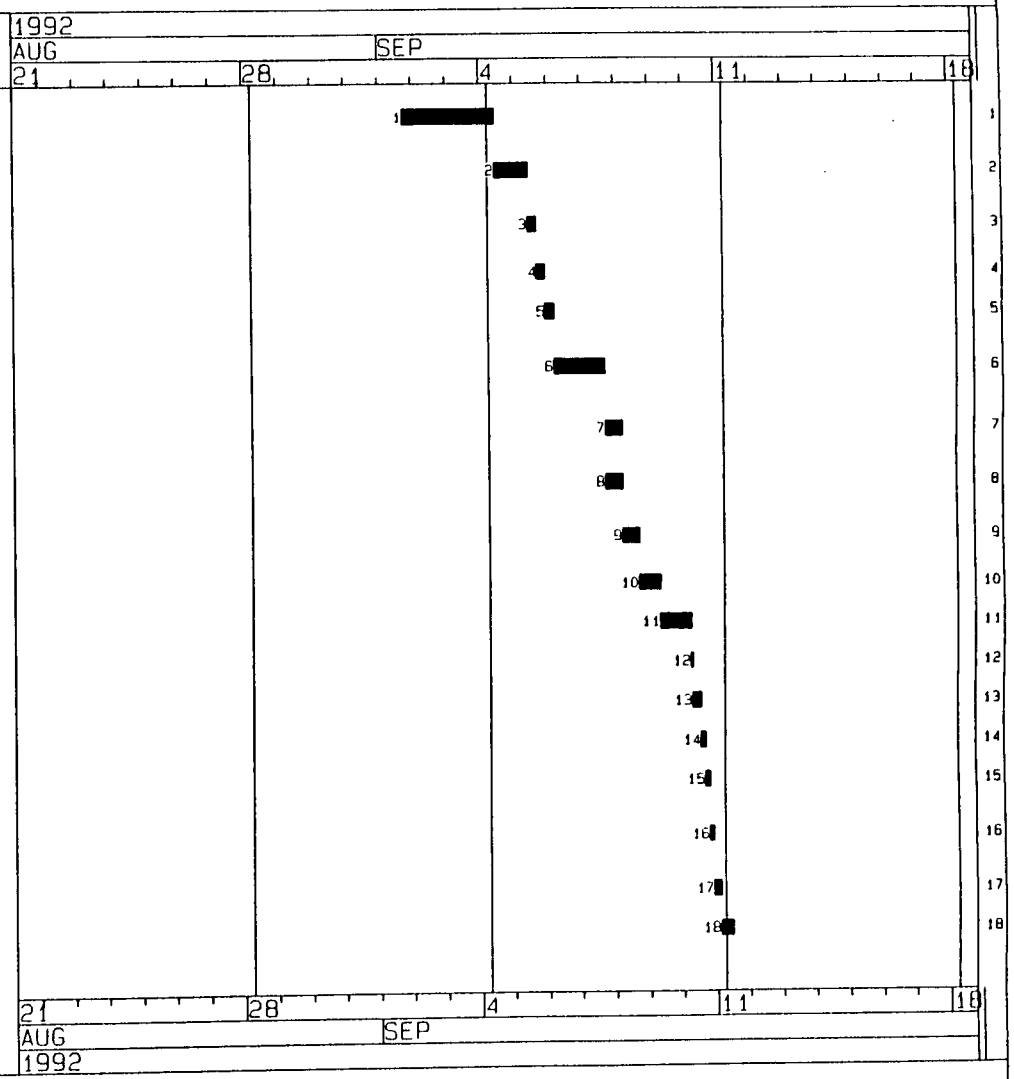
SI SYSTEM RESTORATION SCHEDULE

	ACTIVITY DESCRIPTION	START	FINISH
	PLANT START-UP		
1	GP-001 - RUN RCP'S FOR HEAT-UP	8-SEP-92	9-SEP-92
2	GP-002 - PULL RODS, INCREASE RCS TEMPERATURE, ESTABLISH PZR BUBBLE & OBTAIN MANAGEMENT APPROVAL TO EXCEED RCS>200 DEGREES	9-SEP-92	10-SEP-92
3	GP-002 - RCS HEAT-UP TO 200F	10-SEP-92	10-SEP-92
4	GP-002 - RCS HEAT-UP TO 350F/350#	10-SEP-92	10-SEP-92
5	GP-002 - REMOVE RHR FROM SERVICE	10-SEP-92	10-SEP-92
6	GP-002 - RCS HEAT-UP TO 410F/1000#	10-SEP-92	11-SEP-92
7	OST-159 - ACCUMULATOR CHECK VALVE BACK LEAKAGE TEST (REFUELING AND/OR START-UP INTERVAL) (PRIOR TO REACTOR START-UP)	11-SEP-92	11-SEP-92
8	GP-002 - RCS HEAT-UP TO 547F/2235#	11-SEP-92	11-SEP-92
9	GP-003 - COMPLETE PRE-CRITICAL CHECKS & OST'S	11-SEP-92	11-SEP-92
10	BLOWDOWN INSTRUMENT LINES AS REQUIRED	11-SEP-92	11-SEP-92
11	GP-003 - DILUTE RCS TO CRITICAL BORON CONCENTRATION	11-SEP-92	11-SEP-92
12	GP-003 - TAKE REACTOR CRITICAL	11-SEP-92	11-SEP-92
13	GP-005 - WARM-UP SECONDARY SYSTEMS	11-SEP-92	12-SEP-92
14	GP-005 - SYNCHRONIZE & PLACE UNIT ON-LINE	12-SEP-92	12-SEP-92
	M1134 - 'A' & 'B' SI PUMP STRAINER INSTALLATION		
15	M1134 - DEVELOP, REVIEW & APPROVE MOD PACKAGE FOR IMPLEMENTATION	26-AUG-92	2-SEP-92
16	M1134 - SHOP FABRICATION & TESTING OF STRAINER/PIPING ASSEMBLIES	2-SEP-92	6-SEP-92
17	M1134 - INSTALL STRAINER ASSEMBLIES & SUPPORTS	2-SEP-92	7-SEP-92
18	M1134 - PREPARE FOR & PERFORM ACCEPTANCE TESTING	7-SEP-92	8-SEP-92
	SI SYSTEM FLOW TESTING		
19	SP-1157 - PREPARE, REVIEW & APPROVE SPECIAL PROCEDURE	26-AUG-92	28-AUG-92
20	SP-1157 - FABRICATE & INSTALL 'C' SI PUMP PIPING JUMPER	28-AUG-92	30-AUG-92
21	INSTALL TEMPORARY STRAINER IN 'B' SI PUMP RECIRCULATION LINE AS PER EE 92-114	29-AUG-92	30-AUG-92
22	SP-1157 - SI PUMP FLOW TEST - PERFORM FULL FLOW TEST	30-AUG-92	31-AUG-92
	SI & CV SPRAY SYSTEM INSPECTIONS		
23	SP-1159 - PREPARE, REVIEW & APPROVE SPECIAL PRECEDURE FOR SI & CV SPRAY SYSTEM INSPECTIONS	30-AUG-92	31-AUG-92
24	SP-1159 - PERFORM SI & CV SPRAY SYSTEM INSPECTIONS AS PER SPECIAL PROCEDURE	31-AUG-92	4-SEP-92
	REFUELING WATER STORAGE TANK (RWST) INSPECTIONS		
25	SP-1158 - REVIEW & APPROVE RWST INSPECTION SPECIAL PROCEDURE	27-AUG-92	28-AUG-92
26	SP-1158 - PERFORM RWST INSPECTION WITH DIVERS & CAMERAS	29-AUG-92	30-AUG-92
27	SP-1160 - PREPARE, REVIEW & APPROVE SPECIAL PROCEDURE FOR RWST CLEANING	31-AUG-92	2-SEP-92
28	SP-1161 - PREPARE, REVIEW & APPROVE SPECIAL PROCEDURE FOR RWST DISCHARGE HEADER	2-SEP-92	3-SEP-92
29	SP1160 - INSPECTION AND CLEANUP OF RWST	3-SEP-92	3-SEP-92
30	SP-1161 - PERFORM RWST INPSECTION WITH DIVERS AS PER SPECIAL PROCEDURE	4-SEP-92	4-SEP-92



CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE CRITICAL PATH

	RECORD # PREFIX	ACTIVITY DESCRIPTION	START FINISH	DU	CRAFT	QTY	CODE
1	1166 M1134130	M1134 - PREFAB. VT, PT, UT & RT 'A' & 'B' SI PUMP STRAINERS	1-SEP-92 19 4-SEP-92 11	65	MWM QC NDE	5 1 1	M1134
2	1167 M1134140	M1134 - PREFAB. VT, PT & MWM-010 INSPECT 'A' & 'B' SI PUMP STRAINER PIPING ASSEMBLIES	4-SEP-92 12 5-SEP-92 11	24	MWM QC	4 1	M1134
3	1168 M1134150	M1134 - PACK 3 - 1/2INCH (WR 92AMXK1) & 3 - 1INCH (WR92AMXK2) VALVES IN MI FAB SHOP	5-SEP-92 12 5-SEP-92 17	6	ME	2	M1134
4	1169 M1134160	M1134 - SHOP HYDRO 'A' & 'B' SI PUMP STRAINER/PIPING ASSEMBLIES	5-SEP-92 18 5-SEP-92 23	6	MWM QC	4 1	M1134
5	1176 M1134230	M1134 - PERFORM POST-TEST CALIBRATION OF TEST GAUGES	5-SEP-92 24 6-SEP-92 05	6	EL	2	M1134
6	973 M1134080	M1134 - CUT & INSTALL 'A' & 'B' SI PUMP STRAINER/PIPING ASSEMBLIES AND SUPPORTS	6-SEP-92 06 7-SEP-92 17	36	MWM MIC QC RADD	4 2 1 1	M1134
7	1173 M1134200	M1134 - FINAL REVIEW 'A' & 'B' SI PUMP STRAINER/PIPING/SUPPORT WOR'S & SWOR'S	7-SEP-92 18 8-SEP-92 05	12	QC ANI	1 1	M1134
8	1650 M1134085	M1134 - CANCEL LCTR'S ON SI PUMPS, PERFORM LINE-UP'S FOR ACCEPTANCE TESTING & VENT SYSTEM	7-SEP-92 18 8-SEP-92 05	12	OPER	2	M1134
9	994 M1134090	M1134 - PERFORM 'A' & 'B' SI PUMP STRAINER ACCEPTANCE TESTING. NOTIFY OPS OF PRELIMINARY ACCEPTANCE.	8-SEP-92 06 8-SEP-92 17	12	TECH OPER	1 1	M1134
10	743 10C	GP-001 - RUN RCP'S FOR HEAT-UP	8-SEP-92 18 9-SEP-92 08	15	OPER	-	GF040ST
11	744 10D	GP-002 - PULL RODS, INCREASE RCS TEMPERATURE, & ESTABLISH PZR BUBBLE	9-SEP-92 09 10-SEP-92 06	22	OPER	-	GF040ST
12	745 10E	GP-002 - RCS HEAT-UP TO 200F	10-SEP-92 07 10-SEP-92 07	1	OPER	-	GF040ST
13	746 10F	GP-002 - RCS HEAT-UP TO 350F/350#	10-SEP-92 08 10-SEP-92 13	6	OPER	-	GF040ST
14	747 10G	GP-002 - REMOVE RHR FROM SERVICE	10-SEP-92 14 10-SEP-92 16	3	OPER	-	GF040ST
15	748 10H	GP-002 - RCS HEAT-UP TO 410F/1000#	10-SEP-92 17 10-SEP-92 19	3	OPER	-	GF040ST
16	749 0159	OST-159 - ACCUMULATOR CHECK VALVE BACK LEAKAGE TEST (REFUELING AND/OR START-UP INTERVAL) (PRIOR TO REACTOR START-UP)	10-SEP-92 20 10-SEP-92 22	3	OPER	2	GF040ST
17	750 10J	GP-002 - RCS HEAT-UP TO 547F/2235#	10-SEP-92 23 11-SEP-92 03	5	OPER	-	GF040ST
18	751 10K	GP-003 - COMPLETE PRE-CRITICAL CHECKS & OST'S	11-SEP-92 04 11-SEP-92 11	8	OPER	-	GF040ST



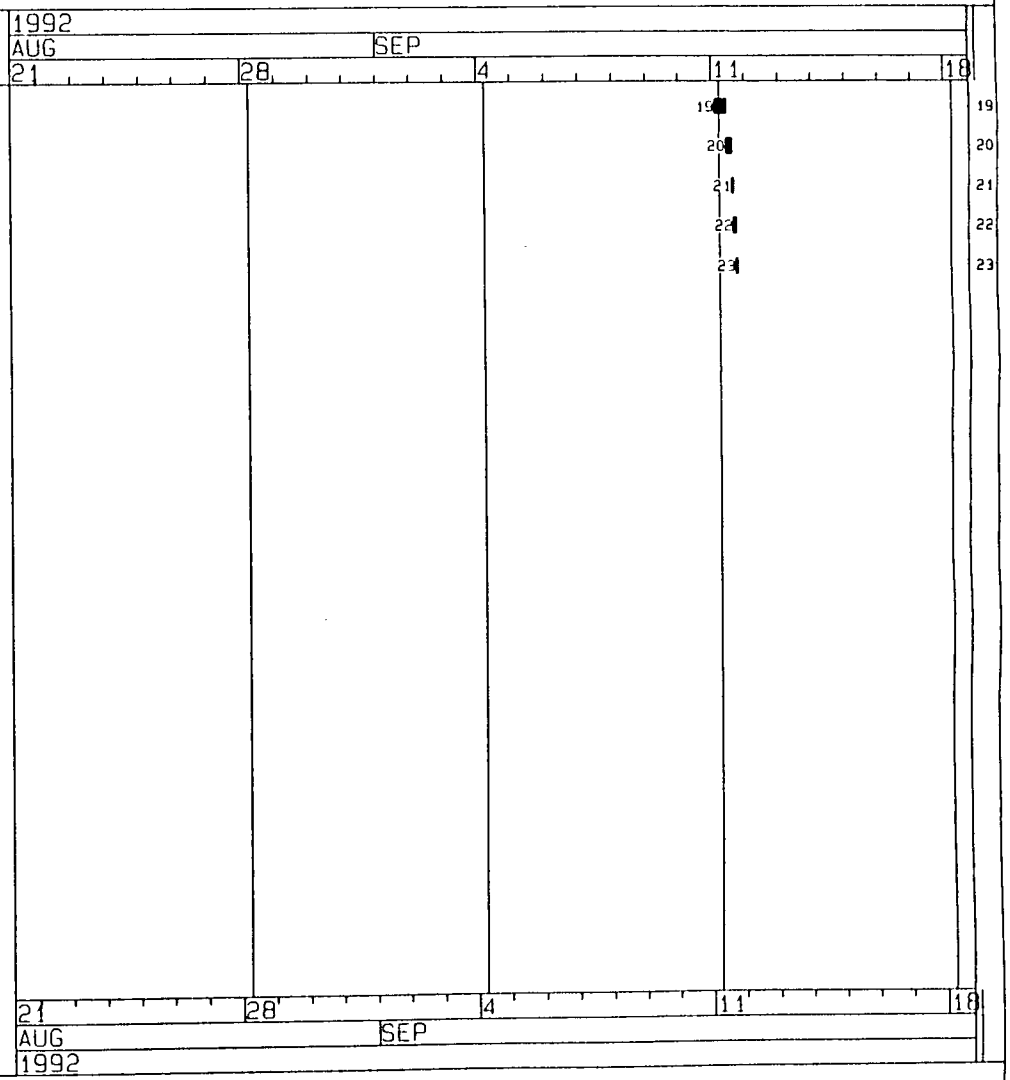
ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SDS FIL PLTCRIT/FORCCRIT

CAROLINA POWER & LIGHT COMPANY
1992 FORCED OUTAGE CRITICAL PATH

	RECORD # / PREFIX	ACTIVITY DESCRIPTION	START / FINISH	DU	CRAFT	QTY	CODE
19	776 PTS	BLOWDOWN INSTRUMENT LINES AS REQUIRED	11-SEP-92 04 11-SEP-92 11	8	ELEC	4	GF04
20	8 118	GP-003 - DILUTE RCS TO CRITICAL BORON CONCENTRATION	11-SEP-92 12 11-SEP-92 15	4	OPER	-	GF030ST
21	9 12	GP-003 - TAKE REACTOR CRITICAL	11-SEP-92 16 11-SEP-92 16	1	OPER	-	GF030ST
22	11 13	GP-005 - WARM-UP SECONDARY SYSTEMS	11-SEP-92 17 11-SEP-92 18	2	OPER	-	GF030ST
23	12 14	GP-005 - SYNCHRONIZE & PLACE UNIT ON-LINE	11-SEP-92 19 11-SEP-92 19	1	OPER	-	GF030ST



ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTCRIT/FORCCRIT

PURPOSE

Recent problems with foreign material in the SI System have resulted in the inoperability of both "A" & "B" SI Pumps. The material, broken pieces of white plastic sheeting, has demonstrated the ability to lodge in the highly restrictive pump recirc flow orifice and block this flow path. This has occurred on three separate incidents on the "B" SI Pump. On at least one instance, the "B" pump was run for up to six minutes in the shutoff condition with no measureable recirculation flow. An inspection has not been performed to look for foreign material in the "A" SI Pump train, but surveillance test data indicates that this pump may be suspect of the same condition.

Given this, the purpose of this Engineering Evaluation is to assess pump performance data and verify that the material has not either directly (via interference in the pump's wetted components) or indirectly (by shutting off recirculation flow for up to six minutes) resulted in any degradation of the physical condition of either SI pump.

HISTORICAL INFORMATION

During scheduled surveillance in July '92 it was discovered that a foreign material had been introduced into "B" SI Pump, clogging its recirculation orifice and resulting in inoperability. Subsequent investigation identified the material as pieces of a thin plastic sheet of the type used during a plant modification performed on the RHR System during RFO 14. Extensive flushing was performed on the "B" SI Pump, and after satisfactory testing the pump was placed back into service.

Following a reactor trip and loss of off site power on 8/22/92, additional surveillance testing was initiated to verify the continued operability of the SI System. This testing identified slightly reduced recirc flows from both "A" and "B" SI Pumps, particularly on the "B" Pump. During further testing the "B" Pump recirc line clogged, and was operated without measureable flow for as long as six minutes. Subsequent inspection found more of the same foreign material in the "B" pump recirc piping. Plant operating conditions would not allow "A" SI Pump recirc piping inspection at that time, and recirc flow test data was not conclusive enough to discount that the "A" Pump might have incurred some recirc flow restriction. As a result the "A" SI Pump was declared inoperable and the plant was brought to the cold shutdown condition.

HISTORICAL INFORMATION (cont.)

SP-1157 has been performed to operate both SI Pumps and obtain data to ascertain whether the presence of foreign material and pump operation without measureable recirculation has resulted in pump degradation. This engineering evaluation assesses the current condition of the SI pumps by comparing data from SP-1157 with that compiled from other recent SI pump flow tests (OSTs and SPs).

EVALUATION BASIS

SP-1157 operated both SI pumps over a range of flow rates by providing a test flowpath across the "C" SI Pump (removed for unrelated repairs) and instrumenting the test loop. Pump performance data was taken at flow rates ranging from recirc only (about 35 gpm*) to approximately 450 gpm (see Attachment 1). This data allows comparison with historical data collected from scheduled Operations surveillances and other tests.

Comparison of SP-1157 data with historical data requires establishing a valid historical baseline. This is done by compiling available data from recent documented surveillances and tests, and using this information to generate pump performance acceptance criteria which correlate to the condition of both SI pumps prior to the first discovery of the foreign material in July '92.

A comprehensive SI Pump Flow test was performed under SP-986 ("Safety Injection System Flow Test") on 11/90 during RFO 13. The stated purpose of this procedure was to test the performance of "A" and "B" Safety Injection Pumps and to determine acceptance criteria for the Plant's IST Program. This procedure installed test equipment consistent with that utilized under SP-1157, and recorded pump performance data over a wide range of flow rates. This represents a recent documented assessment of pump performance suitable for comparison with SP-1157 data in determining whether degradation has occurred. Data obtained from this test is found on Attachment 2.

* Note: With line up for recirc only flow, 30-35 gpm was measured through the recirc line. However, leakage through the temporary test valve resulted in total measured pump flows of 80+ gpm at this point

EVALUATION BASIS (cont.)

Vibration data on the SI Pumps is also available from a number of sources, including OSTs-151 & 154 and SPs 986 & 1080. Each of these tests incorporate their own acceptance criteria, and readings are taken in mils or in/sec, depending on the procedure. SI Pump Tech Manual 728-800-08 also gives generic vibration limits for these pumps, listing 1-2 mils as normal and 3 mils as being excessive.

For the purposes of this evaluation, acceptance criteria associated with IST program vibration data taken under OST-151 represents pump specific requirements based on recent pump baseline performance, and at a fixed system resistance. As OST-151 measurements are taken in in/sec, this data cannot be compared to the limits recommended in the SI pump technical manual. However, given the pump's speed, data is available to correlate velocity and displacement measurements. This translates in values of .2 to .4 in/sec. being considered normal by the vendor, with .6 in/sec as being excessive. Based on the above, acceptance criteria for SP-1157 vibration data is given as follows:

1) Vibration velocities measured on the coupling end bearing housing shall not exceed .275 in/sec in the horizontal direction, .125 in/sec in the vertical direction (corresponding to "alert" range in OST-151).

2) Vibration velocities shall not exceed .4 in/sec at any location or direction, or at any flow. Note that this requirement is consistent with SP-986 data, wherein vibration levels were maintained below this limit throughout the test.

EVALUATION

Individual data points taken under SP-986 and SP-1157 are not directly comparable as the precise flows utilized are not identical. Therefore, comparison will be made by plotting both sets of data graphically and then generating best fit curves. Comparison of pump performance done in this manner shows that the SP-1157 pump curves very closely duplicate the performance taken during RFO 13 under SP-986, and are in fact just above the latter. This is not taken as an improvement in pump performance, but is primarily attributed to test equipment instrument precision. (Most notably the Controllotron ultrasonic flow measurement equipment, whose intrinsic accuracy is 3%.) Curves for both pump comparisons are found in Attachment 3.

EVALUATION (cont.)

Vibration data taken during SP-1157 found no points higher than 0.097 in/sec at any flow and in any direction. This is consistent with test measurements from OST-151 prior to RFO 14, and well below the acceptance criteria previously established in this evaluation. In addition, contact pyrometer readings identified that bearing temperatures remained in normal range throughout the test performance (see attachment 4).

Finally, a service representative from the pump manufacturer was brought on site to witness the performance of SP-1157. His observations identified nothing that might be symptomatic of a damaged pump, and he stated that both pumps appeared to be operating normally.

CONCLUSIONS

In summary, pump head/flow performance data obtained during SP-1157 was compared to that provided from SP-986, and found to be as good as or better at every point taken. SP-986 data was formally reviewed by NED under RET RNP-90-163, which concluded that both SI pumps were capable of meeting their most challenging accident response requirements. It follows that the SI pumps in their current condition (as documented by SP-1157) also have this capability. Pump vibration and bearing temperature data from SP-1157 are well within manufacturer's recommendations and are consistent with that taken prior to RFO 14, indicating no degradation to either hydraulic or dynamic balance, or to bearing condition. The manufacturer's service representative observed SP-1157 testing and concluded that both pumps were operating normally.

The assessment substantiates that neither the introduction of foreign material or subsequent operation without recirculation has affected either SI pump's performance or reliability. As noted above, this assessment is the sole objective of this evaluation. Related work is ongoing to ensure that any foreign material which may still be in the system does not affect pump or system performance in the future. This includes Modification M-1134 (installs permanent SI Pump Recirc strainers), and SP-1158 & 1159 (assess potential impact of foreign material elsewhere in the ECCS System). Operability of the SI System will be established independently of this evaluation after completion of these activities.

REFERENCES

1) SP-1157; SI Pump Flow Test

2) SP-986; Safety Injection Flow Test

3) RET RNP-90-163 reg. SI Pump Operability

4) OST-151, Safety Injection System Component Test

5) EST-005, SI Pump Bearing Temperature Test (historical)

6) SI Pump Technical Manual, CP&L No. 728-800-08

7) IRD Mechanalysis Technical Paper No. 116

"B" SI PUMP TEST DATA

Temp 106 Temp 108 Temp 110 Temp 113 Final Temp 116

PARAMETER	INST note	PT.1	PT.2	PT.3	PT.4	NOTES
TIME		1320	1327	1337	1340	
RWST LEVEL (%)	LI 948	95%	95	95	95	
PSIG in	(A) DAT 8/30/91 ~~1460~~ 13.0		13	12.5	12	
	(B)	12.9	12.9	12.9	12.9	
PSIG out	(C)	1460	1352	1236	955	
D/P (PSIG)	(D)	1447	1339	1223.5	943	
RECIRC FLOW GPM	(E)	34.5	65	61.7	54.9	
UT FLOW (GPM)	(E)	53.1	190.1	270.1	405	
VIBRATION 3H	N/A	.060	.063	.059	.047	
VIBRATION 3V	N/A	.056	.055	.044	.038	
VIBRATION 4H	N/A	.057	.070	.071	.063	
VIBRATION 4V	N/A	.054	.048	.040	.032	
CASING VIBRATION	N/A	.055	.062	.061	.055	

Notes: N/A any information not obtainable.

(A) Test gauge 30"HG to 60 psig
(B) Calculated suction pressure:

$$P = \left[\frac{(\text{RWST level \%}) \times (32.5 \text{ ft})}{100} - 1.1 \text{ ft}\right] \times (.4335 \text{ psi/ft})$$

(C) Test gauge 0-2000 psig
(D) Diff. Pressure is calculated from discharge pressure - suction pressure.
(E) Ultrasonic Flow Instrumentation

COMMENTS

NONE

"A" SI PUMP TEST DATA

Temp 104 Temp 109 Temp 109 Temp 110 Temp 114

PARAMETER	INST note	PT.1	PT.2	PT.3	PT.4	NOTES Repeat of step 7.5 @ 200 gpm
TIME		1749	1755	1800	1805	1813
RWST LEVEL (%)	LI 948	95	95	95	95	95
PSIG in	(A)	12.8	12.6	12.2	12	12.5
	(B)	12.9	12.9	12.9	12.9	12.9
PSIG out	(C)	1390	1353	1168	953	1306
D/P (PSIG)	(D)	1377.2	1340.4	1155.8	941	1293.5
RECIRC FLOW GPM	(E)	30	61	56.6	51.6	51.2
UT FLOW GPM	(E)	118*	156.1	305.3	410.9	197
VIBRATION 3H	N/A	.091	.068	.066	.061	N/A
VIBRATION 3V	N/A	.050	.056	.051	.037	↓
VIBRATION 4H	N/A	.097	.080	.070	.070	↓
VIBRATION 4V	N/A	.074	.063	.055	.049	↓
CASING VIBRATION	N/A	.068	.067	.055	.051	↓

Notes: N/A any information not obtainable.

(A) Test gauge 30"HG to 60 psig
(B) Calculate suction pressure:

$$P = \left[\frac{(\text{RWST level \%}) \times (32.5 \text{ ft})}{100} - 1.1 \text{ ft}\right] \times (.4335 \text{ psi/ft})$$

(C) Test gauge 0-2000 psig
(D) Diff. Pressure is calculated from discharge pressure - suction pressure.
(E) Ultrasonic Flow Instrumentation

COMMENTS

0-200 pressure gauge read 12 psi - 15 psi
* Throttle valve in test loop leaking by giving higher flow

REF. SECTION 7.3
"A" SI PUMP DATA FOR 1 LOOP FLOW

PARAMETER	INST note	PT.1	PT.2	PT.3	PT.4	PT.5	PT. 6	NOTES
TIME	N/A	0317	0322	0330	0338	0345	N/A	
RWST LEVEL (%)	LI948	81	80	79	79	77		
PSIG in	(A)	10.4	10.0	9.6	9.0	8.8		
	*	10.9	10.8	10.65	10.65	10.4		
PSIG out	(B)	1440	1280	1100	720	860		
D/P (PSIG)	**	1429.6	1270	1090.4	711	851.2		
FLOW (GPM)	FI943	0	200	320	400	430		
FLOW (V) 2nT 11/26/90	TP943	~~0~~ ~~1.15~~	1.15	1.42	1.66	1.74		
FLOW (GPM)	***	0	194	324	406	430		
RECIRC FLOW GPM	(C)	32	32	32	32	29		
UT FLOW (GPM)	(C)	0	203	324	403	430		
Vac (VOLTS)	(D)	507.5	506.2	506	505.4	505.8		
Vbc (VOLTS)	(D)							
Vab (VOLTS)	(D)	507	505.7	505	504.8	505.3		
Ia (AMPS)	(D)	270	344	372	375	374		
Ib (AMPS)	(D)							
Ic (AMPS)	(D)	272	344	373	376	375		
VIBRATION 3H	(E)	.077	.070	.052	.057	.049	N/A	
VIBRATION 3V	(E)	.059	.056	.040	.031	.030		
VIBRATION 4H	(E)	.071	.092	.051	.051	.047		
VIBRATION 4V	(E)	.072	.047	.034	.037	.030		
CASING VIBRATION	(E)	.042	.095	.036	.033	.024		
MOTOR SPEED	(F)	3580	3574	3571	3570	3570		

Notes: N/A any information not obtainable.
Refer to ATTACHMENT 8.1 for instrument notes.

COMMENTS

REF SECTION 7 .
"A" SI PUMP DATA FOR 3 LOOP FLOW

PARAMETER	INST note	PT.1	PT.2	PT.3	PT.4	PT.5	PT. 6	NOTES
TIME	N/A	0357	0407	0417	0430	0438	0448	
RWST LEVEL (%)	LI948	76	75	74	73	71	69	
PSIG in	(A)	7.6	N/A	8.8	8.4	7.2	6.6	
	*	10.2	10.1	9.9	9.8	9.5	9.2	
PSIG out	(B)	1440	N/A	1100	900	500	350	
D/P (PSIG)	**	1430.4	N/A	1091.2	911.6	492.8	343.4	
FLOW (GPM)	FI943	0	200	275	390	575	630	
FLOW (V)	TP943	0	1.11	1.30	1.65	2.37	2.65	
FLOW (GPM)	***		166	274	403	585	642	
RECIRC FLOW GPM	(C)	32	32	30	29	23	19	
UT FLOW (GPM)	(C) DP	1480	148	N/A	398	577	620	
Vac (VOLTS)	(D)	507.5	N/A	505.7	505.5	505.7	506.2	
Vbc (VOLTS)	(D)							
Vab (VOLTS)	(D)	506.8		505.1	504.9	505.2	505.9	
Ia (AMPS)	(D)	270		364	376	340	319	
Ib (AMPS)	(D)							
Ic (AMPS)	(D)	272		364	377	342	320	
VIBRATION 3H	(E)	.092	N/A	.127	.081	.057	.052	(1)
VIBRATION 3V	(E)	.054		.080	.049	.035	.031	
VIBRATION 4H	(E)	.073		.126	.072	.056	.048	
VIBRATION 4V	(E)	.076		.102	.052	.041	.033	
CASING VIBRATION	(E)	.037		.046	.040	.027	.025	
MOTOR SPEED	(F)	3580		3570	3570	3572	3574	

Notes: N/A any information not obtainable.
Refer to ATTACHMENT 8.1 for instrument notes.

COMMENTS
(1) Flow @ PT 2 would not stabilize on flow. (2) PT 5 & 6 Read with 0-600 gauge.

REF SECTION 5.6
"B" SI PUMP DATA FOR 1 LOOP FLOW

PARAMETER	INST note	PT.1	PT.2	PT.3	PT.4	PT.5	PT. 6	NOTES
TIME	N/A	0603	0611	0617	0625	0631	N/A	
RWST LEVEL (%)	LI948	66.5	66	65.5	65	N/A		
PSIG in	(A)	7.2	8.0	7.6	7.2			
	*	8.9	8.8	8.75	8.68			
PSIG out	(B)	1480	1320	1180	1010			
D/P (PSIG)	**	1470.8	1312	1173.4	1006.8			
FLOW (GPM)	FI943	N/A	210	300	370			
FLOW (V)	TP943	0	1.18	1.35	1.57			
FLOW (GPM)	***		212	296	378			
RECIRC FLOW GPM	(C)	32	32	32	31			
UT FLOW (GPM)	(C)	0	211	297	380			
Vac (VOLTS)	(D)	504	502.5	502.1	501.8			
Vbc (VOLTS)	(D)	505.8	504.5	504.1	505.8			
Vab (VOLTS)	(D)							
Ia (AMPS)	(D)	264	347	369	378			
Ib (AMPS)	(D)	274	359	382	391			
Ic (AMPS)	(D)							
VIBRATION 3H	(E)	.078	.055	.051	.045			
VIBRATION 3V	(E)	.076	.058	.055	.042			
VIBRATION 4H	(E)	.077	.055	.051	.040			
VIBRATION 4V	(E)	.065	.061	.057	.040			
CASING VIBRATION	(E)	.043	.052	.049	.040			
MOTOR SPEED	(F)	3580	3573	3570	3568	↓	↓	

Notes: N/A any information not obtainable.
Refer to ATTACHMENT 8.1 for instrument notes.

COMMENTS
(1) SUCTION GAUGE FLUCTUATING ±0.1 psi

REF SECTION 7.7
"B" SI PUMP DATA FOR 3 LOOP FLOW

PARAMETER	INST note	PT.1	PT.2	PT.3	PT.4	PT.5	PT. 6	NOTES
TIME	N/A	N/A	0637	0644	0648	0657	0710	
RWST LEVEL (%)	LI948	N/A	~~70~~	63.5	63	61.5	57.5	
PSIG in	(A)	N/A	7.3	7.4	6.8	5.6	4.6	
	*	N/A	8.5	8.47	8.4	8.2	7.6	
PSIG out	(B)	N/A	1340	1140	870	510	350	
D/P (PSIG)	**	N/A	1332.2	1132.6	883.2	504.4	351.4	
FLOW (GPM)	FI943	N/A	200	290	410	575	625	
FLOW (V)	TP943	0	1.11	1.35	1.73	2.37	2.65	
FLOW (GPM)	***		166	296	427	585	642	
RECIRC FLOW GPM	(C)	32	32	31	29	20	17.7	
UT FLOW (GPM)	(C)	0	170	302	423	584	632	(3)
Vac (VOLTS)	(D)	N/A	503.2	503.0	503.3	504.4	504.1	
Vbc (VOLTS)	(D)		505.2	505.0	505.3	506.4	505.8	
Vab (VOLTS)	(D)							
Ia (AMPS)	(D)		327	367	376	347	326	
Ib (AMPS)	(D)		339	379	390	360	339	
Ic (AMPS)	(D)							
VIBRATION 3H	(E)		.091		.098	.051	.046	
VIBRATION 3V	(E)		.076		.071	.040	.037	
VIBRATION 4H	(E)		.097		.084	.047	.044	
VIBRATION 4V	(E)		.067		.077	.037	.038	
CASING VIBRATION	(E)		.067		.047	.037	.037	
MOTOR SPEED	(F)		3574	3572	3569	3571	3573	

Notes: N/A any information not obtainable.
Refer to ATTACHMENT 8.1 for instrument notes.

COMMENTS
(1) 0-600 psig gauge used. (2) GAUGE FLUCTUATING ±0.1 (3) High line vibration.

SP-986 Data

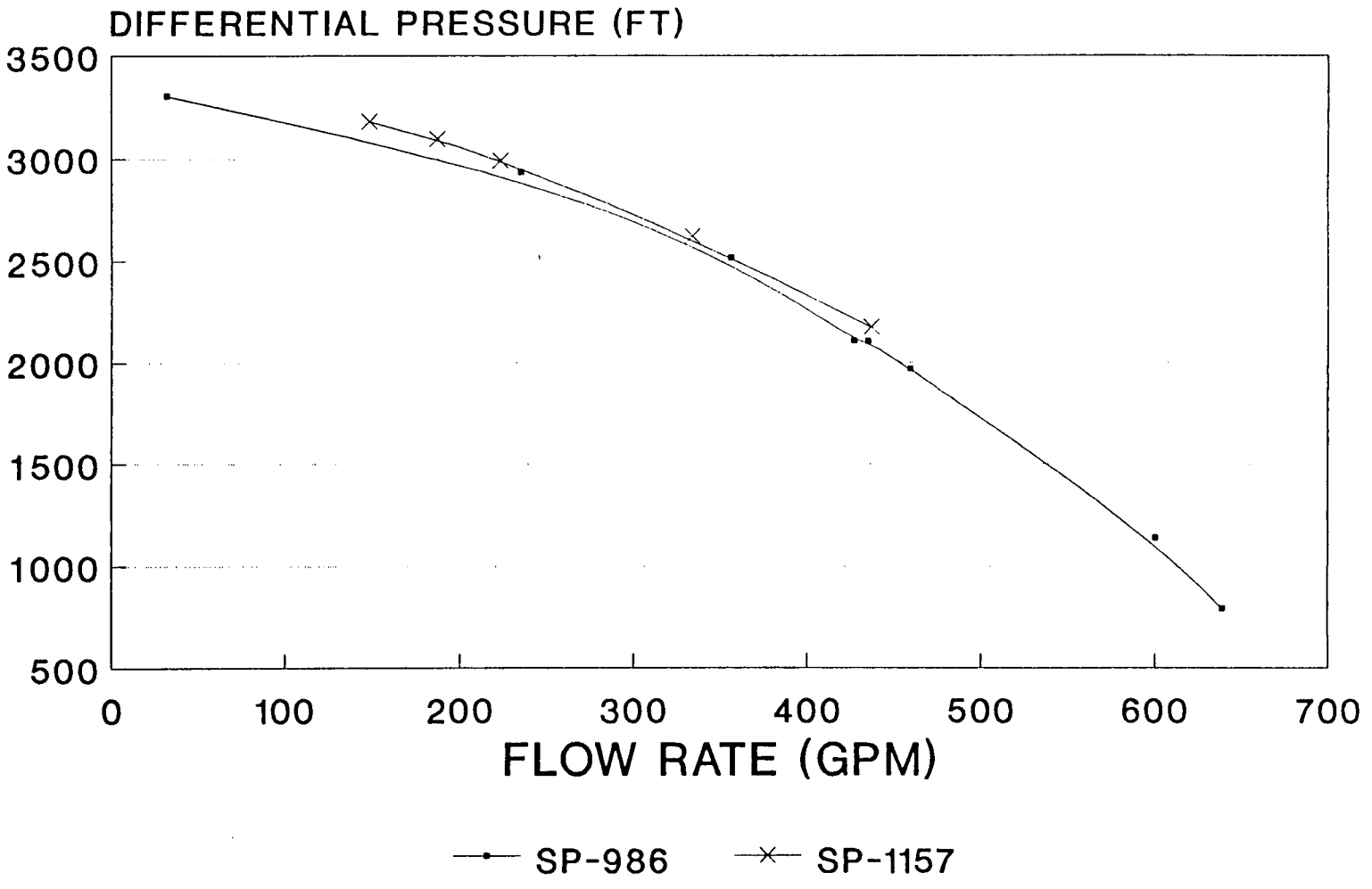
"A" SI PUMP		"B" SI PUMP	
ΔP (ft)	Flow Rate (gpm)	ΔP (ft)	Flow Rate (gpm)
3303	32	3398	32
2934	235	3077	202
2518	356	3031	243
2107	427	2707	329
2104	435	2617	333
1966	459	2326	411
1139	600	2040	452
792	639	1164	604
---	---	811	650

SP-1157 Data

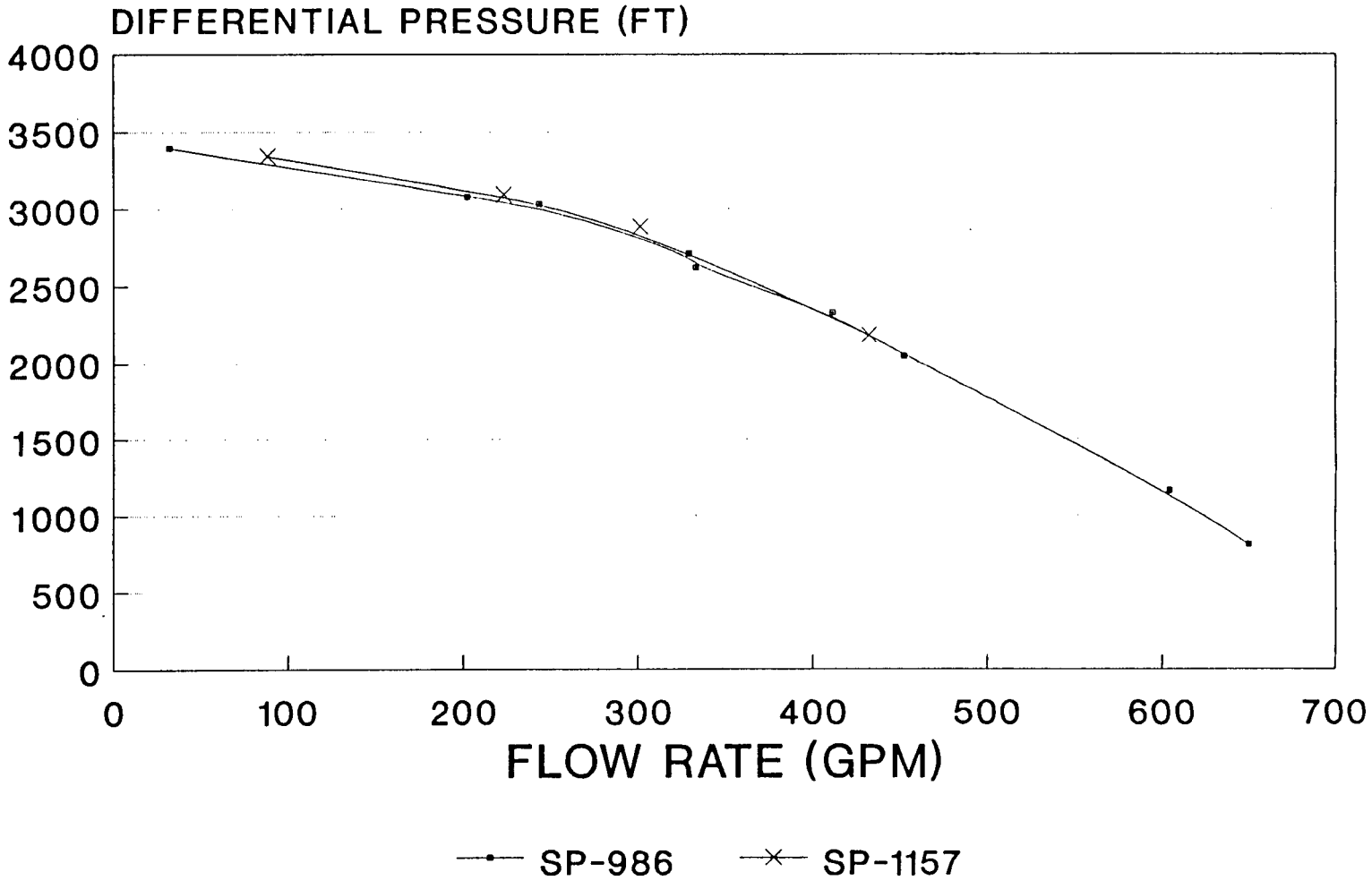
"A" SI PUMP		"B" SI PUMP	
ΔP (ft)	Flow Rate (gpm)	ΔP (ft)	Flow Rate (gpm)
3181	148	3343	88
3095	187	3093	223
2989	223	2884	301
2624	334	2178	432
2174	437	----	---

Note: SP-1157 flow rates taken with two recirc paths open determined by subtracting half of total recirc flow to prevent adding "C" recirc twice

"A" SI PUMP CURVES



"B" SI PUMP CURVES



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Unload from an IRD Data Collector

Machine	Pos	Dir	Ampl	Units	Alarm	Inspection Remarks
SI PUMP TEST B	3	V	78.0	TEMP F	0160	
SI PUMP TEST B	4	V	91.0	TEMP F	0160	
SI PUMP TEST B	003	H	.060	IN/S	.314	
SI PUMP TEST B	003	V	.056	IN/S	.314	
SI PUMP TEST B	004	H	.057	IN/S	.314	
SI PUMP TEST B	004	V	.054	IN/S	.314	
SI PUMP TEST B	CAS	H	.055	IN/S	.314	
SI PUMP TEST B	CAS	H	.498	g	1.00	
SI PUMP TEST B	3	V	80.0	TEMP F	0160	
SI PUMP TEST B	4	V	105.	TEMP F	0160	
SI PUMP TEST B	003	H	.063	IN/S	.314	
SI PUMP TEST B	003	V	.055	IN/S	.314	
SI PUMP TEST B	004	H	.070	IN/S	.314	
SI PUMP TEST B	004	V	.048	IN/S	.314	
SI PUMP TEST B	CAS	H	.062	IN/S	.314	
SI PUMP TEST B	CAS	H	.344	g	1.00	
SI PUMP TEST B	3	V	80.0	TEMP F	0160	
SI PUMP TEST B	4	V	115.	TEMP F	0160	
SI PUMP TEST B	003	H	.059	IN/S	.314	
SI PUMP TEST B	003	V	.044	IN/S	.314	
SI PUMP TEST B	004	H	.071	IN/S	.314	
SI PUMP TEST B	004	V	.040	IN/S	.314	
SI PUMP TEST B	CAS	H	.061	IN/S	.314	
PUMP TEST B	CAS	H	.250	g	1.00	
PUMP TEST B	3	V	83.0	TEMP F	0160	
SI PUMP TEST B	4	V	117.	TEMP F	0160	
SI PUMP TEST B	003	H	.047	IN/S	.314	
SI PUMP TEST B	003	V	.038	IN/S	.314	
SI PUMP TEST B	004	H	.063	IN/S	.314	
SI PUMP TEST B	004	V	.032	IN/S	.314	
SI PUMP TEST B	CAS	H	.055	IN/S	.314	
SI PUMP TEST B	CAS	H	.199	g	1.00	
SI PUMP TEST B	3	V	-0000-	TEMP F	0160	* No data stored! *
SI PUMP TEST B	4	V	-0000-	TEMP F	0160	* No data stored! *
SI PUMP TEST B	003	H	-0000-	IN/S	.314	* No data stored! *
SI PUMP TEST B	003	V	-0000-	IN/S	.314	* No data stored! *
SI PUMP TEST B	004	H	-0000-	IN/S	.314	* No data stored! *
SI PUMP TEST B	004	V	-0000-	IN/S	.314	* No data stored! *
SI PUMP TEST B	CAS	H	-0000-	IN/S	.314	* No data stored! *
SI PUMP TEST B	CAS	H	-0000-	g	1.00	* No data stored! *
SAFTY INJ PMP B	1	A	.114	IN/S	.156	
SAFTY INJ PMP B	1	H	.270	IN/S	.314	
SAFTY INJ PMP B	1	H	.206	g/SE	.500	
SAFTY INJ PMP B	1	V	.098	IN/S	.314	
SAFTY INJ PMP B	1	V	98.0	TEMP F	0160	
SAFTY INJ PMP B	2	H	[.355]	IN/S	.314	
SAFTY INJ PMP B	2	H	.299	g/SE	.500	

Notes: Points 1 & 2 are on pump motor, not applicable to this evaluation.

Unload from an IRD Data Collector

Machine	Pos	Dir	Ampl	Units	Alarm	Inspection Remarks
SAFTY INJ PMP B	2	V	.088	IN/S	.314	
SAFTY INJ PMP B	2	V	93.0	TEMP F	0160	
SAFTY INJ PMP B	3	H	.055	IN/S	.314	
SAFTY INJ PMP B	3	H	.150	g/SE	.500	
SAFTY INJ PMP B	3	V	.038	IN/S	.314	
SAFTY INJ PMP B	3	V	83.0	TEMP F	0160	
SAFTY INJ PMP B	4	A	.054	IN/S	.156	
SAFTY INJ PMP B	4	H	.048	IN/S	.314	
SAFTY INJ PMP B	4	H	.565	g/SE	.500	
SAFTY INJ PMP B	4	V	.031	IN/S	.314	
SAFTY INJ PMP B	4	V	128.	TEMP F	0160	
SAFTY INJ PMP B	CAS	H	.057	IN/S	.314	
SI PUMP TEST A	3	V	78.0	TEMP F	0160	
SI PUMP TEST A	4	V	91.0	TEMP F	0160	
SI PUMP TEST A	003	H	.091	IN/S	.314	
SI PUMP TEST A	003	V	.050	IN/S	.314	
SI PUMP TEST A	004	H	.097	IN/S	.314	
SI PUMP TEST A	004	V	.074	IN/S	.314	
SI PUMP TEST A	CAS	H	.068	IN/S	.314	
SI PUMP TEST A	CAS	H	.948	g	1.00	
SI PUMP TEST A	3	V	78.0	TEMP F	0160	
SI PUMP TEST A	4	V	105.	TEMP F	0160	
SI PUMP TEST A	003	H	.068	IN/S	.314	
SI PUMP TEST A	003	V	.056	IN/S	.314	
SI PUMP TEST A	004	H	.080	IN/S	.314	
SI PUMP TEST A	004	V	.063	IN/S	.314	
SI PUMP TEST A	CAS	H	.067	IN/S	.314	
SI PUMP TEST A	CAS	H	.938	g	1.00	
SI PUMP TEST A	3	V	80.0	TEMP F	0160	
SI PUMP TEST A	4	V	112.	TEMP F	0160	
SI PUMP TEST A	003	H	.066	IN/S	.314	
SI PUMP TEST A	003	V	.051	IN/S	.314	
SI PUMP TEST A	004	H	.070	IN/S	.314	
SI PUMP TEST A	004	V	.055	IN/S	.314	
SI PUMP TEST A	CAS	H	.055	IN/S	.314	
SI PUMP TEST A	CAS	H	.655	g	1.00	
SI PUMP TEST A	3	V	80.0	TEMP F	0160	
SI PUMP TEST A	4	V	115.	TEMP F	0160	
SI PUMP TEST A	003	H	.061	IN/S	.314	
SI PUMP TEST A	003	V	.037	IN/S	.314	
SI PUMP TEST A	004	H	.070	IN/S	.314	
SI PUMP TEST A	004	V	.049	IN/S	.314	
SI PUMP TEST A	CAS	H	.051	IN/S	.314	
SI PUMP TEST A	CAS	H	.473	g	1.00	
SI PUMP TEST A	3	V	-0000-	TEMP F	0160	* No data stored! *
SI PUMP TEST A	4	V	-0000-	TEMP F	0160	* No data stored! *
SI PUMP TEST A	003	H	-0000-	IN/S	.314	* No data stored! *

Unload from an IRD Data Collector

Machine	Pos	Dir	Ampl	Units	Alarm	Inspection Remarks
SI PUMP TEST A	003	V	-0000-	IN/S	.314	* No data stored! *
SI PUMP TEST A	004	H	-0000-	IN/S	.314	* No data stored! *
SI PUMP TEST A	004	V	-0000-	IN/S	.314	* No data stored! *
SI PUMP TEST A	CAS	H	-0000-	IN/S	.314	* No data stored! *
SI PUMP TEST A	CAS	H	-0000-	g	1.00	* No data stored! *
SAFTY INJ PMP A	1	A	.064	IN/S	.156	
SAFTY INJ PMP A	1	H	.077	IN/S	.314	
SAFTY INJ PMP A	1	H	.371	g/SE	.500	
SAFTY INJ PMP A	1	V	.061	IN/S	.314	
SAFTY INJ PMP A	1	V	91.0	TEMP F	0160	
SAFTY INJ PMP A	2	H	.205	IN/S	.314	
SAFTY INJ PMP A	2	H	.279	g/SE	.500	
SAFTY INJ PMP A	2	V	.049	IN/S	.314	
SAFTY INJ PMP A	2	V	91.0	TEMP F	0160	
SAFTY INJ PMP A	3	H	.058	IN/S	.314	
SAFTY INJ PMP A	3	H	.307	g/SE	.500	
SAFTY INJ PMP A	3	V	.038	IN/S	.314	
SAFTY INJ PMP A	3	V	78.0	TEMP F	0160	
SAFTY INJ PMP A	4	A	.052	IN/S	.156	
SAFTY INJ PMP A	4	H	.071	IN/S	.314	
SAFTY INJ PMP A	4	H	.320	g/SE	.500	
SAFTY INJ PMP A	4	V	.045	IN/S	.314	
SAFTY INJ PMP A	4	V	115.	TEMP F	0160	
FTY INJ PMP A	CAS	H	.050	IN/S	.314	

118 lines this report

10CFR50.59 PROGRAM MANUAL
ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

SAFETY REVIEW COVER SHEET

DOCUMENT NO. EE 92-127 REV. NO. 0

DESCRIPTION OR TITLE: Assessment of SP-1157 SI Pump Flow Test Data

1. Assigned Responsibilities:

   Safety Analysis Preparer: Jeff Lane

   Lead 1st Safety Reviewer: DENNIS J. TURNER

   2nd Safety Reviewer: J. B. Gee

2. Safety Analysis Preparer: Complete PART I, SAFETY ANALYSIS

   Safety Analysis Preparer _____ / 9/2/92
   SIGNATURE DATE

3. Lead 1st Safety Reviewer: Complete Part II, Item Classification.

4. Lead 1st Safety Reviewer: Part III may be completed. If either question 1 or 2 is "yes," then Part IV is not required.

5. Lead 1st Safety Reviewer: Determine which DISCIPLINES are required for review of this item (including own) and mark the appropriate block(s) below.

DISCIPLINES Required:	(Print Name)	Signature/Date (Step 7)
[ ] Nuclear Plant Operations		
[ ] Nuclear Engineering		
[X] Mechanical	DENNIS J. TURNER	Dennis J. Turner 9/2/92
[ ] Electrical		
[ ] Instrumentation & Control		
[ ] Structural		
[ ] Metallurgy		
[ ] Chemistry/Radiochemistry		
[ ] Health Physics		
[ ] Administrative Controls		

6. A QUALIFIED SAFETY REVIEWER will be assigned for each DISCIPLINE marked in step 5 and his/her name printed in the space provided. Each person listed shall perform a SAFETY REVIEW and provide input into the Safety Review Package.

7. The Lead 1st Safety Reviewer will assure that a Part III or Part IV is completed (see step 4 above) and a Part VI if required (see 9.d of Part II). Each person listed in step 5 shall sign and date next to his/her name in step 5, indicating completion of a SAFETY REVIEW.

8. 2nd Safety Reviewer: Perform a SAFETY REVIEW in accordance with Section 8.0.

   2nd Safety Reviewer J. B. Gee Date 9/2/92

   DISCIPLINE: Mech

9. PNSC review required? If "yes," attach Part V and mark reason below: Yes [ ] No [X]

   [ ] Potential UNREVIEWED SAFETY QUESTION
   [ ] Question 9 of Part IV answered "Yes"
   [ ] Other (specify): _____

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ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

PART I: SAFETY ANALYSIS
(See instructions in Section 8.4.1)
(Attach additional sheets as necessary.)

DOCUMENT NO. EE 92-127 REV. NO. 0

DESCRIPTION OF CHANGE: See attached

ANALYSIS: See attached

REFERENCES:

OST-151, OST-154, SP-986, SP-1157, RET RNP-90-163
UFSAR sec. 6.3, 3.9.6
Tech Spec. 4.5, 4.0, 3.3, 4.1

Description of Change:

EE 92-127 is a new document (rev. 0) written to assess data obtained from SP-1157. This procedure was performed to ascertain whether foreign material recently discovered in SI Pump "B" had adversely affected the performance, reliability or material condition of the SI Pumps. To accomplish this objective both pumps were instrumented and a test loop established across the "C" pump location ("C" SI Pump being removed for unrelated maintenance.) Both "A" and "B" SI Pumps were run at a range of flows, ranging from recirc only to over 400 gpm. Flow, head, vibration and temperature data was collected throughout the test.

EE 92-127 establishes the condition of the "A" and "B" SI Pumps by comparing SP-1157 data to that obtained from pre RFO 14 sources. (RFO 14 being when the foreign material was likely introduced by a plant modification on the RHR System which used this type material.) OSTs, ESTs, and other Special Procedures were utilized in this determination.

Analysis:

The safety analysis associated with the performance of SP-1157 addressed safety concerns associated with the performance that test (ie., was the test safe). Therefore, only safety concerns associated with data assessment need be addressed herein.
EE 92-127 utilizes four criteria to discern the condition of the SI Pumps. These are: (1) head/flow data, (2) vibration data, (3) bearing temperature data, and (4) on site observation of the manufacturer's technical representative.

(1) This evaluation compares SP-1157 data to that collected during SP-986. The latter was a detailed test which operated the SI Pumps over a wide range of flows to obtain information relative to pump performance and system resistance. The data obtained was forwarded to NED for review under RET RNP-90-163. The results of this review was that SI Pump's performance as documented under SP-986 was adequate to meet the requirements of the most challenging SI accident scenario. Comparison with SP-1157 data shows pump performance to be as good as that documented under SP-986 at all points tested.

(2) The SI Pump Technical Manual states that normal vibration displacements for these pumps are 1 to 2 mils, with 3 mils being considered excessive. This can be correlated to velocities of .2 to .4 in/sec normal, with .6 in/sec being excessive. Velocities measured during SP-1157 were well below the manufacturer's normal range, and consistent with that

Safety Evaluation Attachment, Page 9 of 8

obtained historically under OST-151. Hydraulic balance, dynamic balance, pump clearances and bearing condition are all parameters which can affect vibration levels. The data obtained during SP-1157 indicate no detectable change in any of these parameters.

(3) Bearing temperature was measured during the performance of SP-1157. This found bearing temperatures to be consistent with those taken in recent years under EST-005 (now discontinued), and provides further validation of bearing condition.

(4) Finally, a service representative was brought on site to witness SP-1157 performance. After observing the tests and reviewing test data, he concluded that both SI Pump "A" and "B" were operating normally.

The above criteria address both the performance and reliability of the SI Pumps. Meeting these criteria establishes that the SI Pumps have not incurred any detectable level of degradation from the introduction of foreign material. This is the sole safety related function of EE 92-127. The above criteria are sufficient to assure that no unreviewed safety questions or other safety concerns is incurred relative to the current condition of these pumps.

It should be noted that EE 92-127 does not address the operability of the SI or ECCS Systems. This is being pursued independently under Modification M-1134, SP-1158 & SP-1159 and other related work. System operability will be established upon satisfactory completion of these activities.

9/1/92

Jeff Dane,
Technical Support

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CP&L SAFETY REVIEW PACKAGE

PART II: ITEM CLASSIFICATION

DOCUMENT NO. DFT 9/2/92 ~~SP H57~~ EE 92-127 REV. NO. 0

		Yes	No
1.	Does this item represent:		
	a. A change to the facility as described in the SAFETY ANALYSIS REPORT?	[ ]	[X]
	b. A change to the procedures as described in the SAFETY ANALYSIS REPORT?	[ ]	[X]
	c. A test or experiment not described in the SAFETY ANALYSIS REPORT?	[ ]	[X]
2.	Does this item involve a change to the individual plant Operating License or to its Technical Specifications?	[ ]	[X]
3.	Does this item require a revision to the FSAR?	[ ]	[X]
4.	Does this item involve a change to the Off-Site Dose Calculation Manual?	[ ]	[X]
5.	Does this item constitute a change to the Process Control Program?	[ ]	[X]
6.	Does this item involve a major change to a Radwaste Treatment System?	[ ]	[X]
7.	Does this item involve a change to the Technical Specification Equipment List (BSEP and SHNPP only)?	[ ]	[X]
8.	Does this item impact the NPDES Permit (all 3 sites) or constitute an "unreviewed environmental question" (SHNPP Environmental Plan, Section 3.1) or a "significant environmental impact" (BSEP)?	[ ]	[X]
9.	Does this item involve a change to a previously accepted:		
	a. Quality Assurance Program	[ ]	[X]
	b. Security Plan (including Training, Qualification, and Contingency Plans)?	[ ]	[X]
	c. Emergency Plan?	[ ]	[X]
	d. Independent Spent Fuel Storage Installation license? (If "yes," refer to Section 8.4.2, "Question 9," for special considerations. Complete Part VI in accordance with Section 8.4.6)	[ ]	[X]

SEE SECTION 8.4.2 FOR INSTRUCTIONS FOR EACH "YES" ANSWER.

REFERENCES. List FSAR and Technical Specification references used to answer questions 1-9 above. Identify specific reference sections used for any "Yes" answer.

UFSAR 6.3, 3.9.6 TECH SPECS 4.5, 4.0, 3.3, 9.1

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PART III: UNREVIEWED SAFETY QUESTION DETERMINATION SCREEN

DOCUMENT NO. EE 92-127 REV. NO. 0

	Yes	No
1. Is this change fully addressed by another completed UNREVIEWED SAFETY QUESTION determination? (See Sections 7.2.1, 7.2.2.5, and 7.9.1.1)	[]	[X]

REFERENCE DOCUMENT: N/A REV. NO. _____

	Yes	No
2. For procedures, is the change a non-intent change which only (check all that apply): (See Section 7.2.2.3)	[]	[X]

[] Corrects typographical errors which do not alter the meaning or intent of the procedure; or,

[] Adds or revises steps for clarification (provided they are consistent with the original purpose or applicability of the procedure); or,

[] Changes the title of an organizational position; or,

[] Changes names, addresses, or telephone numbers of persons; or,

[] Changes the designation of an item of equipment where the equipment is the same as the original equipment or is an authorized replacement; or,

[] Changes a specified tool or instrument to an equivalent substitute; or,

[] Changes the format of a procedure without altering the meaning, intent, or content; or

[] Deletes a part or all of a procedure, the deleted portions of which are wholly covered by approved plant procedures?

If the answer to either Question 1 or Question 2 in PART III is "Yes," then PART IV need not be completed.

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PART IV: UNREVIEWED SAFETY QUESTION DETERMINATION

DOCUMENT NO. EE 92-127 REV. NO. 0

Using the SAFETY ANALYSIS developed for the change, test or experiment, as well as other required references (LICENSING BASIS DOCUMENTATION, Design Drawings, Design Basis Documents, codes, etc.), the preparer of the Unreviewed Safety Question Determination must directly answer each of the following seven questions and make a determination of whether an UNREVIEWED SAFETY QUESTION exists.

A WRITTEN BASIS IS REQUIRED FOR EACH ANSWER

		Yes	No
1.	May the proposed activity increase the probability of occurrence of an accident evaluated previously in the SAFETY ANALYSIS REPORT?	[ ]	[X]

EE 92-127 EVALUATES DATA TAKEN DURING SP 1157 WHICH DOCUMENTS THAT THE SI PUMPS HAVE NOT DEGRADED. SI PUMPS ARE USED TO MITIGATE CONSEQUENCES OF AN ACCIDENT. AN SI PUMP SHOWN BY EE 92-127 TO BE OPERATI ON ITS CURVE WILL NOT INITIATE ANY DESIGN BASIS ACCIDENT.

2.	May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT?	[ ]	[X]

THIS EE SHOWS THE SI PUMPS HAVE NOT DEGRADED THUS CAN BE TAKEN CREDIT FOR AS ASSUMED IN THE CHAPTER 15 ANALYSIS. THE SI PUMPS WILL PERFORM THEIR MITIGATING FUNCTION.

3.	May the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT?	[ ]	[X]

THIS EE DOCUMENTS THE SI PUMPS PERFORMANCE PER SP1157 ~~COMPARES~~ IS EQUIVALENT TO PERFORMANCE PER SP 986, OST 151, & OST 154. THIS PROVES THE SI PUMPS HAVE NOT DEGRADED. DJT 9/2/9

4.	May the proposed activity increase the consequence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT?	[ ]	[X]

THIS EE DOES NOT CHANGE THE CONSEQUENCE OF A FAILED SI PUMP. IT DOCUMENTS THAT THE SI PUMPS HAVE NOT DEGRADED.

5.	May the proposed activity create the possibility of an accident of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT?	[ ]	[X]

THIS EE DOES NOT PERFORM ANY WORK OR TEST. IT ONLY EVALUATES DATA.

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PART IV: (Continued)

DOCUMENT NO. EE 92-127 REV. NO. 0

		Yes	No
6.	May the proposed activity create the possibility of a malfunction of equipment important to safety of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT?	[ ]	[X]
	SEE NO 5.		
7.	Does the proposed activity reduce the margin of safety as defined in the basis of any Technical Specification?	[ ]	[X]
	THE METHOD USED BY THIS EE IS TO COMPARE SP1157 DATA TO PREVIOUS DATA. THIS IS A VALID APPROACH TO DOCUMENT SI PUMP CONDITION. SINCE THE SI PUMPS HAVE NOT DEGRADED NO MARGIN OF SAFETY IS REDUCED.		
8.	Based on the answers to questions 1 - 7, does this item result in an UNREVIEWED SAFETY QUESTION? If the answer to any of the questions 1-7 is "Yes," then the item is considered to constitute an UNREVIEWED SAFETY QUESTION.	[ ]	[X]
9.	Is PNSC review required for any of the following reasons?	[ ]	[X]
	If, in answering question 1 or 3 "No," it was determined that the probability increase was small relative to the uncertainties; or, in answering question 2 or 4 "No," it was determined that the doses increased, but the dose was still less than the NRC ACCEPTANCE LIMIT; or, in answering question 7 "No," a parameter would be closer to the NRC ACCEPTANCE LIMIT, but the end result was still within the NRC ACCEPTANCE LIMIT; then PNSC review is required.		

REFERENCES:
SP 1157 SP 986
UFSAR 6.3, 3.9.6
TIS 4.5, 4.0, 3.3, 4.1

This Unreviewed Safety Question Determination is for the following DISCIPLINE(s): (Additional Part IV forms may be included as appropriate.)

- [ ] Nuclear Plant Operations
- [ ] Nuclear Engineering
- [X] Mechanical
- [ ] Electrical
- [ ] Instrumentation & Control
- [ ] Structural
- [ ] Metallurgy
- [ ] Chemistry/Radiochemistry
- [ ] Health Physics
- [ ] Administrative Controls