

H. B. ROBINSON

STEAM ELECTRIC PLANT

UNIT NO. 2



SAFETY INJECTION SYSTEM
RECOVERY PLAN

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RECOVERY PLAN

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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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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.

SAFETY INJECTION SYSTEM RECOVERY PLAN

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 "SHOULD" to be "SHALL" 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.

YES:

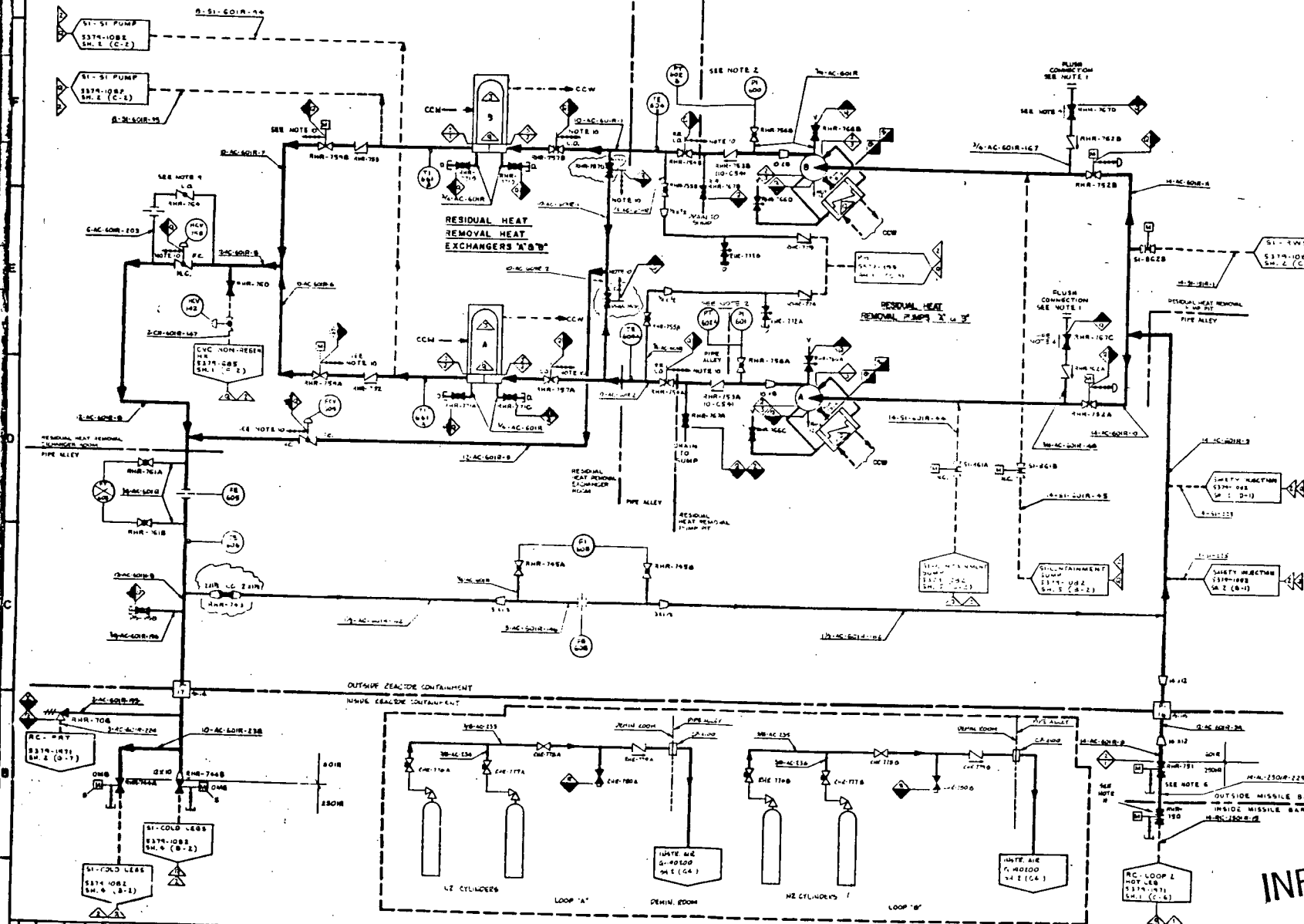
1. LOCATE ABOVE RESIDUAL HEAT REMOVAL PLANT SHEDDING AND CLOSE TO VALVE 752A (B).
2. INSTALL AT AN ACCESSIBLE AND CONVENIENT LOCAT ON.
3. LOCATE SUCTON CONNECTION IN BOTTOM HALF OF REACTOR COOLANT PIPING ON 50" HOLE TO VERTICAL.
4. VALVES ARE NORMALLY INSTALLED WITH FLOW UNDER THAT EXCEPTORS ARE 751C10
5. DELETED
6. INTERLOCK PROVIDED FOR RHR SUPPLY LINE ISOLATION VALVES 750 & 751. THESE VALVES CANNOT BE OPENED UNLESS VALVES 85A & B AND 85C & D ARE CLOSED AND REACTOR COOLANT SYSTEM PRESSURE IS BELOW THE SET POINT. VALVES 85A & B AND 85C & D ARE INTERLOCKED SO THEY CANNOT BE OPENED UNLESS RHR LOOP PRESSURE IS BELOW THE SET POINT.
7. ALL 50 ITEM NO'S ARE SHOWN WITHOUT PREFIX CPLIC.
8. DELETED
9. VALVES NORMALLY OPEN DURING PLANT OPERATION & CLOSED DURING SHUTDOWN. INSTALL IN CONVENIENT OPERATING LOCATION.
10. ROUTE VALVE LEAK-OFF LINE TO DRAIN DRAIN.
11. SEE 750 JANA VALVE & UPSTREAM DRAIN.
12. DRAIN LEAKAGE TO DRAIN.

REFERENCE DRAWINGS.

- FLOW DIAGRAM LEGEND & SYMBOLS - 5374-1001
- FLOW TAG, SYMBOLS & LEGEND - 5374-1002
- INSTRUMENTATION SCHEMATIC - 5374-1003
- INSTRUMENT LIST - 5374-1004
- REACTOR CONT. SLOG. PPM FINE - 5374-1005
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- PPM/RESOLUTION STD. - 5374-1007
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- FLOW DIAGRAM - 5374-1010
- LIQUID WASTE DISPOSAL - 5374-1011
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- COMPONENT COOLING WATER - 5374-1013
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INFO ONLY

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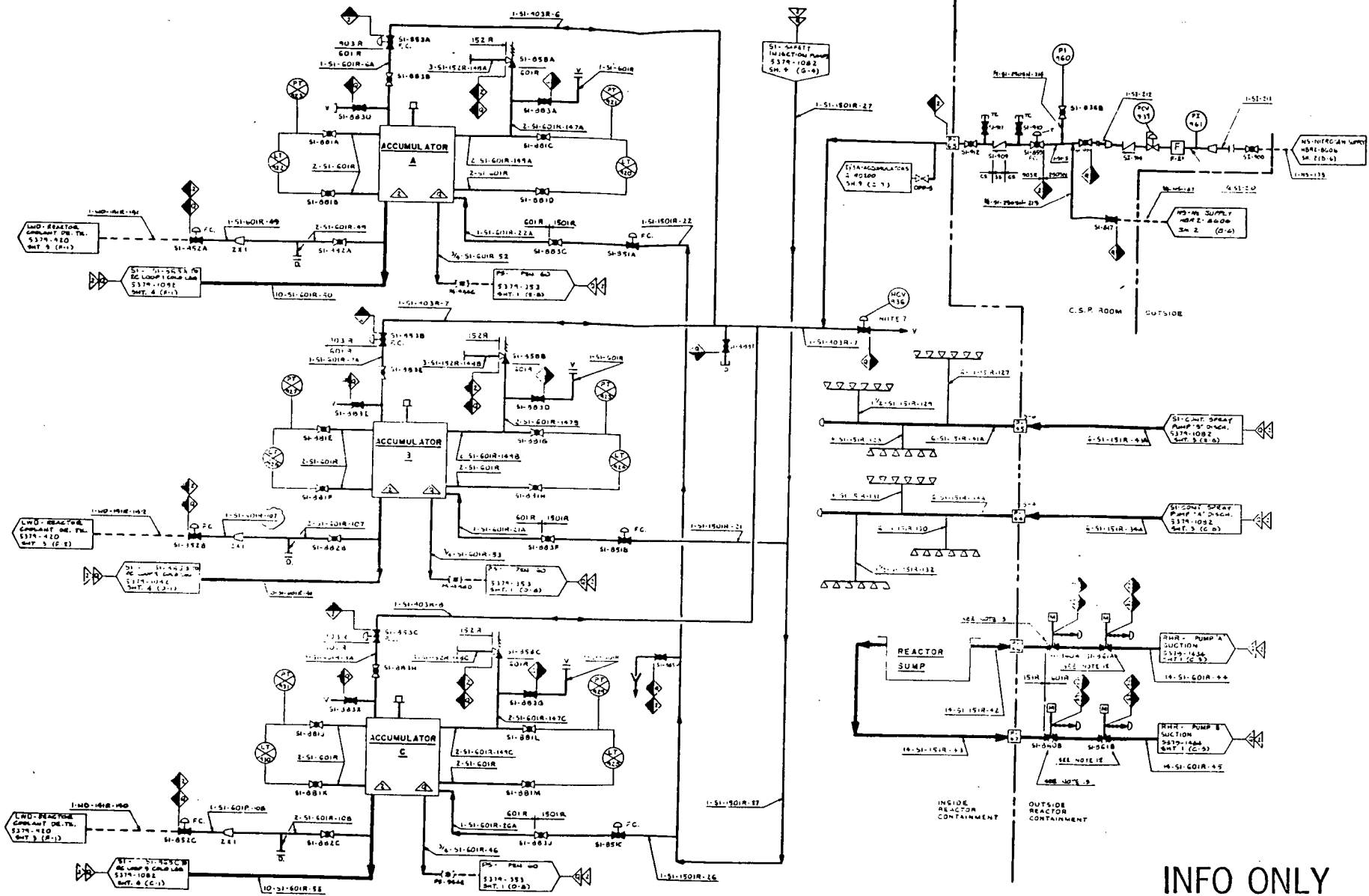
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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

BOX

| | |
|----------------------------|-------------------------|
| CAROLINA POWER & LIGHT CO. | |
| N.E. ROBINSON P.E. PLANT | |
| TITLE: RESIDUAL HEAT | |
| REMOVAL SYSTEM | |
| FLOW DIAGRAM | |
| DATE: 7/33/79-1484 | BY: J. M. B. / J. M. B. |
| SCALE: 1" = 10' | REVISION: 1 |

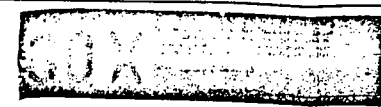
OUTSIDE REACTOR CONTAINMENT
INSIDE REACTOR CONTAINMENT

NOTES:
 See domestic notes & re
 Delaware's fee sheet!

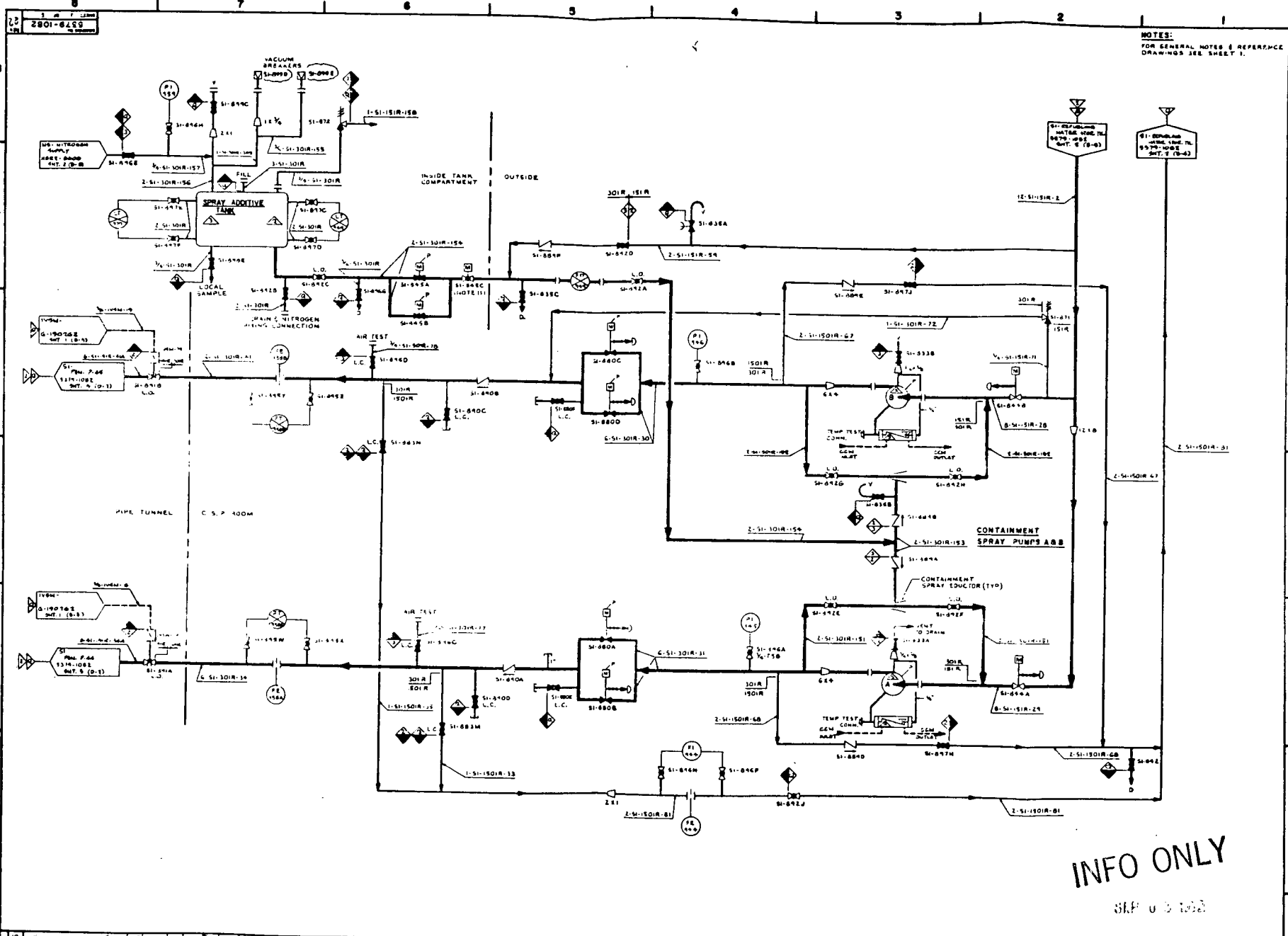


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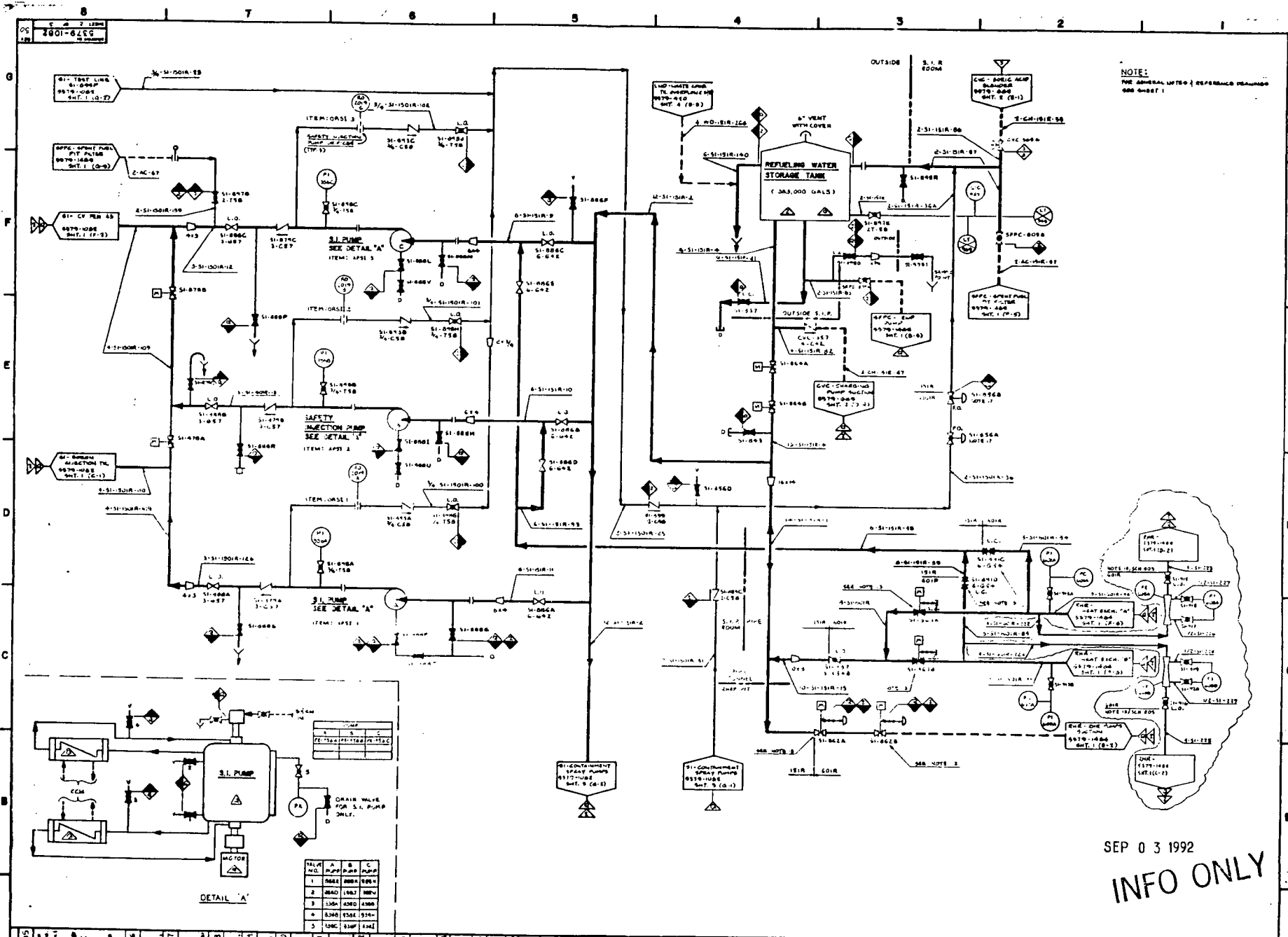
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|---|----------------------------|--------------|----------|
| DESIGNER: J. J. J. J. | CAROLINA POWER & LIGHT CO. | | |
| CHECKED BY: J. J. J. J. | H. S. ROSSIGNOL, JR. PLANT | | |
| DATE: 10/10/68 | UNIT - 2A WESTPORT, S.C. | | |
| TITLE: SAFETY INJECTION SYSTEM FLOW DIAGRAM | | | |
| PROJECT NO.: 10000 | | | |
| REVIEWED BY: J. J. J. J. | | | |
| DATE: 10/10/68 | | | |
| REVISION NO. | DATE | REVISION NO. | DATE |
| 1 | 10/10/68 | 1 | 10/10/68 |
| SCALE: NONE | | SHEET 3 OF 3 | |



30 X

I certify that the design contained on this drawing was prepared by me or under my direct supervision and that I am a duly licensed professional engineer in the State of North Carolina.

| | |
|-------------|--------------------------------------|
| DESIGNED BY | W. B. BOONEN |
| CHECKED BY | W. B. BOONEN |
| DATE | 10-1-62 |
| PROJECT | SAFETY INJECTION SYSTEM |
| SHEET NO. | 1 |
| TITLE | SAFETY INJECTION SYSTEM FLOW DIAGRAM |



SEP 03 1992
INFO ONLY

30X

| | |
|---|-------------|
| CALCULATED POWER & CAPACITY 1.5 KW (MAX) 1.5 KW (MAX) 1.5 KW (MAX) 1.5 KW (MAX) | |
| TITLE: SAFETY INJECTION SYSTEM FLOW DIAGRAM | |
| DRAWN BY: 3379-1082 JI | CHECKED BY: |
| DATE: 09/03/92 | DATE: |

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: *Ray H. Chambers* 8-29-92
Manager - Technical Support Date

APPROVED BY: *Ray H. Chambers* 8/29/92
Plant General Manager Date

CONTROLLED
RECIPIENT
ID 001

LIST OF EFFECTIVE PAGES

| <u>EFFECTIVE PAGES</u> | <u>REVISION</u> |
|------------------------|-----------------|
| Cover Sheet | 0 |
| LEP | 0 |
| Table of Contents | 0 |
| 4 through 28 | 0 |

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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

3.6

Date _____

3.7

Name

Date _____

3.8

Date

4.0

4.1

4.2

4.3

4.4

4.4.1

4.4.2

4.4.3

4 4 4

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'dINITIALS

7.1.13

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

| <u>Valve</u> | <u>Description</u> | <u>Position</u> | <u>INITIALS</u> |
|---------------|--|-----------------|-----------------|
| 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 | <u>Safety Injection Pump "B" Flow Test</u> | <u>INITIALS</u> |
|-----|--|-----------------|
| | | |

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 3

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:
(Step 7.2.3) X (32.5 Ft) - 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 | <u>Safety Injection Pump "B" Flow Test cont'd</u> | <u>INITIALS</u> |
|--------|---|-----------------|
| 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 | <u>Safety Injection Pump "B" Flow Test cont'd</u> | <u>INITIALS</u> |

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 | <u>PROCEDURE</u> | <u>INITIALS</u> |
|--------|--|-----------------|
| 7.3 | <u>Safety Injection Pump "A" Flow Test</u> | |
| 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: <u>(Step 7.3.3) X (32.5 Ft)</u> -1.1 Ft X (0.4335 PSI/Ft) = _____ PSI 100 | _____ |
| 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 | <u>Safety Injection Pump "A" Flow Test cont'd</u> | <u>INITIALS</u> |
|--------|---|-----------------|
| 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

Safety Injection Pump "A" Flow Test cont'd

INITIALS

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. _____

7.4.1

Perform the following component restoration:

| <u>VALVE</u> | <u>DESCRIPTION</u> | <u>POSITION</u> | <u>INIT</u> | <u>VERI</u> |
|------------------|------------------------------------|-----------------|-------------|-------------|
| 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 | _____ | _____ |
| <u>COMPONENT</u> | | | | |
| 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

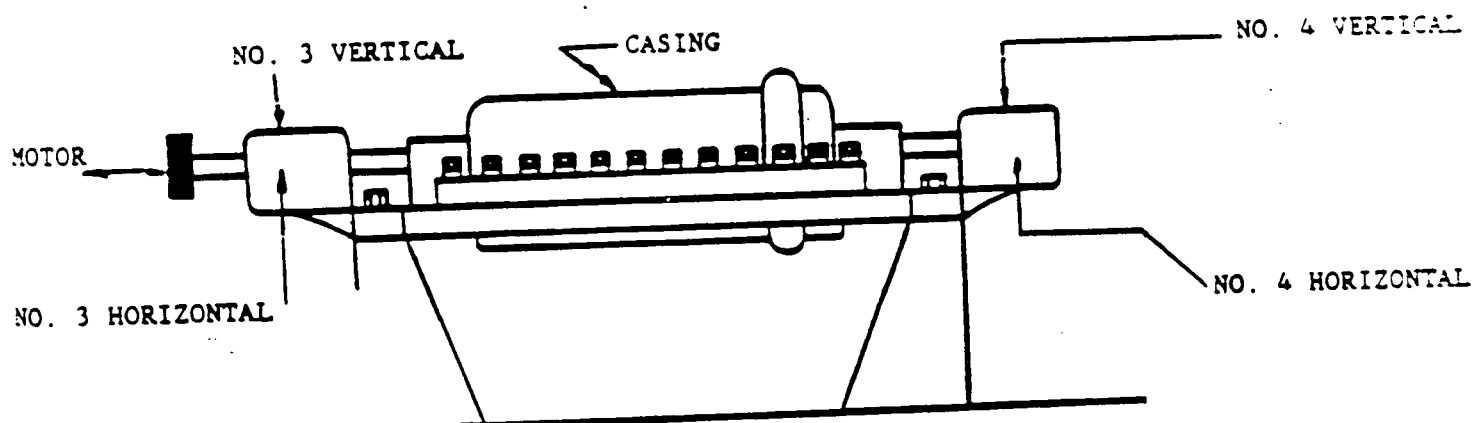
Upon completion of all applicable steps of this special procedure, it shall be transmitted to the records vault for storage as a permanent record under File Number 2080. Post Test Equipment Calibration Data Sheets shall be included in this transmittal.

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:

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

(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:

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

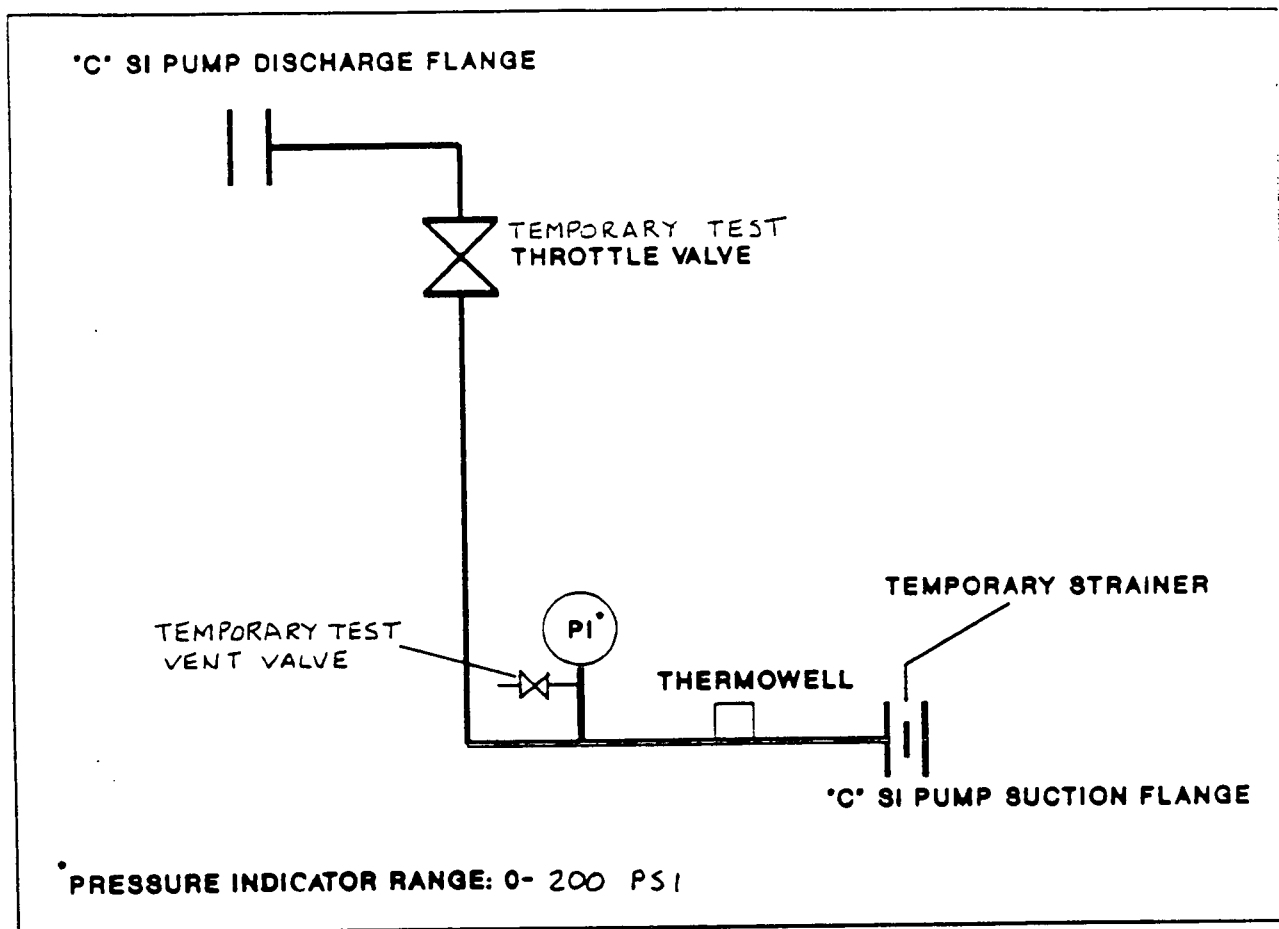
(C) Test gauge 0-2000 psig

(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

InitialsName (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: *J. F. Sae* 8/28/92
Manager - Technical Support Date

APPROVED BY: *Ray H. Chambers* 8/28/92
General Manager Date

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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

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

CVC-365B, Boric Acid From Blender - CLOSED

INDEPENDENT VERIFICATION

| OPS | Date |
|-----|------|
|-----|------|

OPS Date

SFPC-805B, RWST Return - CLOSED

INDEPENDENT VERIFICATION

OPS Date

OPS Date

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

INDEPENDENT VERIFICATION

OPS Date

OPS Date

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

INDEPENDENT VERIFICATION

| OPS | Date |
|-----|------|
|-----|------|

OPS Date

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

INDEPENDENT VERIFICATION

OPS Date

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



INDEPENDENT VERIFICATION

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

INDEPENDENT VERIFICATION

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

INDEPENDENT VERIFICATION

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

INDEPENDENT VERIFICATION

| OPS | Date |
|-----|------|
|-----|------|

INDEPENDENT VERIFICATION

OPS _____ Date _____

_____/_____
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 |
| 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 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: Ryan A. Almond for M. J. Page 8-30-92
Manager - Technical Support Date

APPROVED BY: Ray H. Chamberlain 8/30/92
General Manager Date

SP-1159

Rev. 0

CONTROLLED
RECIPIENT
ID 001

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| 8.0 | Acceptance Criteria |
| 9.0 | Procedure |
| 10.1 | Attachment |

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

| | |
|-------|------|
| <hr/> | |
| OPS | Date |

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

| | |
|-------|------|
| <hr/> | |
| OPS | Date |

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

| | |
|-------|------|
| <hr/> | |
| OPS | Date |

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

| | |
|-------|------|
| <hr/> | |
| OPS | Date |

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

| | |
|-------|------|
| <hr/> | |
| OPS | Date |

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

| | |
|-------|------|
| <hr/> | |
| OPS | Date |

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

| | |
|-------|------|
| <hr/> | |
| OPS | Date |

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

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 |

Procedure (Cont'd)

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

OPS DateSI-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

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 _____ Dat _____

Procedure (Cont'd)

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

INDEP. VERIFY

| OPS | Date |
|-----|------|
|-----|------|

| OPS | Date |
|-----|------|
|-----|------|

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

INDEP. VERIFY

| OPS | Date |
|-----|------|
|-----|------|

| OPS | Date |
|-----|------|
|-----|------|

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

INDEP. VERIFY

| OPS | Date |
|-----|------|
|-----|------|

| OPS | Date |
|-----|------|
|-----|------|

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

INDEP. VERIFY

| OPS | Date |
|-----|------|
|-----|------|

| OPS | Date |
|-----|------|
|-----|------|

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

INDEP. VERIFY

| OPS | Date |
|-----|------|
|-----|------|

| OPS | Date |
|-----|------|
|-----|------|

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

INDEP. VERIFY

OPS Date

| 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 Pargett 9-3-92
Manager - E&RC Date

APPROVED BY: RH Lamborn 9/3/92
General Manager Date

CONTROLLED
RECIPIENT
ID 001

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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.

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

9.16 Verify the following valves/breakers in their proper position to restore the RWST after inspection:
CVC-365B, Boric Acid From Blender - CLOSED

| OPS | Date |
|---------------------------------|------|
| SFPC-805B, RWST Return - CLOSED | |

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

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

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

OPS _____ Date _____

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

Procedure (Cont'd)

RWST Purification Pump Breaker MCC-1 - CLOSED

INDEPENDENT VERIFICATION

OPS _____ / _____ Date

OPS _____ Date _____

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

INDEPENDENT VERIFICATION

OPS _____ / _____
Date

OPS _____ / _____ Date

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

INDEPENDENT VERIFICATION

OPS _____ / _____ Date

OPS _____ / _____ Date

9.0

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 |
| _____ 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 _____

Completed by: _____ /

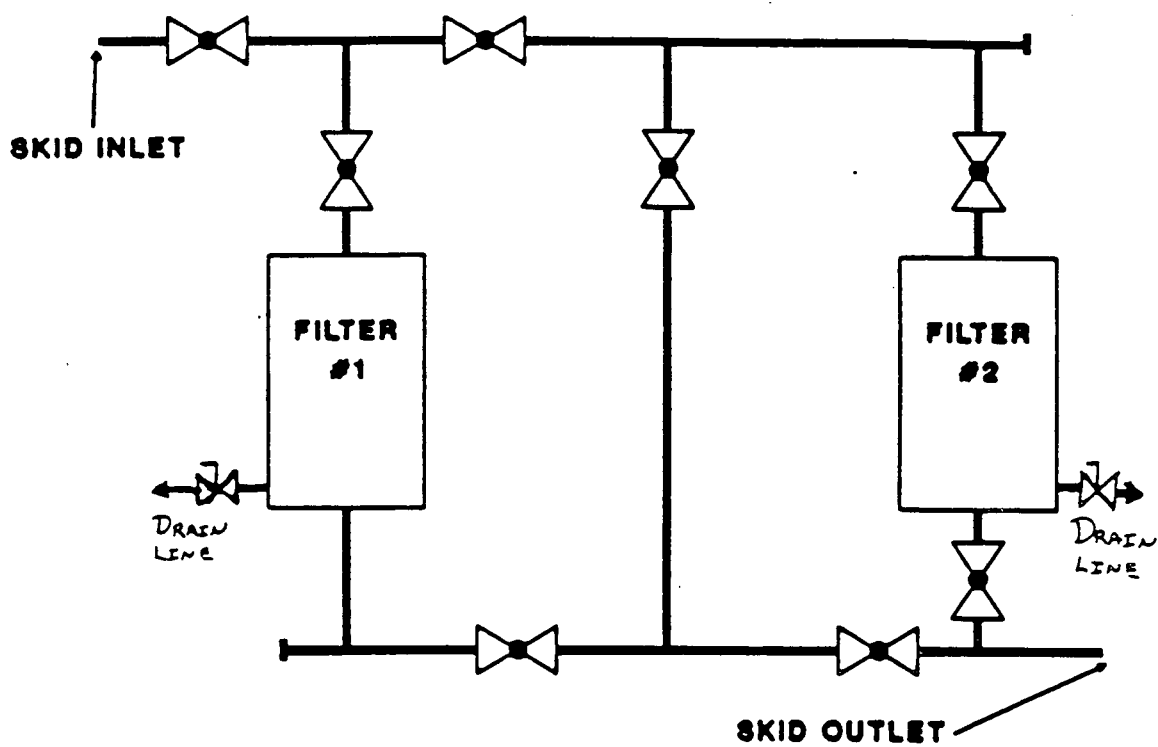
Proj. Coord. Date

. Reviewed by: _____ /

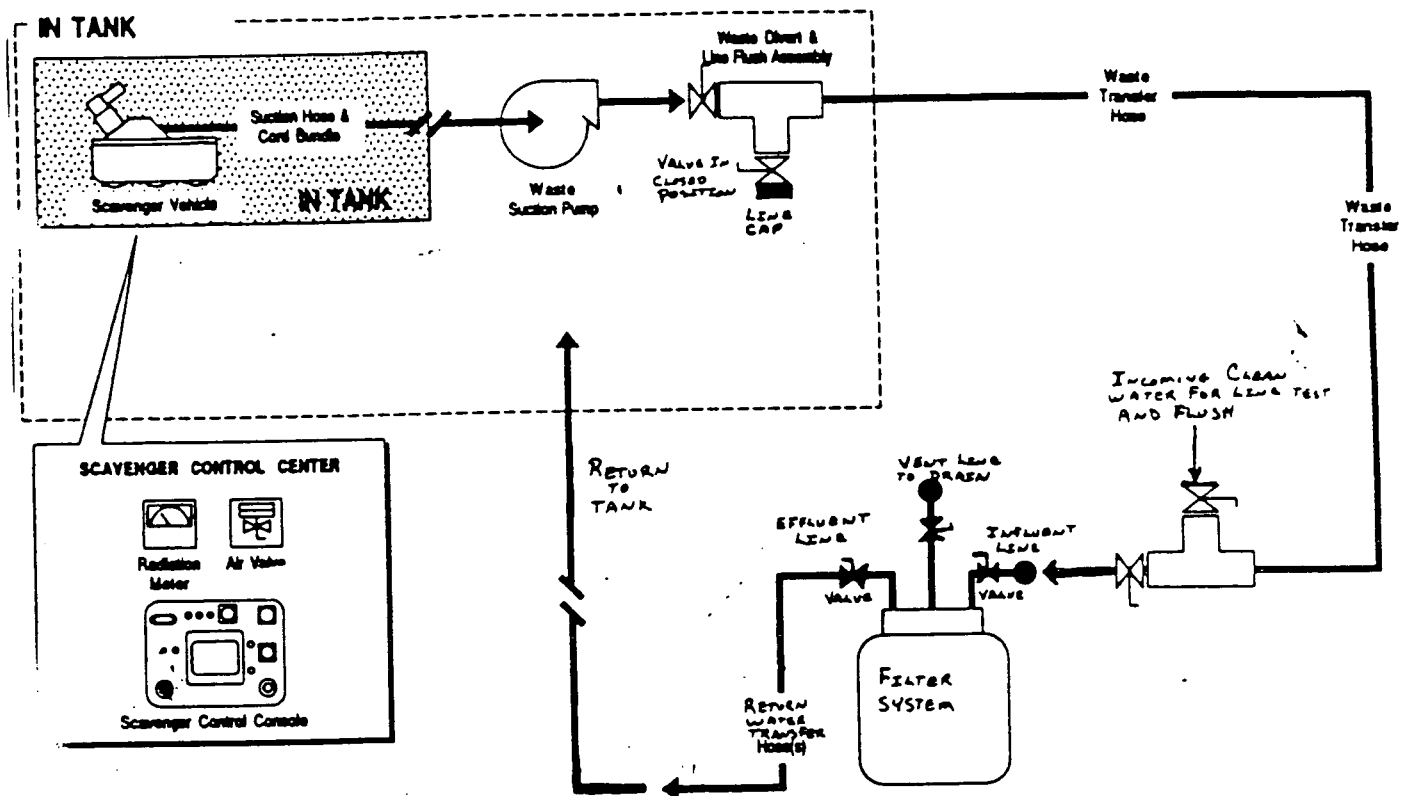
Manager - E&RC Date

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: M. F. Page ^{AMS 7/3/92} 8 9/3/92
Manager - Technical Support Date

APPROVED BY: M. A. Chamber 9/3/92
General Manager Date

CONTROLLED
RECIPIENT

LIST OF EFFECTIVE PAGES

| <u>EFFECTIVE PAGES</u> | <u>REVISION</u> |
|------------------------|-----------------|
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| LEP | 0 |
| Table of Contents | 0 |
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TABLE OF CONTENTS

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| 9.0 | Procedure |

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&I 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 | |

| 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 | |

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 | | |

| 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 | | |

| 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 | | |

(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 VERIFICATION _____ / _____
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

| | | | |
|---|--|-----------------------------|-------------------------------|
| NUCLEAR PLANT MODIFICATION TRAVELER | <input type="checkbox"/> BNP UNIT NUMBER <input type="checkbox"/> HNP <u>2</u> <input checked="" type="checkbox"/> RNP | PROJECT NUMBER 92-255/00 | MODIFICATION NUMBER M-1134 |
|---|--|-----------------------------|-------------------------------|

ABSTRACT

TITLE: INSTALL PERMANENT STRAINERS IN SI PUMP
RECIRCULATION LINES☐ MODIFICATION
☒ EMERGENCY MOD
☐ DOCUMENT CHANGE ONLYREASON FOR MOD: To prevent orifice pluggingSYSTEM NUMBER(S): 2080

QUALITY CLASSIFICATION:

☒ 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:

☐ ☒ UNREVIEWED SAFETY QUESTION
☐ ☒ TECH SPEC CHANGE
☒ ☐ FSAR CHANGE
☐ ☒ SIGNIFICANT ENVIRONMENTAL IMPACT
☐ ☒ MAJOR RADWASTE MODIFICATION

DESIGN REVIEWS/APPROVALS

LEAD ENGINEER

Walt Steen Walt Steen 8-30-92☒ DESIGN VERIFICATION
☐ TECHNICALDuane P. Ethridge 9-1-92
DATE

10CFR50.59 REVIEW

(See Safety Review Package)

QUALITY ASSURANCE

Duane P. Ethridge 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 |
|-------------------------------------|-------------------------------------|--------------------------|---------------------|---------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | ALARA | <u>RC Williams</u> | <u>9-1-92</u> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | E&RC | <u>RC Williams</u> | <u>9-1-92</u> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | FIRE PROTECTION | <u>RC Williams</u> | <u>9-1-92</u> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | INSTALLATION | <u>Annals Davis</u> | <u>9-1-92</u> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | ISI | <u>RC Williams</u> | <u>9-1-92</u> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | MAINTENANCE - ELECTRICAL | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | MAINTENANCE - MECHANICAL | <u>RC Williams</u> | <u>9-1-92</u> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | OPERATIONS/HUMAN FACTORS | <u>RC Williams</u> | <u>9-1-92</u> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | PNSC | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | SECURITY | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | SYSTEM ENGINEER | <u>RC Williams</u> | <u>9-1-92</u> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | TRAINING/SIMULATOR | <u>RC Williams</u> | <u>9-1-92</u> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | OTHER_OVS | <u>RC Williams</u> | <u>9-1-92</u> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | REVIEW COORDINATOR | <u>RC Williams</u> | <u>9-1-92</u> |

APPROVAL

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

INDEPENDENT SAFETY REVIEWS

| REQ | NOT REQ | REVIEW | COMPLETED | DATE |
|-------------------------------------|-------------------------------------|---|-----------|------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | CNSR (Prior to Implementation) REF: | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | CNSR (Review documented on Closeout Sheet - NPMP Form 15) | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | NRC (Prior to Implementation) REF: | | |

| | | | |
|--|--|---|-------------------------------|
| NUCLEAR PLANT MODIFICATION TRAVELER | <input type="checkbox"/> BNP UNIT NUMBER <input type="checkbox"/> HNP <u>2</u> <input checked="" type="checkbox"/> RNP | PROJECT NUMBER 92-255/00 | MODIFICATION NUMBER M-1134 |
| ABSTRACT | | | |
| TITLE: <u>INSTALL PERMANENT STRAINERS IN SI PUMP</u> <u>RECIRCULATION LINES</u> | | <input type="checkbox"/> MODIFICATION <input checked="" type="checkbox"/> EMERGENCY MOD <input type="checkbox"/> DOCUMENT CHANGE ONLY | |
| REASON FOR MOD: <u>To prevent orifice plugging</u> | | | |
| SYSTEM NUMBER(S): <u>2080</u> | | | |

| | | | |
|---|-------------------------------------|-------------------------------------|----------------------------------|
| QUALITY CLASSIFICATION: | YES | NO | IMPACT: |
| <input checked="" type="checkbox"/> A. Q-LIST OR AFFECTS Q-LIST | <input type="checkbox"/> | <input checked="" type="checkbox"/> | UNREVIEWED SAFETY QUESTION |
| <input type="checkbox"/> B. REG. GUIDE 1.29 OR 1.97 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | TECH SPEC CHANGE |
| <input type="checkbox"/> C. RADWASTE-Q | <input checked="" type="checkbox"/> | <input type="checkbox"/> | FSAR CHANGE |
| <input type="checkbox"/> D. FIRE PROTECTION-Q | <input type="checkbox"/> | <input checked="" type="checkbox"/> | SIGNIFICANT ENVIRONMENTAL IMPACT |
| <input type="checkbox"/> E. NON-Q | <input type="checkbox"/> | <input checked="" type="checkbox"/> | MAJOR RADWASTE MODIFICATION |
| <input type="checkbox"/> OTHER _____ | | | |

DESIGN REVIEWS/APPROVALS

| | | |
|---|-----------------------------|----------------|
| LEAD ENGINEER | <u>Walt Steen</u> | <u>8-30-92</u> |
| | | DATE |
| <input checked="" type="checkbox"/> DESIGN VERIFICATION | | |
| <input type="checkbox"/> TECHNICAL | | DATE |
| 10CFR50.59 REVIEW | (See Safety Review Package) | |
| QUALITY ASSURANCE | | DATE |

DESIGN RELEASE

| | | |
|------------------------------|----------------------------|--|
| PRINCIPAL ENG/ENG SUPERVISOR | <u><i>Gu. Charnice</i></u> | <u>9-2-92</u> ⁰¹⁰⁰ _h |
| | | DATE |

PLANT REVIEWS/APPROVALS

| REQ | NOT REQ | REVIEW | COMPLETED | DATE |
|-------------------------------------|-------------------------------------|--------------------------|-----------|------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | ALARA | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | E&RC | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | FIRE PROTECTION | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | INSTALLATION | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | ISI | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | MAINTENANCE - ELECTRICAL | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | MAINTENANCE - MECHANICAL | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | OPERATIONS/HUMAN FACTORS | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | PNSC | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | SECURITY | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | SYSTEM ENGINEER | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | TRAINING/SIMULATOR | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | OTHER _____ | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | REVIEW COORDINATOR | | |

APPROVAL

| | |
|-----------------------|------|
| PLANT GENERAL MANAGER | DATE |
|-----------------------|------|

INDEPENDENT SAFETY REVIEWS

| REQ | NOT REQ | REVIEW | COMPLETED | DATE |
|-------------------------------------|-------------------------------------|---|-----------|------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | CNSR (Prior to Implementation) REF: _____ | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | CNSR (Review documented on Closeout Sheet - NPMP Form 15) | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | NRC (Prior to Implementation) REF: _____ | | |

NPMP - REV. 4

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| | | | |
|---|--|-----------------------------|-------------------------------|
| NUCLEAR PLANT MODIFICATION TRAVELER (CON'T) | <input type="checkbox"/> BNP UNIT NUMBER | PROJECT NUMBER 92-255/00 | MODIFICATION NUMBER M-1134 |
| | <input type="checkbox"/> HNP 2 | | |
| | <input checked="" type="checkbox"/> RNP | | |

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 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>Ben J. L. Doo 9/1/92</u> |
| ELECTRICAL | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____ |
| I&C | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____ |
| CIVIL/STRUCTURAL | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>Steven R. Bostian 9/1/92</u> |
| SEISMIC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>Fred W. Deo 9-1-92</u> |
| MATERIALS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>R. Harpold 9/1/92</u> |
| APPENDIX R | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>9/1/92 [Signature] 9/1/92</u> |
| ENVIRONMENTAL QUAL. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____ |
| HUMAN FACTORS/MECH | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>[Signature] 9-1-92</u> |

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SECTION A
CONTENTS CONTROL

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| <u>Page No.</u> | <u>Rev.</u> | <u>Page No.</u> | <u>Rev.</u> | <u>Page No.</u> | <u>Rev.</u> |
|-----------------|-------------|-----------------|-------------|-----------------|-------------|
| A1 | 0 | F1 | 0 | | |
| A2 | 0 | F2 | 0 | | |
| A3 | 0 | F3 | 0 | | |
| | | F4 | 0 | | |
| B1 | 0 | F5 | 0 | | |
| B2 | 0 | F6 | 0 | | |
| B3 | 0 | F7 | 0 | | |
| B4 | 0 | F8 | 0 | | |
| B5 | 0 | | | | |
| | | G1 | 0 | | |
| C1 | 0 | G2 | 0 | | |
| C2 | 0 | G3 | 0 | | |
| C3 | 0 | G4 | 0 | | |
| C4 | 0 | | | | |
| C5 | 0 | | | | |
| C6 | 0 | | | | |
| C7 | 0 | | | | |
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| D1 | 0 | | | | |
| D2 | 0 | | | | |
| | | | | | |
| E1 | 0 | | | | |
| E2 | 0 | | | | |
| E3 | 0 | | | | |
| E4 | 0 | | | | |
| E5 | 0 | | | | |
| E6 | 0 | | | | |
| E7 | 0 | | | | |
| E8 | 0 | | | | |
| E9 | 0 | | | | |
| E10 | 0 | | | | |
| E11 | 0 | | | | |
| E12 | 0 | | | | |
| E13 | 0 | | | | |
| E14 | 0 | | | | |

| <u>SECTION</u> | <u>DESCRIPTION</u> |
|----------------|--|
| A | CONTENTS CONTROL List of Effective Pages Table of Contents |
| 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.

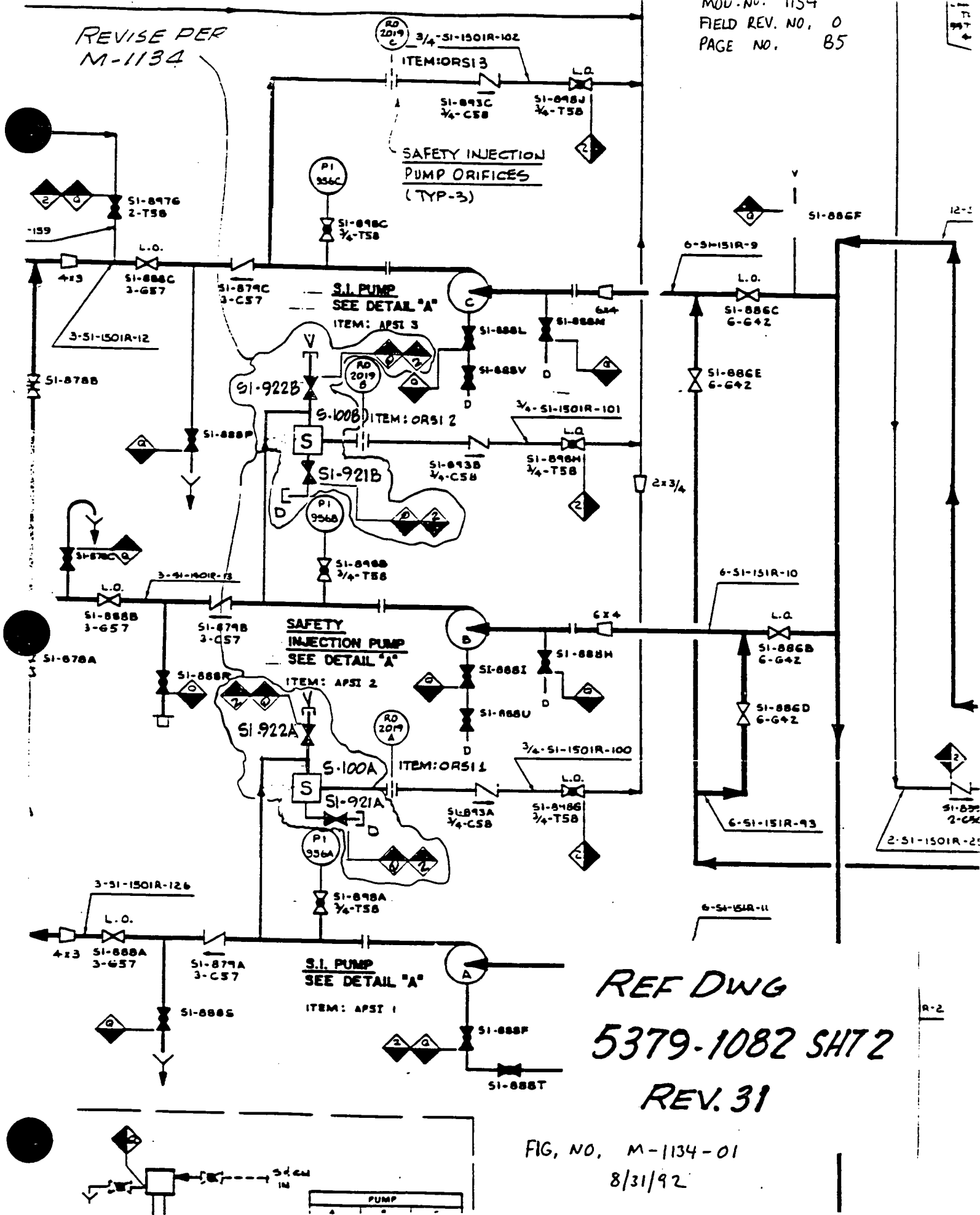
- 2.2 General Description - The recommended solution is to install a strainer assembly with flush and vent valves in each of the SI pump recirculation lines between the restricting orifice and the SI pump. The purpose of the strainers is to prevent plugging of the restricting orifice while having an 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.

REVISE PER
M-1134

MOD. NO. 1154
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PAGE NO. 85



REF DWG
5379-1082 SH72
REV. 31

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

SECTION C
INSTALLATION SUPPORT DOCUMENTS

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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.

BILL OF MATERIAL

Mod. No. 1134

Field Rev. No. 0

Page No. C.3

| Installation | | | | Design | | | | |
|--------------|---------------|-------------|-----------------|------------|---|-------------------------|----------|--------|
| Item | Quan. | PO Number | NIRF/Req. by | Part No. | Description | Spec./COID | Q Status | |
| | Units | | | | | | Buy | Use |
| 1 | 1 LF 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 1 EA | | | 736-357-65 | 3/4" ϕ - 3000" SW HALF COUPLING | ASTM A-182 F 316 | | |
| 4 | 3 1 EA | | | 715-149-62 | 1" ϕ 3000" SW HALF COUPLING | ASTM A-182 F 304 | | |
| 5 | 3 1 EA | | | 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 1 EA | | | 738-704-95 | 1/4" THK. PLATE, SS, | ASTM A 240 TP 316 | | |
| 8 | 9 LF | | | 738-702-71 | 3/4" ϕ SS PIPE, SMLS SCH 80S | ASTM A 312 TP 304 | | Y |
| 9 | 3 1 EA | | Y | 715-841-89 | 1" ϕ x 2" LONG SCH. 80S. (PE x TE) | ASTM A-312 TP 304 | Y | NON IN |

BILL OF MATERIAL

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

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

BILL OF MATERIAL

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

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

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

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

Form 5a

Mod. No. M-1134Field Rev. No. 0Page 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) |
|--|---|-----------------------------------|
| <input type="checkbox"/> Nuclear Plant Operations | | |
| <input type="checkbox"/> Nuclear Engineering | | |
| <input checked="" type="checkbox"/> Mechanical | <u>JAMES D. WILLIAMSON</u> | <u>James D. Williamson 9-1-92</u> |
| <input type="checkbox"/> Electrical | | |
| <input type="checkbox"/> Instrumentation & Control | | |
| <input checked="" type="checkbox"/> Structural | <u>(SEE STRUCTURAL SAFETY EVALUATION)</u> | <u>(SR) 9-1-92</u> |
| <input checked="" type="checkbox"/> Metallurgy | <u>(SEE MATERIALS SAFETY EVALUATION)</u> | <u>(MR) 9-1-92</u> |
| <input type="checkbox"/> Chemistry/Radiochemistry | | |
| <input type="checkbox"/> Health Physics | | |
| <input type="checkbox"/> 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 Yes No
below:

☐ Potential UNREVIEWED SAFETY QUESTION ☐ X
☐ Question 9 of Part IV answered "Yes"
☐ Other (specify): _____

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

Page 3 of 6

PART II: ITEM CLASSIFICATION

DOCUMENT NO. 11-1134

REV. NO. 0

| | Yes | No |
|---|--|--|
| 1. Does this item represent: a. A change to the facility as described in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. A change to the procedures as described in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. A test or experiment not described in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Does this item involve a change to the individual plant Operating License or to its Technical Specifications? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Does this item require a revision to the FSAR? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Does this item involve a change to the Off-Site Dose Calculation Manual? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Does this item constitute a change to the Process Control Program? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Does this item involve a major change to a Radwaste Treatment System? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Does this item involve a change to the Technical Specification Equipment List (BSEP and SHNPP only)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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) | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |

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.

UFAR SECTIONS: 3.2, 3.6, 6.2, 6.3.2, 6.3.3, 15.6.5
TECH SPEC: 4.5.1 BASIS
OST-151
MOD-1134 DBD

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PART III: UNREVIEWED SAFETY QUESTION DETERMINATION SCREEN

DOCUMENT NO. M-1134 REV. NO. 0

| | Yes | No |
|--|--------------------------|-------------------------------------|
| 1. Is this change <u>fully</u> addressed by another completed UNREVIEWED SAFETY QUESTION determination? (See Sections 7.2.1, 7.2.2.3, and 7.9.1.1) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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

| | Yes | No |
|--|-------------------------------------|--------------------------|
| 2. For procedures, is the change a non-intent change which <u>only</u> (check all that apply): (See Section 7.2.2.3) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

- ☐ 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. 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

- | | <u>Yes</u> | <u>No</u> |
|---|--------------------------|-------------------------------------|
| 1. May the proposed activity increase the probability of occurrence of an accident evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>(SEE ATTACHMENT A-2, 2 PAGES)</u> | | |
| 2. May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>(SEE ATTACHMENT A-2, 2 PAGES)</u> | | |
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>(SEE ATTACHMENT A-2, 2 PAGES)</u> | | |
| 4. May the proposed activity increase the consequence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>(SEE ATTACHMENT A-2, 2 PAGES)</u> | | |
| 5. May the proposed activity create the possibility of an accident of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>(SEE ATTACHMENT A-2, 2 PAGES)</u> | | |

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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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

(SEE ATTACHMENT A-2, 2 PAGES)

- | | | |
|---|--------------------------|-------------------------------------|
| 7. Does the proposed activity reduce the margin of safety as defined in the basis of any Technical Specification? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|-------------------------------------|

(SEE ATTACHMENT A-2, 2 PAGES)

- | | | |
|--|--------------------------|-------------------------------------|
| 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. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|-------------------------------------|

- | | | |
|--|--------------------------|-------------------------------------|
| 9. Is PNSC review required for any of the following reasons? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|-------------------------------------|

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.)

- | | |
|--|---|
| <input type="checkbox"/> Nuclear Plant Operations | <input type="checkbox"/> Structural |
| <input type="checkbox"/> Nuclear Engineering | <input type="checkbox"/> Metallurgy |
| <input checked="" type="checkbox"/> Mechanical | <input type="checkbox"/> Chemistry/Radiochemistry |
| <input type="checkbox"/> Electrical | <input type="checkbox"/> Health Physics |
| <input type="checkbox"/> Instrumentation & Control | <input type="checkbox"/> Administrative Controls |

ATTACHMENT A-1
PART I: SAFETY ANALYSIS - MECHANICAL

Page 1 of 4

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 C190282
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 ANST 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.

ATTACHMENT A-1
PART I: SAFETY ANALYSIS - MECHANICAL

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

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

ATTACHMENT A-1
PART I: SAFETY ANALYSIS - MECHANICAL

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

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.

ATTACHMENT A-1
PART I: SAFETY ANALYSIS - MECHANICAL

Page 4 of 4

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

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.

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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 D.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) |
|--|--------------------|----------------------------|
| <input type="checkbox"/> Nuclear Plant Operations | | |
| <input type="checkbox"/> Nuclear Engineering | | |
| <input type="checkbox"/> Mechanical | | |
| <input type="checkbox"/> Electrical | | |
| <input type="checkbox"/> Instrumentation & Control | | |
| <input checked="" type="checkbox"/> Structural | <u>D.W. HUGHES</u> | <u>D.W. Hughes 8-28-92</u> |
| <input type="checkbox"/> Metallurgy | | |
| <input type="checkbox"/> Chemistry/Radiochemistry | | |
| <input type="checkbox"/> Health Physics | | |
| <input type="checkbox"/> 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. PNRC review required? If "yes," attach Part V and mark reason Yes No
below: ☐ ☒

☐ Potential UNREVIEWED SAFETY QUESTION
☐ Question 9 of Part IV answered "Yes"
☐ Other (specify): _____

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CP&L SAFETY REVIEW PACKAGEPage 2 of 11PART I: SAFETY ANALYSIS
(See instructions in Section 8.4.1)
(Attach additional sheets as necessary.)DOCUMENT NO. M 1134 REV. NO. 0DESCRIPTION OF CHANGE: SEE PAGE 3ANALYSIS: 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

- | | <u>Yes</u> | <u>No</u> |
|--|------------|-----------|
| 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

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)

Yes ☐ No ☒

REFERENCE DOCUMENT: _____ REV. NO. _____

2. For procedures, is the change a non-intent change which only (check all that apply): (See Section 7.2.2.3)

Yes ☐ No ☒

- ☐ 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. 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 type of accident previously evaluated and type of a different type than the type of accident previously evaluated in the SAFETY ANALYSIS REPORT?
SEE PAGE 9

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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 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.

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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 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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Attachment 6.1
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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: Dwaine P. Etheridge
2. Safety Analysis Preparer: Complete PART I, SAFETY ANALYSIS
Safety Analysis Preparer: [Signature] 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

☐ Chemistry/Radiochemistry

☐ Health Physics

☐ Administrative Controls

Charles H. Griffin

[Signature]
9-1-92

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: Dwaine P. Etheridge Date 9/1/92
DISCIPLINE: MECHANICAL
9. PNSC review required? If "yes," attach Part V and mark reason Yes No
below:
☐ Potential UNREVIEWED SAFETY QUESTION ☐ X
☐ Question 9 of Part IV answered "Yes"
☐ Other (specify): _____

PLP-032

Rev. 5

110/2002

+++ RNP NED

CP&L/NED

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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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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? ☒ ☐
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.

See "References" in Attachment A1Yes Answers Apply to:FSAR Sections 6.0.1.1.1.4, 6.3.2.2.17, and 6.1.1.

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PART III: UNREVIEWED SAFETY QUESTION DETERMINATION SCREEN

DOCUMENT NO. M-1134 REV. NO. 0

- | | Yes | No |
|--|--------------------------|-------------------------------------|
| 1. Is this change <u>fully</u> addressed by another completed UNREVIEWED SAFETY QUESTION determination? (See Sections 7.2.1, 7.2.2.5, and 7.9.1.1) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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

- | | Yes | No |
|---|--------------------------|--------------------------|
| 2. For procedures, is the change a non-intent change which <u>only</u> (check all that apply): (See Section 7.2.2.3) | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Corrects typographical errors which do not alter the meaning or intent of the procedure; or, | | |
| <input type="checkbox"/> Adds or revises steps for clarification (provided they are consistent with the original purpose or applicability of the procedure); or, | | |
| <input type="checkbox"/> Changes the title of an organizational position; or, | | |
| <input type="checkbox"/> Changes names, addresses, or telephone numbers of persons; or, | | |
| <input type="checkbox"/> Changes the designation of an item of equipment where the equipment is the same as the original equipment or is an authorized replacement; or, | | |
| <input type="checkbox"/> Changes a specified tool or instrument to an equivalent substitute; or, | | |
| <input type="checkbox"/> Changes the format of a procedure without altering the meaning, intent, or content; or | | |
| <input type="checkbox"/> 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. 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, codas, 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) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT? (See Attachment A2, 2 pages) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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ATTACHMENT A
CP&L SAFETY REVIEW PACKAGEPage 6 of 6

PART IV: (Continued)

DOCUMENT NO. M-1134 REV. NO. 0

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?

| | |
|--------------------------|-------------------------------------|
| Yes | No |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> |

(See Attachment A2, 2 pages)

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

| | |
|--------------------------|-------------------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--------------------------|-------------------------------------|

(See Attachment A2, 2 pages)

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.

| | |
|--------------------------|-------------------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--------------------------|-------------------------------------|

9. Is PNSC review required for any of the following reasons?

| | |
|--------------------------|-------------------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--------------------------|-------------------------------------|

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 HRC ACCEPTANCE LIMIT; or, in answering question 7 "No," a parameter would be closer to the HRC ACCEPTANCE LIMIT, but the end result was still within the HRC 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.)

| | | | |
|--------------------------|---------------------------|-------------------------------------|--------------------------|
| <input type="checkbox"/> | Nuclear Plant Operations | <input type="checkbox"/> | Structural |
| <input type="checkbox"/> | Nuclear Engineering | <input checked="" type="checkbox"/> | Metallurgy |
| <input type="checkbox"/> | Mechanical | <input type="checkbox"/> | Chemistry/Radiochemistry |
| <input type="checkbox"/> | Electrical | <input type="checkbox"/> | Health Physics |
| <input type="checkbox"/> | Instrumentation & Control | <input type="checkbox"/> | Administrative Controls |

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ATTACHMENT A-1
PART I: SAFETY ANALYSIS - MATERIALS

Page 1 of 2

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. This analysis is valid for the installation 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 Edition 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.

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ATTACHMENT A-1
PART I: SAFETY ANALYSIS - MATERIALS

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

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 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 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

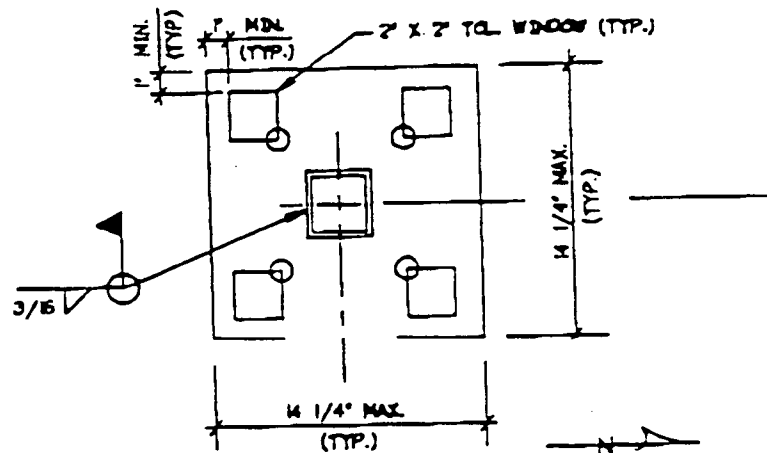
Uncontrolled Copy
For Information Only

Installation Package
Drawing List

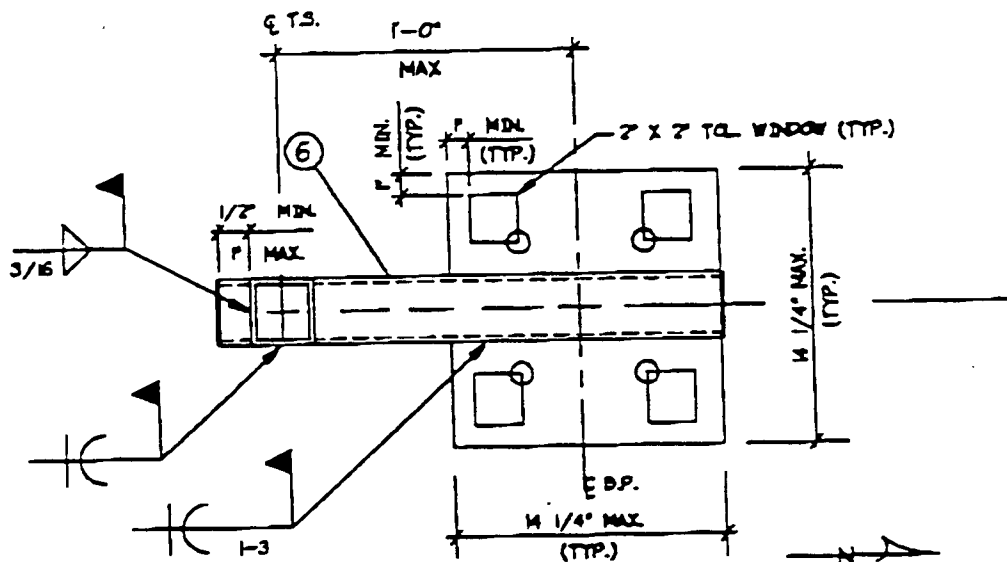
Mod. No. M-1134
Field Rev. No 0
Page No. D2

| <u>Drawing No.</u> | <u>Rev.</u> | <u>Title</u> |
|----------------------|-------------|--|
| 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" |

NPMP - REV. 4



SECTION A-A



SECTION A-A

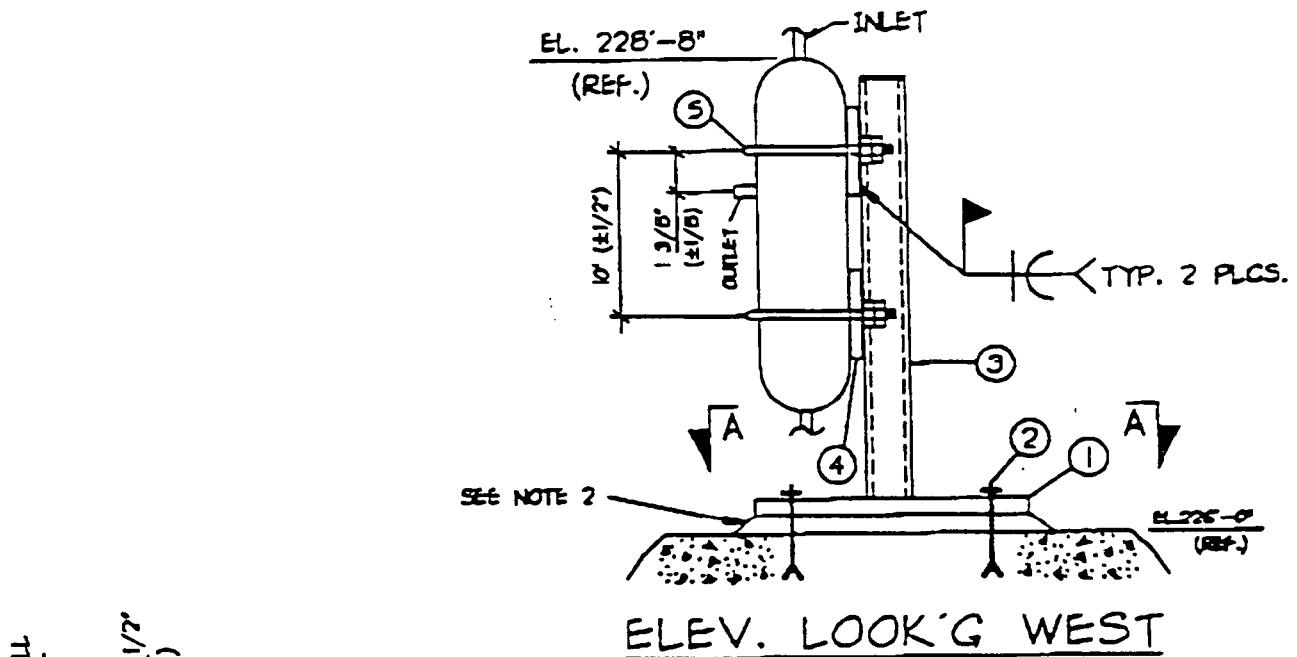
(OPTIONAL)

| REV | DATE | DESCRIPTION | DESIGNED BY | CHECKED BY | DATE |
|-----|---------|------------------|-------------|------------|---------|
| A | 8/29/82 | ISSUE PER PM 104 | JND | WAT | 8/30/82 |

CAD FILE: 1061

| | |
|--|-------------|
| PROFESSIONAL ENGINEER | |
| QUALITY LEVEL: SAFETY RELATED | |
| CAROLINA POWER & LIGHT COMPANY NUCLEAR ENGINEERING DEPARTMENT | |
| PLANT: ROBINSON NUCLEAR PROJECT - UNIT 2 | SCALE: NONE |
| TITLE: STRAINER SUPPORT SI PUMP ROOM, RAD. EL. 226'-0" SI RECTIRC. LINE PIPE/STRAINER PUMP 'A' | |
| PLANT DESK NO. | REV. |
| NO. SECTION NO.: SK-104-C-1000 | SHT: 2 of 2 |

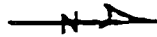
| ITEM NO. | QTY | CP&L PART NO. | DESCRIPTION |
|----------|-----|---------------|---|
| 1 | 1 | 716-372-35 | PLATE 1/2 X 14 1/4" X 1-2 1/4" (CTS) |
| 2 | 4 | --- | DRILLCO MAXI-BOLT 1/2" (MIN. EMB. = 6") |
| 3 | 1 | 733-265-30 | TS 3 X 3 X 1/4 X 3'-0" (CTS) |
| 4 | 2 | 715-429-71 | PLATE 1 X 4" X 0'-10" 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) |



NOTES:

1. INSTALL PER CPL-10R2-C-OIL
2. CRUT PER CM-618
3. INSTALL GRINNELL U-BOLTS TO TIGHT FIT AROUND PIPE. USE TORQUE VALVES PER CPL-10R2-C-OIL
4. INSTALL CAP PLATES PER CPL-10R2-C-OIL

LOCATION PLAN



REFERENCE DOCUMENTS

PIPE DWG.

MECH. DWG.

STRESS CALC.

SUPPORT CALC.

CPL-6/8/12/28-1100

RNF-C/SPT-1741

PROFESSIONAL ENGINEER

QUALITY LEVEL:

SAFETY RELATED

CALIFORNIA POWER & LIGHT COMPANY
NUCLEAR ENGINEERING DEPARTMENT

CP&L

PLANT: ROBINSON NUCLEAR PROJECT - UNIT 2

SCALE: NONE

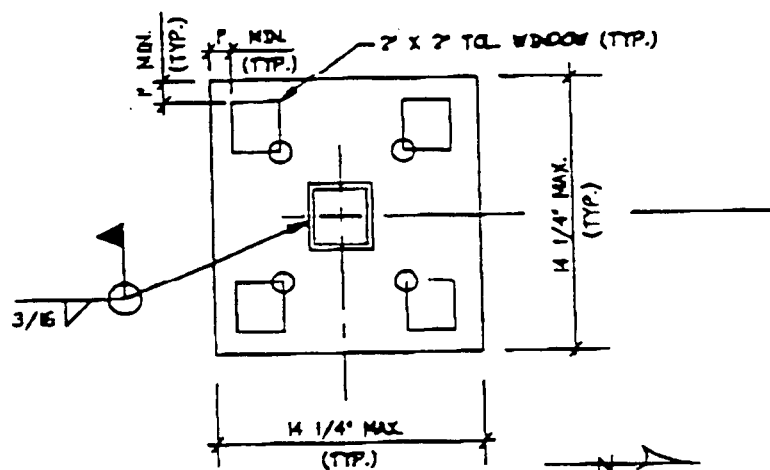
TITLE:

STRAINER SUPPORT
SI PUMP ROOM, RAD. EL. 226'-0"
SI RECT. LINE PIPE/STRAINER
PUMP D'

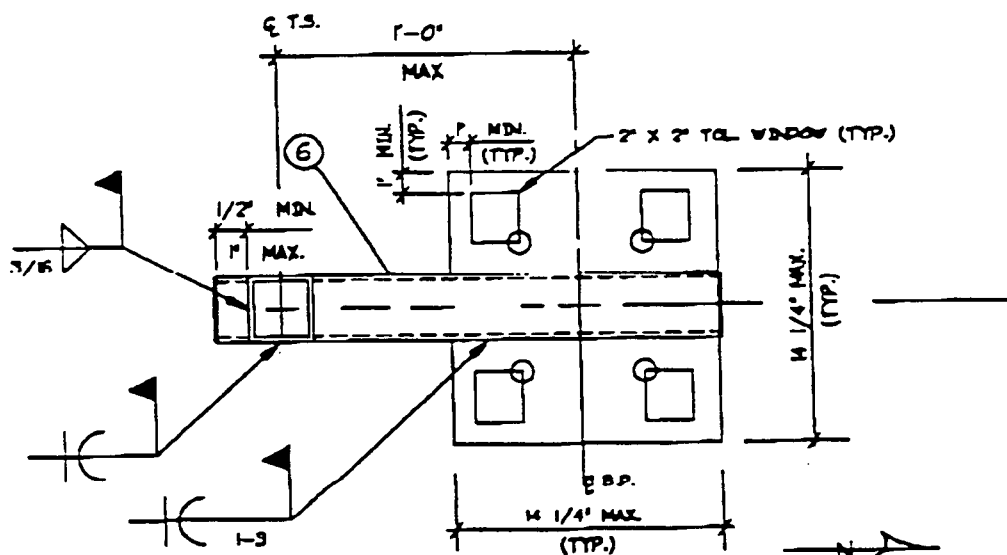
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| B | 9/1/92 | REVISE BOM | JND | SR | SR | 3/1/93 |
| A | 7/20/92 | ISSUE PER PM 1034 | JND | SR | SR | 7/20/92 |

CAD FILE: N062

| REV. | SHIT: 1 OF 2 |
|------|--------------|
| 1 | 1 |



SECTION A-A

SECTION A-A
(OPTIONAL)

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 RAD. EL. 726'-0"
SI REGIOG. LING PIPE/STRAINER
PUMP 8

| REV | DATE | DESCRIPTION | DESIGNED | CHECKED | BY | DRAWN | DATE |
|-----|---------|-------------------|----------|---------|----|-------|----------|
| A | 8/22/92 | ISSUE PER PM 1134 | JND | KAB | ES | ES | 10/01/92 |

CAUTION: NO. 62

PLANT
DRAW NO.

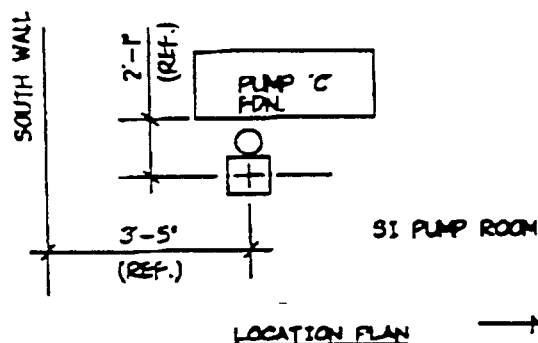
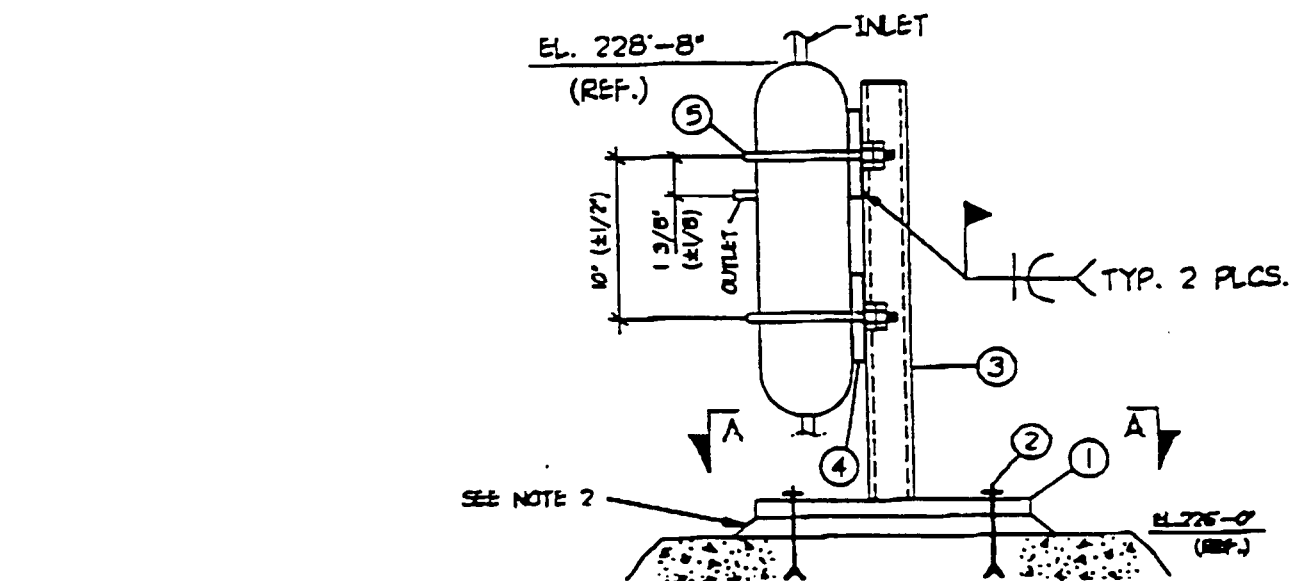
REV.

SHT: OF

MOD
SECTION NO. SK-1134-C-1001

SHT: 2 OF 2

| ITEM NO. | QTY | CP&L PART NO. | 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) |



NOTES:

1. INSTALL PER CPL-HOR2-C-OIL
2. GROUT PER CM-618.
3. INSTALL GRINNELL U-BOLTS TO TIGHT FIT AROUND PIPE. USE TORQUE VALVES PER CPL-HOR2-C-OIL.
4. INSTALL CAP PLATES PER CPL-HOR2-C-OIL

REFERENCE DOCUMENTS

PIPE DWG. _____
 MECH. DWG. _____
 STRESS CALC. RNP-C/STRS-1186
 SUPPORT CALC. RNP-C/SOPT-1791

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 | DESIGNED | CHECKED | BY | DATE | BY | DATE |
|-----|--------|-------------------|----------|---------|----|------|-----|------|
| C | 9/1/92 | REVISED DOM | JND | SRB | BB | 3/2 | N/A | |
| D | 8/7/92 | ONLY REMOVED HOLD | SRB | SRB | ME | ME | N/A | GLC |
| A | 8/7/92 | ISOLE PER PM 1134 | JND | SRB | BB | BB | DD | GLC |

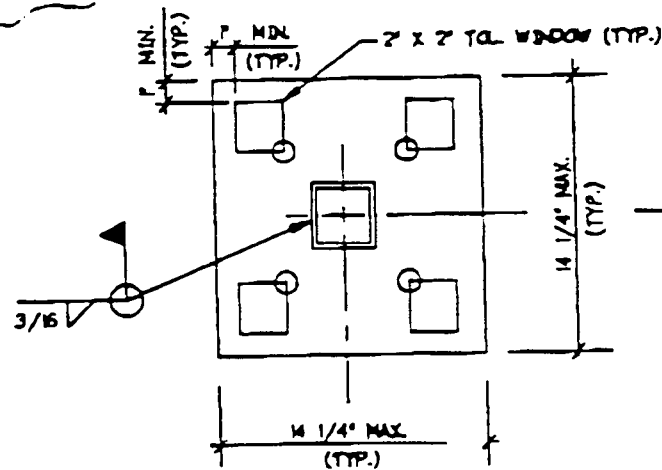
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|-------|------|------|
| NO. 1 | | OF 2 |
| NO. 2 | | OF 2 |

CAP. 11-1063

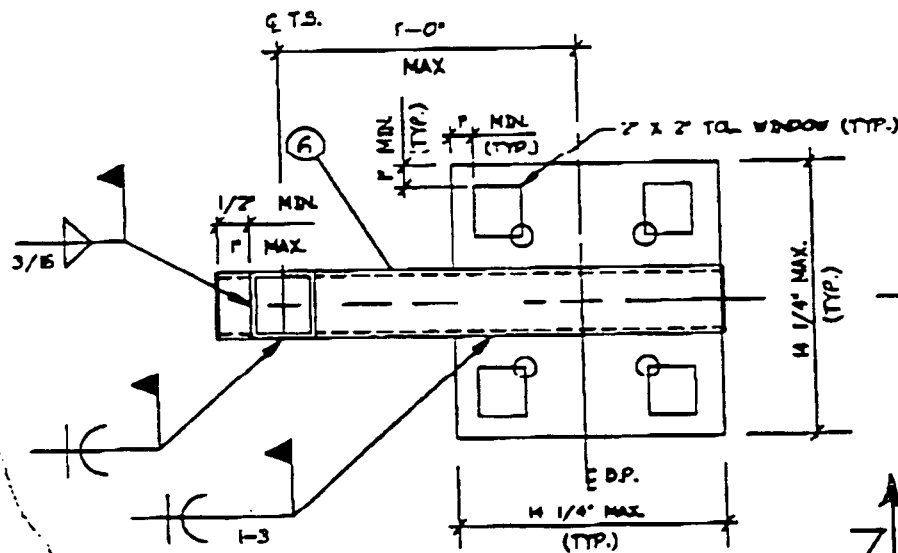
SK-104-C-1002

SHT: 1 OF 2

B



SECTION A-A



SECTION A-A

(OPTIONAL)

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, RAD. EL. 226'-0"
SI RECIRC. LINE PIPE/STRAINER
PUMP 'C'

| REV | DATE | DESCRIPTION | DRWN | DSN | CHK | DV | DOPE | DPPE |
|-----|---------|---------------------|------|-----|-----|----|------|------|
| E | 8/24/92 | ONLY REMOVED 'HOLD' | SAO | SRB | ME | ME | NA | GRC |
| A | 8/24/92 | ISSUE PER PM 1034 | IND | SAO | BB | BB | NA | GRC |

CAO FILE: MD63

PLANT
DES. NO.

REV.

SHT: OF

MOD
SKETCH NO. SK-1134-C-1002

SHT: 2 OF 2

SECTION E
INSTALLATION INSTRUCTIONS

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- 4 PREREQUISITES
- 5 PRECAUTIONS AND LIMITATIONS
- 6 INSTALLATION INSTRUCTIONS
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 - 6.3 Prefabrication of SI Pump "A", "B", and "C" Strainer Supports
 - 6.4 Partial Demolition of SI Pump A & B Recirculation Piping
 - 6.5 Installation of Strainer S-100A and S-100B and Associated Piping and Valves
 - 6.6 Installation of Strainer S-100A and S-100B Supports
 - 6.7 Installation of Insulation
 - 6.8 Work Completion

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 MIM-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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| AT-1 | Acceptance Test - Strainer and Piping Subassembly Weld Inspection | (5) |
| AT-2 | Acceptance Test - Strainer Subassembly Hydrostatic Pressure Testing | * |
| AT-3 | Acceptance Test - In-Service Leak Test | * |
| AT-4 | Acceptance Test - Strainer and Piping Flow Capacity Per OST-151 | * |
| | * Later See Summary Page F8 | |

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

Uncontrolled Copy
For Information Only

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 | |
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*For later use in tracking completion of the revision.

PDREVSHT.134

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*For later use in tracking completion of the revision.

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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

| | | | | | | | | 1992 | | | | | | | | | | | |
|----------|-------------|---|--------------|----|-----------|-----|---------|------|--|--|--|-----|--|--|--|---|--|--|----|
| RECORD # | | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | AUG | | | | SEP | | | | | | | |
| PREFIX | | | | | | | | 21 | | | | 28 | | | | 4 | | | |
| 1 | 1 | STABILIZE UNIT | 22-AUG-92:12 | 4 | OPER | - | GF03 | 10 | | | | | | | | | | | |
| 2 | 2A | RECIRC. CONDENSATE & FEEDWATER SYSTEMS FOR COOLDOWN | 22-AUG-92:12 | 2 | OPER | - | GF03 | 20 | | | | | | | | | | | |
| 3 | 3 2B | GP-006 - BORATE RCS TO HOT SHUTDOWN CONCENTRATION | 22-AUG-92:12 | 1 | OPER | - | GF03 | 30 | | | | | | | | | | | |
| 4 | 4 2C | CLOSE MSIV'S, BREAK CONDENSER VACUUM, SHUTDOWN FEED & CONDENSATE SYSTEMS | 22-AUG-92:12 | 2 | OPER | - | GF03 | 40 | | | | | | | | | | | |
| 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 | GF04 | 50 | | | | | | | | | | | |
| 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 | GF04OST | 60 | | | | | | | | | | | |
| 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 | GF04 | 70 | | | | | | | | | | | |
| 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 | GF04 | 80 | | | | | | | | | | | |
| 9 | 766 0110 | OST-110 - BORIC ACID PUMPS ISI FLOW TEST | 22-AUG-92:12 | 4 | OPER | 2 | GF04 | 90 | | | | | | | | | | | |
| 10 | 29 1A | INVESTIGATE CAUSE OF FORCED OUTAGE AND ESTABLISH PLAN OF CORRECTIVE ACTION AS REQUIRED | 22-AUG-92:19 | 12 | OPER | - | GF03 | 100 | | | | | | | | | | | |
| 11 | 5 3 | TAKE CLEARANCES ON SYSTEMS/COMPONENTS AS REQUIRED FOR MAINTENANCE | 23-AUG-92:05 | 4 | OPER | - | GF03 | 110 | | | | | | | | | | | |
| 12 | 36 3A5 | PLACE TURBINE LUBE OIL SYSTEM BACK-IN-SERVICE | 23-AUG-92:05 | 4 | OPER | 2 | GF03 | 120 | | | | | | | | | | | |
| 13 | 50 2ALFPI | LC-1534 - RESEAL DRAIN PLUG (1A MSR DRN TNK) | 23-AUG-92:05 | 1 | ME | 1 | | 130 | | | | | | | | | | | |
| 14 | 37 3A6 | PLACE TURBINE ON TURNING GEAR | 23-AUG-92:06 | 1 | OPER | 2 | GF03 | 140 | | | | | | | | | | | |
| 15 | 110 OPER004 | OP-603 - RESTORE ELECT DISTRIBUTION SYSTEM LINE-UPS FOR NORMAL POWER | 23-AUG-92:08 | 13 | OPER TECH | 1 | | 150 | | | | | | | | | | | |
| 16 | 59 2ALATI | REPLACE RELIEF VALVE SGB-RV-1 -SG BD 'A' HTX TUBE SIDE RELIEF- | 23-AUG-92:10 | 2 | ME TECH | 2 | | 160 | | | | | | | | | | | |
| 17 | 65 2ALIZI | 'A' MAIN FEED PUMP - CHECK ALIGNMENT WHEN IT IS HOT- | 23-AUG-92:11 | 12 | ME TECH | 3 | | 170 | | | | | | | | | | | |
| | | | | | | | | 21 | | | | 28 | | | | 4 | | | 11 |
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

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| PREFIX | | | | | | | | 21 | | | | | | 28 | | | | | | 4 | | | | | | 11 |
| 18 | 57 2AKSMI | RESET N35 AND N36 ROD STOP AND HIGH LVL TRIP SETPOINTS | 23-AUG-92:12 | 4 | EL TECH | 2 1 | | 180 | | | | | | | | | | | | | | | | | | |
| 19 | 61 2ALAU1 | REPLACE RELIEF VALVE SGB-RV-2 -GG BD 'B' HTX TUBE SIDE RELIEF- | 23-AUG-92:12 | 2 | ME TECH | 2 1 | | 190 | | | | | | | | | | | | | | | | | | |
| 20 | 79 2AKSG1 | 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 | | 200 | | | | | | | | | | | | | | | | | | |
| 21 | 92 TECH002 | DEVELOP SLEEVE 65 PLAN | 23-AUG-92:12 | 12 | TECH | 1 | | 210 | | | | | | | | | | | | | | | | | | |
| 22 | 107 SUBM001 | INSPECT MAIN & AUXILIARY TRANSFORMERS | 23-AUG-92:12 | 4 | SUBM TECH | - | | 220 | | | | | | | | | | | | | | | | | | |
| 23 | 128 TECH005 | INVESTIGATE PROBLEM WITH RVI-1, RVI-2 & RVI-3 INDICATION | 23-AUG-92:12 | 11 | TECH | 1 | | 230 | | | | | | | | | | | | | | | | | | |
| 24 | 101 TECH004 | INVESTIGATE 8W PIPING LEAK FOR POSSIBLE REPAIRS (TURBINE BLDG) | 23-AUG-92:13 | 6 | TECH | 1 | | 240 | | | | | | | | | | | | | | | | | | |
| 25 | 63 2ALAW1 | REPLACE RELIEF VALVE SGB-RV-3 -SG BD 'C' HTX TUBE SIDE RELIEF- | 23-AUG-92:14 | 2 | ME TECH | 2 1 | | 250 | | | | | | | | | | | | | | | | | | |
| 26 | 67 2ALJAI | 'A' COND PUMP - CHECK ALIGNMENT | 23-AUG-92:17 | 5 | ME TECH | 2 1 | | 260 | | | | | | | | | | | | | | | | | | |
| 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 | | 270 | | | | | | | | | | | | | | | | | | |
| 28 | 55 2AHT1 | 'A' HTR DRN PMP - REPAIR GROUND WIRE | 23-AUG-92:19 | 24 | WIE | 2 | | 280 | | | | | | | | | | | | | | | | | | |
| 29 | 86 OPER001 | PRESSURIZER PORV LEAK RATE TESTING | 23-AUG-92:19 | 24 | OPER TECH | 1 1 | | 290 | | | | | | | | | | | | | | | | | | |
| 30 | 89 TECH001 | INVESTIGATE 'B' MFP MOTOR OIL LEAK | 23-AUG-92:19 | 12 | TECH | 1 | | 300 | | | | | | | | | | | | | | | | | | |
| 31 | 95 TECH003 | PERFORM TURBINE-GENERATOR INSPECTION | 23-AUG-92:19 | 24 | TECH | 1 | | 310 | | | | | | | | | | | | | | | | | | |
| 32 | 98 OPER002 | PERFORM CONDENSATE SYSTEM INSPECTION | 23-AUG-92:19 | 11 | OPER TECH | 1 1 | | 320 | | | | | | | | | | | | | | | | | | |
| 33 | 116 OPER005 | RESTORE NORMAL FEEDWATER SYSTEM TO SERVICE | 23-AUG-92:19 | 6 | OPER | 1 | | 330 | | | | | | | | | | | | | | | | | | |
| 34 | 125 2ALOT1 | REPAIR EXCITER RTD'S TE-4017, TE-4018, TE-1362 & TE-4020 | 23-AUG-92:19 | 11 | EL | 2 | | 340 | | | | | | | | | | | | | | | | | | |
| 35 | 119 2ALRL1 | REPAIR 2A MSR DRAIN TK TUBING | 23-AUG-92:20 | 18 | ME | 2 | | 350 | | | | | | | | | | | | | | | | | | |
| 36 | 122 2ALRO1 | REPAIR 2A MSR DRAIN TK SIGHT GLASS | 23-AUG-92:20 | 18 | ME | 2 | | 360 | | | | | | | | | | | | | | | | | | |
| 37 | 47 2AKIN2 | SGB-102A - REPLACE VALVE | 23-AUG-92:23 | 4 | ME QC | 2 1 | | 370 | | | | | | | | | | | | | | | | | | |
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

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| RECORD # | PREFIX | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | | | | | | | | | | | | | | | | | | | | | | |
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| 38 | 26 31 | TAKE CLEARANCES ON SYSTEMS/COMPONENTS AS REQUIRED FOR PLANT MAINTENANCE | 23-AUG-92:24 | 4 | OPER | - | GF03 | 38 | | | | | | | | | | | | | | | | | | | | | 38 |
| 39 | 77 2AKCR2 | TCV-1447 - INVESTIGATE/REPAIR PROBLEM WITH THE EXHAUST HOOD SPRAY VALVE | 23-AUG-92:24 | 5 | EL | 2 | | 39 | | | | | | | | | | | | | | | | | | | | | 39 |
| 40 | 34 3A1 | ROTATE TURBINE SHAFT PLACE ON TURNING GEAR & MAINTAIN AS REQUIRED | 24-AUG-92:07 | 24 | OPER | 2 | GF03 | 40 | | | | | | | | | | | | | | | | | | | | | 40 |
| 41 | 35 3A2 | TAKE TURBINE OFF TURNING GEAR | 24-AUG-92:07 | 1 | OPER | 2 | GF03 | 41 | | | | | | | | | | | | | | | | | | | | | 41 |
| 42 | 222 2ALYL1 | REPAIR WINDOW & ROOF LEAK ON MIU COORDINATOR TRAILER, PROTECTED AREA YARD | 24-AUG-92:12 | 8 | MIC | - | | | | | | | | | | | | | | | | | | | | | | | 42 |
| 43 | 224 2AMBU1 | REPAIR AIR CONDITIONER & DOOR ON HP TRAILER T431, TRAILER CITY | 24-AUG-92:12 | 8 | MIC | - | | | | | | | | | | | | | | | | | | | | | | | 43 |
| 44 | 228 2AMFB1 | RELOCATE VENDING MACHINES FROM TRAILER CITY TO WAREHOUSE & OGM BLOC SITE | 24-AUG-92:12 | 8 | RADD SECU | - | | | | | | | | | | | | | | | | | | | | | | | 44 |
| 45 | 406 M1111020 | M1111 - INSTALL ELB-118 & ELB-119 SUPPORTS, BATCH TK RM | 24-AUG-92:12 | 8 | MIE MIC | 8 2 | M1111 | | | | | | | | | | | | | | | | | | | | | | 45 |
| 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 | 46 | | | | | | | | | | | | | | | | | | | | | 46 |
| 47 | 481 M1111260 | M1111 - COMPLETE LAYOUT & REBAR SCAN WALLS & CEILING, BATCH TK RM | 24-AUG-92:12 | 32 | MIC | 2 | M1111 | | | | | | | | | | | | | | | | | | | | | | 47 |
| 48 | 542 M1126008 | M1126 - MWT ACID PUMPS - REMOVE CONTROLLERS, INSTALL MANUAL CONTROLS & CANCEL LCT 'B' ACID PUMP. | 24-AUG-92:12 | 18 | MIE | 2 | M1126 | | | | | | | | | | | | | | | | | | | | | | 48 |
| 49 | 547 M1126012 | M1126 - MWT ACID PUMPS - MANUAL CONTROL OPERABILITY TESTING | 24-AUG-92:12 | 4 | MIE LEU TECH OPER | 2 1 1 1 | M1126 | 49 | | | | | | | | | | | | | | | | | | | | | 49 |
| 50 | 627 M9720005 | M972 DCN 8 - LAYOUT SUPPORT, UNIT 1 INTAKE STRUCTURE | 24-AUG-92:12 | 8 | MIM | 2 | M0972 | | | | | | | | | | | | | | | | | | | | | | 50 |
| 51 | 683 M972P003 | M972 DCN 8 - INSTALL APPROX 40LF FLUSH LINE FOR UNIT 1 HYPOCHLORITE SYSTEM | 24-AUG-92:12 | 8 | MIM | 3 | M0972 | | | | | | | | | | | | | | | | | | | | | | 51 |
| 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 | 52 | | | | | | | | | | | | | | | | | | | | | 52 |
| 53 | 732 0161 | DST-161 - ACCUMULATOR AND CHECK VALVE OPERABILITY TEST (COLD SHUTDOWN) (PRIOR TO PLANT HEAT-UP) | 24-AUG-92:12 | 2 | OPER | 2 | GF04 | 53 | | | | | | | | | | | | | | | | | | | | | 53 |
| 54 | 134 2AMKF1 | PT-4001 - CLEAN OIL FROM CONDUIT GOING TO TRANSMITTER (EH OIL) | 25-AUG-92:07 | 10 | ME EL | 2 2 | | 54 | | | | | | | | | | | | | | | | | | | | | 54 |
| | | | | | | | | 21 | | | | | | 28 | | | | | 4 | | | | | | | | 11 | | |
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

| RECORD # PREFIX | | | | | | | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | 1992 | | | | | | | | | | | |
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| 55 | 549 M1126014 | M1126 - WMT ACID PUMPS - WALKDOWN & TURNOVER | 25-AUG-92:12 | 2 | WIE OPER TECH LEU EL | 1 1 1 1 1 | M1126 | 55 | | | | | | | | | | | | 55 | | | | |
| 56 | 702 W972V003 | W972 DCN 8 - OBTAIN LCTR ON UNIT 2 HYPOCHLORITE LINE FREEZE PROTECTION FOR CHECK VALVE REPLACEMENT, INTAKE STRUCTURE | 25-AUG-92:12 | 5 | WIE | 2 | W0972 | 56 | | | | | | | | | | | | 56 | | | | |
| 57 | 632 W9720007 | W972 DCN 8 - LAYOUT 2 BASEPLATES FOR CHECK VALVE SUPPORTS, UNIT 2 INTAKE STRUCTURE | 25-AUG-92:15 | 8 | WIM | 2 | W0972 | 57 | | | | | | | | | | | | 57 | | | | |
| 58 | 733 2G | GP-007 - COOLDOWN RCS TO BELOW 350F/375# | 25-AUG-92:16 | 1 | OPER | - | GF04 | 58 | | | | | | | | | | | | 58 | | | | |
| 59 | 734 2H | GP-007 - PLACE RHR IN SERVICE | 25-AUG-92:19 | 3 | OPER | - | GF04 | 59 | | | | | | | | | | | | 59 | | | | |
| 60 | 166 2AKDP1 | FCV-4204A - SG'A'BLDN FLOW RATE CONT-REPAIR LEAKING TUBING | 25-AUG-92:21 | 2 | EL | 2 | | 60 | | | | | | | | | | | | 60 | | | | |
| 61 | 142 2AKTN1 | RELABEL CABLES FOR FIC-154, FIC-155 & FIC-156 (ACR #920054) | 25-AUG-92:22 | 3 | EL CVEN | 2 - | | 61 | | | | | | | | | | | | 61 | | | | |
| 62 | 160 2AJWP1 | 4KV ROOM - A RCP CUBICLE-REPAIR/REMOVE SOUND POWERED PHONE JACK | 25-AUG-92:22 | 3 | EL | 2 | | 62 | | | | | | | | | | | | 62 | | | | |
| 63 | 735 2I | CLOSE WSIV'S, BREAK CONDENSER VACUUM, SHUTDOWN FEED & CONDENSATE SYSTEMS | 25-AUG-92:22 | 2 | OPER | - | GF04 | 63 | | | | | | | | | | | | 63 | | | | |
| 64 | 736 2J | GP-007 - COOLDOWN RCS TO BELOW 200F | 26-AUG-92:01 | 5 | OPER | - | GF04 | 64 | | | | | | | | | | | | 64 | | | | |
| 65 | 762 32 | TAKE CLEARANCES ON SYSTEMS/COMPONENTS AS REQUIRED FOR PLANT MAINTENANCE | 26-AUG-92:02 | 4 | OPER | - | GF04 | 65 | | | | | | | | | | | | 65 | | | | |
| 66 | 131 2ABUX6 | FW-6C - INSTALL OPERATOR (AWAITING PARTS) | 26-AUG-92:07 | 8 | WE TECH | 2 1 | | 66 | | | | | | | | | | | | 66 | | | | |
| 67 | 775 2L | GP-007 - COOLDOWN, DEPRESSURIZE & DRAIN RCS (IF REQUIRED) | 26-AUG-92:07 | 12 | OPER | 1 | GF04 | 67 | | | | | | | | | | | | 67 | | | | |
| 68 | 810 2AMPG1 | LP TURBINE RUPTURE DISCS - PERFORM INSPECTION | 26-AUG-92:07 | 23 | WE TECH | 2 1 | | 68 | | | | | | | | | | | | 68 | | | | |
| 69 | 206 2AHLG5 | REPAIR STORAGE TRAILERS IN RCA | 26-AUG-92:10 | 224 | WIM | - | MISCMIM | | | | | | | | | | | | | 69 | | | | |
| 70 | 214 2AKTZ2 | REPAIR LEAKING ROOF ON HP TRAILER T431, TRAILER CITY | 26-AUG-92:10 | 80 | MIC | - | MISCC | | | | | | | | | | | | | 70 | | | | |
| 71 | 833 CASK100 | DPS LOAD CASK - REMOVE BFP WALL & ROOF (RWP'S 920124, 920125, 920126, 920127, 920128) | 26-AUG-92:12 | 24 | TECH SECU RADC OPER | 1 1 1 1 | MISC | 71 | | | | | | | | | | | | 71 | | | | |
| | | | | | | | | | | | | | 21 | | 28 | | 4 | | 11 | | | | | |
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| RECORD # | | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | AUG | | | | SEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PREFIX | | | | | | | | 21 | | | | 28 | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 72 | 139 2AKBD1 | REPAIR PROBLEM WITH 'C' FLUX MAP DETECTOR | 26-AUG-92:16 | 4 | EL | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ SD5 FIL PLTFORC/FORCGANT

ARTEMIS 6000

Ischart Drawing System 10:01 pm 3-SEP-92

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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

| RECORD # PREFIX | | | | | | | ACTIVITY DESCRIPTION | START FINISH | OU | CRAFT | QTY | CODE | 1992 AUG SEP | | | | | | | | | | | |
|--------------------|------------------|--|--------------|-----|--------------------|-------------|-------------------------|-----------------|----|-------|-----|------|-----------------|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | 21 28 4 11 | | | | | | | | | | | |
| 91 | 1059 TURB010 | TURB/GEN - REMOVE EE OS | 27-AUG-92:20 | 3 | WE TMC1 TECH | 2 1 1 | TURB | 918 | | | | | | | | | | | | | | | | |
| 92 | 1318 DST302A | DST-302 - SERVICE WATER SYS COMP. TEST | 27-AUG-92:22 | 2 | OPER TECH | 1 1 | GFD4DST | 921 | | | | | | | | | | | | | | | | |
| 93 | 190 2AKUA4 | ES-4A - REPAIR FURMANITED LEAK (ABOVE 6A FW HTR) | 27-AUG-92:23 | 24 | WE | 2 | | 93 | | | | | | | | | | | | | | | | |
| 94 | 1064 TURB030 | TURB/GEN - VENT & PURGE GENERATOR | 27-AUG-92:24 | 10 | OPER | 1 | TURB | 94 | | | | | | | | | | | | | | | | |
| 95 | 1065 TURB040 | TURB/GEN - DISCONNECT SW TO EXCITOR COOLER | 28-AUG-92:01 | 1 | TMC1 | 2 | TURB | 95 | | | | | | | | | | | | | | | | |
| 96 | 1067 TURB050 | TURB/GEN - REMOVE EXCITER HOUSE | 28-AUG-92:01 | 3 | TMC1 | 2 | TURB | 96 | | | | | | | | | | | | | | | | |
| 97 | 1069 TURB060 | TURB/GEN - REMOVE GEN-EXC LAGGING | 28-AUG-92:04 | 1 | TMC1 | 2 | TURB | 97 | | | | | | | | | | | | | | | | |
| 98 | 859 2AEXF1 | SGS-37F - REPOSITION VALVE TO AVOID INTERFERENCE | 28-AUG-92:07 | 8 | WE QC | 2 1 | | 98 | | | | | | | | | | | | | | | | |
| 99 | 941 2AKGG1 | HVH-1 CMS -INVESTIGATE PROBLEM WITH LVL NOT CHANGING DURING DST-901 | 28-AUG-92:07 | 8 | EL RADC CVEN | 2 1 - | | 99 | | | | | | | | | | | | | | | | |
| 100 | 944 2AKGG3 | HVH-4 CMS -INVESTIGATE PROBLEM WITH LVL NOT CHANGING DURING DST-901 | 28-AUG-92:07 | 8 | EL RADC CVEN | 2 1 - | | 100 | | | | | | | | | | | | | | | | |
| 101 | 947 2ALKR1 | HVH-2 CMS -INVESTIGATE PROBLEM WITH LVL NOT CHANGING DURING DST-901 | 28-AUG-92:07 | 8 | EL RADC CVEN | 2 1 - | | 101 | | | | | | | | | | | | | | | | |
| 102 | 995 SISYG030 | ERECT SCAFFOLDING & BUILD TENT AT RWST FOR INSPECTION | 28-AUG-92:07 | 37 | WIC | 8 | SIPDI | 102 | | | | | | | | | | | | | | | | |
| 103 | 1122 SISYG050 | REMOVE INSULATION FROM 'A' & 'B' SI PUMP COMMON DISCHARGE LINE FOR SP-1157 CONTROLATRON INSTALLATION | 28-AUG-92:07 | 4 | IN | 1 | SIFLW | 103 | | | | | | | | | | | | | | | | |
| 104 | 1232 ACHGMP | REPAIR 'A' CHARGING PUMP | 28-AUG-92:07 | 36 | WE QC | 2 1 | | 104 | | | | | | | | | | | | | | | | |
| 105 | 1071 TURB070 | TURB/GEN - REMOVE VIBRATION PROBE | 28-AUG-92:09 | 1 | TMC1 | 1 | TURB | 105 | | | | | | | | | | | | | | | | |
| 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 | WIE NED CVEN | - - - | M1064 | 107 | | | | | | | | | | | | | | | | |
| 108 | 630 M9720006 | M972 DCN 8 - REBAR SCAN, DRILL & INSTALL 2-3/8INCH MAXIBOLTS, UNIT 1 INTAKE STRUCTURE | 28-AUG-92:10 | 8 | WIC | 2 | M0972 | 108 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | 21 28 4 11 | | | | | | | | | | | |
| | | | | | | | | | | | | | AUG SEP | | | | | | | | | | | |
| | | | | | | | | | | | | | 1992 | | | | | | | | | | | |

ACTIVITY

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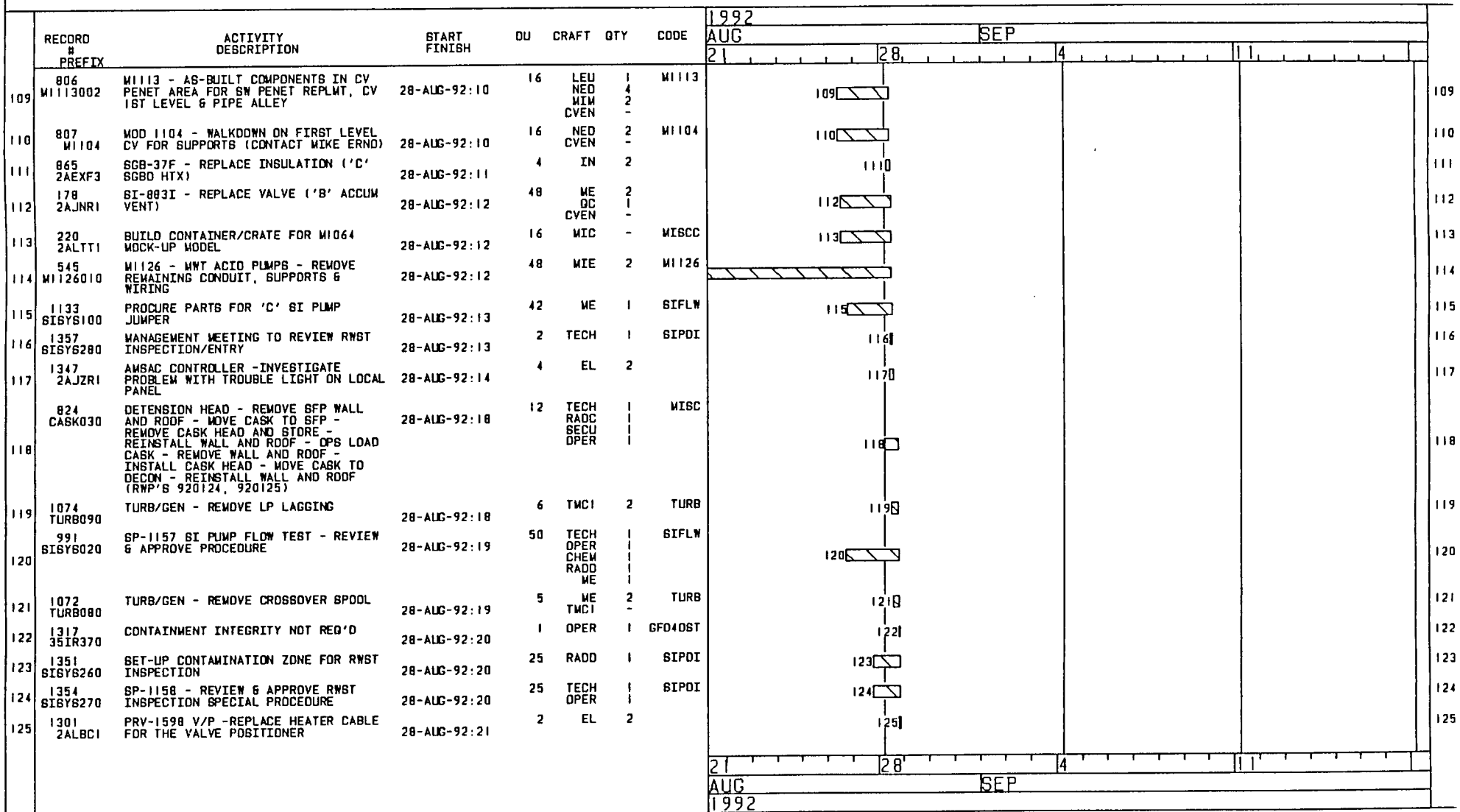
ID 50 PROJ SDS FIL PLTFORC/FORCANT

ARTEMIS 6000

BarChart Drawing System Rev 01 pm 3-SEP-92

Page 6 of 28

CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS



□ ACTIVITY

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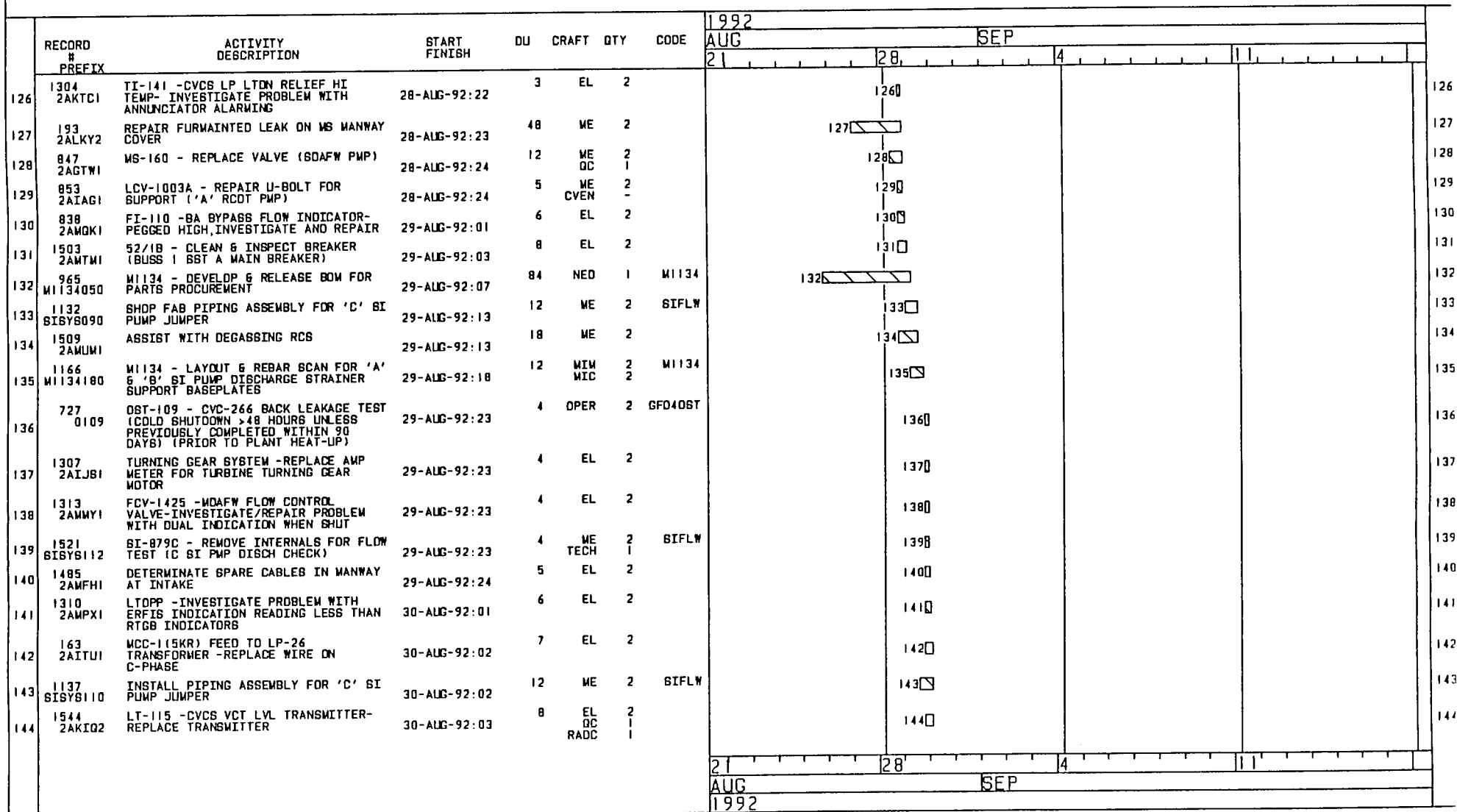
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BarChart Drawing System 10:02 pm 3-SEP-92

Page 7 of 28

CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS



ACTIVITY

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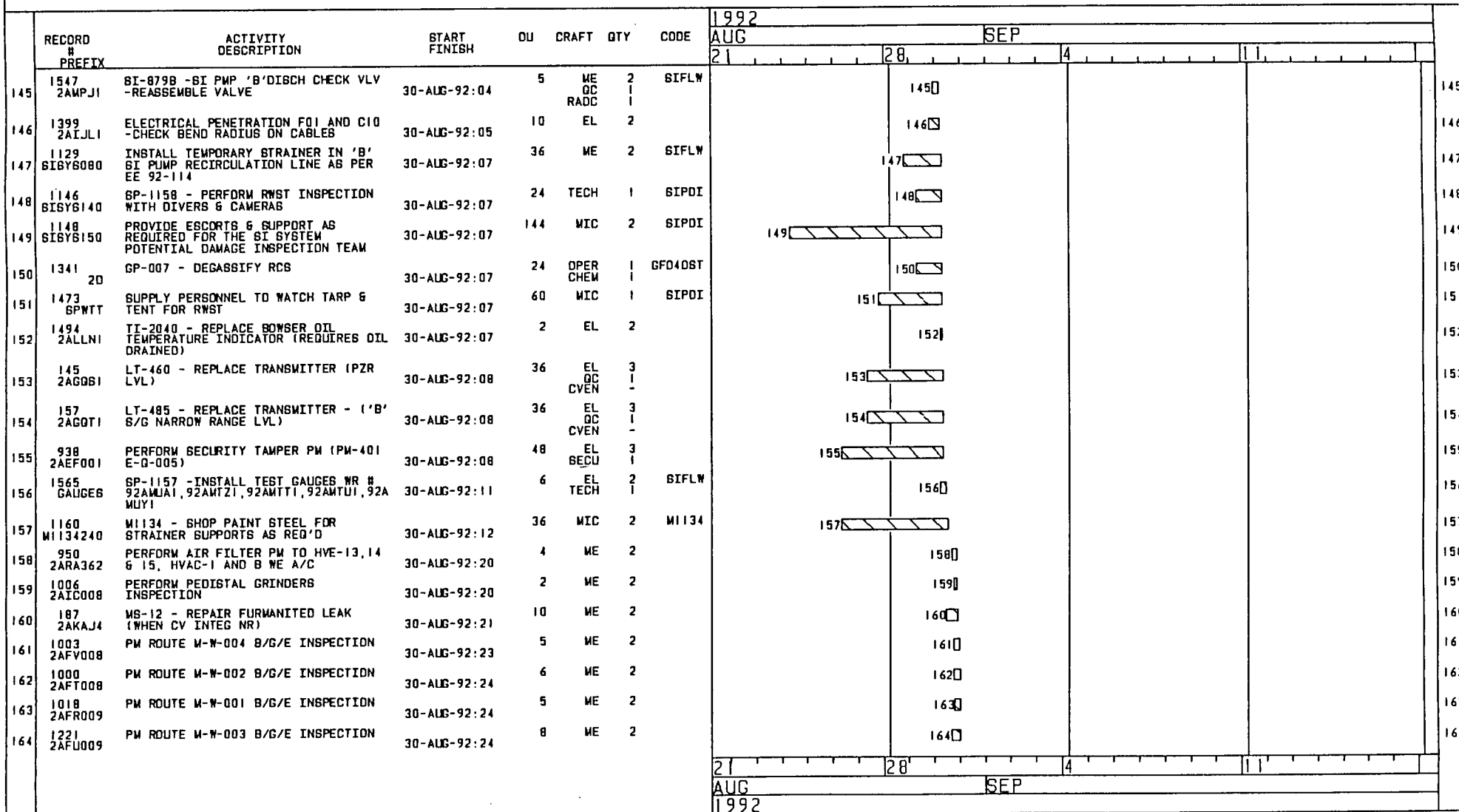
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Page 8 of 28

CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS



ACTIVITY

CRITICAL ACTIVITY

ID 50 PROJ 805 FIL PLTFORC/FORCANT

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Isachart Drawing System 10:02 pm 3-SEP-92

Page 9 of 28

CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

| | | | | | | | | 1992 | | | | | | | | | | | | | | | | |
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| | | | | | | | | AUG | | | | | | SEP | | | | | | | | | | |
| RECORD # PREFIX | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | | 21 | | | | 28 | | | | 4 | | | | | 11 | | | |
| 165 | 1363 2ALTQ1 | PERFORM WST-913 DUE ON 8/31/92 | 31-AUG-92:02 | 1 | EL | 2 | | | | | | | | 165 | | | | | | | | | | 165 |
| 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 | | | | | | 66 | | | | | | | | | | | 166 |
| 167 | 1141 SISYS120 | REMOVE 'C' SI PUMP PIPING JUMPER (AFTER FLOW TEST IS COMPLETE) | 31-AUG-92:05 | 6 | WE | 2 | SIFLW | | | | | | | 167 | | | | | | | | | | 167 |
| 168 | 1535 SISYS122 | SI-879C - REPLACE INTERNALS AFTER FLOW TEST (C SI PMP DISCH CHECK) | 31-AUG-92:05 | 8 | WE QC | 2 1 | SIFLW | | | | | | | 168 | | | | | | | | | | 168 |
| 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 | | | | | | | 169 | | | | | | | | | | 169 |
| 170 | 1076 TURB110 | TURB/GEN - REMOVE EE HAND HOLE COVER | 31-AUG-92:07 | 3 | TWCI | 2 | TURB | | | | | | | 170 | | | | | | | | | | 170 |
| 171 | 1080 TURB130 | TURB/GEN - REMOVE U H EE BRG BRK | 31-AUG-92:07 | 3 | TWCI | 2 | TURB | | | | | | | 171 | | | | | | | | | | 171 |
| 172 | 1119 CASK055 | TENSION CASK HEAD AND DECON | 31-AUG-92:07 | 12 | TECH RADD | 1 1 | | | | | | | | 172 | | | | | | | | | | 172 |
| 173 | 1125 SISYS060 | SP-1157 - SI PUMP FLOW TEST - PERFORM FULL FLOW TEST | 31-AUG-92:07 | 24 | TECH OPER WE SECU RADD | 1 1 2 1 1 | SIFLW | | | | | | | 173 | | | | | | | | | | 173 |
| 174 | 1154 1AMIA1 | ASSIST SYSTEM ENGINEER TO AS-BUILT RPI SYSTEM | 31-AUG-92:07 | 24 | EL TECH | 1 1 | | | | | | | | 174 | | | | | | | | | | 174 |
| 175 | 1559 SISYS06A | BUILD SCAFFOLDING IN SI PUMP ROOM FOR SI-844A & SI-880B | 31-AUG-92:07 | 12 | MIC | 6 | SIPDI | | | | | | | 175 | | | | | | | | | | 175 |
| 176 | 1432 2AKYE3 | FW-8C - REMOVE FURMANITE & REPLACE BONNET GASKET | 31-AUG-92:08 | 72 | WE QC | 2 1 | | | | | | | 176 | | | | | | | | | | | 176 |
| 177 | 1491 2ALBW1 | INSTALL PROTECTOR AROUND DOOR KNOB TO WHUT ROOM (CONTACT LARRY NEWMAN) | 31-AUG-92:08 | 6 | WE RADD | 2 1 | | | | | | | | 177 | | | | | | | | | | 177 |
| 178 | 1539 SISYS061 | ESTABLISH INSPECTON BOUNDARIES/DRAIN SYSTEM | 31-AUG-92:08 | 12 | OPER TECH | 1 1 | SIPDI | | | | | | | 178 | | | | | | | | | | 178 |
| 179 | 1038 TURB210 | TURB/GEN - INSTALL L/H HYDROGEN GLAND CASING | 31-AUG-92:10 | 6 | TECH TWCI | 1 3 | TURB | | | | | | | 179 | | | | | | | | | | 179 |
| 180 | 1360 1AQQUG | PERFORM BEFORE-USE AND AFTER-USE CALIBRATION OF TEST GAUGES FOR WOD-972 | 31-AUG-92:10 | 12 | EL | 1 | | | | | | | | 180 | | | | | | | | | | 180 |
| 181 | 1396 2AMBT1 | 52/7A -PERFORM PM ON BREAKER | 31-AUG-92:10 | 5 | EL | 2 | | | | | | | | 181 | | | | | | | | | | 181 |
| 182 | 1497 2AMLX1 | N-31 - REPLACE PDT | 31-AUG-92:10 | 36 | EL | 2 | | | | | | | | 182 | | | | | | | | | | 182 |
| 183 | 1582 GAUGE01 | SP-1157 -REMOVE TEST GAUGES WR # 92AMJAI, 92AMTZ1, 92AMTT1, 92AMTUI, 92A MUY1 | 31-AUG-92:10 | 6 | EL TECH | 2 1 | SIFLW | | | | | | | 183 | | | | | | | | | | 183 |
| 184 | 1585 SISYS290 | REMOVE TENT USED FOR RWST INSPECTION FROM D/G MUFFLER DECK | 31-AUG-92:10 | 8 | MIC | 6 | SIPDI | | | | | | | 184 | | | | | | | | | | 184 |
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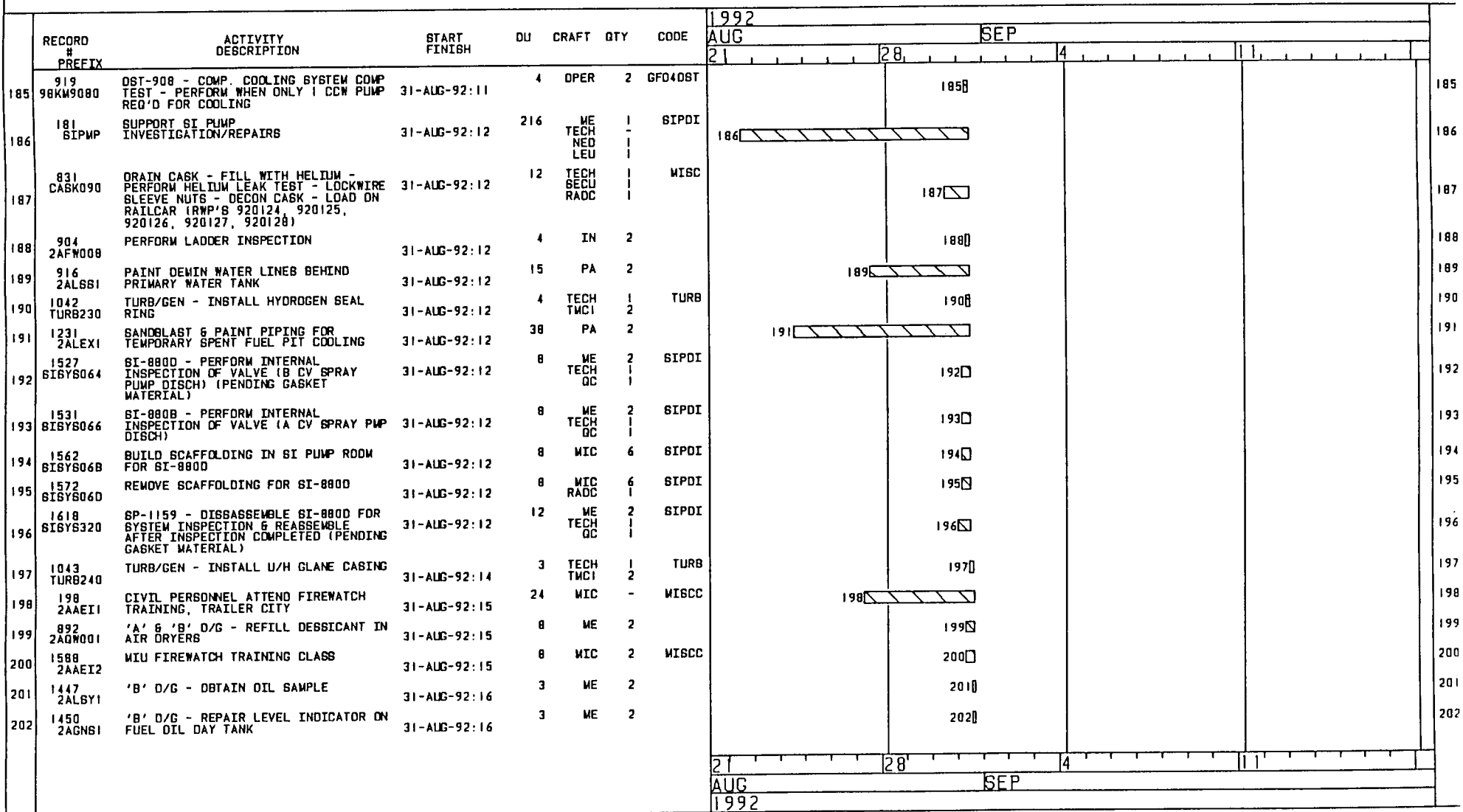
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| RECORD # PREFIX | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | 1992 | | | | | | | | | | | |
|-----------------------|-------------------------|--|-------------|-------|--------------|--------|---------|--|--|----|--|--|-----|-----|--|--|----|-----|
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| 224 | 1085 TURB170 | TURB/GEN - REMOVE L H H2 GLAND GAGE | 1-SEP-92:02 | 3 | TWCI | 2 | TURB | | | | | | | 224 | | | | 224 |
| 225 | 1603 2AMTYI | REPAIR FI-414 RCP LOOP A FLOW (RTGB) | 1-SEP-92:02 | 8 | EL | 2 | WISC | | | | | | | 225 | | | | 225 |
| 226 | 1606 2ALUHI | CHANGE 9 BISTABLE WINDOWS | 1-SEP-92:02 | 8 | EL | 2 | WISC | | | | | | | 226 | | | | 226 |
| 227 | 1600 2AMFWI | REPAIR SC-151 TUBING (CHARGING PUMP A LOW SPEED ALARM) | 1-SEP-92:06 | 12 | EL | 2 | WISC | | | | | | | 227 | | | | 227 |
| 228 | 1027 2AFY009 | PERFORM COND. BALL CHANGEOUT | 1-SEP-92:07 | 6 | ME | 2 | | | | | | | | 228 | | | | 228 |
| 229 | 171 2ALKTG | FW-246B - REPLACE INSULATION ('B' WFP) | 1-SEP-92:09 | 30 | IN | 2 | | | | | | | | 229 | | | | 229 |
| 230 | 910 2ALGSI | PAINT ENTRANCE DOORS TO SFP ROOM | 1-SEP-92:09 | 6 | PA | 2 | | | | | | | | 230 | | | | 230 |
| 231 | 1087 TURB190 | TURB/GEN - CLEAN JOINTS OF PARTS | 1-SEP-92:09 | 3 | TWCI TC | 2 1 | TURB | | | | | | | 231 | | | | 231 |
| 232 | 1030 2AIB362 | INSPECT TURBINE LUBE OIL STRAINER | 1-SEP-92:10 | 4 | ME | 2 | | | | | | | | 232 | | | | 232 |
| 233 | 1244 2GLJ003 | CHECK PA SYSTEM IN E6RC BLDG 375, O6M BLDG 320, CONSTRUCTION BLDG T-331 | 1-SEP-92:10 | 4 | EL | 2 | | | | | | | | 233 | | | | 233 |
| 234 | 1268 2HPD003 | PERFORM INSPECTION OF WCCU-1A | 1-SEP-92:10 | 4 | EL | 2 | | | | | | | | 234 | | | | 234 |
| 235 | 1271 2HPQ003 | PERFORM INSPECTION OF WCCU-1B | 1-SEP-92:10 | 4 | EL | 2 | | | | | | | | 235 | | | | 235 |
| 236 | 1295 2BYD362 | CALIBRATE THE VCT PRESS INSTRUMENTATION LOOP 117 | 1-SEP-92:10 | 4 | EL | 2 | | | | | | | | 236 | | | | 236 |
| 237 | 1453 1AMZYI | DA-33B - REPLACE CHECK VALVE (B D/G STARTING AIR COMP) | 1-SEP-92:10 | 3 | ME QC | 2 1 | | | | | | | | 237 | | | | 237 |
| 238 | 1405 2ALMLI | TURBINE LOW VACUUM - INVESTIGATE PROBLEM WITH THE INCORRECT ALARM COMING IN DURING OBT-551 | 1-SEP-92:11 | 5 | EL TECH | 2 1 | | | | | | | | 238 | | | | 238 |
| 239 | 962 M1134010 | M1134 - RELEASE APPROVED DESIGN FOR FABRICATION OF STRAINERS & SUPPORTS | 1-SEP-92:12 | 144 | NEO LEU | 1 1 | M1134 | | | | | | | 239 | | | | 239 |
| 240 | 1036 TURB200 | TURB/GEN - GLUE GASKET TO GLAND CASING | 1-SEP-92:12 | 3 | TECH TWCI | 1 2 | TURB | | | | | | | 240 | | | | 240 |
| 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 | | | | | | | | 241 | | | | 241 |
| 242 | 1647 616Y6325 | DEVELOP PLAN & SCHEDULE FOR CLEANING THE RWST | 1-SEP-92:12 | 36 | RADD | 2 | SIPDI | | | | | | | 242 | | | | 242 |
| 243 | 1084 TURB160 | TURB/GEN - MACHINE SEAL RING | 1-SEP-92:13 | 10 | TWCI | 2 | TURB | | | | | | | 243 | | | | 243 |
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

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| 244 | 1224 2FWG361 | PERFORM INSPECTION OF SPENT FUEL CASK CRANE, NEW FUEL CRANES & SPENT FUEL POOL CRANES | 1-SEP-92:13 | 8 | ME | 2 | | | | | | | | | | 244 | | | | | | | | 244 |
| 245 | 1682 2AMZPI | ALIGN 'B' SI PUMP & MOTOR | 1-SEP-92:14 | 12 | ME | 2 | SIFLW | | | | | | | | | 245 | | | | | | | | 245 |
| 246 | 200 2AAEIIA | MECHANICAL PERSONNEL ATTEND FIREWATCH TRAINING, TRAILER CITY | 1-SEP-92:15 | 24 | MIW | - | MISCM | | | | | | | | | 246 | | | | | | | | 246 |
| 247 | 1046 TURB270 | TURB/GEN - BOLT U/H EE BRG BRACKET | 1-SEP-92:15 | 3 | TECH TMC1 | 1 3 | TURB | | | | | | | | | 247 | | | | | | | | 247 |
| 248 | 1250 2HPG002 | PERFORM INSPECTION OF SECURITY GATE 1 | 1-SEP-92:16 | 4 | EL | 2 | | | | | | | | | | 248 | | | | | | | | 248 |
| 249 | 1253 2HPH002 | PERFORM INSPECTION OF SECURITY GATE 2 | 1-SEP-92:16 | 4 | EL | 2 | | | | | | | | | | 249 | | | | | | | | 249 |
| 250 | 1256 2HPI002 | PERFORM INSPECTION OF SECURITY GATE 3 | 1-SEP-92:16 | 4 | EL | 2 | | | | | | | | | | 250 | | | | | | | | 250 |
| 251 | 1241 2HNT001 | IGC SHOP HOIST INSPECTION | 1-SEP-92:17 | 5 | EL | 2 | | | | | | | | | | 251 | | | | | | | | 251 |
| 252 | 1040 TURB220 | TURB/GEN - MEGGER GLAND CASING | 1-SEP-92:18 | 1 | TECH TMC1 | 1 2 | TURB | | | | | | | | | 252 | | | | | | | | 252 |
| 253 | 1047 TURB280 | TURB/GEN - SET GENERATOR ROTOR IN BEARING | 1-SEP-92:18 | 3 | TECH TMC1 | 1 3 | TURB | | | | | | | | | 253 | | | | | | | | 253 |
| 254 | 1048 TURB290 | TURB/GEN - BOLT U/H HYDROGEN GLAND CASE | 1-SEP-92:18 | 3 | TECH TMC1 | 1 3 | TURB | | | | | | | | | 254 | | | | | | | | 254 |
| 255 | 1049 TURB300 | TURB/GEN - PUMP EE BEARING BRACKET JOINTS | 1-SEP-92:18 | 4 | TECH TMC1 | 1 2 | TURB | | | | | | | | | 255 | | | | | | | | 255 |
| 256 | 1051 TURB320 | TURB/GEN - INSTALL CROSSOVER SPOOL | 1-SEP-92:18 | 6 | TECH TMC1 | 1 3 | TURB | | | | | | | | | 256 | | | | | | | | 256 |
| 257 | 1053 TURB340 | TURB/GEN - INSTALL U/H #8 BEARING | 1-SEP-92:18 | 3 | TECH TMC1 | 1 3 | TURB | | | | | | | | | 257 | | | | | | | | 257 |
| 258 | 1054 TURB350 | TURB/GEN - INSTALL AND SET EE OIL SEAL | 1-SEP-92:18 | 3 | TECH TMC1 | 1 2 | TURB | | | | | | | | | 258 | | | | | | | | 258 |
| 259 | 1259 2HPJ002 | PERFORM INSPECTION OF SECURITY GATE 8 | 1-SEP-92:18 | 4 | EL | 2 | | | | | | | | | | 259 | | | | | | | | 259 |
| 260 | 1262 2HPK002 | PERFORM INSPECTION OF SECURITY GATE 12 | 1-SEP-92:18 | 4 | EL | 2 | | | | | | | | | | 260 | | | | | | | | 260 |
| 261 | 1265 2HPL002 | PERFORM INSPECTION OF SECURITY GATE 'W' | 1-SEP-92:18 | 4 | EL | 2 | | | | | | | | | | 261 | | | | | | | | 261 |
| 262 | 1199 2HRU001 | CHANGE EH OIL POLISHING FILTER 'A' | 1-SEP-92:20 | 2 | ME | 2 | | | | | | | | | | 262 | | | | | | | | 262 |
| 263 | 1202 2HRV001 | CHANGE EH OIL POLISHING FILTER 'B' | 1-SEP-92:20 | 2 | ME | 2 | | | | | | | | | | 263 | | | | | | | | 263 |
| 264 | 1203 2HRW001 | CHANGE EH OIL AUXILIARY FILTER 'A' | 1-SEP-92:20 | 2 | ME | 2 | | | | | | | | | | 264 | | | | | | | | 264 |
| 265 | 1206 2HRX001 | CHANGE EH OIL AUXILIARY FILTER 'B' | 1-SEP-92:20 | 2 | ME | 2 | | | | | | | | | | 265 | | | | | | | | 265 |
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

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| 266 | 1372 2ALYE1 | INSTALL BATTERY IN FOAP A1 | 1-SEP-92:20 | 2 | EL | 2 | | | | | | | | | | | | | | | 266 | | | | | | | | | | | | | | | 266 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 267 | 1193 2HRS004 | CHANGE EH OIL UNLOADER BANK 'A' FILTERS | 1-SEP-92:21 | 3 | WE | 2 | | | | | | | | | | | | | | | 267 | | | | | | | | | | | | | | | 267 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 268 | 1196 2HRT001 | CHANGE EH OIL UNLOADER BANK 'B' FILTERS | 1-SEP-92:21 | 3 | WE | 2 | | | | | | | | | | | | | | | 268 | | | | | | | | | | | | | | | 268 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | WE | 2 | | | | | | | | | | | | | | | 269 | | | | | | | | | | | | | | | 269 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270 | 1375 2AMJE1 | PERFORM CALIBRATION OF TT-302A WITH DECADE BOX AT THE RTD. | 1-SEP-92:22 | 4 | EL | 2 | | | | | | | | | | | | | | | 270 | | | | | | | | | | | | | | | 270 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 271 | 1378 2AMJH1 | PERFORM CALIBRATION OF TT-302B WITH DECADE BOX AT THE RTD. | 1-SEP-92:22 | 4 | EL | 2 | | | | | | | | | | | | | | | 271 | | | | | | | | | | | | | | | 271 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 272 | 1459 2ALLQ1 | LO-43 - INSPECT CHECK VALVE (BOWSER FILTER CAGE) | 1-SEP-92:22 | 4 | WE | 2 | | | | | | | | | | | | | | | 272 | | | | | | | | | | | | | | | 272 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 273 | 1462 2BERS15 | LUBE OIL FILTER PUMP - CHECK COUPLING ALIGNMENT | 1-SEP-92:22 | 4 | WE | 2 | | | | | | | | | | | | | | | 273 | | | | | | | | | | | | | | | 273 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 274 | 1627 2AGTW3 | MS-160 - REPLACE INSULATION | 1-SEP-92:22 | 4 | IN | 2 | | | | | | | | | | | | | | | 274 | | | | | | | | | | | | | | | 274 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 275 | 151 2AKBN1 | PS-955A - REPAIR DUAL INDICATION WHEN SHUT | 1-SEP-92:23 | 5 | EL WE | 3 2 | | | | | | | | | | | | | | | 275 | | | | | | | | | | | | | | | 275 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 276 | 154 2AKBP1 | PS-955B - REPAIR DUAL INDICATION WHEN SHUT | 1-SEP-92:23 | 5 | EL WE | 3 2 | | | | | | | | | | | | | | | 276 | | | | | | | | | | | | | | | 276 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 277 | 889 2AHZ361 | PERFORM CONTAINMENT & RHR PIT MONTHLY LUBRICATION | 1-SEP-92:23 | 5 | WE CVEN | 2 - | | | | | | | | | | | | | | | 277 | | | | | | | | | | | | | | | 277 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 278 | 1024 2ADE362 | PERFORM VIB/TEMP/INSP OF VAPOR EXT'S EH OIL PMPs, GLAND STEAM EXT & COND VACUUM PMPs | 1-SEP-92:23 | 5 | WE | 2 | | | | | | | | | | | | | | | 278 | | | | | | | | | | | | | | | 278 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | 279 | | | | | | | | | | | | | | | 279 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 280 | 148 2AKGS1 | INVESTIGATE PROBLEM WITH VT-429D -Y SHAFT SENSOR ON 'B' RCP- DK LIGHT IS OUT | 1-SEP-92:24 | 6 | EL TECH CVEN | 2 1 - | | | | | | | | | | | | | | | 280 | | | | | | | | | | | | | | | 280 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 - | | | | | | | | | | | | | | | 281 | | | | | | | | | | | | | | | 281 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 282 | 1381 2ALTS1 | PERFORM MST-007 DUE ON 9/2/92 | 2-SEP-92:01 | 2 | EL | 2 | | | | | | | | | | | | | | | 282 | | | | | | | | | | | | | | | 282 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 283 | 1630 2AMSE1 | VT-439A -RCP 'C' X PROBE- INVESTIGATE PROBLEM WITH ERRATIC READINGS | 2-SEP-92:02 | 8 | EL RADC CVEN | 2 1 - | | | | | | | | | | | | | | | 283 | | | | | | | | | | | | | | | 283 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 284 | 1741 2AMZW1 | INSPECT, EVALUATE & REASSEMBLE SI-890A (6I PMP RW) | 2-SEP-92:05 | 36 | WE TECH QC | 2 1 1 | SIPOI | | | | | | | | | | | | | | | 284 | | | | | | | | | | | | | | | 284 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 285 | 1744 2AMZNI | INSPECT, EVALUATE & REASSEMBLE SI-890B (SI PMP RM) | 2-SEP-92:05 | 36 | ME | 2 | SIPDI | | | | | | | | | | | |
| | | | | | TECH | 1 | | | | | | | | | | | | |
| | | | | | QC | 1 | | | | | | | | | | | | |
| 286 | 768 0253 | OST-253 - RHR PUMP FLOW TEST (COLD SHUTDOWN) (PRIOR TO PLANT HEAT-UP) | 2-SEP-92:06 | 4 | OPER | 2 | GFD4DST | | | | | | | | | | | |
| 287 | 967 W1134070 | W1134 - REVIEW, DESIGN VERIFY & APPROVE MOD | 2-SEP-92:06 | 24 | LEU | 1 | W1134 | | | | | | | | | | | |
| | | | | | NED | 1 | | | | | | | | | | | | |
| 288 | 850 9ACDF1 | 'A' D/G - REPLACE CRIMPED TUBING ON FUEL OIL HAND PRIME PUMP | 2-SEP-92:07 | 16 | ME | 2 | | | | | | | | | | | | |
| | | | | | QC | 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 INSULATION ON 90 AT TOP OF LADDER ON PRIMARY WATER TANK | 2-SEP-92:07 | 3 | IN | 2 | | | | | | | | | | | | |
| 291 | 959 2ALGX1 | 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 2AUG1 | REPLACE AIR TUBING AT IA-309 (AT RX COOLANT DRN TNK) | 2-SEP-92:07 | 2 | ME | 2 | | | | | | | | | | | | |
| | | | | | CVEN | 1 | | | | | | | | | | | | |
| 294 | 1274 2ADN363 | REPLACE SERVICE AIR COMP. AIR FILTER CHECK LIST E-007 PM ROUTE E-MD-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 | 2 | | | | | | | | | | | | |
| | | | | | CVEN | 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 W1074001 | MOD-1074 - TRAINING | 2-SEP-92:11 | 4 | LEU | 1 | W1074 | | | | | | | | | | | |
| | | | | | WIE | 1 | | | | | | | | | | | | |
| | | | | | RAOC | 1 | | | | | | | | | | | | |
| 301 | 1553 2AIJL2 | ELECTRICAL PENETRATION F01 & C10 - REMOVE SCAFFOLDING FROM NORTH CABLE VAULT | 2-SEP-92:11 | 8 | MIC | 6 | MISCC | | | | | | | | | | | |
| 302 | 877 2ALWY1 | RHR-744A - CHECK FOR OIL LEAKS IN OPERATOR | 2-SEP-92:12 | 8 | ME | 2 | | | | | | | | | | | | |
| | | | | | CVEN | - | | | | | | | | | | | | |
| 303 | 880 2ALMZ1 | RHR-744B - CHECK FOR OIL LEAKS IN OPERATOR | 2-SEP-92:12 | 8 | ME | 2 | | | | | | | | | | | | |
| | | | | | QC | 1 | | | | | | | | | | | | |
| | | | | | CVEN | - | | | | | | | | | | | | |
| 304 | 956 2ALSUI | REPLACE INSULATION AT 4A FMH | 2-SEP-92:12 | 4 | IN | 2 | | | | | | | | | | | | |
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

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| 305 | 1435 2AKYE4 | FW-8C - REPLACE INSULATION | 2-SEP-92:12 | 24 | IN | 2 | | | | | | | | | | | | | 305 |
| 306 | 1768 2AMUHI | REPLACE INSULATION ON TURBINE CROSSOVER PIPING | 2-SEP-92:12 | 36 | IN | 2 | | | | | | | | | | | | | 306 |
| 307 | 1230 2AHX365 | PERFORM INTAKE EQUIPMENT MONTHLY LUBRICATION | 2-SEP-92:13 | 4 | ME SECU | 2 1 | | | | | | | | | | | | | 307 |
| 308 | 856 0AKYLI | SNUBBER #102 - REBUILD SNUBBER (ON MAIN STEAM LINE AT CONDENSER) | 2-SEP-92:14 | 12 | ME | 2 | | | | | | | | | | | | | 308 |
| 309 | 1165 M1134170 | M1134 - OBTAIN LCTR ON 'A' & 'B' SI PUMP DISCHARGE & DRAIN PIPING FOR STRAINER INSTALLATION | 2-SEP-92:16 | 8 | MIM OPER | 1 1 | M1134 | | | | | | | | | | | | 309 |
| 310 | 1638 2AMYYI | SI-8618 -CV BUMP RECIRC SUCTION VLV-SET OPEN TORQUE SWITCH TO 4 | 2-SEP-92:18 | 12 | EL TECH QC | 2 1 1 | | | | | | | | | | | | | 310 |
| 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 | | | | | | | | | | | | | 311 |
| 312 | 1786 2ALBT1 | MCC-5(1B)-BAST 'A' HTRS BREAKER-INVESTIGATE/REPAIR PROBLEM WITH DIM INDICATING LIGHTS | 2-SEP-92:18 | 12 | EL | 2 | | | | | | | | | | | | | 312 |
| 313 | 1789 2ALSW1 | MCC-5(7J) -CTMT SPRAY 8 PMP DISCH Y880C BREAKER-INVESTIGATE/REPAIR PROBLEM WITH DIM INDICATING LIGHTS | 2-SEP-92:18 | 12 | EL | 2 | | | | | | | | | | | | | 313 |
| 314 | 1476 SUBSTA01 | CLEAN AND INSPECT LAT AND SUT JUNCTION BOXES AND RE-GASKET AS REQ'D (ROTATE & ORIENT 2 BOXES) | 2-SEP-92:19 | 6 | TECH SUBM | 1 2 | SUBST | | | | | | | | | | | | 314 |
| 315 | 1479 SUBSTA02 | DETERMINE CAUSE OF 'C' PHASE MAIN TRANSFORMER LV RELAY NOT RESETTNG | 2-SEP-92:19 | 6 | TECH SUBM | 1 2 | SUBST | | | | | | | | | | | | 315 |
| 316 | 1609 SISYS300 | SP-1159 - PERFORM SI & CV SPRAY SYSTEM INSPECTIONS AS PER SPECIAL PROCEDURE | 2-SEP-92:19 | 96 | TECH | 3 | SIPDI | | | | | | | | | | | | 316 |
| 317 | 1803 2AMWN2 | PROVIDE TEMPORARY POWER SUPPORT AS REQUIRED FOR THE SI SYSTEM POTENTIAL DAMAGE INVESTIGATION TEAM CAMERA INSPECTIONS | 2-SEP-92:19 | 72 | WIE | 2 | SIPDI | | | | | | | | | | | | 317 |
| 318 | 871 2AMPYI | WS-353A - REPAIR PACKING LEAK (WHEN CV INTEG NR) | 2-SEP-92:20 | 14 | ME | 2 | | | | | | | | | | | | | 318 |
| 319 | 1887 2AWYUI | 'A' COND VACUUM PUMP - OBTAIN OIL SAMPLES (92AWYUI, 92AWYYI) | 2-SEP-92:20 | 1 | ME | 2 | | | | | | | | | | | | | 319 |
| 320 | 1890 2AWYWI | 'B' COND VACUUM PUMP - OBTAIN OIL SAMPLES (92AWYWI, 92AWZAI) | 2-SEP-92:20 | 1 | ME | 1 | | | | | | | | | | | | | 320 |
| 321 | 1209 2CCP363 | REPLACE THE LUBE OIL PARTICAL FILTERS | 2-SEP-92:21 | 8 | ME | 2 | | | | | | | | | | | | | 321 |
| 322 | 1369 2AMKYI | EGRC BLDG FIRE TROUBLE - TROUBLESHOOT ALARM CYCLING | 2-SEP-92:21 | 8 | EL | 2 | | | | | | | | | | | | | 322 |
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

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| | | | | | | | | | | | | | 21 | | | | | | 28 | | | | 4 | | | | 11 | | | |
| 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 | | | | | | | | | | | | | | 341 | | | | | |
| 342 | 377 M1111005 | M1111 - REMOVE EXISTING TUBING SUPPORTS AND TEMP SUPPORT TUBING, BATCH TK RM | | | | | | 3-SEP-92:11 | 16 | WIM QC | 3 1 | M1111 | | | | | | | | | | | | | | 342 | | | | |
| 343 | 435 M1111034 | M1111 - REMOVE EXISTING CONDUIT/SUPPORTS FROM BATCH TANK ROOM. | | | | | | 3-SEP-92:11 | 72 | WIE QC | 2 1 | M1111 | | | | | | | | | | | | | | 343 | | | | |
| 344 | 1597 2AKAJ7 | REMOVE SCAFFOLDING ON TURB WEZZ LEVEL SOUTHSIDE OF CATWALK FOR 6-WB-10 LINE REPLACEMENT | | | | | | 3-SEP-92:11 | 8 | WIC | 6 | WISCC | | | | | | | | | | | | | | 344 | | | | |
| 345 | 1524 BISYS062 | SI-844A -INSPECT,EVALUATE & REASSEMBLE VALVE (RWST DISCH) | | | | | | 3-SEP-92:12 | 46 | WE TECH QC | 3 1 - | SIPDI | | | | | | | | | | | | | | 345 | | | | |
| 346 | 1822 M1134250 | M1134 - REMOVE INSULATION FROM 'A' & 'B' SI PUMP RECIRC LINES, SI PUMP ROOM | | | | | | 3-SEP-92:12 | 12 | IN | 2 | M1134 | | | | | | | | | | | | | | 346 | | | | |
| 347 | 1831 M1134280 | M1134 - PREPARE & RELEASE FIELD REV 1 FOR SHOP HYDROTEST, ISLT & FLOW TEST | | | | | | 3-SEP-92:12 | 30 | NED | 1 | M1134 | | | | | | | | | | | | | | 347 | | | | |
| 348 | 1884 BISYS380 | BP-1160 - PREPARE, REVIEW & APPROVE SPECIAL PROCEDURE FOR RWST CLEANING | | | | | | 3-SEP-92:12 | 60 | RADD TECH OPER CHEM | 1 1 1 1 | SIPDI | | | | | | | | | | | | | | 348 | | | | |
| 349 | 895 2AFX009 | PERFORM WEEKLY LUBRICATION | | | | | | 3-SEP-92:13 | 30 | WE | 2 | | | | | | | | | | | | | | | 349 | | | | |
| 350 | 1808 SPI160A | SPI160 - SET UP FILTRATION PUMPS, ETC FOR RWST CLEAN-UP | | | | | | 3-SEP-92:13 | 18 | RADD RADC WE | 1 1 4 | SIPDI | | | | | | | | | | | | | | 350 | | | | |
| 351 | 1811 SPI160B | SPI160 - INSPECTION AND CLEANUP OF RWST | | | | | | 3-SEP-92:18 | 6 | RADD RADC DECN WIC WE OPER QC | 1 1 1 4 2 1 1 | SIPDI | | | | | | | | | | | | | | 351 | | | | |
| 352 | 1050 TURB310 | TURB/GEN - AIR TEST GENERATOR | | | | | | 3-SEP-92:19 3-SEP-92:19 | 12 | TECH TMC1 OPER | 1 2 1 | TURB | | | | | | | | | | | | | | 352 | | | | |
| 353 | 1055 TURB360 | TURB/GEN - INSTALL GEN/EXC LAGGING | | | | | | 3-SEP-92:19 3-SEP-92:19 | 12 | TECH TMC1 | 1 3 | TURB | | | | | | | | | | | | | | 353 | | | | |
| 354 | 1058 TURB390 | TURB/GEN - REPLACE LP-LP LAGGING | | | | | | 3-SEP-92:19 3-SEP-92:19 | 12 | TECH TMC1 | 1 3 | TURB | | | | | | | | | | | | | | 354 | | | | |
| 355 | 1774 2AMZC1 | SI-859 -REPLACE MISSING 'U'BOLT NUTS ON RELIEF VALVE PIPE SUPPORT | | | | | | 3-SEP-92:19 3-SEP-92:19 | 8 | WE | 1 | | | | | | | | | | | | | | | 355 | | | | |
| 356 | 1819 SPI160A1 | SPI160 - ESTABLISH CLEARANCE FOR RWST INSP AND CLEANING | | | | | | 3-SEP-92:19 3-SEP-92:19 | 6 | OPER | 2 | SIPDI | | | | | | | | | | | | | | 356 | | | | |
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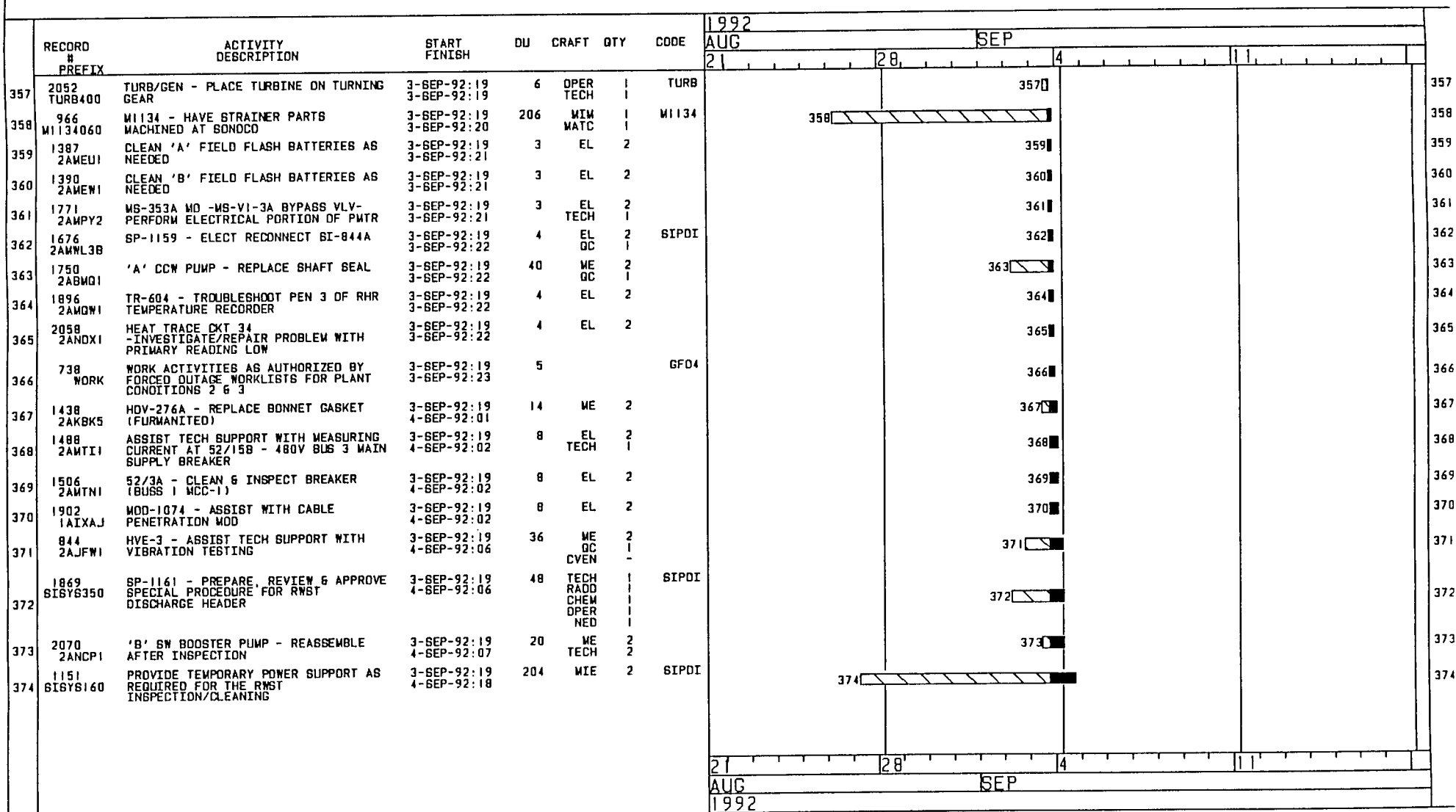
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS



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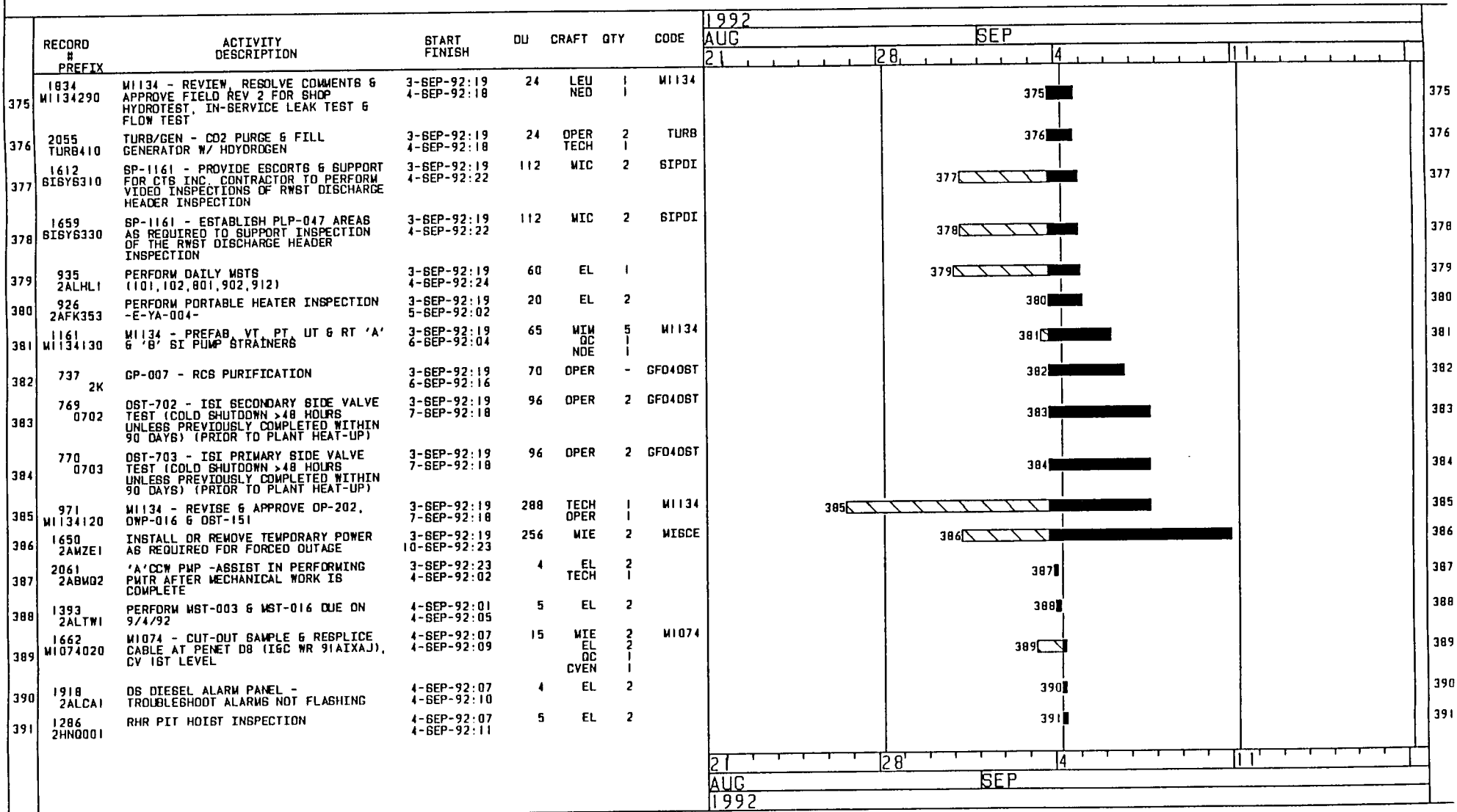
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS



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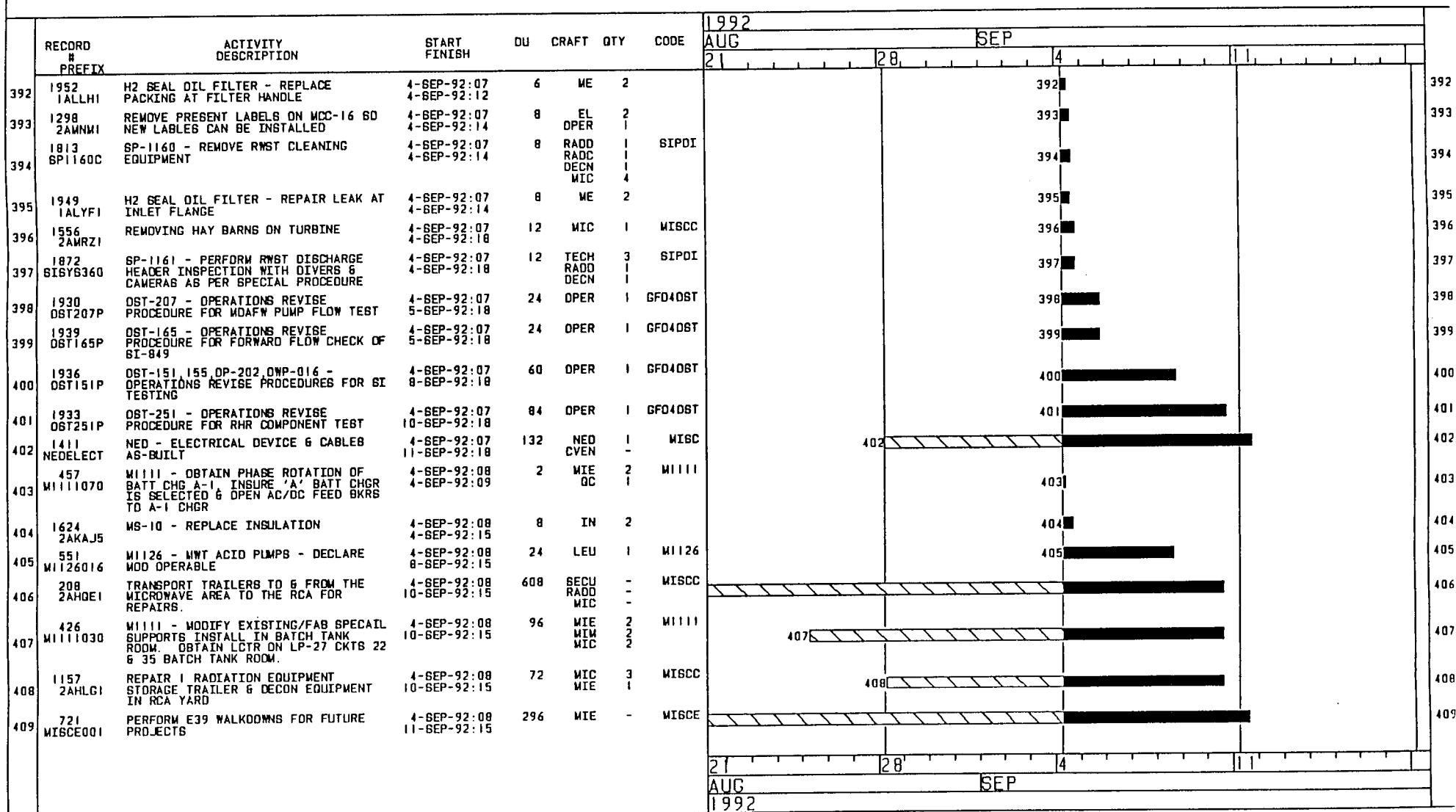
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

| RECORD # PREFIX | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | 1992 | | | | | | | | | | | |
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| | | | | | | | 21 | | | | | | 28 | | | | 4 | |
| 410 | 1836 M1074030 | M1074 - TURNOVER REVIEW MEETING AT 11:00 IN THE MIU CNFR RM 6 WALKDOWN CV 1ST LEVEL | 4-SEP-92:11 4-SEP-92:13 | 3 | LEU EL MIE OPER OC TECH NED | M1074 | | | | | | | | | | | 410 | 410 |
| 411 | 1903 2AMPFI | LC-1509 - REPAIR AIR LEAK ON CONTROLLER (6B FWH) | 4-SEP-92:19 4-SEP-92:21 | 3 | EL | 1 | | | | | | | | | | | 411 | 411 |
| 412 | 1906 2AMPPI | 'A' CHG PMP - REPAIR FLEX CONDUIT GOING TO SUCTION STABILIZER | 4-SEP-92:19 4-SEP-92:22 | 4 | EL | 2 | | | | | | | | | | | 412 | 412 |
| 413 | 1946 DRAINSG | DRAIN "A,B,C" S/G TO 75% WIDE RANGE FOR DST-207 | 4-SEP-92:19 4-SEP-92:24 | 6 | OPER CHEM | 1 | | | | | | | | | | | 413 | 413 |
| 414 | 1921 2ALXII | CALIBRATE CVCS HOLDUP TANKS PRESSURE INDICATORS | 5-SEP-92:07 5-SEP-92:10 | 4 | EL | 2 | | | | | | | | | | | 414 | 414 |
| 415 | 767 0207 | DST-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 | GFO4DST | | | | | | | | | | 415 | 415 |
| 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 | SIPDI | | | | | | | | | | 416 | 416 |
| 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 | SIPDI | | | | | | | | | | 417 | 417 |
| 418 | 1143 SISYS130 | REMOVE SCAFFOLD AT RMST | 5-SEP-92:07 5-SEP-92:18 | 12 | MIC RADD | 8 | SIPDI | | | | | | | | | | 418 | 418 |
| 419 | 2067 SISYS390 | SP-1161 - REMOVE RMST INSPECTION EQUIPMENT & CLEAN-UP AS REQ'D | 5-SEP-92:07 5-SEP-92:18 | 12 | MIC RADD | 4 | SIPDI | | | | | | | | | | 419 | 419 |
| 420 | 1466 2ALXHI | 'A' MDAFW PMP - CHECK ALIGNMENT AFTER DST IS RUN | 5-SEP-92:12 5-SEP-92:15 | 4 | ME TECH SECU | 2 | | | | | | | | | | | 420 | 420 |
| 421 | 1679 2AMWL3C | SP-1159 - PERFORM VOTES TEST ON SI-844A | 5-SEP-92:15 5-SEP-92:18 | 4 | EL TECH | 2 | SIPDI | | | | | | | | | | 421 | 421 |
| 422 | 1328 98KR3570 | DST-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 | SIPDI | | | | | | | | | | 422 | 422 |
| 423 | 1912 2AEZNI | REPLACE COND HOTWELL DRAIN PMP DRIP COVER | 5-SEP-92:19 5-SEP-92:20 | 2 | EL | 2 | | | | | | | | | | | 423 | 423 |
| 424 | 1909 2AMQXI | 'A' ICCM - TROUBLESHOOT "CH A ICCM SYS MALF" ANNUNCIATOR | 5-SEP-92:19 5-SEP-92:22 | 4 | EL | 2 | | | | | | | | | | | 424 | 424 |
| 425 | 1568 SISYS06C | REMOVE SCAFFOLDING IN SI PUMP ROOM FOR SI-844A | 5-SEP-92:19 6-SEP-92:06 | 12 | MIC RADD | 6 | SIPDI | | | | | | | | | | 425 | 425 |
| 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 | SIPDI | | | | | | | | | | 426 | 426 |
| 427 | 1170 M1134220 | M1134 - PERFORM PRE-TEST CALIBRATION OF TEST GAUGES | 6-SEP-92:05 6-SEP-92:10 | 6 | EL | 2 | M1134 | | | | | | | | | | 427 | 427 |
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BarChart Drawing System R003 pm 3-SEP-92

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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

| RECORD # PREFIX | | | | | | | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | 1992 | | | | | | | | | | | | | | | | | | | | | |
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| 428 | 1162 M1134140 | M1134 - PREFAB VT PT 6 MM-010 INSPECT 'A' & 'B' SI PUMP STRAINER PIPING ASSEMBLIES | 6-SEP-92:05 7-SEP-92:04 | 24 | MM QC | 4 1 | M1134 | | | | | | | | | | | | | 428 | | | | | | | | | | | | | | |
| 429 | 1942 M1134310 | M1134 - CUT 6 PREP 'A' & 'B' SI PUMP RECIRC LINES FOR STRAINER INSTALLATION | 6-SEP-92:07 6-SEP-92:14 | 8 | MM | 3 | M1134 | | | | | | | | | | | | | 429 | | | | | | | | | | | | | | |
| 430 | 1215 2HSC001 | CLEAN THE GENERATOR HYDROGEN REGULATOR FILTER | 6-SEP-92:19 6-SEP-92:20 | 2 | ME | 2 | | | | | | | | | | | | | | 430 | | | | | | | | | | | | | | |
| 431 | 1915 0AALI1 | CE-10309A & B - CLEAN SENSER (COND POLISHER) | 6-SEP-92:19 6-SEP-92:20 | 2 | EL | 2 | | | | | | | | | | | | | | 431 | | | | | | | | | | | | | | |
| 432 | 868 1AQSX1 | CC-704B - REPLACE VALVE ('B' CCW PWP DISCH PI) | 6-SEP-92:19 6-SEP-92:24 | 6 | ME QC | 2 1 | | | | | | | | | | | | | | 432 | | | | | | | | | | | | | | |
| 433 | 1955 2ALHZ1 | INSPECT H2 GAS REGULATORS AT GAS SHED | 6-SEP-92:19 7-SEP-92:02 | 8 | ME DPFP | 2 1 | | | | | | | | | | | | | | 433 | | | | | | | | | | | | | | |
| 434 | 1163 M1134150 | M1134 - INSTALL GASKETS IN 3 - 1/2 INCH VALVES (92AMXK1) & PACK 3 - 1 INCH VALVES (92AMXK2), IN MIU FAB SHOP | 7-SEP-92:05 7-SEP-92:10 | 6 | ME | 2 | M1134 | | | | | | | | | | | | | 434 | | | | | | | | | | | | | | |
| 435 | 2028 2ADCO20 | PERFORM EXCITER DIODE AND ROTOR GROUNDING DEVICE INSPECTION (PM E-W-002) | 7-SEP-92:07 7-SEP-92:07 | 1 | EL | 2 | | | | | | | | | | | | | | 435 | | | | | | | | | | | | | | |
| 436 | 1709 2AIG009 | PERFORM PEDESTAL GRINDERS INSPECTION | 7-SEP-92:07 7-SEP-92:08 | 2 | ME | 2 | | | | | | | | | | | | | | 436 | | | | | | | | | | | | | | |
| 437 | 1753 2AFQ009 | PERFORM VIB/TEMP/INSP OF CCW AND CHARGING PUMPS | 7-SEP-92:07 7-SEP-92:08 | 2 | ME | 2 | | | | | | | | | | | | | | 437 | | | | | | | | | | | | | | |
| 438 | 1724 2AFW009 | PERFORM LADDER INSPECTION | 7-SEP-92:07 7-SEP-92:09 | 3 | IN | 2 | | | | | | | | | | | | | | 438 | | | | | | | | | | | | | | |
| 439 | 816 2ALYB2 | MS-VI-3A - REPAIR STEAM LEAK AT ALLEN HEAD SET SCREW | 7-SEP-92:07 7-SEP-92:10 | 4 | ME | 2 | | | | | | | | | | | | | | 439 | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | 440 | | | | | | | | | | | | | | |
| 441 | 2010 2BTS371 | PI-956A,B,C -SI PUMPS DISCH PRESS GAUGES-CALIBRATE | 7-SEP-92:07 7-SEP-92:10 | 4 | EL | 2 | | | | | | | | | | | | | | 441 | | | | | | | | | | | | | | |
| 442 | 1701 2HNR003 | LUBRICATE NEW FUEL LIFT | 7-SEP-92:07 7-SEP-92:11 | 5 | ME | 2 | | | | | | | | | | | | | | 442 | | | | | | | | | | | | | | |
| 443 | 1712 2AFR010 | PM ROUTE M-W-001 B/G/E INSPECTION | 7-SEP-92:07 7-SEP-92:11 | 5 | ME | 2 | | | | | | | | | | | | | | 443 | | | | | | | | | | | | | | |
| 444 | 1721 2AFV009 | PM ROUTE M-W-004 B/G/E INSPECTION | 7-SEP-92:07 7-SEP-92:11 | 5 | ME | 1 | | | | | | | | | | | | | | 444 | | | | | | | | | | | | | | |
| 445 | 1636 SPP0132 | SPP-013 -RX PROT SIGNAL SIMULATION-REMOVE SIMULATION AFTER MST6 | 7-SEP-92:07 7-SEP-92:12 | 6 | EL | 2 | | | | | | | | | | | | | | 445 | | | | | | | | | | | | | | |
| 446 | 1715 2AFT009 | PM ROUTE M-W-002 B/G/E INSPECTION | 7-SEP-92:07 7-SEP-92:12 | 6 | ME | 1 | | | | | | | | | | | | | | 446 | | | | | | | | | | | | | | |
| 447 | 1718 2AFU010 | PM ROUTE M-W-003 B/G/E INSPECTION | 7-SEP-92:07 7-SEP-92:13 | 7 | ME | 1 | | | | | | | | | | | | | | 447 | | | | | | | | | | | | | | |
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

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| 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 | GFO40ST | | | | | | | | | | 448 | | 448 |
| 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 | | | | | | | | | | | 449 | | 449 |
| 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 | | | | | | | | | | | 450 | | 450 |
| 451 | 1727 2AFX010 | PERFORM WEEKLY LUBRICATION | 7-SEP-92:08 10-SEP-92:13 | 30 | ME | 1 | | | | | | | | | | | 451 | | 451 |
| 452 | 1641 2AMWRI | REINSTATE SAFEGUARDS | 7-SEP-92:09 7-SEP-92:12 | 4 | EL OPER | 2 1 | | | | | | | | | | | 452 | | 452 |
| 453 | 1164 M1134160 | M1134 - HYDROTEST 'A' & 'B' ST PUMP STRAINER/PIPING ASSEMBLIES, TURB GROUND FLOOR AT OEMIN PUMP VALVE DN-253 | 7-SEP-92:11 7-SEP-92:16 | 6 | MIW QC OPER | 4 1 1 | M1134 | | | | | | | | | | 453 | | 453 |
| 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 | - | GFO30ST | | | | | | | | | | 454 | | 454 |
| 455 | 32 11 | ESTABLISH CONDENSER VACUUM | 7-SEP-92:17 7-SEP-92:19 | 3 | OPER | 2 | GFO30ST | | | | | | | | | | 455 | | 455 |
| 456 | 1798 010 | WST-010 - SOURCE RANGE TRIP LOGIC (PRIOR TO START UP FROM FORCED OUTAGE) | 7-SEP-92:17 7-SEP-92:20 | 4 | EL | 2 | GFO1 | | | | | | | | | | 456 | | 456 |
| 457 | 1171 M1134230 | M1134 - PERFORM POST-TEST CALIBRATION OF TEST GAUGES | 7-SEP-92:17 7-SEP-92:22 | 6 | EL | 2 | M1134 | | | | | | | | | | 457 | | 457 |
| 458 | 968 M1134080 | M1134 - INSTALL 'A' & 'B' STRAINER/PIPING ASSEMBLIES & SUPPORTS | 7-SEP-92:17 9-SEP-92:04 | 36 | MIW MIC QC RADD | 4 2 1 1 | M1134 | | | | | | | | | | 458 | | 458 |
| 459 | 7 11A | FW/CONDENSATE CLEAN-UP TO STEAM GENERATOR FEED SPECS | 7-SEP-92:20 9-SEP-92:07 | 36 | OPER | - | GFO30ST | | | | | | | | | | 459 | | 459 |
| 460 | 2034 2AMOWI | PERFORM WST-004 (PZR PRESS PROT) AND WST-005 (PZR WTR LVL PROT) | 7-SEP-92:23 8-SEP-92:03 | 5 | EL | 2 | | | | | | | | | | | 460 | | 460 |
| 461 | 1702 2APD372 | PERFORM AIR FILTER PM TO BATTERY & S/G SAMPLE ROOMS | 8-SEP-92:07 8-SEP-92:07 | 1 | ME | 2 | | | | | | | | | | | 461 | | 461 |
| 462 | 1733 2ALB372 | PERFORM DEFICIENCY TAG STATION INSPECTION | 8-SEP-92:07 8-SEP-92:07 | 1 | ME | 1 | | | | | | | | | | | 462 | | 462 |
| 463 | 1765 2FNB010 | MONITOR VIBRATION OF THE RCP'S FROM THE CONTROL ROOM | 8-SEP-92:07 8-SEP-92:07 | 1 | ME | 2 | | | | | | | | | | | 463 | | 463 |
| 464 | 1686 2HBA001 | 'A' COND VACUUM PMP - CLEAN MOTIVE AIR VALVE SCREEN | 8-SEP-92:07 8-SEP-92:08 | 2 | ME | 2 | | | | | | | | | | | 464 | | 464 |
| 465 | 1689 2HBB001 | 'B' COND VACUUM PMP - CLEAN MOTIVE AIR VALVE SCREEN | 8-SEP-92:07 8-SEP-92:08 | 2 | ME | 2 | | | | | | | | | | | 465 | | 465 |
| | | | | | | | | 21 | | | | | | 28 | | | | 4 | |
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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

| RECORD # PREFIX | | | | | | | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | 1992 | AUG | SEP | 1992 | |
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| 466 | 1695 2HP8002 | | 'C' SW PMP - PERFORM VIB/TEMP/INSP. | | 8-SEP-92:07 8-SEP-92:09 | | 3 | WE | 2 | | | | | | | 466 | 466 |
| 467 | 1703 2HPT004 | | WCCU-1A - PERFORM WEEKLY INSPECTION | | 8-SEP-92:07 8-SEP-92:09 | | 3 | WE | 2 | | | | | | | 467 | 467 |
| 468 | 1706 2HPU004 | | WCCU-1B - PERFORM WEEKLY INSPECTION | | 8-SEP-92:07 8-SEP-92:09 | | 3 | WE | 2 | | | | | | | 468 | 468 |
| 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 | WE | 2 | | | | | | | 469 | 469 |
| 470 | 1292 2BYB362 | | CALIBRATE THE BORIC ACID FILTER INLET AND OUTLET PRESSURE GAUGES | | 8-SEP-92:07 8-SEP-92:10 | | 4 | EL | 2 | | | | | | | 470 | 470 |
| 471 | 2016 2HPD004 | | PERFORM INSPECTION OF WCCU-1A | | 8-SEP-92:07 8-SEP-92:10 | | 4 | EL | 2 | | | | | | | 471 | 471 |
| 472 | 2019 2HPD004 | | PERFORM INSPECTION OF WCCU-1B | | 8-SEP-92:07 8-SEP-92:10 | | 4 | EL | 2 | | | | | | | 472 | 472 |
| 473 | 1692 2AFY010 | | PERFORM COND. BALL CHANGEDOUT | | 8-SEP-92:07 8-SEP-92:12 | | 6 | WE | 2 | | | | | | | 473 | 473 |
| 474 | 2031 2A00010 | | PERFORM MISC. BLDG INSPECTION (PM E-BW-003) | | 8-SEP-92:07 8-SEP-92:14 | | 8 | EL | 1 | | | | | | | 474 | 474 |
| 475 | 459 M1111080 | | M1111 - OBTAIN LCTR ON MCC 5 COMPT 3B, DETERMINE REMOVE & INSPECT BATT CHGR A-1 CABLE C2955N-SA | | 8-SEP-92:08 8-SEP-92:09 | | 2 | WIE | 2 | M1111 | | | | | | 475 | 475 |
| 476 | 1839 SISYB340 | | SI SYSTEM RESTORATION STATUS MEETING WITH NRC | | 8-SEP-92:08 8-SEP-92:11 | | 4 | MGMT | 1 | SIPOI | | | | | | 476 | 476 |
| 477 | 634 M9720008 | | M972 DCN 8 - REBAR SCAN, DRILL & INSTALL 4-3/8 INCH MAXIBOLTS FOR CHECK VALVE SUPPORTS, UNIT 2 INTAKE STRUCTURE | | 8-SEP-92:08 9-SEP-92:15 | | 16 | MIC | 2 | M0972 | | | | | | 477 | 477 |
| 478 | 359 M1104001 | | M1104 FIELD REV 11 - MODIFY PACV SUPPORT IN PIPE ALLEY | | 8-SEP-92:08 10-SEP-92:15 | | 24 | MIM | 3 | M1104 | | | | | | 478 | 478 |
| 479 | 719 MISCC002 | | SUPPORT SPENT FUEL SHIPMENT | | 8-SEP-92:08 10-SEP-92:15 | | 32 | MIC | - | MISCC | | | | | | 479 | 479 |
| 480 | 455 M1111060 | | M1111 - WEGGER, TERMINATE & INSPECT CABLE C2955N-SA AT MCC-16 COMPT 2H | | 8-SEP-92:10 9-SEP-92:09 | | 8 | WIE | 2 | M1111 | | | | | | 480 | 480 |
| 481 | 2040 2AMDD1 | | PERFORM WST-022 (SAFEGUARDS TRAIN 'A') | | 8-SEP-92:23 9-SEP-92:02 | | 4 | EL | 3 | | | | | | | 481 | 481 |
| 482 | 2037 2AMZD1 | | PERFORM WST-011 (REACTOR PROTECTION AT 'O' PWR) | | 8-SEP-92:23 9-SEP-92:20 | | 10 | EL | 3 | | | | | | | 482 | 482 |
| 483 | 969 M1134100 | | M1134 - WALKDOWN & TURNOVER MOD | | 9-SEP-92:05 9-SEP-92:08 | | 4 | LEU | 1 | M1134 | | | | | | 483 | 483 |
| | | | | | | | | | | | | | 21 | | 28 | 4 | 11 |
| | | | | | | | | | | | | | AUG | | SEP | | |
| | | | | | | | | | | | | | 1992 | | | | |

ACTIVITY

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Isachart Drawing System R003 pm 3-SEP-92

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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

| | | | | | | | 1992 | | | | | | | | | | | | |
|----------|------------------|--|------------------------------|----|--------------|--------|---------|------|--|----|--|---|-----|-----|-----|-----|--|--|--|
| | | | | | | | AUG | | | | | | SEP | | | | | | |
| RECORD # | PREFIX | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | 21 | | 28 | | 4 | | 11 | | | | | |
| 484 | 1168 W1134200 | W1134 - QC & ANI FINAL REVIEW 'A' & 'B' SI PUMP STRAINER/PIPING/SUPPORT WDR'S & SWDR'S | 9-SEP-92:05 9-SEP-92:16 | 12 | QC MIM | 1 | W1134 | | | | | | | | 484 | 484 | | | |
| 485 | 1644 W1134085 | W1134 - 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 | W1134 | | | | | | | | 485 | 485 | | | |
| 486 | 1169 W1134210 | W1134 - COMPLETE PUNCHLIST ITEMS & PAINTING, SI PUMP ROOM | 9-SEP-92:05 10-SEP-92:04 | 24 | MIM MIC | 2 2 | W1134 | | | | | | | | 486 | 486 | | | |
| 487 | 2022 2FDF010 | SECURITY EXPLOSIVE DETECTOR FILTER INSPECTION CHECK LIST E-059 | 9-SEP-92:07 9-SEP-92:10 | 4 | EL | 2 | | | | | | | | | 487 | 487 | | | |
| 488 | 1828 W1134270 | W1134 - 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 | W1134 | | | | | | | | 488 | 488 | | | |
| 489 | 1021 2HKJ361 | PERFORM TURBINE CRANE INSPECTION | 9-SEP-92:08 11-SEP-92:15 | 24 | WE | 2 | | | | | | | | | 489 | 489 | | | |
| 490 | 463 W1111110 | W1111 - CANCEL LCTR ON MCC 5 COMPT 3B & MCC 16 COMPT 2H | 9-SEP-92:10 10-SEP-92:09 | 8 | WIE QC | 4 1 | W1111 | | | | | | | | 490 | 490 | | | |
| 491 | 1324 DST151A | DST-151 - SAFETY INJECTION SYSTEM COMPONENT TEST | 9-SEP-92:17 9-SEP-92:18 | 2 | OPER TECH | 1 1 | GFO4DST | | | | | | | | 491 | 491 | | | |
| 492 | 1482 DST165A | DST-165 - FORWARD FLOW CHECK OF SI-849 | 9-SEP-92:17 9-SEP-92:20 | 4 | OPER TECH | 2 2 | GFO4DST | | | | | | | | 492 | 492 | | | |
| 493 | 989 W1134090 | W1134 - 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 | W1134 | | | | | | | | 493 | 493 | | | |
| 494 | 2043 2AWDS1 | PERFORM WST-023 (SAFEGUARDS TRAIN 'B') | 9-SEP-92:23 10-SEP-92:02 | 4 | EL OPER | 3 1 | | | | | | | | | 494 | 494 | | | |
| 495 | 1316 35A01900 | ESTABLISH CV INTEGRITY FOR PLANT HEAT UP | 10-SEP-92:01 10-SEP-92:01 | 1 | OPER | 3 | GFO4DST | | | | | | | | 495 | 495 | | | |
| 496 | 1747 2AWZW2 | REPLACE INSULATION ON SI-890A & SI-890B, SI PUMP ROOM | 10-SEP-92:01 10-SEP-92:03 | 3 | IN | 2 | SIPDI | | | | | | | | 496 | 496 | | | |
| 497 | 970 W1134110 | W1134 - DECLARE MOD OPERABLE | 10-SEP-92:01 10-SEP-92:12 | 12 | LEU OPER | 1 1 | W1134 | | | | | | | | 497 | 497 | | | |
| 498 | 739 10C | GP-001 - RUN RCP'S FOR HEAT-UP | 10-SEP-92:01 10-SEP-92:15 | 15 | OPER | - | GFO4DST | | | | | | | | 498 | 498 | | | |
| 499 | 1698 2BHZ374 | EOF BLDG AIR COMP - CHANGE OIL & CHECK BELTS | 10-SEP-92:07 10-SEP-92:09 | 3 | WE | 2 | | | | | | | | | 499 | 499 | | | |
| 500 | 1762 2BJP374 | CHANGE OIL IN ACID METERING PUMPS, COND POLISHER CAUSTIC PUMPS, CAUSTIC RECLAIM PUMPS & ACID RECLAIM PUMPS | 10-SEP-92:07 10-SEP-92:09 | 3 | WE | 2 | | | | | | | | | 500 | 500 | | | |
| 501 | 2025 2ADK010 | CHECK 'C' STATION, SECURITY, AND ERFIS BATTERIES PW-425 PW ROUTE E-W-012 | 10-SEP-92:07 10-SEP-92:09 | 3 | EL | 2 | | | | | | | | | 501 | 501 | | | |
| 502 | 1127 S1S1S070 | 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 | | | | | | | | 502 | 502 | | | |
| | | | | | | | | 21 | | 28 | | 4 | | 11 | | | | | |
| | | | | | | | | AUG | | | | | | SEP | | | | | |
| | | | | | | | | 1992 | | | | | | | | | | | |

ACTIVITY

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Barchart Drawing System 00:03 pm 3-SEP-92

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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE TASKS

| RECORD # PREFIX | ACTIVITY DESCRIPTION | START FINISH | DU | CRAFT | QTY | CODE | 1992 | | | | | | | | | | | |
|--------------------|----------------------|---|------------------------------|-------|--------------|--------|---------|--|--|--|--|--|-----|--|--|--|-----|-----|
| | | | | | | | AUG | | | | | | SEP | | | | | |
| | | | | | | | 21 | | | | | | 28 | | | | 4 | 11 |
| 503 | 1825 M1134260 | M1134 - REPLACE INSULATION ON 'A' & 'B' SI PUMP RECIRC LINES, SI PUMP ROOM | 10-SEP-92:07 10-SEP-92:18 | 12 | IN | 2 | M1134 | | | | | | | | | | 503 | 503 |
| 504 | 2001 2AEU374 | BENCH CHECK SPARE NIS POWER SUPPLIES(PM E-SY-008) | 10-SEP-92:07 10-SEP-92:18 | 12 | EL | 1 | | | | | | | | | | | 504 | 504 |
| 505 | 347 M1095201 | M1095 - ESTABLISH EQUIP PROTECTION PER MIP-108 | 10-SEP-92:08 11-SEP-92:15 | 16 | MIM OPER | 1 | M1095 | | | | | | | | | | 505 | 505 |
| 506 | 740 100 | 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 | - | GFD40ST | | | | | | | | | | 506 | 506 |
| 507 | 2046 2AMDUI | PERFORM MBT-904 (SEISMIC MONITORING SYSTEM) | 10-SEP-92:23 10-SEP-92:24 | 2 | EL | 1 | | | | | | | | | | | 507 | 507 |
| 508 | 1289 2DKU361 | CALIBRATE SEISMOGRAPH RECORDER 'B' | 10-SEP-92:23 11-SEP-92:06 | 8 | EL | 2 | | | | | | | | | | | 508 | 508 |
| 509 | 1759 2AR5002 | PERFORM AIR FILTER PM TO CONDENSATE & MAIN FEED PUMPS | 11-SEP-92:07 11-SEP-92:08 | 2 | WE | 2 | | | | | | | | | | | 509 | 509 |
| 510 | 1730 2AHY375 | PERFORM OUTSIDE & TURBINE BLOC MONTHLY LUBRICATION | 11-SEP-92:07 11-SEP-92:10 | 4 | WE | 1 | | | | | | | | | | | 510 | 510 |
| 511 | 741 10E | GP-002 - RCS HEAT-UP TO 200F | 11-SEP-92:14 11-SEP-92:14 | 1 | OPER | - | GFD40ST | | | | | | | | | | 511 | 511 |
| 512 | 742 10F | GP-002 - RCS HEAT-UP TO 350F/350# | 11-SEP-92:15 11-SEP-92:20 | 6 | OPER | - | GFD40ST | | | | | | | | | | 512 | 512 |
| 513 | 743 10G | GP-002 - REMOVE RHR FROM SERVICE | 11-SEP-92:21 11-SEP-92:23 | 3 | OPER | - | GFD40ST | | | | | | | | | | 513 | 513 |
| 514 | 744 10H | GP-002 - RCS HEAT-UP TO 410F/1000# | 11-SEP-92:24 12-SEP-92:02 | 3 | OPER | - | GFD40ST | | | | | | | | | | 514 | 514 |
| 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 | GFD40ST | | | | | | | | | | 515 | 515 |
| 516 | 746 10J | GP-002 - RCS HEAT-UP TO 547F/2235# | 12-SEP-92:06 12-SEP-92:10 | 5 | OPER | - | GFD40ST | | | | | | | | | | 516 | 516 |
| 517 | 1321 OST101A | OST-101 - CHEM AND VOL CONT SYS COMPONENT TEST | 12-SEP-92:11 12-SEP-92:12 | 2 | OPER TECH | 1 | GFD40ST | | | | | | | | | | 517 | 517 |
| 518 | 747 10K | GP-003 - COMPLETE PRE-CRITICAL CHECKS & OST'S | 12-SEP-92:11 12-SEP-92:18 | 8 | OPER | - | GFD40ST | | | | | | | | | | 518 | 518 |
| 519 | 772 PT6 | BLOWDOWN INSTRUMENT LINES AS REQUIRED | 12-SEP-92:11 12-SEP-92:18 | 8 | EL | 4 | GFD4 | | | | | | | | | | 519 | 519 |
| 520 | 8 11B | GP-003 - DILUTE RCS TO CRITICAL BORON CONCENTRATION | 12-SEP-92:19 12-SEP-92:22 | 4 | OPER | - | GFD30ST | | | | | | | | | | 520 | 520 |
| 521 | 9 12 | GP-003 - TAKE REACTOR CRITICAL | 12-SEP-92:23 12-SEP-92:23 | 1 | OPER | - | GFD30ST | | | | | | | | | | 521 | 521 |
| 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 | | | | | | | | | | 522 | 522 |
| | | | | | | | 21 | | | | | | 28 | | | | 4 | 11 |
| | | | | | | | AUG | | | | | | SEP | | | | | |
| | | | | | | | 1992 | | | | | | | | | | | |

ACTIVITY

CRITICAL ACTIVITY

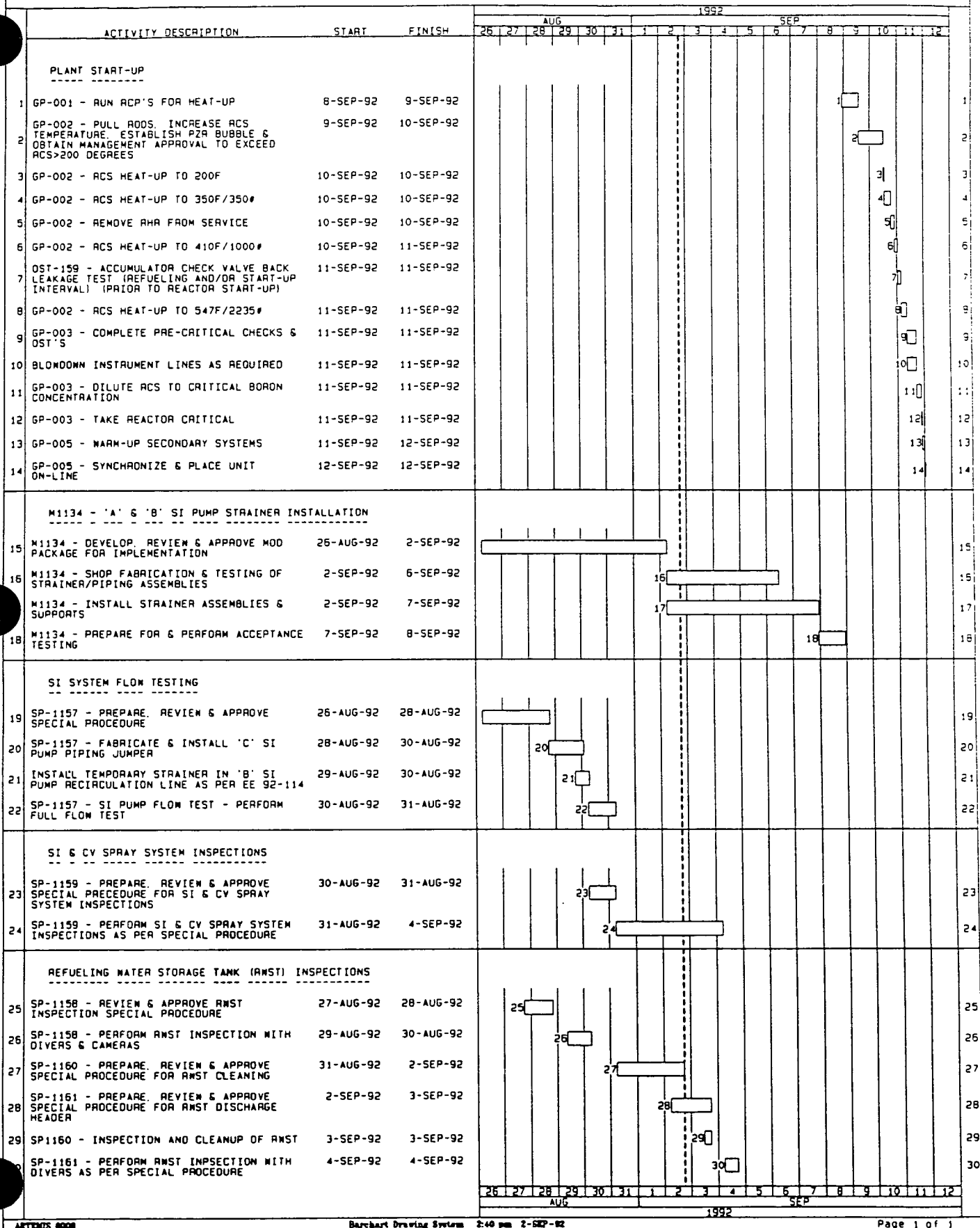
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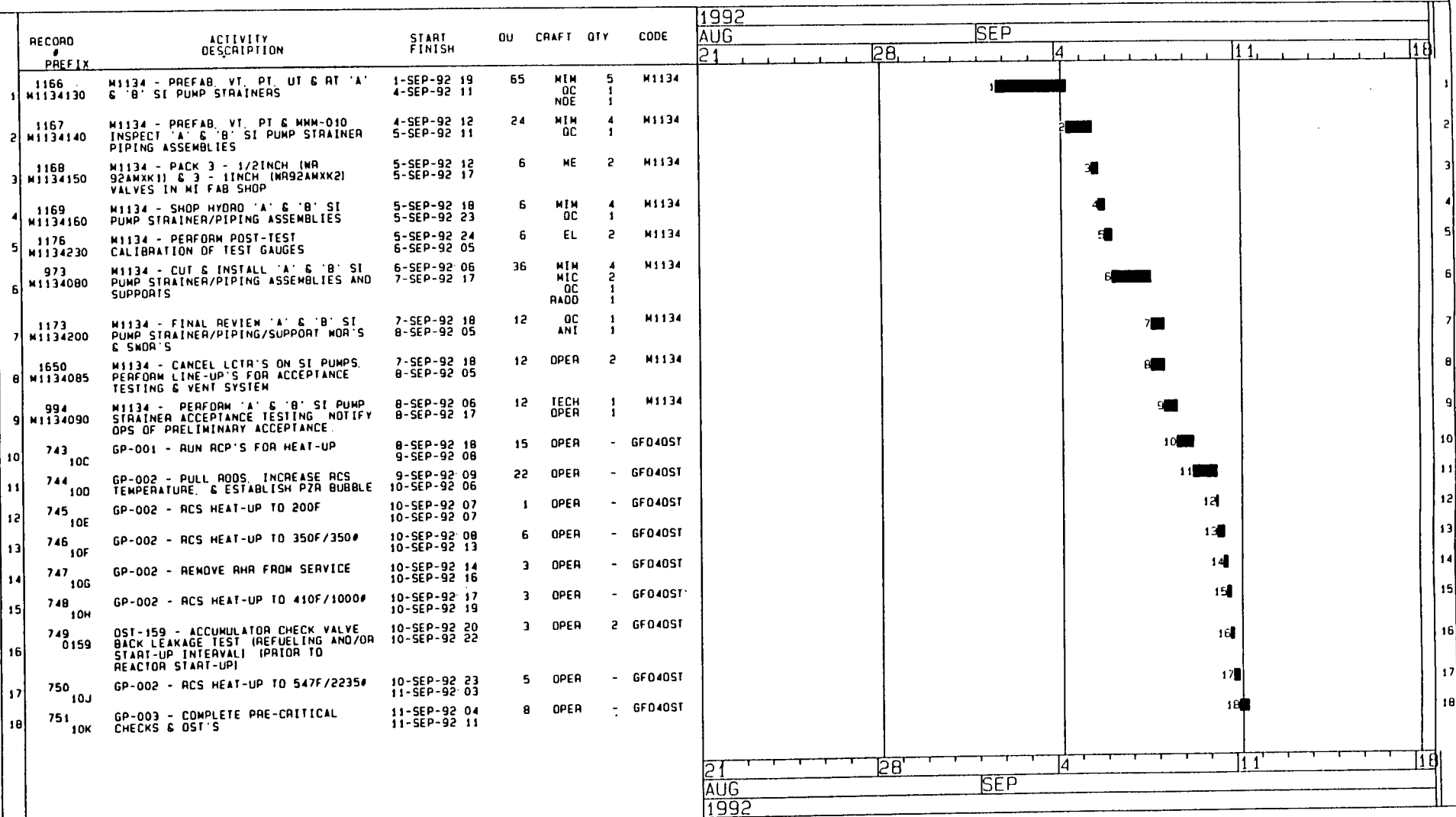
BarChart Drawing System 10:03 pm 3-SEP-92

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SI SYSTEM RESTORATION SCHEDULE



CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE CRITICAL PATH



ACTIVITY

CRITICAL ACTIVITY

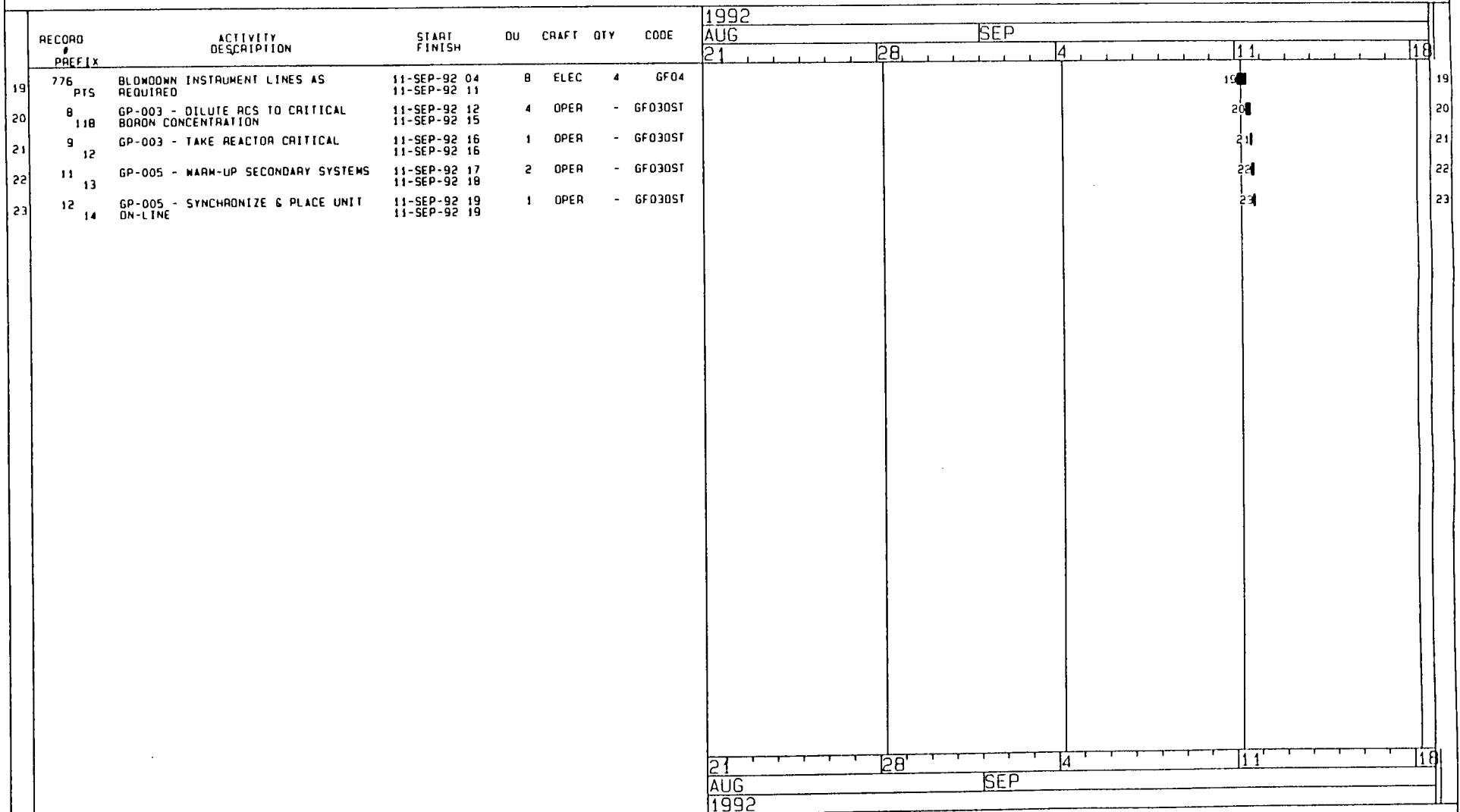
10 50 PROJ SDS FILE PLICRIT/FORCRIT

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Barchart Drawing System 3:51 pm 1-SEP-92

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CAROLINA POWER & LIGHT COMPANY 1992 FORCED OUTAGE CRITICAL PATH



ACTIVITY

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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

| 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) 8130/95 ^{13.0} | 1460 | 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) Calculate suction pressure:

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

(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

| PARAMETER | INST note | Temp 104 | Temp 109 | Temp 109 | Temp 110 | Temp 114 | NOTES Repeat of step 7.5 @ 200 rpm |
|------------------|--------------|-------------|-------------|-------------|-------------|-------------|--|
| | | PT.1 | PT.2 | PT.3 | PT.4 | | |
| 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:

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

(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

| 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 | 920 | 860 | | |
| D/P (PSIG) | ** | 1429.6 | 1270 | 1090.4 | 911 | 851.2 | | |
| FLOW (GPM) | FI943 | 0 | 200 | 320 | 400 | 430 | | |
| FLOW (V) ^{2/1} 11/26/90 | TP943 | 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 | Y | |
| 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 | Y | |

Notes: N/A any information not obtainable.
Refer to ATTACHMENT 8.1 for instrument notes.

COMMENTS

| PARAMETER | INST note | PT. 1 | PT. 2 | PT. 3 | PT. 4 | PT. 5 | PT. 6 | NOTES |
|------------------|------------------------------------|--------|-------|--------|-------|-------|-------|-------|
| TIME | N/A | 0357 | 0407 | 0417 | 0430 | 0458 | 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 | 920 | 500 | 350 | |
| D/P (PSIG) | ** | 1490.4 | 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) ^{off} 1111 | 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 2H flow. (2) PT 5+6 Read with 0-600 range.

| 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 | 1178.4 | 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 | Y | Y | |

Notes: N/A any information not obtainable.
Refer to ATTACHMENT 8.1 for instrument notes.

COMMENTS

(1) Suction Gauge Fluctuating 30.1 psi

| PARAMETER | INST note | PT. 1 | PT. 2 | PT. 3 | PT. 4 | PT. 5 | PT. 6 | NOTES |
|------------------|--------------|-------|-----------------------|--------|-------|-------|-------|-------|
| TIME | N/A | N/A | 5637 | 5644 | 5648 | 5657 | 5710 | |
| RWST LEVEL (%) | LI948 | N/A | 7.8 7.5 | 63.5 | 65 | 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 | 890 | 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 | (G) |
| 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 -

HISTORICAL SI PUMP DATA

EE 92-127, Rev. 0
ATTACHMENT 3
Page 1 of 3

SP-986 Data

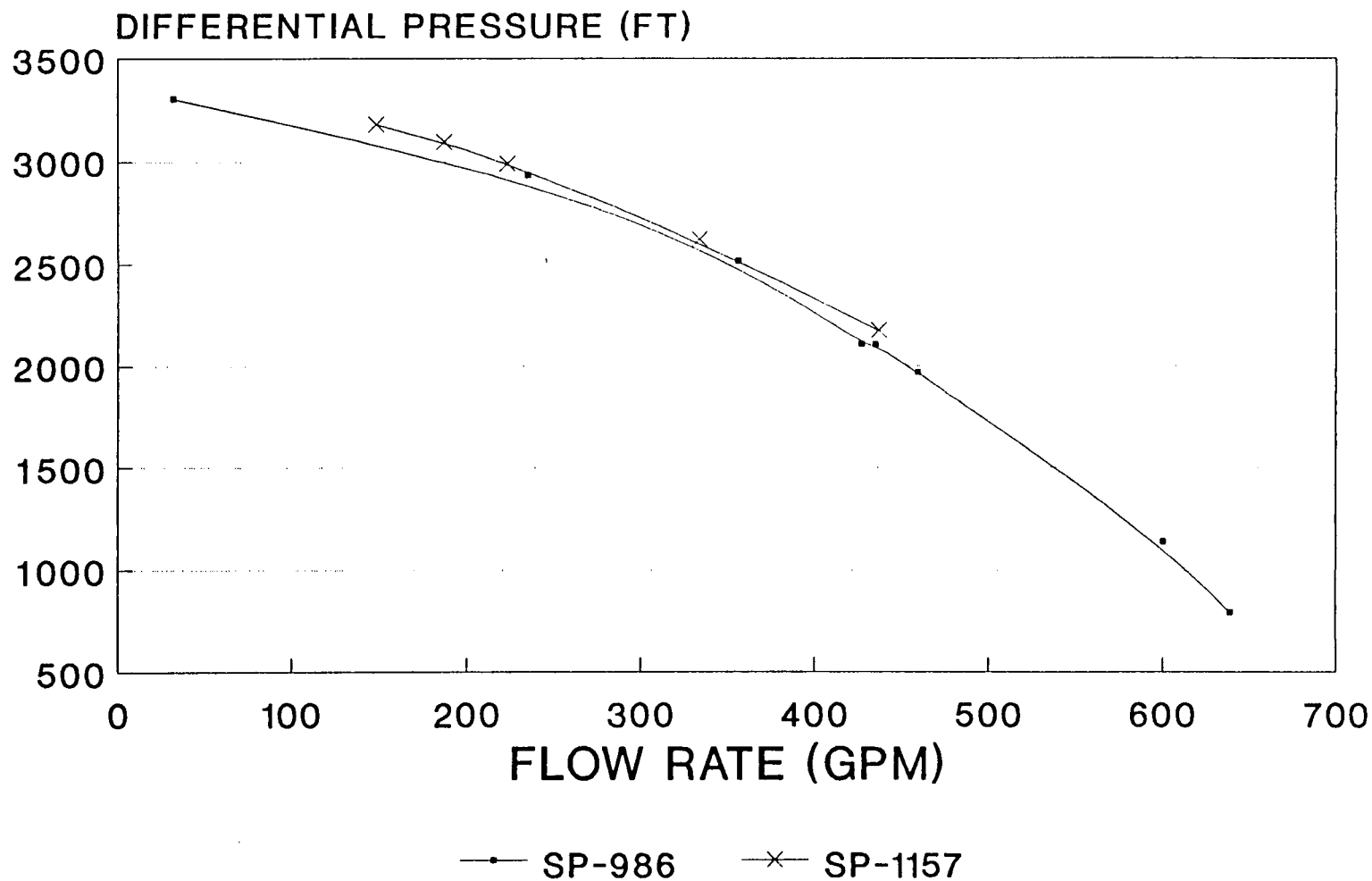
| "A" SI PUMP | | "B" SI PUMP | |
|--------------------|--------------------|--------------------|--------------------|
| ΔP (ft) | Flow Rate (gpm) | ΔP (ft) | Flow Rate (gpm) |
| 3303 | 32 | 3398 | 32 |
| 2934 | 235 | 3077 | 202 |
| 2518 | 356 | 3031 | 243 |
| 2107 | 427 | 2707 | 329 |
| 2104 | 435 | 2617 | 333 |
| 1966 | 459 | 2326 | 411 |
| 1139 | 600 | 2040 | 452 |
| 792 | 639 | 1164 | 604 |
| --- | --- | 811 | 650 |

SP-1157 Data

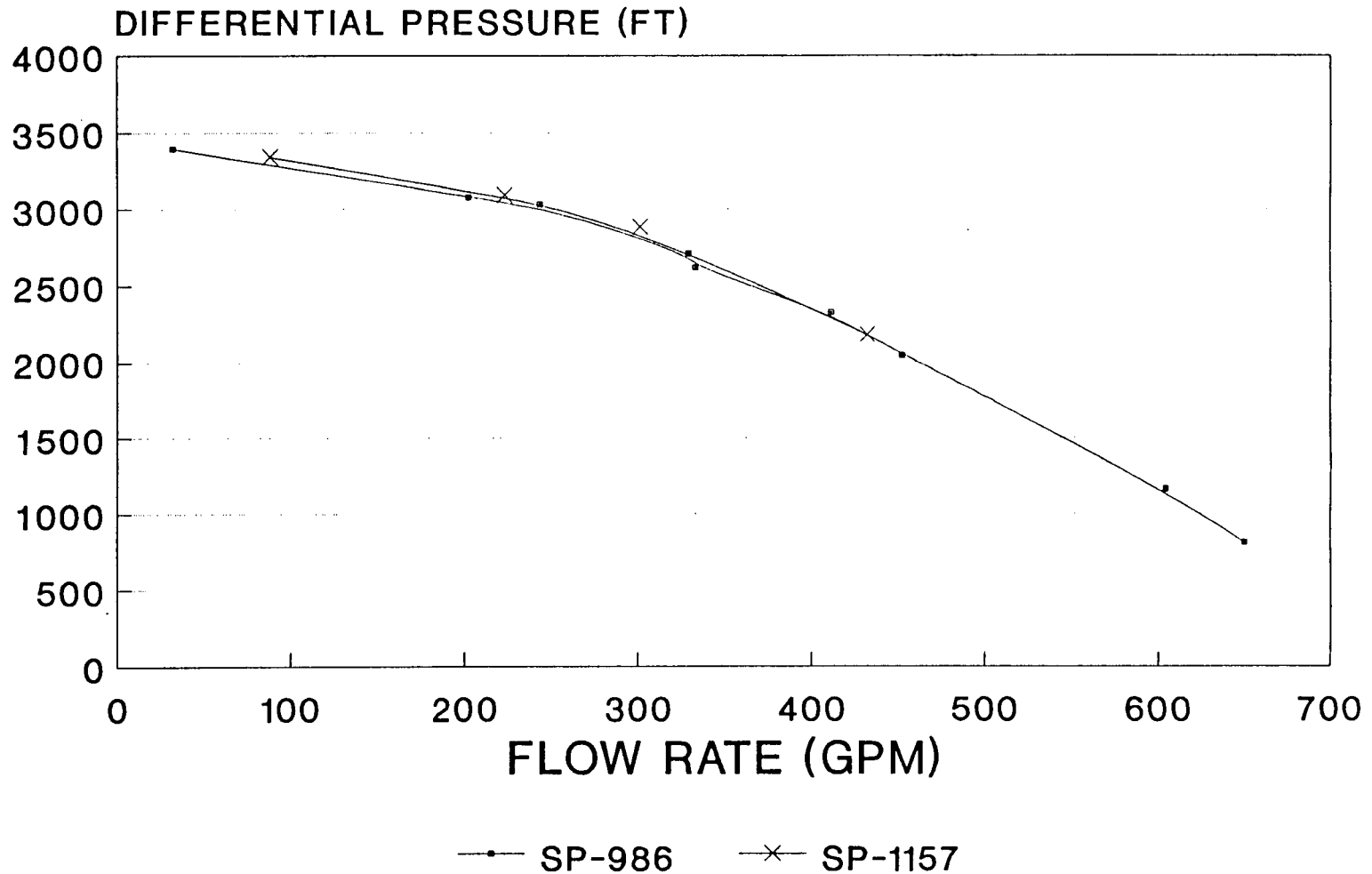
| "A" SI PUMP | | "B" SI PUMP | |
|--------------------|--------------------|--------------------|--------------------|
| ΔP (ft) | Flow Rate (gpm) | ΔP (ft) | Flow Rate (gpm) |
| 3181 | 148 | 3343 | 88 |
| 3095 | 187 | 3093 | 223 |
| 2989 | 223 | 2884 | 301 |
| 2624 | 334 | 2178 | 432 |
| 2174 | 437 | ---- | --- |

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



EE 92-127 Rev. 0
Attachment 3
Page 3 of 3

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 | |
| SI 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 | | |
| SAFTY INJ PMP A | CAS | H | .050 | IN/S | .314 | | |

118 lines this report

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 [Signature] / 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 _____

☒ 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 [Signature] Date 9/2/92

DISCIPLINE: Mech

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): _____

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

Page 2 of 8

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

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.

Jeff Lane 9/1/82
Jeff Lane,
Technical Support

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PART II: ITEM CLASSIFICATION

DOCUMENT NO. 9/2/92 ^{DPT} ~~SP~~ 1157 EE 92-127 REV. NO. 0

- | | <u>Yes</u> | <u>No</u> |
|--|------------|-----------|
| 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, 4.1

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PART III: UNREVIEWED SAFETY QUESTION DETERMINATION SCREEN

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- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|-------------------------------------|
| 1. Is this change <u>fully</u> addressed by another completed UNREVIEWED SAFETY QUESTION determination? (See Sections 7.2.1, 7.2.2.5, and 7.9.1.1) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

REFERENCE DOCUMENT: N/A REV. NO. _____

- | | <u>Yes</u> | <u>No</u> |
|---|--------------------------|-------------------------------------|
| 2. For procedures, is the change a non-intent change which <u>only</u> (check all that apply): (See Section 7.2.2.3) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Corrects typographical errors which do not alter the meaning or intent of the procedure; or, | | |
| <input type="checkbox"/> Adds or revises steps for clarification (provided they are consistent with the original purpose or applicability of the procedure); or, | | |
| <input type="checkbox"/> Changes the title of an organizational position; or, | | |
| <input type="checkbox"/> Changes names, addresses, or telephone numbers of persons; or, | | |
| <input type="checkbox"/> Changes the designation of an item of equipment where the equipment is the same as the original equipment or is an authorized replacement; or, | | |
| <input type="checkbox"/> Changes a specified tool or instrument to an equivalent substitute; or, | | |
| <input type="checkbox"/> Changes the format of a procedure without altering the meaning, intent, or content; or | | |
| <input type="checkbox"/> 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

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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

- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|-------------------------------------|
| 1. May the proposed activity increase the probability of occurrence of an accident evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>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 OPERATING ON ITS CURVE WILL NOT INITIATE ANY DESIGN BASIS ACCIDENT.</u> | | |
| 2. May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>THIS EE SHOWS THE SI PUMPS HAVE NOT DEGRADED THIS CAN BE TAKEN CREDIT FOR AS ASSUMED IN THE CHAPTER 15 ANALYSIS. THE SI PUMPS WILL PERFORM THEIR MITIGATING FUNCTION.</u> | | |
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>THIS EE DOCUMENTS THE SI PUMPS PERFORMANCE PER SP 1157 ^{DGT 7/2/79} COMPARES IS EQUIVALENT TO PERFORMANCE PER SP 986, DST 151, & DST 154. THIS PROVES THE SI PUMPS HAVE NOT DEGRADED.</u> | | |
| 4. May the proposed activity increase the consequence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>THIS EE DOES NOT CHANGE THE CONSEQUENCE OF A FAILED SI PUMP. IT DOCUMENTS THAT THE SI PUMPS HAVE NOT DEGRADED.</u> | | |
| 5. May the proposed activity create the possibility of an accident of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>THIS EE DOES NOT PERFORM ANY WORK OR TEST. IT ONLY EVALUATES DATA.</u> | | |

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PART IV: (Continued)

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- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|-------------------------------------|
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

SEE NO 5.

- | | | |
|---|--------------------------|-------------------------------------|
| 7. Does the proposed activity reduce the margin of safety as defined in the basis of any Technical Specification? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|-------------------------------------|

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. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|-------------------------------------|

- | | | |
|--|--------------------------|-------------------------------------|
| 9. Is PNSC review required for any of the following reasons? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|-------------------------------------|

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
UF&AR 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.)

- | | |
|--|---|
| <input type="checkbox"/> Nuclear Plant Operations | <input type="checkbox"/> Structural |
| <input type="checkbox"/> Nuclear Engineering | <input type="checkbox"/> Metallurgy |
| <input checked="" type="checkbox"/> Mechanical | <input type="checkbox"/> Chemistry/Radiochemistry |
| <input type="checkbox"/> Electrical | <input type="checkbox"/> Health Physics |
| <input type="checkbox"/> Instrumentation & Control | <input type="checkbox"/> Administrative Controls |