



Shroud Mechanical Repair Program

Peach Bottom Shroud and Shroud Repair Hardware Stress Analysis

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ABSTRACT

This document provides the results of the stress analysis of the Peach Bottom Shroud and Shroud Repair Hardware demonstrating that their structural integrity limits are maintained when subjected to the loading and limits specified in the Design Specification, 25A5579.

EXECUTIVE SUMMARY

This report provides the results of the stress analysis of the Peach Bottom shroud and shroud repair hardware when subjected to all applied loading including seismic, pressure, deadweight and thermal effects.

The shroud restraint hardware consist of four identical sets of tie rod and spring assemblies. The four sets are spaced 90° apart, beginning at 45° from vessel zero. Each set consists of the following major elements:

1. The Tie Rod, which connects to the top of the shroud at its upper end and to the Lower Spring at its lower end. This component develops a thermal preload due to normal operating temperature which in turn provides vertical clamping forces to the shroud.
2. An Upper Spring, located in the RPV/shroud annulus at the Top Guide elevation. This spring provides lateral seismic support to the shroud at the top guide elevation and transmits seismic loads from the nuclear core directly to the RPV.
3. A Lower Spring, located in the annulus at the Core Plate and Shroud Support region. This spring also provides lateral seismic support to the shroud, transmitting core seismic loads to the RPV and additionally, provides a connection for the tie rod to the shroud support plate.
4. An Upper Support, located in the annulus from the top guide elevation to the top of the shroud. This component provides a connection for the tie rod to the shroud top.

The upper and lower spring designs have been optimized to minimize the seismic interaction between the shroud and RPV while still meeting stress limits.

The stress analysis of the overall shroud was carried out with the ANSYS code, Reference 8.1. A three dimensional finite element model was constructed which included the shroud from the upper flange at the shroud head joint down to the connections at the RPV. Because of the symmetrical behavior of the shroud under the applied loads, it was only necessary to model a 180° circumferential segment.

The stress analysis of the shroud repair hardware was carried out with the COSMOS/M code, Reference 8.2, and with hand calculations.

The load combinations and structural acceptance criteria are contained in the design specification of Reference 8.3. The results of the stress analysis demonstrate that the shroud and shroud repair hardware meet the requirements of that specification.

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1.0 INTRODUCTION

Intergranular stress corrosion cracking has been found in the core shroud welded joints of several Boiling Water Reactors. Similar cracking may also exist in the welded joints of the Peach Bottom Core Shroud. GENE has designed a shroud repair system that reinforces the shroud in the event that any or all of the seven shroud horizontal weld joints are cracked. The stress analysis discussed in this report demonstrates that the shroud and the shroud repair system structural integrity is maintained if any or all of these seven welded joints are cracked completely through their thickness and completely around their entire 360° circumference. The structural integrity of the shroud and shroud repair system is also demonstrated in the event that the shroud is uncracked but the repair system is installed.

2.0 SHROUD REPAIR SYSTEM DESIGN FEATURES

The shroud repair system consists of four identical sets of tie rod and spring assemblies. The four sets are spaced at 90° beginning at 45° from vessel zero. A layout of one of the tie rod and spring sets is shown in Figure 1.

The tie rods are thermally preloaded to provide vertical compressive clamping forces on the shroud. The magnitude of the tie rod thermal preload is greater than the net uplift forces on the shroud due to normal operating pressures and postulated LOCA recirculation outlet break pressures so that no vertical separation of shroud sections would occur in those cases if the welded joints are postulated to be completely cracked. This is not the case for postulated LOCA main steam line break uplift pressures which are sufficient to overcome the tie rod preload and momentarily separate shroud sections. The tie rod axial thermal preload produces a lateral preload at the intermediate support which acts to push the rod against the RPV. This provides an intermediate lateral support to the tie rod. The natural vibration frequency of the tie rod with this intermediate support is then well removed from the flow-induced forcing frequency. Flow induced vibration is discussed in detail in Section 7.0.

The upper and lower springs provide a lateral seismic load path from the top guide and core plate to the RPV. The magnitude of the seismic loads in these springs is a function of their stiffness. This stiffness has been optimized to minimize the seismic loads while still meeting the stress and displacements limits. For the lower spring, the flexibility of the Y-shaped feature at the top provides the lateral stiffness property whereas the bending flexibility of the straight middle section provides the axial stiffness property which in combination with the stiffness of the tie rod and upper axial component determines the tie rod thermal preload. The U-shaped upper springs consists of tapered legs that flex towards each other under lateral seismic loads. The taper in these legs has been optimized to produce constant stress along their length while providing the required stiffness.

For reference, the location and designation of the seven shroud horizontal weld joints is shown in Figure 2.

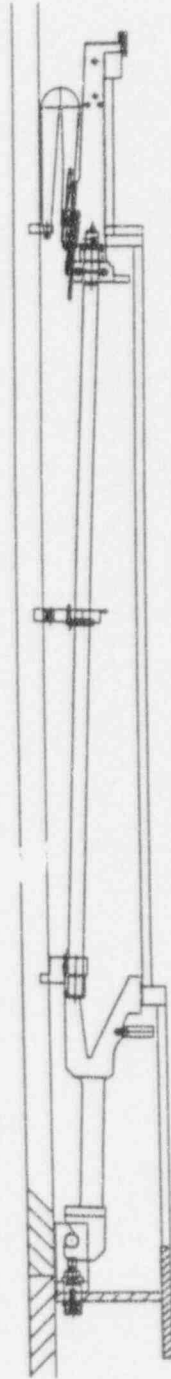


Figure 1. Shroud Repair Hardware Layout

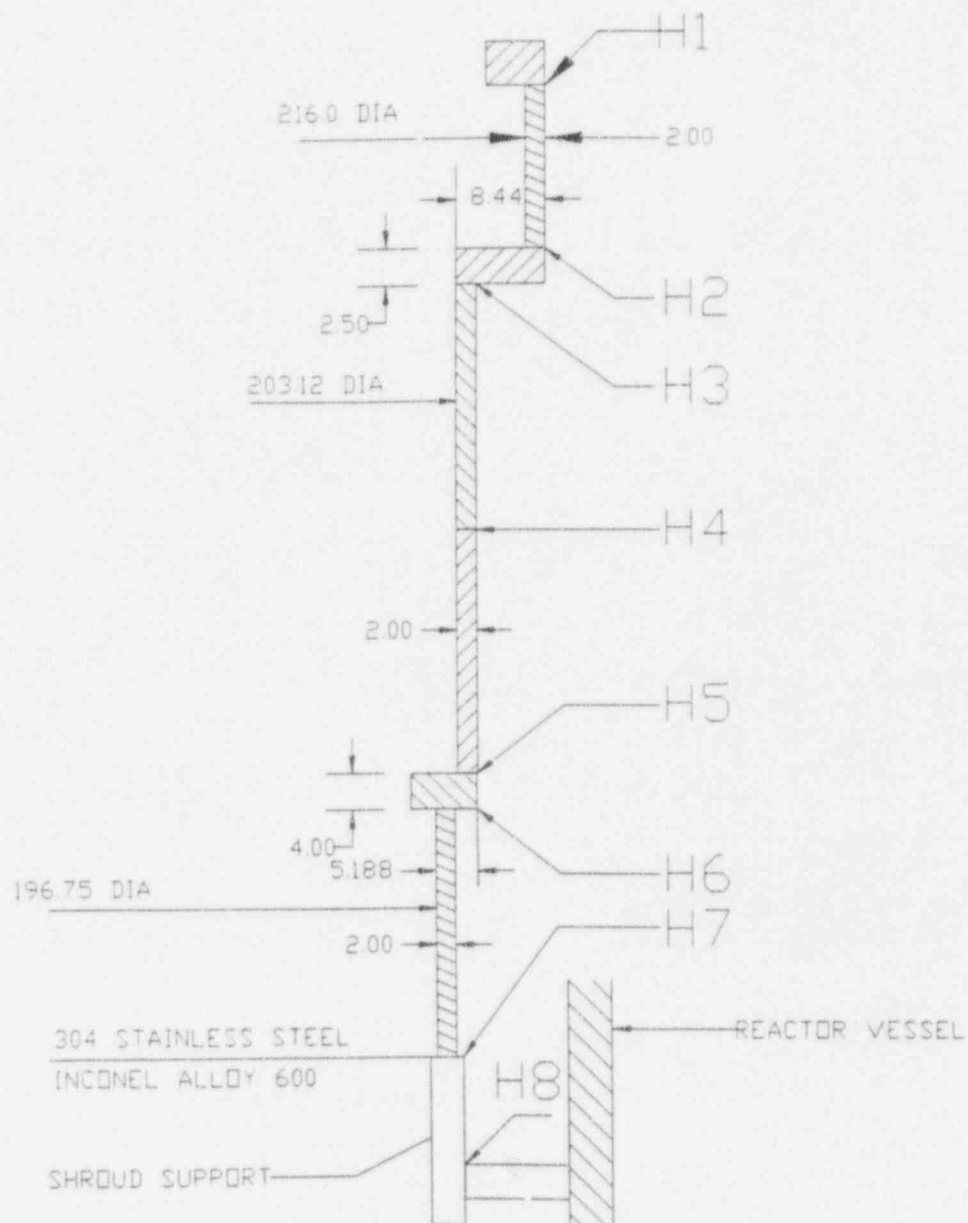


Figure 2. Shroud Horizontal Weld Designations

3.0 MATERIAL PROPERTIES

The following material properties, for the primary load bearing restraint components, are from Appendix I of the ASME B&PV Code, Reference 8.4.

3.1 Shroud, Drawing Number 729E458

The material is 304 stainless steel.

Allowable Stress Intensity $S_m = 16900 \text{ psi @ } 550^\circ \text{ F}$

Modulus of Elasticity $E = 25.8\text{E}6 \text{ psi @ } 550$

Coefficient of Thermal Expansion $\alpha = 9.46\text{E-}6 \text{ in/in/ degree F @ } 550$

3.2 Tie Rod, Drawing Number 112D6350

The material is XM-19, ASTM A479

$S_m = 29580 \text{ psi @ } 525^\circ \text{ F}$

$E = 25.7\text{E}6 \text{ psi @ } 525$

$\alpha = 8.94\text{E-}6 \text{ in/in/ degree F @ } 525$

3.3 Lower Spring, Drawing Number 112D6351, Upper Spring, Drawing Number 112D6352 and Upper Support, Drawing Number 112D6353.

The material is Inconel Alloy X-750, ASTM B637.

$S_m = 47500 \text{ psi @ } 525^\circ \text{ F}$

$E = 28.4\text{E}6 \text{ psi @ } 525$

$\alpha = 7.5\text{E-}6 \text{ in/in/degree F @ } 525$

4.0 LOADS AND LOAD COMBINATIONS

The Design Specification, Reference 8.3, specifies that the shroud and shroud repair hardware shall be analyzed for the following load combinations.

Upset: $DE + DW + \text{Normal pressure differences}$

Emergency 1: $MCE + DW + \text{Normal pressure differences}$

Emergency 2: $\text{Main Steam Line LOCA pressure differences} + DW$

Faulted: $MCE + DW + \text{Main Steam Line LOCA pressure differences}$

where:

$DE = \text{Design Earthquake Loads}$

$DW = \text{Dead Weight Loads}$

$MCE = \text{Maximum Credible Earthquake Loads}$

$LOCA = \text{Loss of Coolant Accident Loads}$

The DE and MCE loads are reported in Reference 8.5. Since the configuration of the seismic model depends on the assumed behavior at weld joints postulated to be cracked, and the resulting seismic loads depend on this assumed behavior, two sets of MCE seismic loads were established. One set corresponds to the configuration for normal pressure differences and is therefore used in the Emergency 1 load combination. The second set of seismic loads corresponds to the configuration for Main Steam Line LOCA pressure differences and is used in the Faulted load combination. The configuration of the seismic model for recirculation outlet LOCA corresponds to that for normal pressure differences and hence the seismic loads to be combined in the faulted load combination for recirculation outlet LOCA are from the first set.

The deadweight loads used in this stress analysis are based on the weights used in the seismic analysis. The effect of the vertical seismic accelerations on the deadweight were accounted for.

The pressure difference loads used are from the Design Specification, Reference 8.3. Since the maximum LOCA pressure differences in this specification occur at different times, the document of Reference 8.6 was used to determine the relationship between the time of occurrence of the maximum shroud head pressure difference versus the time of occurrence of the maximum core plate pressure difference.

5.0 STRUCTURAL ACCEPTANCE CRITERIA

The design specification specifies the following stress intensity limits in the shroud.

Upset: Primary Membrane (P_m) < S_m

Local Primary Membrane (P_l) < $1.5 S_m$

Primary Bending + Local Primary Membrane ($P_b + P_l$) < $1.5 S_m$

Primary + Secondary ($P + Q$) < $3.0 S_m$

Emergency 1: $P_m < 1.5 S_m$

$P_l < 2.25 S_m$

$P_b + P_l < 2.25 S_m$

Emergency 2: Same limits apply as for Emergency 1

Faulted: $P_m < 2 S_m$

$P_l < 3.0 S_m$

$P_l + P_b < 3.0 S_m$

The Design Specification specifies the following stress intensity limits in the repair hardware.

Upset: $P_m < S_m$

$P_m + P_b < 1.5 S_m$

$P_m + P_b + Q < 3.0 S_m$

Emergency 1: $P_m < 1.5 S_m$

$P_m + P_b < 2.25 S_m$

Emergency 2: Same limits apply as for Emergency 1

Faulted: $P_m < 2 S_m$

$P_m + P_b < 3.0 S_m$

The allowable elastic shroud horizontal deflection adjacent to the H5 or H6 weld during seismic events is limited to the following values per the Design Specification. A comparison of the seismic displacements with these allowable values is contained in the seismic report of Reference 8.5.

Upset: $\delta < 0.75$ inch

Emergency: $\delta < 1.12$ inch

Faulted: $\delta < 1.49$ inch

6.0 SHROUD ANALYSIS

6.1 Model Description

The finite element model of the shroud is shown in Figure 3. This model, which was analyzed using the ANSYS code of Reference 8.1, is three-dimensional and uses shell elements to represent the basic shell portions of the shroud. The heavier rings at the shroud head joint, the top guide and the core plate are represented by solid elements. Since the deformations are symmetric about the 0-180 or 90-270 axis, only a 180° section of the shroud needs to be represented. Appropriate symmetry boundary conditions are specified all along the edges of the model at these locations. The shroud support plate and the shroud support legs were included in the model with boundary constraints applied at the vessel side of the support plate and the lower end of the support legs.

Three separate models were prepared to correspond to the three bounding seismic analyses; the DE, the MCE with crack modeling for normal pressure differences and MCE with crack modeling for LOCA/MSLB pressure differences. The crack configuration for the bounding DE seismic analysis is for all seven weld joints assumed cracked with hinges used to represent joint behavior. This configuration was carried over into the ANSYS FEM model with hinges inserted at crack boundary nodes that preclude any moment transfer. The crack configuration for the bounding MCE seismic analyses with normal pressure differences is again with all welds assumed cracked with hinges. For the bounding MCE with LOCA/MSLB pressure differences, the crack configuration was complete separation at the H7 weld joint.

6.2 Applied Loads

Seismic loads and the loads from the net effect of dead weight and pressure differences are applied to the model at their point of action and distributed around the model as appropriate. The seismic shear loads from the fuel are applied at the top guide and core plate rings using a sine distribution in the circumferential direction. The seismic shear load from the control rod guide tubes are included at the core plate. The seismic shear

plate rings using a sine distribution in the circumferential direction. The seismic shear load from the control rod guide tubes are included at the core plate. The seismic shear forces at the lumped mass locations in the seismic model are applied to the model using a sine distribution. Since the model terminates at the shroud head joint, the pressure, dead weight and seismic loading exerted on the shroud by the shroud head is included. The shroud head seismic overturning moment and shear are applied to the top of the model using a cosine and sine distribution respectively. The shroud head pressure uplift force is combined with the shroud head dead weight plus the vertical seismic acceleration and the net resultant force is applied vertically at the shroud top uniformly around the circumference. The net tie rod forces are applied vertically at the top of the shroud. Net tie rod forces are obtained by adding their seismic load to their initial thermal preload plus the effect on the tie rods of the net shroud head uplift.

For the case of a Recirculation Outlet LOCA, a spatial and time varying horizontal differential pressure is developed on the shroud. The initial acoustic phase of this LOCA transient is very abrupt relative to the shroud vibration frequency and no dynamic amplification results. The remainder of the pressure transient extends over a relatively large time span and as such can be considered as a static load. The bounding horizontal forces due to this pressure are applied to the model as static loads and distributed around the circumference.

Pressure differentials are contained in the Design Specification of Reference 8.3, in the Reactor Internals Pressure Data document of Reference 8.6 and in the Memorandum of Reference 8.7. Seismic loads are contained in the Peach Bottom Shroud Repair Seismic Report of Reference 8.5. The bounding seismic loads on the restraint components are also included in the Design Specification.

6.2 Results and Comparison to Allowables

The shroud stress intensity results and the comparison to allowables for the required load combinations follow.

Normal + Upset:

The maximum stress intensity occurs at the shroud upper flange at the tie rods. This stress intensity includes the effect of the tie rod thermal load but is conservatively considered as primary.

$$P_l + P_b = 15261 \text{ psi} < 1.5 S_m \text{ of } 25350 \text{ psi}$$

Upset Thermal:

The maximum stress intensity occurs at the shroud upper flange at the tie rods.

$$P_l + P_b + Q = 17470 \text{ psi} < 3 S_m \text{ of } 50700 \text{ psi}$$

Emergency 1:

The maximum stress intensity occurs at the shroud upper flange at the tie rods.

$$P_I + P_b = 20787 \text{ psi} < 2.25 S_m \text{ of } 38024 \text{ psi}$$

Emergency 2: Shroud stresses are less than the Emergency 1 combination.

Faulted:

The maximum stress intensity occurs at the shroud upper flange at the tie rods.

$$P_I + P_b = 25435 \text{ psi} < 3 S_m \text{ of } 50700 \text{ psi}$$

The shroud support plate in the vicinity of the tie rod system attachment was analyzed for the effect of the tie rod axial loads. The bearing stress on the plate from the 112D6491 Toggle is shown below with allowables listed for the Inconel support plate material.

Normal + Upset:

$$\sigma_{brg} = 18592 \text{ psi} < 1.5 S_y \text{ of } 52500 \text{ psi}$$

Upset Thermal:

$$\sigma_{brg} = 25250 \text{ psi} < 2.25 S_y \text{ of } 78750 \text{ psi}$$

Emergency 1:

$$\sigma_{brg} = 23108 \text{ psi} < 2.25 S_y \text{ of } 78750 \text{ psi}$$

Faulted:

$$\sigma_{brg} = 36763 \text{ psi} < 3 S_y \text{ of } 105000 \text{ psi}$$

To investigate the plate bending stresses in the shroud support plate due to the tie rod axial loads, a separate ANSYS finite element model was constructed. The stress in the plate due to the tie rod load is very localized near the attachment since the heavy RPV is close by. The resulting stress intensities and comparison to allowables follows.

Normal + Upset:

$$P_m = 4909 \text{ psi} < S_m \text{ of } 23300 \text{ psi}$$

$$P_m + P_b = 20091 \text{ psi} < 1.5 S_m \text{ of } 34950 \text{ psi}$$

$$P + Q = 35857 \text{ psi} < 3 S_m \text{ of } 69900 \text{ psi}$$

Upset Thermal:

$$P + Q = 48619 \text{ psi} < 3 S_m \text{ of } 69900 \text{ psi}$$

Emergency 1:

$$P_m = 6102 \text{ psi} < 1.5 S_m \text{ of } 34950 \text{ psi}$$

$$P_m + P_b = 24972 \text{ psi} < 2.25 S_m \text{ of } 52425 \text{ psi}$$

Faulted:

$$P_m = 9708 \text{ psi} < 2 S_m \text{ of } 46600 \text{ psi}$$

$$P_m + P_b = 39729 \text{ psi} < 3 S_m \text{ of } 69900 \text{ psi}$$

7.0 SHROUD REPAIR HARDWARE ANALYSIS

7.1 Tie Rod System

7.1.1 Tie Rod System Axial Stiffness and Thermal Preload

The tie rod system providing axial stiffness and thermally induced shroud hold-down forces includes the Rod (Dwg. 112D6350), the Upper Support (Dwg. 112D6353), and the Lower Spring (Dwg. 112D6351). The stiffness of these components act in series with the total stiffness of the system being 582 kip/inch. The upper and lower spring stiffness was obtained from finite element models discussed below.

Two steady state thermal conditions are identified in the design specification. The first is Normal operation with the shroud at 539 degrees F and the stabilizer assembly at 527 degrees F. The second is an Upset condition with the shroud at 433 degrees F and the stabilizer assembly at 300 degrees F. Using the 582 kip/inch system stiffness and the appropriate dimensional and thermal expansion values, the tie rod system axial thermal preloads corresponding to these two thermal conditions are 94.3 kips and 240.4 kips.

7.1.2 Tie Rod Stress

The tie rod net load is a combination of the thermal preload, the seismic load and the effect of the net uplift force from the shroud head due to pressure difference and dead weight. For the upset and emergency load combinations, the thermal preload is not overcome and the shroud has a compressive clamping force. In this case, the tie rod load due to the shroud head net uplift force is proportional to the relative stiffness of the tie rod versus the shroud much like in a preloaded bolted joint. For the faulted combination with MSL LOCA, the preload is overcome and the net shroud head uplift force is reacted by the tie rods. The tie rod tensile loads for the load combinations were derived on that bases and have the following magnitudes:

Normal + Upset: $F = 177 \text{ kips}$

Upset Thermal: $F = 240.4 \text{ kips}$ from above

Emergency 1: $F = 220 \text{ kips}$ includes thermal preload

Emergency 2: F is less than for Emergency 1.

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Faulted: $F = 350 \text{ kips}$ includes thermal preload

The tensile area at the 3.34 inch diameter thread relief is 8.762 square inches. The corresponding rod Primary membrane stress intensities are as follows, assuming the load is entirely a primary load:

Normal + Upset: $P_m = 21200 \text{ psi} < S_m \text{ of } 29580 \text{ psi}$

Upset Thermal: $P_m = 27436 \text{ psi} < S_m \text{ of } 29580 \text{ psi}$ (3 S_m may be used here)

Emergency 1: $P_m = 26108 \text{ psi} < 1.5 S_m \text{ of } 44370 \text{ psi}$

Faulted: $P_m = 40942 \text{ psi} < 2.0 S_m \text{ of } 59160 \text{ psi}$

Since the tie rod is subjected to a cross flow of coolant, its susceptibility to flow induced vibration was investigated. Its natural vibration frequencies were derived using the ANSYS code of Reference 8.1. The model used is shown in Figure 5. The tie rod axial load was included in the model as well as the upper support and lower spring. The lowest natural frequency was found to be 12.22 Hz. To conservatively derive the flow vortex shedding frequency for comparison with the natural frequency, the bulk flow velocity of 5.7 feet/second near the tie rods adjacent to the jet pump inlet was assumed to be directed normal to the tie rod. The resulting vortex shedding frequency of 5.2 Hz. is judged to be sufficiently lower than the lowest natural frequency such that no flow induced tie rod vibrations are expected.

7.2 Lower Spring Stress and Stiffness

The lower spring, drawing 112D6351, is subjected to a combination of tension load from the tie rod and horizontal seismic load. It is conservatively assumed that the maximum values of these two loads occur simultaneously at a single spring. The tie rod tension loads are shown above in section 7.1.2. The horizontal seismic loads from Reference 8.5 are listed below.

Normal + Upset: 33.4 kips

Emergency 1: 70.0 kips

Faulted: 89.6 kips

The maximum stress intensities at the sections shown in Figure 4 due to the combined loads are as follows.

Section AA:

Upset:

$P_m = 8036 \text{ psi} < S_m \text{ of } 47500 \text{ psi}$

$P_m = P_b = 49826 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$

Emergency 1:

$$P_m = 9988 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$
$$P_m + P_b = 61930 \text{ psi} < 2.25 S_m \text{ of } 106875 \text{ psi}$$

Faulted:

$$P_m = 15890 \text{ psi} < 2.0 S_m \text{ of } 95000 \text{ psi}$$
$$P_m + P_b = 98525 \text{ psi} < 3.0 S_m \text{ of } 142500 \text{ psi}$$

The maximum stress intensities at **Section BB** due to the lateral seismic loads are as follows.

Upset:

$$P_m = 2942 \text{ psi} < S_m \text{ of } 47500 \text{ psi}$$
$$P_m + P_b = 27257 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$

Emergency 1:

$$P_m = 6160 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$
$$P_m + P_b = 57087 \text{ psi} < 2.25 S_m \text{ of } 106,875 \text{ psi}$$

Faulted:

$$P_m = 6412 \text{ psi} < 2.0 S_m \text{ of } 95000 \text{ psi}$$
$$P_m + P_b = 73003 \text{ psi} < 3.0 S_m \text{ of } 142,500 \text{ psi}$$

The maximum stress intensities at **Section CC** due to combined Lateral seismic load and tie rod tension load are as follows.

Upset:

$$P_m = 8056 \text{ psi} < S_m \text{ of } 47500 \text{ psi}$$
$$P_m + P_b = 39847 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$

Emergency 1:

$$P_m = 10577 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$
$$P_m + P_b = 76804 \text{ psi} < 2.25 S_m \text{ of } 106,875 \text{ psi}$$

Faulted:

$$P_m = 16352 \text{ psi} < 2.0 S_m \text{ of } 95,000 \text{ psi}$$
$$P_m + P_b = 101,358 \text{ psi} < 3.0 S_m \text{ of } 142,500 \text{ psi}$$

The finite element model of **Figure 4** was used to obtain the horizontal and axial stiffness of the lower spring. The horizontal stiffness is 169 kip/inch and the axial stiffness is

1300 kip/inch. Combining the 169 kip/inch value with the local flexibility of the shroud at the spring results in an effective stiffness of 148.5 kip/inch. This compares closely with the 150 kip/inch value used in the seismic analysis of Reference 8.5. The lower spring axial stiffness combines with the tie rod and upper support stiffness to result in the effective tie rod system stiffness of 582 kip/inch discussed in Section 7.1.1.

7.3 Upper Spring Stress and Stiffness

The upper spring, drawing 112D6350, is subjected to the following horizontal seismic loads from Reference 8.5.

Upset: $F = 16.83$ kips

Emergency 1: $F = 31.18$ kips

Faulted: $F = 30.47$ kips

The primary membrane plus primary bending stress intensity at the crotch region of the spring govern. The values and comparison with allowables follows.

Upset: $P_m + P_b = 38757$ psi $< 1.5 S_m$ of 71250 psi

Emergency 1: $P_m + P_b = 71802$ psi $< 2.25 S_m$ of 106875 psi

Faulted: $P_m + P_b = 70167$ psi $< 3.0 S_m$ of 142500 psi

The horizontal stiffness of the upper spring is 22.5 kip/inch based on tapered beam calculations. Accounting for the shroud local flexibility at the spring interface, the effective horizontal stiffness at the upper spring is 19.6 kip/inch. This is very close to the 20.0 kip/inch value used in the seismic analysis.

7.4 Upper Support Stress

The upper support, drawing number 112D6353, is subjected to the tie rod axial load and the upper spring horizontal seismic load. The horizontal load produces low bearing and compressive stresses. The critical stress is in the vicinity of the lip at the shroud flange interface due to the tie rod axial load. Following are the resulting stress intensities and comparison with allowables.

Normal + Upset:

$P_m = 38409$ psi $< S_m$ of 47500 psi

$P_m + P_b = 62375$ psi $< 1.5 S_m$ of 71250 psi

Upset Thermal:

$P_m + P_b + Q = 84719$ psi $< 3 S_m$ of 142500 psi

$$P_m = 47740 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$
$$P_m + P_b = 77529 \text{ psi} < 2.25 S_m \text{ of } 106875 \text{ psi}$$

Faulted:

$$P_m = 75950 \text{ psi} < 2 S_m \text{ of } 95000 \text{ psi}$$
$$P_m + P_b = 84719 \text{ psi} < 3 S_m \text{ of } 142500 \text{ psi}$$

7.5 Top Support Bolt Stress

Two X-750 top support bolts, drawing 112D6322, transfer the tie rod axial load to the upper support. The stress intensities are as follows.

Normal + Upset:

$$P_m = 36985 \text{ psi} < S_m \text{ of } 47500 \text{ psi}$$

Upset Thermal:

$$P_m + P_b + Q = 50233 \text{ psi} < 3 S_m \text{ of } 142500 \text{ psi}$$

Emergency 1:

$$P_m = 45970 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$

Faulted:

$$P_m = 73134 \text{ psi} < 2 S_m \text{ of } 95000 \text{ psi}$$

7.6 Clevis Pin, Drawing 112D6505

Results for this X-750 pin are as follows.

Normal + Upset:

$$P_m = 12548 \text{ psi} < S_m \text{ of } 47500 \text{ psi}$$
$$P_m + P_b = 39230 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$

Upset Thermal:

$$P_m + P_b + Q = 17015 \text{ psi} < 3 S_m \text{ of } 142500 \text{ psi}$$

Emergency 1:

$$P_m = 15597 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$
$$P_m + P_b = 48761 \text{ psi} < 2.25 S_m \text{ of } 106875 \text{ psi}$$

Faulted:

$$P_m = 24813 \text{ psi} < 2 S_m \text{ of } 95000 \text{ psi}$$
$$P_m + P_b = 77575 \text{ psi} < 3 S_m \text{ of } 142500 \text{ psi}$$

7.7 Lower Support, Drawing 112D6490

Results for this X-750 support are as follows.

Normal + Upset:

$$P_m = 22125 \text{ psi} < S_m \text{ of } 47500 \text{ psi}$$

$$P_m + P_b = 35275 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$

Upset Thermal:

$$P_m + P_b + Q = 47910 \text{ psi} < 3 S_m \text{ of } 142500 \text{ psi}$$

Emergency 1:

$$P_m = 27500 \text{ psi}$$

$$P_m + P_b = 43844 \text{ psi} < 2.25 S_m \text{ of } 106875 \text{ psi}$$

Faulted:

$$P_m = 43750 \text{ psi} < 2 S_m \text{ of } 95000 \text{ psi}$$

$$P_m + P_b = 69752 \text{ psi} < 3 S_m \text{ of } 142500 \text{ psi}$$

7.8 Toggle, Toggle Bolt and Toggle Pin, Drawings 112D6491, 112D6489 & 112D6492

The Toggle Bolt is the limiting component here. The results for this X-750 component are as follows.

Normal + Upset:

$$P_m = 34700 \text{ psi} < S_m \text{ of } 47500 \text{ psi}$$

$$P_m + P_b = 37200 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$

Upset Thermal:

$$P_m + P_b + Q = 50500 \text{ psi} < 3 S_m \text{ of } 142500 \text{ psi}$$

Emergency 1:

$$P_m = 43100 \text{ psi} < 1.5 S_m \text{ of } 71250 \text{ psi}$$

$$P_m + P_b = 46200 \text{ psi} < 2.25 S_m \text{ of } 106875 \text{ psi}$$

Faulted:

$$P_m = 68600 \text{ psi} < 2 S_m \text{ of } 95000 \text{ psi}$$

$$P_m + P_b = 73600 \text{ psi} < 3 S_m \text{ of } 142500 \text{ psi}$$

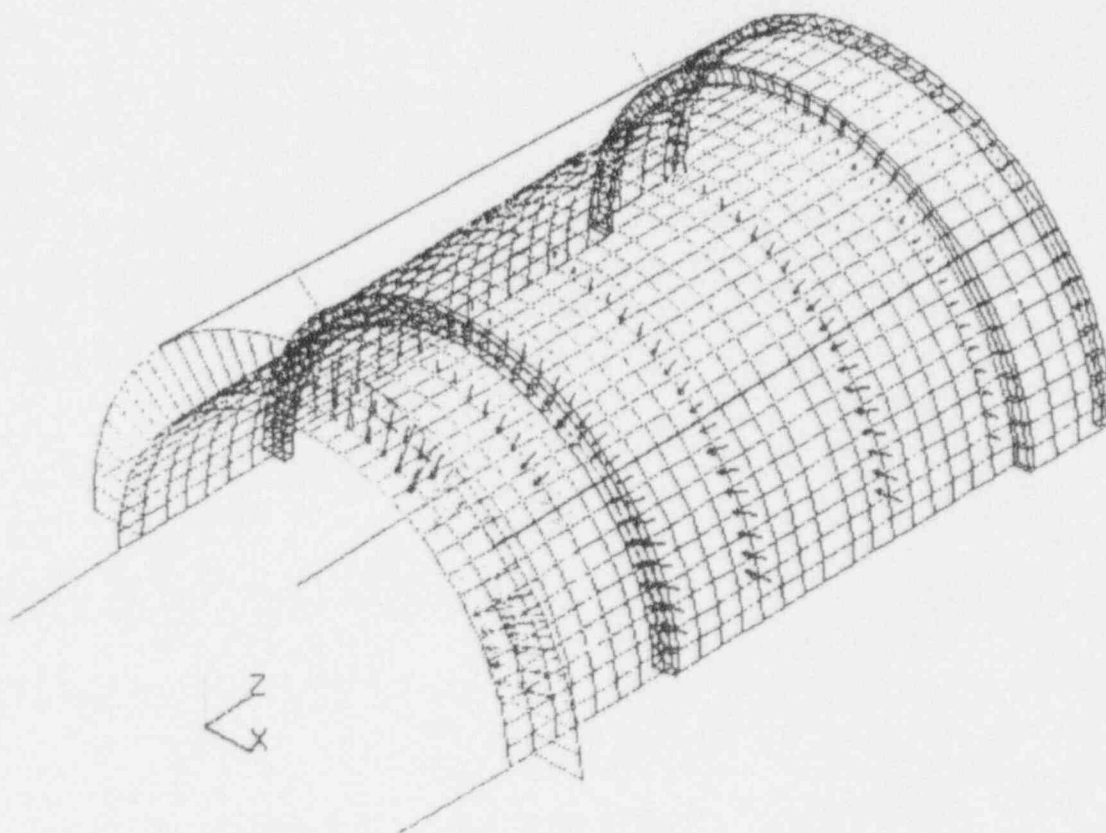


Figure 3. Shroud Finite Element Model

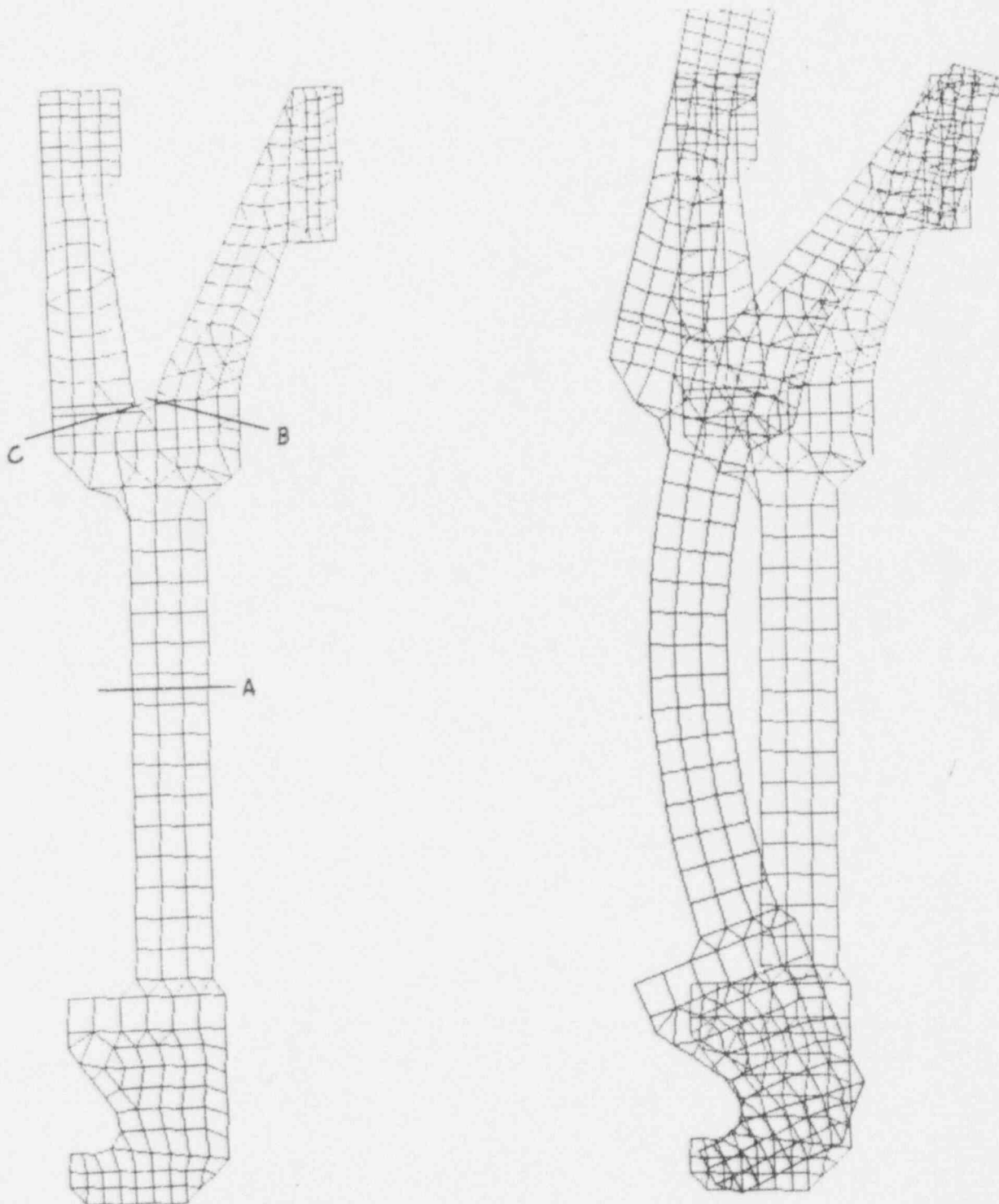


Figure 4. Lower Spring Finite Element Analysis

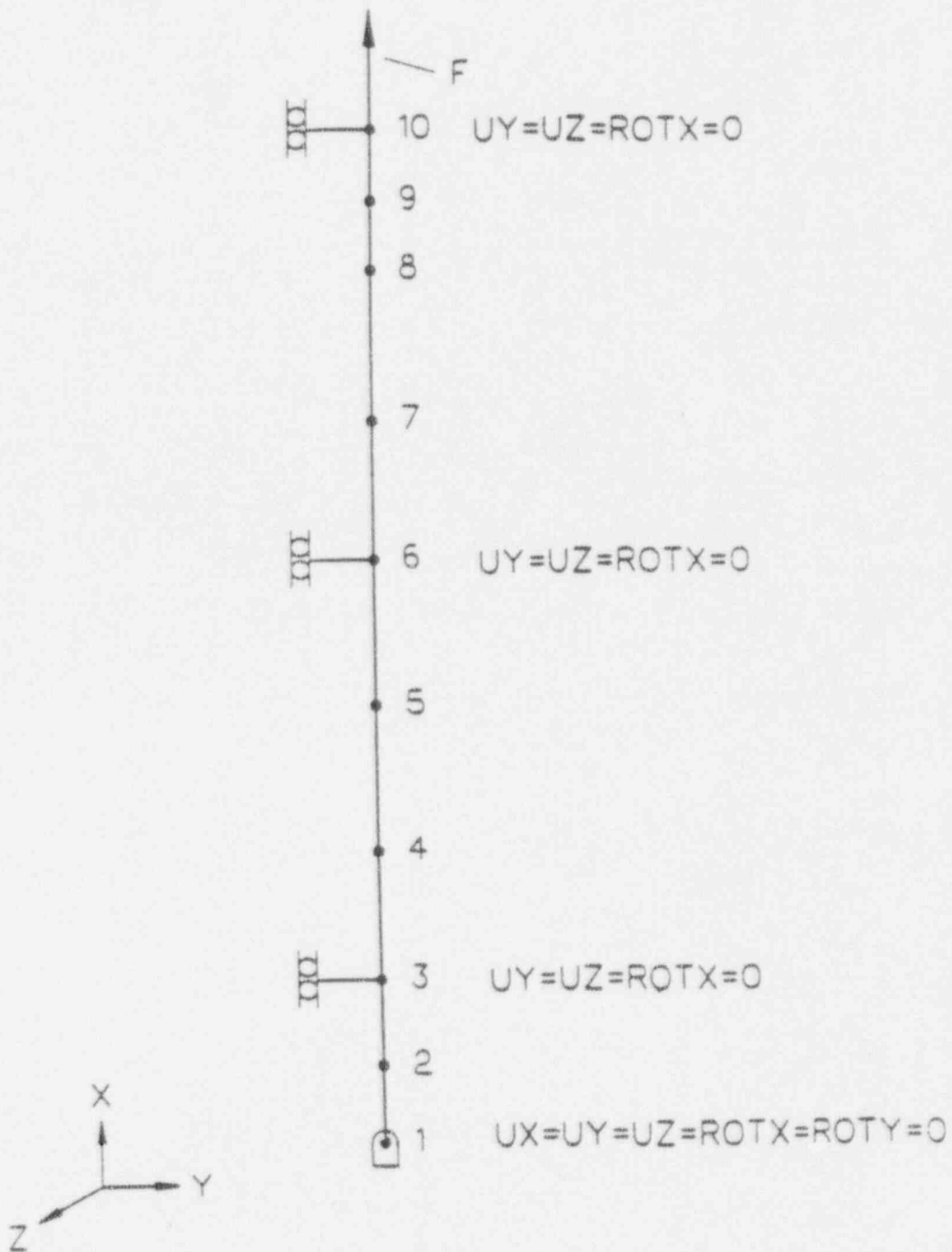


Figure 5. Tie Rod FEA Model

8.0 REFERENCES

- 8.1 ANSYS, Finite Element Structural Analy Code
- 8.2 COSMOS/M, Finite Element Structural Analysis Code
- 8.3 25A5579, Peach Bottom 2 and 3 Design Spec
- 8.4 ASME Boiler And Pressure Vessel Code, Section III Appendices, 1989
- 8.5 GENE-771-60-0994, Peach Bottom Seismic Analysis for Shroud Repair Project
- 8.6 257HA777, Peach Bottom 2 Data Book
- 8.7 GENE Letter of 9/1/94, J. Villalta to M. Lenz; Analysis of Peach Bottom Shroud for Blowdown Load.

**GE Nuclear Energy***Field Disposition Instruction*ORIGINAL WHEN
STAMPED IN RED

FDI NO. 0257-71067

REVISION 0

SHEET 1 OF 4

PROJECT PEACH BOTTOM UNIT 2

EQUIPMENT SHROUD

MPL NO. B11-D001

DATE OF ISSUE
Mike DeMarco
SEP 24 1994ECN/IR/DDR/FDDR
N/A

DESCRIPTION OF TASK

I. Purpose

This FDI documents the design, requirements, and material required to install the stabilizers for the shroud horizontal welds.

II. Required Documents (supplied by Engineering)

- A. 105E1455, Rev. 0, "Reactor Modification Drawing"
- B. PL105E1455, Rev. 0, "Modification Drawing Parts List"
- C. 25A5581, Rev. 0, "Installation Specification"
- D. 21A2040, Rev. 1, "Cleaning and Cleanliness Control"
- E. 25A5579, Rev. 1 "Shroud Repair Hardware, Design Specification"
- F. 25A5580, Rev. 1 "Shroud Stabilizer Code, Design Specification"
- G. 10CFR50.59 Review for Modification P00435
- H. 25A5607, Rev. 0, "Shroud Stabilizers Stress Report"
- I. GENE-771-58-0994, Rev. 0, "Shroud and Shroud Repair Hardware Stress Analysis"
- J. GENE-771-60-0994, Rev. 0, "Seismic Design Report of Shroud Repair" for Peach Bottom Unit 2/3.
- K. QAM-001, Rev. 4, "GE Quality Assurance Manual"
- L. 25A5601, Rev. 1 "Fabrication Specification"

III. Material Required (per Paragraph II.A and II.B)

			QTY.	P.L.
A. 112D6347	Rev. 0	Upper Stabilizer Assembly	4	Yes
B. 112D6348	Rev. 0	Stabilizer Support assembly	4	Yes
C. 112D6349	Rev. 0	Tie Rod Assembly	4	Yes
D. 112D6350	Rev. 0	Rod, Tie	4	No
E. 112D6313	Rev. 0	Nut, Tie Rod	4	No

APPROVALS <i>[Signature]</i> FIELD MANAGER <i>[Signature]</i> QUALITY <i>[Signature]</i> MATERIALS <i>[Signature]</i> ENGRG <i>[Signature]</i> RESPONSIBLE ENGR <i>[Signature]</i> PROJECT MANAGER	DATE 9/24/94 9/24/94 9/24/94 9/24/94 9/24/94 9/24/94	APPROVALS _____ _____ _____ _____ _____ _____ DATE _____ _____ _____ _____ _____ _____ DISTRIBUTION CODE INTERNAL EXTERNAL _____ _____ _____ _____ _____ _____ FDI TASK COMPLETED _____ _____ _____ _____ _____ _____ SITE QUALITY CONTROL _____ _____ _____ _____ _____ _____ FIELD MANAGER	THIS EQUIPMENT IS SAFETY RELATED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO SAFETY FUNCTION IS AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO FIELD WORK ORDER NO. _____ COMPLETION RECORD REQUIRED BY R. E. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> DATE _____
--	--	---	--



DESCRIPTION OF TASK

III. Material Required (per Paragraph II.A and II.B)

				QTY.	P.L.
F.	112D6351	Rev. 0	Spring, Lower	4	No
G.	112D6352	Rev. 0	Spring, Upper	4	No
H.	112D6498	Rev. 0	Bracket, Upper spring	4	No
I.	112D6353P1	Rev. 0	Support, Upper	4	No
J.	112D6353P2	Rev. 0	Support, Upper	4	No
K.	112D6354	Rev. 0	Support, Upper	4	No
L.	112D6355	Rev. 0	Contact, Lower	4	No
M.	112D6505	Rev. 0	Pin, Clevis	4	No
N.	112D6321P1	Rev. 0	Nut, Top Support	16	No
O.	112D6321P2	Rev. 0	Nut, Top Support	16	No
P.	112D6321P3	Rev. 0	Nut, Top Support	8	No
Q.	112D6321P4	Rev. 0	Nut, Top Support	16	No
R.	112D6321P5	Rev. 0	Nut, top Support	4	No
S.	112D6322	Rev. 0	Bolt, Top support	8	No
T.	112D6323	Rev. 0	Nut, Top Support	8	No
U.	112D6324	Rev. 0	Retainer	4	No
V.	112D6325	Rev. 0	Spring Retainer	16	No
W.	112D6496	Rev. 0	Bolt, Jack	4	No
X.	112D6327	Rev. 0	Sleeve, Jack bolt	4	No
Y.	112D6328	Rev. 0	Washer, Jack bolt	4	No
Z.	112D6497	Rev. 0	Spring, Retainer	4	No
AA.	112D6356	Rev. 0	Support, Mid	4	No
BB.	112D6331	Rev. 0	Ring, Mid Support	4	No
CC.	112D6332	Rev. 0	Screw, Mid support	4	No
DD.	112D6501	Rev. 0	Screw, Top Support	8	No
EE.	112D6502	Rev. 0	Coupling, Top Support Bolting	4	No
FF.	112D6338P1	Rev. 0	Latch	4	No
GG.	112D6338P2	Rev. 0	Latch	4	No
HH.	112D6357	Rev. 0	Contact, Upper	4	No
II.	112D6358	Rev. 0	Tie Rod-Spring Assembly	4	Yes
JJ.	112D6359	Rev. 0	Mid Support Assembly	4	Yes
KK.	112D6360	Rev. 0	Lower Stabilizer Assembly	4	Yes
LL.	112D6489	Rev. 0	Bolt, toggle	8	No
MM.	112D6490	Rev. 0	Support, Lower	4	No
NN.	112D6491	Rev. 0	Toggle	8	No
OO.	112D6492	Rev. 0	Pin, Toggle Bolt	8	No
PP.	112D6493	Rev. 0	Washer, Toggle Bolt	8	No
QQ.	112D6494	Rev. 0	Nut, Toggle Bolt	8	No



DESCRIPTION OF TASK

RR. 112D6495	Rev. 0	Toggle Bolt Assembly	8	Yes
SS. 112D6503	Rev. 0	Extension, Lower Spring	4	No
TT. 112D6504	Rev. 0	Pin	4	No

IV. Repair Procedure

All of the stabilizer installation shall be performed underwater. All work shall be performed in accordance with Paragraph II.A and II.C.

- 1.0 Perform a VT-1 examination of the accessible areas of the RPV wall and shroud support plates, adjacent to the attachment point for the shroud stabilizer lower support.
- 2.0 Shroud Head and Shroud Support Plate.
Machine the required holes in the shroud head and shroud support plates, per II.A.
- 3.0 Repair Clamp Installation
Install the four stabilizers in accordance with the requirements in Paragraph II. A.
- 4.0 Repair Examination
A visual examination of the completed repair shall be performed. The television camera shall be capable of resolving a .001 inch diameter wire on a neutral gray background.
 - a. Examine each Clevis pin to assure that it is properly located and in contact with the bottom of the slot in the lower spring.
 - b. Examine the stabilizer assembly for contact between the RPV wall and the upper contact, mid support, and lower contacts.
 - c. Examine the stabilizer assembly for contact between the shroud and the upper support and lower spring.
 - d. Examine all components for installation of retainer devices.



DESCRIPTION OF TASK

V. Quality Requirements

- 1.0 GE site Quality Control Representatives shall provide QC surveillance and document the field work performed, to insure that the requirements of this FDI have been met. All work is to be performed in accordance with GE Quality Assurance Manual QAM-001, Rev. 4
- 2.0 The following shall be the minimum Quality Control Documentation requirements:
 - a. Video tape of the completed repair.
 - b. Process documentation and inspection data sheets as applicable.
 - c. As-built dimensions per II.A.
- 3.0 The following procedures and supporting documentation shall be submitted to GE Site QA and Plant Owner (as applicable) for review, and approval obtained prior to use. Previously approved GENE procedures may be used in satisfying the requirements of this paragraph provided they are approved by the Plant Owner.
 - a. Installation procedures, travelers, or sequence data sheets, measurement data sheets, drawings, sketches, instructions, etc. These procedures or travelers shall include cleaning and cleanliness, tool control, machining process, and visual inspection methods.
 - b. Hardware certifications.

VI. Safety/Reliability

Safety and reliability have been considered in the issue of the design documents this project. The requirements for this design are contained in the Design Specifications 25A5579 and 25A5580. The seismic analysis of the repair is documented in GENE-771-60-0994. The structural analysis of the repair is documented in GENE-771-58-0994 and 25A5607. The safety evaluation for the repair is contained in 10CFR50.59 Review for Modification P00435. No new safety requirements, reviews or technical specifications are required by this FDI.



GE Nuclear Energy

Field Disposition Instruction

ORIGINAL WHEN
STAMPED IN RED

FDI NO. 0257-71067

REVISION 0

SHEET 1 OF 4

PROJECT PEACH BOTTOM

UNIT 2

EQUIPMENT SHROUD

MPL NO. B11-D001

DATE OF ISSUE

Mike DeGard
Mike DeGard

SEP 24 1994

ECN/IR/DDR/FDDR

N/A

DESCRIPTION OF TASK

I. Purpose

This FDI documents the design, requirements, and material required to install the stabilizers for the shroud horizontal welds.

II. Required Documents (supplied by Engineering)

- A. 105E1455, Rev. 0, "Reactor Modification Drawing"
- B. PL105E1455, Rev. 0, "Modification Drawing Parts List"
- C. 25A5581, Rev. 0, "Installation Specification"
- D. 21A2040, Rev. 1, "Cleaning and Cleanliness Control"
- E. 25A5579, Rev. 1 "Shroud Repair Hardware, Design Specification"
- F. 25A5580, Rev. 1 "Shroud Stabilizer Code, Design Specification"
- G. 10CFR50.59 Review for Modification P00435
- H. 25A5607, Rev. 0, "Shroud Stabilizers Stress Report"
- I. GENE-771-58-0994, Rev. 0, "Shroud and Shroud Repair Hardware Stress Analysis"
- J. GENE-771-60-0994, Rev. 0, "Seismic Design Report of Shroud Repair" for Peach Bottom Unit 2/3.
- K. QAM-001, Rev. 4, "GL Quality Assurance Manual"
- L. 25A5601, Rev. 1 "Fabrication Specification"

III. Material Required (per Paragraph II.A and II.B)

			QTY.	P.L.
A.	112D6347	Rev. 0	Upper Stabilizer Assembly	4 Yes
B.	112D6348	Rev. 0	Stabilizer Support assembly	4 Yes
C.	112D6349	Rev. 0	Tie Rod Assembly	4 Yes
D.	112D6350	Rev. 0	Rod, Tie	4 No
E.	112D6313	Rev. 0	Nut, Tie Rod	4 No

APPROVALS	DATE	APPROVALS	DATE	THIS EQUIPMENT IS SAFETY RELATED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	SAFETY FUNCTION IS AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>FLP SANTORO</i> FDI ORIGINATOR	9/24/94			FIELD WORK ORDER NO.	COMPLETION RECORD REQUIRED BY R.E. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<i>Edward R. Dyle</i> QUALITY	9/24/94				
<i>M.A. Quibryn</i> MAT'L MGR/ENGR	9/24/94			FDI TASK COMPLETED	DATE
<i>M.C. Leife</i> ENGR/ENGR	9/24/94	INTERNAL	EXTERNAL	SITE QUALITY CONTROL	
<i>G. J. Jants</i> RESPONSIBLE ENGR	9/24/94			FIELD MANAGER	
<i>G. J. Jants</i> PROJECT MANAGER	9/24/94				



DESCRIPTION OF TASK

III. Material Required (per Paragraph II.A and II.B)

				QTY. P.L.	
F.	112D6351	Rev. 0	Spring, Lower	4	No
G.	112D6352	Rev. 0	Spring, Upper	4	No
H.	112D6498	Rev. 0	Bracket, Upper spring	4	No
I.	112D6353P1	Rev. 0	Support, Upper	4	No
J.	112D6353P2	Rev. 0	Support, Upper	4	No
K.	112D6354	Rev. 0	Support, Upper	4	No
L.	112D6355	Rev. 0	Contact, Lower	4	No
M.	112D6505	Rev. 0	Pin, Clevis	4	No
N.	112D6321P1	Rev. 0	Nut, Top Support	16	No
O.	112D6321P2	Rev. 0	Nut, Top Support	16	No
P.	112D6321P3	Rev. 0	Nut, Top Support	8	No
Q.	112D6321P4	Rev. 0	Nut, Top Support	16	No
R.	112D6321P5	Rev. 0	Nut, top Support	4	No
S.	112D6322	Rev. 0	Bolt, Top support	8	No
T.	112D6323	Rev. 0	Nut, Top Support	8	No
U.	112D6324	Rev. 0	Retainer	4	No
V.	112D6325	Rev. 0	Spring Retainer	16	No
W.	112D6496	Rev. 0	Bolt, Jack	4	No
X.	112D6327	Rev. 0	Sleeve, Jack bolt	4	No
Y.	112D6328	Rev. 0	Washer, Jack bolt	4	No
Z.	112D6497	Rev. 0	Spring, Retainer	4	No
AA.	112D6356	Rev. 0	Support, Mid	4	No
BB.	112D6331	Rev. 0	Ring, Mid Support	4	No
CC.	112D6332	Rev. 0	Screw, Mid support	4	No
DD.	112D6501	Rev. 0	Screw, Top Support	8	No
EE.	112D6502	Rev. 0	Coupling, Top Support Bolting	4	No
FF.	112D6338P1	Rev. 0	Latch	4	No
GG.	112D6338P2	Rev. 0	Latch	4	No
HH.	112D6357	Rev. 0	Contact, Upper	4	No
II.	112D6358	Rev. 0	Tie Rod-Spring Assembly	4	Yes
JJ.	112D6359	Rev. 0	Mid Support Assembly	4	Yes
KK.	112D6360	Rev. 0	Lower Stabilizer Assembly	4	Yes
LL.	112D6489	Rev. 0	Bolt, toggle	8	No
MM.	112D6490	Rev. 0	Support, Lower	4	No
NN.	112D6491	Rev. 0	Toggle	8	No
OO.	112D6492	Rev. 0	Pin, Toggle Bolt	8	No
PP.	112D6493	Rev. 0	Washer, Toggle Bolt	8	No
QQ.	112D6494	Rev. 0	Nut, Toggle Bolt	8	No



DESCRIPTION OF TASK

RR.	112D6495	Rev. 0	Toggle Bolt Assembly	8	Yes
SS.	112D6503	Rev. 0	Extension, Lower Spring	4	No
TT.	112D6504	Rev. 0	Pin	4	No

IV. Repair Procedure

All of the stabilizer installation shall be performed underwater. All work shall be performed in accordance with Paragraph II.A and II.C.

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 - c. Examine the stabilizer assembly for contact between the shroud and the upper support and lower spring.
 - d. Examine all components for installation of retainer devices.



DESCRIPTION OF TASK

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**GE Nuclear Energy***Field Disposition Instruction*ORIGINAL WHEN
STAMPED IN RED

FDI NO. 0257-71067

REVISION 0

SHEET 1 OF 4

PROJECT PEACH BOTTOM

UNIT 2

EQUIPMENT SHROUD

MPL NO. B11-D001

DATE OF ISSUE

Mike Bengtson

SEP 24 1994

ECN/IR/DDR/FDDR

N/A

DESCRIPTION OF TASK

I. Purpose

This FDI documents the design, requirements, and material required to install the stabilizers for the shroud horizontal welds.

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- D. 21A2040, Rev. 1, "Cleaning and Cleanliness Control"
- E. 25A5579, Rev. 1 "Shroud Repair Hardware, Design Specification"
- F. 25A5580, Rev. 1 "Shroud Stabilizer Code, Design Specification"
- G. 10CFR50.59 Review for Modification P00435
- H. 25A5607, Rev. 0, "Shroud Stabilizers Stress Report"
- I. GENE-771-58-0994, Rev. 0, "Shroud and Shroud Repair Hardware Stress Analysis"
- J. GENE-771-60-0994, Rev. 0, "Seismic Design Report of Shroud Repair" for Peach Bottom Unit 2/3.
- K. QAM-001, Rev. 4, "GE Quality Assurance Manual"
- L. 25A5601, Rev. 1 "Fabrication Specification"

III. Material Required (per Paragraph II.A and II.B)

			QTY.	P.L.
A. 112D6347	Rev. 0	Upper Stabilizer Assembly	4	Yes
B. 112D6348	Rev. 0	Stabilizer Support assembly	4	Yes
C. 112D6349	Rev. 0	Tie Rod Assembly	4	Yes
D. 112D6350	Rev. 0	Rod, Tie	4	No
E. 112D6313	Rev. 0	Nut, Tie Rod	4	No

APPROVALS <i>[Signature]</i> FDI ORIGINATOR	DATE 9/24/94	APPROVALS _____ _____ _____	DATE _____ _____ _____	THIS EQUIPMENT IS SAFETY RELATED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO SAFETY FUNCTION IS AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
QUALITY <i>[Signature]</i> MAT'L MGR	9/24/94			FIELD WORK ORDER NO. _____
<i>[Signature]</i> ENGR	9/24/94			COMPLETION RECORD REQUIRED BY R. E. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
<i>[Signature]</i> ENGR	9/24/94			FDI TASK COMPLETED _____
<i>[Signature]</i> RESPONSIBLE ENGR	9/24/94			DATE _____
PROJECT MANAGER <i>[Signature]</i>	9/24/94	DISTRIBUTION CODE INTERNAL _____ EXTERNAL _____		SITE QUALITY CONTROL _____
				FIELD MANAGER _____

DESCRIPTION OF TASK

III. Material Required (per Paragraph II.A and II.B)

				QTY.	P.L.
F.	112D6351	Rev. 0	Spring, Lower	4	No
G.	112D6352	Rev. 0	Spring, Upper	4	No
H.	112D6498	Rev. 0	Bracket, Upper spring	4	No
I.	112D6353P1	Rev. 0	Support, Upper	4	No
J.	112D6353P2	Rev. 0	Support, Upper	4	No
K.	112D6354	Rev. 0	Support, Upper	4	No
L.	112D6355	Rev. 0	Contact, Lower	4	No
M.	112D6505	Rev. 0	Pin, Clevis	4	No
N.	112D6321P1	Rev. 0	Nut, Top Support	16	No
O.	112D6321P2	Rev. 0	Nut, Top Support	16	No
P.	112D6321P3	Rev. 0	Nut, Top Support	8	No
Q.	112D6321P4	Rev. 0	Nut, Top Support	16	No
R.	112D6321P5	Rev. 0	Nut, top Support	4	No
S.	112D6322	Rev. 0	Bolt, Top support	8	No
T.	112D6323	Rev. 0	Nut, Top Support	8	No
U.	112D6324	Rev. 0	Retainer	4	No
V.	112D6325	Rev. 0	Spring Retainer	16	No
W.	112D6496	Rev. 0	Bolt, Jack	4	No
X.	112D6327	Rev. 0	Sleeve, Jack bolt	4	No
Y.	112D6328	Rev. 0	Washer, Jack bolt	4	No
Z.	112D6497	Rev. 0	Spring, Retainer	4	No
AA.	112D6356	Rev. 0	Support, Mid	4	No
BB.	112D6331	Rev. 0	Ring, Mid Support	4	No
CC.	112D6332	Rev. 0	Screw, Mid support	4	No
DD.	112D6501	Rev. 0	Screw, Top Support	8	No
EE.	112D6502	Rev. 0	Coupling, Top Support Bolting	4	No
FF.	112D6338P1	Rev. 0	Latch	4	No
GG.	112D6338P2	Rev. 0	Latch	4	No
HH.	112D6357	Rev. 0	Contact, Upper	4	No
II.	112D6358	Rev. 0	Tie Rod-Spring Assembly	4	Yes
JJ.	112D6359	Rev. 0	Mid Support Assembly	4	Yes
KK.	112D6360	Rev. 0	Lower Stabilizer Assembly	4	Yes
LL.	112D6489	Rev. 0	Bolt, toggle	8	No
MM.	112D6490	Rev. 0	Support, Lower	4	No
NN.	112D6491	Rev. 0	Toggle	8	No
OO.	112D6492	Rev. 0	Pin, Toggle Bolt	8	No
PP.	112D6493	Rev. 0	Washer, Toggle Bolt	8	No
QQ.	112D6494	Rev. 0	Nut, Toggle Bolt	8	No



DESCRIPTION OF TASK

RR. 112D6495	Rev. 0	Toggle Bolt Assembly	8	Yes
SS. 112D6503	Rev. 0	Extension, Lower Spring	4	No
TT. 112D6504	Rev. 0	Pin	4	No

IV. Repair Procedure

All of the stabilizer installation shall be performed underwater. All work shall be performed in accordance with Paragraph II.A and II.C.

- 1.0 Perform a VT-1 examination of the accessible areas of the RPV wall and shroud support plates, adjacent to the attachment point for the shroud stabilizer lower support.
- 2.0 Shroud Head and Shroud Support Plate.
Machine the required holes in the shroud head and shroud support plates, per II.A.
- 3.0 Repair Clamp Installation
Install the four stabilizers in accordance with the requirements in Paragraph II. A
- 4.0 Repair Examination
A visual examination of the completed repair shall be performed. The television camera shall be capable of resolving a .001 inch diameter wire on a neutral gray background.
 - a. Examine each Clevis pin to assure that it is properly located and in contact with the bottom of the slot in the lower spring.
 - b. Examine the stabilizer assembly for contact between the RPV wall and the upper contact, mid support, and lower contacts.
 - c. Examine the stabilizer assembly for contact between the shroud and the upper support and lower spring.
 - d. Examine all components for installation of retainer devices.



DESCRIPTION OF TASK

V. Quality Requirements

- 1.0 GE site Quality Control Representatives shall provide QC surveillance and document the field work performed, to insure that the requirements of this FDI have been met. All work is to be performed in accordance with GE Quality Assurance Manual QAM-001, Rev. 4
- 2.0 The following shall be the minimum Quality Control Documentation requirements:
 - a. Video tape of the completed repair.
 - b. Process documentation and inspection data sheets as applicable.
 - c. As-built dimensions per II.A.
- 3.0 The following procedures and supporting documentation shall be submitted to GE Site QA and Plant Owner (as applicable) for review, and approval obtained prior to use. Previously approved GENE procedures may be used in satisfying the requirements of this paragraph provided they are approved by the Plant Owner.
 - a. Installation procedures, travelers, or sequence data sheets, measurement data sheets, drawings, sketches, instructions, etc. These procedures or travelers shall include cleaning and cleanliness, tool control, machining process, and visual inspection methods.
 - b. Hardware certifications.

VI. Safety/Reliability

Safety and reliability have been considered in the issue of the design documents this project. The requirements for this design are contained in the Design Specifications 25A5579 and 25A5580. The seismic analysis of the repair is documented in GENE-771-60-0994. The structural analysis of the repair is documented in GENE-771-58-0994 and 25A5607. The safety evaluation for the repair is contained in 10CFR50.59 Review for Modification P00435. No new safety requirements, reviews or technical specifications are required by this FDI.

**GE Nuclear Energy***Field Disposition Instruction*ORIGINAL WHEN
STAMPED IN RED

FDI NO. 0257-71067

REVISION 0

SHEET 1 OF 4

PROJECT PEACH BOTTOM

UNIT 2

EQUIPMENT SHROUD

MPL NO. B11-D001

DATE OF ISSUE

Anisho Singh
Mike Bengtson

SEP 24 1994

ECN/IR/DDR/FDDR

N/A

DESCRIPTION OF TASK

I. Purpose

This FDI documents the design, requirements, and material required to install the stabilizers for the shroud horizontal welds.

II. Required Documents (supplied by Engineering)

- A. 105E1455, Rev. 0, "Reactor Modification Drawing"
- B. PL105E1455, Rev. 0, "Modification Drawing Parts List"
- C. 25A5581, Rev. 0, "Installation Specification"
- D. 21A2040, Rev. 1, "Cleaning and Cleanliness Control"
- E. 25A5579, Rev. 1 "Shroud Repair Hardware, Design Specification"
- F. 25A5580, Rev. 1 "Shroud Stabilizer Code, Design Specification"
- G. 10CFR50.59 Review for Modification P00435
- H. 25A5607, Rev. 0, "Shroud Stabilizers Stress Report"
- I. GENE-771-58-0994, Rev. 0, "Shroud and Shroud Repair Hardware Stress Analysis"
- J. GENE-771-60-0994, Rev. 0, "Seismic Design Report of Shroud Repair" for Peach Bottom Unit 2/3.
- K. QAM-001, Rev. 4, "GE Quality Assurance Manual"
- L. 25A5601, Rev. 1 "Fabrication Specification"

III. Material Required (per Paragraph II.A and II.B)

			QTY.	P.L.
A. 112D6347	Rev. 0	Upper Stabilizer Assembly	4	Yes
B. 112D6348	Rev. 0	Stabilizer Support assembly	4	Yes
C. 112D6349	Rev. 0	Tie Rod Assembly	4	Yes
D. 112D6350	Rev. 0	Rod, Tie	4	No
E. 112D6313	Rev. 0	Nut, Tie Rod	4	No

APPROVALS	DATE	APPROVALS	DATE	THIS EQUIPMENT IS SAFETY RELATED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	SAFETY FUNCTION IS AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>[Signature]</i> FDI ORIGINATOR	9/24/94			FIELD WORK ORDER NO.	COMPLETION RECORD REQUIRED BY R. E. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<i>[Signature]</i> QUALITY	9/24/94				
<i>[Signature]</i> MAT'L ENGR	9/24/94			FDI TASK COMPLETED	DATE
<i>[Signature]</i> M.A. QUIBIA	9/24/94	INTERNAL	EXTERNAL	SITE QUALITY CONTROL	
<i>[Signature]</i> ENGRG. MANAGER	9/29/94			FIELD MANAGER	
<i>[Signature]</i> RESPONSIBLE ENGR	9/24/94				
<i>[Signature]</i> PROJECT MANAGER					



DESCRIPTION OF TASK

III. Material Required (per Paragraph II.A and II.B)

				QTY.	P.L.
F.	112D6351	Rev. 0	Spring, Lower	4	No
G.	112D6352	Rev. 0	Spring, Upper	4	No
H.	112D6498	Rev. 0	Bracket, Upper spring	4	No
I.	112D6353P1	Rev. 0	Support, Upper	4	No
J.	112D6353P2	Rev. 0	Support, Upper	4	No
K.	112D6354	Rev. 0	Support, Upper	4	No
L.	112D6355	Rev. 0	Contact, Lower	4	No
M.	112D6505	Rev. 0	Pin, Clevis	4	No
N.	112D6321P1	Rev. 0	Nut, Top Support	16	No
O.	112D6321P2	Rev. 0	Nut, Top Support	16	No
P.	112D6321P3	Rev. 0	Nut, Top Support	8	No
Q.	112D6321P4	Rev. 0	Nut, Top Support	16	No
R.	112D6321P5	Rev. 0	Nut, top Support	4	No
S.	112D6322	Rev. 0	Bolt, Top support	8	No
T.	112D6323	Rev. 0	Nut, Top Support	8	No
U.	112D6324	Rev. 0	Retainer	4	No
V.	112D6325	Rev. 0	Spring Retainer	16	No
W.	112D6496	Rev. 0	Bolt, Jack	4	No
X.	112D6327	Rev. 0	Sleeve, Jack bolt	4	No
Y.	112D6328	Rev. 0	Washer, Jack bolt	4	No
Z.	112D6497	Rev. 0	Spring, Retainer	4	No
AA.	112D6356	Rev. 0	Support, Mid	4	No
BB.	112D6331	Rev. 0	Ring, Mid Support	4	No
CC.	112D6332	Rev. 0	Screw, Mid support	4	No
DD.	112D6501	Rev. 0	Screw, Top Support	8	No
EE.	112D6502	Rev. 0	Coupling, Top Support Bolting	4	No
FF.	112D6338P1	Rev. 0	Latch	4	No
GG.	112D6338P2	Rev. 0	Latch	4	No
HH.	112D6357	Rev. 0	Contact, Upper	4	No
II.	112D6358	Rev. 0	Tie Rod-Spring Assembly	4	Yes
JJ.	112D6359	Rev. 0	Mid Support Assembly	4	Yes
KK.	112D6360	Rev. 0	Lower Stabilizer Assembly	4	Yes
LL.	112D6489	Rev. 0	Bolt, toggle	8	No
MM.	112D6490	Rev. 0	Support, Lower	4	No
NN.	112D6491	Rev. 0	Toggle	8	No
OO.	112D6492	Rev. 0	Pin, Toggle Bolt	8	No
PP.	112D6493	Rev. 0	Washer, Toggle Bolt	8	No
QQ.	112D6494	Rev. 0	Nut, Toggle Bolt	8	No



DESCRIPTION OF TASK

RR. 112D6495	Rev. 0	Toggle Bolt Assembly	8	Yes
SS. 112D6503	Rev. 0	Extension, Lower Spring	4	No
TT. 112D6504	Rev. 0	Pin	4	No

IV. Repair Procedure

All of the stabilizer installation shall be performed underwater. All work shall be performed in accordance with Paragraph II.A and II.C.

- 1.0 Perform a VT-1 examination of the accessible areas of the RPV wall and shroud support plates, adjacent to the attachment point for the shroud stabilizer lower support.
- 2.0 Shroud Head and Shroud Support Plate.
Machine the required holes in the shroud head and shroud support plates, per II.A.
- 3.0 Repair Clamp Installation
Install the four stabilizers in accordance with the requirements in Paragraph II. A
- 4.0 Repair Examination
A visual examination of the completed repair shall be performed. The television camera shall be capable of resolving a .001 inch diameter wire on a neutral gray background.
 - a. Examine each Clevis pin to assure that it is properly located and in contact with the bottom of the slot in the lower spring.
 - b. Examine the stabilizer assembly for contact between the RPV wall and the upper contact, mid support, and lower contacts.
 - c. Examine the stabilizer assembly for contact between the shroud and the upper support and lower spring.
 - d. Examine all components for installation of retainer devices.



DESCRIPTION OF TASK

V. Quality Requirements

- 1.0 GE site Quality Control Representatives shall provide QC surveillance and document the field work performed, to insure that the requirements of this FDI have been met. All work is to be performed in accordance with GE Quality Assurance Manual QAM-001, Rev. 4
- 2.0 The following shall be the minimum Quality Control Documentation requirements:
 - a. Video tape of the completed repair.
 - b. Process documentation and inspection data sheets as applicable.
 - c. As-built dimensions per II.A.
- 3.0 The following procedures and supporting documentation shall be submitted to GE Site QA and Plant Owner (as applicable) for review, and approval obtained prior to use. Previously approved GEN[®] procedures may be used in satisfying the requirements of this paragraph provided they are approved by the Plant Owner.
 - a. Installation procedures, travelers, or sequence data sheets, measurement data sheets, drawings, sketches, instructions, etc. These procedures or travelers shall include cleaning and cleanliness, tool control, machining process, and visual inspection methods.
 - b. Hardware certifications.

VI. Safety/Reliability

Safety and reliability have been considered in the issue of the design documents this project. The requirements for this design are contained in the Design Specifications 25A5579 and 25A5580. The seismic analysis of the repair is documented in GENE-771-60-0994. The structural analysis of the repair is documented in GENE-771-58-0994 and 25A5607. The safety evaluation for the repair is contained in 10CFR50.59 Review for Modification P00435. No new safety requirements, reviews or technical specifications are required by this FDI.



GE Nuclear Energy

Field Disposition Instruction

ORIGINAL WHEN
STAMPED IN RED

FDI NO. 0257-71067

REVISION

0

SHEET

1

OF

4

PROJECT PEACH BOTTOM

UNIT 2

EQUIPMENT SHROUD

MPL NO. B11-D001

DATE OF ISSUE

SEP 24 1994

ECN/IR/DDR/FDDR

N/A

DESCRIPTION OF TASK

I. Purpose

This FDI documents the design, requirements, and material required to install the stabilizers for the shroud horizontal welds.

II. Required Documents (supplied by Engineering)

- A. 105E1455, Rev. 0, "Reactor Modification Drawing"
- B. PL105E1455, Rev. 0, "Modification Drawing Parts List"
- C. 25A5581, Rev. 0, "Installation Specification"
- D. 21A2040, Rev. 1, "Cleaning and Cleanliness Control"
- E. 25A5579, Rev. 1 "Shroud Repair Hardware, Design Specification"
- F. 25A5580, Rev. 1 "Shroud Stabilizer Code, Design Specification"
- G. 10CFR50.59 Review for Modification P00435
- H. 25A5607, Rev. 0, "Shroud Stabilizers Stress Report"
- I. GENE-771-58-0994, Rev. 0, "Shroud and Shroud Repair Hardware Stress Analysis"
- J. GENE-771-60-0994, Rev. 0, "Seismic Design Report of Shroud Repair" for Peach Bottom Unit 2/3.
- K. QAM-001, Rev. 4, "GE Quality Assurance Manual"
- L. 25A5601, Rev. 1 "Fabrication Specification"

III. Material Required (per Paragraph II.A and II.B)

			QTY.	P.L.
A. 112D6347	Rev. 0	Upper Stabilizer Assembly	4	Yes
B. 112D6348	Rev. 0	Stabilizer Support assembly	4	Yes
C. 112D6349	Rev. 0	Tie Rod Assembly	4	Yes
D. 112D6350	Rev. 0	Rod, Tie	4	No
E. 112D6313	Rev. 0	Nut, Tie Rod	4	No

APPROVALS <i>[Signature]</i> FDI ORIGINAL	DATE 9/24/94	APPROVALS _____ _____ _____	DATE _____ _____ _____	THIS EQUIPMENT IS SAFETY RELATED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO SAFETY FUNCTION IS AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	FIELD WORK ORDER NO. _____	COMPLETION RECORD REQUIRED BY R. E. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
QUALITY <i>[Signature]</i> MAT. LAB. ENGR.	9/24/94	DISTRIBUTION CODE INTERNAL _____ EXTERNAL _____		FDI TASK COMPLETED _____		DATE _____
<i>[Signature]</i> ENGR. SUPERVISOR	9/24/94			SITE QUALITY CONTROL _____		
<i>[Signature]</i> RESPONSIBLE ENGR.	9/24/94			FIELD MANAGER _____		
<i>[Signature]</i> PROJECT MANAGER	9/24/94					



DESCRIPTION OF TASK

III. Material Required (per Paragraph II.A and II.B)

				QTY.	P.L.
F.	112D6351	Rev. 0	Spring, Lower	4	No
G.	112D6352	Rev. 0	Spring, Upper	4	No
H.	112D6498	Rev. 0	Bracket, Upper spring	4	No
I.	112D6353P1	Rev. 0	Support, Upper	4	No
J.	112D6353P2	Rev. 0	Support, Upper	4	No
K.	112D6354	Rev. 0	Support, Upper	4	No
L.	112D6355	Rev. 0	Contact, Lower	4	No
M.	112D6505	Rev. 0	Pin, Clevis	4	No
N.	112D6321P1	Rev. 0	Nut, Top Support	16	No
O.	112D6321P2	Rev. 0	Nut, Top Support	16	No
P.	112D6321P3	Rev. 0	Nut, Top Support	8	No
Q.	112D6321P4	Rev. 0	Nut, Top Support	16	No
R.	112D6321P5	Rev. 0	Nut, top Support	4	No
S.	112D6322	Rev. 0	Bolt, Top support	8	No
T.	112D6323	Rev. 0	Nut, Top Support	8	No
U.	112D6324	Rev. 0	Retainer	4	No
V.	112D6325	Rev. 0	Spring Retainer	16	No
W.	112D6496	Rev. 0	Bolt, Jack	4	No
X.	112D6327	Rev. 0	Sleeve, Jack bolt	4	No
Y.	112D6328	Rev. 0	Washer, Jack bolt	4	No
Z.	112D6497	Rev. 0	Spring, Retainer	4	No
AA.	112D6356	Rev. 0	Support, Mid	4	No
BB.	112D6331	Rev. 0	Ring, Mid Support	4	No
CC.	112D6332	Rev. 0	Screw, Mid support	4	No
DD.	112D6501	Rev. 0	Screw, Top Support	8	No
EE.	112D6502	Rev. 0	Coupling, Top Support Bolting	4	No
FF.	112D6338P1	Rev. 0	Latch	4	No
GG.	112D6338P2	Rev. 0	Latch	4	No
HH.	112D6357	Rev. 0	Contact, Upper	4	No
II.	112D6358	Rev. 0	Tie Rod-Spring Assembly	4	Yes
JJ.	112D6359	Rev. 0	Mid Support Assembly	4	Yes
KK.	112D6360	Rev. 0	Lower Stabilizer Assembly	4	Yes
LL.	112D6489	Rev. 0	Bolt, toggle	8	No
MM.	112D6490	Rev. 0	Support, Lower	4	No
NN.	112D6491	Rev. 0	Toggle	8	No
OO.	112D6492	Rev. 0	Pin, Toggle Bolt	8	No
PP.	112D6493	Rev. 0	Washer, Toggle Bolt	8	No
QQ.	112D6494	Rev. 0	Nut, Toggle Bolt	8	No



DESCRIPTION OF TASK

RR. 112D6495	Rev. 0	Toggle Bolt Assembly	8	Yes
SS. 112D6503	Rev. 0	Extension, Lower Spring	4	No
TT. 112D6504	Rev. 0	Pin	4	No

IV. Repair Procedure

All of the stabilizer installation shall be performed underwater. All work shall be performed in accordance with Paragraph II.A and II.C.

1.0 Perform a VT-1 examination of the accessible areas of the RPV wall and shroud support plates, adjacent to the attachment point for the shroud stabilizer lower support.

2.0 Shroud Head and Shroud Support Plate.
Machine the required holes in the shroud head and shroud support plates, per II.A.

3.0 Repair Clamp Installation
Install the four stabilizers in accordance with the requirements in Paragraph II. A

4.0 Repair Examination
A visual examination of the completed repair shall be performed. The television camera shall be capable of resolving a .001 inch diameter wire on a neutral gray background.

- a. Examine each Clevis pin to assure that it is properly located and in contact with the bottom of the slot in the lower spring.
- b. Examine the stabilizer assembly for contact between the RPV wall and the upper contact, mid support, and lower contacts.
- c. Examine the stabilizer assembly for contact between the shroud and the upper support and lower spring.
- d. Examine all components for installation of retainer devices.



DESCRIPTION OF TASK

V. Quality Requirements

- 1.0 GE site Quality Control Representatives shall provide QC surveillance and document the field work performed, to insure that the requirements of this FDI have been met. All work is to be performed in accordance with GE Quality Assurance Manual QAM-001, Rev. 4
- 2.0 The following shall be the minimum Quality Control Documentation requirements:
 - a. Video tape of the completed repair.
 - b. Process documentation and inspection data sheets as applicable.
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Safety and reliability have been considered in the issue of the design documents this project. The requirements for this design are contained in the Design Specifications 25A5579 and 25A5580. The seismic analysis of the repair is documented in GENE-771-60-0994. The structural analysis of the repair is documented in GENE-771-58-0994 and 25A5607. The safety evaluation for the repair is contained in 10CFR50.59 Review for Modification P00435. No new safety requirements, reviews or technical specifications are required by this FDI.



GE Nuclear Energy

Field Disposition Instruction

ORIGINAL WHEN
STAMPED IN RED

FDI NO. 0257-71067

REVISION 0

SHEET 1 OF 4

PROJECT PEACH BOTTOM

UNIT 2

EQUIPMENT SHROUD

MPL NO. B11-D001

DATE OF ISSUE

Mike Bengtson
M (K) BENGTON

SEP 24 1994

ECN/IR/DDR/FDDR

N/A

DESCRIPTION OF TASK

I. Purpose

This FDI documents the design, requirements, and material required to install the stabilizers for the shroud horizontal welds.

II. Required Documents (supplied by Engineering)

- A. 105E1455, Rev. 0, "Reactor Modification Drawing"
- B. PL105E1455, Rev. 0, "Modification Drawing Parts List"
- C. 25A5581, Rev. 0, "Installation Specification"
- D. 21A2040, Rev. 1, "Cleaning and Cleanliness Control"
- E. 25A5579, Rev. 1 "Shroud Repair Hardware, Design Specification"
- F. 25A5580, Rev. 1 "Shroud Stabilizer Code, Design Specification"
- G. 10CFR50.59 Review for Modification P00435
- H. 25A5607, Rev. 0, "Shroud Stabilizers Stress Report"
- I. GENE-771-58-0994, Rev. 0, "Shroud and Shroud Repair Hardware Stress Analysis"
- J. GENE-771-60-0994, Rev. 0, "Seismic Design Report of Shroud Repair" for Peach Bottom Unit 2/3.
- K. QAM-001, Rev. 4, "GE Quality Assurance Manual"
- L. 25A5601, Rev. 1 "Fabrication Specification"

III. Material Required (per Paragraph II.A and II.B)

			QTY.	P.L.
A. 112D6347	Rev. 0	Upper Stabilizer Assembly	4	Yes
B. 112D6348	Rev. 0	Stabilizer Support assembly	4	Yes
C. 112D6349	Rev. 0	Tie Rod Assembly	4	Yes
D. 112D6350	Rev. 0	Rod, Tie	4	No
E. 112D6313	Rev. 0	Nut, Tie Rod	4	No

APPROVALS <i>[Signature]</i> FDI ORIGINATOR <i>[Signature]</i> QUALITY <i>[Signature]</i> MAT'L & ENGR <i>[Signature]</i> ENGR <i>[Signature]</i> RESPONSIBLE ENGR <i>[Signature]</i> PROJECT MANAGER		DATE 9/24/94 9/24/94 9/24/94 9/24/94 9/24/94 9/24/94	APPROVALS _____ _____ _____ DATE _____ _____ _____		THIS EQUIPMENT IS SAFETY RELATED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO SAFETY FUNCTION IS AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO FIELD WORK ORDER NO. _____ COMPLETION RECORD REQUIRED BY R. E. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
			DISTRIBUTION CODE INTERNAL _____ EXTERNAL _____		FDI TASK COMPLETED _____ DATE _____ SITE QUALITY CONTROL _____ FIELD MANAGER _____	



DESCRIPTION OF TASK

III. Material Required (per Paragraph II.A and II.B)

				QTY.	P.L.
F.	112D6351	Rev. 0	Spring, Lower	4	No
G.	112D6352	Rev. 0	Spring, Upper	4	No
H.	112D6498	Rev. 0	Bracket, Upper spring	4	No
I.	112D6353P1	Rev. 0	Support, Upper	4	No
J.	112D6353P2	Rev. 0	Support, Upper	4	No
K.	112D6354	Rev. 0	Support, Upper	4	No
L.	112D6355	Rev. 0	Contact, Lower	4	No
M.	112D6505	Rev. 0	Pin, Clevis	4	No
N.	112D6321P1	Rev. 0	Nut, Top Support	16	No
O.	112D6321P2	Rev. 0	Nut, Top Support	16	No
P.	112D6321P3	Rev. 0	Nut, Top Support	8	No
Q.	112D6321P4	Rev. 0	Nut, Top Support	16	No
R.	112D6321P5	Rev. 0	Nut, top Support	4	No
S.	112D6322	Rev. 0	Bolt, Top support	8	No
T.	112D6323	Rev. 0	Nut, Top Support	8	No
U.	112D6324	Rev. 0	Retainer	4	No
V.	112D6325	Rev. 0	Spring Retainer	16	No
W.	112D6496	Rev. 0	Bolt, Jack	4	No
X.	112D6327	Rev. 0	Sleeve, Jack bolt	4	No
Y.	112D6328	Rev. 0	Washer, Jack bolt	4	No
Z.	112D6497	Rev. 0	Spring, Retainer	4	No
AA.	112D6356	Rev. 0	Support, Mid	4	No
BB.	112D6331	Rev. 0	Ring, Mid Support	4	No
CC.	112D6332	Rev. 0	Screw, Mid support	4	No
DD.	112D6501	Rev. 0	Screw, Top Support	8	No
EE.	112D6502	Rev. 0	Coupling, Top Support Bolting	4	No
FF.	112D6338P1	Rev. 0	Latch	4	No
GG.	112D6338P2	Rev. 0	Latch	4	No
HH.	112D6357	Rev. 0	Contact, Upper	4	No
II.	112D6358	Rev. 0	Tie Rod-Spring Assembly	4	Yes
JJ.	112D6359	Rev. 0	Mid Support Assembly	4	Yes
KK.	112D6360	Rev. 0	Lower Stabilizer Assembly	4	Yes
LL.	112D6489	Rev. 0	Bolt, toggle	8	No
MM.	112D6490	Rev. 0	Support, Lower	4	No
NN.	112D6491	Rev. 0	Toggle	8	No
OO.	112D6492	Rev. 0	Pin, Toggle Bolt	8	No
PP.	112D6493	Rev. 0	Washer, Toggle Bolt	8	No
QQ.	112D6494	Rev. 0	Nut, Toggle Bolt	8	No



DESCRIPTION OF TASK

RR. 112D6495	Rev. 0	Toggle Bolt Assembly	8	Yes
SS. 112D6503	Rev. 0	Extension, Lower Spring	4	No
TT. 112D6504	Rev. 0	Pin	4	No

IV. Repair Procedure

All of the stabilizer installation shall be performed underwater. All work shall be performed in accordance with Paragraph II.A and II.C.

1.0 Perform a VT-1 examination of the accessible areas of the RPV wall and shroud support plates, adjacent to the attachment point for the shroud stabilizer lower support.

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Machine the required holes in the shroud head and shroud support plates, per II.A.

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Install the four stabilizers in accordance with the requirements in Paragraph II. A

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A visual examination of the completed repair shall be performed. The television camera shall be capable of resolving a .001 inch diameter wire on a neutral gray background.

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- c. Examine the stabilizer assembly for contact between the shroud and the upper support and lower spring.
- d. Examine all components for installation of retainer devices.



DESCRIPTION OF TASK

V. Quality Requirements

- 1.0 GE site Quality Control Representatives shall provide QC surveillance and document the field work performed, to insure that the requirements of this FDI have been met. All work is to be performed in accordance with GE Quality Assurance Manual QAM-001, Rev. 4
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 - a. Video tape of the completed repair.
 - b. Process documentation and inspection data sheets as applicable.
 - c. As-built dimensions per II.A.
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 - b. Hardware certifications.

VI. Safety/Reliability

Safety and reliability have been considered in the issue of the design documents this project. The requirements for this design are contained in the Design Specifications 25A5579 and 25A5580. The seismic analysis of the repair is documented in GENE-771-60-0994. The structural analysis of the repair is documented in GENE-771-58-0994 and 25A5607. The safety evaluation for the repair is contained in 10CFR50.59 Review for Modification P00435. No new safety requirements, reviews or technical specifications are required by this FDI.



Field Disposition Instruction

~~ORIGINAL WHEN~~
STAMPED IN RED

FDI NO. 0257-71067

REVISION 0

SHEET 1 OF 4

PROJECT PEACH BOTTOM

UNIT _____ 2

EQUIPMENT SHROUD

MPL NO. B11-D001

DATE OF ISSUE

SEP 24 1994

ECN/IR/DDR/FDDR

N/A

DESCRIPTION OF TASK

I. Purpose

This FDI documents the design, requirements, and material required to install the stabilizers for the shroud horizontal welds.

II. Required Documents (supplied by Engineering)

- A. 105E1455, Rev. 0, "Reactor Modification Drawing"
- B. PL105E1455, Rev. 0, "Modification Drawing Parts List"
- C. 25A5581, Rev. 0, "Installation Specification"
- D. 21A2040, Rev. 1, "Cleaning and Cleanliness Control"
- E. 25A5579, Rev. 1 "Shroud Repair Hardware, Design Specification"
- F. 25A5580, Rev. 1 "Shroud Stabilizer Code, Design Specification"
- G. 10CFR50.59 Review for Modification P00435
- H. 25A5607, Rev. 0, "Shroud Stabilizers Stress Report"
- I. GENE-771-58-0994, Rev. 0, "Shroud and Shroud Repair Hardware Stress Analysis"
- J. GENE-771-60-0994, Rev. 0, "Seismic Design Report of Shroud Repair" for Peach Bottom Unit 2/3.
- K. QAM-001, Rev. 4, "GE Quality Assurance Manual"
- L. 25A5601, Rev. 1 "Fabrication Specification"

III. Material Required (per Paragraph II.A and II.B)

			QTY.	P.L.
A. 112D6347	Rev. 0	Upper Stabilizer Assembly	4	Yes
B. 112D6348	Rev. 0	Stabilizer Support assembly	4	Yes
C. 112D6349	Rev. 0	Tie Rod Assembly	4	Yes
D. 112D6350	Rev. 0	Rod, Tie	4	No
E. 112D6313	Rev. 0	Nut, Tie Rod	4	No

APPROVALS	DATE	APPROVALS	DATE	THIS EQUIPMENT IS SAFETY RELATED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<i>[Signature]</i>	9/24/94			SAFETY FUNCTION IS AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
FDI ORIGINAL	9/24/94			FIELD WORK ORDER NO. _____
<i>[Signature]</i>	9/24/94			COMPLETION RECORD REQUIRED BY R.E. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
QUALITY	9/24/94			
<i>[Signature]</i>	9/24/94			
MAT'L MGR ENGR	9/24/94	DISTRIBUTION CODE		FDI TASK COMPLETED
<i>[Signature]</i>	9/24/94	INTERNAL	EXTERNAL	DATE
M.A. QUIRBY	9/24/94			
ENGR MGR	9/29/94			SITE QUALITY CONTROL
<i>[Signature]</i>	9/24/94			FIELD MANAGER
RESPONSIBLE ENGR				
<i>[Signature]</i>				
PROJECT MANAGER				



DESCRIPTION OF TASK

III. Material Required (per Paragraph II.A and II.B)

				QTY.	P.L.
F.	112D6351	Rev. 0	Spring, Lower	4	No
G.	112D6352	Rev. 0	Spring, Upper	4	No
H.	112D6498	Rev. 0	Bracket, Upper spring	4	No
I.	112D6353P1	Rev. 0	Support, Upper	4	No
J.	112D6353P2	Rev. 0	Support, Upper	4	No
K.	112D6354	Rev. 0	Support, Upper	4	No
L.	112D6355	Rev. 0	Contact, Lower	4	No
M.	112D6505	Rev. 0	Pin, Clevis	4	No
N.	112D6321P1	Rev. 0	Nut, Top Support	16	No
O.	112D6321P2	Rev. 0	Nut, Top Support	16	No
P.	112D6321P3	Rev. 0	Nut, Top Support	8	No
Q.	112D6321P4	Rev. 0	Nut, Top Support	16	No
R.	112D6321P5	Rev. 0	Nut, top Support	4	No
S.	112D6322	Rev. 0	Bolt, Top support	8	No
T.	112D6323	Rev. 0	Nut, Top Support	8	No
U.	112D6324	Rev. 0	Retainer	4	No
V.	112D6325	Rev. 0	Spring Retainer	16	No
W.	112D6496	Rev. 0	Bolt, Jack	4	No
X.	112D6327	Rev. 0	Sleeve, Jack bolt	4	No
Y.	112D6328	Rev. 0	Washer, Jack bolt	4	No
Z.	112D6497	Rev. 0	Spring, Retainer	4	No
AA.	112D6356	Rev. 0	Support, Mid	4	No
BB.	112D6331	Rev. 0	Ring, Mid Support	4	No
CC.	112D6332	Rev. 0	Screw, Mid support	4	No
DD.	112D6501	Rev. 0	Screw, Top Support	8	No
EE.	112D6502	Rev. 0	Coupling, Top Support Bolting	4	No
FF.	112D6338P1	Rev. 0	Latch	4	No
GG.	112D6338P2	Rev. 0	Latch	4	No
HH.	112D6357	Rev. 0	Contact, Upper	4	No
II.	112D6358	Rev. 0	Tie Rod-Spring Assembly	4	Yes
JJ.	112D6359	Rev. 0	Mid Support Assembly	4	Yes
KK.	112D6360	Rev. 0	Lower Stabilizer Assembly	4	Yes
LL.	112D6489	Rev. 0	Bolt, toggle	8	No
MM.	112D6490	Rev. 0	Support, Lower	4	No
NN.	112D6491	Rev. 0	Toggle	8	No
OO.	112D6492	Rev. 0	Pin, Toggle Bolt	8	No
PP.	112D6493	Rev. 0	Washer, Toggle Bolt	8	No
QQ.	112D6494	Rev. 0	Nut, Toggle Bolt	8	No



DESCRIPTION OF TASK

RR. 112D6495	Rev. 0	Toggle Bolt Assembly	8	Yes
SS. 112D6503	Rev. 0	Extension, Lower Spring	4	No
TT. 112D6504	Rev. 0	Pin	4	No

IV. Repair Procedure

All of the stabilizer installation shall be performed underwater. All work shall be performed in accordance with Paragraph II.A and II.C.

- 1.0 Perform a VT-1 examination of the accessible areas of the RPV wall and shroud support plates, adjacent to the attachment point for the shroud stabilizer lower support.
- 2.0 Shroud Head and Shroud Support Plate.
Machine the required holes in the shroud head and shroud support plates, per II.A.
- 3.0 Repair Clamp Installation
Install the four stabilizers in accordance with the requirements in Paragraph II. A
- 4.0 Repair Examination
A visual examination of the completed repair shall be performed. The television camera shall be capable of resolving a .001 inch diameter wire on a neutral gray background.
 - a. Examine each Clevis pin to assure that it is properly located and in contact with the bottom of the slot in the lower spring.
 - b. Examine the stabilizer assembly for contact between the RPV wall and the upper contact, mid support, and lower contacts.
 - c. Examine the stabilizer assembly for contact between the shroud and the upper support and lower spring.
 - d. Examine all components for installation of retainer devices.



DESCRIPTION OF TASK

V. Quality Requirements

- 1.0 GE site Quality Control Representatives shall provide QC surveillance and document the field work performed, to insure that the requirements of this FDI have been met. All work is to be performed in accordance with GE Quality Assurance Manual QAM-001, Rev. 4
- 2.0 The following shall be the minimum Quality Control Documentation requirements:
 - a. Video tape of the completed repair.
 - b. Process documentation and inspection data sheets as applicable.
 - c. As-built dimensions per II.A.
- 3.0 The following procedures and supporting documentation shall be submitted to GE Site QA and Plant Owner (as applicable) for review, and approval obtained prior to use. Previously approved GENE procedures may be used in satisfying the requirements of this paragraph provided they are approved by the Plant Owner.
 - a. Installation procedures, travelers, or sequence data sheets, measurement data sheets, drawings, sketches, instructions, etc. These procedures or travelers shall include cleaning and cleanliness, tool control, machining process, and visual inspection methods.
 - b. Hardware certifications.

VI. Safety/Reliability

Safety and reliability have been considered in the issue of the design documents this project. The requirements for this design are contained in the Design Specifications 25A5579 and 25A5580. The seismic analysis of the repair is documented in GENE-771-60-0994. The structural analysis of the repair is documented in GENE-771-58-0994 and 25A5607. The safety evaluation for the repair is contained in 10CFR50.59 Review for Modification P00435. No new safety requirements, reviews or technical specifications are required by this FDI.

**GE Nuclear Energy***Field Disposition Instruction*ORIGINAL WHEN
STAMPED IN RED

FDI NO. 0257-71067

REVISION 0

SHEET 1 OF 4

DATE OF ISSUE

Marko Singh
Mike Bengtson

SEP 24 1994

ECN/IR/DDR/FDDR

N/A

PROJECT PEACH BOTTOM

UNIT 2

EQUIPMENT SHROUD

MPL NO. B11-D001

DESCRIPTION OF TASK

I. Purpose

This FDI documents the design, requirements, and material required to install the stabilizers for the shroud horizontal welds.

II. Required Documents (supplied by Engineering)

- A. 105E1455, Rev. 0, "Reactor Modification Drawing"
- B. PL105E1455, Rev. 0, "Modification Drawing Parts List"
- C. 25A5581, Rev. 0, "Installation Specification"
- D. 21A2040, Rev. 1, "Cleaning and Cleanliness Control"
- E. 25A5579, Rev. 1 "Shroud Repair Hardware, Design Specification"
- F. 25A5580, Rev. 1 "Shroud Stabilizer Code, Design Specification"
- G. 10CFR50.59 Review for Modification P00435
- H. 25A5607, Rev. 0, "Shroud Stabilizers Stress Report"
- I. GENE-771-58-0994, Rev. 0, "Shroud and Shroud Repair Hardware Stress Analysis"
- J. GENE-771-60-0994, Rev. 0, "Seismic Design Report of Shroud Repair" for Peach Bottom Unit 2/3.
- K. QAM-001, Rev. 4, "GE Quality Assurance Manual"
- L. 25A5601, Rev. 1 "Fabrication Specification"

III. Material Required (per Paragraph II.A and II.B)

			QTY.	P.L.
A.	112D6347	Rev. 0	Upper Stabilizer Assembly	4 Yes
B.	112D6348	Rev. 0	Stabilizer Support assembly	4 Yes
C.	112D6349	Rev. 0	Tie Rod Assembly	4 Yes
D.	112D6350	Rev. 0	Rod, Tie	4 No
E.	112D6313	Rev. 0	Nut, Tie Rod	4 No

APPROVALS	DATE	APPROVALS	DATE	THIS EQUIPMENT IS SAFETY RELATED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	SAFETY FUNCTION IS AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>[Signature]</i> FDI ORIGINATOR	9/24/94			FIELD WORK ORDER NO.	COMPLETION RECORD REQUIRED BY R E
<i>[Signature]</i> QUALITY	9/24/94				YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
<i>[Signature]</i> MAT'L MGR	9/24/94			FDI TASK COMPLETED	DATE
<i>[Signature]</i> ENGR	9/24/94	INTERNAL	EXTERNAL	SITE QUALITY CONTROL	
<i>[Signature]</i> RESPONSIBLE ENGR	9/24/94			FIELD MANAGER	
<i>[Signature]</i> PROJECT MANAGER	9/24/94				



DESCRIPTION OF TASK

III. Material Required (per Paragraph II.A and II.B)

				QTY. P.L.	
F.	112D6351	Rev. 0	Spring, Lower	4	No
G.	112D6352	Rev. 0	Spring, Upper	4	No
H.	112D6498	Rev. 0	Bracket, Upper spring	4	No
I.	112D6353P1	Rev. 0	Support, Upper	4	No
J.	112D6353P2	Rev. 0	Support, Upper	4	No
K.	112D6354	Rev. 0	Support, Upper	4	No
L.	112D6355	Rev. 0	Contact, Lower	4	No
M.	112D6505	Rev. 0	Pin, Clevis	4	No
N.	112D6321P1	Rev. 0	Nut, Top Support	16	No
O.	112D6321P2	Rev. 0	Nut, Top Support	16	No
P.	112D6321P3	Rev. 0	Nut, Top Support	8	No
Q.	112D6321P4	Rev. 0	Nut, Top Support	16	No
R.	112D6321P5	Rev. 0	Nut, top Support	4	No
S.	112D6322	Rev. 0	Bolt, Top support	8	No
T.	112D6323	Rev. 0	Nut, Top Support	8	No
U.	112D6324	Rev. 0	Retainer	4	No
V.	112D6325	Rev. 0	Spring Retainer	16	No
W.	112D6496	Rev. 0	Bolt, Jack	4	No
X.	112D6327	Rev. 0	Sleeve, Jack bolt	4	No
Y.	112D6328	Rev. 0	Washer, Jack bolt	4	No
Z.	112D6497	Rev. 0	Spring, Retainer	4	No
AA.	112D6356	Rev. 0	Support, Mid	4	No
BB.	112D6331	Rev. 0	Ring, Mid Support	4	No
CC.	112D6332	Rev. 0	Screw, Mid support	4	No
DD.	112D6501	Rev. 0	Screw, Top Support	8	No
EE.	112D6502	Rev. 0	Coupling, Top Support Bolting	4	No
FF.	112D6338P1	Rev. 0	Latch	4	No
GG.	112D6338P2	Rev. 0	Latch	4	No
HH.	112D6357	Rev. 0	Contact, Upper	4	No
II.	112D6358	Rev. 0	Tie Rod-Spring Assembly	4	Yes
JJ.	112D6359	Rev. 0	Mid Support Assembly	4	Yes
KK.	112D6360	Rev. 0	Lower Stabilizer Assembly	4	Yes
LL.	112D6489	Rev. 0	Bolt, toggle	8	No
MM.	112D6490	Rev. 0	Support, Lower	4	No
NN.	112D6491	Rev. 0	Toggle	8	No
OO.	112D6492	Rev. 0	Pin, Toggle Bolt	8	No
PP.	112D6493	Rev. 0	Washer, Toggle Bolt	8	No
QQ.	112D6494	Rev. 0	Nut, Toggle Bolt	8	No



DESCRIPTION OF TASK

RR. 112D6495	Rev. 0	Toggle Bolt Assembly	8	Yes
SS. 112D6503	Rev. 0	Extension, Lower Spring	4	No
TT. 112D6504	Rev. 0	Pin	4	No

IV. Repair Procedure

All of the stabilizer installation shall be performed underwater. All work shall be performed in accordance with Paragraph II.A and II.C.

- 1.0 Perform a VT-1 examination of the accessible areas of the RPV wall and shroud support plates, adjacent to the attachment point for the shroud stabilizer lower support.
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 - a. Examine each Clevis pin to assure that it is properly located and in contact with the bottom of the slot in the lower spring.
 - b. Examine the stabilizer assembly for contact between the RPV wall and the upper contact, mid support, and lower contacts.
 - c. Examine the stabilizer assembly for contact between the shroud and the upper support and lower spring.
 - d. Examine all components for installation of retainer devices.



DESCRIPTION OF TASK

V. Quality Requirements

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 - a. Installation procedures, travelers, or sequence data sheets, measurement data sheets, drawings, sketches, instructions, etc. These procedures or travelers shall include cleaning and cleanliness, tool control, machining process, and visual inspection methods.
 - b. Hardware certifications.

VI. Safety/Reliability

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EIS IDENT:

REVISION STATUS SHEET

DOCUMENT TITLE UPPER STABILIZER

LEGEND OR DESCRIPTION OF GROUPS

TYPE: PARTS LIST

FMF: PEACH BOTTOM

MPL NO: PRODUCT SUMMARY SECTION 7

THIS ITEM IS OR CONTAINS A SAFETY-RELATED ITEM YES ☒ NO ☐ EQUIP CLASS CODE P

REVISION				C
0	RM-01497	SEP 24 1994		
PRINTS TO				
MADE BY		APPROVALS		GENERAL ELECTRIC COMPANY 175 CURTNER AVENUE SAN JOSE CALIFORNIA 95125
D. SMITH 9/16/94		W. G. JAMESON 9/17/94		
CHKD BY:		ISSUED		CONT ON SHEET 2
D. SMITH 9/16/94		R. J. AHMANN SEP 24 1994		

MS WORD (9/3/94)

TITLE: UPPER, STABILIZER

FOR: B. JAMESON/JENNIE
(REVIEW ONLY) SECT REV
PL 112D6347 A

ITEM L NO. T	DOCUMENT TYPE	DESCRIPTION		GROUP NUMBER AND QUANTITY		U/M	SRC	ACTION
		NAME	IDENTIFICATION	DOC E C STA C C G001				
001		ASSEMBLY		ASM	X			
002	DETAIL DWG	SPRING, UPPER	112D6352P001	RVW P	1			
003	DETAIL DWG	BRACKET, UPPER SPRG	112D6498P001	RVW P	1			
004	DETAIL DWG	NUT, TOP SUPPORT	112D6323P001	P	2			
005	DETAIL DWG	SPRING, RETAINER	112D6325P001	P	2			
006	DETAIL DWG	BOLT, JACK	112D6496P001	RVW P	1			
007	DETAIL DWG	SLEEVE, JACK BOLT	112D6327P001	P	1			
008	DETAIL DWG	WASHER, JACK BOLT	112D6328P001	P	1			
009	DETAIL DWG	CONTACT, UPPER	112D6357P001	RVW P	1			
010	DETAIL DWG	NUT, TOP SUPPORT <i>NUT, TOP SUP'T * PIN DETAIL</i>	112D6321P004	P	1			
011	DETAIL DWG	NUT, TOP SUPPORT <i>NUT, TOP SUP'T * PIN DETAIL</i>	112D6321P003	P	2			

*****WARNING*****

THE ABOVE PARTS LIST CONTAINS "RVW" DOCUMENTS.
THESE DOCUMENTS MUST BE ISSUED PRIOR TO THE ISSUANCE
OF THE PARTS LIST OR BE DELETED FROM THE PARTS LIST.



GE Nuclear Energy

PL112D6348 SH NO. 1
REV. 0

EIS IDENT:

REVISION STATUS SHEET

DOCUMENT TITLE STABILIZER SUPPORT

LEGEND OR DESCRIPTION OF GROUPS

TYPE: PARTS LIST

FMF: PEACH BOTTOM

MPL NO: PRODUCT SUMMARY SECTION 7

THIS ITEM IS OR CONTAINS A SAFETY-RELATED ITEM YES ☒ NO ☐ EQUIP CLASS CODE P

REVISION				C
0	RM-01497	SEP 24 1994		
PRINTS TO				
MADE BY		APPROVALS		GENERAL ELECTRIC COMPANY
D. SMITH 9/16/94		W. G. JAMESON 9/17/94		175 CURTNER AVENUE
CHKD BY:		ISSUED		SAN JOSE CALIFORNIA 95125
D. SMITH 9/16/94		R. J. AHMANN		

SEP 24 1994

CONT ON SHEET 2

MS WORD (9/3/94)

TITLE: STABILIZER SUPPORT

FOR: B. JAMESON/JENNIE
[REVIEW ONLY] SECT REV
PL 112D6348 A

ITEM NO.	DOCUMENT TYPE	DESCRIPTION		GROUP NUMBER AND QUANTITY				U/M	SRC	ACTION
		NAME	IDENTIFICATION	DOC STA	E C C		GOOI			
001		ASSEMBLY		ASM			X			
002	DETAIL DWG	UPPER SUPPORT	112D6353P001	RVW	P		1			
003	DETAIL DWG	UPPER SUPPORT	112D6353P002	RVW	P		1			
004	DETAIL DWG	SUPPORT	112D6354P001	RVW	P		1			
005	DETAIL DWG	NUT, TOP SUP'T & PIN DETAIL NUT, TOP SUPPORT	112D6321P001		P		4			
006	DETAIL DWG	BOLT, TOP SUPPORT	112D6322P001		P		2			
007	DETAIL DWG	RETAINER	112D6324P001		P		1			
008	DETAIL DWG	SPRING, RETAINER	112D6497P001	RVW	P		1			
009	DETAIL DWG	SCREW, TOP SUPPORT	112D6501P001	RVW	P		4			
010	DETAIL DWG	COUPLING, TOP SUPPORT	112D6502P001	RVW	P		1			
011	DETAIL DWG	NUT, TOP SUP'T & PIN DETAIL NUT, TOP SUPPORT	112D6321P004		P		4			
012	DETAIL DWG	NUT, TOP SUPPORT NUT, TOP SUP'T & PIN DETAIL	112D6321P002		P		4			

*****WARNING*****

THE ABOVE PARTS LIST CONTAINS "RVW" DOCUMENTS.
THESE DOCUMENTS MUST BE ISSUED PRIOR TO THE ISSUANCE
OF THE PARTS LIST OR BE DELETED FROM THE PARTS LIST.



GE Nuclear Energy

PL112D6349 SH NO. 1
REV. 0

EIS IDENT:

REVISION STATUS SHEET

DOCUMENT TITLE TIE ROD ASSEMBLY

LEGEND OR DESCRIPTION OF GROUPS

TYPE: PARTS LIST

FMF: PEACH BOTTOM

MPL NO: PRODUCT SUMMARY SECTION 7

THIS ITEM IS OR CONTAINS A SAFETY-RELATED ITEM YES ☒ NO ☐ EQUIP CLASS CODE P

REVISION				C
0	RM-01497	SEP 24 1994		
MADE BY		APPROVALS		GENERAL ELECTRIC COMPANY 175 CURTNER AVENUE SAN JOSE CALIFORNIA 95125
D. SMITH 9/16/94		W. G. JAMESON 9/17/94		
CHKD BY:		ISSUED		CONT ON SHEET 2
D. SMITH 9/16/94		R. J. AHMANN		

MS WORD (9/3/94)

TITLE: TIE ROD ASSEMBLY

FOR: B. JAMESON/JENNIE
(REVIEW ONLY) SECT REV
PL 112D6349 A

A		DESCRIPTION		GROUP NUMBER AND QUANTITY			
ITEM L	DOCUMENT	NAME	IDENTIFICATION	DOC E C	STA C C G001	U/M	SRC ACTION
NO. T	TYPE						
001		ASSEMBLY		ASM	X		
002	DETAIL DWG	ROD, TIE	112D6350P001	RVW P	1		
003	DETAIL DWG	RING, MID SUPPORT	112D6331P001	P	1		
004	DETAIL DWG	SCREW, MID SUPPORT	112D6332P001	P	1		
005	DETAIL DWG	NUT, TOP SUPPORT	112D6321P004	P	1		

NUT, TOP SUP'T & PIN DETAIL

*****W A R N I N G *****

THE ABOVE PARTS LIST CONTAINS "RVW" DOCUMENTS.
THESE DOCUMENTS MUST BE ISSUED PRIOR TO THE ISSUANCE
OF THE PARTS LIST OR BE DELETED FROM THE PARTS LIST.



GE Nuclear Energy

PL112D6358 SH NO. 1
REV. 0

EIS IDENT:

REVISION STATUS SHEET

DOCUMENT TITLE TIE ROD - SPRING ASSEMBLY

LEGEND OR DESCRIPTION OF GROUPS

TYPE: PARTS LIST

FMF: PEACH BOTTOM

MPL NO: PRODUCT SUMMARY SECTION 7

THIS ITEM IS OR CONTAINS A SAFETY-RELATED ITEM YES ☒ NO ☐ EQUIP CLASS CODE P

REVISION				C
0	RM-01497	SEP 24 1994		
MADE BY		APPROVALS		GENERAL ELECTRIC COMPANY
D. SMITH 9/16/94		W. G. JAMESON 9/17/94		175 CURTNER AVENUE
CHKD BY:		ISSUED		SAN JOSE CALIFORNIA 95125
D. SMITH 9/16/94		R. J. AHMANN		CONT ON SHEET 2

MS WORD (9/3/94)

TITLE: TIE ROD SPRING ASSY

FOR: B. JAMESON/JENNIE
(REVIEW ONLY) SECT REV
PL 11206358 A

ITEM NO.	DOCUMENT TYPE	DESCRIPTION		GROUP NUMBER AND QUANTITY		U/M	SRC	ACTION
		NAME	IDENTIFICATION	DOC STA	E C C G001			
001		ASSEMBLY		ASM	X			
002	DETAIL DWG	SPRING, LOWER	11206351P001	RVW P	1			
003	ASSEMBLY	LOWER STABILIZER	11206360G001	RVW P	1			
004	DETAIL DWG	NUT, TOP SUP'T - PIN DETAIL NUT, TOP SUPPORT	11206321P005	P	1			
005	ASSEMBLY	TIE ROD ASSEMBLY	11206349G001	RVW P	1			
006	DETAIL DWG	EXTENSION, LOWER SPRING	11206503P001	RVW P	1			
007	DETAIL DWG	PIN	11206504P002	RVW P	1			

*****WARNING*****

THE ABOVE PARTS LIST CONTAINS "RVW" DOCUMENTS.
THESE DOCUMENTS MUST BE ISSUED PRIOR TO THE ISSUANCE
OF THE PARTS LIST OR BE DELETED FROM THE PARTS LIST.



GE Nuclear Energy

PL112D6359 SH NO. 1
REV. 0

EIS IDENT:

REVISION STATUS SHEET

DOCUMENT TITLE MID SUPPORT

LEGEND OR DESCRIPTION OF GROUPS

TYPE: PARTS LIST

FMF: PEACH BOTTOM

MPL NO: PRODUCT SUMMARY SECTION 7

THIS ITEM IS OR CONTAINS A SAFETY-RELATED ITEM YES ☒ NO ☐ EQUIP CLASS CODE P

REVISION				C
0	RM-01497	SEP 24 1994		
MADE BY		APPROVALS		GENERAL ELECTRIC COMPANY 175 CURTNER AVENUE SAN JOSE CALIFORNIA 95125
D. SMITH 9/16/94		W. G. JAMESON 9/17/94		
CHKD BY:		ISSUED		CONT ON SHEET 2
D. SMITH 9/16/94		R. J. AHMANN		

MS WORD (9/3/94)

TITLE: MID SUPPORT ASSEMBLY

FOR: B. JAMESON/JENNIE
(REVIEW ONLY) SECT REV
PL 11206359 A -

ITEM NO.	DOCUMENT TYPE	DESCRIPTION		GROUP NUMBER AND QUANTITY		U/M	SRC	ACTION
		NAME	IDENTIFICATION	DOC STA	E C C G001			
001		ASSEMBLY		ASM	X			
002	DETAIL DWG	SUPPORT, MID	11206356P001	RVW P	1			
003	DETAIL DWG	LATCH	11206338P002	P	1			

*****WARNING*****

THE ABOVE PARTS LIST CONTAINS "RVW" DOCUMENTS.
THESE DOCUMENTS MUST BE ISSUED PRIOR TO THE ISSUANCE
OF THE PARTS LIST OR BE DELETED FROM THE PARTS LIST.



GE Nuclear Energy

PL112D6360 SH NO. 1
REV. 0

EIS IDENT:

REVISION STATUS SHEET

DOCUMENT TITLE LOWER STABILIZER

LEGEND OR DESCRIPTION OF GROUPS

TYPE: PARTS LIST

FMF: PEACH BOTTOM

MPL NO: PRODUCT SUMMARY SECTION 7

THIS ITEM IS OR CONTAINS A SAFETY-RELATED ITEM YES ☒ NO ☐ EQUIP CLASS CODE P

REVISION				C
C	RM-01497	SEP 24 1994		
MADE BY		APPROVALS		GENERAL ELECTRIC COMPANY
D. SMITH 9/16/94		W. G. JAMESON 9/17/94		175 CURTNER AVENUE
CHKD BY:		ISSUED		SAN JOSE CALIFORNIA 95125
D. SMITH 9/16/94		R. J. AHMANN SEP 24 1994		CONT ON SHEET 2

MS WORD (9/3/94)

TITLE: LOWER STABILIZER

FOR: B.JAMESON/JENNIE
(REVIEW ONLY) SECT REV
PL 112D6360 A -

ITEM L NO. T	DOCUMENT TYPE	DESCRIPTION		GROUP NUMBER AND QUANTITY		U/M	SRC	ACTION
		NAME	IDENTIFICATION	DOC E C STA C C G001				
001		ASSEMBLY		ASM	X			
002	DETAIL DWG	CONTACT, LOWER	112D6355P001	RVW P	1			
003	DETAIL DWG	LATCH	112D6338P001	P	1			

*****W A R N I N G *****

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GE Nuclear Energy

PL112D6495 SH NO. 1
REV. 0

EIS IDENT:

REVISION STATUS SHEET

DOCUMENT TITLE TOGGLE BOLT

LEGEND OR DESCRIPTION OF GROUPS

TYPE: PARTS LIST

FMF: PEACH BOTTOM

MPL NO: PRODUCT SUMMARY SECTION 7

THIS ITEM IS OR CONTAINS A SAFETY-RELATED ITEM YES ☒ NO ☐ EQUIP CLASS CODE P

REVISION				C
0	RM-01497	SEP 24 1994		
PRINTS TO				
MADE BY		APPROVALS		GENERAL ELECTRIC COMPANY 175 CURTNER AVENUE SAN JOSE CALIFORNIA 95125
D. SMITH 9/16/94		W. G. JAMESON 9/17/94		
CHKD BY:		ISSUED		CONT ON SHEET 2
D. SMITH 9/16/94		R. J. AHMANN SEP 24 1994		

MS WORD (9/3/94)

TITLE: LOWER STABILIZER

FOR: B. JAMESON/JENNIE
(REVIEW ONLY) SECT REV
PL 112D6495 A -

ITEM NO.	DOCUMENT TYPE	DESCRIPTION		GROUP NUMBER AND QUANTITY	U/M	SRC	ACTION
		NAME	IDENTIFICATION				
001		ASSEMBLY		ASM X			
002	DETAIL DWG	BOLT, TOGGLE	112D6489P001	RVW P 1			
003	DETAIL DWG	TOGGLE	112D6491P001	RVW P 1			
004	DETAIL DWG	PIN, TOGGLE BOLT	112D6492P001	RVW P 1			
005	DETAIL DWG	PIN	112D6504P001	RVW P 1			

*****W A R N I N G *****

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GE Nuclear Energy

PL105E1455 SH NO. 1

REV 0

REVISION STATUS SHEET

DOCUMENT TITLE REACTOR

TYPE: PARTS LIST

LEGEND OR DESCRIPTION OF GROUPS

FMF: PEACH BOTTOM 2

MPL ITEM NO: PROD. SUMM. SECT. 7

REVISIONS					C
0	RM-01490	SEP 24 1994			
MADE BY M. VALENCIA 9/22/94		APPROVALS DB DRENDEL 9/23/94		DEPT GE NUCLEAR ENERGY	LOCATION SAN JOSE
CHKD BY L. FRENCH 9/23/94		PROD DEF SEP 24 1994 RJ AHMANN		CONT ON SHEET 2 SH. NO. 1	

TITLE: REACTOR

FOR: M.VALENCIA/JG
(REVIEW ONLY)
PL 105E1455

SECT REV
A -

ITEM NO.	L	DOCUMENT TYPE	DESCRIPTION		GROUP NUMBER AND QUANTITY						U/M	SRC	ACTION	
			NAME	IDENTIFICATION	DOC STA	E C C	G001	G002	G003	G004				G005
001			ASSEMBLY		ASM		X							
002		ASSEMBLY	REACTOR	105E1455G002	RVW P		1							
			ASSEMBLY		ASM			X						
003		ASSEMBLY	REACTOR	105E1455G003	RVW P		1							
			ASSEMBLY		ASM				X					
004		ASSEMBLY	REACTOR	105E1455G004	RVW P		1							
			ASSEMBLY		ASM					X				
005		ASSEMBLY	REACTOR	105E1455G005	RVW P		1							
			ASSEMBLY		ASM						X			
006		ASSEMBLY	TIE ROD SPRING ASSY	112D6350G001	RVW P			1	1	1	1			
007		ASSEMBLY	STABILIZER SUPPORT	112D6348G001	RVW P			1	1	1	1			
008		ASSEMBLY	MID SUPPORT ASSEMBLY	112D6359G001	RVW P			1	1	1	1			
009		DETAIL DWG	PIN, CLEVIS	112D6320P001	P			1	1	1	1			
010		ASSEMBLY	UPPER, STABILIZER	112D6347G001	RVW P			1	1	1	1			
011		DETAIL DWG	SUPPORT, LOWER	112D6490	RVW			1	1	1	1			
012		DETAIL DWG	NUT, TIE ROD	112D6313P001	P			1	1	1	1			
013		MAINT&PROC DOC	THREAD LUBRICANT	D50YP5	B		X							
014		ASSEMBLY	TOGGLE BOLT LOWER STABILIZER	112D6495G001	RVW			2	2	2	2			
015		DETAIL DWG	WASHER, TOGGLE BOLT	112D6493P001	RVW			2	2	2	2			
016		DETAIL DWG	NUT, TOGGLE BOLT	112D6494P001	RVW			2	2	2	2			

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EDP

94 09 19

LAST ITEM NO. USED - 016

FINAL SECTION FINAL

2

PL

(REVIEW ONLY)
105E1455

SECT REV
A -