



Duke Power Company
A Duke Energy Company
McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078-9340

(704) 875-4100

D.M. Jamil
Vice-President

December 9, 2002

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: McGuire Nuclear Station
Docket Nos. 50-369, 370
10 CFR 72.48 Summary Report

Attached is a summary report per 10 CFR 72.48 (d)(2) of minor modifications, procedure changes and other miscellaneous changes made at McGuire Nuclear Station under 10 CFR 72.48 for this reporting period.

Questions regarding this submittal should be directed to Norman T. Simms, McGuire Regulatory Compliance at (704) 875-4685.

Sincerely yours,

D.M. Jamil

Attachment

NMSS01
A001

U.S. Nuclear Regulatory Commission
December 9, 2002
Page 2

cc: Mr. L. A Reyes
Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30323

Mr. Robert Martin, Project Manager (addressee only)
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
One White Flint North, Mail Stop O-8G9
11555 Rockville Pike
Rockville, MD 20852-2738

Mr. Scott Shaeffer
Senior NRC Resident Inspector
McGuire Nuclear Station

U. S. Nuclear Regulatory Commission
December 9, 2002
Page 3

bxc: EC050-ELL
RGC File

ATTACHMENT

**Spent Fuel Storage Casks Fabrication Deviations Evaluated
Under 10 CFR 72.48**

CASK TN-32A-050

The activity involved for this 10CFR72.48 evaluation is to put cask serial number TN-32A-050 in service as fabricated (Cask manufacturers were not authorized to perform 10 CFR 72.48 evaluations at the time of fabrication).

During the course of fabrication of the cask, deviations from the design and/or manufacturing specifications occur. Each deviation is documented in a non-conformance report (NCR) by the fabricator or vendor. These NCRs are included in the final documentation package associated with that particular cask. Most NCRs are corrected and the cask is returned within the manufacturing and design specifications. However, some deviations remain outside the manufacturing and design specifications. The purpose of this document is to disposition all NCRs on cask TN-32A-050 and to evaluate the differences between this cask as fabricated and the TN-32A cask as described in the FSAR. This evaluation documents all necessary 10CFR72.48 Unreviewed Safety Question (USQ) Screenings and Evaluations for this cask.

Listed below are all the deviations in the manufacturing process for cask serial number TN-32A-050:

1. Weld prep area of inner shell had gouges
2. Weld prep remained after final machining of SS overlay
3. Protective cover flange did not meet tolerance
4. Inner shell rail bolt holes exceed maximum depth
5. Distance between bolt holes on inner shell did not meet tolerance
6. Flange forgings did not include PWHT in material testing
7. Lid forgings did not include PWHT in material testing
8. Flange forgings lost traceability to material certification
9. Lid forgings lost traceability to material certification
10. Thermocouple nuts not used as specified in procedure
11. Vibratory stress relief and preheat requested to aid removal of support disk
12. Test specimens on inner shell plate material did not meet requirements of ASME NB
13. Resin lot expired
14. Protective cover 22.38 \pm 0.03 missed tolerance
15. Trunnion weld fillet size 5/8-3/4; larger than required

16. Outside distance of trunnions 102.22 ± 0.03 missed tolerance
17. Grooves on trunnion face, does not meet dimensional requirements
18. Flange to bolt hole missed tolerance
19. Flange to bottom missed tolerance
20. Flange thickness missed tolerance
21. Repairs following bubble leak test did not use repair routing
22. Incorrect serial no. stamped on gamma shell
23. Weld splatter on final machined SS overlay surface
24. Gap between basket rails did not meet tolerance
25. Plug gage exceeded allowable drag load
26. Dimensional inspection of basket rails not done
27. Wrong dimension on sketch 1, level 14; listed as C/L
28. Revised PQR/WPS not submitted for approval
29. WPS specified not applicable to PWHT conditions
30. Weld wire did not meet PWHT soak time
31. Welder not qualified for weld
32. Radiographic exam of last 2" of longitudinal seam weld did not meet ASME code
33. Trunnion load test was done at twice the minimum required
34. Weld repair was not qualified for use without PWHT
35. Small area of fuel cell and spacer was melted by weld machine
36. Outside dimensional gage was oversized
37. Gouges on aluminum plate in basket
38. Neutronic testing of trailing edge of poison sheet not done
39. Cask weight in FSAR is in error
40. Weld of the flange to the shield shell was not stress relieved
41. Port cover design differs from FSAR
42. Alternate pressure switch used
43. New welding process requested for approval
44. Incorrect weight stamped on nameplate
45. Weld procedure used was not approved

This evaluation has shown that there are no changes in the license conditions required, no unreviewed safety questions, no significant increase in occupational exposure and no significant unreviewed environmental impact associated with the use of cask TN-32A-050 as fabricated. Prior NRC approval is not required.

CASK TN-32A-051

The activity involved for this 10CFR72.48 evaluation is to put cask serial number TN-32A-051 in service as fabricated (Cask manufacturers were not authorized to perform 10 CFR 72.48 evaluations at the time of fabrication).

During the course of fabrication of the cask, deviations from the design and/or manufacturing specifications occur. Each deviation is documented in a non-conformance report (NCR) by the fabricator or vendor. These NCRs are included in the final documentation package associated with that particular cask. Most NCRs are corrected and the cask is returned within the manufacturing and design specifications. However, some deviations remain outside the manufacturing and design specifications. The purpose of this document is to disposition all NCRs on cask TN-32A-051 and to evaluate the differences between this cask as fabricated and the TN-32A cask as described in the FSAR. This evaluation documents all necessary 10CFR72.48 Unreviewed Safety Question (USQ) Screenings and Evaluations for this cask.

Listed below are all the deviations in the manufacturing process for cask serial number TN-32A-051:

1. Weld prep area of inner shell had gouges
2. Weld repair used procedure not qualified to the depth of the weld repair
3. Undercut on inner shell
4. Flange forgings did not include PWHT in material testing
5. Lid forgings did not include PWHT in material testing
6. Flange forgings lost traceability to material certification
7. Lid forgings lost traceability to material certification
8. Test specimens on inner shell plate material did not meet requirements of ASME NB
9. Resin lot expired
10. Inside dimension of inner shell out of tolerance
11. Distance between bolt holes 20.00 \pm 0.03 missed tolerance
12. Trunnion weld fillet size 5/8-3/4; larger than required
13. Gap between flange and outer shell too large
14. Grooves on trunnion face, does not meet dimensional requirements
15. Outside distance of trunnions 102.22 \pm 0.03 missed tolerance
16. Root pass of the closure bar weld not MT'd as required
17. Inside dimension of inner shell out of tolerance
18. Short tubes for neutron shield resin not square as specified
19. Flange to first bolt hole missed tolerance

20. Distance between bolt holes 20.00 ± 0.03 missed tolerance
21. Distance from flange to trunnion centerline 12.50 ± 0.03 missed tolerance
22. Revised PQR/WPS not submitted for approval
23. Weld wire did not meet 80% PWHT soak time required by NB-2410
24. Radiographic exam of last 2" of longitudinal seam weld did not meet ASME code
25. Trunnion load test was done at twice the minimum required
26. Gap between basket rails 0.48 ± 0.03 missed tolerance
27. Tubing in OP system was bent from interference with protective cover
28. Dimensional inspection of radial neutron shield tubes not performed
29. Welder not qualified for weld
30. Inner shell thickness 1.63 $+0 / -0.03$ missed tolerance
31. Weld procedure used was not approved
32. Outside dimensional gage for basket was oversized
33. Cask weight in FSAR is in error
34. Basket cell did not pass vertical free path gauge test
35. Weld of the flange to the shield shell was not stress relieved
36. Port cover design differs from FSAR
37. Alternate pressure switch used

This evaluation has shown that there are no changes in the license conditions required, no unreviewed safety questions, no significant increase in occupational exposure and no significant unreviewed environmental impact associated with the use of cask TN-32A-051 as fabricated. Prior NRC approval is not required.

CASK TN-32A-052

The activity involved for this 10CFR72.48 evaluation is to put cask serial number TN-32A-052 in service as fabricated (Cask manufacturers were not authorized to perform 10 CFR 72.48 evaluations at the time of fabrication).

During the course of fabrication of the cask, deviations from the design and/or manufacturing specifications occur. Each deviation is documented in a non-conformance report (NCR) by the fabricator or vendor. These NCRs are included in the final documentation package associated with that particular cask. Most NCRs are corrected and the cask is returned within the manufacturing and design specifications. However, some deviations remain outside the manufacturing and design specifications. The purpose of this document is

to disposition all NCRs on cask TN-32A-052 and to evaluate the differences between this cask as fabricated and the TN-32A cask as described in the FSAR. This evaluation documents all necessary 10CFR72.48 Unreviewed Safety Question (USQ) Screenings and Evaluations for this cask.

Listed below are all the deviations in the manufacturing process for cask serial number TN-32A-052:

1. Weld prep area of inner shell had gouges
2. Flange forgings did not include PWHT in material testing
3. Lid forgings did not include PWHT in material testing
4. Flange forgings lost traceability to material certification
5. Lid forgings lost traceability to material certification
6. Test specimens on inner shell plate material did not meet requirements of ASME NB
7. Protective cover 22.38 ± 0.03 missed tolerance
8. Trunnion weld fillet size 5/8-3/4; larger than required
9. Inner shell thickness did not meet tolerance
10. Revised PQR/WPS not submitted for approval
11. Weld wire did not meet 80% PWHT soak time required by NB-2410
12. Inner shell flange to bottom 169.25 $\pm 0.25/-0$ inches missed tolerance
13. Distance from flange to trunnion centerline 12.50 ± 0.03 missed tolerance
14. Radiographic exam of last 2" of longitudinal seam weld did not meet ASME code
15. Trunnion load test was done at twice the minimum required
16. Welder not qualified for weld
17. Gap between basket rails 0.48 ± 0.03 inches did not meet tolerance
18. PWHT cycle on lid did not reach required temperature
19. Cask weight in FSAR is in error
20. Weld of the flange to the shield shell was not stress relieved
21. Port cover design differs from FSAR
22. Alternate pressure switch used

This evaluation has shown that there are no changes in the license conditions required, no unreviewed safety questions, no significant increase in occupational exposure and no significant unreviewed environmental impact associated with the use of cask TN-32A-052 as fabricated. Prior NRC approval is not required.

The activity involved for this 10CFR72.48 evaluation is to put cask serial number TN-32A-053 in service as fabricated (Cask manufacturers were not authorized to perform 10 CFR 72.48 evaluations at the time of fabrication).

During the course of fabrication of the cask, deviations from the design and/or manufacturing specifications occur. Each deviation is documented in a non-conformance report (NCR) by the fabricator or vendor. These NCRs are included in the final documentation package associated with that particular cask. Most NCRs are corrected and the cask is returned within the manufacturing and design specifications. However, some deviations remain outside the manufacturing and design specifications. The purpose of this document is to disposition all NCRs on cask TN-32A-053 and to evaluate the differences between this cask as fabricated and the TN-32A cask as described in the FSAR. This evaluation documents all necessary 10CFR72.48 Unreviewed Safety Question (USQ) Screenings and Evaluations for this cask.

Listed below are all the deviations in the manufacturing process for cask serial number TN-32A-053.

1. Weld prep area of inner shell had gouges
2. Undercut on inner shell
3. Flange forgings did not include PWHT in material testing
4. Lid forgings did not include PWHT in material testing
5. Flange forgings lost traceability to material certification
6. Lid forgings lost traceability to material certification
7. Test specimens on inner shell plate material did not meet requirements of ASME NB
8. Resin lot expired
9. Protective cover 22.38 ± 0.03 missed tolerance
10. Trunnion weld fillet size $5/8-3/4$; larger than required
11. Grooves on trunnion face, does not meet dimensional requirements
12. Revised PQR/WPS not submitted for approval
13. Weld wire did not meet 80% PWHT soak time required by NB-2410
14. Flange to bottom 169.50 ± 0.06 inches after welding missed tolerance
15. Flange to bolt hole 19.38 ± 0.03 inches missed tolerance
16. Scratch on OD of inner shell up to 0.040 inches deep
17. Radiographic exam of last 2" of longitudinal seam weld did not meet ASME code
18. Gap between flange and shield shell exceeded maximum allowable of 0.030

19. Heatup of outer shell for shrink fit did not follow procedure
20. PWHT cycle on lid did not reach required temperature
21. Inner shell counterbore 5.13 ± 0.03 inches did not meet tolerance
22. Distance from flange to trunnion centerline 12.50 ± 0.03 missed tolerance
23. Gap between basket rails 0.48 ± 0.03 inches did not meet tolerance
24. Drain port ID 4.12 ± 0.03 inches missed tolerance
25. Shield lid lead in OD 69.42 ± 0.03 inches missed tolerance
26. Gouge on lid from handling damage
27. Exceeded maximum desired temperature during PWHT cycle
28. Gouges on aluminum plate in basket
29. Cask weight in FSAR is in error
30. Weld of the flange to the shield shell was not stress relieved
31. Port cover design differs from FSAR
32. Alternate pressure switch used

This evaluation has shown that there are no changes in the license conditions required, no unreviewed safety questions, no significant increase in occupational exposure and no significant unreviewed environmental impact associated with the use of cask TN-32A-053 as fabricated. Prior NRC approval is not required.

CASK TN-32A-054

The activity involved for this 10CFR72.48 evaluation is to put cask serial number TN-32A-054 in service as fabricated (Cask manufacturers were not authorized to perform 10 CFR 72.48 evaluations at the time of fabrication).

During the course of fabrication of the cask, deviations from the design and/or manufacturing specifications occur. Each deviation is documented in a non-conformance report (NCR) by the fabricator or vendor. These NCRs are included in the final documentation package associated with that particular cask. Most NCRs are corrected and the cask is returned within the manufacturing and design specifications. However, some deviations remain outside the manufacturing and design specifications. The purpose of this document is to disposition all NCRs on cask TN-32A-054 and to evaluate the differences between this cask as fabricated and the TN-32A cask as described in the FSAR. This evaluation documents all necessary 10CFR72.48 Unreviewed Safety Question (USQ) Screenings and Evaluations for this cask.

Listed below are all the deviations in the manufacturing process for cask serial number TN-32A-054:

1. Weld prep area of inner shell had gouges
2. Flange forgings did not include PWHT in material testing
3. Lid forgings did not include PWHT in material testing
4. Flange forgings lost traceability to material certification
5. Lid forgings lost traceability to material certification
6. Test specimens on inner shell plate material did not meet requirements of ASME NB
7. Protective cover 22.38 ± 0.03 missed tolerance
8. Machining of lower inner shell did not include flare on the OD
9. Trunnion weld fillet size 5/8-3/4; larger than required
10. Revised PQR/WPS not submitted for approval
11. Weld wire did not meet PWHT soak time
12. Radiographic exam of last 2" of longitudinal seam weld did not meet ASME code
13. Several dimensions were out of tolerance
14. Part identification was stamped directly on seam weld
15. Welder not qualified for weld
16. UT thickness inspection procedure change requested
17. Outside edge of trunnion sheared
18. Required density tests were not performed on radial neutron resin material
19. ID of groove for lid seal 70.750 $+0.22/-0.004$ missed tolerance
20. Gap between basket rails 0.48 ± 0.03 inches did not meet tolerance
21. Small area of fuel cell and spacer was melted by weld machine
22. Outside dimensional gage was oversized
23. Cask weight in FSAR is in error
24. Weld of the flange to the shield shell was not stress relieved
25. Calculation error used average of maximum dimensions to accept basket
26. Calculation error used the wrong thermal expansion coefficient and minimum gap size
27. Basket dimension 58.09 $+0.25/-0.38$ did not meet tolerance
28. Port cover design differs from FSAR
29. Alternate pressure switch used

This evaluation has shown that there are no changes in the license conditions required, no unreviewed safety questions, no significant increase in occupational exposure and no significant unreviewed environmental impact associated with

the use of cask TN-32A-054 as fabricated. Prior NRC approval is not required.

Procedure Changes Evaluated Under 10 CFR 72.48

MP/O/A/7650/187

Procedure provides instructions for loading spent fuel assemblies into TN-32A spent fuel dry storage casks.

Revision 2 incorporates the following enhancements:

1. Changing procedure to specify use of Fel-Pro N-5000 instead of Neolube for lubrication of all bolts. The change is being made because the N-5000 holds up better underwater and should therefore better protect the carbon steel threads in the bolt holes. Because the N-5000 has a higher friction coefficient (.150) compared to the friction coefficient used in the ISFSI SAR for cask lid bolts and neutron shield bolts (.132), the torque values for these bolts have been adjusted proportionally so that the bolt preloads are unchanged in the ISFSI SAR. Also, the N-5000 lubricant is qualified in the Power Chemistry Manual for use in the spent fuel pool.
2. Adding additional QC inspections for Vent and Drain port sealing surfaces just before the covers are permanently installed on the cask.
3. Adding a requirement to route the vacuum drying system exhaust through a HEPA vacuum and then to the VF system with the VF system in filter mode to mitigate any release of gases from the spent fuel assemblies.
4. Revising instructions on tightening VCR fittings to ensure they provide a proper seal.
5. Revising procedure to vacuum test portions of the OP system prior to subjecting them to helium leak testing to preclude contaminating the system with helium during helium leak testing.
6. Revising the process for preventing freezing when vacuum drying the cask seal interspace. Experience from the two dry run exercises has shown that the interseal pressure drops so rapidly that the vacuum flow must be throttled

to slow down the pressure decrease and therefore minimize the possibility of freezing.

7. Adding a requirement to notify Regulatory Compliance to make a notification to the NRC within 30 days after a cask is loaded.
8. Revising procedure to require QC inspections during all helium leak detection activities.

Revision 3 incorporates the following change:

The cask manufacturer (TN) requested that the torque values for the cask lid bolts and the neutron shield bolts be reduced to ensure that the bolt stresses do not exceed allowable stresses. TN calculation 1084-25 evaluates this reduction in torque values and confirms that the torque values are adequate to ensure that the cask lid remains intact in accident conditions while providing enough bolt preload to ensure proper sealing of the lid. Although the neutron shield bolts are assumed to fail in accident conditions, the reduce torques do make their failure less likely. The calculation also assures that the neutron shield torque values are adequate to provide a proper seal.

These evaluations has shown that there are no changes in the license conditions required, no unreviewed safety questions, no significant increase in occupational exposure and no significant unreviewed environmental impact associated with these changes to the procedure. Prior NRC approval is not required.

Minor Modifications Evaluated Under 10 CFR 72.48

Variation Notice VN42481/PID

The location of the Control Box and orientation of the Protective Cover for the TN-32A Spent Fuel Cask is modified. The box is currently positioned on the side of the cask where it could possibly come in contact with the cask transporter and be damaged during transport. The relocation puts the box in a more secured position and then the cask Protective Cover must be relocated to align the Control Box to the desired position. Due to these modifications a flexible hose beneath the Protective Cover that connects the Access Port Cover pressure coupling with the tank weldment is also lengthened.

This evaluation has shown that there are no changes in the license conditions required, no unreviewed safety questions, no significant increase in occupational exposure and no significant unreviewed environmental impact associated with these changes to the cask. Prior NRC approval is not required.

Variation Notice VN42481/PIF

A flexible metal hose beneath the Protective Cover that connects the Access Port Cover pressure coupling with the tank weldment is extended. An optional alternate flexible metal hose assembly consists of a new hose and end fittings added between the existing hose and cover coupling.

This evaluation has shown that there are no changes in the license conditions required, no unreviewed safety questions, no significant increase in occupational exposure and no significant unreviewed environmental impact associated with these changes to the cask. Prior NRC approval is not required.

Variation Notice VN42481/PIG

Replace the SA-193 Grade B-8 stainless steel vent, drain, and the OP port bolts on the TN-32A spent fuel casks with low alloy SA-193 Grade B-7 bolts. Because the stainless steel bolting material has relatively low yield strength, there is a small window of torque values between the minimum required force to compress the metal seal and the allowable stress value. In contrast, the low alloy steel bolting

material has a much higher yield stress which provides a larger range of torque values that will ensure proper seal compression without approaching the allowable stress value.

The TN-32 SAR does discuss stress and preload values for the vent port and drain port seals in Table 3.3-6 and on page 7.1-5. TN Calculation 1084-25 evaluated the preload values and stresses and has determined that they are adequate for sealing the covers with stresses well below the allowable bolt stresses. The thermal expansion in the bolts were also found to be acceptable.

This evaluation has shown that there are no changes in the license conditions required, no unreviewed safety questions, no significant increase in occupational exposure and no significant unreviewed environmental impact associated with these changes to the cask. Prior NRC approval is not required.

Deletion of Tamper Seals

The activity evaluated addresses the issues associated with using (or not using) tamper seals on the TN-32A dry storage canister (DSC) as a means of verifying both positive closure and that no persons have removed fuel assemblies from the DSC during storage.

The ISFSI site is located within the existing Part 50 Protected Area and is maintained per the McGuire Security Plan. Being treated as part of the Part 50 Protected Area creates a barrier to potential tampering with loaded casks. The area is monitored and patrolled per this Plan, which has been approved by the NRC. In addition, a vehicle barrier is located at the entrance to the site and separates it from the rest of the Protected Area. Security controls access through all vehicle barriers. Therefore, while any person with access to McGuire's Protected Area has access to the ISFSI site, Security must physically open the vehicle barrier to allow motor vehicles access to the ISFSI site.

The cask primary lid weighs approximately 12,700 lbs. Forty-eight bolts, each torqued to 930 ft-lbs using a hydraulic torque wrench, secure the lid to the cask upper ring forging. Deliberate loosening of these bolts and removal of the lid would require extensive planning and effort. A hydraulic torque wrench with auxiliary equipment would be needed. A man-lift would also be needed to access the lid, along with a mobile crane to remove the lid.

A tamper seal is nothing more than a visual aid in verifying that no attempts have been made at sabotage or theft of the fuel assemblies within an individual DSC. By being attached to only two of the protective cover bolts, they only provide positive indication that those two bolts were not tampered with. Tamper seals are not designed as a deterrent to sabotage or theft. The various security measures in place at McGuire, along with the design of the DSC and the operation of the over-pressure monitoring system, provide an equivalent or better means of assuring that no sabotage or theft of special nuclear material has occurred.

This evaluation has shown that there are no changes in the license conditions required, no unreviewed safety questions, no significant increase in occupational exposure and no significant unreviewed environmental impact associated with these changes to the cask. Prior NRC approval is not required.