Dave Morey
Vice President
Farley Project

Southern Nuclear Operating Company
P.O. Box 1295
Birmingham, Alabama 35201
Tel 205.992.5131

SOUTHERN COMPANY
Energy to Serve Your World℠

December 4, 2000

Docket No: 50-364

NEL-00-0285

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Joseph M. Farley - Unit 2
Request for Alternative to 10 CFR 50.55a(g)(6)(ii)(A)
Augmented Examination of Reactor Pressure Vessel Welds

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.55a(g)(6)(ii)(A), the reactor pressure vessel (RPV) shell welds on Plant Farley Unit 2 were examined during the Fall 1999 refueling outage. For one of the RPV circumferential welds, physical limitations prevented Southern Nuclear Operating Company from meeting the requirement to examine more than 90% of the examination volume of that weld.

Based on the information and justification provided in the enclosure, Southern Nuclear Operating Company requests NRC authorization of an alternative to the examination requirements per the provisions of 10 CFR 50.55a(g)(6)(ii)(A) for this one weld.

If you have any questions, please advise.

Respectively submitted,

Dave Morey

JMA/maf:nrcexamrpv.doc

Enclosures:
(1) Request for Alternative to 10 CFR 50.55a (g)(6)(ii)(A)
(2) Table 1
(3) Figure 1

A047

cc: Southern Nuclear Operating Company
Mr. L. M. Stinson, General Manager - Farley

U. S. Nuclear Regulatory Commission, Washington D.C.
Mr. L. M. Padovan, Licensing Project Manager - Farley

U. S. Nuclear Regulatory Commission, Region II
Mr. L. A. Reyes, Regional Administrator
Mr. T. P. Johnson, Senior Resident Inspector - Farley

Enclosure

Request for Alternative to 10 CFR 50.55a (g)(6)(ii)(A)

Southern Nuclear Operating Company (SNC) has determined that the augmented examination of one of the Plant Farley Unit 2 reactor pressure vessel (RPV) welds cannot be performed to the extent required by 10 CFR 50.55a(g)(6)(ii)(A). In accordance with 10 CFR 50.55a(g)(6)(ii)(A)(5), SNC requests NRC authorization of an alternative to the examination requirements based on satisfactory examination of the other required examinations performed to date.

1. Required Examinations

10 CFR 50.55a(g)(6)(ii)(A) requires all licensees to augment their RPV examinations by implementing once, as part of the inservice inspection interval in effect on September 8, 1992, the examination of reactor vessel shell welds specified in Item B1.10 of Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel," in Table IWB-2500-1 of Subsection IWB of the 1989 Edition of ASME Section XI, Division 1 of the ASME Boiler and Pressure Vessel Code. To meet the requirements of 10 CFR 50.55a(g)(6)(ii)(A), "more than 90% of the examination volume of each weld" must be examined.

2. Completed Examinations

SNC contracted the NSSS vendor to perform these examinations. The ultrasonic examinations (UT) were performed per the 1989 Edition of ASME Section XI and Regulatory Guide 1.150, Rev. 1. The NSSS vendor used their latest equipment, the Westinghouse SUPREEM™ system. It utilizes two independent scanning systems consisting of an upper and a lower arm which work in parallel.

On Unit 2, a total of seven RPV shell welds, three circumferential and four longitudinal were examined to satisfy the augmented requirements 10 CFR 50.50a(g)(6)(ii)(A) as well as the ASME Code Section XI ISI Requirements. The examination results for these welds revealed no recordable indications that exceed the allowable standards of ASME Code Paragraph IWB-3500. See Table 1 for actual coverage obtained on Farley 2.

3. Alternative to the Examination Requirements

Weld APR1-1100-8 - Lower Shell to Bottom Head Circumferential Weld

SNC requests that the staff approve the examination as described below as the alternative. The examination of the lower shell to bottom head circumferential weld was limited to less than 90% due to physical configuration. A total of four core support lugs occupying a space of about 20 degrees each are positioned above the lower shell to bottom head circumferential weld. The initial coverage of this weld was expected to be approximately 83%. The final weld examination coverage was 84.5% and was achieved by performing supplemental ultrasonic examinations from the ID as described in the following paragraph. Enclosed Figure 1 shows the configuration of the weld including the adjacent core support lugs.

3. Alternative to the Examination Requirements (Cont'd)

Examination scans were conducted between core lugs in the perpendicular and parallel directions and the scanning boundaries were maximized by camera assisted positioning of the examination head at the starting and ending points. Examinations were also conducted beneath the core support lugs to the extent practical in both the parallel and perpendicular scanning directions. Additional parallel scans were performed underneath the lugs with the end-effector rotated 180 degrees from its normal scanning position to maximize parallel coverage.

Other options were considered to try to increase the examination coverage including supplemental examinations from the OD surface as well as repositioning ultrasonic transducers within the transducer sled. The OD surface examination option was determined not to be feasible. The repositioning of transducers was not done on Unit 2 due to the physical configuration of the RPV tool being used and the increased potential for transducer and cable problems. The repositioning of transducers on the lower arm would have impacted the examinations being performed with the upper arm. In addition, the potential existed that either a transducer or a cable would be damaged in this effort which would have resulted in examination data being voided.

4. Conclusion

The completed examinations provide reasonable assurance that unacceptable service-induced flaws have not developed in these welds and that RPV shell weld integrity is maintained. The examinations were performed to the extent practical using state of the art equipment and techniques within the limitations of design and access of the RPV. All welds, except weld APR1-1100-8, received 100% Code required examination coverage and SNC believes that if a pattern of degradation exists in this one weld, that the UT examination coverage of 84.5% would have detected it. Furthermore, the likelihood of a significant defect existing in the unexamined portion is extremely small.

Additionally, weld APR1-1100-8 is not located in the beltline region and is therefore, not as susceptible to irradiation embrittlement as are the beltline welds. As discussed above, the beltline welds were fully examined with no limitations.

The examination of the Farley Unit 2 RPV shell welds provides an acceptable level of quality and safety. There were no unacceptable flaws found as a result of these examinations. SNC concludes that the public health and safety will not be endangered by approval of this alternative.

TABLE 1

AUGMENTED EXAMINATION OF REACTOR PRESSURE VESSEL
ULTRASONIC EXAMINATION COVERAGE

CIRCUMFERENTIAL WELDS

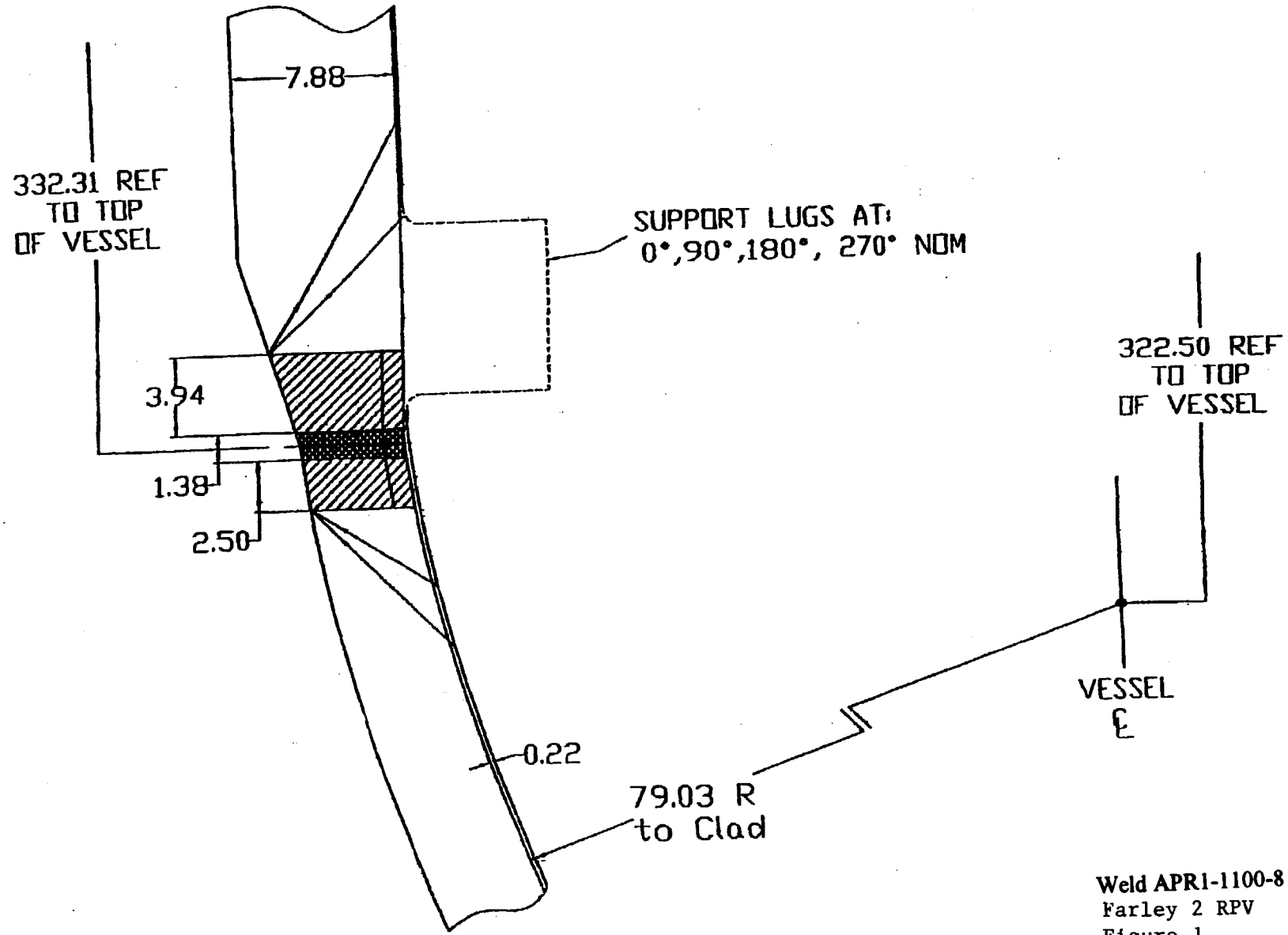
Weld No.	Weld Description	Item No.	Volumetric Coverage
APR1-1100-2	Upper Shell-To-Intermediate Shell Circumferential Weld	B1.11	100%
APR1-1100-5	Intermediate Shell-To-Lower Shell Circumferential Weld	B1.11	100%
APR1-1100-8	Lower Shell-To-Bottom Head Circumferential Weld	B1.11	84.5%

AVERAGE VOLUMETRIC COVERAGE - 94.8%

LONGITUDINAL WELDS

Weld No.	Weld Description	Item No.	Volumetric Coverage
APR1-1100-3	Intermediate Shell Longitudinal Weld	B1.12	100%
APR1-1100-4	Intermediate Shell Longitudinal Weld	B1.12	100%
APR1-1100-6	Lower Shell Longitudinal Weld	B1.12	100%
APR1-1100-7	Lower Shell Longitudinal Weld	B1.12	100%

AVERAGE VOLUMETRIC COVERAGE - 100%



Weld APR1-1100-8
Farley 2 RPV
Figure 1