



Mr. R.T. Carlson

- 2) Nuclear Energy Services has conducted investigations through a working agreement with Drexel University to determine sound energy velocities and optimum sound frequency spectrums in the double weld mock-up. The results of this study have been used to fabricate special experimental dual element transducers with specific focus points for critical areas of the joint. The performance of these transducers will be evaluated on the double weld mock-up for use during baseline exams.
- 3) In addition to the sweeplet O.D. preparation, the sweeplet counterbore will be extended and the initial weld root will be made flush with the surface to eliminate extraneous geometric reflectors. All of these operations were performed on half of the double weld mock-up by Bechtel to better reflect the as-built condition of the joint and to evaluate the degree of improvement in response effected by these modifications. This work has not yet been completed.
- 4) In the event a welded calibration standard is deemed necessary, the above described half of the mock-up has been modified to more nearly represent the as-built condition of the joint. Presently, for examinations from the riser side of the joint, the existing calibration standard, fabricated with an I.D. cladding and O.D. weld build up, provides adequate sensitivity for the examination. A special calibration standard may have to be fabricated for examinations from the sweeplet side to accommodate the longer metal path. Input in this area will be provided by Nuclear Energy Services.

We are investigating the use of the mock-up as a U.T. calibration standard; however, it was not fabricated for this purpose and we believe its use will not effect the desired increase in signal-to-noise ratio and serve only to increase both time and difficulty of the examination. Its use will also depend on the final approved examination technique.

- 5) Southwest Research is progressing with their goal to develop a reliable statistical ultrasonic examination method. Their initial task was to determine the statistical characteristics of the main sources of noise in the joint, and once determined enhance the signal-to-noise ratio by signal conditioning techniques. A candidate technique has not been selected; however, several techniques appear favorable at this time.

We conclude, that it is still our firm commitment to utilize all conventional capabilities available to us to date and to also support research and development efforts relative to new improved techniques to improve the



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overall inspectability of the subject joint.

Very truly yours,



Norman W. Curtis  
Vice President-Engineering and Construction

MTS/kes

c.c.:

N.W. Curtis	N-4
E.M. Mead	N-5
A.M. Male	N-5
W.J. Rhoades	N-5
T.F. Oldenhage	Susq. SES
M.T. Strenk	N-5
A.R. Sabol	N-4
S.H. Cantone	Susq. SES
W.E. Barberich	N-4
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