

7/29/80

MEMORANDUM FOR: C. E. Murphy
U. Potapovs

FROM: E. L. Jordan

SUBJECT: SEISMIC ANALYSIS OF CERTAIN SMALL
DIAMETER LINES

By memorandum dated May 28, 1980, Region II suggested that IE Bulletin 79-14 be expanded to require dynamic analysis of Class I lines which are less than $2\frac{1}{2}$ inches in diameter. This suggestion resulted from discovery of the fact that serious overstress would occur in RTD lines at Surry and Turkey Point during a seismic event. During the design phase, these lines had been statically analyzed. The fact that the lines had been underdesigned was discovered during recent dynamic analyses.

Class I
NRC does accept static analysis of lines

A-19

less than $2\frac{1}{2}$ inches in diameter, if the applicant demonstrates that the analysis is conservative. Obviously, for Surry and Turkey Point, the analyses were not. Therefore, we are requesting that Region II identify the design organizations which did the static analyses for the Surry and Turkey Point RTD lines and that Region IV identify the units and the Class I lines which were analyzed ^{by these organizations}, using the same static analysis technique. We will then require reanalysis of those lines using either a dynamic technique or a static technique which has been shown to be truly conservative.

CONTACT: Woodruff

cc: Bosnak, NRE
Herdt, ZII



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

PACKAGE C

A proposal for interference
analysis which was
rejected.

- (b) Oral briefings - minimum of two to be held at NRC/IE Headquarters, Bethesda, Maryland offices.

ARTICLE II - TASK ORDERS

1. Upon receipt by it of any task order for services issued hereunder by the Contracting Officer, the contractor pursuant to such task order shall furnish the necessary services of the type and at the prices as herein-after provided in order to commence work as soon as possible (within five days) after receipt of the order.

Task orders may be issued at the sole option of the NRC, and it is understood that the NRC undertakes no obligation hereby to issue task orders hereunder. The provisions of this arrangement shall govern all task orders issued hereunder.

2. Each task order for services shall be issued by the Contracting Officer or his authorized representative and shall be in writing, dated, sequentially numbered and shall include the following as applicable:

- 1) Scope of Work
- 2) Objectives of the Task
- 3) Statement of Work
- 4) Reporting Requirements and Other Deliverables
- 5) Desired Completion Date
- 6) Special Instructions or Requirements, (if any)
- 7) Place of Performance
- 8) Maximum Cost Limitation

3. A copy of each task order shall be made a part of the contract file.
4. NRC shall provide the contractor with drawings, specifications, management plans, experimental requirements, cost estimates, schedules and other information required to perform an independent evaluation of the project for each task order issued hereunder if applicable.

This material is provided for such information and assistance as it may provide the contractor with respect to the general scope of work to be performed. Only the matter which is referred to above will be furnished by the Government.

ARTICLE III - PERIOD OF PERFORMANCE

The period of performance shall commence with the effective date of award and shall continue for a period of two years thereafter, subject to the availability of funds as further set forth under ARTICLE XI. All task orders issued during this period shall be completed at the same rates set forth under ARTICLE IV - COMPENSATION FOR SERVICES.

ARTICLE IV - COMPENSATION FOR SERVICES

1. Except as provided in paragraphs 2 and 3 below, in full and complete payment for services rendered to the Commission on any task order placed

1. SCOPE OF WORK

Provide pipe weld testing and evaluation services for Region V, USNRC. Two welds are to be examined in situ at the Washington Nuclear Project No. 2 (WNP-2) site, in Benton County, Washington.

2. OBJECTIVE OF TASK

Determine whether the two welds in question have been subjected to radically excessive and non-uniform postweld heat treatment temperatures.

3. STATEMENT OF WORK

Perform hardness tests and metallographic examinations on two welds at WNP-2. The two welds are located in two reactor feedwater lines inside the containment vessel. The welds are identified as: (1) weld no. 7 on WBG Isometric Drawing No. RFW-418-4 (entitled "Reactor Feedwater from Flowmeter to Reactor Vessel (Line A)"); and (2) weld no. 7 on WBG Isometric Drawing No. RFW-419-4 (entitled "Reactor Feedwater from Flowmeter to Reactor Vessel (Line B)"). In both cases the welds connect a 24" check valve to a pipe spool. Two types of tests are to be performed on each weld as described below:

Hardness Tests:

Reference hardness tests and grain size determinations.

Perform hardness tests in accordance with ASTM E-110-61, at six locations around the circumference of the weldment. At each location, test undisturbed base metal, base metal which has been exposed to heat treatment, the weld heat affected zone and the weld metal.

Metallographic Estimation of Average Grain Size:

Perform in situ metallographic estimation of average grain size at two locations around the circumference of the weldment. At each location, perform grain size estimation of the surface of undisturbed base metal, base metal within the zone of heat treatment, and the weld heat affected zone.

Estimation shall be accomplished in accordance with specification ASTM E112-74. Photomicrographs shall be taken.

Evaluation:

The results of the above testing and estimation shall be evaluated to determine if the welds have been subjected to radically non-uniform and excessive postweld heat treatment temperatures.

REPORTING REQUIREMENTS

Testing and evaluation shall be reported in a final report, as follows:

Hardness Tests

Describe the technique and equipment used, list equipment serial numbers and calibration dates, dates of tests, identify equipment operators, provide sketch and table to describe locations and actual values of hardness readings.

Metallographic Examination

Describe the technique and equipment used, identify equipment operators, provide sketches to depict actual locations of examination, grain size estimation technique, ASTM E-112 worksheets, and photomicrographs.

Evaluation

Describe the evaluation method, assumptions, basis for conclusions, and conclusions. Identify the names and qualifications of evaluators.

Any unusual observations shall be verbally communicate to Region V, USNRC within two working days (George Spencer (415) 932-8300), and included in the final report.

5. DESIRED COMPLETION DATE

Testing, evaluation, and report should be completed within one month of the date of issuance of this Task Order.

6. PLACE OF PERFORMANCE

WNP-2 site, Benton County, Washington. Actual dates of testing to be coordinated with the Contractor and Washington Public Power Supply System by the NRC Region V.

7. COST CEILING

\$14,000.00