INTERIM REPORT

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Author(s): P.H. HUTTON, E.B. SCHWENK, R.J. KURTZ

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Responsible NRC Individual and NRC Office or Division:

DR. J. MUSCARA
METALLURGY AND MATERIALS RES. BRANCH, RSR

BATTELLE
PACIFIC NORTHWEST LABORATORY
BOX 999
RICHLAND, WA 99352

Prepared for
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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INTERIM REPORT

Battelle
Pacific Northwest Laboratories
P.O. Box 999
Richland, Washington U.S.A. 99352
Telephone (509)
946-2157
Telex 15-2874

July 19, 1979

Dr. Joe Muscara
Metallurgy and Materials Research
Branch
Reactor Safety Research Division
Nuclear Regulatory Commission
Mail Stop 1130-SS
Washington, D.C. 20555

Dear Joe:

MONTHLY LETTER REPORT - JUNE, 1979
ACOUSTIC EMISSION CHARACTERIZATION OF FLAW GROWTH
IN A533B PRESSURE VESSEL STEEL - FIN. NO. B2088

ACCOMPLISHMENTS

- Initiated fatigue crack growth test in weld metal at room temperature and 550°F.
- Continued fabrication of heavy section pipe specimens and test system.
- Started monitoring a second 304 s/s pipe stress corrosion cracking specimen.
- Continued development of reactor monitor concept.
- Completed an updated program plan.
- Prepared Buff Book update material.

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Testing of fatigue crack growth in weld metal at room temperature and 550°F continued. Use of a pulse signal input, plus a helium gas jet excitation has proven to be effective in assuring constant sensor sensitivity, especially at high temperature. Delay in the progress of the test has been experienced due to conflicts with conducting stress corrosion cracking test monitoring and scheduling the instrumentation to obtain digitized waveforms. The latter is considered especially important to provide new data for development of signal characterization by pattern recognition.

Fabrication of the load frame-test section assembly for the high temperature-pressure water test has been delayed due to a problem in obtaining correct welding rod initially and then due to cracking during welding. These problems have been overcome and the assembly is nearing completion.

Monitoring of a second stress corrosion cracking test being performed under another NRC sponsored program was initiated. This specimen is expected to fail in about two weeks.

An initial concept for a reactor monitoring system has been developed. It can be defined in two sections: 1) data acquisition and source location, and 2) data analysis. The data acquisition section would be acquired, either commercially or fabricated inhouse, and installed on a reactor as soon as possible. This allows initiation of longevity testing in the full reactor environment, evaluation of background noise control, and gathering various waveform samples for pattern recognition development. The data analysis section would be assembled in breadboard form to facilitate refinement of pattern recognition and flaw evaluation methods during forthcoming heavy section testing.

Preparation of an updated program plan through FY-83 has been completed including a PERT chart presentation of work flow and interfacing, end product definition, and method for utilizing results. This will be reviewed with NRC in July.

WORK PLANS FOR JULY

- Complete fatigue crack growth test in weld metal.
- Complete fabrication of test frame-specimen assembly for high temperature-pressure water test.
- Complete monitoring of stress corrosion cracking test.
- Initiate arrangements for access to a reactor for test system installation.
- Review program accomplishments and projection with NRC.

Yours very truly,

P.H. Hutton

P.H. HUTTON
Project Manager

PHH:dd