Test Facility for Simulating Water Hammer Effects on Piping

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ABSTRACT

As part of the EPRI/USNRC/GE/ANCO piping component reliability test program a series of tests is being performed on carbon and stainless steel piping components and systems exposed to seismic and hydrodynamic loads. Herein is reported work on development and use of a facility for simulated water hammer effects in piping. The facility includes a drive gas accumulator bank (adjustable to 5 cubic feet (135 liters) or more), distribution manifold, rapid release burst diaphragm system, water slug initiation region, and required compressors, instrumentation, etc. Both full pipe "hard" shock wave tests and travelling water slug tests have been performed. Slug velocities on the order of 200 feet/sec (60 M/s), and slug masses up to 100 pounds (45 Kg) have been used. Performance and capabilities of the facility and response of the piping components tested to date will be reported on.