

# **DYNAMIC INSTRUMENTATION FOR THE K-1600 SEISMIC TEST FACILITY RECOMMISSIONING**

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## **ABSTRACT**

Martin Marietta Energy Systems, Inc. is the site contractor to the Department of Energy (DOE) for three Oak Ridge, Tennessee sites, the site in Portsmouth, Ohio, and the site in Paducah, Kentucky. To provide a focus for all natural phenomena engineering related problems, Martin Marietta Energy Systems, Inc. established the Center for Natural Phenomena Engineering under the technical direction of Dr. James E. Beavers. One of the Center's mandates is the determination of seismic properties of building structures containing sensitive processes. This has led to the recommissioning of the K-1600 Seismic Test Facility. The bi-axial shake table in this facility was constructed during the eighties for seismic qualification of equipment of the Gas Centrifuge Enrichment Plant. After construction of the plant was terminated the Seismic Test Facility was placed in standby where it was left for six years.

The facility's original instrumentation was evaluated versus the required instrumentation to augment its new expanded mission parameters. Instrumentation selection involving technology changes, age and attrition, and the new mission goals are discussed in this paper along with the rationale and budget that were involved with each decision.

The testing potential of this facility along with the instrumentation upgrades necessary to accomplish these new tasks for the Center for Natural Phenomena Engineering are considered. New uses such as seismic qualification of equipment utilized in DOE's missions at various sites and waste treatment are proposed. This instrumentation selection is discussed in detail to show the rationale and proposed use of the facility as well as the capabilities of this DOE resource.