# RESPONSES OF PILES SUBJECTED TO BLAST-INDUCED LATERAL SPREADING

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**ABSTRACT**
Lateral spreading has caused substantial damages to pile foundations supporting structures. Understanding the soil-pile interaction during lateral spreading is therefore very important. Though results from centrifuge and 1-g shake table have provided valuable insight on behavior of piles during lateral spreading, several key aspects have not been clearly understood due to the complex mechanism of soil-pile interaction. In light of this, two full-scale lateral spreading tests using controlled blasting were conducted at the Port of Tokachi, Japan, to assess the performance of piles subjected to lateral spreading. The pile foundations in this study included a single pile, a 4-pile group, and a 9-pile group. All of them were extensively instrumented with strain gages to measure the distribution of bending moment during lateral spreading. This paper summarizes the key test results of the recent research effort, as well as a comparison between the measured pile responses and the predicted pile responses using a pseudo-static pushover analysis with p-y springs.

**Keywords:** Pile, Lateral Spreading, Liquefaction, p-y curves