

***EXPLOSIVE CRATERING USING A GEOTECHNICAL  
CENTRIFUGE ON NEVADA SAND AND KAOLIN CLAY  
SOIL SURFACES***

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by

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## **ABSTRACT**

Geotechnical centrifuge model tests were performed to study the effects of explosives on level ground soils. The soil types that were used in this research were dry Nevada sand, wet Nevada sand, and Kaolin clay. Tests were done using different values of soil density, relative density, and water content.

One preliminary test was run at 1 g and eight tests were run at 80 g's on the geotechnical centrifuge. Two of the 80 g tests were performed on dry Nevada sand, two tests on wet, saturated Nevada sand, and four tests were done on Kaolin clay. The objective of the centrifuge tests was to measure the effects of soil density and water content on blast crater size.

In the Nevada sand tests, both dry and wet tests, soil density, relative density, and water content were important parameters in determining blast crater dimensions. The higher density tests produced smaller craters, both radius and depth, when comparing dry tests to dry tests and wet tests to wet tests.

In the Kaolin clay tests, water content and wet density proved to be important parameters in determining the craters sizes. The craters produced in the lower water content and higher wet density tests were deeper with smaller radii than the craters produced in the higher water content and lower wet density tests.