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ABSTRACT

GEOLOGIC AND GRAVITY STUDIES OF THE STRUCTURES OF THE
NORTHERN BULLFROG HILLS, NYE COUNTY, NEVADA

By

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Repeated volcanic and tectonic events associated with formation of the Timber Mountain Caldera complex have obscured an older nearby caldera in the northern Bullfrog Hills, Nevada. The western margin of the hidden caldera, the Mayflower Caldera, was previously partly outlined by exploration drill holes and mining of complex gold ores. The extent of the Mayflower Caldera and associated structures was further identified by the interpretation of the Bouguer gravity anomaly map in this thesis, but definition was not complete until computer aided two- and three-dimensional modeling of the residual gravity anomalies was performed.

Based on this modeling the caldera is an east-west trending elliptic feature, six by three miles in dimension, and bounded east and west by two north-south trending tangential troughs. The western part of the caldera is partly exposed in fault blocks; however, the center and eastern portions are covered by 1000 feet of younger volcanics.