INTRODUCTION
Three possible nuclear test scenarios can be employed: Atmospheric, Underground and Submarine. Nuclear tests performed in the Atmospheric or Maritime environments are, it is very difficult to hide. Countries that are used to do a nuclear test will most probably choose an underground location.

The suitability of the underground location will depend on the geology. Hard rock geology with a high density is preferable to perform such tests to contain the explosion. Suitable static geology include basalt (2.55 g/cm³) and granite (2.75 g/cm³). Suitable sedimentary geology include massive limestone (2.65 g/cm³) and sandstone (2.3 g/cm³).

POSSIBLE TYPES OF TEST SCENARIOS
1. Atmospheric Scenario
2. Underground Scenario
3. Underwater Scenario

POSSIBLE UNDERGROUND TEST SCENARIOS
The second option is the mining Scenario: Suitable Geology - Good Density Contrast. Further development around the cavities can vary. This include long access tunnels and deep boreholes. Not all possible parameters were modelled for various scenarios, in different geological settings. These were granite and sandstone environments.

The Micro Gravity Technique should be used at a possible ground zero because it is one of the most appropriate Geophysical methods to detect cavities, and should produce positive results. Actual tests with infrastructure (complete borehole or access tunnels) towards explosion cavity will make the ground zero stay constant, even for deeper results.

THEORETICAL FORWARD MODELLING OF GRAVITY RESPONSES
Physical models and the interpretation of gravity measurements were modelled for various scenarios, in different geological settings. These were granite and sandstone environments. Gravity data were calculated for the worst case scenario with lowest density contrast, because the gravity field development around the cavities can vary. This include long access tunnels and deep boreholes. Not all possible parameters were included during the modelling to keep models as simple as possible. These modelling results are an attempt to show what can be expected from the Gravity Technique. The Interpex Mega software package were used for borehole and mining cases under the following conditions:

- Before Detonation.
- After Detonation.

The "After Detonation" cases are the simulations that will be the closest to the real cases, because fracturing occur that will increase the chances of detecting the cavity. Fine modelling results were calculated for each possible scenario. Special attention should be given to the "DEPTH OF DETECTION" between the 0.03 and 0.01 mgal resolution of an experienced and very experienced survey team. Only the granite visual results are shown, but the sandstone results are included in the table. The modelled results show that the deeper the cavities produces a smaller anomaly and is thus more difficult to detect.

CONCLUSIONS
1. It should only be used by an experienced team to guarantee credible results.
2. It is more difficult to detect deeper Cavities (Franco, C.J.S., 2008).
4. Suitable mafic geology include basalt (2.55 g/cm³) and granite (2.75 g/cm³). Suitable sedimentary geology include massive limestone (2.65 g/cm³) and sandstone (2.3 g/cm³).
5. The Micro Gravity Technique should be used at a possible ground zero because it is one of the most appropriate Geophysical methods to detect cavities, and should produce positive results.
6. Methods to detect cavities, and should produce positive results.

REFERENCES
Le Garrec, S., 2003, CTBTO Induction Notes.