

## Divine Strake By Another Name: Nuclear Weapons Effects Tests at White Sands

In February 2007 a branch of the Department of Defense called the Defense Threat Reduction Agency (DTRA) caved in to intense public and congressional pressure and canceled its proposed “Divine Strake” nuclear weapons effects test at the Nevada Test Site. However, the very next month it declared in a “Final Programmatic Environmental Impact Statement (PEIS) for DTRA Activities on White Sands Missile Range”<sup>1</sup> that it would conduct an unspecified number of “Hard Target Defeat Tests” in New Mexico. These tests are referred to in the PEIS as “500-ton Equivalent Tests,”<sup>2</sup> and are very similar to the explosive yield and mission of the now infamous Divine Strake Test.

DTRA would have detonated 700 tons of ammonium nitrate-fuel oil (ANFO) at the Divine Strake Test to achieve a yield equivalent to 533-tons of TNT. A 2006 budget document identified Divine Strake as a “**Full scale tunnel defeat demonstration using high explosives to simulate a low yield nuclear weapon ground shock.**” The data gathered was intended to increase the warfighter’s confidence in planning “all-options-on-the-table” attacks. Divine Strake was repeatedly delayed and finally cancelled because of serious public opposition and challenges on legal and environmental issues.

### Penetrating the problem

DTRA has an ongoing interest in developing warfighting techniques for defeating hardened and deeply buried targets. These are tunnels and bunkers that use reinforced concrete and tens or even hundreds of feet of rock and earth to protect command-and-control operations, WMD manufacturing or storage, and other assets of extreme value, perhaps even leadership of terrorist organizations. Successfully attacking some of these targets is not certain with conventional weapons, so military planners are tempted by the unthinkable - - using nukes.

The standard practice to destroy these targets during and since WWII has been to use special penetrating bombs or missile warheads that are themselves hardened to withstand the force of traveling through rock and concrete to deliver a delayed blast. The extreme overpressure of even a small high explosive charge delivered into a confined space has powerful destructive effects.



guided penetrator test - courtesy DTRA

<sup>1</sup> *Final Programmatic Environmental Impact Statement for DTRA Activities on White Sands Missile Range, NM*, Defense Threat Reduction Agency, March 2007, [http://www.dtra.mil/documents/rd/dtraactivitieswhitesandsmissilerange\\_final.pdf](http://www.dtra.mil/documents/rd/dtraactivitieswhitesandsmissilerange_final.pdf)

<sup>2</sup> The reference is to the weight of TNT required to make a similar explosion. While different explosive compounds vary in their characteristics and relative power, the destructive power of TNT is used as standard reference even when referring to the explosive yield of nuclear weapons.

However, there are physical limits to how far even the heaviest and most hardened weapon cases can penetrate. It has always been easier to dig a little bit deeper or add a few more feet of reinforced concrete than it has been to design a penetrating weapon capable of going deeper. The U.S. is currently in the later stages of preparing to deploy a massive 30,000-pound conventional penetrating bomb, referred to as the Direct Strike Hard Target Weapon or the Massive Ordnance Penetrator (also to be tested live at White Sands). Most of the weight of this bomb is the penetrating shell, and it is reportedly capable of delivering 6,000 pounds of explosive through 25 feet of reinforced concrete or 125 feet of moderately hard rock.<sup>3</sup> It is so heavy that the B-52 or B-2 bombers can only carry one each.

## A shocking solution

One potential solution military planners have used to get around the penetrating depth limit of a conventional explosive bomb is to use the vastly greater power of a nuclear weapon to destructively shake the facility instead of blowing it up. Like a sharp earthquake, a powerful ground shock can destroy equipment and machinery, not to mention personnel, and perhaps even collapse the facility. For example, a large ANFO test called “Distant Image” detonated at White Sands on June 20, 1991 was intended to simulate the airblast and ground shock of a 2.5 kiloton nuclear weapon. On the same day a magnitude 3.5 seismic event was recorded at the site.<sup>4</sup>

During the Cold War the U.S. deployed the 9-megaton B53 nuclear weapon and its Titan II missile warhead variant the W53<sup>5</sup> to hold at risk hardened Soviet missile silos and command bunkers. This weapon was eventually replaced by the B61-11<sup>6</sup> and then retired. The B61-11 is a penetrating nuclear weapon but can only bury itself a short distance. However, even this shallow penetration allows much more of the explosive power to be coupled with the earth and transferred into ground shock than the surface burst of the much larger B53. The B61 family of nuclear weapons is known to have variable yield capabilities ranging from less than a kiloton to around 400 kilotons. So it presumably can be adjusted to select the yield required.



The “Distant Image” Test - *globalsecurity.org*

## Testing nuclear weapons effects

There have been 14 test series in the U. S. that involved large quantities of chemical explosives, and eight of them have been at White Sands. All tests using 500 tons or more of explosives were explicitly described as simulations of the effects of nuclear weapons. On the face of it, no other deliverable ordinance has anywhere near the power of a nuclear weapon. The most powerful non-nuclear bomb in the U.S. arsenal has a yield of about 15 tons. Even the Massive Ordnance Penetrator is limited by the weight of its shell to carry 3 tons of explosive.

**The Divine Strake Test’s stated purpose was to “improve the warfighter’s confidence in selecting the smallest nuclear yield necessary to destroy underground facilities while minimizing collateral damage.”**

The similarity of the “500-ton Tests” at WSMR to Divine Strake is not coincidental - we suggest they serve the

<sup>3</sup> <http://www.globalsecurity.org/military/systems/munitions/dshtw.htm>

<sup>4</sup> Google Earth: (Seismic Event) 33° 37'07.7 N, 106° 28'29.7 (6-20-91)

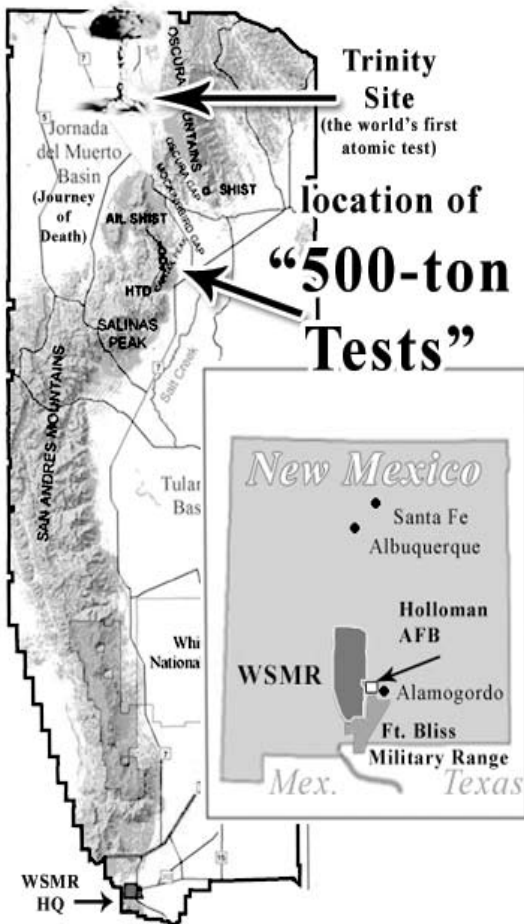
<sup>5</sup> Designed and developed by Los Alamos Scientific Laboratory ([nuclearweaponarchive.org](http://nuclearweaponarchive.org))

<sup>6</sup> Also a Los Alamos design.

same purpose of calibrating the necessary nuclear yield for destroying underground targets. Divine Strake received too much public attention and was therefore successfully challenged. **The “500-ton Equivalent Tests” at White Sands are Divine Strake by another name, and these tests are flying below the public’s radar.** They will be used to bolster the potential use of nuclear weapons, given immediacy by the fact that the Bush Administration has declared that all options remain on the table while dealing with alleged Iranian nuclear facilities.

## A different legacy

One of the reasons there was so much opposition to Divine Strake was the concern that radioactive contamination from nuclear tests at NTS would be resuspended and again threaten downwind communities. There is such a strong legacy of fear and distrust amongst Downwinders in Nevada and Utah as the result of previous nuclear tests that the government could not convincingly reassure them that their health would not be put at risk again.



Challenging the “500-ton Tests” at WSMR will have to be different. There have been two tests at White Sands that created radioactive fallout, the July, 1945 Trinity plutonium implosion test and a preceding non-nuclear “100-ton test” in May 1945, about a mile away from the Trinity site. The 100-ton test consisted of high-explosives spiked with 1,000 curies of radioactive solution from a dissolved irradiated uranium slug taken from the Hanford reactor. This radioactive tracer was to be used to measure the then little known behavior of fallout from a large nuclear blast. According to Trinity Test fallout maps compiled by the Centers for Disease Control<sup>7</sup> its cloud drifted mostly northeasterly, while the White Sands Hard Target Defeat test area is almost 20 miles due south. Any contamination deposited there directly from the tests or as the result of wind-borne resuspension has had 62 years to decay. Thus, resuspension of radioactive contamination from a new blast is unlikely to be the galvanizing issue that it was in stopping the Divine Strake Test.

**The “500-ton Tests” continue to confirm that U.S. war planners are pursuing the potential use of nuclear weapons in future “all options on the table” attacks.** It is important to remember that citizens have already driven Divine Strake out of Nevada and Indiana, and could do the same to the “500-ton Tests” in New Mexico. Citizens should also be acutely aware of the broader implications of these tests at White Sands. They are symptomatic of the Bush Administration’s aggressive nuclear weapons policies.

The thought of preemptive nuclear war is abhorrent. Proceeding with nuclear weapons effects tests, like the 500-ton Tests at White Sands sends a threatening message to the world and runs counter to global nuclear nonproliferation efforts. **These tests could be part of a pattern that could convince other countries that they must acquire their own nuclear weapons to deter real or perceived threats by the U.S. that it would use its nuclear weapons.**

*-John Witham*

<sup>7</sup> *Interim Report of the Los Alamos Historical Document Retrieval and Assessment Project*, Version 5, March 2007, Centers for Disease Control and Prevention, National Center for Environmental Health, Division of Environmental Hazards and Health Effects, Radiation Studies Branch. <http://www.lahdra.org/pubs/pubs.htm>