

REVISED  
Finding of No Significant Impact  
for the  
Large-Scale Open-Air Explosive Detonation  
at the Nevada Test Site

DIVINE STRAKE

**Agency:** National Nuclear Security Administration  
Nevada Site Office in cooperation with the  
Defense Threat Reduction Agency

**Action:** Revised Finding of No Significant Impact (FONSI)

**Summary:** The National Nuclear Security Administration's Nevada Site Office (NNSA/NSO), with the Defense Threat Reduction Agency (DTRA) as a cooperating agency, prepared a Pre-Approval Draft Environmental Assessment (DOE-EA-1550) to evaluate the potential environmental impacts of a proposal by DTRA, an NNSA/NSO work-for-others customer, to conduct a single large-scale, open-air explosive detonation over an existing tunnel complex located at an uncontaminated site within the Nevada Test Site (NTS). Based upon the analyses in the Pre-Approval Draft EA, the NNSA/NSO and DTRA determined that the proposed action is not a major federal action significantly affecting the quality of the human environment. As a result, a Finding of No Significant Impact (FONSI) was signed by the NNSA/NSO Manager on January 30, 2006. Since that time, additional data have been collected that continues to confirm the analyses in the Pre-Approval Draft EA, and is now incorporated into the Revised Environmental Assessment (Revised EA) issued on May 5, 2006. Based upon that further confirmation, NNSA and DTRA, are issuing this Revised FONSI and authorize the proposed DIVINE STRAKE test to be conducted within the limitations of applicable permits and regulations.

**Public Comment Process and Availability:** The Pre-Approval Draft EA was prepared and disseminated for comment in December 2005, for a period of at least 30 days, to affected stakeholders, including Congressional offices, American Indian tribes, state and local governmental entities, other federal agencies, and scientific and research contractor entities. (A comprehensive distribution list is contained in Chapter 5.0 of the Revised EA.) While no comments were received, the state of Nevada, through the State Clearinghouse, noted that the proposed activity was not in conflict with state plans, goals or objectives. Copies of the Revised EA, this Revised FONSI, and further information on the NEPA process are available from:

National Nuclear Security Administration  
Nevada Site Office  
NEPA Compliance Office  
P.O. Box 98518  
Las Vegas, NV 89193-8518  
e-mail: [nepa@nv.doe.gov](mailto:nepa@nv.doe.gov)

**Background:** The NTS is host to programs from the NNSA, its laboratories, and other federal agencies such as the Department of Defense (DoD) to develop and apply technical solutions to national security and counterterrorism requirements. Hard and Deeply Buried Target detection, defeat, and defeat assessment are a type of research, development, test, and evaluation (RDT&E) activity that occurs at the NTS. This activity includes RDT&E of methods, equipment, technologies, and weapons systems, etc. to detect, defeat, and neutralize Hard and Deeply Buried Targets (HDBTs). The United States must have the capability to find, detect, and characterize potential targets, and then plan, attack, and assess the results. In order to obtain vital information regarding the methodologies and technologies developed under the Tunnel Target Defeat Advanced Concept and Technology Demonstration (ACTD), DTRA proposed to conduct a single large-scale, open-air high explosive detonation above an existing tunnel complex. Such a project would require extensive diagnostic and monitoring capability to ensure recovery of essential data supporting National Security Strategy goals.

**Purpose and Need for Proposed Action:** DTRA chose the existing U16b tunnel at the NTS to conduct the large-scale open-air conventional explosive detonation named DIVINE STRAKE. The U16b tunnel is in a geological setting that simulates the characteristics of important potential global adversarial targets. This U16b site was carefully chosen after reviewing the geological properties of a number of other locations on U.S. Government range complexes and other controlled land areas. Based upon existing infrastructure, the appropriate geological properties, and the NTS's remote and secure location, DTRA requested approval by NNSA/NSO to conduct DIVINE STRAKE at the U16b Tunnel.

**Proposed Action:** The proposed action is to conduct a single large-scale, open-air explosive detonation at an uncontaminated site located within the NTS. The proposed detonation would occur tentatively in mid-2006 above the existing U16b Tunnel Complex. DIVINE STRAKE would supply a relevant large-scale simulation demonstration with a tunnel complex that would allow for an evaluation of the post-test underground environment.

DIVINE STRAKE will be a detonation of 700-tons (635-metric tons) of heavy ammonium nitrate fuel oil-emulsion (also known as heavy ANFO), a blasting agent, emplaced in a charge hole about 32 feet (9.8 meters [m]) in diameter and 36 feet (11 m) deep, located at the surface above U16b tunnel. In addition to the ANFO, 30 pounds (13.6 kilograms) of C-4 explosive will be used to initiate the detonation. This type of device has been detonated several times before at the Department of Defense's White Sands facility; several of the tests conducted at White Sands were of a much greater magnitude than DIVINE STRAKE.

Site preparation will include: (1) improvement of an existing dirt road leading to the hilltop above the tunnel, (2) excavation of the emplacement (or charge) hole above the tunnel complex and a three-point turnaround area for bulk delivery trucks, and (3) drilling holes in the back, floor and ribs of the tunnel for installation of instruments and gauges for recording the effects of the detonation. Instrumentation bunkers will be constructed near the portal of the tunnel. Several accelerometers will be placed in and around the test bed to record ground motion. High-speed cameras will be installed to record portal and underground damage.

**Alternative Action and Location:** In accordance with NEPA regulations, NNSA/NSO and DTRA examined the following alternatives to the proposed action:

- Alternate locations for the proposed action
- Variation in scale/size of proposed action
- Other types of experiments
- No Action alternative

Other government controlled locations were previously considered by DTRA but eliminated due to failure to meet the required geological, security and infrastructure requirements of DIVINE STRAKE. Previous bench-scale experiments as well as intermediate scale tests led up to the planning of DIVINE STRAKE. These experiments provided scientists with a basis for setting the size of DIVINE STRAKE at 700 tons. No other tests or variations meet the geological and other criteria to provide the specific data required. The No Action alternative would result in a loss of vital information necessary for inclusion in further DoD national strategies.

**Environmental Impacts:** DIVINE STRAKE is a one-time experiment and most of the impacts are expected to be brief and transient in nature, and will not result in significant impacts to the environment or to human health or safety.

Construction activities include excavation of the charge hole, drilling holes into rocks for installation of monitoring equipment, extending an existing roadway an additional 200 feet, driving to and from the detonation site, and installing equipment for the test. During these activities, common hazards posed to human would include risks of falling, tripping, burns, noise exposure, and traffic accidents. Accidents associated with these hazards would be expected to occur at a rate similar to that for other industrial projects identified in the 1996 NTS Site-wide Environmental Impact Statement.

The site of the proposed DIVINE STRAKE detonation (the U16b tunnel) has never been used for any type of nuclear testing activity and radioactive contamination does not exist within the area impacted by the blast. Therefore, the Proposed Action would not result in the suspension or dispersion of radioactive materials or human exposure to radioactive materials.

Impacts caused by the airblast would not cause injury, or structural damage to off-site persons, animals, structures, or property. Furthermore, no adverse impacts to threatened or endangered species either within or outside of the NTS are expected. Likewise, no significant effects to soils, or geological resources, are expected. The detonation may cause a very brief, but not substantial increase in ambient noise levels at sensitive receptors. With proper notification to the public, the detonation is not likely to cause people outside the NTS to experience a startle reaction in response to a sudden moderately loud noise from the detonation. Overpressure higher than 140 decibels would not occur offsite.

Operations workers would not be exposed to noise levels higher than the acceptable limits specified by OSHA noise regulations. Workers would be protected from high noise through implementation of existing hearing protection programs to minimize noise impacts on workers. None of the compounds used for the detonation (ANFO, C-4 booster, and various components) are immediately dangerous to life or health.


Air dispersion modeling for the detonation products and particulate matter (the modeling is appended to the Revised EA) indicates criteria and hazardous pollutants will remain well within acceptable thresholds established by the NTS Ambient Air Quality Standards at the NTS boundary.

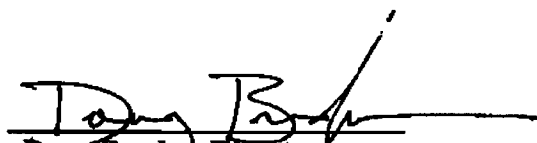
Tippipah cabin, a severely deteriorated structure that is National Register eligible, is the only historical property that may be potentially impacted by the detonation. The Nevada State Historical Preservation Officer has agreed to mitigation of this potential impact through full historic evaluation and documentation by an architectural historian. With respect to Native American cultural resources, no mitigation would be necessary because there are no specific sacred or religious sites identified in the area of potential effect.

The analysis of cumulative impacts included a review of the incremental impacts of DIVINE STRAKE, as well as a review of previous NEPA analyses for the NTS Site (including the Site-Wide Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada (December, 1996), and the Supplement Analysis for the Nevada Test Site (2002) which specifically addresses the DTRA Hard Target Defeat Tunnel Program). Cumulative impacts were found to be either non-existent or negligible.

**Determination:** Based upon the information and analyses in the Revised EA, the NNSA/NSO and DTRA have determined that the proposed action to conduct a single large-scale, open-air explosive detonation at an uncontaminated site within the NTS does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, an EIS is not required and NNSA/NSO and DTRA are issuing this Revised FONSI. Furthermore, based on the Revised EA and this Revised FONSI, NNSA/NSO and DTRA authorize the proposed detonation of DIVINE STRAKE to be conducted, within the limitations of all applicable permits and regulations.

Signed this 9th day of May, 2006

  
Jay H. Norman, Acting Manager  
NNSA/NSO

  
Doug Bruden, Director  
Counter-WMD Technologies  
Directorate  
DTRA