Nonproliferation Test and Evaluation Complex (NPTEC)

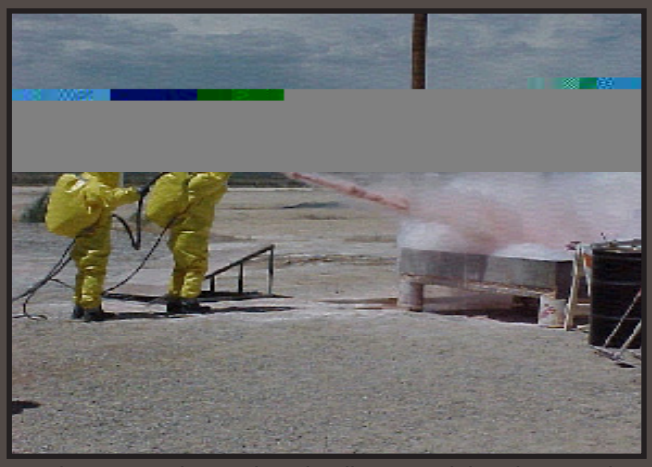
Introduction

The Nonproliferation Test and Evaluation Complex (NPTEC) is the world's largest facility for open air testing of hazardous toxic materials and biological simulants. It is located at the Nevada National Security Site on Frenchman Flat, a natural geological basin approximately 75 miles northwest of Las Vegas. The topography, wind predictability, and location provide a secure, controlled environment for small and large-scale testing, which is governed by an approved Environmental Assessment. An Environmental Assessment is a public document that analyzes a proposed federal action for the possibility of significant environmental impacts. The analysis is required by the National Environmental Policy Act.

The Non-Proliferation Test and Evaluation Complex possesses the capability to host light aircraft operations on an area lake bed.

Background

Formerly called the HAZMAT Spill Center, the facility opened in 1986 at a cost of $7.6 million. The NPTEC provides independent field testing and evaluation of emerging sensor technologies. In addition, NPTEC can perform tests, experiments, or training for any technology that requires the release of toxic chemicals or biological simulants into the environment. The size of the Nevada National Security Site and the federally-controlled lands surrounding the site provide a large safety zone for public protection. Tests are strictly developed and conducted according to established NNSS work control and safety standards.



First responders train using live material under actual release conditions.

Past testing at NPTEC includes large-scale chemical releases for dispersion modeling, projects conducted by the National Laboratories, sensor development releases, and First Responder Training.

Today

The current mission of the NPTEC is to provide a secure test-bed, calibrated release systems, weather data, ground truth instrumentation, logistics, test design, and test execution support for customers to utilize during the execution their projects. All projects are conducted within environmental and safety regulations. The facility is available to private and public sector sponsors on a user-fee basis.

The Facilities

NPTEC is equipped to test a variety of multiple release sources, including large-scale chemical releases, wind tunnel releases, elevated stack chemical releases, and portable release systems. In addition, NPTEC provides sensor arrays for ground truth data, an explosives pad, weather data instrumentation, calibrated release systems and 24-hour release capability. NPTEC also maintains the capability to host light aircraft operations on an area lake bed.

Tests are monitored from the Command, Control and Data Acquisition System building.

Elevated stacks and spill pads are available to simulate realistic industrial release and accident scenarios; and test cell areas provide a method to expose materials and instrumentation to high concentrations of test materials in a confined space.

In addition to these test areas, operations can be controlled remotely from the Command, Control and Data Acquisition System building, approximately one mile west of the test areas. An array of monitoring equipment that includes anemometer stations, sensor stations, meteorological towers, and photographic stations measures and records data on more than 1,500 data channels. Tower-mounted video cameras record the tests, and an array of monitoring stations gathers a host of data, including wind speed, and wind direction, and gas concentrations at various levels and distances.

Conclusion

The Nonproliferation Test and Evaluation Complex is ideally suited for test sponsors to conduct field verification and validation of their technology in a realistic environment. NPTEC capabilities can be used to improve the safety response to hazards and to protect the public and the environment in all stages of manufacture, transport, storage and use of toxic materials.

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