

Vulnerability and Risk Assessment Program

Brookhaven National Laboratory is managed for the U.S. Department of Energy by Brookhaven Science Associates, a not-for-profit research management company founded by Stony Brook University and Battelle.

The nation's critical infrastructure assets represent potential targets for terrorists who wish to disrupt society. Attacks on these assets could cause loss of life, loss of service, environmental impacts, economic impacts, or be a symbolic gesture.



Petroleum storage tanks like these are potential targets for terrorists.

- Transportation facilities, including ports, bridges, tunnels, airports, and mass transit systems
- Finance and banking institutions
- Telecommunications systems

Currently, Brookhaven National Laboratory engineers and scientists are engaged in developing and applying methods to determine the vulnerability of these infrastructure assets, how they might be exploited, and remedial actions that should be taken to protect or "harden" them.

Brookhaven Vulnerability and Risk Assessment Program (VRAP) is also identifying important dependencies between these assets in order to identify mitigation strategies that can be adopted to prevent loss of multiple parts of the nation's infrastructure. In addition to implementing the new methods, the Laboratory is also planning to document and publish them for use by government and private organizations around the country. By doing this, it is hoped that a consistent national approach will be adopted resulting in comparable output.

Infrastructure Assets

Assets designated for protection under the VRAP program include:

- Electric power generation, transmission and distribution systems
- Natural gas facilities, including wells, pipelines, storage, compression stations and distribution systems
- Petroleum-related facilities, including gasoline, and diesel fuel tanks, jet refineries, pipelines, tankers, storage, facilities, pumping stations and distribution systems

Helping New York State

The Laboratory's Infrastructure Technology programs have taken the lead on evaluating New York State's specific vulnerabilities. Primarily funded by the federal government's U.S. Department of Energy, the Laboratory has partnered with NY State's Office of Public Security, local governments, federal agencies, and the private sector to evaluate specific high-risk critical infrastructure assets across the state. The information resulting from this review was supplied to the individual organizations, state government and the federal Department of Homeland Security.

With this state-level study now completed, the Laboratory is supporting designated remedial actions, and is moving on to other states, the Northeast region, and specific targeted end-to-end asset studies.

Program Objectives

- Develop exportable methodologies for use on all types of infrastructures
- Develop facility vulnerability database
- Collect needs of industry for potential government assistance and research
- Develop an improved understanding of
 - physical vulnerabilities
 - cyber vulnerabilities
 - system dependencies
- Broaden awareness and improve preparedness/response.

Contact Info:

Nonproliferation and National Security Department
Energy, Environment, and National Security Directorate
Phone: 631 344-2975



VRAP assesses the vulnerabilities of electric and hydroelectric power generation facilities.