Protecting Underground Infrastructure
High Value – High Consequence Assets

for
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Operators Face Disruptions Caused by Man

Chemical

Cyber

Threats

Radioactive

London Bombing

Fire / Arson
What we offer at the Nevada National Security Site (NNSS)

The Site
- Secure site – roughly the size of Rhode Island
- No encroachment, surrounded by Air Force test ranges
- Broad environmental assessment permissions for specialized operations to include up to lethal doses of chemicals and biological simulants
- Adaptable, flexible infrastructure to respond to issues
- High security machine shops
- Runway capable of landing a loaded C130

Our Capabilities:
- Two applied technology laboratories
- Diverse scientific, professional, and technical workforce
- Strong relationship with National Laboratories and Universities
- Strong relationship with Department of Defense and Homeland Security as well as Intelligence Community
What are the best ways to understand release/dispersal of hazardous materials and effectiveness of containment?

- By conducting chemical and biological stimulant releases and explosive testing.
- Supported by diagnostics to define source terms; records environmental and ground truth data.
- National test bed for radiation detectors/sensors
- Realistic operational environment
What are the best practices and standards of care associated with decontamination of the structure and equipment?

- Train responders in prevention/response to terrorist radiological/nuclear material
- Unique NNSS training complexes and capabilities to simulate realistic scenarios in radiation and chemical environment
- Only location with an Environmental Impact Statement with allows release of lethal doses of hazardous chemicals and bio simulants for training, field-testing of detectors, plume dispersion experimentation, and equipment and materials testing.
What are the safety concerns? How are personnel trained and certified to maintain, exercise, and deploy equipment? How do you ensure equipment readiness?

- Counter-terrorism operations support (CTOS) provides 1st Responder Training funded through DNDO and FEMA

- Remote Sensing Laboratory (RSL) provides the technologies, equipment, and national response teams to search for improvised nuclear devices and radiation dispersal devices (“dirty bombs”)

Dismantlement and disposition of IND
Hazard Detection & Assessment
Victim Rescue
Decontamination
Establish Control Zones

Instruments:
- Dosimeters
- Exposure Survey Meters
- Contamination Survey Meters
Can a full size Amtrak Coach or Subway Transit Car be tested for fire and explosive effects in a closed tunnel environment?

Two or more high speed (>40,000 fps) Digital cameras
NSTec offers a full complement of high speed digital cameras, fast framing cameras including qualified diagnostic support personnel.
Can rapid repair technologies, apparatus, and equipment be field tested at NNSS?

Quick response—fast development cycles and rapid prototyping

Systems engineering
- Applied Science
  • Application-specific software
  • Communication systems
  • Radar inspection systems
  • Photonic-based sensors
  • Radiation diagnostics
  • Trace detection / remote spectroscopy
  • Visualization & imaging systems
  • WMD materials detection & characterization instrumentation
  • Special training & deployment

- Real-world deployments:
  • NYC 9/11
  • Fukushima
NNSS Tunnel Complexes

Refer to the posters
We presented the following to the Agencies, which led to their further Interest

Complexes of Tunnels

Varied Tunnel Geologies

Tunnel Closures

Drilling

Underground Garage

Tunnel Alternatives
In summary, we believe we could assist national security initiatives in the following:

- **Provide experimental test beds to:**
  - Help operators efficiently plan, test, evaluate, and train to respond with minimum impact on day-to-day operations.
  - Help sponsors rate vendor instruments/equipment doing standardized testing.
  - Assist modelers with a means to validate their data against real-life scenario situations.

- **Develop data collection/fusion mechanisms that will take all of us further in our endeavors to strengthen our infrastructure.**

- **Offering up the ability to increase situational awareness through iSAGA, sensors and other endeavors.**
• Search and geographically display social media and news information.

• Integrate agency or facility-specific data into one common operational picture.
  • Sensors
  • Plans, blueprints and other facility data

• Search, identify and map key infrastructure.

• Monitor live information feeds such as traffic, traffic cameras and other accessible feeds.