

Status on the Explosion of Building 637 at Brookhaven National Laboratory

Presentation to the Community Advisory Council

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The Incident

- On October 13, 2008, 9:35 p.m., a loud explosion was heard. An immediate search was conducted by the Laboratory Protection Division.
- Building 637, a normally unoccupied water “well house” in the eastern service area of the site was found demolished. It was later confirmed that it exploded from an internal accumulation of propane.

Building 637 – Well House 12

- Well house was built in 1985 to provide physical protection for the pump and treatment systems.
 - 680 sq. ft., concrete block walls, precast concrete roof.
 - Electric driven well with propane auxiliary drive.





Incident Response – The First Hours

- The area of the incident was searched, stabilized and secured by emergency response personnel.
- The propane tank valves were manually closed to prevent further release
- BNL Emergency Operations Center was opened and staffed to manage the event.
 - Notifications made to key stakeholders, including government officials and agencies, employees, media, and community.
- There were no injuries or additional property damage
- No risk to the general public.
- No evacuation of facilities or employees was required.

Incident Response – The First Days

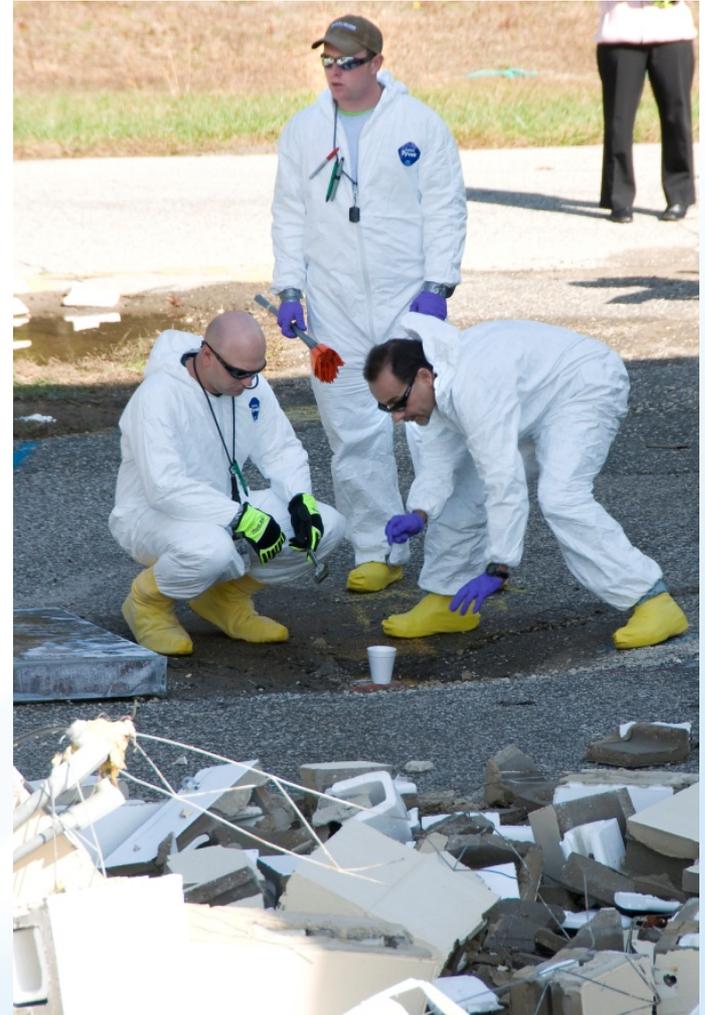
- Outside law enforcement agencies and Laboratory Security conducted an investigation and confirmed that the incident was not a criminal or terrorist event.
- Propane valves were closed at the other two well houses
- Sampling in the area confirmed there was no environmental damage

Investigation Committee Appointed

- A Laboratory accident-investigation committee was appointed to assess the event, identify contributing factors, determine causes, and to recommend corrective actions. The committee:
 - Obtained witness statements; conducted interviews
 - Worked with recovery efforts
 - Reviewed standards and requirements
 - Collected and controlled evidence
 - Examined documentation
 - Performed tests on equipment
 - Determined facts and analyzed information
 - Determined causal factors, findings

Initial Investigation Results

- Preventative maintenance was being conducted on the propane auxiliary engine during the days leading up to the event.
- Two inadvertent actions during the maintenance activity provided for release of the propane gas.
- The propane explosion occurred after a 5 ½ hour build up of propane gas in the building.
- Ignition was from within a motor control center.



Contributing Factors

- The facility was not designed to required standards
 - Appropriate ventilation or explosion venting was not provided.
 - Design reviews, construction reviews, and subsequent assessments did not identify code deficiencies.
- The interlock systems for the propane gas delivery to the engine were bypassed.
- Work planning did not properly consider the hazards of propane and workers were not adequately trained to work with propane systems.
- Changes in maintenance procedures were not properly communicated.

Future Actions

- The investigation will be completed by the end of January
- Development of a comprehensive corrective action plan is underway
- Corrective actions based on preliminary findings are already being implemented

Facility and Operations Organization

- The F&O reorganization completed in July 2008 will address several of the key improvement areas:
 - Implementing an F&O Safety Plan
 - Created a Chief Engineer position to establish design authority and serve as an internal control on technical rigor.
 - Established a Facility Operations Planning and Management Office.