

ABATED EXPLOSION AND NOISE HAZARDS DURING JET CAR LAUNCHES

Jet engines are routinely tested at Naval Air Engineering Station (NAES) Lakehurst, New Jersey. During testing, four-wheeled jet cars, powered by J57 aircraft engines, are



Jet car and engines on test track

propelled down five operational test tracks. The test tracks range in length from 7,500 to 9,150 feet.

Test site system operators used to be stationed too close to the jet cars to observe the five tracks on which jet engines were launched during test operations. The operators were also at risk of injury if an engine exploded during jet engine testing. In addition, they were at risk of exposure to hazardous levels of noise from the jet engines.

During jet engine testing, noise levels sometimes reach 140 decibels (dB), which is above the Navy Occupational Exposure Limit (NOEL) for work-related exposure to noise. This noise level also exceeds the Department of Labor Occupational Safety and Health Administration's Permissible Exposure Limit for noise exposure, at any time, in the work environment.

Overexposure to noise may result in noise-induced hearing loss, interference with communication, and fatigue. Hearing protection is often used to protect workers from overexposure to noise; however, hearing protection would not be expected to protect a user from the effects of exposure to 140 dB. In addition, a person's exposure above 125 dB can be painful and may result in sudden, temporary deafness.



Aerial view of jet engine test tracks

The Chief of Naval Operations' Hazard Abatement Program funded the design and construction of a centrally located control tower that put the test site system operators 50 feet above the test tracks. Working on the observation deck of the control tower allows the operators to observe all of the jet engine test tracks. It also greatly decreases their risk of injury in the event of a jet engine explosion and eliminates the risk of overexposure to hazardous noise levels. Noise levels measured on the observation deck during jet engine testing were at or below the NOEL of 84 dB, the acceptable level for exposure to noise during an 8-hour work shift over a working lifetime.