



Welcome to this issue of

NATIONAL SECURITY SCIENCE

Welcome to the December issue of *National Security Science*. This issue provides both surprising answers and some intriguing questions.

For example...

In 1992, the nation made a decision to forgo full-scale underground nuclear weapons testing after conducting more than 1,000 tests since the end of World War II. However, under Presidential Decision Directive 15 (1993) there is a legal requirement to be able to execute a test within 24–36 months if required. In a national emergency, could the United States safely test a nuclear weapon tomorrow? The prevailing attitude seems to be generally yes, but it depends upon the nature of the test.

In “Nuclear Test Readiness: What Is Needed? Why?” (page 8), John C. Hopkins, former head of the Los Alamos Nuclear Test division, who participated in five tests in the Pacific, 170 in Nevada, and witnessed another 35 or so tests, contemplates the challenges of reviving—and possibly relocating—America’s nuclear testing program. The article challenges all of us to be more introspective as we consider our readiness posture, and to ponder further questions such as: “Is Nevada still the obvious place to conduct a nuclear test?” and “Are the non-scientific but equally essential operational and logistic capabilities in place to support such a test?”

What is it like to be a crew member on a nuclear-capable, 55-year-old, B-52 bomber that’s flying toward North Korea on a 24-hour-long nuclear deterrence mission? Air Force Major Brad Haynes knows. He has 13-years of experience, crewed B-52s (and other nuclear-capable bombers), and has some 2,000 hours of flight time. “Winter is coming,” says Maj. Haynes. In “The Dragon Is Alive” (page 26) readers will learn what being on America’s “Night’s Watch” means.

Speaking of the Night’s Watch, what is it like to be an Air Force missileer, on alert for 24 hours at a time, while 60-feet underground inside an intercontinental ballistic-missile launch capsule? Lt. Col. Cynthia Gunderson, who has served in the Air Force for 19 years and pulled 164 alerts as a missileer, provides us with the details in “Smells Like Alert” (page 18).

Will the Japanese be able to find the missing nuclear reactor fuel at their devastated Fukushima power plant? The answer may lie in using the Lab’s unique muon-vision technology, whereby cosmic rays are harnessed to see inside the thick layers of the reactors’ collapsed concrete and steel containers (see “Fixing Fukushima” on page 36).

And finally, what’s it like to work as an explosives scientist at Los Alamos? In “Ask Me Anything” (page 48) the Lab’s explosives experts field questions from the public regarding career choices, working at the Lab, and living in Los Alamos.

Happy holidays and a happy new year to all!

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