

EMP tests under fire: DOD must shut down most — for now

This week the Department of Defense (DOD) agreed to put on hold much of an important nuclear-effects testing program until it has established that the radiation emitted by at least 11 affected test facilities will not harm the environment. Part of a court-ordered stipulation, the agreement works toward resolving a legal challenge initiated last year by two environmental groups, the Foundation on Economic Trends (FET) and the Potomac River Association. FET President Jeremy Rifkin says the agreement is important environmentally "because this is the first time a federal agency has acknowledged that there's a whole new form of pollution to be considered in the coming decades: electronic pollution."

At issue is the safety of DOD's electromagnetic-pulse (EMP) simulators — facilities used to test the vulnerability of strategic military systems to EMPs. This electronic fallout is a rain of Compton electrons produced when gamma rays emitted by the detonation of high explosives, especially nuclear weapons, collide with air molecules. Though deadly to unprotected electronic components, such as computer chips, the radiation has for decades been presumed innocuous to living things.

Recently, however, concerns over its potential impacts have been escalating. The State of Virginia, for instance, has registered concern over an EMP simulator's potential effect on cardiac pacemakers. Just last year the Environmental Protection Agency (EPA) challenged a DOD study involving the safety of the Navy's EMPRESS-II simulator, initially slated for operation in the Chesapeake Bay. In a letter to DOD, EPA officials said, "We do not agree. . . that EMPRESS-II will cause no impact to organisms of the Chesapeake Bay" (SN: 3/21/87, p.182).

In their lawsuit against DOD, FET and the Potomac River Association charged that DOD violated the National Environmental Policy Act (NEPA) by setting up and operating EMP test facilities without first formally assessing whether the non-ionizing radiation they emit might harm the environment. Pending an initial "environmental assessment" of each facility's emissions, DOD has now agreed to shut down most of its EMP simulators and operate at very low power all but one of those remaining. None of these will be able to resume full-scale testing until it complies with the NEPA—usually done by issuing a site-specific "environmental impact statement."

The sole exception is a simulator at Kirtland (N.M.) Air Force Base that will be allowed to operate normally. The plaintiffs did not challenge this exception, Rifkin says, because "it's in a remote area." However, DOD has promised to provide an assessment of the Kirtland

simulator's environmental effects within 15 days of the new agreement being formally signed in court. (At press time, that signing appeared imminent.)

The court-ordered agreement is the latest of several major policy developments affecting EMP test facilities in recent months. For instance, Congress inserted a provision into the Defense Appropriations Act, passed late last December, that prohibits the Navy from operating EMPRESS-II in the Chesapeake Bay until the Secretary of Defense certifies these tests are essential to national security and that the economic, environmental and social costs of operating the simulator elsewhere would be far greater.

On March 24, a group of citizens' advocates led by Patricia Axelrod of Washington, D.C., went to U.S. District Court requesting a temporary restraining order to shut down testing of electronic components in the newly assembled EMPRESS-II simulator. Axelrod's primary concern was not EMPs' effects on living systems but their potential effects on such things as a weapon's electronic components — including the fuze triggers that activate rockets, bombs and mortar shells — and its solid and liquid fuels.

The Navy has conducted EMPRESS-II component testing at its Cheatham Annex in Virginia, Axelrod notes, about two miles from the Yorktown (Va.) Naval Weapons Station. This concerns her, she says, because Yorktown is where naval vessels unload and store their weapons, including nuclear munitions, before going into Norfolk for servicing and maintenance. If EMPRESS-II component-testing emissions are high enough, they might trigger an accidental detonation of nuclear ordnance at Yorktown, she says.

But on April 29, Judge Thomas Hogan ruled that since the Navy's scientific data indicate the chance of an EMP detonation of ordnance is next to nil, testing can continue. Axelrod says she is considering an appeal.

Finally, three weeks ago the Navy issued its final environmental impact statement for EMPRESS-II — the first such assessment completed for any of DOD's EMP simulators. In the foreword to that document, the Navy announced for the first time its plans to formally abandon the Chesapeake Bay — its preferred location — as the full-scale testing site for its new barge-carried simulator. However, it said it would continue to consider the bay a fallback if economics or national security needs prohibited ocean testing.

That latter point concerns some, including Maryland environmental officials. Robert Lunsford, with Maryland's Department of Natural Resources in Annapolis, says his office is planning to protest this point. He argues the environmental impact statement contains insuffi-

cient economic data — cost estimates for shutting down boating and fishing in the test area — for the Secretary of Defense ever to responsibly determine when it pays to use the Chesapeake Bay as a fallback.

But at least for now, this issue is probably moot. Rifkin notes the DOD's new agreement shuts down EMPRESS-II until the Navy completes a new environmental impact statement — this one showing the simulator would pose no threat to living things at a specific chosen test site, probably in the ocean.

Scientists know little about the biological effects of electromagnetic radiation on life in the ocean — or elsewhere, for that matter. And that, says Rifkin, points to one major benefit of the new DOD agreement: It will dramatically enrich the data base in this area. — J. Raloff

Mock nuke blasts go off

A team of U.S. and Soviet scientists, using advanced monitoring equipment, recorded seismic waves from a trio of simulated nuclear explosions in Nevada last week, as part of an agreement between the Soviet Academy of Sciences and the Natural Resources Defense Council (NRDC), a Washington, D.C.-based environmental group. The experiment is aimed at demonstrating that seismic monitoring techniques can reliably detect nuclear explosions from underground weapons testing (SN: 4/16/88, p.245).

Although it will take several months to analyze the recordings, the scientists involved in the project believe the experiment will help determine how far high-frequency seismic waves can travel. From the initial results, it appears that two of the three blasts registered at the seismic stations closest to the explosions. But the farthest station, located several hundred kilometers away from the blasts, failed to detect any of the explosions, says Thomas Cochran, staff scientist for the NRDC. Because the explosions were tiny compared with nuclear blasts, the scientists did not expect the seismic waves to reach all stations.

The third blast registered only faintly at the closest stations, and scientists are analyzing the explosion to explain this surprising result.

The NRDC hopes these experiments will prod the U.S. government into negotiating a total ban on all nuclear weapons testing. At present, though, the administration is focusing on two treaties that limit nuclear tests to 150 kilotons of TNT. The Soviet Union and United States have signed but have not ratified the treaties, because they have yet to agree on how they will monitor compliance. □