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## **A Dangerous Gap in Our Defenses?**

An EMP attack is a terrible threat that could be countered now.

by Henry F. Cooper and Robert L. Pfaltzgraff, Jr.

For several days in early November, a series of U.S. government agencies were either unable or unwilling to explain what had produced a vapor trail that had illuminated the Southern California skies. Public speculation abounded, first that it was a missile, then that it was in fact the condensation trail (contrail) of a plane. Controversy continues in the blogosphere and elsewhere.

The absence of a cogent official explanation reveals a dangerous gap in our defenses, specifically in our warning systems. Our surveillance systems should be able to distinguish a missile from an airplane instantaneously. If the source of the vapor trail had been a short-range ballistic missile launched from a freighter, tanker, or container ship, or even a small vessel off our shores, we should have been able to detect it unambiguously and shoot it down quickly. Failure to do so could have produced long-lasting local and global consequences.

The 2004 *Report of the Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack* observed that a single nuclear weapon exploded at high altitude above the United States will interact with the Earth's atmosphere, ionosphere, and magnetic field and can produce a damaging electromagnetic pulse over hundreds of square miles. This could shut down, for an indefinite period, telecommunications and electrical-power grids, as well as the electronics-dependent transportation systems that support the "just-in-time" marketing, manufacturing, and delivery of essentially all commodities upon which we are dependent. It could cut off water and food supplies to urban areas and create chaos that would return the United States to 19th-century life, but without the life support then provided by an indigenous agricultural society. It could also hobble banking and related business transactions, which in turn could extend the catastrophic effects into the global economy. Disabling even one of our critical infrastructure elements would have severe consequences for others – effects from which advanced, technologically interdependent societies might not easily recover.

This threat is not merely hypothetical. Several years ago, Iran tested a short-range ballistic missile in a way that indicated an interest in developing an EMP capability. Even terrorists might purchase such missiles, possibly armed with nuclear weapons. Furthermore, recent reports that Iran has agreed to install ballistic missiles in Venezuela suggest that we could face a threat via future pathways across the Caribbean. This could become a modern version of the Cuban Missile Crisis.

Yet no national strategy addresses this threat or underwrites a serious program to counter its effects – though such a capability would be possible as an inexpensive adjunct to existing and planned missile-defense programs.

Presidents George W. Bush and Barack Obama both have placed a top priority on preventing the smuggling of nuclear weapons to the United States. Such a program must be able to counter the maritime smuggling of nuclear weapons, including the identification and interdiction of a ship carrying short- or medium-range nuclear-armed ballistic missiles. And if such a ship escapes detection or interdiction before it approaches U.S. coasts, effective defenses could intercept a launched nuclear-armed missile in its ascent phase just after launch and before it can – detonate a nuclear warhead.

Fortunately, the dangerous gap in our defenses that may have been revealed by the vapor trail in early November can be filled by technologies that are already available or presently under development. This includes countering a would-be EMP attacker, who might be deterred by an integrated U.S. system that: 1) identifies a ship carrying one or more nuclear-armed ballistic missiles and interdicts it before it reaches striking distance of the United States; 2) failing that, intercepts the attacking missile before its EMP-producing nuclear warhead is detonated; and 3) failing that, reduces casualties and provides for critical infrastructure reconstitution, including hardening to minimize EMP effects.

Such an integrated system would contain three components fashioned from ongoing missile defense programs – Aegis ballistic missile-defense (BMD) ships, “Aegis Ashore” ground-based interceptors, and unmanned aerial vehicle (UAV) capabilities. An effective command-and-control system, together with intelligence and early warning, is vitally important in preventing the smuggling of nuclear weapons into the United States, as well as for timely missile-defense operations.

Interceptors on even a single U.S. Navy Aegis cruiser or destroyer operating in a region near Norfolk, Va., could defend a large portion of the eastern seaboard. Additional ships could extend and reinforce the protective shield from New England to Florida. The five Aegis BMD-capable ships now stationed in the Atlantic will grow to 18 by 2015, and a few of these could provide an anti-EMP missile defense for the entire east coast, while still performing their other day-to-day operations. A similar number are already deployed in the Pacific, and several of these could defend Hawaii, Alaska, and the west coast. A land-based version of the Navy’s Standard Missile-3 (SM-3), deployed on military bases along the Gulf coast, could defend those who live there against an EMP attack from Venezuela or the Caribbean.

Already-deployed SM-3s can begin to counter the EMP threat almost immediately, and planned higher-velocity SM-3 improvements, along with an increase in deployed numbers, will make an EMP attack even less likely to succeed. Similarly, a land-based variant of the current SM-3 could be rapidly deployed and improved. The current Aegis Ashore program plans initial overseas land-based deployments beginning in 2015 – and improvements following in the next five years. Obviously, this same capability could be deployed as part of an anti-EMP capability to protect the United States, particularly in the Gulf-coast region, where Aegis ships seldom operate.

To help fill the November vapor-trail mystery gap, a dedicated UAV-sensor system could provide timely tracking information, which is essential to initiating defensive operations somewhere between seconds and a very few minutes after a threatening missile is launched from a ship off our coasts. Such UAVs could also carry interceptors as an additional defensive layer to Aegis. UAV-borne sensors and weapons have already demonstrated impressive capabilities in Afghanistan and Iraq, and appropriate versions could be placed in “orbits” off the U.S. coast to identify ballistic-missile launch preparations, provide warning if a ballistic-missile is launched from an offshore ship, and intercept it in its boost or ascent phase.

America’s current state of essentially complete vulnerability to the EMP threat is unacceptable, especially since relatively inexpensive steps can be taken now to build increasingly robust missile-defense systems to counter this 21st-century threat. Existing, already-funded programs will improve possible near-term capabilities, augmenting the already-deployed SM-3 that, to repeat, could begin to counter the EMP threat almost immediately. The confusion over what produced the vapor trail off the California coast in early November, along with the potential threat from Venezuela, should inspire action to fill a gap that, if unaddressed, could have catastrophic consequences for our security.

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