NATIONAL REVIEW | NATIONAL SECURITY & DEFENSE

The EMP Executive Order — Where Were Bush and Obama?

By WILLIAM GRAHAM, R. JAMES WOOLSEY & PETER VINCENT PRY | May 3, 2019 1:05 PM

Department of Homeland Security workers at the National Cybersecurity and Communications Integration Center in Arlington, Va., January 13, 2015. (Larry Downing/Reuters)

A threat that could literally mean the end of civilization is finally getting the attention it needs under Trump.

Washington and the press call almost everything an "existential threat" these days. But the threat from a natural or man-made electromagnetic pulse (EMP) really is one, as our congressional commission reported in 2017:

> The critical national infrastructure in the United States faces a present and continuing existential threat from combined-arms warfare, including cyber and manmade electromagnetic pulse (EMP) attack, as well as EMP from a solar superstorm. During the Cold War, the U.S. was primarily concerned about an EMP attack generated by a high-altitude nuclear weapon as a tactic by which the Soviet Union could suppress the U.S. national command authority and the ability to respond to a nuclear attack — and thus negate the deterrence value of assured nuclear retaliation. Within the last decade, newly-armed adversaries, including North Korea, have been developing the ability and threatening to carry out an EMP attack against the United States.

> Such an attack would give countries that have only a small number of nuclear weapons the ability to cause widespread, long-lasting damage to critical national infrastructures, to the United States itself as a viable country, and to the survival of a majority of its population.
>
> The EMP Commission warns that potential adversaries are developing a revolutionary new way of warfare combining cyber-attacks, sabotage, and nuclear EMP attack against national electric grids and other critical infrastructures to achieve quick and decisive victory:
>
> Combined-Arms Cyber Warfare, as planned by Russia, China, North Korea, and Iran, may use combinations of cyber-, sabotage-, and ultimately nuclear EMP-attack to impair the United States quickly and decisively by blacking-out large portions of its electric grid and other critical infrastructures. Foreign adversaries may also consider nuclear EMP attack as the ultimate cyber "denial of service" weapon, one which can gravely damage the U.S. by striking at its technological Achilles' heel, without having to engage the U.S. military. . . .
>
> The synergism of such combined-arms is described in the military doctrines of all these potential adversaries as the greatest Revolution in Military Affairs (RMA) in history — one which anticipates rendering obsolete many, if not all, traditional instruments of military power.

Alarmingly, in the military doctrines of potential adversaries, nuclear EMP attack is considered a dimension of cyber warfare, because EMP is not directly injurious to people, only to electronics. High-altitude EMP attack entails exo-atmospheric detonation (30 to 500 kilometers high), so none of the blast, fire, radiation, radioactive fallout, or other effects associated with a nuclear attack on a city would occur — only the EMP.

Yet EMP, like a super-energetic radio wave that can destroy all kinds of electronics across a region as vast as North America with a single weapon, could in the long run kill far more Americans through its indirect effects than nuclear bombing of a city. Fatalities estimated from a protracted nationwide blackout lasting one year range from 67 to 90 percent of the U.S. population, due to starvation, disease, and societal collapse.

The EMP Commission tried, but could not figure out a way to keep 328 million Americans alive for a year without food and water. In 1880, just before the invention of the first electric grid in 1882, and long before the advent of our high-tech electronic civilization, the U.S. population was about 50 million, sustained by horse-drawn, coal-fired, and mechanical critical infrastructures that no longer exist.

Nuclear deterrence may not prevent an EMP attack, which can be executed anonymously using a balloon or a private jet or by doing a zoom-climb, with a short-range missile launched off a freighter (as practiced by Iran), or by satellite (as practiced by North Korea). Retaliatory threats are credible only if you know who attacked.

EMP also blinds, at the speed of light, satellites, radars, and other National Technical Means used for threat assessment and identifying attackers. Super-EMP weapons now possessed by Russia, China, and probably North Korea could generate 100,000 volts/meter or more, greatly exceeding the U.S. military hardening standard (50,000 volts/meter) and potentially paralyzing U.S. nuclear and conventional retaliatory capabilities.

For more on the military dimensions of the EMP threat, see the EMP Commission Report "Nuclear EMP Attack Scenarios and Combined-Arms Cyber Warfare" (July 2017). All the unclassified EMP Commission reports are available at www.firstempcommission.org.

Terrible as the consequences of a nuclear EMP attack on the United States would be, a natural EMP from a solar superstorm, such as a recurrence of the 1859 Carrington Event, could be even worse, potentially

collapsing life-sustaining critical infrastructures — electric grids, communication, transportation, business and finance, food and water — worldwide:

> Solar super-storms, like the 1859 Carrington Event, generate natural EMP that could blackout electric grids and other life-sustaining critical infrastructures . . . putting at risk the lives of many millions. Recurrence of another Carrington Event is inevitable. The National Aeronautics and Space Administration (NASA) reports the Earth was nearly impacted by a solar super-storm on July 23, 2012. NASA estimates the likelihood of such an event to be 12 percent per decade, virtually guaranteeing Earth will be impacted by a solar super-storm within the lifetimes of our grandchildren — and perhaps ourselves as well.

But there is some good news, according to the EMP Commission Chairman's Report: "Protecting and defending the national electric grid and other critical infrastructures from EMP can be accomplished at reasonable cost and minimal disruption to the present systems." Protecting against the most severe threat — nuclear EMP attack — could be done in a manner that also protects against natural EMP from solar storms and mitigates other threats, including cyber-attacks, sabotage, and severe weather such as hurricanes.

The great news is that President Trump has issued his "Executive Order on Coordinating National Resilience to Electromagnetic Pulses" (March 26, 2019), which implements core recommendations of the EMP Commission, requiring that: "The Federal Government must foster sustainable, efficient, and cost-effective approaches to improving the Nation's resilience to the effects of EMPs."

The EMP Executive Order describes a program for protecting electric grids and other life-sustaining critical infrastructures that shall be, as recommended by the EMP Commission, run from the White House.

One of the biggest obstacles to achieving national EMP preparedness is buck-passing by the Department of Homeland Security (DHS), Department of Defense (DOD), Department of Energy (DOE), and utilities. No one wants to take the lead on protecting critical infrastructures from EMP, and everyone has plausible arguments why responsibility belongs to someone else. Now the EMP Executive Order requires DHS, DOD, DOE, and the utilities to work together on national EMP preparedness — under White House supervision.

The recent foot-dragging and erroneous DHS "National EMP Strategy" (October 9, 2018) — reluctantly drafted by DHS only because Congress tried to compel them to do something about EMP in the Critical Infrastructure Protection Act — would have continued studying EMP until 2028. In contrast, President Trump's EMP Executive Order moves like lightning. Some deadlines:

- "Within 90 days of the date of this order, the Secretary of Homeland Security . . . shall identify and list the national critical infrastructures . . . that, if disrupted, could reasonably result in catastrophic national or regional effects."
- "Within 180 days of the date of this order, the Secretary of Homeland Security . . . shall review and update Federal response plans, programs, and procedures to account for the effects of EMPs."
- "Within 1 year of the date of this order . . . the Secretary of Homeland Security . . . shall submit to the President . . . a report that analyzes the technology options available to improve the resilience of critical infrastructure to the effects of EMPs."
- "Within 1 year of the date of this order, the Secretary of Homeland Security . . . shall identify regulatory and non-regulatory mechanisms, including cost recovery mechanisms, that can enhance private-sector engagement to address the effects of EMPs."

- "Within 1 year of the date of this order . . . the Secretary of Energy . . . shall review existing standards for EMPs and develop or update . . . quantitative benchmarks that sufficiently describe the physical characteristics of EMPs, including waveform and intensity, in a form that is useful to and can be shared with owners and operators of critical infrastructure."

Very importantly, given the development of super-EMP weapons by Russia, China, and probably North Korea, the EMP Executive Order directs:

> The Secretary of Defense shall conduct R&D and testing to understand the effects of EMPs on Department of Defense systems . . . and develop technologies to protect Department of Defense systems and infrastructure from the effects of EMPs to ensure the successful execution of Department of Defense missions.

President Trump's EMP executive order is an opportunity for the U.S. government and private sector to achieve national EMP preparedness quickly, within two to three years. But "the swamp" may yet win. Obama holdovers and career bureaucrats, the electric-power lobby, and ignorant media "instant EMP experts" will do everything in their power to derail Trump's plan to make America safe from EMP.

Shortly after issuance of the EMP executive order, a spate of articles appeared claiming that EMP is not a real threat, or the threat is overblown. For example, on April 30, the Electric Power Research Institute (EPRI), a lobby for the electric utilities masquerading as a quasi-governmental partner with the Department of Energy, released a bogus study purporting a nuclear EMP attack would be no big deal. The EPRI report includes a disclaimer that EPRI is not responsible and cannot be sued if anyone believes their report, follows their advice, and suffers loss of property or life from EMP.

Stratfor's Scott Stewart, in "The EMP Threat Is Real, but It Shouldn't Keep You Up at Night" (April 9, 2019), makes many erroneous claims, including that, because Puerto Rico recovered from Hurricane Maria (with massive emergency assistance from the United States), somehow a protracted blackout of North America would not kill millions of Americans deprived of food and water, possibly for months or years.

Stewart writes reassuringly, "People are often more resilient than some give them credit for." But among the reasons we have a U.S. government is so that American men, women, and children will not have to test their individual unaided resilience against the EMP threat.

—William Graham was the chairman of the Congressional EMP Commission, the White House science advisor to President Reagan, and a member of the defense-science team that discovered the EMP phenomenon. Ambassador R. James Woolsey was CIA director and a senior advisor to the Congressional EMP Commission. Peter Vincent Pry was the chief of staff of the Congressional EMP Commission and served on the staffs of the House Armed Services Committee and the CIA.