

# The United States Most Critical Vulnerability

## Part 1

by GySgt Joshua E. Owen

***"Now I am become  
death, the destroyer of  
worlds."<sup>1</sup>***

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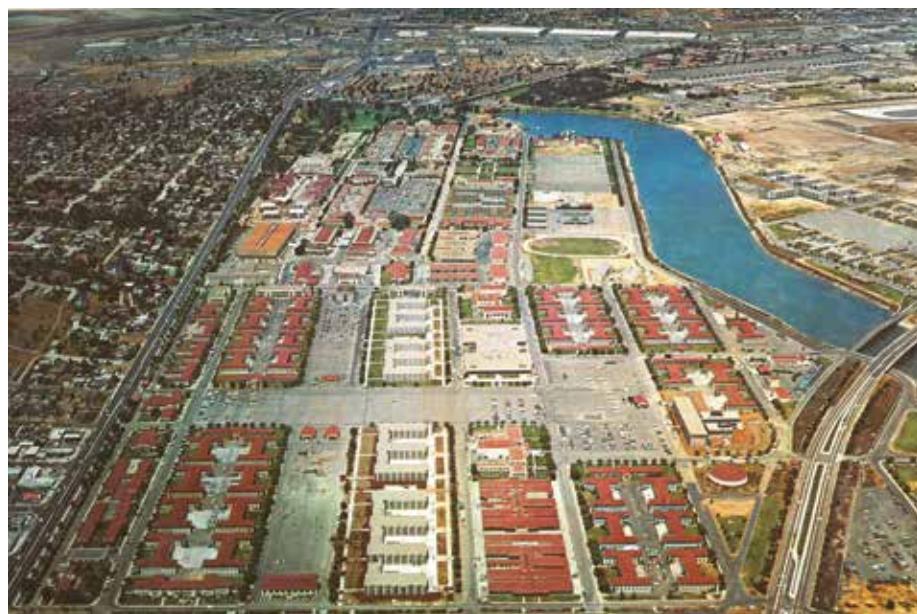
**A**t 0529 on 16 July 1945, Julius Robert Oppenheimer, an American theoretical physicist and professor of physics at the University of California, Berkeley, witnessed the first successful detonation of the nuclear atomic bomb in the open desert of Alamogordo, NM. Since the first detonation, Robert Oppenheimer has been dubbed the “father” of the atomic bomb. During the

time of the bomb, development and eventual use time, the United States needed to remain the most powerful Nation in the world; fortunately, the nuclear atomic bomb guaranteed the power of the United States. In 1962, the United States military witnessed an unexpected twist in the atomic world. They launched a nuclear weapon over 240 miles above the earth’s atmosphere, just 900 miles away from Hawaii. The

1.4 megaton warhead exploded over the Pacific ocean rocking the entire electrical grid off in Hawaii and resulting in radio black outs as well as streetlights and telecommunication outages. This was the first time the United States witnessed an electromagnetic pulse (EMP). At this moment, the American military knew they were vulnerable. If a nuclear weapon detonated at high altitudes could have an effect this powerful, they had to act fast to mitigate the potential threat both offensively and defensively.

The American people are strong, filled with grit and determination, and have the ability to come together during times of crisis. In September 2001, after the fall of the Twin Towers, Mayor Rudy Giuliani appeared on television and brought the city of New York together. His speech transformed the hearts and minds of the people, and he was later hailed “America’s Mayor.” But if the lights are turned off and the electricity does not allow any communications to flow, who will be the leader on the television screen or radio bringing this Nation together in the midst of crisis? Our enemies have the capabilities to produce and detonate a nuclear weapon over the United States. The experts have outlined a way to mitigate this potential threat, but the question to ask is are the people of the United States prepared for such an attack?

“It is not a matter of if, it is a matter of when,” said Gen Eugene Habiger, (USAF(Ret)). So what exactly is an EMP, how does it work, and what kind of effect will it have on the American



Entire training facilities and cities will be without electricity. (Photo by U.S. Navy photo Ntc\_1974.)

power grid? An EMP occurs after the detonation of a nuclear weapon. Once this detonation occurs, the warhead produces high energy gamma radiation that travels radially away from the burst's center. When the detonation is greater than 25 miles above the surface of the earth, the gamma rays enter the earth's atmosphere. Here, they interact with air molecules and produce positive ions and recoil electrons called Compton electrons. Once the gamma radiation interacts with the air molecules, they produce charge separation as the Compton electrons are rejected and leave behind positive ions that are much more massive. The earth's magnetic field interaction with the Compton electrons causes charge acceleration, which further radiates an electromagnetic field as an instantaneous EMP. This occurrence is similar to geomagnetic solar storm disturbances, causing a very low frequency current into the earth and long transmission lines.<sup>2</sup>

#### **EMP Fact or Fiction?**

In the 2008 *Report of the Commission to Assess the Threat to the United States from Electromagnetic Pulse Attack*, nine distinguished scientists noted that EMP is not science fiction, but science fact. One excerpt in the summary stated, "The EMP generated by a high altitude nuclear explosion is one of a small number of threats that can hold our society at risk of catastrophic consequences." A single EMP attack may seriously degrade or shut down a large part of the electric power grid in the geographic area of EMP exposure, effective instantaneously. There is also the possibility of functional collapse of grids beyond the exposed one, as electrical effects propagate from one region to another. Should significant parts of the electric power infrastructure be lost for any substantial period of time, the Commission believes that the consequences are likely to be catastrophic, and many people may ultimately die for lack of the basic elements necessary to sustain life in dense urban and suburban communities. In fact, the commission is deeply concerned that such impacts are likely in the event of an EMP attack unless practical steps are taken to

provide protection for critical elements of the electric system and for rapid restoration of electric power—particularly to essential services. It continues to note we have become so efficient, technology dependent, and highly leveraged that utilities would lack sufficient trained service personnel to address a disaster on this scale.<sup>3</sup> To be quite honest, if an EMP is detonated 25 miles above the earth's atmosphere over the state of Kansas, it would have devastating consequences for our country. The entire electrical grid would be shut down. This includes house electricity, smart phones, computers, all communications, vehicles, and the list goes on. In the report of the EMP Commission, it was estimated that one year after an EMP attack on the continental United States, over 90 percent of the population would not survive. That means within one year of an EMP strike, only ten percent of the population would be living, breathing human beings. This factor was derived largely on the United States' dependency on agricultural transportation. The truck driver simply would not be able to transport the food across the Nation. Since Americans and the majority of the world rely heavily on technology and advanced electronic systems, food preservation would be hard to re-learn when the refrigerator fails. Some studies speculate that an EMP attack would knock the United States back to the nineteenth century. This is arguable because people who lived in that time knew how to survive in that time frame. People would literally have to re-learn how to preserve meat for the winter without salt; how to hunt, fish, garden, and survive through harsh winters and natural disasters.

#### **Skeptics**

Our vulnerability for an EMP attack increases daily as our heavy dependence on electronics continues to accelerate. In 2004, the EMP Commission published their findings on EMP. Unfortunately, it was released the same day that the 9/11 Commission was released. While America's focus was directed toward why and how they were attacked, the EMP Commission of 2004 went largely unnoticed. Again, in 2008, the EMP

**"Although many in Congress and the White House tend to ignore the EMP threat, America's potential adversaries will not."<sup>4</sup>**

Commission re-published their findings with advanced mitigation strategies and it has still become largely unnoticed. Fortunately, in January 2017, the Department of Energy (DOE) published a document titled, *U.S. Department of Energy Electromagnetic Pulse Resilience Action Plan*. While this report outlines strategies to harden the Nation's electrical grid, it also reports the majority of the electric companies are privately owned. This poses a real problem financially for companies to spend the amount of money it takes to harden the electrical grid. Skeptics in Washington will continue to say things like, "There is not enough credible intelligence to suggest an attack," or "It may be technically feasible, but highly improbable and to remain focused on present concerns." However, the fact is the threat is real, and America needs to start planning for the worst.

#### **Why Would The Enemy Use EMP?**

Sun Tzu understood that the best way to subdue your enemy was to do so psychologically, morally, and intellectually. "Numbers alone," he said, "confer no advantage." Though unreliable, there is a quote about the Japanese general to the Japanese Emperor in World War II who said, "It would not be wise to invade the United States because there would be a rifle behind every blade of grass." This holds true even today as the United States has never been invaded by a military force. The enemies of the United States know and understand the capabilities, heart, and patriotism of the American people. It would be foolish to invade. On another note, subduing your enemy psychologically (i.e., turn off the lights) is severely damaging. This

***"Generally in war the best policy is to take a state intact; to ruin it is inferior to this. To capture an enemy's army is better than to destroy it; to take intact a battalion, a company or a five-man squad is better than to destroy them. Thus, those skilled in war subdue the enemy's army without battle. They capture his cities without assaulting them and overthrow his state without protracted operations. They conquer by strategy."<sup>5</sup>***

would break the spirits of the people. Because of the heavy dependence on electronics, most people would not know how to cope in a post-apocalyptic EMP world. So why follow Sun Tzu when he said to take the state intact? Number one is valuable real estate. If a few nuclear weapons were to detonate on American soil, the fall out would destroy virtually everything: plants, animals, crops, people, and rich farm land. It seems that asymmetrical warfare would pose the greatest advantage and the greatest victory. The DOE's EMP resilience action plan outlines a number of concerns regarding farm land, food, emergency services, the Centers for Disease Control protocols and virus stores. The EMP Commission of 2008 also outlines problems with transportation, petroleum, and natural gas, Government operations post-EMP attack,



**Tactical communications will be virtually non-existent. (Photo by Cpl Joshua Sechser.)**

effects on the people, and the list goes on. While no one would even feel the EMP pass through their bodies, its unnoticed consequences would literally mean the end of a civilized world. Once the economy of the United States goes down, the rest of the world is affected. Sun Tzu's philosophy of moral decay on a people is spot on. Once the lights go off, it is every man for himself.

#### **Do Our Enemies Have the Capabilities to Launch An EMP?**

The United States has credible intelligence indicating that the Iranians have

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successfully launched a number of scud missiles to include inter-continental ballistic missiles (ICBM). North Korea has launched ICBMs and Russia is certain to have in their possession a number of nuclear warheads. Iran's missiles do not just detonate at targets on the ground, they have been known to detonate at

high altitudes. Hypothetically speaking, if the enemies of the United States were to come together against their common enemy, the United States, an EMP could be launched from a not-so-elaborate container ship off the coast from either the Atlantic Ocean, Pacific Ocean, the Gulf of Mexico, or all three at once. The ICBM or rocket would never have to be accurate enough to destroy a target on land or in the air. It would only need to explode at a high altitude. This theory is well within the means of any of the enemies of the United States.

The United States' centers of gravity is its powerful military, patriotism of its citizens, values, morals, ethics, and ability to come together in the midst of disaster no matter the race, color, creed, or religion. No enemy would ever be successful in an invasion against the United States, but an asymmetrical bolt from out of the blue would bring America to its knees. America's electrical infrastructure must be hardened sufficiently. Once the lights go out it will be too late to ask questions like: "Why didn't we see this coming?", "What should we have done to prevent the attack?", and "Why didn't we do it?" America is vulnerable and time is running out.

**"People will use any kind of gap in your defenses to attack you or revenge themselves on you. So offer no gaps. The secret is to envelop your opponents—create relentless pressure on them from all sides, dominate their attention, and close off their access to the outside world. Make your attacks unpredictable to create a vaporous feeling of vulnerability. Finally, as you sense their weakening resolve, crush their willpower by tightening the noose. The best encirclements are psychological—you have surrounded their minds."**<sup>6</sup>

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#### Notes

1. James Temperton, "'Now I am become Death, the destroyer of worlds.' The story of Oppenheimer's infamous quote," *Wired*,
2. William Fortchen, *One Second After*, (New York, NY: Tom Doherty Associates, 2009).

(Online:August 2017), available at <https://www.wired.com>.

3. John S. Forster, *Report of the Commission to Assess the Threat to the United States from EMP Attack*, (Washington, DC: Critical National Infrastructures, 2008).

4. Richard Weitz, *Electromagnetic Pulse (EMP) Attack: A Preventable Homeland Security Catastrophe*, (Washington, DC: The Heritage Foundation, 2008).

5. Samuel Griffith, *Sun Tzu: The Art of War*, (Oxford, UK: Oxford University Press, 1963).

6. Robert Greene, *The 33 Strategies of WAR*, (New York, NY: Penguin Books, 2006).

