

## A CitizenOf.us Article



## Nuclear Proliferation, EMP & Rogue States

*Why it matters to you what the Korean and Iranian nuclear programs are doing.*

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### **Abstract**

North Korea and Iran are linked in the development of nuclear weapons and the missiles to deliver them. The greatest threat may not be from the destructive blast of nuclear weapons but the electromagnetic pulse or EMP that occurs even with unsophisticated devices. Unfortunately, North Korea and Iran are both at point where they are able to threaten the whole western world with an EMP attack that the US government estimates might kill 90% of the whole population.

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## **Introduction**

In September 2017 North Korea became a direct and immediate threat to your wellbeing. In September the news media reported the detonation of a nuclear device in North Korea. But it wasn't just a nuclear device or atomic bomb of the type used in World War Two. It was a thermonuclear weapon, hydrogen bomb or H-bomb. Thermonuclear bombs are much more powerful and require an atomic bomb as a detonator to make them explode.

The atomic bombs used at the end of World War II had an explosive force of 15 to 20 kilotons of TNT. The first US hydrogen bomb had an explosive force of 10,000 kilotons.<sup>1</sup> The Soviets fielded thermonuclear weapons with 50 megatons of explosive force during the cold war. That Soviet bomb was more than 3,000 times more powerful than the first atomic bombs.

While this means that North Korea has entered the small group of nations that have mastered or are mastering the building of bombs with unimaginable explosive power, it is not the only emerging new nuclear power.

## **Rogue States and Their Friends**

A rogue state is defined as a nation or state regarded as breaking international law and posing a threat to the security of other nations. While there are more rogue states, at the moment Iran and North Korea are those who are actively pursuing nuclear weapons. Both are actively connected to each other in both nuclear device and delivery system development. This

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<sup>1</sup> Pappas, Stephanie (2017) Hydrogen Bomb vs. Atomic Bomb: What's the Difference?. Live Science. Live Science Website <https://www.livescience.com/53280-hydrogen-bomb-vs-atomic-bomb.html>

is why the current negotiations with North Korea are occurring at the same time the problem of a nuclear Iran is being reconsidered.

Both Iran and North Korea are surrounded by a group of developed nations that have earned billions supplying reactors and the infrastructure needed for nuclear weapons development. Germany and France have supplied nuclear reactors and enriched uranium to Iran respectively.<sup>2</sup> Russia has sold and sells delivery system technology (missiles and missile technology) to Pakistan, Iran and North Korea. Russia also sells uranium, the raw material for all nuclear weapon systems and in 2016 shipped 130 tons of Russian uranium to Iran. “Experts have told US media outlets the amount of uranium to be shipped is enough to produce 10 nuclear bombs...”<sup>3</sup>

To transform uranium into weapons material requires the nuclear reactors that the French and Germans sold to Iran. There are two technical paths for reactors. The first is the use of “breeder” reactors that produce the isotopes needed for weapons directly. Russia supplied initial breeder reactor technology to North Korea during the cold war.

The second, and more dangerous technology, involves enriching the waste of “peaceful” nuclear power reactors. The nuclear “waste” from power generation reactors is enriched using ultra-centrifuge technology that was stolen from the European Uranium Enrichment Centrifuge Corporation (URENCO) in the Netherlands by the Pakistani spy, Abdul Qadeer Khan Abdul.<sup>4</sup> Khan then used the technology to create Pakistan’s nuclear weapon and form an industry selling the ultra-centrifuge enrichment technology to other countries including both Iran and North Korea.

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<sup>2</sup> Wikipedia (2018) Timeline of the nuclear program of Iran.

[https://en.wikipedia.org/wiki/Timeline\\_of\\_the\\_nuclear\\_program\\_of\\_Iran](https://en.wikipedia.org/wiki/Timeline_of_the_nuclear_program_of_Iran)

<sup>3</sup> Jewish News Syndicate (2017) With Obama’s Approval, Russia Selling 130 Tons of Uranium to Iran. Downloaded from: <https://www.breakingisraelnews.com/81776/obamas-approval-russia-selling-130-tons-uranium-iran/>

<sup>4</sup> Broad, William J.; Sanger, David E. and Bonner, Raymond (2004) A Tale of Nuclear Proliferation: How Pakistani Built His Network. The New York Times. Downloaded from: <https://www.nytimes.com/2004/02/12/world/a-tale-of-nuclear-proliferation-how-pakistani-built-his-network.html>

While we think of nuclear weapons in terms of the explosive blast, the fact that the last device tested by North Korea was a thermonuclear detonation is not the greatest threat posed by that North Korean test. At the time of its test, North Korea released a report<sup>5</sup> that correctly described and confirmed North Korea's design of a super-EMP weapon and stated that the blast was a test of just such a super-EMP weapon.

## **What is an EMP Weapon?**

All nuclear weapons give off a strong pulse of radiation during the explosion. During the original US nuclear development efforts in 1962, Operation Starfish exploded a hydrogen bomb at an altitude of 250 miles above Johnston island and 800 miles from the Hawaiian Islands.<sup>6</sup>

The 1.4 megaton explosion knocked out the telephone system on Kauai and the street light system on Oahu, activated bugler alarms in Oahu and fused automobile ignitions on the island of Hawaii. The disabling effect of electromagnetic pulse radiation or EMP on electrical systems was confirmed.

EMP is formed as the radiation from a nuclear blast interacts with the atmosphere. It produces three types of electromagnetic waves called E1, E2 and E3. The first wave, E1, occurs in nanoseconds (billionths of a second) and disrupts all types of electrical and electronic devices and systems over a broad geographic area.

The second, E2, wave happens in milliseconds is similar in effect to lightning hitting devices and amplifies E1 effects in power lines and electric tower structures, in telecommunications cables on telephone poles, in telecommunication electronics and controls systems, and in transformers of the electricity supply system or grid. E3 wave effects last minutes and

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<sup>5</sup> Kim Song-won, Dean of Kim Chaek University of Technology "The EMP Might of Nuclear Weapons" Rodong Sinmun, Pyongyang, September 4, 2017

<sup>6</sup> Dodge, Michaela; Tubb, Katie; Spoehr, Thomas W. ; Spencer, Jack and Inserra, David (2018) The Danger of EMP Requires Innovative and Strategic Action. Backgrounder Series, the Heritage Foundation. Downloaded at <https://www.heritage.org/homeland-security/report/the-danger-emp-requires-innovative-and-strategic-action>

destroy the elements of the bulk electricity supply system such as power stations, substations and transformers.<sup>5</sup>

Nuclear weapons designed to be EMP weapons reduce their explosive power but increase their radiation output, especially the radiation that strengthens the E1 wave affecting almost every type of electric and electronic device.

## **The Effects of EMP Attacks**

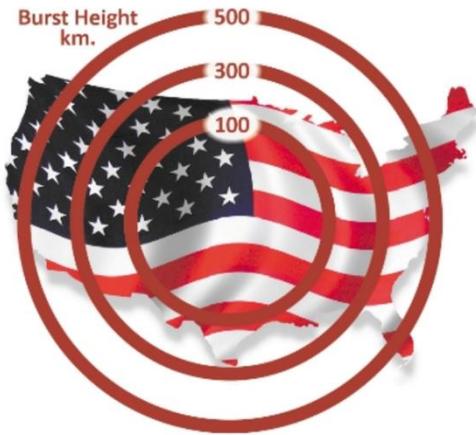
It's not a destructive blast that makes EMP weapons so dangerous. It's the total and sudden disappearance of electric and electronic infrastructure in the target country caused by the electromagnetic pulse that is so dangerous.

The potential effects of an EMP attack include:

- *no electric power (all generators in home, hydroelectric, wind, solar, nuclear or fossil fuel power systems);*
- *no lights (traffic, street, or indoor);*
- *no perishable food (all refrigeration, freezers or refrigerators eliminated);*
- *no electric heating or air conditioning;*
- *no electric pumps (no water supply, no gasoline, no oil and natural gas transport, no sewage treatment);*
- *no telecommunications (landline or wireless telephones, Wi-Fi or Internet);*
- *no radio or television (amateur radio, broadcast radio or television);*
- *no emergency services (911, hospitals, medical services, fire or police services);*
- *no computers (hardware, software, data, networks or chips);*
- *no banks or ATM services (no checking or savings accounts, no credit cards, no stock market shares);*
- *no transportation vehicles (ATVs, automobiles, trucks, trains, airplanes, ships),*

In affected areas, an EMP attack reduces the population to a pre-industrial stone-age. The more advanced the country the greater the effect of EMP. In countries like the United States where everything is based upon

electricity, the effects are enormous. Money, credit and commerce will disappear. All food runs out at the point it spoils. Water runs out whenever the means of its distribution pressure is depleted.



The current U.S. government estimates of the number of Americans killed by an Iranian or North Korean super-EMP weapon are above 90% of the American population.<sup>7</sup> Most are estimated to be killed by the famine and social chaos that will

follow the attack instead of the detonation blast.

The area affected by an EMP attack is determined primarily by the altitude of the blast. In the diagram to the left, each ring represents the area affected by a relatively unsophisticated device exploded at the altitude of the ring.

The outer ring that impacts the whole of the United States is about 300 miles high. The fundamental fact about this threat is that all the destruction being described is caused by the detonation of a single weapon, not the result of a huge arsenal of nuclear weapons from a super-power being unleashed.

### **The Delivery System is as Important as the Weapon.**

Since the altitude and position at detonation determines the effective radius and focus of the EMP effect, the delivery system is nearly as important as the warhead. Tactical missiles, Intermediate Range Ballistic Missiles (IRBMs), Inter-Continental Ballistic Missiles (ICBMs) and satellites all form EMP delivery systems.

Tactical weapons with ranges from 500 to 1000 miles can be used to launch an EMP attack when carried to a local launch point. A typical threat

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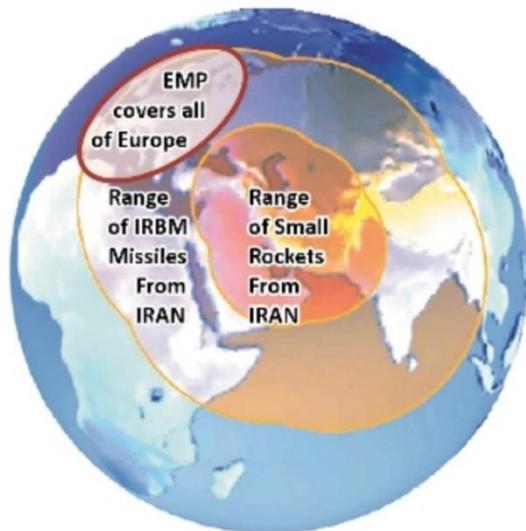
<sup>7</sup> Graham, Dr. William R. and Pry, Dr. Peter V. (2017). North Korea Nuclear EMP Attack: An Existential Threat. Testimony Before the House Representatives Hearing: Empty Threat or Serious Danger: Assessing North Korea's Risk to the Homeland. Downloaded from <https://docs.house.gov/meetings/HM/HM09/20171012/106467/HHRG-115-HM09-Wstate-PryP-20171012.pdf>

scenario is the use of a marine freight ship or oil tanker. Oil tankers make hiding a nuclear weapon's radiation easier because oil is itself radioactive. Fired from a port in North America to a height of thirty miles it would form a true low-tech threat.

IRBM missiles with a range of 2,000 to 3,000 miles allow attacks on regional targets within continental land masses. An example would be an Iranian IRBM to anywhere in the Middle East. ICBM missiles with a range of 5000 to 10000 miles allow attacks on anywhere on Earth. ICBMs or their equivalent launch vehicles also allow the use of satellites as a launch platform.

## Current Launch Systems

The current delivery systems for both North Korea and Iran start with the sale of Russian Scud B missiles and support equipment to Egypt around 1980. North Korea acquired these missiles and began reverse engineering them (taking apart a device to figure out how it can be copied). It then created the Hwasong-5 missile and sold it to the Republic of Congo, Cuba, Ethiopia, Egypt, Iraq, Iran, Libya, Myanmar (Burma), Syria, UAE, Vietnam, and Yemen.<sup>8</sup>



The diagram to the left gives the range of Iranian tactical and IRBM missiles. Their current IRBM missiles reach far enough to provide an EMP event that would destroy all of Europe. This is why France, England and Germany are so determined to keep their hope in the current nuclear treaty with Iran.

The restart of the Iranian manned space program is also a worry because the technology for space launches and

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<sup>8</sup> Center for Strategic and International Studies (CSIS) (2018) Hwasong-5. Missile Threat CSIS Missile Defense Project website <https://missilethreat.csis.org/missile/hwasong-5/>

satellites is similar to that of ICBMs. In fact NASA used an IRBM, the Jupiter C, for Alan Shepard and ICBMs for the rest of its Mercury and Gemini space programs.

The North Koreans have succeeded in building a whole arsenal of missiles



from the copy of Russian Scud B tactical missile called the Hwasong-5, to the Taepodong 2 satellite launch vehicle and the 8,000+ mile ICBM called the Hwasong-5. The Hwasong-5 ICBM is capable of reaching anywhere in the United States. In fact, as shown to the left, anywhere in the world except South America.<sup>9</sup> Both Iran and North Korea

have already launched satellites and have tested orbital launch rockets. North Korea has satellites that can be used as EMP weapon launch platforms.

## **EMP Attack Preparedness and Defenses**

The fact is that, while some measures have been taken to protect certain parts of our military, nothing has been done for civilian preparedness. President Obama scrapped the delivery of land based radars and anti-missile missiles in Poland that were designed to protect against both Russian and Iranian missiles. He also ended the U.S. space program that provided the one ability to stop attacks from satellites in space.

The problem North Korean satellites pose to our ground based missile defense systems is that our antimissile systems are designed against Russian rockets that fly over the North Pole. North Korean satellites fly the exact other direction and our defenses cannot stop them.

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<sup>9</sup> Tong-Hyung, Kim and Klug, Foster (2017) North Korea's upgraded missile has a new name, Associated Press. Downloaded from Business Insider website <http://www.businessinsider.com/hwasong-15-north-korea-icbm-2017-11>

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*U.S. ballistic missile defense (BMD) interceptors are designed to intercept a few North Korean ICBMs that approach the United States over the North Polar region. But current U.S. BMD systems are not arranged to defend against even a single ICBM that approaches the United States from over the South Polar region, which is the direction toward which North Korea launches its satellites... So, North Korea doesn't need an ICBM to create this existential threat. It could use its demonstrated satellite launcher to carry a nuclear weapon over the South Polar region and detonate it...<sup>10</sup>*

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## **Conclusion**

The EMP Commission's conclusion that a current use of a super-EMP weapon would kill 90% of all Americans, unfortunately leads to a single conclusion. We are going to have to continually stand up against nuclear proliferation, even if it means war. We need to tell our government that it needs to protect the power grid and key infrastructure from EMP and we civilians need to discover what we need to do and do it.

The Department of Homeland Security and the Discovery Channel have even made a film, *After Armageddon*, that you can buy from the Discovery Channel. It depicts how to increase the chance of surviving the chaos after an EMP attack, a pandemic or other social order destroying catastrophe.

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<sup>10</sup> Ibid. Graham, Dr. William R. and Pry, Dr. Peter V. (2017). North Korea Nuclear EMP Attack: An Existential Threat. page 4.