DISCOVERY OF RADIOACTIVITY

FIRST ARTIFICIAL NUCLEAR REACTION

RADIOACTIVE TRACERS DIAGNOSE HEART DISEASE

WEAPONIZING POTENTIAL OF URANIUM

1919

DISCOVERED BY:

ERNEST RUTHERFORD

The first artificial reaction showed that alpha particles could induce nuclear reactions and transform isotopes and elements, making a significant step in developing nuclear reactions and producing new isotopes in the lab.

1898

DISCOVERED BY:

MARIE CURIE

Curie discovered radium alongside her husband Pierre, investigated the phenomenon further, and coined the term “radioactivity.”

FUN FACT

Her notebooks from the 1890s are still radioactive today. They require protective clothing to be handled and are stored in lead-lined boxes.

1939

SENT BY:

ALBERT EINSTEIN

In a letter to President Roosevelt, Einstein and Leo Szilard warned that the Nazis might be developing nuclear weapons and that recent research on uranium fission chain reaction suggested the potential for extremely powerful bombs, leading to the founding of the Manhattan Project.

1925

DISCOVERED BY:

HERMAN BLUMGART

Bismuth-214, a radioactive isotope, was used to measure blood circulation time in healthy individuals and patients, establishing clinical nuclear medicine as a foundation for detecting and managing heart disease.

ATOMIC ENERGY ACT

FIRST NUCLEAR POWER PLANT

NUCLEAR-POWERED SPACECRAFT

COMPUTED TOMOGRAPHY (CT) SCAN

1951

INVENTED BY:

WALTER H. ZINN

The first nuclear power plant was the U.S. Atomic Energy Commission's Experimental Breeder Reactor I in Idaho.

FUN FACT

Nuclear energy has provided approximately 20% of electricity in the U.S. since 1990.

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1946

SIGNED BY:

PRESIDENT TRUMAN

Pivotal legislation aimed to promote the peaceful use of atomic energy, ensuring its development and utilization aligned with global public welfare and the advancement of humanity.

FUN FACT

Two major Atomic Energy Acts were passed eight years apart, each with different goals. President Eisenhower's 1954 act focused on "Atoms for Peace."

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1971

INVENTED BY:

GODFREY HOUNSFIELD & DR. ALLAN CORMACK

Computed tomography scans were first used to create images of the brain and other soft tissues.

FUN FACT

The initial scanner produced an image with a resolution of just 80x80 pixels, which was captured using a Polaroid camera from a screen.

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1961

INVENTED BY:

U.S. ATOMIC ENERGY COMMISSION

The first nuclear-powered spacecraft was the U.S. Navy's Transit 4A navigation satellite.

The successful mission paved the way for the 1977 Voyager 1 and 2 launched missions, which are the farthest human-made objects in interstellar space from Earth.

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NUCLEAR SAFETY, RESEARCH, DEMONSTRATION, AND DEVELOPMENT ACT

RADIOACTIVE WASTE DISPOSAL CELL - WELDON SPRING, MO

PORTABLE MICROREACTOR EXPERIMENTS

NUCLEAR WEAPONS CLEAN UP EFFORT - ROCKY FLATS, CO

2001

BUILT BY:

DEPARTMENT OF ENERGY

1.48 million cubic yards of contaminated soil, building parts, and raffinate pit materials are encapsulated in a disposal cell at Weldon Spring, Missouri site. This disposal cell is designed to safely contain and manage this waste.

FUN FACT

The engineered disposal cells are designed with groundwater, geologic, and erosion criteria to ensure the radioactive material is isolated from the environment for hundreds to over a thousand years.

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1980

INSPIRED BY:

NUCLEAR INNOVATION REVOLUTION

After the Three Mile Island incident, the U.S. faced an energy crisis. This nuclear innovation led to laws ensuring safe and responsible use of nuclear energy by establishing standards, funding research, promoting demonstration projects and fostering the development of nuclear technologies.

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2005

CONDUCTED BY:

DEPARTMENT OF ENERGY

DOE and its contractor completed a 10-year, $7 billion cleanup of chemical and radiological contamination in buildings and areas across the site after nearly 50 years of production activities.

FUN FACT

More than 62,000 shipments of waste were needed for this massive ten-year cleanup effort.

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2025

CONDUCTED BY:

DEPARTMENT OF ENERGY

The DOE has begun experimenting with compact, energy-efficient microreactors that are no bigger than a semi-tractor trailer. These reactors will be first of their kind in the world and will assist in meeting the nation's demand for more abundant, affordable, and reliable power especially in remote locations.

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