

Nuclear Waste Management Market Growth, Competitive Analysis, Prospects, & Key Players: Stericycle Inc., US Ecology Inc.

WILMINGTON, DE , UNITED STATES, May 13, 2024 /EINPresswire.com/ -- The [nuclear waste management market](#) was valued at \$4.8 billion in 2022, and is estimated to reach \$5.7 billion by 2032, growing at a CAGR of 1.9% from 2023 to 2032.

Nuclear waste management involves proper handling, storage, and disposal of radioactive waste that originates from nuclear power plants, nuclear research facilities, and other applications of nuclear technology. Effective management is crucial to safeguard human health and the environment against the potential harmful effects of radiation. Radioactive hazard mitigation and environment protection, volume reduction and long-term solutions, and resource conservation & energy generation are the current nuclear waste management market trends.

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To ensure the safe management of nuclear waste, it is classified into different categories on the basis of factors such as its level of radioactivity, half-life, and other characteristics. The commonly used classification systems include high-level waste (HLW), intermediate-level waste (ILW), and low-level waste (LLW). HLW, which consists of highly radioactive materials, necessitates the implementation of rigorous containment measures. Nuclear power plants and research facilities typically store waste on-site in specialized storage facilities. These facilities utilize either pools or dry cask storage systems, depending on the specific type and level of radioactivity. On-site storage serves as a temporary solution until a permanent disposal method is determined.

When the need arises to transport nuclear waste from one location to another, stringent safety measures are strictly followed. Specialized containers, such as robust casks, are employed to ensure the secure transportation of radioactive materials. Careful planning is undertaken for transport routes and security protocols to minimize the risks associated with accidents or



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unauthorized access.

Advanced reactor designs result in reduced waste production and waste with hazardous characteristics compared to traditional reactors. Some advanced reactors operate with higher fuel burnup, extracting more energy from the fuel and reducing the volume of high-level waste generated. Certain advanced reactor designs allow on-site waste treatment and recycling. This involves technologies such as pyro-processing, which separates and recycles valuable materials from spent fuel, reducing the volume of waste requiring long-term disposal.

Global Market & Industry Research Report: Global Nuclear Waste Management Market

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Improper management of nuclear waste results in significant hazards to both human health and the environment due to the highly radioactive materials it contains. Exposure to radiation from nuclear waste leads to various adverse health effects, such as an increased risk of cancer and genetic mutations. Therefore, it is crucial to implement strict safety measures at every stage of the waste management process to minimize the potential for radiation exposure. The development of advanced reactor technologies, such as small modular reactors (SMRs) and Generation IV reactors, indeed holds promise for more efficient and sustainable nuclear power generation. These advanced technologies often offer several benefits that positively impact nuclear waste management.

The nuclear waste management market size is studied on the basis of waste type, reactor type, disposal method, and region. By waste type, the nuclear waste management market is divided into low-level waste, intermediate-level waste, and high-level waste. The high level waste segment dominated the nuclear waste management market share for 2022. It is also expected to maintain its dominance during the nuclear waste management market forecast period.

By reactor type, the market is categorized into pressurized water reactors, boiling water reactors, gas-cooled reactors, and pressurized heavy water reactors. pressurized water reactors segment dominated the market growth in 2022 and will continue the same during the projection years.

Depending on the disposal method, the market is classified into incineration, storage, deep geological disposal, and others. Deep geological storage garnered the largest market share for 2022.

By region, the nuclear waste management market analysis is done across North America, Europe, Asia-Pacific, and LAMEA (Latin America, the Middle East, and Africa). Asia-Pacific region dominated the 2022 nuclear waste management market growth. However, Europe is projected to grow at a higher CAGR during the projection years owing to lucrative nuclear waste management market opportunities in the region.

The major players operating in the nuclear waste management industry are Augene, Perma-Fix

Environmental Services, Inc., Swedish Nuclear Fuel and Waste Management Company, Stericycle, Inc., US Ecology, Inc., Veolia, Bechtel Corporation, Waste Control Specialists LLC, JGC Holdings Corporation, and EnergySolutions, Inc.

In February 2022, Russia launched a military offense against Ukraine. On 24 February 2022, Ukraine informed the IAEA that Russian forces had taken control of all facilities of the Chernobyl nuclear power plant. Control of the site was returned to Ukrainian personnel on 31 March 2022.

In the early hours of 4 March 2022, the Zaporizhzhia plant in southeastern Ukraine became the first operating civil nuclear power plant to come under armed attack. Fighting between forces overnight resulted in a projectile hitting a training building within the site of the six-unit plant. Russian forces then took control of the plant. The six reactors were not affected and there was no release of radioactive material. Since late October 2022, Russia has repeatedly targeted Ukraine's civilian infrastructure, including the country's energy system, with missile strikes.

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By waste type, the high level waste segment is projected to grow at the highest CAGR, during the nuclear waste management forecast period.

By disposal method, the deep geological disposal segment dominated the nuclear waste management market share growing at a CAGR of 2.0%.

By reactor type, the pressurized water reactor segment is expected to dominate the nuclear waste management market share.

By region, Asia-Pacific dominated the nuclear waste management market and is expected to grow at a CAGR of 2.2% during the forecast period.

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EnergySolutions

Veolia Environnement SA.

Bechtel Corporation

Perma-Fix Environmental Services Inc.

Stericycle Inc.

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Augean

Waste Control Specialists LLC (WCS)

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