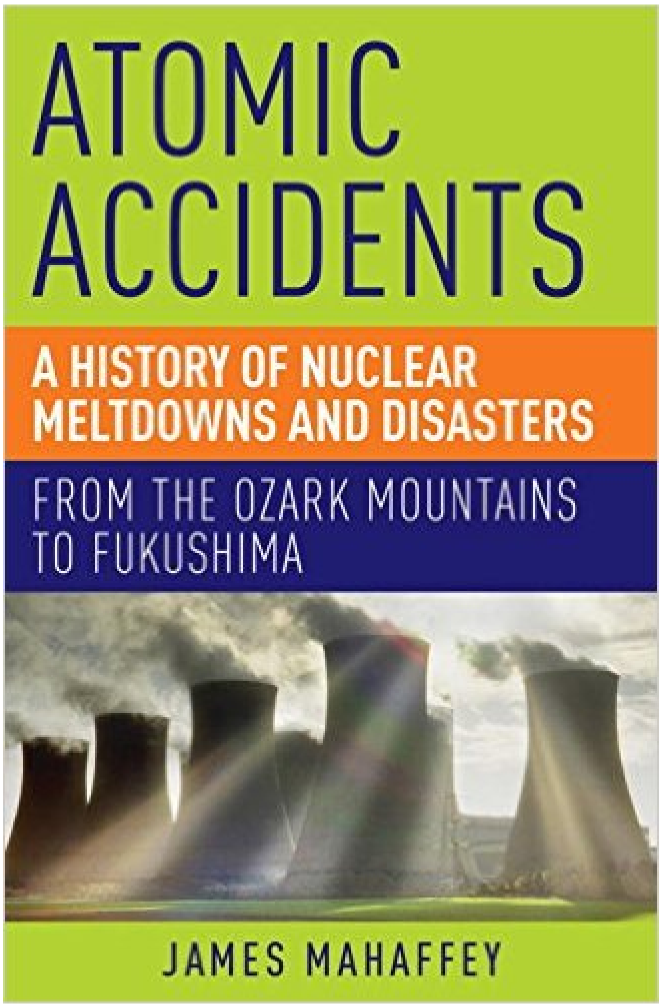
Atomic Accidents: A History Of Nuclear Meltdowns And Disasters: From The Ozark Mountains To Fukushima



Synopsis

A gripping narrative of nuclear mishaps and meltdowns around the globe, all of which have proven pivotal to the advancement of nuclear science.From the moment radiation was discovered in the late nineteenth century, nuclear science has had a rich history of innovative scientific exploration and discovery, coupled with mistakes, accidents, and downright disasters. Mahaffey, a long-time advocate of continued nuclear research and nuclear energy, looks at each incident in turn and analyzes what happened and why, often discovering where scientists went wrong when analyzing past meltdowns. Every incident has lead to new facets in understanding about the mighty atomâ •and Mahaffey puts forth what the future should be for this final frontier of science that still holds so much promise. 16 pages of color and B&W images, charts and graphs throughout

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Customer Reviews

One would think that a book detailing the history of nuclear/atomic accidents, with lots of technical detail, would likely be of interest only to the most devoted nuclear/reactor physicists/engineers. Not so in this case! Certainly there are a lot technical descriptions of how reactors and other apparatus are made and how they operate, as well as play-by-play descriptions of how the various accidents occurred and their aftermaths. The descriptions are clear, most specialized terms are explained and the events leading to the various disasters are told in a most captivating way. But in my view, what makes this book so special is the authorâ ™s writing style, particularly his careful choice of words when describing the events that transpired: wittiness, tongue-in-cheek narratives, subtle sarcasm, etc. I often found myself laughing out loud at the way the author presents some of his material. Because of all of this, at least in part, I believe that this book can be enjoyed by a fairly broad readership.One might expect that a tome like such as this one would contain a number of mistakes â " editorial or otherwise. I must admit that I found very few. Other than a couple of misprints, i.e., on page 12, radium-266 should be radium 226 and on page 283, cesium-167 should be cesium-137, I did find one error of greater significance which may of interest to nit-pickers like me: footnote 82 at the bottom of page 99 is incorrect. In particular, the roentgen (R) and the rem are entirely different quantities. Very briefly, the roentgen applies only to X-ray and gamma-ray photons and is defined in terms of the ionization of air, i.e., the absolute value of the total charge of the ions of one sign produced per unit mass of air.

Last week I finally finished reading â œAtomic Accidentsâ • by Jams Mahafey. The book was a gift. I am a slow reader, but I did read the entire book including the informative footnotes. This is an excellent book for anyone who is interested in nuclear science or nuclear energy. . Mahafey not only discusses many Atomic accidents that most of us have never heard about, but he also provides tutorials on the nuclear science behind the accidents. He discusses detail designs of various nuclear reactors and bombs. Dangerous mistakes have been made, but several accidents were the result of smart, reckless, maverick scientists doing something stupid that they knew was dangerous and likely to get them and others killed.One of the big mistakes discussed was with the Castle Bravo (Shrimp) program at Bikini in the Marshal Islands in 1954 which was a test of the first practical H-Bomb. The H-Bomb proof of concept had been demonstrated earlier in 1952. The proof of concept bomb weighed about 82 ton which included the cryogenic system necessary to keep Deuterium and I believe Tritium liquefied until detonation. The bomb used Tritium-Deuterium fusion for fuel and produced about 11 M ton equivalent of TNT. The Castle Bravo was much smaller using a solid fuel H-bomb designed to yield about 5 M ton, with the greatest possible yield of 6 M ton. Instead it yielded somewhere around 21 M tons. The explosion sent radioactivity fall out around the world.The bomb used Lithium deuteride (Li D) for the fusion fuel. Natural lithium contains both Li 6 and Li 7. Li 6 has a very large neutron absorption cross section, but Li 7 has a very small cross section so it was ignored as being important. They enriched the Lithium to have about 40% Li 6 and 60% Li 7.

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