

Abstract Submitted
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Overview of Helium Conservation at UIUC ANNA PRZYBYL, University of Illinois at Urbana-Champaign — Have you ever had an MRI done? The element that makes MRIs possible and many other scientific instruments is helium. When in liquid form, this incredibly important resource boils at around 4 degrees Kelvin. It is used in scientific applications when a system needs to be kept at such cold temperatures. Nuclear Magnetic Resonance (NMR) and Magnetic Resonance Imaging (MRI) machines operate using superconductive magnetic coils. These coils must be kept at a cold temperature otherwise the superconductive properties will be lost. Some scientific systems are very sensitive to vibrations, and must also be cooled with liquid helium. Therefore, liquid helium is invaluable in certain scientific and medical applications. When not contained, helium quickly burns up and can escape the atmosphere due to how light the atoms are. Most helium on earth was trapped under earth's crust when the earth formed. Some helium is still being produced today, from radioactive decay, but this process takes millions of years, and is not a viable way to produce helium. Thus, it is important to preserve helium, contain it, and reuse it when possible. I will be detailing helium conservation efforts at UIUC, and discussing why it is important to constantly monitor and upgrade such a system.

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