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What Will Happen to the Balloons?

They might be more expensive, but there's probably no need to cancel your party plans just yet. "There's lots of helium out there" says John Van Sloun, general manager — worldwide helium at Air Products, "but very little of it is being captured because the economics of doing so are not favorable."

Good Morning America: Weekend Edition recently ran a segment entitled "Helium Shortage Is No Laughing Matter." It asked viewers to imagine a birthday party without balloons, skies without blimps, and Thanksgiving Day parades falling flat. The reporter puffed on helium to alter his voice and used puns like take a deep breath, the bubble is about to burst, the government reserve is rapidly deflating, etc. — all behind an onscreen tagline of "What Will Happen to the Balloons?" He eventually pointed out that a shortage of helium "wouldn't just suck the air, or fun, out of the party; it would stop a lot of science."

Helium, like many industrial gases, is important in a wide range of industries. Three articles in this issue — "Industrial Gases Create Tremendous Value in the U.S. Economy" (Chem Economics, p. 17), "Nitrogen — Hazard and Safeguard" (Process Safety Beacon, p. 20), and "Producing Nitrogen via Pressure Swing Adsorption" (pp. 38–42) — explore various aspects of industrial gases.

But, back to helium … Before explaining the impending shortage, the reporter said, "Bear with me, it gets technical." That piqued my curiosity, and I expected a discussion of the science and engineering of helium production.

The explanation, however, turns out to be not so much technical as economic (and political). The U.S. Bureau of Land Management (BLM) operates the Federal Helium Reserve, an underground storage facility (aka the Bush Dome) in Texas. The Helium Act Amendments of 1960 provided incentives for private natural gas producers to sell crude helium to the government for storage in the facility. BLM's predecessor, the Bureau of Mines, was authorized to borrow funds from the U.S. Treasury to purchase the helium; when it later sold the helium, the proceeds would be used to repay the debt.

When it became evident that the Bureau of Mines would not be able to repay its $1.3 billion debt, Congress passed the Helium Privatization Act of 1996 (HPA). The HPA required the BLM to sell nearly 30 billion scf of helium (all but a 600-million-scf reserve). Once the debt is repaid, which is expected in mid-2013, funding will expire, and the BLM will no longer be able operate the Bush Dome and the pipelines that connect it to a network of natural gas processing plants and helium refineries. This will strand the remaining helium underground and deny access to the pipeline to the private companies whose operations depend on it.

In 2010, the National Research Council (NRC) released a report that examined whether selling off the Helium Reserve has had any adverse effects on U.S. scientific, technical, biomedical, and national security users of helium. Although an earlier study found (in 2000) that the HPA would not have an impact on helium users, by 2008 market conditions had changed — and indeed, both current and future helium users were being negatively affected.

Proposed legislation working its way through the U.S. Senate, the Helium Stewardship Act of 2012 (S. 2374), addresses some of the concerns identified in the 2010 NRC report. Among other things, it calls for a gradual drawdown of the helium reserve and a more-transparent procedure for establishing a fair market price for the helium. With no major opposition, the bill — which is expected to be a net revenue generator — could sail through the legislative process.

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