United States House of Representatives
Committee on Natural Resources

Subcommittee on Energy and Mineral Resources

June 21, 2017

Oversight Hearing on the "Helium Extraction Act of 2017"

Testimony of
Walter L. Nelson
Air Products and Chemicals, Inc.

Introduction

Mr. Chairman, Ranking Member Lowenthal and members of the Committee, I appreciate the opportunity to testify before you again today. My name is Walter Nelson, Vice President and General Manager of Global Helium at Air Products and Chemicals, Inc. based in Allentown, Pennsylvania. Air Products is a global industrial gas company, one of the leading suppliers of helium worldwide and the largest refiner of helium with connections to the BLM pipeline system.

First, I want to commend the leadership of this Committee for continuing to take up important issues like this bill that will help to ensure a domestic supply of helium is developed to support U.S. manufacturing. We appreciate the chance to again share our expertise on this matter. For as long as we've been meeting here in Washington D.C., we have shared the same common goal of ensuring an uninterrupted supply of helium to the industries that rely so heavily upon this rare element.

Today, I'd like to discuss four topics with the Committee: First, I'd like to share my thoughts regarding the discussion draft "Helium Extraction Act of 2017." Second, comment on current newsworthy events in the Middle East where the Qatar helium supply chain has been disrupted. Third, give you my thoughts regarding the BLM's implementation of the Helium Stewardship Act of 2013, and fourth, comment on the security of domestic helium supplies post the BLM period.

Comments on the discussion draft "The Helium Extraction Act of 2017"

When we turn back the pages of time, we recognize that when President Woodrow Wilson signed the original Mineral Leasing Act in 1920, he did so without knowing that the rare element "helium" would play a significant role in the future of the American economy. At that time, there were no iPad's, people didn't have access to MRI's and sending a man to the moon was only a dream. Later in 1925 helium was exempted from the Mineral Leasing Act through the passage of the "Helium Conservation Act" which assumed helium would only be produced as a byproduct of natural gas production. The Helium Conservation Act never contemplated that helium could be produced without the production of hydrocarbons, so the regulations never addressed public land leases. Following many amendments over the years, the Mineral Leasing Act today authorizes and governs leasing of public lands for developing deposits of coal, petroleum, natural gas and other hydrocarbons, in addition to phosphates, sodium, sulfur, and potassium. Helium is not listed. Specifically, for oil or gas leases, the Act requires that lease holders must actively produce from the lease or the lease holder will lose title to that lease after a 10-year period.

Neither the Mineral Leasing Act nor the Helium Conservation Act contemplated the potential for "on-purpose" helium exploration where the produced gas was not a hydrocarbon. Today with technological advances in exploration and production, along with rising helium prices, it may become economical to produce inert gases on federal lands to extract the helium. As we sit here today, there are several private and public companies exploring the potential for developing "helium only" projects in the United States. However, investment in these projects is inhibited today because the U.S. government cannot guarantee a federal lease term beyond 10 years for the on-purpose production of helium, without also having the co-production of hydrocarbons. Helium production alone from federal leased land is currently insufficient to hold that lease.

We believe the solution is simple: with a few minor tweaks, we believe The Mineral Leasing Act can be amended by essentially adding the word "HELIUM" to the list of produced substances. Prompt passage of this legislation will help to unlock the door for future helium developments in the United States, another step to ensure a long-term domestic helium supply is available for those industries that fully depend on this rare and precious element.

Disruption of the Qatar helium supply chain and its impact on U.S. manufacturing

On Monday June 5th; Saudi Arabia, the United Arab Emirates, Bahrain and Egypt all cut off diplomatic ties with Qatar and moved to close off access to the Gulf country with an embargo of all land, air and sea travel between those countries. As of today, the number of embargoing countries has expanded to include Senegal, Libya, Yemen, Mauritania, United Nations of Comoros, Maldives and Mauritius. Jordan has also reduced its ties with Qatar and has revoked the license of Doha-based TV channel Al Jazeera.

The Qatar/Saudi land border is now closed and the Jebel Ali seaport has stopped accepting cargo to/from Qatar. These actions have disrupted what has been a well-established and efficient supply chain for Qatari helium, thus effectively taking 30% of the world's helium supply off the market.

With the Qatar helium source unavailable, demand has shifted to other global sources – most prominently the BLM system in the United States. Immediately after learning of the embargo, the BLM increased production to maximum rates. Unfortunately, the increase was insufficient to meet demand and the pressure in the BLM pipeline began to fall rapidly. On Saturday June 10th, the BLM had no choice but to

implement pipeline allocations to limit pipeline withdrawals. Those BLM pipeline allocations are still in effect today and the allocations will continue until either the Qatar supply chain is restored or new sources of helium come on-stream to satisfy demand.

This supply disruption will impact everyone in the helium industry, with some being more impacted than others. The BLM system, even when under allocation, does help to dampen the immediate impacts for the US. As with any global commodity, when you take 30 percent of world supply off the market, there will be secondary and tertiary impacts that may not be immediately felt. These could be impactful to the U.S. and global economy by way of manufacturing production, job loss, and on the consumer. There is insufficient excess helium supply capacity globally, so if this disruption continues for any substantial period of time – there will be shortages.

No one knows just how long the embargo and sanctions will last, and we don't know how long it will take to establish reliable supply routes out of Qatar. Thus far a couple of International Container Shipping Companies have announced their intentions to establish service, however none are operational today. We expect new ocean supply routes will develop over time, but there are still many questions about frequency, travel time and reliability.

Comments on BLM's implementation of the Helium Stewardship Act of 2013

In our opinion, the BLM is doing a reasonably good job of implementing the tenets of the HSA. We also recognize the HSA is a complex piece of legislation, and while not perfect, provides specific guidance for the BLM's continued sale and delivery of helium through September 30, 2021. I don't intend to comment specifically on the auction, the helium sale or the delivery of helium, however I would like to comment on the management and operation of the helium plant which is the "heart and soul" of the BLM helium system.

The BLM today operates as a natural gas producer at the Cliffside Field, where it extracts natural gas from wells, separates the gas, and then sells the natural gas and helium to private industry. BLM produces approximately 1.2 billion cubic feet of crude helium annually, which is now about 20 percent of the worldwide supply. The BLM system consists of the Bush Dome, an underground storage reservoir where the United States government stockpiled helium during the conservation period and into which companies that have refined helium can deposit the helium until it is used; together with multiple natural gas wells that are used to extract natural gas from the ground and a gathering system of pipes which connects all the wells together; a helium enrichment plant to process the gas; and a 450 mile crude helium pipeline system that extends from northern Texas across the panhandle of Oklahoma and into Kansas.

The crude helium enrichment unit (helium plant) is operated by the BLM, but the plant is owned by an entity called the Cliffside Refiners Limited Partnership (CRLP), a partnership made up of helium refiners that owned facilities on the BLM pipeline in 2000. The CRLP partners include Air Products, Praxair, Linde, and Kinder Morgan. The CRLP was formed in July 2000 with the charter to support the federal government in fulfilling the requirements of the Helium Privatization Act of 1996. The partnership invested over $26 million in private capital expenditures at the Cliffside field to fund design and construction of the helium plant. BLM operates the CRLP-owned plant today, enabling the sale of government helium and natural gas (methane, in this case) to private industry. The CRLP was honored for excellence by the Secretary of the Interior Gail Norton in 2004 – receiving the Four C's Award which exemplified Secretary Norton's Four C's philosophy of consultation, cooperation and communication all in the service of conservation.

The BLM pipeline infrastructure supports private industry by connecting eight private crude helium extraction plants and seven private refining plants to the BLM's reservoir at Cliffside. Without this pipeline system, private industry would not be able to efficiently deliver crude helium from the extraction plants to the helium refining plants in the region.

The relationship between the BLM and the CRLP partnership is governed primarily by two agreements. One of those agreements covered helium compression station #1 and that agreement was terminated by the BLM effective January 31, 2016. Today compressor #1 remains installed at the helium plant as a "stand-by" spare, however it is not under agreement and no funds are being expended for its maintenance and upkeep leaving this compressor at risk should it ever be needed as a spare.

The other agreement covers the compression stations #2 & #3 as well as the helium plant. To the CRLP's surprise, the BLM gave early notice of termination this past December, so that agreement now terminates in less than 9 months on March 31, 2018. The original helium plant agreement gave the BLM three options following the termination date: the BLM could have negotiated revised fees, purchased the plant at "fair market value" or required the CRLP to remove the plant at CRLP's expense. The BLM chose not to exercise any of its contractual options, but rather to proceed with tendering for a new contract following the Federal Acquisition Regulations (FAR) process.

In my opinion, this decision by the BLM exposes critical U.S. industries (and American consumers) to significant and unnecessary risks. Today the BLM supplies approximately 20% of the world's helium. By cancelling the agreement that governs the operation of the assets at Cliffside, the BLM is in effect, starting over from scratch by tendering for a new plant or a modified crude helium delivery system with just over 4 years remaining before the BLM disposes of the assets as mandated by the Helium Stewardship Act of 2013. You must ask the question – "Why start over at this point?" Especially during the sunset period of the BLM system and now during a Middle East helium crisis that has already taken 30% of the world's helium off the market. Why mess with a system that has worked well for 15 years and risk taking another 20% of the world's helium off the market?

Security of domestic helium supplies post the BLM period

The Cliffside reservoir is currently in depletion and the changing gas composition and falling reservoir pressure will at some point trigger additional equipment investments at the helium plant for continued operation. The reservoir itself has unique geologic properties that make it ideal for helium storage, and that unique capability must be preserved after 2021, post the BLM period. Additionally, the reservoir will continue to contain recoverable quantities of helium and natural gas beyond 2021, so it will be possible to continue both helium and natural gas production from the reservoir, however at reduced rates. The 450-mile high pressure pipeline that runs from Texas, across the Oklahoma panhandle and into Kansas, could continue in helium service for delivery during periods of high demand, or for injection into the reservoir if demand drops below supply. We recommend that BLM dispose of the assets in a fashion that preserves it's unique storage and redelivery capabilities for the United States. For example; we'd recommend that BLM require any future owner of the system to maintain the unique helium storage and redelivery capabilities that the reservoir provides today. Selection of a competent entity capable of operating and maintaining such a system should be a key aspect of the BLM's disposal strategy.

Air Products and its background in the helium market

Air Products, with revenues of roughly $7.5 billion per year, is an American corporation with a global industrial gas business. The company provides hydrogen for oil refineries so they can produce cleaner-burning gasoline, hydrogen for fuel cell cars and buses, liquid hydrogen for space launches, oxygen for patients in hospitals and to steel mills for use in blast furnaces, nitrogen to enable the manufacture of computer chips, and helium for MRI scanners and semiconductor manufacturing. In short, its core business is helping major industries operate more cleanly and efficiently. Approximately 16,000 employees are making Air Products the world's safest and best performing industrial gases company, providing sustainable offerings and excellent service to all our customers.

Air Products is one of the leading suppliers of helium worldwide, and the largest refiner of helium on the BLM pipeline system. To be clear, helium is a byproduct of natural gas. We don't own the gas fields or operate the natural gas plants. Energy companies in that business extract the helium, and it's through our refineries that we supply helium to a wide range of manufacturers. The Company's equipment processes more than half of the helium extracted from the earth globally, and it has pioneered many of the processes critical to getting helium from the ground to vital customers, such as extraction, production, distribution, and storage technologies used in the helium industry today.

That expertise was recognized by virtue of the United States government's selection of Air Products to engineer and construct the first helium extraction units when the federal government began its helium conservation program in 1959. More recently, Air Products designed and constructed the helium enrichment plant in 2003 for the CRLP partners that supplies the BLM's helium pipeline system, which continues to operate to this day.

Air Products decided to build its first helium refining plant over 30 years ago in the northern panhandle of Texas. The plant, designed and built by Air Products with proprietary technology, was first operational in 1982, expanded in 1985 and upgraded in 2010. Air Products subsequently constructed two more helium refining plants on the BLM pipeline system adjacent to a third party natural gas processing plant near Liberal, Kansas. The first plant started production in 1991 and the second plant, when completed in 1999, was the largest helium refining plant in the world. In 1995, Air Products became the first company to design and build a helium refining plant that used crude helium that had been extracted during the production of liquefied natural gas (LNG) in Algeria.

More recently, Air Products, through a joint venture with Matheson, constructed a helium refining plant in Wyoming. This plant initially began production in 2014, however the plant is currently not operating while we wait for feed gas from our supplier, who has announced that its natural gas plant will not resume operations until economic conditions improve. Additionally, during the summer of 2015 Air Products began helium production at a new plant in southwest Colorado. This plant was the first of its kind in the world for "on purpose" extraction and liquefaction of helium originating from a naturally occurring CO2 stream. Excluding ExxonMobil's WY gas processing plant, these two new plants, one in WY and one in CO, could replace more than 50% of the current BLM production, as that system declines.

In short, Air Products is one of the most experienced operating companies in the world to have designed, built, and operated large commercial helium refining plants.

Conclusion

As I said at the beginning of my testimony, we share the same common goal of ensuring an uninterrupted supply of helium to the industries that rely so heavily upon this rare element. We've said it before and it's

worth repeating: Congress got it right when it established the federal helium reservoir and the surrounding infrastructure managed by BLM. The system has worked well for decades. Congress got it right again with the Helium Privatization Act of 1996, when it set in motion a process for selling off the helium previously captured in the federal reservoir. Congress got it right yet again in 2013 by passing the Helium Stewardship Act which authorized the Secretary to continue to sell crude helium from the Federal Helium Reserve and prevented the world from going over the "Helium Cliff." The Bill we are discussing today is a good bill and Air Products endorses it. But let's remember that this bill alone does not solve all our problems. This bill must be part of a package of actions that Congress and BLM take to ensure the long-term viability of domestic helium supplies. In addition to Congress passing this bill, the BLM should renew and extend its agreements with the CRLP. The BLM should also require that any future owner of the system maintain its unique helium storage and redelivery capabilities.

Air Products appreciates the opportunity to testify again on helium issues and we welcome your questions.

Walter L. Nelson
VP and General Manager – Global Helium
Air Products and Chemicals, Inc.
7201 Hamilton Blvd.
Allentown, PA 18195-1501
Tel (610) 481-4911
nelsonw2@airproducts.com