Robust pipeline of new projects bodes well for future helium supply

By Phil Kornbluth, President, Kornbluth Helium Consulting, LLC

While the worst of Helium Shortage 3.0 may be behind us, the gas industry and many helium users continue to struggle with helium supply allocations and high prices. Though helium markets may continue to experience shortage or tight supply conditions through the rest of 2019 and some, or all, of 2020, a much more favorable environment is coming into focus for 2021 and beyond. During the five-year period, 2021-2025, new projects could result in more than 3.5 billion cubic feet (bcf) of annual capacity entering the market. With current effective capacity of around 6 bcf, it is not hard to conclude that helium supply should be a lot more plentiful from 2021 forward than it has been in recent years.

Where is all of this new supply going to come from? In previous **gas**world articles, we have noted that Air Products' expansion of its Arzew, Algeria source and the start of production from the Qatar 3 source will help to ease the severity of Helium Shortage 3.0 during 2020. If Helium Shortage 3.0 has not ended already, the start of production from Gazprom's Amur Project should end Helium Shortage 3.0 by Q2 of 2021. Gazprom's project, which will extract helium from natural gas that will be transported to China through the Power of Siberia Pipeline, will eventually add 2.1 bcf per year to world capacity in three 700 million cubic foot (mmcf) per year increments that are currently expected to come on line in 2021, 2022 and 2024.

While Gazprom's project will be the most important factor in determining the balance of supply and demand post 2021, important contributions are also expected from other new helium sources. Irkutsk Oil Company, a large independent producer of oil and gas in the Irkutsk Region of Russia, is building a 266 mmcf per year plant approximately 200 km north of the city of Ust-Kut that is expected to start up in 2022. Saudi Aramco is planning a 230 mmcf per year plant that is expected to start up in 2023. Also, Qatargas has announced their intention to expand their LNG production capacity from 77 million tons per annum (mtpa) to 110 mtpa by 2024. While the Qataris have not announced specifics related to an expansion of helium production, it is safe to assume that there will be a Qatar 4 helium plant with capacity in the range of 800-900 mmcf per year not too long after the new LNG capacity is commissioned.

3.5bn
New projects could result in more than 3.5 billion cubic feet of annual capacity

In addition to the large-scale projects discussed in the preceding paragraphs, there is a lot of other activity taking place to develop new helium sources and some of this activity will result in new production capacity. In the Southwestern US, and especially in the Four Corners area, there are a number of start-up companies who are seeking to recover helium from non-hydrocarbon sources.

Several companies, including DBK Helium LLC, Tacitus Corporation and IACX, Inc. are currently producing approximately 100-150 mmcf per year of helium from gas in the Four Corners area. While production is likely to increase, it is difficult to pinpoint how much helium will eventually be produced from this area. Similar activity is taking place in southwest Saskatchewan and southeast Alberta, where companies including North American Helium, Thor Resources and Royal Helium are actively exploring for helium. North American Helium is said to be close to ordering its first large scale helium plant and hopes to commence production by the second half of 2021.

Weil Group Resources has previously built and operated a gaseous helium plant in Mankota, SK and plans to restart the plant when it secures a supply of feedgas. Similar to the southwestern US, the Canadian gas does not contain commercial concentrations of hydrocarbons.

A discussion of future helium sources would not be complete without mentioning sub-Saharan Africa's potential. Renergen, a South African company, is planning to produce 25 mmcf per year of liquid helium from their Virginia Gas Project, which will produce both LNG and helium commencing in 2021. Renergen is also evaluating an investment to expand the plant's helium production capacity to around 100 mmcf by around 2023. Meanwhile, Helium One Limited and a company called Noble Helium Pty Ltd are both exploring for helium in the Rukwa Basin of Tanzania. Drilling activity is expected to commence later this year.

While helium markets have experienced three periods of extended shortages since 2006 and seven total years of shortage during the fourteen-year period 2006-2019, Kornbluth Helium Consulting expects helium to be much more readily available from 2021 forward. While there can always be shortages caused by outages of major sources, we do not think that the world is running out of helium anytime soon and we do not think that helium markets will continue to experience extended multi-year shortages after helium from the Amur Project has entered the market. gw

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