A longer-term view

The importance of 'green helium' and thinking beyond 'the next project'

Nicholas Snyder, Chairman and CEO of **North American Helium**, talks non-hydrocarbon-based helium supply and the need to move away from a 'next project' mentality, as well as sharing an update on the company's Battle Creek project and how it's been hitting new records over the last quarter, in an exclusive interview with **gas**world. By **Rob Cockerill**.

Over the last decade, spanning high-profile Helium Shortages 3.0 and more recently 4.0, the world has been alerted to the vulnerabilities of the global helium supply chain. While mega projects in Qatar and Russia, to name just two, have dominated headlines and courted the attention of onlookers, we've also seen the rise of a sustained movement towards exploration of both smaller and non-hydrocarbon-based sources.

Exploration companies are stepping up efforts to increase the portfolio of smaller helium sources located in North America in particular, chief among them being North American Helium Inc. (NAH). The Canada-based company presides over the $32m Battle Creek helium production plant near Consul, Saskatchewan, the largest helium purification facility in Canada, as well as other facilities in Cypress, Mankota, Battle Creek South, and Eastend, also in the country's Southwestern region.

The Battle Creek plant started operations in first-half 2021, not only ahead of schedule but also under budget. NAH has built on that success in 2022 and will start 2023 with five plants running with total productive capacity of approximately 110 million cubic feet per year (MMcf/y). More than that, however, it is a signal of intent in 'green helium' and the movement away from a traditional centralisation of helium supply.

NAH and its Chairman and CEO Nick Snyder believe it is vital to develop new sustainable sources of helium supply in the US and Canada that are capable of reliable long-term production. Snyder is also firm in his conviction that the upstream helium industry in North America needs to move away from the mentality of individual projects and start operating at a larger scale to continuously add new supply in order to replace diminishing production from the US BLM system.

This is a viewpoint **gas**world was delighted to explore further in an exclusive interview for our annual Helium Issue. We last caught up with Snyder in the second-half of 2021, soon after the Battle Creek plant had been brought online and when talk of 'green helium' was still relatively nascent. Now, almost 18 months later, and business continues to be brisk at NAH. The winter months are a time of high activity for the company's exploration and development drilling operations in Canada, Snyder explains, because it's easy to move heavy equipment when the ground is frozen.

NAH has also been busy with the start-up of two new production facilities towards the end of 2022 and moving equipment into place for additional new production slated for the first quarter of 2023. Here in our interview, Snyder explains more…

GW: What's new with North American Helium since we last caught up with you?

NS: I believe we last spoke with **gas**world in 2021, after we brought online our Battle Creek plant, which is still the largest helium production facility in Canada. Since then, we have significantly expanded the production from our Cypress facility and added three new facilities at Mankota, Battle Creek South, and Eastend. Altogether we've doubled our production levels during the course of 2022 and exited the year producing over 100 million cubic feet on an annual basis.

We are a customer-focused organisation and we believe in being efficient, so we've been growing our fleet of high-capacity composite tube trailers to ensure that we can meet our customers need for either helium gas or liquid. We currently have over a dozen NAH operated trailers in use, and that number should roughly double over the next year. Additionally, we have six ISO containers on order that are expected to arrive during Q4 2023.

As you know, helium purification facilities aren't the scarce part of this business and there are actually a number of facilities in the US that are running well under capacity. The scarce part of the business is sources of new production in North America, which has seen overall falling levels of production for years. For this reason, we continue to increase our investment in the 'upstream' side of the business. We now control almost nine million acres of helium rights and we have drilled 50 wells. We plan to drill 25-30 wells in 2023 alone, so we are certainly increasing our upstream activities and our team has been working hard in 2023 to develop new prospects through our extensive seismic database and acquisition programme.

As you know, it's our annual Helium Issue, and there's likely to be a lot of reflections on the fact that 2022 was not quite the year we expected and we're still enduring Helium Shortage 4.0. What's your take on the state-of-play in helium as we speak?

I'd love to say that major incidents and delays at hydrocarbon plants that supply helium is a surprise, but that has really been the norm for this industry and it's the reason we are in the fourth shortage in just 15 years, despite the BLM system delivering a huge amount of helium from storage into the market during this period.

Our company has always been focused on developing new sources of non-hydrocarbon supply in North America, and because overall helium production levels in North America have been falling and demand is rising, that's a much simpler situation for us to analyse.

Now that the BLM system is nearly depleted, it's hard to imagine that the global helium supply picture gets more reliable until such time as the large industrial gas companies can build some substantial inventory in the new dedicated helium storage caverns they have been developing. Obviously, during a global shortage, filling up storage isn't a near-term priority for anyone.

Overall, we are in a fortunate situation because we are able to make long-term capital investments without being worried about what's happening from one year to the next, but we also want to do everything we can to alleviate the current shortage for vital end users of helium. Almost all of our production is on long-term contracts with industrial gas distributors, but we were also able to work with one of the major industrial gas companies during 2022 to deliver liquid helium to about 20 Canadian educational research institutions to give them a three-month buffer to ensure their superconducting magnetic equipment wasn't damaged while they worked with their suppliers to find a longer-term solution.

In 2023 we plan to keep some of our production available in the spot market to help minimise disruptions for the most vital helium end-users.

How is the Battle Creek facility performing?

We talk a lot about providing reliable supply, so I'm pleased to say that after 20 months of production the Battle Creek facility has been hitting new records for production over the last quarter.

What's the next big project for NAH?

We think this industry needs to get away from the 'next project' mentality. We've started investing at scale to develop multiple new fields and multiple

"We've started investing at scale to develop multiple new fields and multiple new facilities each year…"

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new facilities each year. It's really a large number of separate multi-year investments that are all happening concurrently but at different levels of advancement.

We are currently testing a new discovery from our 2022 drilling campaign that is 100 miles aways from Battle Creek, and we control almost all of the acreage between the two. We plan to drill 25-30 wells in 2023, testing a number of new prospects. If you think about a new helium project, it really requires successful drilling at least a year beforehand, and a lot of geologic and geophysical work in the year prior to that. Our company is now operating on a scale where there are multiple prospects getting ready to drill, multiple discoveries undergoing additional development drilling, and multiple production facilities coming online each year. It's a continuous process to bring predictability and reliability to this business in a way that hasn't previously been seen from the 'upstream' sector.

And what future for Western Canada in this new helium landscape of tomorrow?

As you know Rob, the Government of Saskatchewan has set out an ambitious goal to be 10% of global supply by 2030, as part of their Helium Action Plan, announced in 2021. Saskatchewan has the highest-grade uranium mines in the world, and that is the 'source rock' that creates helium deposits underground, so we've got the right geology and a Provincial Government that has actually put helium regulations in place that recognise that this industry is different from oil and gas.

Our area of Saskatchewan has previously seen a lot of oil and gas production in shallower geologic zones, so there is a lot of regional expertise, but also a huge amount of seismic surveying that was already paid for by that industry. When you combine the right geology with a skilled workforce and existing data and infrastructure it creates an opportunity that we don't think can be replicated anywhere else.

We think the future is helium production from non-hydrocarbon sources and we think southwest Saskatchewan will be the nexus of that opportunity. We are able to drill on cultivated farmland, so there is minimal environmental disturbance, and we have the Trans-Canada highway running through the middle of our operating area. We don't think there is any other area of the world where we could operate on this scale.

What role will non-hydrocarbon-based helium – or 'green helium' as it is referred to – play in this new market make-up going forward?

We always say it's about reliability and sustainability first and foremost – and those are issues that are very important to an industry that has been plagued by shortages and supply disruptions.

As far as a distinction in the market or a price premium for 'green helium', you have to realise that this is still only a few percentage points of a large industry with complicated supply chains. There is obviously an opportunity, and you can see that from the premium that the semiconductor firms will pay for the 'green' variants of some of their other inputs. But for the time being, we think our customers are mostly focused on our reliability and the lower emissions profile is just an added benefit.

Over time, we expect to become a larger part of the industry and we think the benefits of helium production from nitrogen fields will become more apparent and end-users may begin to place a premium on that. The major industrial gas companies and the major helium end-users are committed to lowering their emissions profile and we are working to be part of that solution for them.

This green helium is important, isn't it, in the context of a conventional helium market that still seems so vulnerable to geopolitical challenges?

The geopolitical issues are certainly front of mind for everyone in the industry. Geopolitical issues and actual operational problems with hydrocarbon production facilities are the reason we are talking about a fourth shortage right now.

For that reason, I think the industry has started to recognise the value of our non-hydrocarbon helium sources, but I think they are really recognising it for the geopolitical security and operational reliability. The truth is that a lot of companies are looking for helium sourced in North America right now and they probably don't care exactly how it is produced during a time of shortage.

But in the long-term, we think being green is just good business and we think that will be recognised beyond just the obvious geopolitical advantages during an uncertain period in the market. Of course, with world helium storage largely depleted, it could take some time to return to a more normal market where emissions are seen as more important than just keeping your facility supplied with helium to avoid a shutdown.

And finally for now – what are your aims for the year ahead?

Our goal is to be boring and predictable while maintaining a high rate of growth. It certainly doesn't feel boring or predictable within the company because of all the activity going on and staff being added, but we've got great teams of people working in different areas so that we can hopefully continue to deliver predictable growth and increase market share with our non-hydrocarbon helium production. GW