

## **Helium Resources Limited**

# **Should we explore for Helium in Oxfordshire?**

**Neil Ritson, *Director, HRL and Chairman, Vanguard Energy Limited***

## Familiar Headlines?

THE TIMES | Tuesday, January 22, 2019 | 19 News

### Recycle more or lose MRI scans and cheap mobiles, warns expert

MRI scans could become impossible and mobile phones unaffordable within a few years if we do not get better at recycling the elements used in them, an expert has warned.

David Cole-Hamilton, emeritus professor of chemistry at the University of St Andrews, pleaded with the public not to have helium balloons at parties, saying: "You may prevent people from having an MRI scan."

Liquid helium is used in MRI scanners to cool magnetic coils to make them superconductive.

The world's supply of helium, which is also used in deep-sea exploration, is set to run out within a decade, Professor Cole-Hamilton said. Indium, an element used in the manufacture of mobile phones, may be gone within 20 years.

Helium cannot be manufactured on Earth comes from the very slow radioactive decay of rocks. There is estimated to be another six years' supply in a mine in Tanzania. Professor Hamilton said, and another few in the United States.

people at the lower end of the economic activity spectrum would find each much more difficult.

He was optimistic that scientists were becoming aware of the problem, he said. "I would like to see consumers becoming aware of the problem, he said. "I would like to see consumers becoming aware of the problem, he said. "I would like to see consumers becoming aware of the problem, he said."

needed for many elements, he added, but especially helium.

"We are recycling it from the deep-sea scans and most of it from the deep-sea balloons ... helium is very very light, if it gets into the atmosphere it can escape.

"If we recycle I think we would be able to gradually put balloons up again then the timescale

CNBC

### Helium is in short supply, hitting balloons and scientific research

SCIENCE

# Helium is in short supply, hitting balloons and scientific research

PUBLISHED THU, APR 11 2018

INDEPENDENT

### Why the world is running out of helium

A US law means supplies of the gas — a vital component of MRI scanners and fast

Science Editor · Steve Connor | @SteveAConnor | Monday 23 August 2010 09:00 | |

Volume 96 Issue 12 | p. 11 | News of The Week  
Issue Date: March 19, 2018 | Web Date: March 14, 2018

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CHEMICAL & ENGINEERING NEWS

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### Helium supplies are tightening up again

Buoyant demand and supply disruptions narrow flow of the noble gas to scientific instrument users

By Marc S. Reisch

## But what about this instead?

THE TIMES | Friday May 24 2020

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NEWS

### UK self-sufficient in helium; safeguarding hospitals and world-leading research

Following ground-breaking work by UK entrepreneurs based in Oxfordshire, and supported by the Department for Business, Energy and Industrial Strategy. The Times can today report that the UK is for the first time self-sufficient in the helium it very urgently

needs to support the NHS, as well as industry and researchers all over the country who depend on this rare gas.

Chris Matchette-Downes, the chief executive of Helium Resources Limited, confirmed that helium was now flowing from the company's newly

commissioned liquefaction plant north of Oxford and supplies of helium had been successfully delivered to industrial and other users in what is known as the UK's cryogenic cluster.

Helium is vital for manufacturing optic fibers, mobile phones and much more.

The NHS, which has over 700 MRI scanners used in the diagnosis of cancers, has been increasingly concerned about the worldwide shortage of helium and the very major increases in price. Security of supply has been a major issue for all users of helium, including at Harwell

## Outline

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- Who are Helium Resources Limited?
- What is happening in international helium markets?
- Why is this important to the UK?
- Is exploration in the UK worthwhile?
- HRL's Oxfordshire project?
- What are the next steps?

## History of HRL

- The **founders of HRL** identified a potential helium deposit in Oxfordshire and have assembled the data, analysis and technical capability to pursue the opportunity



**Chris Matchette-Downes**



Chris Atkinson



Mike Bilbo

- **Technical expertise** in helium geochemistry and exploration has been engaged through the expert teams at both Oxford and Durham Universities



**Professor  
Chris Ballentine**



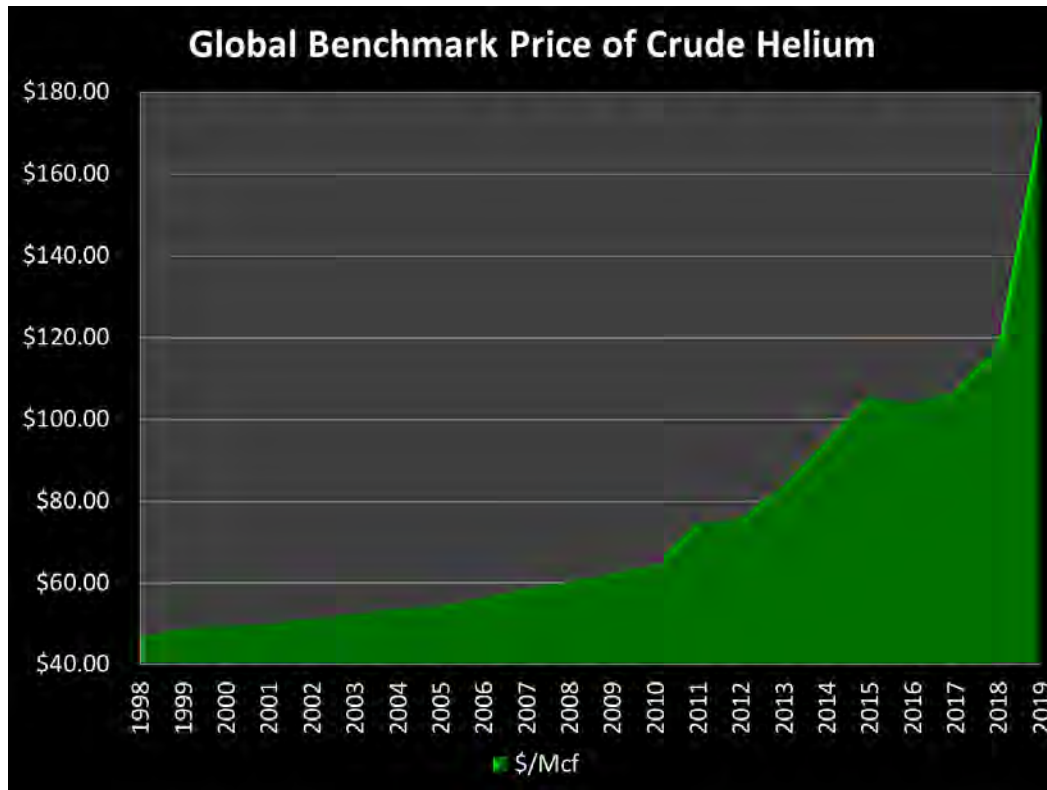
**Professor  
Jon Gluyas**

- **Financial and technical support** has been obtained from Vanguard Energy Limited



**Neil Ritson**, Executive Chairman  
(former Chairman of Solo Oil plc)

## International Helium Market

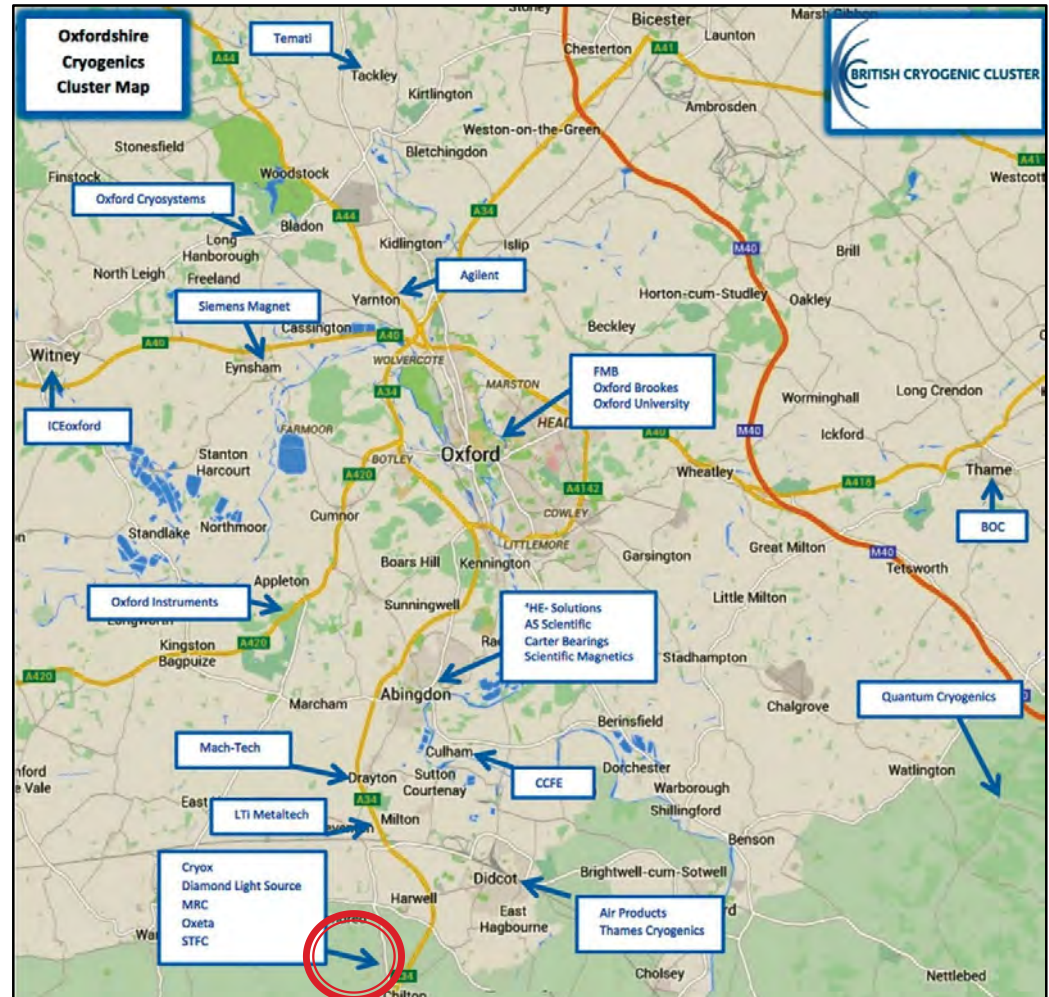


Pure helium is selling at prices in excess of US\$280/mcf and some reports are circulating of prices over US\$800/mcf being paid for “time critical” deliveries in the USA

- Essentially helium is
  - in short supply
  - largely non-substitutable
  - in growing demand
- As a result, price pressure is increasing rapidly
- Algeria, Qatar and Russia can't increase supplies without also growing LNG demand
- US policy will ensure the BLM Strategic Reserve is off-line by 2021
- EU has recently added He to its “commodities at risk”
- **Price and supply security are now very serious concerns**

## Strategic Significance for the UK

- HRL's project lies in an area with a large number of hi-tech cryogenic businesses dependent on helium
- **UK imports all its helium**, mostly from the USA and Qatar
- Annual helium importation represents a **£60+ million deficit on the UK's balance of trade** and this will increase sharply
- **Security of supply** will be a key consideration for researchers, business users, and also the NHS
- Increased recycling and the reduction of wastage are necessary, but are not sufficient.
- **New sources of helium are urgently needed**



## Origin of the Project



- Drilling for water in the early 1900's **discovered natural gas** in the Calvert area
- Subsequent drilling by BP confirmed the presence of gas and **identified helium as a component of that gas**
- Soil and waste methane vent gas geochemistry (~100 sites) conducted by HRL with assistance from Oxford and Durham Universities and MIT has **confirmed widespread helium presence**
- Helium concentrations are **comparable to US analogues** and fully support exploration drilling



## Project Outline

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- Three to five test wells need to be **drilled to ~180-200 metres**
- **No fracking is involved**
- Existing wells show pressures are very low (less than 150 psi), so **well management is simple**
- **Drilling can be completed in a few hours** with coiled tubing deployed from lightweight tractors, as used for mineral and water wells
- **Environmental footprint is very small**
- The **social acceptability** of helium exploration is considered extremely high
- Economics for small scale helium liquefaction are well established
- **Buyers already exist for both helium and for any associated methane**



## Next Steps

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- HRL has the technical capacity to operate a targeted helium exploration programme in the UK and have successfully completed initial reservoir, source and geochemical studies
- Helium exploration is clean, socially acceptable and has a small environmental footprint
- Providing a UK sources of helium is becoming of national strategic importance
- **HRL now needs a licence to explore, granted by the UK Oil and Gas Authority**
- In **August 2016 and again in 2018** HRL applied to the OGA for a licence and held numerous meetings to explain the case and its significance
- OGA sought guidance from the Department of Business Energy and Industrial Strategy
- Helium underpins much of the innovation and technologies promoted by BEIS in the 2017 UK Industrial Strategy; especially clean energy and world leading research capability; however,
- **Despite all the evidence to the contrary BEIS has indicated they “do not see a pressing need for a domestic source of helium” (letter from Rt Hon Claire Perry MP, 18 December 2018)**
- In the national interest we believe that pressure needs to be brought to bear on BEIS to better reflect the significant and growing concerns of helium users in the UK; **in order to encourage much more urgent action**

## Your assistance please ....

- HRL are keen to better understand the UK market and provide that data to BEIS to aid their decision making
- We have prepared a simple questionnaire which is available in your delegate pack and on our table
- Please take the time to complete a copy whilst you're here today and return it to our table, or one of the HRL team, or email a scanned copy to [neil@4he-resources.com](mailto:neil@4he-resources.com)

**Thanks for listening**

Any questions?



Helium Resources Limited

Questionnaire to CCD9 Participants

PLEASE CIRCLE THE ANSWER CLOSEST TO YOUR OPION:

[A] Are you/your organization an  
importer or supplier / buyer or user of helium in the UK?

[B] Are you/your organization concerned about helium price trends?  
No / A little / A great deal

[C] Are you/your organization concerned about security of helium supply?  
No / A little / A great deal

[D] Would you/your organization, in principle, support exploration for UK  
indigenous supplies of helium?  
No / Yes

[E] Are you/your organization willing to be contacted by HRL to assist in  
putting the case to the UK government that greater attention should be  
given to helium supply?  
No / Yes

If Yes; please provide contact details or a business card

Name: .....

Organization: .....

E-mail: .....

Phone: .....

*Thank you for your assistance.*  
*PLEASE RETURN to the HRL table or any member of HRL*