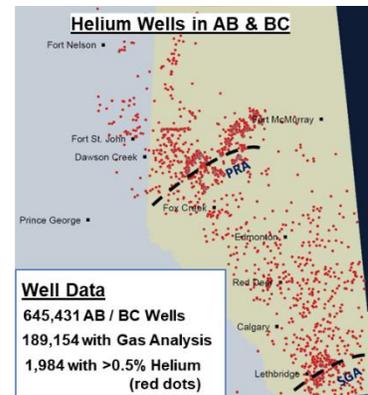


## Helium – An Evolving Industry of Contingent Opportunities

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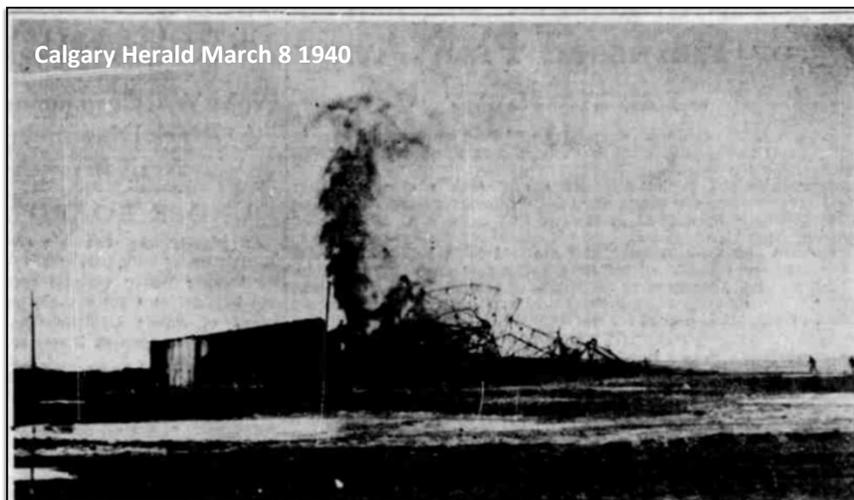
### Introduction

In 1939, six months after the start of World War II, Standard Oil of British Columbia were drilling a well a little south of Steveville, near the Hamlet of Princess. They lost control and the Steveville well became one of the larger blow-outs in Alberta's history. The Steveville blow-out, relegated to history, led to what is now a potential source of helium production for Imperial Helium. Helium is an highly-valuable and yet somewhat enigmatic commodity: second most abundant in the universe but rare in concentration on earth, singularly unique physical properties but broadly diverse industrial applications, small in volume but high in value, a critical national resource but with minimal governmental policy, valuable but usually disposed of as a waste gas. Alberta has demonstrated its helium abundance but only has a couple wells against our south eastern border producing helium. In Alberta and BC, over 645,000 wells have been drilled; over 189,000 have gas analysis; over 1900 have shown potentially commercial volumes of helium.



### History

In the winter of 1940, Standard Oil of British Columbia lost control of their well at Steveville. They were drilling on a basement high and were down around 1650m, holding back about 2700psi when they had a mechanical failure at the surface. The results were catastrophic! All but three men escaped uninjured as the earth spewed pipe out of the hole, destroying the derrick. Fist sized rocks threw sparks off the mangled wreckage and no maelstrom of fire ensued. For 100 days, in



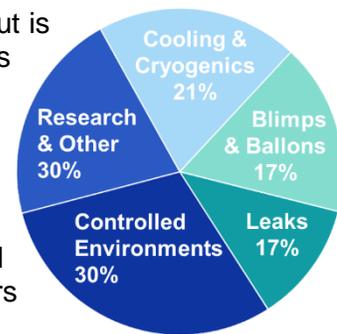
one of the colder winters Alberta had seen, the Steveville blow out shrieked and could be heard for a distance of 9 miles. Equipment was eventually brought in to measure the flow and estimated it at 50mmcf/d. Approximately 5 Bcf would have shot up into the atmosphere and no ice build-up formed on the wreckage. Reports hailed the discovery as having enough energy to keep the

lights on Calgary for decades. Three months later and under control the well was tested. Bullets (technology of the era) were used to perforate the casing and penetrate the formation damage. The well flowed 6MMcf/d and the gas was analyzed as 8% CO<sub>2</sub>, 3.5% Methane, 0.63% Helium and the rest Nitrogen. The well was initially thought a failure, but World War II was just starting and Helium had become important. The well was evaluated for its helium potential but failed to make the 1% economic cut-off, so the well was abandoned and consigned to history, until now.

### An Enigmatic Commodity

Helium is second most abundant element in the universe. 25% of the plasma flux from our Sun is helium. However, on earth it is rarely found in concentration. On earth, helium is a product of radioactive decay and migrates up, typically from the crust, along migration pathways commonly travelled by hydrocarbons. Helium is inert and while it does not react with hydrocarbons, it occasionally becomes trapped with them where seals are sufficiently dense to contain the second lightest and smallest molecule.

While small in volume helium is highly valuable (\$600-\$1000/mcf) but is routinely vented as waste gas with most natural gas production. It has unique physical properties which make it irreplaceable: inert, 13.6 times lighter than air, high thermal capacity and gaseous to -269C (almost absolute zero). Industrially it is vital for pure atmospheres (chips, fiber optics), essential for research, irreplaceable for cooling (MRI, Quantum computing), necessary for high quality leak detection, and preferred for lifting (balloons, blimps). It is considered a critical resource by both Canadian and US governments, but it suffers from poor definitions and ambiguity in mineral resource regulations.



### Imperial Helium and the Steveville Discovery

If Helium resources were aligned with PNG regulatory standards, the Steveville discovery would be considered a Contingent resource. It is a conformable succession of reservoir-quality dolomitized platformal carbonates of the Devonian Beaverhill Lake Group, draped over a basement high. It's ability to produce was demonstrated by the blow-out, a largely uncontrolled qualitative test, which was later substantiated by a production test. Gas analysis confirmed the raw gas composition and helium concentration.

Imperial Helium (IHC) is securing Helium for the future. The Steveville discovery may contain more than 1 Bcf of Helium, and IHC will twin and test the Steveville blow-out this summer. Imperial Helium has prepared to expedite helium resource monetization by understanding helium refining and creating a Strategic Alliance with a helium separator EPC company and a major gas offtaker. Steveville is an exciting contingent resource with huge potential.

### Acknowledgements

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