Hydrogen and Helium Discovered at Outokumpu
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Hydrogen and Helium Discovered at Outokumpu Finland

Bluejay Mining plc ('**Bluejay**' or the '**Company**'), the AIM, FSE listed and Pink-Market traded exploration and development company with projects in Greenland and Finland, is pleased to announce, following a systematic review, the previously unrecognized presence of **high concentrations of helium and hydrogen** gases at its wholly owned Outokumpu Project, in Finland ('**Outokumpu**'). Independent studies associated with deep drilling results by the Geological Survey of Finland ('GTK') ('**Outokumpu Deep Drillhole**'), identified significant potential for these gases, particularly within serpentinized ophiolites and associated geological formations, in the region ('**Outokumpu Belt**').

Highlights

- Systematic review of historical government drilling has indicated the presence of substantial industrial gas including helium and white hydrogen concentrations within the Outokumpu Belt.
- Best intersection recorded was of 100m at 5.6% helium **(within an intersection of 1500m, at 1.5% helium).**
- Deposit is comparable in formation and structure to the world's largest known deposit of white (or geological) hydrogen ('**White Hydrogen**'), which was recently discovered in France, with estimates suggesting up to 46 million tonnes of the carbon-neutral fuel in the French deposit. This newly discovered gas province is located in the Lorraine region, a French mining region similar in nature geologically to the Outokumpu Belt.
- Gas sampling from the **Outokumpu Deep Drillhole**, which reached a total depth of 2480 meters, revealed high concentrations of **other naturally forming industrial gasses such as argon, xenon, krypton, White Hydrogen and helium** (with hydrogen being the dominant gas) returning results up to **46% hydrogen** in gas samples taken from various saline groundwater samples.
- The Outokumpu Belt's unique geological composition, including serpentinized ophiolites and pegmatitic granites, hosts multiple potential

sources for the generation of White Hydrogen and helium gases. Bluejay, through its wholly-owned subsidiary FinnAust, has exploration permits covering this gas-rich ophiolite belt.

- Over 2000 historical drillholes, some exceeding depths of 1000 meters, provide a comprehensive foundation to fast-track the assessment of subsurface industrial gas across the Outokumpu Belt.
- Current exploration licenses include gas exploration, ensuring a streamlined regulatory pathway. White Hydrogen can be produced at a fraction of the cost of "Green" Hydrogen (produced using wind and solar power), that could then potentially be integrated into Finland's goal to enhance energy security within a circular economy.

The Company will now begin to systematically assess historical drillholes for the most prospective occurrences of industrial gasses including hydrogen and helium with a view to re-entering these holes to undertake further testing using modern, more accurate, equipment. Re-entering historical drillholes offers a considerable cost savings in comparison to new drilling, and virtually eliminates the programs environmental impact. These findings will be compared with historical and newly acquired seismic data to identify areas with the highest potential.

Eric Sondergaard, Managing Director, commented:

"The preliminary indications of hydrogen and helium within the Outokumpu Belt are highly encouraging and present a transformative, organic low-cost opportunity for Bluejay shareholders. Leveraging our historical exploration data and collaborating with geological experts and regulatory authorities, we aim to unlock significant value from these potential industrial gas resources. This initiative not only diversifies our resource portfolio but also positions us at the forefront of the geological hydrogen/helium movement in Finland. This announcement also fully aligns with our expansion of corporate strategy to include the exploration for and development of industrial gasses, and illustrates our commitment to maximize shareholder value.

In addition, the Company is exploring a number of state-sponsored funding mechanisms that may lead to investment by the EU to fast track the development of any potential gas deposits, however, nothing has been confirmed at this time in terms of the potential prospective gas volumes, level of funding available, or timeline."

Qualified Person

The scientific and technical disclosure included in this announcement has been reviewed and approved by Roderick McIllree, a director of Bluejay Mining plc, who is also a Fellow of the Australasian Institute of Mining and Metallurgy (FAusIMM). Mr. McIllree has sufficient experience, relevant to the styles of mineralisation and type of deposits under consideration and to the activity that he is undertaking, to qualify as a Qualified Person ('QP') as defined by the AIM rules, and for the purposes of The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr. McIllree has reviewed this press release and consents to the inclusion in the press release of the matters based on his information in the form and context in which this appears.

Market Abuse Regulation (MAR) Disclosure

The information contained within this announcement is deemed by the Company to constitute inside information as stipulated under the Market Abuse Regulations (EU) No. 596/2014 ('MAR') which has been incorporated into UK law by the European Union (Withdrawal) Act 2018.

For further information please visit http://www.bluejaymining.com or contact:

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Outokumpu Belt Tenement Map

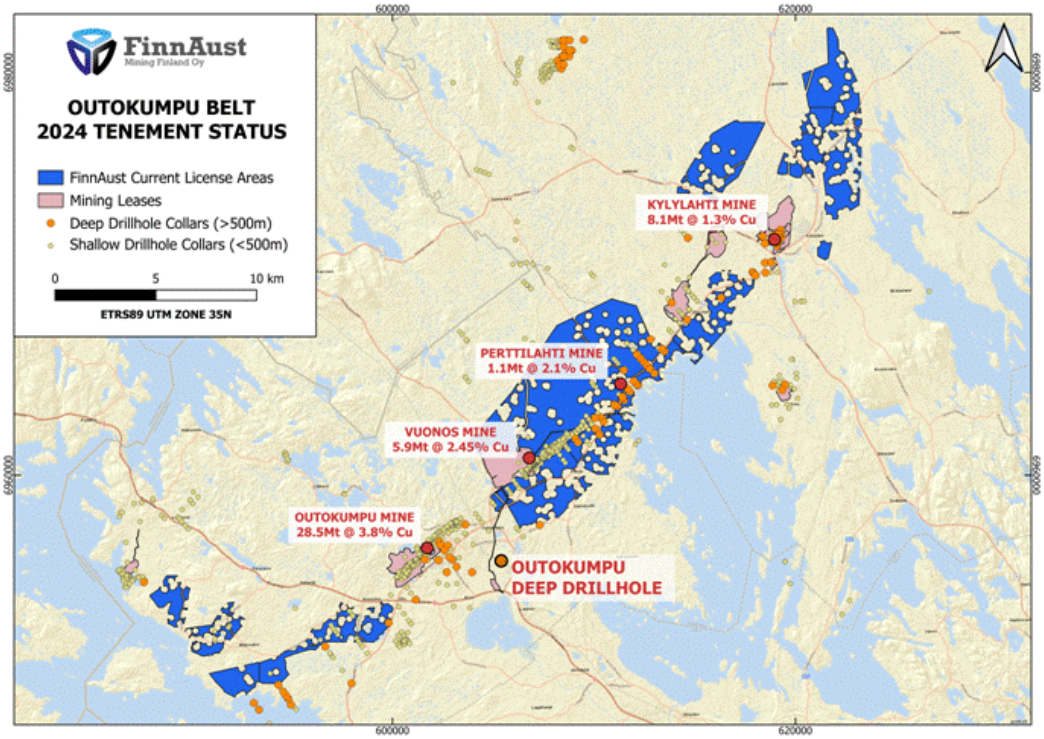

Figure 1. Outokumpu Belt Current Tenement Status with Historic Drillhole Collar and Mine Locations

Hydrogen and Helium Potential in the Outokumpu Belt

The Outokumpu Belt, with its serpentinized ophiolites, represents a significant potential target area for hydrogen exploration. FinnAust's exploration permits cover most of the serpentinites of the Outokumpu Belt. Although gas research has been limited (to the Outokumpu Deep Drillhole), the highest single hydrogen measurement recorded was 46% in the gas component of groundwater samples. The same deep drillhole averaged **1.54% Helium over a 1500m** interval, with 100m at 5.60% helium recorded.

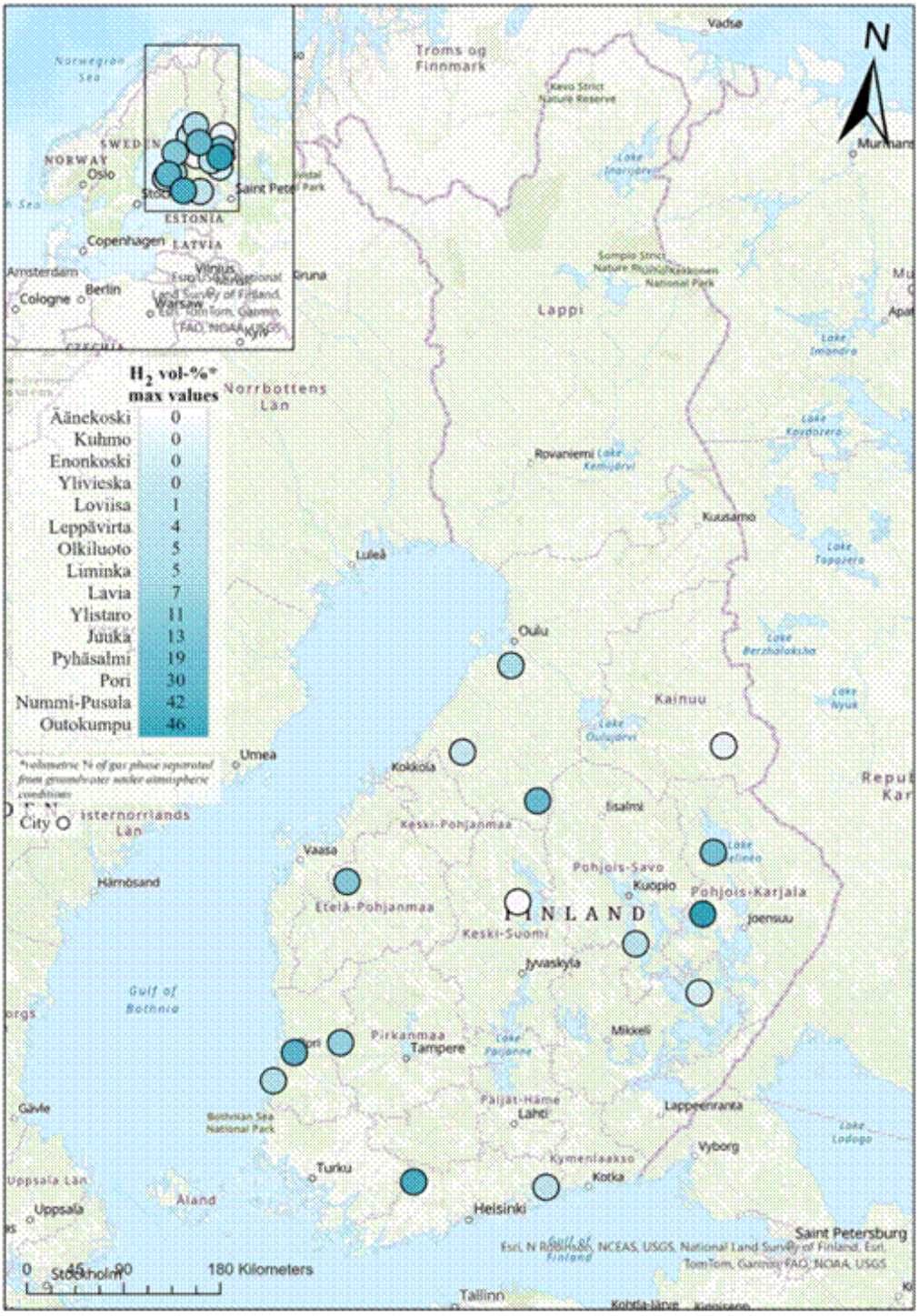

Figure 2. Geological hydrogen measurement results in Finland. The map shows the maximum concentrations of geological hydrogen measured in Finland. The results show the percentage of geological hydrogen in gases from boreholes (dissolved in groundwater or as a free gas phase). Figure: Geological Survey of Finland GTK.

The Outokumpu assemblage rocks, which include hydrothermally altered mantle-derived ultramafic rocks (ophiolites) and are often wrapped with graphitic and sulphidic black schists, are associated with all discovered Outokumpu-type sulphide ore shoots. Due to active historical metal exploration, there are over 2000 surface drillholes in the Outokumpu Belt, with some drilled deeper than 1000 meters. These deeper drillholes represent opportunities for further exploration of hydrogen and helium. Bluejay Mining is currently assessing the feasibility of leveraging these historical drillholes for new sampling initiatives.

The primary historical study of hydrogen and helium potential in the Outokumpu Belt

is an MSc thesis by Nina Heikkinen from the University of Helsinki (2016), which investigated gases in saline groundwater of the 2.5 km deep Outokumpu Deep Drillhole. This hole was drilled by NEDRA for the Geological Survey of Finland (GTK) in 2004-2005.

Depth (m)	N_2	O_2	Ar	He	CH_4	C_2H_6	C_3H_8
500	22	0.51	1.0	2.20	72	0.56	0.014
600	15	1.20	0.90	0.35	79	0.80	0.018
700	17	0.42	0.69	0.53	78	0.68	0.017
800	18	0.37	0.60	0.42	77	0.66	0.018
900	26	0.53	0.52	2.50	67	0.46	0.012
1000	16	0.64	0.71	0.34	79	0.75	0.018
1100	28	0.45	0.66	2.10	66	0.45	0.012
1200	18	0.48	0.96	0.63	77	0.65	0.017
1300	21	1.40	0.71	0.70	73	0.62	0.017
1400	21	0.60	1.00	1.60	73	0.57	0.017
1500	22	0.64	0.72	5.60	68	0.50	0.019
Avg	20.4	0.66	0.77	1.54	73.5	0.61	0.016

Figure 3. Composition of the gas phase (vol% NTP) extracted from water samples (from Geological Survey of Finland, Special Paper 51)

Outokumpu Deep Drillhole

- **Gas Composition in Groundwater:** Saline groundwaters in crystalline bedrock can contain significant amounts of methane, nitrogen, hydrogen, and helium. The solubility of these gases in water increases with depth due to higher pressure, temperature, and salinity.
- **Maximum Solubilities:** For methane, nitrogen, hydrogen, and helium, maximum solubilities were determined at temperatures of 273-323 K, pressures of 1-300 bar, and salinities of 0-2 molal concentration. The solubility of gases increases significantly with higher pressure and salinity. This was applied to the 2.5 km deep Outokumpu Deep Drillhole samples from 2011-2012.
- **Sampling Data:** Gas samples were collected from depths of 180, 500, 970, 1470, 1820, 2350, and 2480 meters using pressurized techniques to maintain in-situ pressure until analysis. This method provided accurate data on gas concentrations at specific depths.
- **Dominant Gases:** Methane and nitrogen are the most represented gases. Hydrogen is the dominant gas in the deepest part of the drillhole. The highest concentration of gases was observed at a depth of 970 meters.
- **Hydrostatic Pressure and Gas Bubbles:** At a depth of 180 meters, the sum of the partial pressures of the gases (approximately 13 bar) was nearing the hydrostatic pressure (approximately 18 bar). Gas bubbles are likely to escape from the solution at depths of 150 meters and above. Below 180 meters, due to significant pressure, all gases are likely dissolved in water.
- **Helium and Hydrogen Content:** Helium content remained stable from 300 meters depth to the end of the drillhole. In contrast, hydrogen content increased rapidly after 1500 meters depth, correlating with an increase in water salinity.
- **Geological Correlation:** The increase in salinity and hydrogen content begins immediately below the section of the Outokumpu assemblage rocks, which are hydrothermal products of mantle-derived ultramafic rocks (ophiolites). Pegmatitic granite could serve as an additional hydrogen source due to the potential breaking up of H_2O molecules by radioactive components.

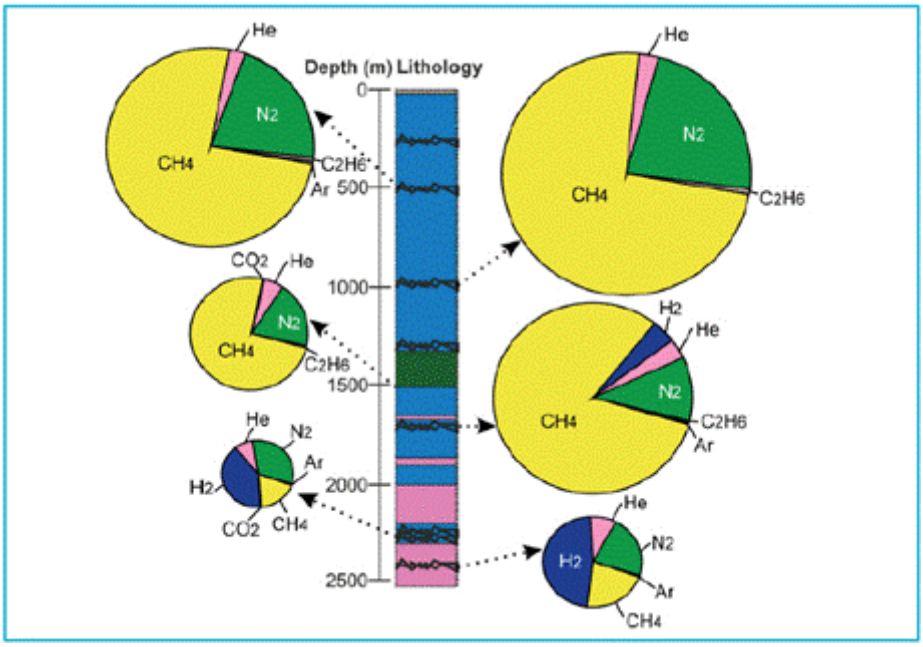

Figure 3. Composition of dissolved gases at Outokumpu groundwater. Sizes of the charts are comparative to relative gas volumes: the largest chart (1000 m depth) corresponds with a gas volume of 1.1 L/1 L water. Black zigzagged lines indicate major fracture zones. Simplified lithology is mica schist (blue), serpentinite (green), granodiorite (pink). Figure adopted from Kietäväinen et al. 2013 Applied Geochemistry 32, 37-51

About Bluejay Mining plc

Bluejay is listed on the London AIM market and Frankfurt Stock Exchange and its shares also trade on the Pink Market in the US. With multiple projects in Greenland and Finland, Bluejay offers both portfolio and commodity diversification focused on base metals, precious metals, and industrial gas in Tier 1 jurisdictions.

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