2000 Paper Excerpts Regarding Source of Helium From Sample 4.
"Clearly if 4He is produced in association with excess power, it is not released to the gas phase immediately, or completely."

Clarification of a possible origin for the apparent 4He deficit in experiments “1” and “2” can be obtained from the results of experiment “3”.
["2" = Case experiment]

Approximately 82 kJ of excess heat was measured in the electrolysis of a 100 mm x 1mm Pd wire cathode in D2O. This experiment was performed in a rigorously metal sealed and helium leak-tested cell and apparatus provided with the facility to sample the gas in the headspace.

When initially analyzed following a period of excess power production, the gas phase contained only 62% of the 4He expected if reaction [1] were the source of the excess heat. A second sample showed an increase in [4He] despite the fact that the helium content of the vessel had been diluted with D2 containing low levels of 4He, in order to make up the initial gas volume after the first gas sample.

Taking these increases as evidence of sequestered 4He, the cathode was subjected to an extended period (~200 hours) of compositional and temperature cycling by varying the current density in both anodic and cathodic directions.

A mass balance of 4He was calculated based on two further gas samples: one to determine the helium content of the D2 gas used initially to fill and refill the sealed metal cell (0.34 ± 0.007 ppmV); the other to measure the final helium concentration in the gas phase after exercising the cathode to release trapped gases (2.08 ± 0.01 ppmV). Taking into account the amounts lost by sampling, and introduced with make-up D2, a calculated mass balance for 4He in the gas phase after compositional and thermal cycling of the cathode results in a number that is 104 ± 10% of the number of atoms quantitatively correlated with the observed heat via reaction [1].

Reference for 2000 Paper:
Michael McKubre, Francis Tanzella, Paolo Tripodi and Peter Hagelstein, "The Emergence of a Coherent Explanation for Anomalies Observed in D/Pd and H/Pd Systems; Evidence for 4He and 3He Production" 8th International Conference on Cold Fusion. 2000. Lerici (La Spezia), Italy: Italian Physical Society, Bologna, Italy.