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UNIVERSITY OF CALIFORNIA
Radiation Laboratory

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DECLASSIFIED

ELEMENT 97

S. G. Thompson, A. Ghiorso and G. T. Seaborg

December 22, 1949

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Oak Ridge Declassification

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Element 97
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Radiation Laboratory and Department of Chemistry
University of California, Berkeley, California

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December 22, 1949

Good evidence has been obtained for the identification of an isotope of element 97 by the irradiation of americium 241 with helium ions in the Berkeley 60ⁱⁿ-cyclotron. The particular isotope discovered is thought to be 97^{244} or possibly 97^{243} decaying with a 4.5-hour half-life by electron capture with approximately 0.3% alpha-decay branching. There seem to be three alpha-particle groups associated with the activity, the highest energy being 6.72 Mev.

The chemical separation of element 97 from the target material and other reaction products was made by combinations of precipitation and ion exchange adsorption methods making use of its anticipated properties of having +3 and +4 oxidation states and its position as a member of the actinide transition series. The distinctive chemical properties made use of in its separation and the equally distinctive decay properties of the particular isotope constitute the principal evidence for the new element.

The name suggested for element 97 is berkelium (symbol Bk).