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Darden Hood
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July 21, 2014

Dr. William J. Hranicky
PO Box 11256
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Alexandria, VA 22312
USA

RE: Radiocarbon Dating Result For Sample Arkfeld C-1

Dear Dr. Hranicky:

Enclosed is the radiocarbon dating result for one sample recently sent to us. As usual, specifics of the analysis are listed on the report with the result and calibration data is provided where applicable. The Conventional Radiocarbon Age has been corrected for total fractionation effects and where applicable, calibration was performed using 2013 calibration databases (cited on the graph pages).

The web directory containing the table of results and PDF download also contains pictures, a cvs spreadsheet download option and a quality assurance report containing expected vs. measured values for 3-5 working standards analyzed simultaneously with your samples.

The reported result is accredited to ISO-17025 standards and all pretreatments and chemistry were performed here in our laboratories and counted in our own accelerators here in Miami. Since Beta is not a teaching laboratory, only graduates trained to strict protocols of the ISO-17025 program participated in the analysis.

As always Conventional Radiocarbon Ages and sigmas are rounded to the nearest 10 years per the conventions of the 1977 International Radiocarbon Conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result.

When interpreting the result, please consider any communications you may have had with us regarding the sample. As always, your inquiries are most welcome. If you have any questions or would like further details of the analysis, please do not hesitate to contact us.

The cost of the analysis was charged to the MASTERCARD card provided. Thank you. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,



Darden Hood

Digital signature on file



REPORT OF RADIOCARBON DATING ANALYSES

Dr. William J. Hranicky

Report Date: 7/21/2014

Material Received: 7/7/2014

Sample Data	Measured Radiocarbon Age	¹³ C/ ¹² C Ratio	Conventional Radiocarbon Age(*)
Beta - 384721	NA	-24.5 ‰	> 43500 BP

SAMPLE : Arkfeld C-1

ANALYSIS : AMS-Standard delivery

MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid

COMMENT:

- (1) The ¹⁴C activity was extremely low and almost identical to the background signal. In such cases, indeterminate errors associated with the background add non-measurable uncertainty to the result. Always, the result should be considered along with other lines of evidence. The most conservative interpretation of age is infinite (i.e. greater than).
- (2) A Measured Radiocarbon Age is not reported for infinite dates since corrections may imply a greater level of confidence than is appropriate.

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the ¹⁴C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby ¹⁴C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured ¹³C/¹²C ratios (delta ¹³C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta ¹³C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta ¹³C, the ratio and the Conventional Radiocarbon Age will be followed by "**". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.



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The Radiocarbon Laboratory Accredited to ISO-17025 Testing Standards (PJLA Accreditation #59423)

Quality Assurance Report

This report provides the results of reference materials used to validate radiocarbon analyses prior to reporting. Known value reference materials were analyzed quasi-simultaneously with the unknowns. Results are reported as expected values vs measured values. Reported values are calculated relative to NIST SRM-4990B and corrected for isotopic fractionation. Results are reported using the direct analytical measure percent modern carbon (pMC) with one relative standard deviation.

Report Date: July 21, 2014
Submitter : Dr. William J. Hranicky

QA MEASUREMENTS

Reference 1	Expected Value: 4.4 +/- 0.2 pMC Measured Value: 4.4 +/- 0.1 pMC Agreement: Accepted
Reference 2	Expected Value: 57.2 +/- 0.3 pMC Measured Value: 57.2 +/- 0.2 pMC Agreement: Accepted
Reference 3	Expected Value: 96.8 +/- 0.5 pMC Measured Value: 96.5 +/- 0.4 pMC Agreement: Accepted
Reference 4	Expected Value: 1.4 +/- 0.1 pMC Measured Value: 1.4 +/- 0.1 pMC Agreement: Accepted

COMMENT: All measurements passed acceptance tests.

Validation:

Date: July 21, 2014