PHONE NO. : 909 799 3703

ATTACHMENT 3

FAX MESSAGE

R. E. Taylor Radiocarbon Laboratory / Archaeometry Laboratory Department of Anthropology University of California, Riverside, CA 92521 (909) 787-5521 / FAX (909) 787-5409 retaylor@citrus.ucr.edu

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TO: Dr. Frank McManamon

FAX: (202) 343-5260

RE: (1) UCR Kennewick results (2) responses to your inquiries of 12/7/99 and 12/17/99

Pages Transmitted: 6 pages + table = 7 pages

Dear Frank:

Attached as a table are the results of the UCR ¹⁴C analysis of two Kennewick bones compared with our earlier Kennewick results for comparison.

1. Comments on the UCR ¹⁴C Results: On the basis of their amino acid carbon contents (AACC) and amino acid profiles, UCR-3806 and 3807 exhibit much lower collagen (protein) preservation than the earlier Kennewick bone my lab previously analyzed (UCR-3476). UCR-3806 has totally lost its collegen-like amino acid pattern. As I reported previously, both UCR-3806 and UCR-3807 exhibited unusual amounts of effervescence in acid which is usually an indication of significant amounts of secondary carbonates and there was unusual difficulty in filtering the hydrolysates.

The AACC that I reported earlier by email has been revised in light of additional analyses. (As I mentioned to you previously, we had just received our new HPLC and were still calibrating with standards when the initial analyses were obtained.) The revised AACC values do not change the fact that both bones are problematical in terms of their suitability to yield accurate bone ¹⁴C values due to their degraded biogeochemical condition. Although UCR-3807 turns out to have more protein that I reported earlier (14.3% AACC of our modern bone standard), the amino acid composition is marginal in terms of its collagen- or non-collagen like characteristics. On a routine basis, our criteria for an acceptable bone is at least 5% AACC and where the bone retains a clear collagen-like amino acid profile. On the basis of their amino acid profiles, both UCR-3806 and UCR-3807 are classified as non-collagen.

Because of their biochemically degraded condition, I report the results of the ¹⁴C measurements in terms of "fraction modern" with the apparent ¹⁴C age cited in footnotes. You will also note that the reported $\delta^{13}C$ values of these two samples are not typical of collagen amino acids. I would interpret that these values reflect primarily a dietary effect-namely that the individual (assuming that there is only one individual here represented) subsisted largely on a marine diet (e.g., fish). There also could be a fractionation factor involved due to the poor protein preservation. (In the case of UCR-3476, the first Kennewick bone we ran, we also observed a depressed $\delta^{13}C$ value and, making certain assumptions, we calculated a reservoir corrected age of 7880±160 BP.)

In summary, UCR-3807 exhibits an younger age offset of about 3% (about 280 ¹⁴C years) in comparison with UCR-3476 while UCR-3806 is very anomalous with respect to UCR-3476. One