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**DEPARTMENT OF
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March 20, 2008

Deborah Swartz, Project Director
Desert Archaeology, Inc.
3975 N. Tucson Blvd
Tucson, AZ 85716

Dear Debbie,

Enclosed please find the archaeomagnetic dating reports and project polar plot for the archaeomagnetic samples collected from Features 6.01 and 24.01 at Yuma Wash (AZ AA:12:312 [ASM]). Please note that the sample VGPs are depicted against the curve SWCV2000 (Lengyel and Eighmy 2002) on the polar plots, but they are dated against the curve SWCV595 (LaBelle and Eighmy 1997). This is because SWCV2000 provides a more accurate depiction of secular variation for the US Southwest, but it lacks the statistical parameters necessary for statistical dating.

Overall, the magnetic quality of each sample was quite good, and they had excellent α_{95} values. As reported on the enclosed lab reports, both samples produced multiple date range options against the Southwest curve, SWCV595. Based on the field estimate provided for Feature 24.01, it seems that the second dating option for sample ISM-114, AD 1160–1265, is the best age estimate for that feature. Neither of the dating options produced for sample ISM-113 agrees with the field estimate provided for Feature 6.01, although the magnetic quality and precision of the sample were excellent, indicating that the dates are archaeomagnetically sound. It is hoped that analysis of the recovered cultural materials from this structure will allow you to determine which of the two dating options for Feature 6.01 is a better fit.

In the past, I have found it helpful to provide some additional guidance for interpreting the probability plot located at the bottom of each dating report. This plot essentially depicts the date range(s) obtained for the archaeomagnetic sample through the statistical dating method (see Sternberg and McGuire 1990 for a detailed discussion of this method). When we statistically compare the archaeomagnetic data from the sample to the dating curve, we test the null hypothesis that the sample data are the same as the data for each dating window in the curve. That is, we assess the likelihood that any observed difference between the two data points is due to chance. By convention, this test is run at the five-percent significance level, such that when the test returns a probability of less than five-percent, we conclude that the sample data were not obtained during that particular window of time (i.e., they are statistically different). The date

ARCHAEOMAGNETIC LABORATORY REPORT

Archaeomagnetic Laboratory
Illinois State Museum
Springfield, Illinois 62703
(217) 785-8930

Lab Number:	ISM-113		**Feature ID:**	6.01
Site ID:	AZ AA:12:312 (ASM)		**Project ID:**	Yuma Wash
Site Latitude:	32.34 ° N		**Site Longitude:**	248.91 ° E
Site Declination:	10.89 ° E		**Expected Date:**	AD 1150-1250

Archaeomagnetic Directional Data

Specimens Collected:	12
Specimens Used (n):	10
Inclination:	56.47 °
Declination:	357.15 °
Intensity:	1.95E-06 T
$\alpha95$:	1.70 °
k:	849.98
R:	9.99

Virtual Geomagnetic Polar Coordinates

Latitude:	84.76 ° N
Longitude:	223.19 ° E
dm:	2.4 °
dp:	1.73 °

SWCV595 Date Range(s):

A.D. 935 - 1015

A.D. 1310 - 1690

Statistical Comparison between Sample Data and Master Curve Data Points
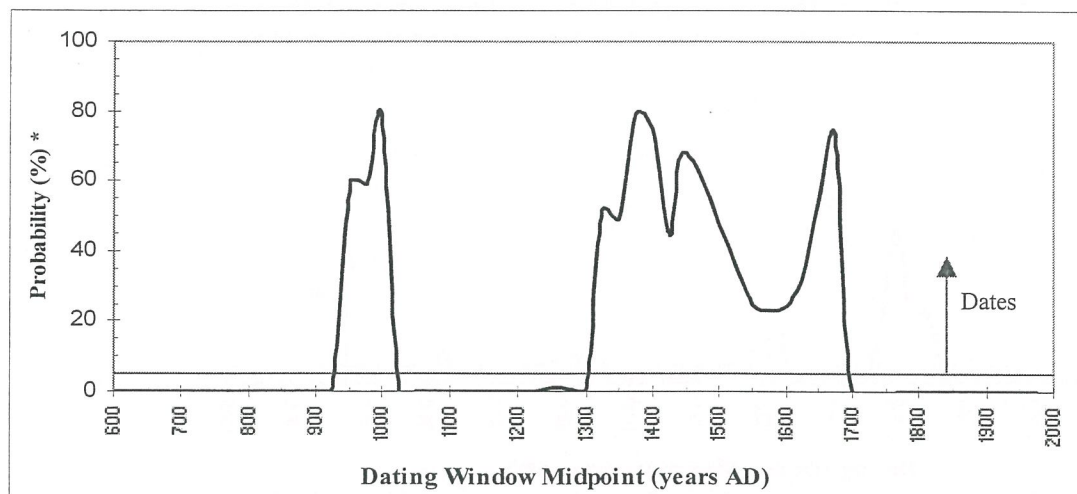
*This is the probability that the difference between the sample data and the respective master curve data point is due to chance. Probabilities of less than 5% indicate that the difference is due to more than chance.
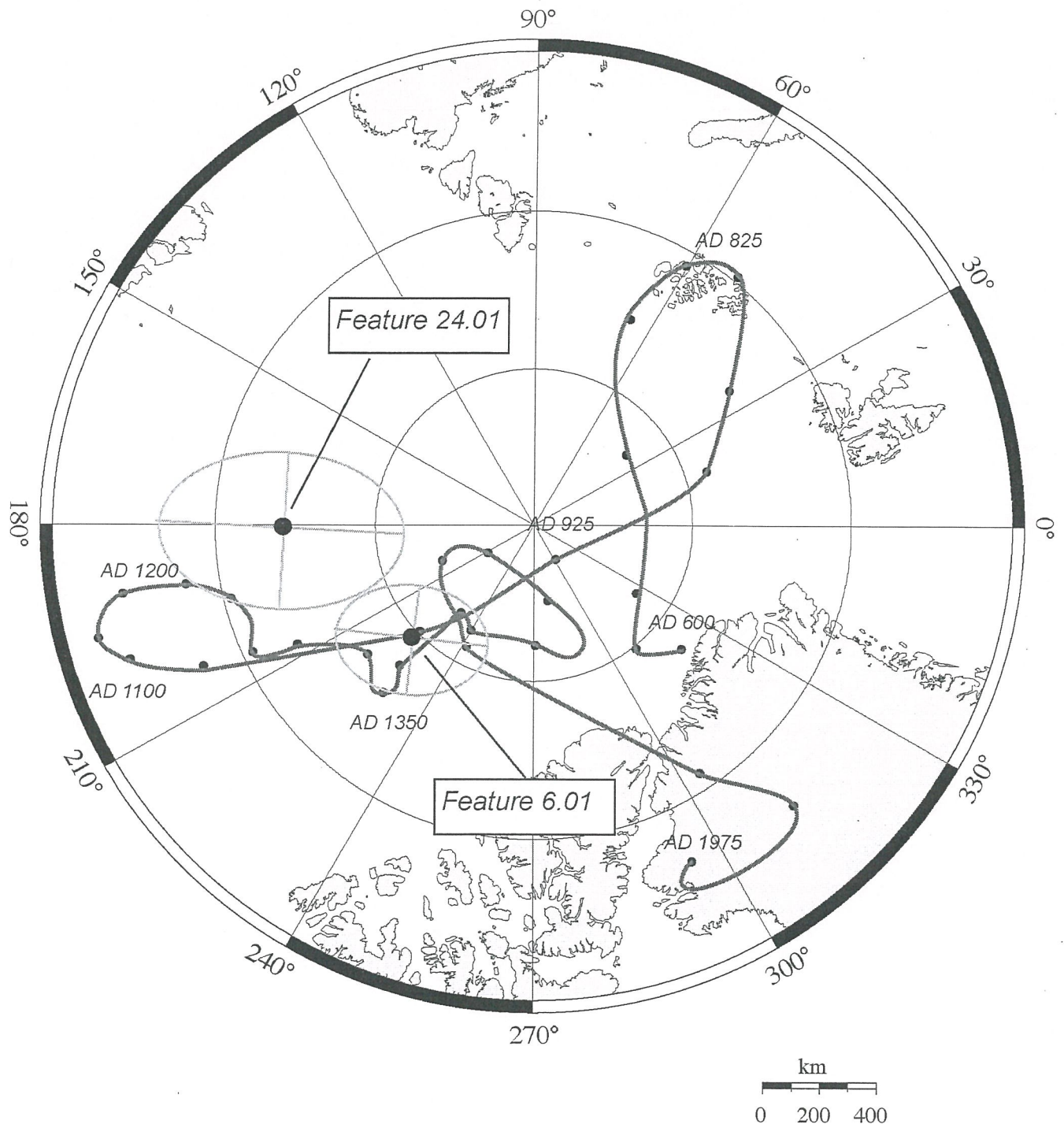
Signed: _Stacey Lengyel_   Date: 3/20/08

Illinois State Museum
Archaeomagnetic Polar Plot
with SWCV2000 (Lengyel and Eighmy 2002)

Yuma Wash (AZ AA:12:312 [AMS])
ISM-113 & ISM-114