APPENDIX B

RADIOCARBON ASSAYS

DARDEN HOOD,
BETA ANALYTICAL
July 22, 2005

Dr. James Abbott
Texas Department of Transportation
Cultural Resource Management
Environmental Affairs Division
125 East 11th Street
Austin, TX 78701
USA


Dear Jim:

Enclosed are the radiocarbon dating results for 18 samples recently sent to us. They each provided plenty of carbon for accurate measurements and all the analyses went normally. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable.

You will notice that Beta-206118 (41KR621-C17) is reported with the units “pMC” rather than BP. “pMC” stands for "percent modern carbon". Results are reported in the pMC format when the analyzed material had more \(^{14} \text{C}\) than did the modern (AD 1950) reference standard. The source of this "extra" \(^{14} \text{C}\) in the atmosphere is thermo-nuclear bomb testing which on-set in the 1950s. Its presence generally indicates the material analyzed was part of a system that was respiring carbon after the on-set of the testing (AD 1950s). On occasion, the two sigma lower limit will extend into the time region before this "bomb-carbon" onset (i.e. less than 100 pMC). In those cases, there is some probability for 18th, 19th, or 20th century antiquity.

As always, no students or intern researchers who would necessarily be distracted with other obligations and priorities were used in the analyses. We analyzed them with the combined attention of our entire professional staff.

If you have specific questions about the analyses, please contact us. We are always available to answer your questions.

Our invoice is enclosed. Please, forward it to the appropriate officer or send VISA charge authorization. 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
<table>
<thead>
<tr>
<th>Sample Data</th>
<th>Measured Radiocarbon Age</th>
<th>13C/12C Ratio</th>
<th>Conventional Radiocarbon Age(*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta - 206114</td>
<td>3390 +/- 40 BP</td>
<td>-24.5 o/oo</td>
<td>3400 +/- 40 BP</td>
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<td>SAMPLE : 41KR621-C5</td>
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<td>ANALYSIS : AMS-Standard delivery</td>
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<td>MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid</td>
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<tr>
<td>2 SIGMA CALIBRATION : Cal BC 1760 to 1610 (Cal BP 3720 to 3560)</td>
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<td>Beta - 206115</td>
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<td>SAMPLE : 41KR621-C11</td>
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<td>2 SIGMA CALIBRATION : Cal BC 5620 to 5470 (Cal BP 7570 to 7420)</td>
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<td>4120 +/- 40 BP</td>
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<td>SAMPLE : 41KR621-C12</td>
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<tr>
<td>2 SIGMA CALIBRATION : Cal BC 2870 to 2570 (Cal BP 4820 to 4520)AND Cal BC 2520 to 2500 (Cal BP 4470 to 4450)</td>
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<td>Beta - 206117</td>
<td>4140 +/- 40 BP</td>
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<td>4140 +/- 40 BP</td>
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<tr>
<td>2 SIGMA CALIBRATION : Cal BC 2880 to 2580 (Cal BP 4830 to 4530)</td>
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<tr>
<td>Beta - 206118</td>
<td>113.5 +/- 0.6 pMC</td>
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<tr>
<td>COMMENT: reported result indicates an age of post 0 BP and has been reported as a % of the modern reference standard, indicating the material was living within the last 50 years.</td>
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<tr>
<td>Sample Data</td>
<td>Measured Radiocarbon Age</td>
<td>13C/12C Ratio</td>
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<td>2 SIGMA CALIBRATION : Cal BC 3780 to 3650 (Cal BP 5730 to 5600)</td>
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<td>Beta - 206122</td>
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<tr>
<td>2 SIGMA CALIBRATION : Cal BC 5200 to 5180 (Cal BP 7150 to 7130)AND Cal BC 5080 to 4910 (Cal BP 7020 to 6860)</td>
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<td>2 SIGMA CALIBRATION : Cal BC 3910 to 3880 (Cal BP 5860 to 5830)AND Cal BC 3800 to 3660 (Cal BP 5750 to 5610)</td>
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<td>Beta - 206125</td>
<td>5330 +/- 40 BP</td>
<td>-25.4 o/oo</td>
<td>5320 +/- 40 BP</td>
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<td>MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid</td>
<td>2 SIGMA CALIBRATION : Cal BC 4250 to 4040 (Cal BP 6200 to 5990)</td>
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<tr>
<td>Beta - 206126</td>
<td>5440 +/- 40 BP</td>
<td>-25.2 o/oo</td>
<td>5440 +/- 40 BP</td>
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<td>SAMPLE : 41KR621-C68</td>
<td>ANALYSIS : AMS-Standard delivery</td>
<td>MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid</td>
<td>2 SIGMA CALIBRATION : Cal BC 4350 to 4230 (Cal BP 6300 to 6180)</td>
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<td>Beta - 206127</td>
<td>2150 +/- 50 BP</td>
<td>-26.6 o/oo</td>
<td>2120 +/- 50 BP</td>
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<tr>
<td>Beta - 206128</td>
<td>4990 +/- 50 BP</td>
<td>-25.2 o/oo</td>
<td>4990 +/- 50 BP</td>
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<td>SAMPLE : 41KR621-C74</td>
<td>ANALYSIS : AMS-Standard delivery</td>
<td>MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid</td>
<td>2 SIGMA CALIBRATION : Cal BC 3940 to 3660 (Cal BP 5890 to 5610)</td>
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<td>Beta - 206129</td>
<td>4220 +/- 40 BP</td>
<td>-25.7 o/oo</td>
<td>4210 +/- 40 BP</td>
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<td>SAMPLE : 41KR621-C75</td>
<td>ANALYSIS : AMS-Standard delivery</td>
<td>MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid</td>
<td>2 SIGMA CALIBRATION : Cal BC 2900 to 2850 (Cal BP 4850 to 4800) AND Cal BC 2820 to 2670 (Cal BP 4770 to 4620)</td>
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<tr>
<td>Sample Data</td>
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<td>13C/12C Ratio</td>
<td>Conventional Radiocarbon Age(*)</td>
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<tr>
<td>Beta - 206131</td>
<td>4560 +/- 40 BP</td>
<td>-27.0 o/oo</td>
<td>4530 +/- 40 BP</td>
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<td>ANALYSIS : AMS-Standard delivery</td>
<td>MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid</td>
<td>2 SIGMA CALIBRATION : Cal BC 3360 to 3090 (Cal BP 5310 to 5040)</td>
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<td>Beta - 206132</td>
<td>3830 +/- 40 BP</td>
<td>-24.0 o/oo</td>
<td>3850 +/- 40 BP</td>
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<tr>
<td>SAMPLE : 41KR621-C94</td>
<td>ANALYSIS : AMS-Standard delivery</td>
<td>MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid</td>
<td>2 SIGMA CALIBRATION : Cal BC 2460 to 2200 (Cal BP 4410 to 4150)</td>
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<tr>
<td>Beta - 206133</td>
<td>3930 +/- 40 BP</td>
<td>-25.2 o/oo</td>
<td>3930 +/- 40 BP</td>
</tr>
<tr>
<td>SAMPLE : 41KR621-C101</td>
<td>ANALYSIS : AMS-Standard delivery</td>
<td>MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid</td>
<td>2 SIGMA CALIBRATION : Cal BC 2550 to 2540 (Cal BP 4500 to 4480) AND Cal BC 2490 to 2300 (Cal BP 4440 to 4250)</td>
</tr>
</tbody>
</table>
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.5; lab. mult=1)

Laboratory number: Beta-20614

Conventional radiocarbon age: 3400±40 BP

2 Sigma calibrated result: Cal BC 1760 to 1610 (Cal BP 3720 to 3560)
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1690 (Cal BP 3640)

1 Sigma calibrated result: Cal BC 1740 to 1650 (Cal BP 3690 to 3600)
(68% probability)

References:

Database used
INTCAL98
Calibration Database
Editorial Comment

INTCAL98 Radiocarbon Age Calibration

Mathematics
A Simplified Approach to Calibrating C14 Dates
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.1: lab. mult=1)

Laboratory number: Beta-206115

Conventional radiocarbon age: 6570±50 BP

2 Sigma calibrated result: Cal BC 5620 to 5470 (Cal BP 7570 to 7420)
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 5500 (Cal BP 7450)

1 Sigma calibrated result: Cal BC 5540 to 5480 (Cal BP 7490 to 7430)
(68% probability)

References:

Database used
INTCAL98

Calibration Database

Editorial Comment
INTCAL98 Radiocarbon Age Calibration

Mathematics
A Simplified Approach to Calibrating C14 Dates
**CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS**

(Variables: C13/C12= -25.7: lab. mult=1)

**Laboratory number:** Beta-206116

**Conventional radiocarbon age:** 4110±40 BP

**2 Sigma calibrated results:**
- Cal BC 2870 to 2570 (Cal BP 4820 to 4520) and
- Cal BC 2520 to 2500 (Cal BP 4470 to 4450)

**Intercept data**

**Intercept of radiocarbon age with calibration curve:** Cal BC 2630 (Cal BP 4580)

**1 Sigma calibrated results:**
- Cal BC 2860 to 2810 (Cal BP 4810 to 4760) and
- Cal BC 2690 to 2580 (Cal BP 4640 to 4540)

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**References:**

- **Database used**
  - INTCAL98

- **Calibration Database**

- **Editorial Comment**

- **Mathematics**
  - A Simplified Approach to Calibrating C14 Dates
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.2: lab. mult = 1)

Laboratory number: Beta-206117
Conventional radiocarbon age: 4140±40 BP

2 Sigma calibrated result: Cal BC 2880 to 2580 (Cal BP 4830 to 4530)
(95% probability)

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 2850 (Cal BP 4800) and Cal BC 2820 (Cal BP 4770) and Cal BC 2680 (Cal BP 4630)

1 Sigma calibrated results: Cal BC 2870 to 2800 (Cal BP 4820 to 4750) and Cal BC 2770 to 2620 (Cal BP 4720 to 4570)

References:
Database used
INTCAL 98
Calibration Database
Editorial Comment

INTCAL 98 Radiocarbon Age Calibration

Mathematics
A Simplified Approach to Calibrating C14 Dates

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305) 667-5167 • Fax: (305) 663-0964 • E-Mail: beta@radiocarbon.com
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.2:lab. mult=1)

Laboratory number: Beta-206119

Conventional radiocarbon age: 5260±50 BP

2 Sigma calibrated result: Cal BC 4230 to 3970 (Cal BP 6180 to 5920)

(95% probability)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal BC 4040 (Cal BP 6000)

1 Sigma calibrated results: Cal BC 4150 to 4120 (Cal BP 6100 to 6070) and

(68% probability) Cal BC 4070 to 3990 (Cal BP 6020 to 5940)

References:

Database used
INTCAL98

Calibration Database

Editorial Comment

INTCAL98 Radiocarbon Age Calibration

Mathematics
A Simplified Approach to Calibrating C14 Dates

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4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305) 667-5167 • Fax: (305) 663-0964 • E-Mail: beta@radiocarbon.com
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

Variables: C13/C12=-24.8: lab. mult=1

Laboratory number: Beta-206121

Conventional radiocarbon age: 4930±40 BP

2 Sigma calibrated result: Cal BC 3780 to 3650 (Cal BP 5730 to 5600) (95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3700 (Cal BP 5640)

1 Sigma calibrated result: Cal BC 3720 to 3660 (Cal BP 5670 to 5610) (68% probability)

References:

Database used
INTCAL98

Calibration Database

Editorial Comment


INTCAL98 Radiocarbon Age Calibration


Mathematics

A Simplified Approach to Calibrating C14 Dates


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4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com
Laboratory number: Beta-206122

Conventional radiocarbon age: 6100±40 BP

2 Sigma calibrated results: Cal BC 5200 to 5180 (Cal BP 7150 to 7130) and Cal BC 5080 to 4910 (Cal BP 7020 to 6860)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 5010 (Cal BP 6960)

1 Sigma calibrated result: Cal BC 5050 to 4940 (Cal BP 7000 to 6900)

References:
- Database used
  - INTCAL98
- Calibration Database
- Editorial Comment
- INTCAL98 Radiocarbon Age Calibration
- Mathematics
  - A Simplified Approach to Calibrating C14 Dates
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25:lab. mult=1)

Laboratory number: Beta-206123

Conventional radiocarbon age: 4980±40 BP

2 Sigma calibrated results: Cal BC 3920 to 3870 (Cal BP 5870 to 5820) and Cal BC 3810 to 3660 (Cal BP 5760 to 5610)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3760 (Cal BP 5710)

1 Sigma calibrated result: Cal BC 3790 to 3700 (Cal BP 5740 to 5650)

References:

Database used
INTCAL98
Calibration Database
Editorial Comment

INTCAL98 Radiocarbon Age Calibration

Mathematics
A Simplified Approach to Calibrating C14 Dates

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4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: \( \frac{C_{13}}{C_{12}} = -23.6 \); lab. mult = 1)

Laboratory number: Beta-206124

Conventional radiocarbon age: 4970±40 BP

2 Sigma calibrated results:
- Cal BC 3910 to 3880 (Cal BP 5860 to 5830) and
- Cal BC 3800 to 3660 (Cal BP 5750 to 5610)

Intercept data

Intercept of radiocarbon age
with calibration curve:
- Cal BC 3720 (Cal BP 5670)

1 Sigma calibrated result:
- Cal BC 3780 to 3700 (Cal BP 5730 to 5640)

References:

Database used
- INTCAL98

Calibration Database
- Editorial Comment

INTCAL98 Radiocarbon Age Calibration

Mathematics
- A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.4: lab. mult=1)

Laboratory number: Beta-206125

Conventional radiocarbon age: 5320±40 BP

2 Sigma calibrated result: Cal BC 4250 to 4040 (Cal BP 6200 to 5990) (95% probability)

Intercept data

Intercepts of radiocarbon age with calibration curve:
- Cal BC 4210 (Cal BP 6160) and
- Cal BC 4190 (Cal BP 6140) and
- Cal BC 4160 (Cal BP 6110) and
- Cal BC 4100 (Cal BP 6050) and
- Cal BC 4080 (Cal BP 6030)

1 Sigma calibrated result: Cal BC 4230 to 4050 (Cal BP 6180 to 6000) (68% probability)

References:
- Database used
  - INTCAL98
- Calibration Database
- Editorial Comment
- INTCAL98 Radiocarbon Age Calibration
- Mathematics
  - A Simplified Approach to Calibrating C14 Dates
**CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS**

(Variables: C13/C12=-25.2:lab. mult=1)

**Laboratory number:** Beta-206126

**Conventional radiocarbon age:** 5440±40 BP

**2 Sigma calibrated result:** Cal BC 4350 to 4230 (Cal BP 6300 to 6180) (95% probability)

**Intercept data**

- Intercept of radiocarbon age with calibration curve: Cal BC 4320 (Cal BP 6280)
- 1 Sigma calibrated result: Cal BC 4340 to 4250 (Cal BP 6290 to 6200) (68% probability)

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**References:**

**Database used**
- INTCAL98

**Calibration Database**

**Editorial Comment**

**Mathematics**
- *A Simplified Approach to Calibrating C14 Dates*

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**Beta Analytic Radiocarbon Dating Laboratory**

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.6:lab. mult=1)

Laboratory number: Beta-206127

Conventional radiocarbon age: 2120±50 BP

2 Sigma calibrated results: Cal BC 360 to 290 (Cal BP 2310 to 2240) and Cal BC 230 to 30 (Cal BP 2180 to 1980)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 160 (Cal BP 2120)

1 Sigma calibrated result: Cal BC 200 to 60 (Cal BP 2150 to 2010)

References:

Database used
INTCAL98

Calibration Database

Editorial Comment

INTCAL98 Radiocarbon Age Calibration

Mathematics
A Simplified Approach to Calibrating C14 Dates
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -25.2: lab. mult = 1)

Laboratory number: Beta-206128

Conventional radiocarbon age: 4990±50 BP

2 Sigma calibrated result: Cal BC 3940 to 3660 (Cal BP 5890 to 5610)
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3770 (Cal BP 5720)

1 Sigma calibrated results: Cal BC 3900 to 3890 (Cal BP 5850 to 5840) and Cal BC 3800 to 3700 (Cal BP 5750 to 5650)

References:

Database used

INTCAL98

Calibration Database

Editorial Comment


INTCAL98 Radiocarbon Age Calibration


Mathematics

A Simplified Approach to Calibrating C14 Dates


Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.7:lab. mult=1)

Laboratory number: Beta-206129

Conventional radiocarbon age: 4210±40 BP

2 Sigma calibrated results: Cal BC 2900 to 2850 (Cal BP 4850 to 4800) and
(95% probability) Cal BC 2820 to 2670 (Cal BP 4770 to 4620)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 2880 (Cal BP 4830)

1 Sigma calibrated results: Cal BC 2890 to 2860 (Cal BP 4840 to 4810) and
(68% probability) Cal BC 2800 to 2760 (Cal BP 4750 to 4710)

References:

Database used
INTCAL 98
Calibration Database

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-27: lab. mult=1)

Laboratory number: Beta-206131

Conventional radiocarbon age: 4530±40 BP

2 Sigma calibrated result: Cal BC 3360 to 3090 (Cal BP 5310 to 5040)
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3340 (Cal BP 5290)

1 Sigma calibrated results: Cal BC 3350 to 3310 (Cal BP 5300 to 5260) and Cal BC 3230 to 3110 (Cal BP 5180 to 5060)

References:

Database used
INTCAL98

Calibration Database

Editorial Comment

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A Simplified Approach to Calibrating C14 Dates
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24: lab. mult=1)

Laboratory number: Beta-206132

Conventional radiocarbon age: 3850±40 BP

2 Sigma calibrated result: Cal BC 2460 to 2200 (Cal BP 4410 to 4150)
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 2300 (Cal BP 4250)

1 Sigma calibrated results: Cal BC 2400 to 2380 (Cal BP 4350 to 4330) and Cal BC 2360 to 2270 (Cal BP 4300 to 4220) and Cal BC 2260 to 2220 (Cal BP 4210 to 4170)

References:

Database used
INTCAL98

Calibration Database

Editorial Comment

INTCAL98 Radiocarbon Age Calibration

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A Simplified Approach to Calibrating C14 Dates
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.2:lab. mult=1)

Laboratory number: Beta-206133

Conventional radiocarbon age: 3930±40 BP

2 Sigma calibrated results: Cal BC 2550 to 2540 (Cal BP 4500 to 4480) and Cal BC 2490 to 2300 (Cal BP 4440 to 4250)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 2460 (Cal BP 4410)

1 Sigma calibrated results: Cal BC 2470 to 2400 (Cal BP 4420 to 4350) and Cal BC 2380 to 2360 (Cal BP 4330 to 4300)

References:

Database used
INTCAL 98

Calibration Database

Editorial Comment

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4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com
FROM: Darden Hood, Director (mailto:dhood@radiocarbon.com)  
(This is a copy of the letter being mailed. Invoices/receipts follow only by mail.)  
September 12, 2005

Dr. James Abbott  
Texas Department of Transportation  
Cultural Resource Management  
Environmental Affairs Division  
125 East 11th Street  
Austin, TX 78701  
USA


Dear Jim:

Enclosed are the radiocarbon dating results for 18 samples recently sent to us. They each provided plenty of carbon for accurate measurements and all the analyses went normally. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable.

As always, no students or intern researchers who would necessarily be distracted with other obligations and priorities were used in the analyses. We analyzed them with the combined attention of our entire professional staff.

If you have specific questions about the analyses, please contact us. We are always available to answer your questions.

Our invoice is enclosed. Please, forward it to the appropriate officer or send VISA charge authorization. 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
<table>
<thead>
<tr>
<th>Sample Data</th>
<th>Measured Radiocarbon Age</th>
<th>13C/12C Ratio</th>
<th>Conventional Radiocarbon Age(*)</th>
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<td>Beta - 207390</td>
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.4: lab. mult=1)

Laboratory number: Beta-207374

Conventional radiocarbon age: 5260±40 BP

2 Sigma calibrated result: Cal BC 4220 to 3980 (Cal BP 6170 to 5920) (95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4040 (Cal BP 6000)

1 Sigma calibrated result: Cal BC 4060 to 3990 (Cal BP 6010 to 5940) (68% probability)

References:

Database used
INTCAL98

Calibration Database

Editorial Comment

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.9:lab. mult=1)

Laboratory number: Beta-207376

Conventional radiocarbon age: 3680±40 BP

2 Sigma calibrated results: Cal BC 2190 to 2170 (Cal BP 4140 to 4120) and Cal BC 2150 to 1940 (Cal BP 4100 to 3900)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 2040 (Cal BP 3990)

1 Sigma calibrated result: Cal BC 2130 to 2010 (Cal BP 4080 to 3960)

References:

Database used
INTCAL98

Calibration Database

Editorial Comment

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12= -24.6: lab. mult=1)

Laboratory number: Beta-207377

Conventional radiocarbon age: 4210±40 BP

2 Sigma calibrated results: Cal BC 2900 to 2850 (Cal BP 4850 to 4800) and Cal BC 2820 to 2670 (Cal BP 4770 to 4620)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 2880 (Cal BP 4830)

1 Sigma calibrated results: Cal BC 2890 to 2860 (Cal BP 4840 to 4810) and Cal BC 2800 to 2760 (Cal BP 4750 to 4710)

References:

Database used
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A Simplified Approach to Calibrating C14 Dates
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.3:lab. mult=1)

Laboratory number: Beta-207378

Conventional radiocarbon age: 5360±40 BP

2 Sigma calibrated result: Cal BC 4320 to 4050 (Cal BP 6280 to 6000)

(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4230 (Cal BP 6180)

1 Sigma calibrated results: Cal BC 4250 to 4210 (Cal BP 6200 to 6160) and Cal BC 4190 to 4160 (Cal BP 6140 to 6110) and Cal BC 4100 to 4080 (Cal BP 6050 to 6030)

References:

Database used
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-19.4:lab. mult=1)

Laboratory number: Beta-207379
Conventional radiocarbon age: 3830±40 BP
2 Sigma calibrated result: Cal BC 2450 to 2140 (Cal BP 4400 to 4100)
(95% probability)

Intercept data
Intercept of radiocarbon age with calibration curve: Cal BC 2290 (Cal BP 4240)
1 Sigma calibrated result: Cal BC 2330 to 2210 (Cal BP 4280 to 4160)
(68% probability)

References:
Database used
INTCAL98
Calibration Database
Editorial Comment
INTCAL98 Radiocarbon Age Calibration
Mathematics
A Simplified Approach to Calibrating C14 Dates

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.4:lab. mult=1)

Laboratory number: Beta-207380

Conventional radiocarbon age: 4550±40 BP

2 Sigma calibrated result: Cal BC 3370 to 3100 (Cal BP 5320 to 5050)
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3350 (Cal BP 5300)

1 Sigma calibrated results:
- Cal BC 3360 to 3330 (Cal BP 5310 to 5280) and
- Cal BC 3220 to 3180 (Cal BP 5170 to 5130) and
- Cal BC 3160 to 3130 (Cal BP 5100 to 5080)

References:

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**CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS**

(Variables: C13/C12=-24.9:lab. mult=1)

**Laboratory number:** Beta-207381

**Conventional radiocarbon age:** 3750±40 BP

**2 Sigma calibrated result:** Cal BC 2290 to 2030 (Cal BP 4240 to 3980)

(95% probability)

**Intercept data**

Intercept of radiocarbon age with calibration curve:

Cal BC 2140 (Cal BP 4100)

**1 Sigma calibrated results:**

Cal BC 2210 to 2130 (Cal BP 4160 to 4080) and Cal BC 2080 to 2060 (Cal BP 4030 to 4010)

**References:**

**Database used**

- INTCAL 98

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.6:lab. mult=1)

Laboratory number: Beta-207382

Conventional radiocarbon age: 6450±40 BP

2 Sigma calibrated result: Cal BC 5480 to 5330 (Cal BP 7430 to 7280)
(95% probability)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal BC 5460 (Cal BP 7410)

1 Sigma calibrated result: Cal BC 5470 to 5370 (Cal BP 7420 to 7320)
(68% probability)

References:

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-27.7; lab. mult=1)

Laboratory number: Beta-207383

Conventional radiocarbon age: 150±40 BP

2 Sigma calibrated result: Cal AD 1660 to 1950 (Cal BP 290 to 0)
(95% probability)

Intercept data

Intercepts of radiocarbon age with calibration curve:
- Cal AD 1680 (Cal BP 270) and
- Cal AD 1740 (Cal BP 210) and
- Cal AD 1810 (Cal BP 140) and
- Cal AD 1930 (Cal BP 20) and
- Cal AD 1950 (Cal BP 0)

1 Sigma calibrated results:
(68% probability)
- Cal AD 1670 to 1700 (Cal BP 280 to 250) and
- Cal AD 1720 to 1780 (Cal BP 230 to 170) and
- Cal AD 1800 to 1820 (Cal BP 150 to 130) and
- Cal AD 1840 to 1880 (Cal BP 110 to 70) and
- Cal AD 1920 to 1950 (Cal BP 30 to 0)

References:

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.1: lab. mult=1)

Laboratory number: Beta-207384

Conventional radiocarbon age: 5570±40 BP

2 Sigma calibrated result: Cal BC 4470 to 4340 (Cal BP 6420 to 6290)
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4370 (Cal BP 6320)

1 Sigma calibrated result: Cal BC 4450 to 4350 (Cal BP 6400 to 6300)
(68% probability)

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.5: lab. mult=1)

Laboratory number: Beta-207385

Conventional radiocarbon age: 4970±40 BP

2 Sigma calibrated results: Cal BC 3910 to 3880 (Cal BP 5860 to 5830) and
(95% probability) Cal BC 3800 to 3660 (Cal BP 5750 to 5610)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal BC 3720 (Cal BP 5670)

1 Sigma calibrated result: Cal BC 3780 to 3700 (Cal BP 5730 to 5640)
(68% probability)

References:

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12= -24.1:lab. mult=1)

Laboratory number: Beta-207386

Conventional radiocarbon age: 4090±40 BP

2 Sigma calibrated results: Cal BC 2860 to 2800 (Cal BP 4810 to 4750) and
(95% probability) Cal BC 2760 to 2550 (Cal BP 4710 to 4500) and
Cal BC 2540 to 2490 (Cal BP 4480 to 4440)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 2600 (Cal BP 4560)

1 Sigma calibrated results: Cal BC 2850 to 2820 (Cal BP 4800 to 4770) and
(68% probability) Cal BC 2670 to 2580 (Cal BP 4620 to 4520)

References:

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.2:lab. mult=1)

Laboratory number: Beta-207387

Conventional radiocarbon age: 5420±40 BP

2 Sigma calibrated result: Cal BC 4340 to 4220 (Cal BP 6290 to 6170) (95% probability)

Intercept data

Intercepts of radiocarbon age with calibration curve:
- Cal BC 4320 (Cal BP 6270) and
- Cal BC 4290 (Cal BP 6240) and
- Cal BC 4260 (Cal BP 6210)

1 Sigma calibrated result: Cal BC 4330 to 4240 (Cal BP 6280 to 6190) (68% probability)

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

Variables: \( \frac{C_{13}}{C_{12}} = -27.4 \): lab. mult = 1

Laboratory number: Beta-207388

Conventional radiocarbon age: \( 160 \pm 40 \) BP

2 Sigma calibrated result: Cal AD 1660 to 1950 (Cal BP 290 to 0)

(95% probability)

Intercept data

Intercepts of radiocarbon age with calibration curve:
- Cal AD 1680 (Cal BP 270) and
- Cal AD 1740 (Cal BP 200) and
- Cal AD 1800 (Cal BP 150) and
- Cal AD 1930 (Cal BP 20) and
- Cal AD 1950 (Cal BP 0)

1 Sigma calibrated results: Cal AD 1670 to 1690 (Cal BP 280 to 260) and
- Cal AD 1730 to 1810 (Cal BP 220 to 140) and
- Cal AD 1920 to 1950 (Cal BP 30 to 0)

References:
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.9: lab. mult=1)

Laboratory number: Beta-207389

Conventional radiocarbon age: 4610±40 BP

2 Sigma calibrated results: Cal BC 3510 to 3430 (Cal BP 5460 to 5380) and Cal BC 3390 to 3340 (Cal BP 5340 to 5290)

1 Sigma calibrated results: Cal BC 3490 to 3460 (Cal BP 5440 to 5410) and Cal BC 3370 to 3350 (Cal BP 5320 to 5300)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3360 (Cal BP 5310)

References:

Database used
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.2:lab. mult=1)

Laboratory number: Beta-207390

Conventional radiocarbon age: 4400±40 BP

2 Sigma calibrated results: Cal BC 3270 to 3240 (Cal BP 5220 to 5190) and Cal BC 3110 to 2910 (Cal BP 5060 to 4860)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3020 (Cal BP 4970)

1 Sigma calibrated result: Cal BC 3090 to 2920 (Cal BP 5040 to 4870)

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-17.7: lab. mult=1)

Laboratory number: Beta-207391

Conventional radiocarbon age: 1810±60 BP

2 Sigma calibrated result: Cal AD 70 to 380 (Cal BP 1880 to 1570)
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 230 (Cal BP 1720)

1 Sigma calibrated result: Cal AD 130 to 260 (Cal BP 1820 to 1690)
(68% probability)

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Laboratory number: Beta-207392

Conventional radiocarbon age: 1290±60 BP

2 Sigma calibrated result: Cal AD 650 to 880 (Cal BP 1300 to 1070) (95% probability)

Intercept data
- Intercept of radiocarbon age with calibration curve: Cal AD 700 (Cal BP 1250)
- 1 Sigma calibrated result: Cal AD 670 to 780 (Cal BP 1280 to 1170) (68% probability)

References:

Database used
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September 21, 2005

Dr. James Abbott
Texas Department of Transportation
Cultural Resource Management
Environmental Affairs Division
125 East 11th Street
Austin, TX 78701
USA

RE: Radiocarbon Dating Result For Sample 41KR621-C2

Dear Jim:

Enclosed is the radiocarbon dating result for one sample recently sent to us. It provided plenty of carbon for an accurate measurement and the analysis went normally. As usual, the method of analysis is listed on the report sheet and calibration data is provided where applicable.

As always, no students or intern researchers who would necessarily be distracted with other obligations and priorities were used in the analysis. It was analyzed with the combined attention of our entire professional staff.

If you have specific questions about the analyses, please contact us. We are always available to answer your questions.

The cost of analysis was previously invoiced. As always, if you have any questions or would like to discuss the results, don’t hesitate to contact me.

Sincerely,

Darden Hood
<table>
<thead>
<tr>
<th>Sample Data</th>
<th>Measured Radiocarbon Age</th>
<th>13C/12C Ratio</th>
<th>Conventional Radiocarbon Age(*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta - 207375</td>
<td>5740 +/- 40 BP</td>
<td>-22.4 o/oo</td>
<td>5780 +/- 40 BP</td>
</tr>
</tbody>
</table>

SAMPLE : 41KR621-C2  
ANALYSIS : AMS-Standard delivery  
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid  
2 SIGMA CALIBRATION : Cal BC 4720 to 4520 (Cal BP 6670 to 6470)
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-22.4:lab. mult=1)

Laboratory number: Beta-207375

Conventional radiocarbon age: 5780±40 BP

2 Sigma calibrated result: Cal BC 4720 to 4520 (Cal BP 6670 to 6470) 
(95% probability)

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 4660 (Cal BP 6610) and 
Cal BC 4640 (Cal BP 6590) and 
Cal BC 4620 (Cal BP 6570)

1 Sigma calibrated result: Cal BC 4700 to 4560 (Cal BP 6650 to 6510) 
(68% probability)

References:

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