



10430 Furnace Road, Suite 107  
 Lorton, VA 22079  
 Phone: 703-646-9740

**Forensic Case Report  
 March 24, 2008**

**To:**  
 Andy Horita  
 Boulder District Attorney's Office  
 1777 6<sup>th</sup> Street  
 Boulder, CO 80302

**BODE Case #: 2S07-101  
 Agency Case #: 96DA21871**

**List of Evidence Received on December 3, 2007 for possible DNA analysis:**

<u>BODE Sample #</u>	<u>Agency Description</u>
2S07-101-01	Labeled as "Ligature from neck. BPD# 022TET, CBI# 008"
2S07-101-02	Labeled as "Broken paintbrush handle (attached to #1 above)"
2S07-101-03	Labeled as "Ligature from wrist. BPD # 018TET, CBI # 166"
2S07-101-04	Labeled as "'Wednesday" panties. BPD #021TET, CBI# 7"
2S07-101-05	Labeled as "White long underwear bottoms. BPD020TET, CBI # 6"
2S07-101-05A	<i>exterior top right half of long johns</i>
2S07-101-05B	<i>exterior top left half of long johns</i>
2S07-101-05C	<i>interior top right half of long johns</i>
2S07-101-05D	<i>interior top left half of long johns</i>

**List of Evidence Received on January 23, 2008 for possible DNA analysis:**

<u>BODE Sample #</u>	<u>Agency Description</u>
2S07-101-06	Labeled as "Cutting from crotch of underwear. BPD# 110KKY"
2S07-101-06A	<i>cutting from top layer</i>
2S07-101-06B	<i>cutting from top layer opposite of -06A</i>
2S07-101-06C	<i>cutting from bottom layer same edge as -06A</i>

**Table One contains Profiler Plus and Cofiler data submitted on March 12, 2008 for the following samples:**

<u>BPD #</u>	<u>CBI</u>	<u>Description</u>
001BP	14B	Blood standard JonBenet-Victim
5RTG	36B-2	Blood Standards Burke Ramsey-Brother
4RTG/069TET	35B-2	Blood Standards Patricia Ramsey-Mother
3RTG/068TET	34B-2	Blood Standards John B. Ramsey-Father
2RTG/72TET	33B-2	Blood Standard Melinda Ramsey- ½ Sister (Common Father)
1RTG	32B-2	Blood Standards John Andrew Ramsey- ½ Brother (Common Father)

**DNA PROCESSING, RESULTS, and CONCLUSIONS:**

The evidence items were processed for DNA typing by analysis of the 13 CODIS Short Tandem Repeat loci, the D2S1338 locus, the D19S433 locus, and the gender determining locus Amelogenin using the AmpFLSTR® Identifiler® kit. Appropriate positive and negative controls were used concurrently throughout the analysis. The DNA profiles reported in this case were determined by procedures that have been validated according to standards established by the Scientific Working Group on DNA Analysis Methods (SWGDM) and adopted as Federal Standards.

1. The DNA profile obtained from sample 2S07-101-05A contains a mixture of at least two individuals including the victim and at least one male contributor. The profiles associated with the following individuals are excluded as possible contributors to the mixture DNA profile obtained from sample 2S07-101-05A: Burke Ramsey, Patricia Ramsey, John B. Ramsey, Melinda Ramsey, and John Andrew Ramsey.

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**DNA PROCESSING, RESULTS, and CONCLUSIONS (cont.):**

2. The partial DNA profile obtained from sample 2S07-101-05B contains a mixture of at least two individuals including the victim and at least one male contributor. The profiles associated with the following individuals are excluded as possible contributors to the mixture DNA profile obtained from sample 2S07-101-05B: John B. Ramsey, Melinda Ramsey, and John Andrew Ramsey. The profiles associated with Burke Ramsey and Patricia Ramsey cannot be included or excluded from the mixture DNA profile obtained from 2S07-101-05B.
3. The partial DNA profile obtained from sample 2S07-101-05C contains a mixture of at least two individuals including a major component victim profile and at least one additional minor contributor. The minor contributor is low level, contains allelic drop-out, and therefore is not suitable for comparison.
4. The DNA profile obtained from sample 2S07-101-05D contains a mixture of at least three individuals including the victim and at least one male contributor. Due to the complexity of this mixture it was deemed unsuitable for any further comparison purposes.
5. Samples 2S07-101-06A, -06B, and -06C were combined and processed as -06X. The partial DNA profile obtained from sample 2S07-101-06X is consistent with the victim.

See **Table Two** for summary of alleles reported for these samples.

**NOTES:**

1. It is known that the victim was wearing item 2S07-101-05 the night of the crime; therefore it is expected that the victim would be present in the samples associated with 2S07-101-05. Assuming the victim, JonBenet Ramsey is a contributor, the remaining DNA contribution is provided in Table Two for samples 2S07-101-05A and 2S07-101-05B. Based on the results it is likely more than two people contributed to the mixtures observed in 2S07-101-05A and 2S07-101-05B therefore, the remaining DNA contribution should not be considered a single source profile.
2. Samples 2S07-101-01, -02, -03, and -04 were not processed at this time.
3. The DNA extracts and submitted evidence will be returned to Andy Horita at the Boulder District Attorney's Office.

Report submitted by:

*Amy Jeanguenat*

Amy Jeanguenat, MFS  
DNA Analyst II

BODE Case #: 2S07-101  
 Agency Case #: 96DA21871

Date: March 24, 2008

Table One: Analysis of Short Tandem Repeat Loci

Locus	JonBenet Ramsey	Burke Ramsey	Patricia Ramsey	John B Ramsey	Melinda Ramsey	John Andrew Ramsey
AMEL	XX	XY	XX	XY	XX	XY
D3S1358	16,17	17,18	14,17	16,18	15,18	15,18
vWA	16,16	16,16	16,16	16,17	16,16	16,17
FGA	20,23	21,24	20,21	23,24	21,23	19,24
D8S1179	12,13	12,13	12,14	13,13	13,13	13,14
D21S11	29,32.2	29,32.2	29,32.2	29,32.2	32.2,32.2	29,31.2
D18S51	14,14	13,16	13,14	14,16	16,16	12,14
D5S818	11,12	12,12	11,12	12,13	13,13	11,12
D13S317	11,12	11,12	11,11	12,12		9,12
D7S820	8,10	8,10	8,8	10,12	9,9	9,10
D16S539	9,12	12,12	11,12	9,12	12,13	9,12
TH01	9.3,9.3	6,7	7,9.3			7,9.3
TPOX	8,9	8,9	8,8	9,11		8,9
CSF1PO	10,13	10,13	12,13	10,11		10,12

inc- inconclusive, no results  
 np- not performed  
 \*- faint results

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Date: March 24, 2008

Table Two: Analysis of Short Tandem Repeat Loci

Locus	2S07-101-05A1	2S07-101-05A1 Remaining DNA contribution	2S07-101-05B1 Remaining DNA contribution	2S07-101-05C1	2S07-101-05D1	2S07-101-06X1
D8S1179	(12),13,(14)	13,14	13,14	12,13,(14)	(11),12,13,14	12,13
D21S11	29,(31.2),32.2	31.2	31.2	29*	(29),30,31.2,(32.2)	29,32.2
D7S820	8,10,(12)	12	12	8,10	8,9,10,12	10*
CSF1PO	10,12,13	12	12	NO RESULTS	10,(11),12	NO RESULTS
D3S1358	(15),16,17,(18)	15,16,18	15,16	(15),16,17,(18)	(14),15,16,17,(18)	{16,17}
TH01	(6),(7),(9),9.3	6,7,9	7	9.3*	6,(7),9,9.3	9.3,9.3
D13S317	11,12,(13)	13	13	11,12	11,(12),(13)	11,12
D16S539	9,(11),12	11	INCONCLUSIVE	9,12	9,10,11,12,13	9,12
D2S1338	19,25			25*	18,25	25*
D19S433	14,15			14,15	(12),14,(15)	14,15
vWA	16,(18)	18	19	16*	(14),16,(18)	16,16
TPOX	8,9	INC	INCONCLUSIVE	8*	8,(9)	8,9
D18S51	(11),14,(16)	11,16	INCONCLUSIVE	14*	14,15,16	NO RESULTS
Amel.	X,(Y)	X,Y	X,Y	X*	X,(Y)	X,X
D5S818	(10),11,12	10	INCONCLUSIVE	11,12	10,11,(12)	11*
FGA	20,23	INC	NO RESULTS	NO RESULTS	20*	NO RESULTS

Key: ( ) - Minor allele, \* - Allele below threshold for homozygosity, { } - Imbalanced alleles  
 INC - Inconclusive, shaded wells represent locations not tested in the victim standard

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**Supplemental Forensic Case Report  
 May 12, 2008**

**To:**  
 Andy Horita  
 Boulder District Attorney's Office  
 1777 6<sup>th</sup> Street  
 Boulder, CO 80302

**BODE Case #:** 2S07-101  
**Agency Case #:** 96DA21871

**List of Evidence Received on April 18, 2008 for possible DNA analysis:**

<u>BODE Sample #</u>	<u>Agency Description</u>
2S07-101-07	Labeled as "Barbie Nightgown BPD#12KKY, CBI#17"
2S07-101-07A	<i>exterior and interior of the bottom front of nightgown</i>
2S07-101-07B	<i>exterior of the left shoulder region front and back of nightgown</i>
2S07-101-07C	<i>exterior of the right shoulder region front and back of nightgown</i>
2S07-101-07D	<i>exterior and interior of the bottom back of nightgown</i>

**Table One contains Profiler Plus and Cofiler data submitted on March 12, 2008 for the following samples:**

<u>BPD #</u>	<u>CBI</u>	<u>Description</u>
001BP	14B	Blood standard JonBenet-Victim
5RTG	36B-2	Blood Standards Burke Ramsey-Brother
4RTG/069TET	35B-2	Blood Standards Patricia Ramsey-Mother
3RTG/068TET	34B-2	Blood Standards John B. Ramsey-Father
2RTG/72TET	33B-2	Blood Standard Melinda Ramsey- ½ Sister (Common Father)
1RTG	32B-2	Blood Standards John Andrew Ramsey- ½ Brother (Common Father)

**DNA PROCESSING, RESULTS, and CONCLUSIONS:**

Item 2S07-101-07 was processed for DNA typing by analysis of the 13 CODIS Short Tandem Repeat loci, the D2S1338 locus, the D19S433 locus, and the gender determining locus Amelogenin using the AmpFLSTR® Identifier® kit. Appropriate positive and negative controls were used concurrently throughout the analysis. The DNA profiles reported in this case were determined by procedures that have been validated according to standards established by the Scientific Working Group on DNA Analysis Methods (SWGDM) and adopted as Federal Standards.

1. The DNA profile obtained from sample 2S07-101-07A contains a mixture of at least two individuals including the victim and at least one male contributor. The individuals associated with samples John B. Ramsey, John Andrew Ramsey, and Melinda Ramsey are excluded as possible contributors to the mixture profile obtained from sample 2S07-101-07A. The individuals associated with Burke Ramsey and Patricia Ramsey cannot be excluded as possible contributors to the mixture DNA profile obtained from sample 2S07-101-07A.

The probability of randomly selecting an unrelated individual who would be included as a possible contributor to this mixture at the core CODIS loci (excluding CSF1PO, D13S317, D5S818, and FGA) is:

- 1 in 50.0 Thousand in the US Caucasian Population
- 1 in 220.0 Thousand in the US African American Population
- 1 in 43.0 Thousand in the US Southwest Hispanic Population
- 1 in 58.0 Thousand in the US Southeast Hispanic Population

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2. The DNA profile obtained from sample 2S07-101-07B contains a mixture of at least two individuals including the victim. The individuals associated with samples John B. Ramsey, John Andrew Ramsey, and Melinda Ramsey are excluded as possible contributors to the mixture profile obtained from sample 2S07-101-07B. The individuals associated with Burke Ramsey and Patricia Ramsey cannot be included or excluded as possible contributors to the mixture DNA profile obtained from sample 2S07-101-07B.
3. The DNA profile obtained from sample 2S07-101-07C contains a mixture of at least two individuals including the victim and at least one male contributor. The individuals associated with samples John B. Ramsey, John Andrew Ramsey, and Melinda Ramsey are excluded as possible contributors to the mixture profile obtained from sample 2S07-101-07C. The individuals associated with Burke Ramsey and Patricia Ramsey cannot be included or excluded as possible contributors to the mixture DNA profile obtained from sample 2S07-101-07C.
4. The DNA profile obtained from sample 2S07-101-07D contains a mixture of at least two individuals including the victim and at least one male contributor. The individuals associated with samples Patricia Ramsey, John B. Ramsey, John Andrew Ramsey, and Melinda Ramsey are excluded as possible contributors to the mixture profile obtained from sample 2S07-101-07D. The individual associated with Burke Ramsey cannot be included or excluded as a possible contributor to the mixture DNA profile obtained from sample 2S07-101-07D.

See **Table Two** for summary of alleles reported for these samples.

**NOTES:**

1. A supplemental report was issued due to an additional submission of evidence. Please see original report dated March 24, 2008.
2. The DNA extracts and submitted evidence will be returned to Andy Horita at the Boulder District Attorney's Office.

Report submitted by:



Amy Jeanguenat, MFS  
DNA Analyst II

BODE Case #: 2S07-101  
 Agency Case #: 96DA21871

Date: May 12, 2008

Table One: Analysis of Short Tandem Repeat Loci

Locus	JonBenet Ramsey	Burke Ramsey	Patricia Ramsey	John B Ramsey	Melinda Ramsey	John Andrew Ramsey
AMEL	XX	XY	XX	XY	XX	XY
D3S1358	16,17	17,18	14,17	16,18	15,18	15,18
vWA	16,16	16,16	16,16	16,17	16,16	16,17
FGA	20,23	21,24	20,21	23,24	21,23	19,24
D8S1179	12,13	12,13	12,14	13,13	13,13	13,14
D21S11	29,32.2	29,32.2	29,32.2	29,32.2	32.2,32.2	29,31.2
D18S51	14,14	13,16	13,14	14,16	16,16	12,14
D5S818	11,12	12,12	11,12	12,13	13,13	11,12
D13S317	11,12	11,12	11,11	12,12		9,12
D7S820	8,10	8,10	8,8	10,12	9,9	9,10
D16S539	9,12	12,12	11,12	9,12	12,13	9,12
TH01	9.3,9.3	6,7	7,9.3			7,9.3
TPOX	8,9	8,9	8,8	9,11		8,9
CSF1PO	10,13	10,13	12,13	10,11		10,12

inc- inconclusive, no results  
 np- not performed  
 \*- faint results

Table Two: Analysis of Short Tandem Repeat Loci

Locus	2S07-101-07Ax1	2S07-101-07Bx1	2S07-101-07Cx1	2S07-101-07Dx1
D8S1179	12,13,(14)	12,13,(14)	12,13,(14)	(11),12,13
D21S11	29,32.2	29,32.2	29,32.2	29,32.2
D7S820	8,10	8,10	8,10	8,10
CSF1PO	10,13	10,(13)	10,13	10,13
D3S1358	(14),(16),17,(18)	16,17,(18)	(14),16,17,(18)	16,17,(18)
TH01	(6),(7),9,3	(6),(7),9,3	(6),(7),9,3	6,(7),9,3
D13S317	(9),11,12	11,12	11,12	11,12
D16S539	(9),(11),12	(9),12	9,(11),12	(9),12
D2S1338	17,20,21,25	21*	21,25	(17),21,25
D19S433	14,15	14,15	14,15	(14),15
VWA	16,(17)	16,16	16,16	16,16
TPOX	8,9	8,9	8,9	8,9
D18S51	(13),14,(16)	14,14	(13),14	(13),14,(16)
Amel.	X,(Y)	X,X	X,(Y)	X,(Y)
D5S818	11,12	11,12	11,12	(11),12
FGA	20,23,(24)	20*	20,(21),23	20,23

Key: ( ) – Minor allele, \* – Allele below threshold for homozygosity





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**Supplemental Forensic Case Report  
 June 20, 2008**

To:  
 Andy Horita  
 Boulder District Attorney's Office  
 1777 6<sup>th</sup> Street  
 Boulder, CO 80302

**BODE Case #: 2S07-101  
 Agency Case #: 96DA21871**

**List of Evidence Received on December 3, 2007 for possible DNA analysis:**

<u>BODE Sample #</u>	<u>Agency Description</u>
2S07-101-05	Labeled as "White long underwear bottoms. BPD020TET, CBI# 6"
2S07-101-05A	exterior top right half of long johns
2S07-101-05B	exterior top left half of long johns
2S07-101-05C	interior top right half of long johns
2S07-101-05D	interior top left half of long johns

Table One contains Profiler Plus and Cofiler data submitted on March 12, 2008 for the following sample:

<u>BPD #</u>	<u>CBI</u>	<u>Description</u>
001BP	14B	Blood standard JonBenet-Victim

Table One also contains an "unknown male 1" profile deduced by the Denver PD and submitted to Bode by the Boulder County District Attorney's Office December 3, 2007 via a PowerPoint slide and June 19, 2008 via a Specimen Detail Report.

**DNA PROCESSING, RESULTS, and CONCLUSIONS:**

Evidence items 2S07-101-05A, -05B, -05C, and -05D were processed for DNA typing by analysis of the 13 CODIS Short Tandem Repeat loci, the D2S1338 locus, the D19S433 locus, and the gender determining locus Amelogenin using the AmpFLSTR® Identifiler® kit. Appropriate positive and negative controls were used concurrently throughout the analysis. The DNA profiles reported in this case were determined by procedures that have been validated according to standards established by the Scientific Working Group on DNA Analysis Methods (SWGDM) and adopted as Federal Standards.

1. The DNA profile obtained from sample 2S07-101-05A contains a mixture of at least two individuals including the victim and at least one male contributor. The individual associated with the "unknown male 1" profile cannot be excluded as a possible contributor to the mixture DNA profile obtained from sample 2S07-101-05A.

The probability of randomly selecting an unrelated individual who would be included as a possible contributor to this mixture at the 13 CODIS loci excluding vWA, TPOX, D5S818, and FGA is:

- 1 in 6.2 Thousand in the US Caucasian population
- 1 in 12.0 Thousand in the US African American population
- 1 in 6.6 Thousand in the US Southwest Hispanic population
- 1 in 6.2 Thousand in the US Southeast Hispanic population

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**Date: June 20, 2008**

**DNA PROCESSING, RESULTS, and CONCLUSIONS (cont.):**

2. The partial DNA profile obtained from sample 2S07-101-05B contains a mixture of at least two individuals including the victim and at least one male contributor. The individual associated with the "unknown male 1" profile cannot be included or excluded from the mixture DNA profile obtained from 2S07-101-05B.
3. The partial DNA profile obtained from sample 2S07-101-05C contains a mixture of at least two individuals including a major component victim profile and at least one additional minor contributor. The minor contributor is low level, contains allelic drop-out, and therefore is not suitable for comparison.
4. The DNA profile obtained from sample 2S07-101-05D contains a mixture of at least three individuals including the victim and at least one male contributor. Due to the complexity of this mixture it was deemed unsuitable for any further comparison purposes.

See **Table Two** for summary of alleles reported for these samples.

**NOTES:**

1. A supplemental report was issued due to a request by the client to compare the "unknown male 1" profile to the profiles obtained from item 2S07-101-05. Additional reports are dated March 24, 2008 and May 12, 2008.
2. The DNA extracts and submitted evidence will be returned to Andy Horita at the Boulder District Attorney's Office.

Report submitted by:



Amy Jeanguenat, MFS  
DNA Analyst II

BODE Case #: 2S07-101  
Agency Case #: 96DA21871

Date: June 20, 2008

Table One: Analysis of Short Tandem Repeat Loci provided to Bode.

Locus	JonBenet Ramsey	"unknown male 1"
D8S1179	12,13	13,14
D21S11	29,32.2	29,31.2
D7S820	8,10	12
CSF1PO	10,13	12
D3S1358	16,17	15,16
TH01	9.3,9.3	7,9
D13S317	11,12	11,13
D16S539	9,12	11
D2S1338	NOT TESTED	NOT TESTED
D19S433	NOT TESTED	NOT TESTED
vWA	16,16	18,19
TPOX	8,9	8
D18S51	14,14	11,16
Amel.	X,X	X,Y
D5S818	11,12	10,12
FGA	20,23	22,26

Table Two: Analysis of Short Tandem Repeat Loci

Locus	2S07-101-05A1	2S07-101-05B1	2S07-101-05C1	2S07-101-05D1
D8S1179	(12),13,(14)	(12),13,(14)	12,13,(14)	(11),12,13,14
D21S11	29,(31.2),32.2	29,31.2,32.2	29*	(29),30,31.2,(32.2)
D7S820	8,10,(12)	12*	8,10	8,9,10,12
CSF1PO	10,12,13	10,12	NO RESULTS	10,(11),12
D3S1358	(15),16,17,(18)	(15),16,(17)	(15),16,17,(18)	(14),15,16,17,(18)
TH01	(6),(7),(9),9.3	7,9.3	9.3*	6,(7),9,9.3
D13S317	11,12,(13)	11,12,13	11,12	11,(12),(13)
D16S539	9,(11),12	9,12	9,12	9,10,11,12,13
D2S1338	19,25	25*	25*	18,25
D19S433	14,15	14,(15)	14,15	(12),14,(15)
vWA	16,(18)	16,(19)	16*	(14),16,(18)
TPOX	8,9	8,9	8*	8,(9)
D18S51	(11),14,(16)	14*	14*	14,15,16
Amel.	X,(Y)	X,(Y)	X*	X,(Y)
D5S818	(10),11,12	12*	11,12	10,11,(12)
FGA	20,23	NO RESULTS	NO RESULTS	20*

Key: ( ) – Minor allele, \* – Allele below threshold for homozygosity