

95D-HQ-1334954  
1A-2, 1A-1

FBI - CENTRAL RECORDS CENTER

HQ - HEADQUARTERS

Class / Case #	Sub	Vol.	Serial #
0095 1334954	1A	1	1A1 OPEN

CA/10/25/94086



RRP00BU8S6

95D-HQ-1334954  
1A-2, 1A-1

# **LABORATORY DIVISION SUPPORTING DOCUMENTATION ENVELOPE**

Case ID/ Sub 95D-HQ-13349541A Serial # ~~1A-1~~ 1A-1

of \_\_\_\_\_

**Please Print Clearly**

The Enclosed material for \_\_\_\_\_

Name

supports Laboratory Report 95D-HQ-1334954-2

Case ID, Sub and Serial

Lab Number(s) \_\_\_\_\_  
Or W/O Number \_\_\_\_\_010223012 MQ BO

Description of Enclosures

serology notes1 page dictation7 pages notes

\_\_\_\_ Chain of Custody

\_\_\_\_ Communication and Activity Log

☒ Notes

\_\_\_\_ Instrument Print Outs, Charts, Graphs

\_\_\_\_ Negatives

\_\_\_\_ Photographs

\_\_\_\_ ECS Search Slip

\_\_\_\_ Shipping Invoice

**Please Return This Envelope And All Contents To The  
Laboratory Division File Room**

May 1, 2001  
FILE # 95D-HQ-1334954  
LAB # 010223012 MQ BO  
[REDACTED] AE DICT.

**RESULTS OF EXAMINATION DICTATION:**

Specimen Q1 was examined for the presence of blood; however, none was found.

No other serological examinations were conducted.

RECORDED

FEDERAL BUREAU OF INVESTIGATION  
UNITED STATES DEPARTMENT OF JUSTICE

Laboratory Work Sheet

To: Richard E. Gillespie  
Executive Director  
TIGHAR  
2812 Fawkes Drive  
Wilmington, DE 19808

Date: April 23, 2001

Case ID No.: 95D-HQ-1334954

Lab No.: 010223012 MQ 60

Reference: Your letter dated February 15, 2001

Your No.:

Title: UNSUB;  
AMELIA EARHART - VICTIM;  
MISSING PERSONS

Q1 from DDAT 5/1/01

Date specimens received: February 23, 2001

Specimens:

Q1 Button (your number Artifact 2-3-W-5)

NE1 "TIGHAR TRACKS" Journal, Vol. 15, 1999



2/23/01  
421

2812 Fawkes Drive • Wilmington, Delaware 19808 • USA  
(302) 994-4410 • Fax (302) 994-7945

*International Group for  
Historic Aircraft Recovery*

February 15, 2001

010223012 X

Thomas T. Kubic  
Dep. Asst. Dir.  
Rm 3012  
Criminal Div.  
FBI  
9th. St. & Pennsylvania Ave.  
Wash. DC 20503

*Missing Persons - VIO*

*Amelia Earhart Disappearance - Rem*

Dear Tom,

For the record, TIGHAR (pronounced tiger) is the acronym for The International Group for Historic Aircraft Recovery. We're a nonprofit 501 (c)(3) tax exempt historical and educational foundation based in Wilmington, Delaware. Our investigation of the Earhart disappearance began in 1988.

The enclosed button - TIGHAR Artifact 2-3-W-5 - could be a key piece of evidence in that investigation.

Our basic question is whether the dark stain on the button's surface might be organic material due to the button having been in contact with decaying flesh. We really have no expectation that DNA can be extracted from such a degraded deposit. Besides, the button has been handled by many people since its recovery.

Here's a brief rundown on what we know and what we suspect:

The Pacific island where the button was found - Nikumaroro (formerly known as Gardner Island) - was considered by the U.S. Navy, at the time of Earhart's disappearance in July 1937, to be the most likely place for the lost flight to have landed. An aerial search of the atoll one week after

Copy

*95D-HQ-1334954-1*

*95D-*

INDEX FILE

the disappearance revealed "clear signs of recent habitation" but no airplane or people were seen and the searchers moved on, not realizing that the island had been uninhabited since 1892.

In 1939 the British set out to colonize the island with natives from the overpopulated Gilbert Islands. A year later, in 1940, a native work party cutting trees on a remote part of the island came upon a human skull which they buried. When a British administrator arrived a few months later he heard of the discovery and ordered a search of the area. The search revealed a crude campsite where a castaway had clearly tried, but failed, to survive. There were some dead birds, a dead turtle, the remains of a fire, and - under a nearby tree - a partial human skeleton including the mandible that matched the skull (which was exhumed). Also at the site were a few artifacts including the remains of a woman's shoe and a box which was judged to have once contained a sextant. The British administrator suspected that he had found Amelia Earhart and so informed his superiors on the island of Fiji.

The British authorities in Fiji ordered the bones and artifacts sent there and the entire matter kept secret (we have all of the official British correspondence on this). The bones were examined and measured by a physician in Fiji and judged to be those of a "short, stocky European or mixed-race male." The British dropped the investigation and the matter was largely forgotten. We don't know what became of the bones but we do have the measurements taken by the doctor. Three years ago, forensic anthropologists Karen Burns PhD at the University of Georgia, Athens; and Richard Jantz PhD at the University of Tennessee, Knoxville independently evaluated the measurements and concluded that the remains were most likely those of a white female of northern European descent who stood about 5 feet 7 inches tall. That's a pretty good description of Amelia Earhart.

In five archaeological search expeditions to the island we have found a number of artifacts which, although none is diagnostic, appear to be consistent with components of the type of airplane Earhart was flying and the shoes she is known to have been wearing.

010223012

Copy



The button was found in 1996 in an area we now believe to be that in which the bones were found in 1940. It seems a bit large for a shirt button and is more consistent with a trouser button. The native laborers on the island often wore shorts fastened with buttons, but the British supply records indicate that the buttons were made of bone.

An examination of this button by archaeologist James Matthews of Fort Walton Beach, FL concluded, by a "hot needle test", that it is probably Bakelite. The button does not seem to match any known WWII military design. The button may have been on clothing worn by the castaway whom we know died on the island and whom we suspect died near where the button was found.

We'll be returning to the island in August of this year for more search operations. If the dark stain on the button is due to contact with rotting flesh, the possibility that it is from the dead castaway would seem to increase. That would justify an intensive search of the area for more evidence. If we have the right area, there is a hole nearby which just may be where the skull was dug up and, if so, that hole may still contain a tooth or two from the skull. As you know, a tooth can be a good source of mtDNA. Earhart had a sister (now dead) whose daughter (Amelia's niece) lives in Silverspring, MD, so we do have a source to match against should we be so fortunate as to recover DNA.

There is, of course, much more to the story. You'll find volumes of material about our twelve year (to date) investigation on our website at [www.tighar.org](http://www.tighar.org).

We really appreciate any help you can provide. Please don't hesitate to call (320/994-4410) or email ([Tigharic@aol.com](mailto:Tigharic@aol.com)) with any questions you may have.

Sincerely,



Richard E. Gillespie  
Executive Director



# SEROLOGICAL EXAMINATION

Date: May 1, 2001

Blood

Semen


Lab No.: 010223012 MQ BO

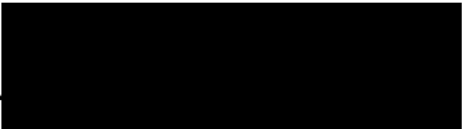
Contributor: Wilmington, DE

Specimen	Pheno	Hemo	Anti-H	Acid Phos	Sperm Cells	p30	DNA	Remarks
Positive Control	+	+		No Exam				
Negative Control	Ø	Ø						
Q1 - Button	Ø							This item was general swabbed for the possible presence of blood. No areas of serological value were isolated.

## PEER REVIEW AND CONFIRMATION OF ASSOCIATIONS

LABORATORY NUMBER(S) : 010223012 MQ Bu

The data, results and supporting materials pertaining to this examination were reviewed by  with all associations, interpretations and conclusions agreed upon.

Signature of Reviewing Examiner: 

Date: 5/1/01

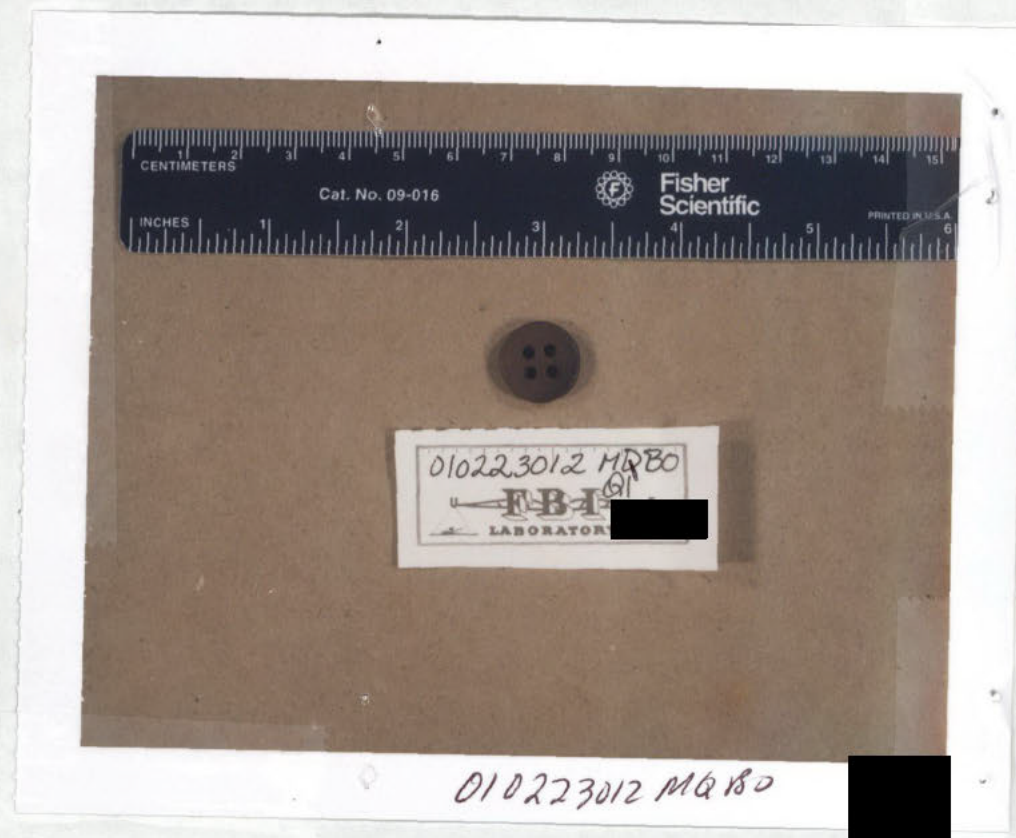
Lab Number: 010223012 MQ BO

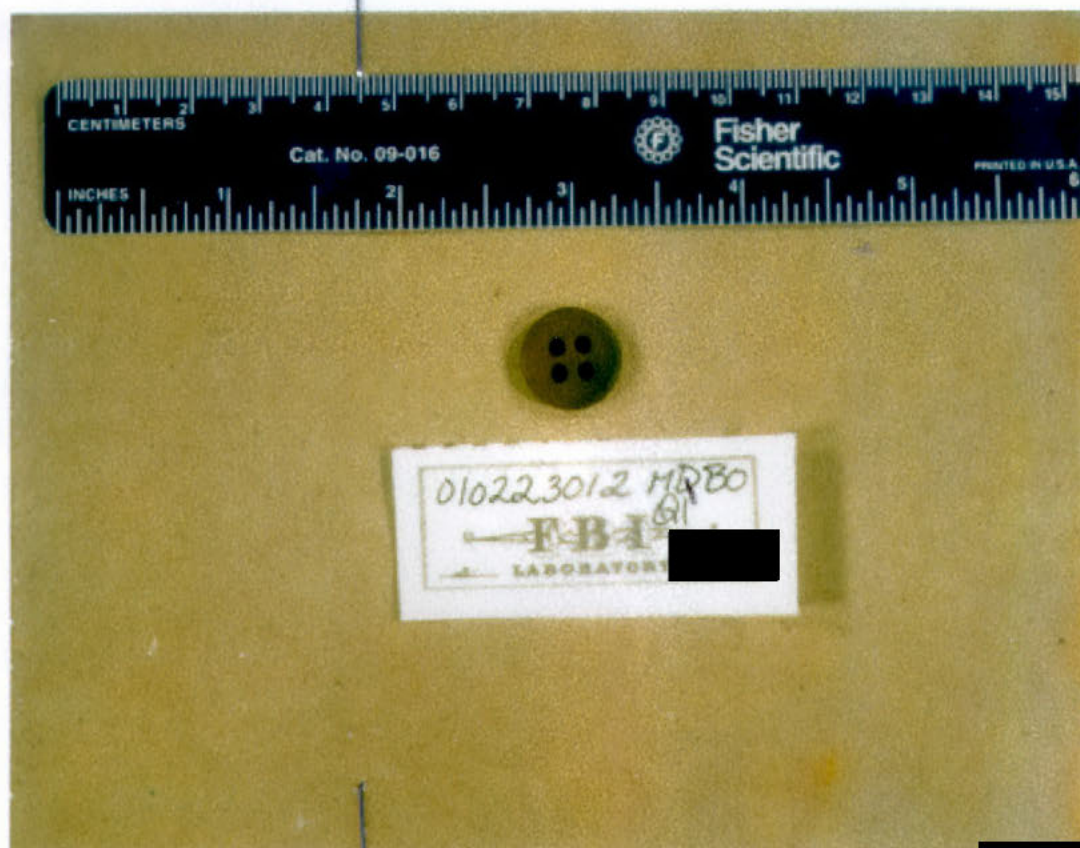
Contributor: Wilmington, DE

Date: 1 May 2001

Q1 - Button

Received a plastic bag labeled "010223012 MQ  
CET Q1 TIGHAR" which contained an evidence  
tape sealed plastic bag labeled "010223012 MQ  
CET Q1" which contained Q1. This item was an  
approx. 1/2" x approx. 1/2" four hole brownish  
button. This item was slightly soiled.





010223012 MRBO

# **LABORATORY DIVISION SUPPORTING DOCUMENTATION ENVELOPE**

Case ID/ Sub 95D-HQ-1334954  
 1A Serial # 1A-2  
1 of 1

**Please Print Clearly**

The Enclosed material for [REDACTED] supports Laboratory Report 95D-HQ-1334954-3  
Name Case ID, Sub and Serial

Lab Number(s) 010223012  
 Or W/O Number \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Description of Enclosures**

mtDNA Examination Notes

☒ Chain of Custody  
☒ Communication and Activity Log  
☒ Notes  
☒ Instrument Print Outs, Charts, Graphs  
☐ Negatives  
☒ Photographs  
☒ ECS Search Slip  
☒ Shipping Invoice

**Please Return This Envelope And All Contents To The  
Laboratory Division File Room**

Please type or print clearly

Date: 01/10/2002

To: Richard E. Gillespie  
Executive Director  
TIGHAR  
2812 Fawkes Drive  
Wilmington DE 19808

MAILED 59  
RR862603834US  
JAN 11 2002

2002 JAN 10 P 3:23  
RECEIVED  
MAIL SERVICE

FBI

Very Important:

Telephone Number  
of recipient ( 302 ) 994-4410

**MAIL SERVICES, ROOM 1B327**

(Shipping hours - 7:00 A.M. to 5:00 P.M.)

Mail Services: Responsible for the mailing or delivery of all FBI correspondence (letters, memorandums, electronic communications, manuals, investigative reports, official and classified material up to the secret level) and evidence to all FBI and non-FBI offices regardless of the mailing or delivery destination.

- ☐ FedEx (Next-business-day, 10:30 a.m. delivery commitment, most U.S. locations)  
☐ USPS Express (P.O. Boxes, APO and FPO Addresses Only)  
☒ USPS Registered  
☐ USPS Certified  
☐ United Parcel Service - Ground Service (Continental U.S. only, 1-6 day service, No official documents)  
☐ Dept. of State (Classified/Sensitive material for Legats)  
☐ Other, please specify \_\_\_\_\_

**WAREHOUSING AND SUPPLY SUBUNIT, RM. 1B353**

(Shipping hours - 8:00 A.M. to 4:30 P.M.)

Warehousing and Supply Subunit: Responsible for the shipment of hazardous material, equipment, furniture, safes, computers, typewriters, office supplies, and other such material that is not considered to be correspondence material (No classified material).

- ☐ FedEx (Next-business-day, 10:30 a.m. delivery commitment, most U.S. locations)  
☐ Airborne Express (Foreign locations only)  
☐ DHL Worldwide Express (Foreign locations only)  
☐ United Parcel Service Express (Foreign locations only)  
☐ Same Day Service (Justification required)  
☐ \_\_\_\_\_, Constant Surveillance  
☐ Other, please specify \_\_\_\_\_

**CLASSIFICATION LEVEL:**

☒ Unclassified-Not Sensitive      ☐ Unclassified-Sensitive      ☐ Confidential      ☐ Secret

(Sensitive material is information that, if disclosed, could adversely affect the ability of the FBI to accomplish its mission. Examples of sensitive information might be the identity of undercover agents, names of individuals under investigation, or personal data on individuals.)

**SPECIAL SERVICES:**

- ☐ Saturday Delivery  
☐ Fragile Material (Describe below)  
☐ Perishable Material (Describe below)  
☐ Return Receipt (USPS only)

☐ Hazardous Material

Packaged by \_\_\_\_\_ Date: \_\_\_\_\_

(Signature)

(A detailed description of all Hazardous Material being shipped must be provided below.)

**DESCRIPTION OF CONTENTS:**

Value of Contents \$ 0  
Q1 Secondary Evidence

FBI File # 95D-HQ-1334954

Case # 010223012

Accountable/Tracking # \_\_\_\_\_

Return to:

Name \_\_\_\_\_

Room \_\_\_\_\_

3505

Ext. 1265

**Technical Review**

FBI File Number: 95D-HQ-1334954  
Contributor: TIGHAR  
Laboratory Number: 010223012 MQ BO  
--

**General**

YES NO N/A

Were the appropriate protocols followed? ☒ ☐ ☐

Are the laboratory number, date, & biologist's or examiner's initials on each page of the technical notes? ☒ ☐ ☐

Are all of the technical pages numbered & accounted for? ☒ ☐ ☐

**Biologist Packet**

Are the biologist's data sheets present & completed correctly? ☒ ☐ ☐

Do the dates recorded on the summary sheet match those on all other data sheets & printouts? ☒ ☐ ☐

Are the appropriate reagent lot numbers recorded on the data sheets? ☒ ☐ ☐

Were reagent blank (RB) controls processed? ☒ ☐ ☐

Were amplification blank (NC) controls processed? ☒ ☐ ☐

Were positive controls processed? ☒ ☐ ☐

Were slot blot or quantiblot films enclosed? ☐ ☐ ☒

Were quantity calculations/dilutions recorded for the slot blot or quantiblot? ☐ ☐ ☒

Were the CE electropherogram sheets attached? ☒ ☐ ☐

Were DNA quantity calculations reflected on the CE sheets? ☒ ☐ ☐

Were the sequencing sample sheet(s) attached? ☒ ☐ ☐

Was a secondary evidence inventory completed & attached? ☒ ☐ ☐

**Examiner Packet**

Was a case summary sheet completed & attached? ☒ ☐ ☐

Did the case summary sheet contain the correct sequence ranges, sequence results, & summary of sequences analyzed? ☒ ☐ ☐

Were the sequence layout sheets attached from two examiners? ☐ ☐ ☒

Were the RBs & NCs sequenced & are the sequence layout sheets attached? ☒ ☐ ☐

Were the sequenced RBs & NCs different from the sample & less than 10% of the sample concentration? ☒ ☐ ☐

Did the positive control type correctly? ☒ ☐ ☐

Were the same cycle sequencing reactions used to create sequence layout sheets for the associated sample, positive control, reagent blank, & negative control samples? ☒ ☐ ☐

Were the sequences obtained from both examiners the same &/or was the most conservative interpretation used? ☒ ☐ ☐

Were the sequencing results properly recorded for each sample on the sequencing layout & database search sheets? ☒ ☐ ☐

Were database sheets attached? ☐ ☐ ☒

Are the database search results listed correctly on the report of examination? ☐ ☐ ☒

Are the conclusions reached in the report of examination supported by the data in the technical case notes? ☒ ☐ ☐

**COMMENTS:**Reviewer: 

Review Date(s): 10-23-01

Administrative review

FBI File Number:

95D-HQ-1334954

Contributor:

TIGHAR

Laboratory Number:

010223012 MQ BO

--

**Report**

YES NO N/A

Is all administrative information correct?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

If appropriate, were K and Q specimens correctly matched?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	-------------------------------------

Mixture

Were any unmatched specimens correctly identified?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	-------------------------------------

"

Were database search results reported for those samples where sequence concordance was found?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	-------------------------------------

Does the final report account for each specimen?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Are examiner's initials and reviewer's signature present?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

**Case**

Is a technical review sheet attached?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Is the chain of custody form complete?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Is the Laboratory number(s) on each page?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Are all pages accounted for?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Are appropriate pages initialed by the examiner?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Are appropriate pages initialed by the biologist?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Are all notes in ink?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Are all corrections made by a single strikeout and initialed?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Are all examinations dated?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Was a mtDNA case history form completed?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Was the case entered into the mtDNA case management database?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Comments:

Reviewer:



Review Date(s): 10-24-01

RECORDED

FEDERAL BUREAU OF INVESTIGATION  
UNITED STATES DEPARTMENT OF JUSTICE

Laboratory Work Sheet

To: Richard E. Gillespie  
Executive Director  
TIGHAR  
2812 Fawkes Drive  
Wilmington DE 19808

Date: April 23, 2001

Case ID No.: 95D-HQ-1334954

Lab No.: 010223012 MQ *BD*

Reference: Your letter dated February 15, 2001

Your No.:

Title: UNSUB;  
AMELIA EARHART - VICTIM;  
MISSING PERSONS

Date specimens received: February 23, 2001

Specimens:

Q1 Button (your number Artifact 2-3-W-5)  
*Q1.1 Swab from button*  
NE1 "TIGHAR TRACKS" Journal, Vol. 15, 1999

*Q1 to DNA 5.1.01  
+ received back 5.1.01*

*Button swabbed  
5.7.01  
+ returned to R. Gillespie  
(NGMRL) 5.7.01*

## ECS Search Slip

Violation(s):

Missing Person (State/Other Federal)

Lab No: 010223012

City: Wilmington, Delaware

Loc Agcy: The International Group for Historic Aircraft

Form: Letter, 02/15/2001

CaseID: 95D-HQ-1334954

Serial: 1

Violation date:

Violation Location:

Latent Number:

Contributor No:

Victim:

Subject:

Cross Reference:

Remarks: Amelia Earhart disappearance

ECC Delivered to Unit: DNAIL

Previous Submission(s)

\*\*\* NO PREVIOUS SUBMISSIONS FOUND \*\*\*

Parcel Method and No: Personal Delivery

Envelopes - 1 Date Received: 02/23/2001

Received in ECC: 02/23/2001

02/26/2001 2:24:32 PM - mececil

1-

# FBI Laboratory Chain-of-Custody Log

Laboratory No.:	010223012	Case ID No.: 95D-HQ-1334954
-----------------	-----------	-----------------------------

Container(s) Received	Delivered By	Accepted By	Date	Time	Contributor
1 Env.	Allyson A. Simons SAD, FBI LAB	[REDACTED] IEMU	2/23/01	4:30 AM/PM	Wilmington, DE TIGHAR

Received Via: ☐ Fed Ex ☐ UPS ☐ Registered ☒ Other personal delivery Tracking No(s): \_\_\_\_\_ DNA II

ECC Storage Location: ☐ Refrigerator ☐ Safe ☒ Shelf ☐ Other \_\_\_\_\_  
BASS

Condition of Shipping Container / Action Taken (if applicable): \_\_\_\_\_

Opened for Retrieval of Communication By: \_\_\_\_\_ Date: \_\_\_\_\_

ECC Comments: Envelope routed via B. Mail from Mr. Kubie to Allyson Simons per [REDACTED] 2/26/01 [REDACTED]

Items*	Delivered By	Accepted By	Date	Time	Remarks
1 Env.	IEMU	ECC	2/23/01	4:50 AM/PM	
1 Env	DNA/TEU	DNA II	2/26/01	3:35 AM/PM	sealed
1 envelope	DNA II	DNA 2	4-20-01	9:15 AM/PM	sealed
Q1	DNA 2	DNA I/BO	5/1/01	9:25 AM/PM	
Q1	DNA I/BO	DNA 2	5-1-01	10:55 AM/PM	

\* Evidence must be transferred by item identifier after being inventoried.

# FBI Laboratory Examination Team Record

Coordinating Examiner's Name: [REDACTED]	Unit Name: DNA 2
Team Members: [REDACTED]	

Associate Examiner's Name: [REDACTED]	Unit Name: DNA 1
Team Members: [REDACTED]	

Associate Examiner's Name:	Unit Name:
Team Members:	

Associate Examiner's Name:	Unit Name:
Team Members:	

Other:	Unit Name:
Team Members:	

Evidence Control Center Team Members:	[REDACTED]

# FBI Laboratory Chain-of-Custody Log

Laboratory No.: 010223012

Case ID No.: 95 D-HQ-1334954

- ☒ Coordinating Examiner's Log  
☐ Associate Examiner's Log  
☐ Other

Unit Name: DNA 2  
 Unit Name: \_\_\_\_\_  
 Unit Name: \_\_\_\_\_

Items*	Delivered By	Accepted By	Date	Time	Remarks
Q1 NEI	[Redacted] DNA 2	[Redacted] <i>[Signature]</i>	05-07-01	3:00 AM/PM	Hand-delivered
Q1.1 processed DNA	[Redacted] DNA 2	[Redacted] <i>[Signature]</i>	7-1-01	3:20 AM/PM	<i>[Signature]</i>
	Signature	Signature		AM/PM	
	Signature	Signature		AM/PM	
	Signature	Signature		AM/PM	
	Signature	Signature		AM/PM	
	Signature	Signature		AM/PM	
	Signature	Signature		AM/PM	
	Signature	Signature		AM/PM	
	Signature	Signature		AM/PM	

\* Evidence must be transferred by item identifier after being inventoried.

FBI Laboratory  
**Examination Team Record**

Coordinating Examiner's Name:	Unit Name:
Team Members:	

Associate Examiner's Name:	Unit Name:
Team Members:	

Associate Examiner's Name:	Unit Name:
Team Members:	

Associate Examiner's Name:	Unit Name:
Team Members:	

Other:	Unit Name:
Team Members:	

---

Evidence Control Center Team Members:

4.23.01

010223012 HQ

Rec'd 1 folded Manila envelope, labelled [REDACTED]  
Please deliver to DAD Alyson Simons LD--3090  
TIGAR Wilmington, DE 02/23/01." Sealed.

NE1 Envelope Contains a copy of the Journal  
"TIGAR Tracks", Vol. 15, 1999

Q1 Envelope Contains an unsealed zip-lock containing  
an index card w/ sticker labelled "TIGAR,  
2812 Fawkes Drive..." and handwritten  
"2-3-W-5 Button." Also contains  
a button wrapped in clear plastic 1.5cm  
in diameter. A rubber band is partially wrapped  
around plastic-wrap-covered button.

5.1.01

Upon rec't of results from serology (no blood detected), I examined button visually and under a stereomicroscope. Nothing (no "foreign matter") was observed to be on the button; nothing adhering to it. Photos in BO serology notes adequately document the button's appearance.

**Laboratory #:** 010223012 MQ BO  
--  
**FBI File #:** 95D-HQ-1334954  
**Contributor:** TIGHAR

**Date:** 10/19/2001

Page 1 of 1

Initials: \_\_\_\_\_

# FBI Laboratory Case Activity & Communication Log

Laboratory No: 010223012 MQ UCFN: 9SD-HQ-1334954

Date	Activity/Communication and Outcome
<u>04/23/01</u>	<u>Called R. Gillespie (Ex. Dir. of</u> <u>TISHAR) to confirm. 302 994 4410.</u> <u>Spoke w/ him. He wants to know if</u> <u>stain is blood or tissue. Told him I'd</u> <u>discuss it w/ people here to see if that's</u> <u>appropriate.</u>
<u>05/07/01</u>	<u>Rec'd telcal f/ R. Gillespie. Informed him of</u> <u>sero results. He is in town &amp; wants button.</u> <u>I swabbed it &amp; returned it to him (he</u> <u>came to building). Also delivered sero rpt.</u>
<u>10/24/01</u>	<u>Mailed Report to Gillespie</u>
<u>10/29/01</u>	<u>Rec'd 2 messages from Gillespie re</u> <u>meaning of report</u>
<u>10/30/01</u>	<u>called Gillespie - explained that results</u> <u>indicated mixture of 21 person.</u>



2/23/01  
421

2812 Fawkes Drive • Wilmington, Delaware 19808 • USA  
(302) 994-4410 • Fax (302) 994-7945

*International Group for  
Historic Aircraft Recovery*

010223012 *X*

February 15, 2001

Thomas T. Kubic  
Dep. Asst. Dir.  
Rm 3012  
Criminal Div.  
FBI  
9th. St. & Pennsylvania Ave.  
Wash. DC 20503

*Missing Persons - VIO*

*Amelia Earhart Disappearance - Rem*

Dear Tom,

For the record, TIGHAR (pronounced tiger) is the acronym for The International Group for Historic Aircraft Recovery. We're a nonprofit 501 (c)(3) tax exempt historical and educational foundation based in Wilmington, Delaware. Our investigation of the Earhart disappearance began in 1988.

The enclosed button - TIGHAR Artifact 2-3-W-5 - could be a key piece of evidence in that investigation.

Our basic question is whether the dark stain on the button's surface might be organic material due to the button having been in contact with decaying flesh. We really have no expectation that DNA can be extracted from such a degraded deposit. Besides, the button has been handled by many people since its recovery.

Here's a brief rundown on what we know and what we suspect:

The Pacific island where the button was found - Nikumaroro (formerly known as Gardner Island) - was considered by the U.S. Navy, at the time of Earhart's disappearance in July 1937, to be the most likely place for the lost flight to have landed. An aerial search of the atoll one week after

Copy

*95D-HQ-1334954-1*

*95D-*

the disappearance revealed "clear signs of recent habitation" but no airplane or people were seen and the searchers moved on, not realizing that the island had been uninhabited since 1892.

In 1939 the British set out to colonize the island with natives from the overpopulated Gilbert Islands. A year later, in 1940, a native work party cutting trees on a remote part of the island came upon a human skull which they buried. When a British administrator arrived a few months later he heard of the discovery and ordered a search of the area. The search revealed a crude campsite where a castaway had clearly tried, but failed, to survive. There were some dead birds, a dead turtle, the remains of a fire, and - under a nearby tree - a partial human skeleton including the mandible that matched the skull (which was exhumed). Also at the site were a few artifacts including the remains of a woman's shoe and a box which was judged to have once contained a sextant. The British administrator suspected that he had found Amelia Earhart and so informed his superiors on the island of Fiji.

The British authorities in Fiji ordered the bones and artifacts sent there and the entire matter kept secret (we have all of the official British correspondence on this). The bones were examined and measured by a physician in Fiji and judged to be those of a "short, stocky European or mixed-race male." The British dropped the investigation and the matter was largely forgotten. We don't know what became of the bones but we do have the measurements taken by the doctor. Three years ago, forensic anthropologists Karen Burns PhD at the University of Georgia, Athens; and Richard Jantz PhD at the University of Tennessee, Knoxville independently evaluated the measurements and concluded that the remains were most likely those of a white female of northern European descent who stood about 5 feet 7 inches tall. That's a pretty good description of Amelia Earhart.

In five archaeological search expeditions to the island we have found a number of artifacts which, although none is diagnostic, appear to be consistent with components of the type of airplane Earhart was flying and the shoes she is known to have been wearing.

010223012

Copy



The button was found in 1996 in an area we now believe to be that in which the bones were found in 1940. It seems a bit large for a shirt button and is more consistent with a trouser button. The native laborers on the island often wore shorts fastened with buttons, but the British supply records indicate that the buttons were made of bone.

An examination of this button by archaeologist James Matthews of Fort Walton Beach, FL concluded, by a "hot needle test", that it is probably Bakelite. The button does not seem to match any known WWII military design. The button may have been on clothing worn by the castaway whom we know died on the island and whom we suspect died near where the button was found.

We'll be returning to the island in August of this year for more search operations. If the dark stain on the button is due to contact with rotting flesh, the possibility that it is from the dead castaway would seem to increase. That would justify an intensive search of the area for more evidence. If we have the right area, there is a hole nearby which just may be where the skull was dug up and, if so, that hole may still contain a tooth or two from the skull. As you know, a tooth can be a good source of mtDNA. Earhart had a sister (now dead) whose daughter (Amelia's niece) lives in Silverspring, MD, so we do have a source to match against should we be so fortunate as to recover DNA.

There is, of course, much more to the story. You'll find volumes of material about our twelve year (to date) investigation on our website at [www.tighar.org](http://www.tighar.org).

We really appreciate any help you can provide. Please don't hesitate to call (320/994-4410) or email ([Tigharic@aol.com](mailto:Tigharic@aol.com)) with any questions you may have.

Sincerely,



Richard E. Gillespie  
Executive Director



Copy

010223012



LAB # 010223012 MQ  
ENCLOSURE CONTENTS:  
Administrative Documents  
\_\_\_\_\_  
INITIALS: [REDACTED]  
TOTAL PAGES: 2



Please type or print clearly

Date: 05/07/2001

To: Richard E. Gillespie  
Executive Director  
TIGHAR  
2812 Fawkes Drive  
Wilmington, Delaware 19808

**Very Important:**

Telephone Number  
of recipient (302) 994-4410

**MAIL SERVICES, ROOM 1B327**

(Shipping hours - 7:00 A.M. to 5:00 P.M.)

Mail Services: Responsible for the mailing or delivery of all FBI correspondence (letters, memorandums, electronic communications, manuals, investigative reports, official and classified material up to the secret level) and evidence to all FBI and non-FBI offices regardless of the mailing or delivery destination.

- ☐ FedEx (Next-business-day, 10:30 a.m. delivery commitment, most U.S. locations)
- ☐ USPS Express (P.O. Boxes, APO and FPO Addresses Only)
- ☐ USPS Registered
- ☐ USPS Certified
- ☐ United Parcel Service - Ground Service (Continental U.S. only, 1-6 day service, No official documents)
- ☐ Dept. of State (Classified/Sensitive material for Legats)
- ☒ Other, please specify Personal Delivery

**WAREHOUSING AND SUPPLY SUBUNIT, RM. 1B353**

(Shipping hours - 8:00 A.M. to 4:30 P.M.)

Warehousing and Supply Subunit: Responsible for the shipment of hazardous material, equipment, furniture, safes, computers, typewriters, office supplies, and other such material that is not considered to be correspondence material (No classified material).

- ☐ FedEx (Next-business-day, 10:30 a.m. delivery commitment, most U.S. locations)
- ☐ Airborne Express (Foreign locations only)
- ☐ DHL Worldwide Express (Foreign locations only)
- ☐ Emery Worldwide Express (Foreign locations only)
- ☐ United Parcel Service Express (Foreign locations only)
- ☐ Same Day Service (Justification required)
- ☐ \_\_\_\_\_, Constant Surveillance
- ☐ Other, please specify \_\_\_\_\_

**SPECIAL SERVICES:**

- ☐ Saturday Delivery
- ☐ Perishable Material
- ☐ Return Receipt (USPS only)

☐ Hazardous Material

Packaged by \_\_\_\_\_ Date: \_\_\_\_\_  
(Signature)

(A detailed description of all Hazardous Material being shipped must be provided below.)

**DESCRIPTION OF CONTENTS:**

Value of Contents \$\$0

Q1 Button

NE1 "TIGHER Tracks" Journal

Case ID # 95D-HQ-1334954

Lab Case # 010223012

Accountable/Tracking # hand-delivered to R. Gillespie 5.7.01

Return to: \_\_\_\_\_  
Name \_\_\_\_\_  
Room 3503 Ext. 1265

7-170 (11-12-96)

### Correction Form

To: [REDACTED]

From: [REDACTED]

Please complete the following information and return to ECC, Room 3233

☐ Caption:

☒ Case ID # 95D-HQ-1334954

☒ Lab # 010223012

	Add	Cancel
SAS Exam	<input checked="" type="checkbox"/>	<input type="checkbox"/>
IOSS Exam	<input type="checkbox"/>	<input type="checkbox"/>
LFPS Exam	<input type="checkbox"/>	<input type="checkbox"/>
SPS Exam	<input type="checkbox"/>	<input type="checkbox"/>

☐ Reassignment To \_\_\_\_\_ From \_\_\_\_\_

☐ This Submission Only \_\_\_\_\_

☐ Entire Case \_\_\_\_\_

☐ Consolidate Case ID # \_\_\_\_\_ Into \_\_\_\_\_

☐ Correct Specimens are \_\_\_\_\_

☐ Explanation:

Add [REDACTED] (BO) as AG  
5/10/01. Thanks!

ECC Indices Have Been Corrected Date 5/10/01 By [REDACTED]

010223012

Procedure Summary

Item	Q1.1					
Extraction	Date(s)	10/09/01				
Quantitation	Date(s)	--				
Amplification	Date	10/09/01				
	Regions	1a,1b/2a,2b				
CE	Date	10/10/01				
Amplification	Date	--				
	Regions	--				
CE	Date	--				
Cycle Sequencing	Date	10/10/01				
	Regions	1a,1b/2a,2b				
Sequencing	Date	10/10/01				
	Regions	1a,1b/2a,2b				
Cycle Sequencing	Date	10/11/01				
	Primer	a4,b4				
Sequencing	Date	10/12/01				
	Primer	a4,b4				

Sequence Edited By:	██████ MQ					
	10/11/2001					
	██████ MQ					
	10/18/2001					

Confirmation By: NA Date: NA  
 Technical Review By: ████████████████████ Date: 10-23-01  
 Working Disk: ████████████████████ Laboratory Log: 10-23-01

FBI Laboratory  
DNA Analysis Unit II

Laboratory #: 010223012 MQ BO  
Contributor: TIGHAR  
Item: Q1.1

Extraction / Quantification

Hood #: 6

Extraction Date: 10/09/2001

**RB Preparation:** Prep'd prior to Q1.1 sample extraction. Followed FBI protocol for RB set-up. Processed with Q1.1 sample. Labeled tube as "010223012, RBQ1.1"

**Sample Preparation:** Rec'd sealed ziplock bag labeled "010223012 MQ [REDACTED] Q1, TIGHAR" Contained sealed swab labeled "010223012, Q1" - re-labeled as "Q1.1." Followed FBI protocol for swab extraction. Re-pkg'd remaining swab. Labeled tube as "010223012, Q1.1"

*due to expectation of [REDACTED] no DNA recovery*

Blot  
Required: no

Slot Blot Date: \_\_\_\_\_  
Hybe Date: \_\_\_\_\_  
Exposure Time: \_\_\_\_\_

Membrane Lot #: \_\_\_\_\_  
Probe Lot #: \_\_\_\_\_

	1	2	3	4	5	6
A	20.0 ng					0.1 ng
B	10.0 ng					0.2 ng
C	4.0 ng					0.4 ng
D	2.0 ng					1.0 ng
E	1.0 ng					2.0 ng
F	0.4 ng					4.0 ng
G	0.2 ng					10.0 ng
H	0.1 ng					20.0 ng

Sample	Volume (ul)	Concentration (pg)	Comments

FBI Laboratory  
DNA Analysis Unit II

Laboratory #: 010223012 MQ BO  
Contributor: TIGHAR  
Item: Q1.1

Amplification

Hood #: 7 Thermal Cycler #: 805s8022839 Amplification Date: 10/09/01  
Sample Dilution: 0 Time: 100pm

10X Buffer:	B08118	dATP:	B08454	A1:	06333-0093	C1:	06333-0105
Taq Polymerase:	B07588	dTTP:	B08134	A2:	06333-0094	C2:	06333-0092
BSA:	75H0258	dCTP:	C01992	B1:	06333-0107	D1:	06333-0103
HL60:	011922	dGTP:	C01819	B2:	06333-0091	D2:	06333-0097

ExoSAP-IT: 110671 Thermal Cycler #: 805s8022839 ExoSAP-IT Date: 10/09/01  
Time: 300pm

Hood #: Thermal Cycler #: Re-Amplification Date:  
Sample Dilution: Time:

10X Buffer:		dATP:		A1:	06333-	C1:	06333-
Taq Polymerase:		dTTP:		A2:	06333-	C2:	06333-
BSA:		dCTP:		B1:	06333-	D1:	06333-
HL60:		dGTP:		B2:	06333-	D2:	06333-

ExoSAP-IT: Thermal Cycler #: ExoSAP-IT Date:  
Time:

Reason :

Cycle Sequencing

Thermal Cycler #: 805s8022839 Sequencer #: 3 Cycle Sequencing Date: 10/10/01  
Time: 1030am Sequencing Date: 10/10/01

Kit #: 0107130	A1:	06333-0099	C1:	06333-0105
	A2:	06333-0100	C2:	06333-0106
	B1:	06333-0107	D1:	06333-0103
	B2:	06333-0108	D2:	06333-0104
	A4:	06333-	B4:	06333-

Thermal Cycler #: 805s8022839 Sequencer #: 5 Cycle Sequencing Date: 10/11/01  
Time: 100pm Sequencing Date: 10/12/01

Kit #: 0107130	A1:	06333-	C1:	06333-
	A2:	06333-	C2:	06333-
	B1:	06333-	D1:	06333-
	B2:	06333-	D2:	06333-
	A4:	06333-0101	B4:	06333-0102

Reason :



Biologist's Notes

LAB # 010223012 MQ  
ENCLOSURE CONTENTS:  
CE Sheets - 19 (Q1.1)  
Sample Sheets - 2 (Q1.1)  
INITIALS: [REDACTED]  
TOTAL PAGES: 19 + 2 = 21 total



Batch : c:\pace\ce\_1\1\tighar\q1.1\swab.seq  
Printed : Oct 10, 2001 7:23:02  
Creation Date : Oct 10, 2001 7:03:53  
Last Change Date : Oct 10, 2001 7:03:53  
Method Path : c:\pace\ce\_1\dna meth  
Data Path : c:\pace\ce\_1\1\tighar\q1.1

=====  
Run : 1 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : NCQ1'11A  
Vial : 11 Inj. Time : 45

Run : 2 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : RBQ1'11A  
Vial : 12 Inj. Time : 45

Run : 3 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : Q1'11A  
Vial : 13 Inj. Time : 45

Run : 4 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : PCQ1'11A  
Vial : 14 Inj. Time : 45

Run : 5 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : NCQ1'11B  
Vial : 15 Inj. Time : 45

*Cycle Seq 10/10/01  
10/11/00 (A4B4)  
Seq 10/10/01  
10/12/01 (A4B21)*

Run : 6 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : RBQ1'11B  
Vial : 16 Inj. Time : 45

Run : 7 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : Q1'11B  
Vial : 17 Inj. Time : 45

Run : 8 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : PCQ1'11B  
Vial : 18 Inj. Time : 45

Run : 9 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : NCQ1'12A  
Vial : 19 Inj. Time : 45

Run : 10 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : RBQ1'12A  
Vial : 20 Inj. Time : 45

Run : 11 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : Q1'12A  
Vial : 21 Inj. Time : 45

010223012 MQBO

Run : 12 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : PCQ1'12A  
Vial : 22 Inj. Time : 45

Run : 13 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : NCQ1'12B  
Vial : 23 Inj. Time : 45

Run : 14 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : RBQ1'12B  
Vial : 24 Inj. Time : 45

Run : 15 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : Q1'12B  
Vial : 25 Inj. Time : 45

Run : 16 Type : Unknown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : mtdnahbb.met  
Filename : PCQ1'12B  
Vial : 26 Inj. Time : 45

Run : 17 Type : Shutdown Fail Act: Continue  
Level : 0 Rep : 1  
Sample Amt : 1 ISTD Amt : 0 Mult Fact : 1  
Sample ID : 010223012MQBO  
Method : c:\pace\ce\_1\dna\_meth\shutdown.met  
Filename : Q1'1  
Vial : 27 Inj. Time : 45

010223012 MQBO

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

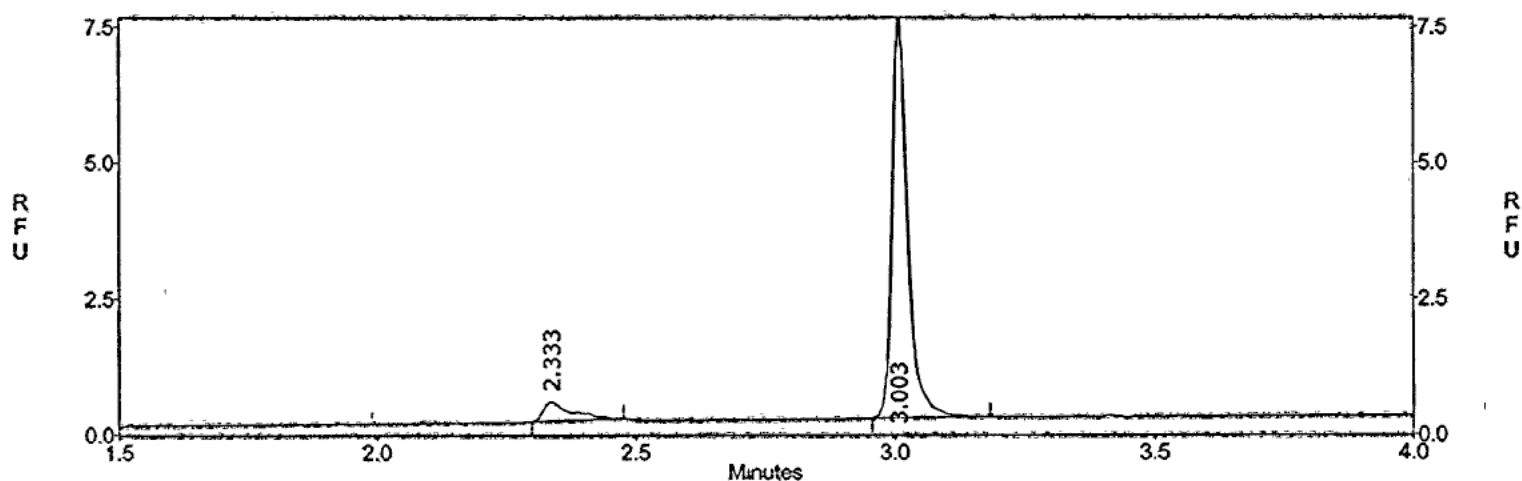
File : c:\pace\ce\_1\1\tighar\q1.1\Ncq1'11a

Acquired : Oct 10, 2001 7:40:45

# Channel A Results

Peak #	Mig Time	Area
1	2.33	1296695.000
2	3.00	15429230.000

c:\pace\ce\_1\1\tighar\q1.1\Ncq1'11a -- Channel A



No <sup>mt</sup> DNA detected

Used 7ul (diluted 0 x = 0 . 0 ng/7ul)

Cycle Sequenced 10/10/01, 10/11/01

Sequenced 10/10/01, 10/12/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

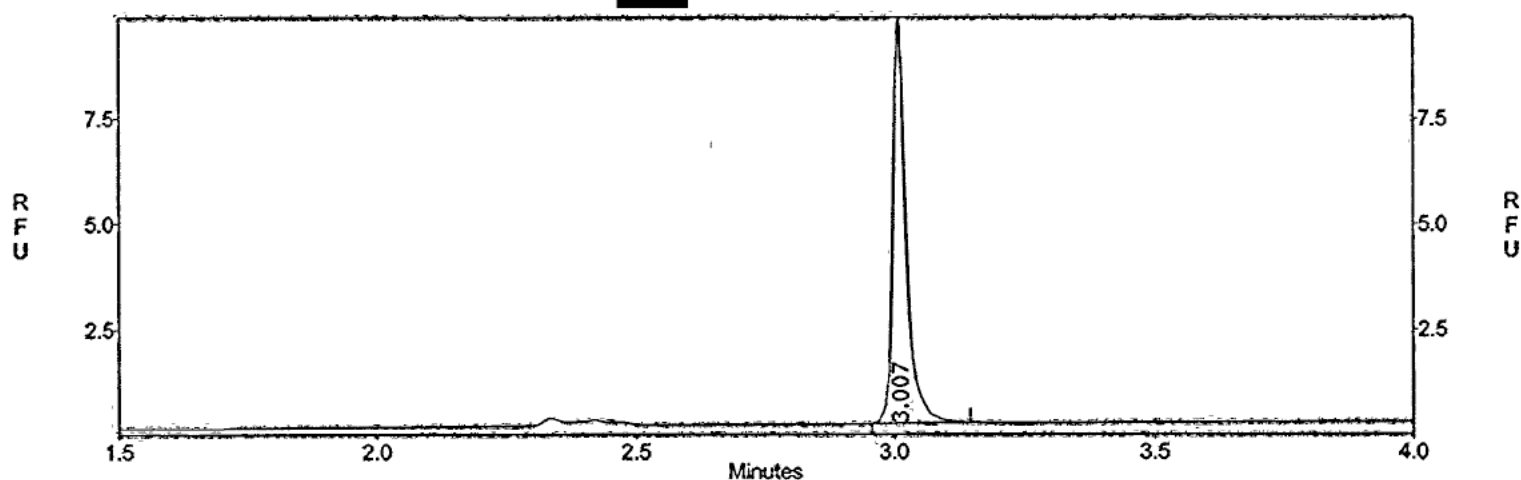
File : c:\pace\ce\_1\1\tighar\q1.1\Rbq1'11a

Acquired : Oct 10, 2001 7:52:21

# Channel A Results

Peak #	Mig Time	Area
---	---	---
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	3.01	17353308.000

c:\pace\ce\_1\1\tighar\q1.1\Rbq1'11a -- Channel A



No mtDNA detected  
 Used 7ul (diluted  $\times = 0.0$  ng/7ul)  
 Cycle Sequenced 10/10/01, 10/11/01  
 Sequenced 10/10/01, 10/12/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

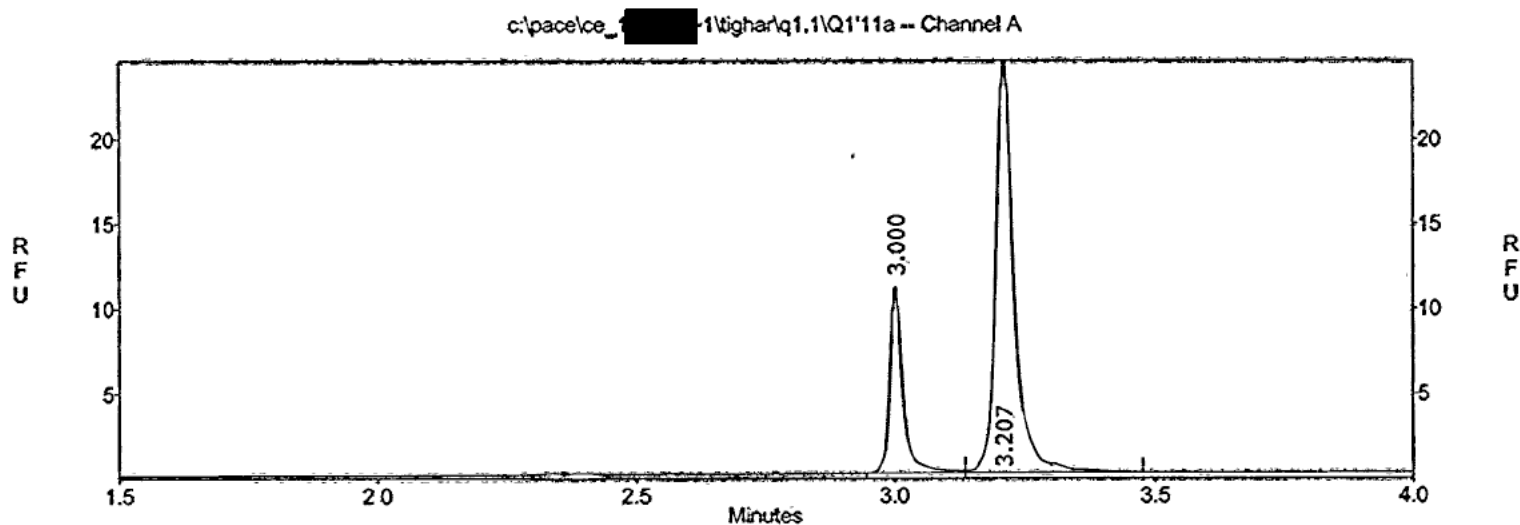
1ul analysis

File : c:\pace\ce\_1\1\tighar\q1.1\Q1'11a

Acquired : Oct 10, 2001 8:03:58

# Channel A Results

Peak #	Mig Time	Area
---	---	---
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	3.00	19799632.000
2	3.21	59915952.000



$$Q1.1 = \frac{599.16}{3.21} = 186.65$$

$$2006P = \frac{197.996}{3.00} = 66.00$$

$$\frac{186.65}{66.00} \times 9.6 = 27.15 \text{ ng/ul}$$

$$= 190.0 \text{ ng/7ul}$$

Used 7ul (diluted 10x = 19.0 ng/7ul)

Cycle Sequenced 10/10/01, 10/11/01

Sequenced 10/10/01, 10/12/01

██████████ Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

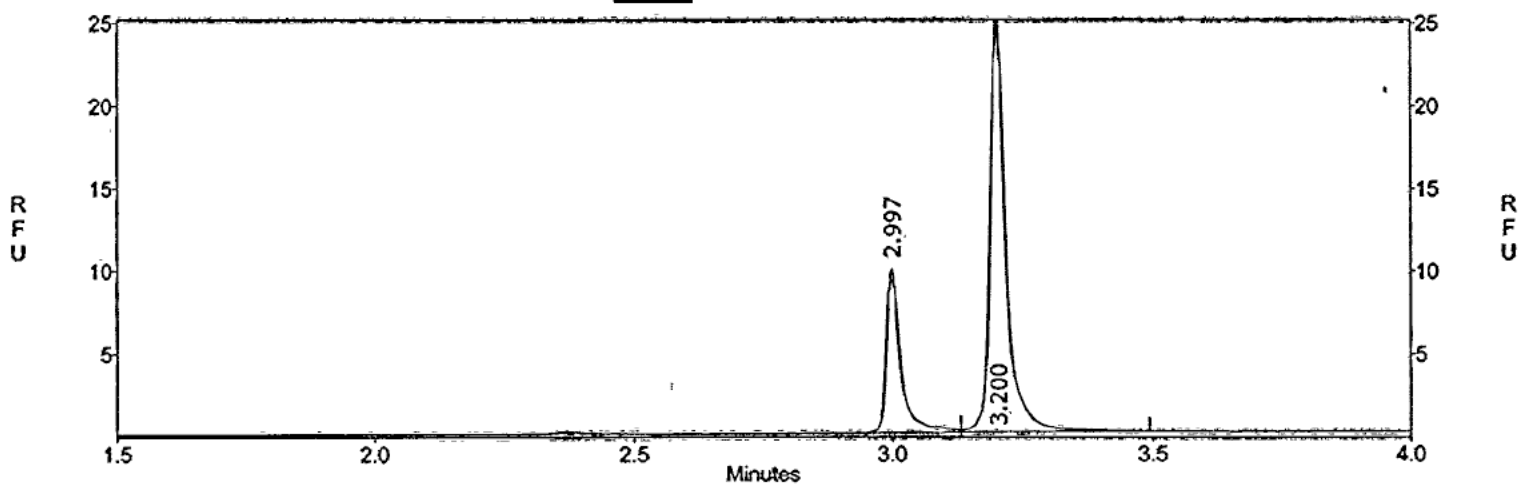
File : c:\pace\ce\_1\██████████1\tighar\q1.1\Pcq1'11a

Acquired : Oct 10, 2001 8:15:34

# Channel A Results

Peak #	Mig Time	Area
---	-----	-----
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	3.00	19202300.000
2	3.20	53080600.000

c:\pace\ce\_1\██████████1\tighar\q1.1\Pcq1'11a -- Channel A



$$H460 = \frac{530.89}{3.20} = 19.06 \times 165.90$$

$$200bp = \frac{192.02}{3.00} = 64.01$$

$$\frac{165.90}{64.01} \times 9.6 = 24.88 \text{ ng/ul}$$

$$= 174.2 \text{ ng/7ul}$$

Used 7ul (diluted 9 x = 19.4 ng/7ul)

Cycle Sequenced 10/10/01, 10/11/01

Sequenced 10/10/01, 10/12/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

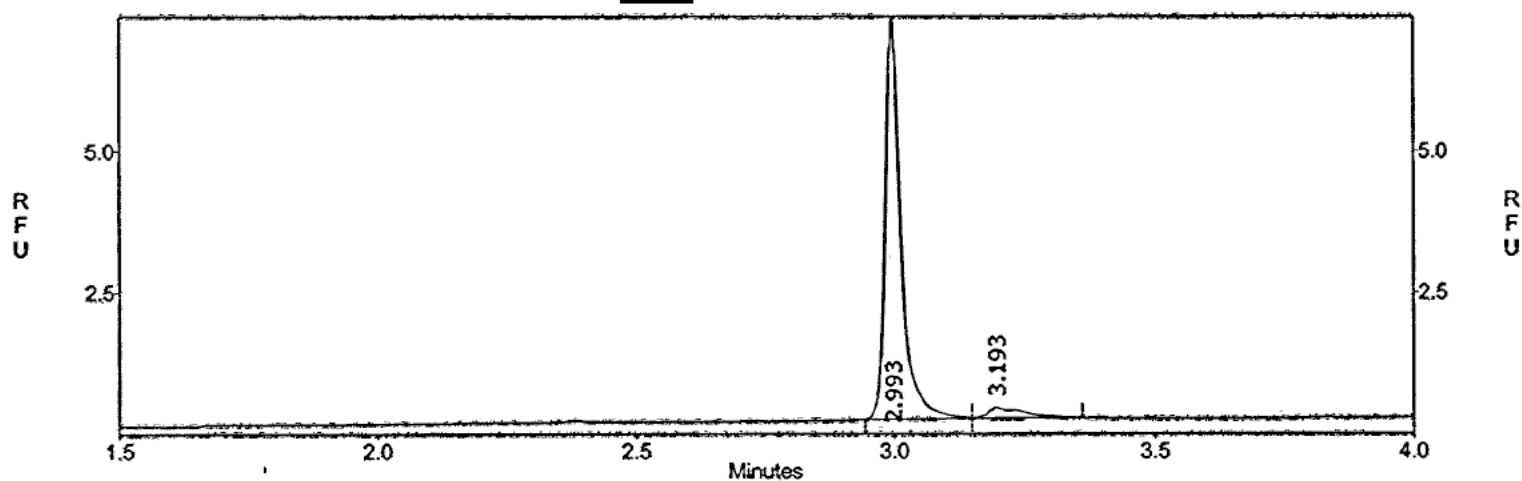
File : c:\pace\ce\_1\1\tighar\q1.1\Ncq1'11b

Acquired : Oct 10, 2001 8:27:13

# Channel A Results

Peak #	Mig Time	Area
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	2.99	15099875.000
2	3.19	855229.000

c:\pace\ce\_1\1\tighar\q1.1\Ncq1'11b -- Channel A



$$NC = \frac{855}{3.19} = 2.68$$

$$2000P = \frac{150.998}{2.99} = 5050$$

$$\frac{2.68}{50.50} \times 9.6 = 0.51 \text{ ng/ul}$$

$$= 3.6 \text{ ng/7ul}$$

$$\frac{0.51}{14.74} (100) = 3.5 \%$$

< 10% <sup>mt</sup> DNA detected

Used 7ul (diluted 0 x = 3.6 ng/7ul)

Cycle Sequenced 10/10/01, 10/11/01

Sequenced 10/10/01, 10/12/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

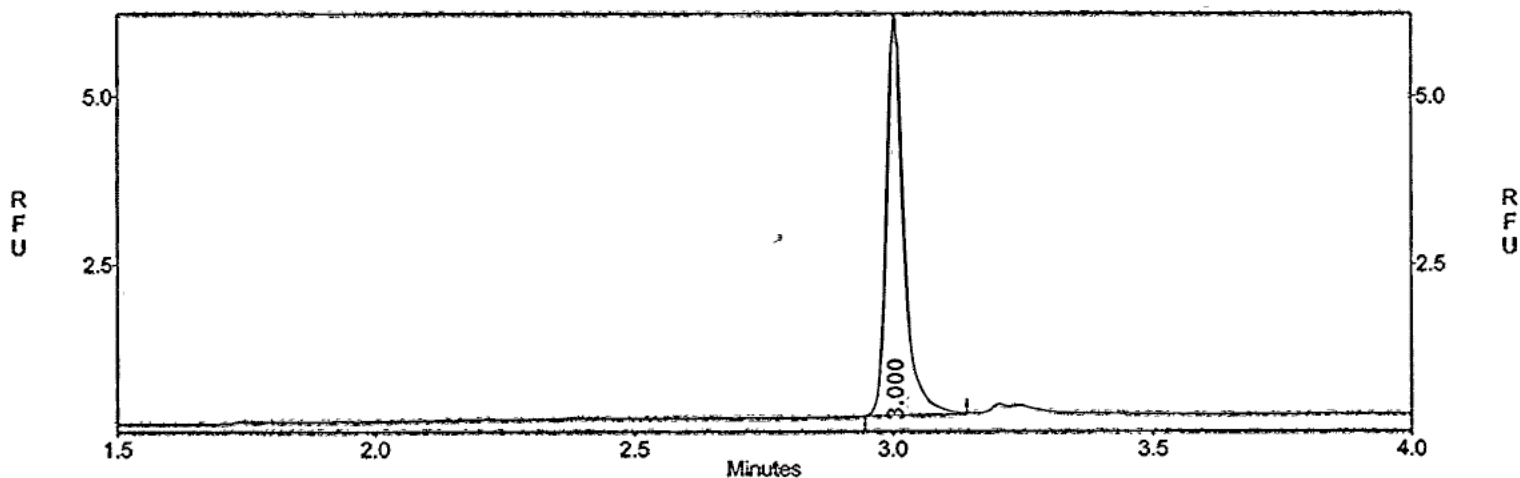
File : c:\pace\ce\_1\1\tighar\q1.1\Rbq1'11b

Acquired : Oct 10, 2001 8:38:55

# Channel A Results

Peak #	Mig Time	Area
---	-----	-----
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	3.00	13955709.000

c:\pace\ce\_1\1\tighar\q1.1\Rbq1'11b -- Channel A



16<sup>me</sup> DNA detected  
 Used 7ul (diluted 0 x = 0 . 0 ng/7ul)  
 Cycle Sequenced 10/10/01, 10/11/01  
 Sequenced 10/10/01, 10/12/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

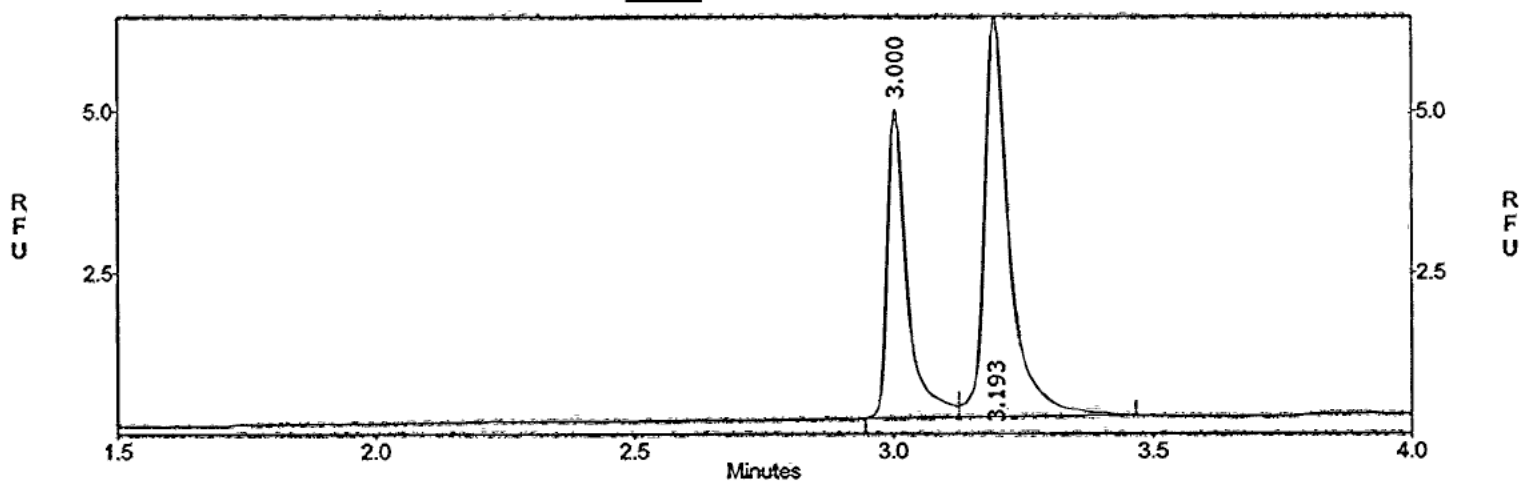
File : c:\pace\ce\_1\1\tighar\q1.1\Q1'11b

Acquired : Oct 10, 2001 8:50:31

# Channel A Results

Peak #	Mig Time	Area
---	-----	-----
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	3.00	12694133.000
2	3.19	20720262.000

c:\pace\ce\_1\1\tighar\q1.1\Q1'11b -- Channel A



$$Q1.1 = \frac{207.28}{3.19} = 64.98$$

$$200bP = \frac{126.94}{3.00} = 42.31$$

$$\frac{64.98}{42.31} \times 9.6 = 14.74 \text{ ng/ul}$$

$$= 103.2 \text{ ng/7ul}$$

Used 7ul (diluted 5 x = 20.6 ng/7ul)

Cycle Sequenced 10/10/01, 10/11/01

Sequenced 10/10/01, 10/12/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

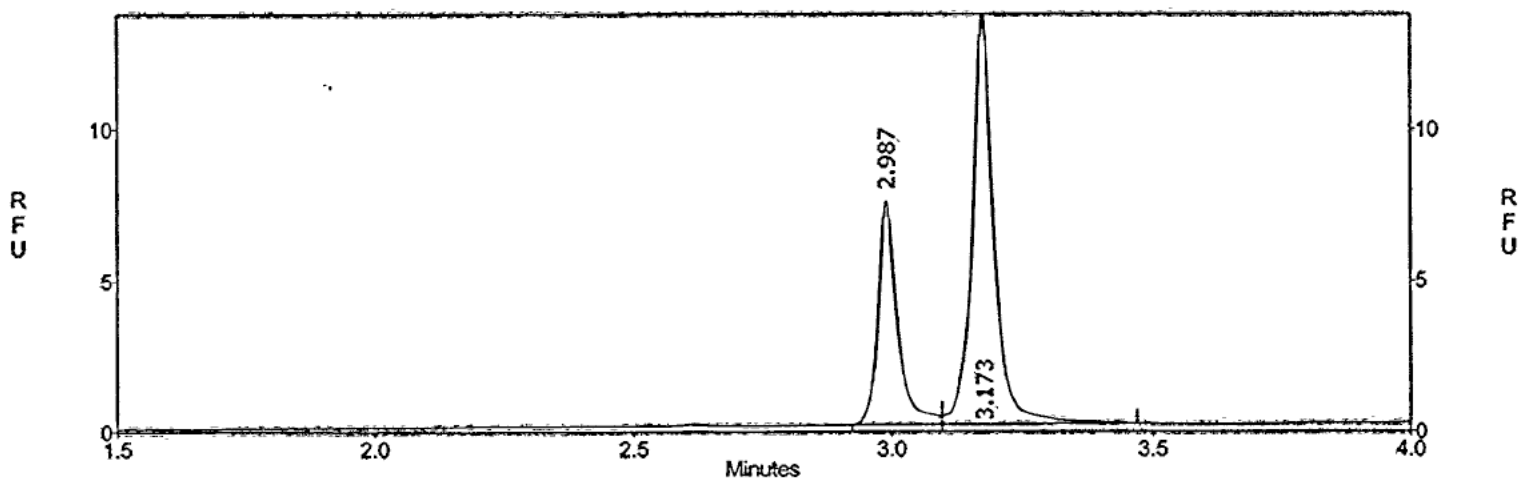
File : c:\pace\ce\_1\1\tighar\q1.1\Pcq1'11b

Acquired : Oct 10, 2001 9:02:13

# Channel A Results

Peak #	Mig Time	Area
---	---	---
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	2.99	19201252.000
2	3.17	39560704.000

c:\pace\ce\_1\1\tighar\q1.1\PCq1'11b - Channel A



$$HL60 = \frac{395.61}{3.17} = 124.80$$

$$200bp = \frac{192.01}{2.99} = 64.22$$

$$\frac{124.80}{64.22} \times 7.6 = 18.66 \text{ ng/ul}$$

$$= 130.6 \text{ ng/7ul}$$

Used 7ul (diluted 6 x = 21.8 ng/7ul)

Cycle Sequenced 10/10/01, 10/11/01

Sequenced 10/10/01, 10/12/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

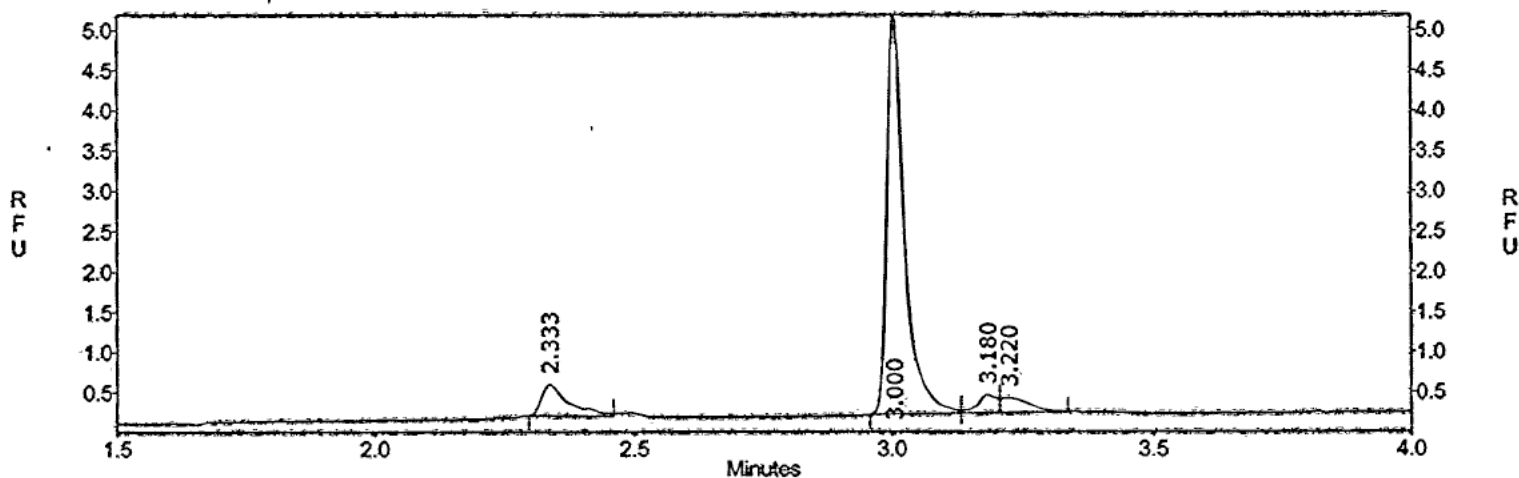
File : c:\pace\ce\_1\1\tighar\q1.1\Ncq1'12a

Acquired : Oct 10, 2001 9:13:52

# Channel A Results

Peak #	Mig Time	Area
--	2.15	0.000
1	2.33	1437660.000
--	2.58	0.000
--	2.69	0.000
2	3.00	11754296.000
3	3.18	568786.000
4	3.22	678308.000

c:\pace\ce\_1\1\tighar\q1.1\Ncq1'12a -- Channel A



$$NC = \frac{5.69}{3.18} = 1.79$$

$$\frac{0.44}{15.86} (100) = 2.8 \%$$

$$200bp = \frac{117.54}{3.00} = 39.18$$

$$\frac{1.79}{39.18} 9.6 = 0.44 \text{ ng/ul}$$

$$= 3.1 \text{ ng/7ul}$$

<10% <sup>mt</sup> DNA detected

Used 7ul (diluted 0 x = 3.1 ng/7ul)

Cycle Sequenced 10/10/01

Sequenced 10/10/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

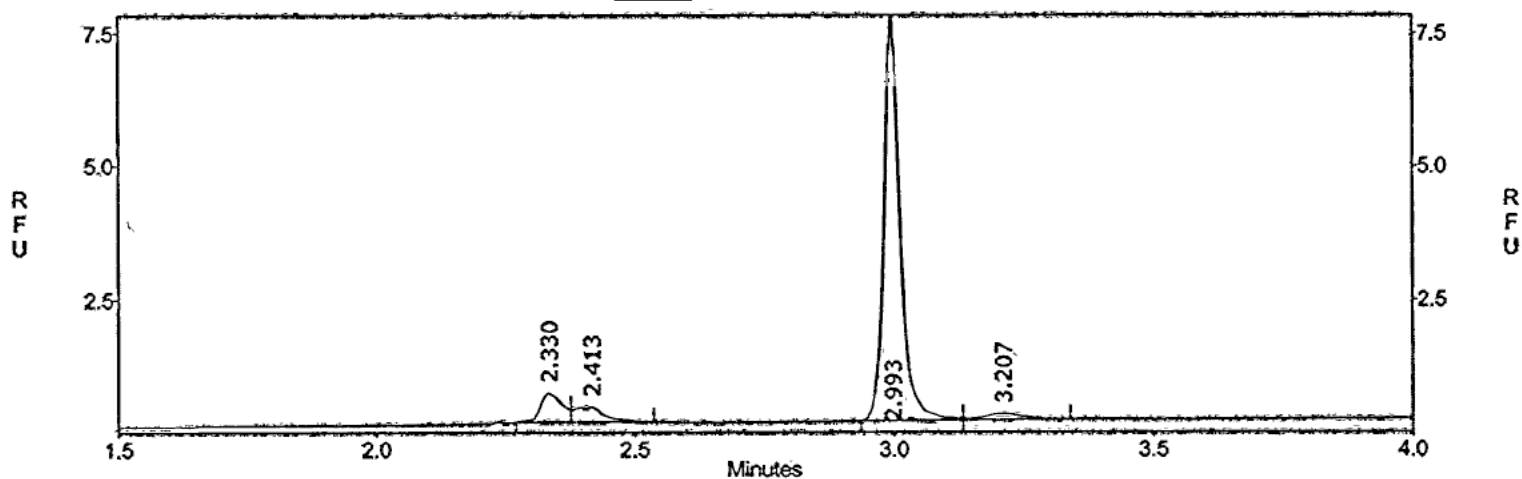
File : c:\pace\ce\_1\1\tighar\q1.1\Rbq1'12a

Acquired : Oct 10, 2001 9:25:28

# Channel A Results

Peak #	Mig Time	Area
--	2.15	0.000
1	2.33	1612812.000
2	2.41	1144221.000
--	2.58	0.000
--	2.69	0.000
3	2.99	16477784.000
4	3.21	565342.000

c:\pace\ce\_1\1\tighar\q1.1\Rbq1'12a-- Channel A



$$PB = \frac{5.65}{3.21} = 1.76$$

$$\frac{0.31}{15.86} (100) = 2.0 \%$$

$$200bp = \frac{164.78}{2.99} = 55.11$$

$$\frac{1.76}{55.11} \times 9.6 = 0.31 \text{ ng/ul}$$

$$= 2.1 \text{ ng/7ul}$$

<10% <sup>mt</sup>DNA detected

Used 7ul (diluted 0 x = 2.1 ng/7ul)

Cycle Sequenced 10/10/01

Sequenced 10/10/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

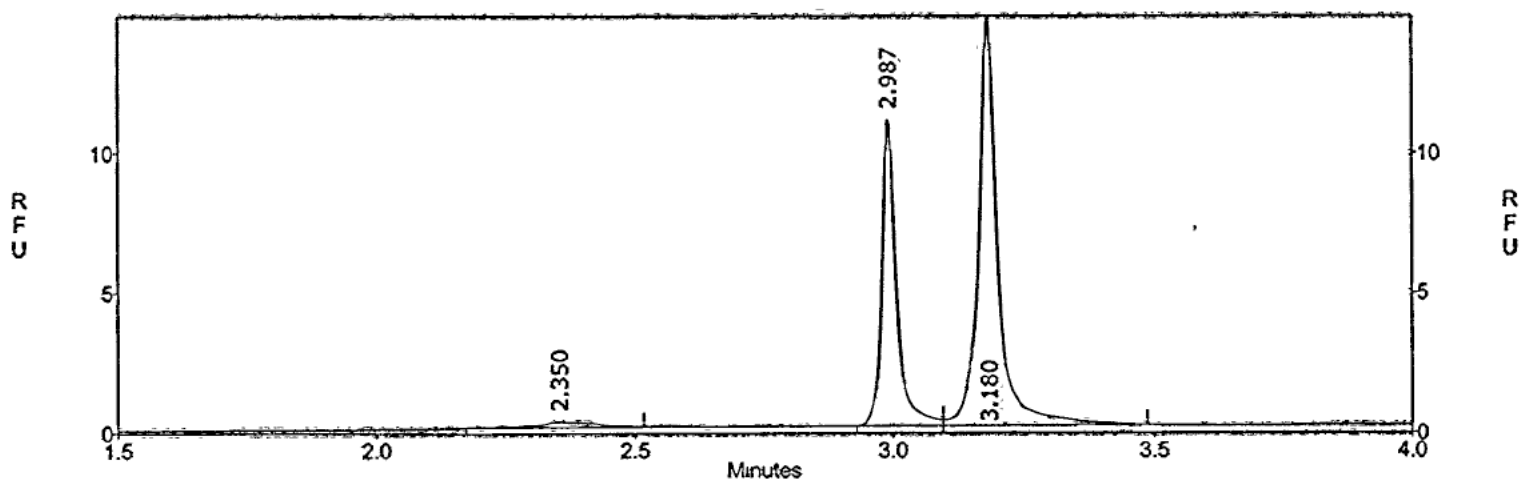
File : c:\pace\ce\_1\1\tighar\q1.1\Q1'12a

Acquired : Oct 10, 2001 9:37:10

# Channel A Results

Peak #	Mig Time	Area
--	2.15	0.000
1	2.35	1590852.000
--	2.58	0.000
--	2.69	0.000
2	2.99	21738424.000
3	3.18	38200188.000

c:\pace\ce\_1\1\tighar\q1.1\Q1'12a -- Channel A



$$Q1.1 = \frac{382.06}{3.18} = 120.13$$

$$200bp = \frac{217.38}{2.99} = 72.70$$

$$\frac{120.13}{72.70} \times 9.6 = 15.86 \text{ ng/ul}$$

$$= 111.0 \text{ ng/7ul}$$

Used 7ul (diluted 5 x = 22. 2 ng/7ul)

Cycle Sequenced 10/10/01

Sequenced 10/10/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

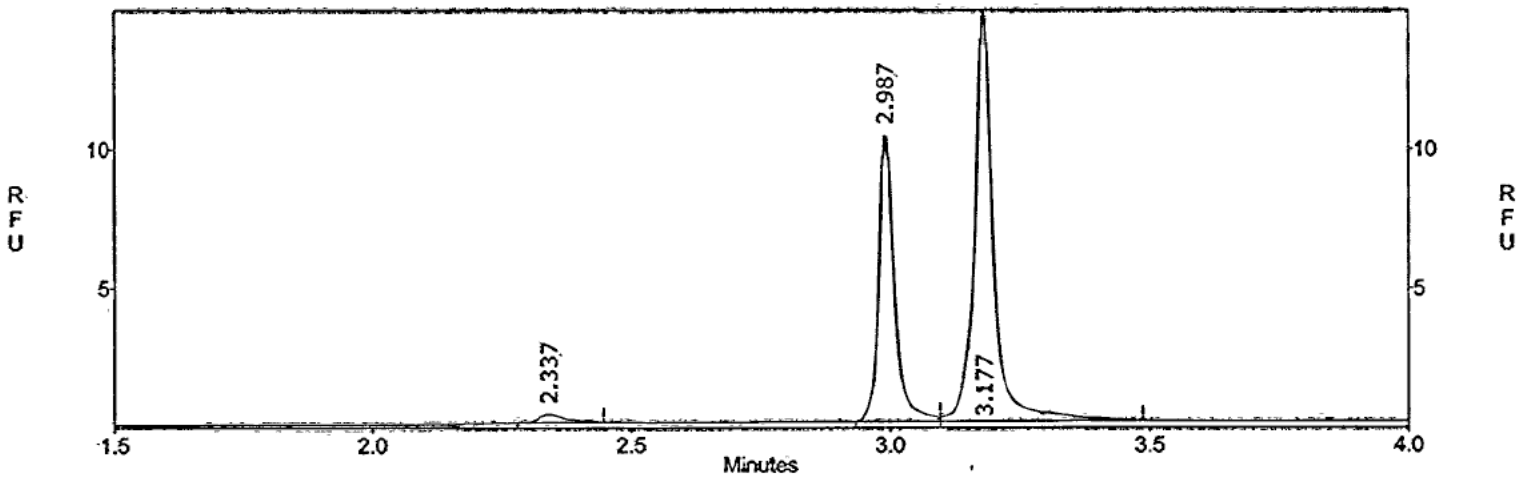
File : c:\pace\ce\_1\1\tighar\q1.1\Pcq1'12a

Acquired : Oct 10, 2001 9:48:52

# Channel A Results

Peak #	Mig Time	Area
---	---	---
--	2.15	0.000
1	2.34	1023057.000
--	2.58	0.000
--	2.69	0.000
2	2.99	21674260.000
3	3.18	37627856.000

c:\pace\ce\_1\1\tighar\q1.1\Pcq1'12a - Channel A



$$H660 = \frac{376.28}{3.18} = 118.33$$

$$200 \text{ bp} = \frac{216.74}{2.99} = 72.49 \text{ }^B$$

$$\frac{118.33}{72.49} \times 9.6 = 15.67 \text{ ng/ul}$$

$$= 109.7 \text{ ng/7ul}$$

Used 7ul (diluted 5x = 21.9 ng/7ul)

Cycle Sequenced 10/10/01

Sequenced 10/10/01

[REDACTED] Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

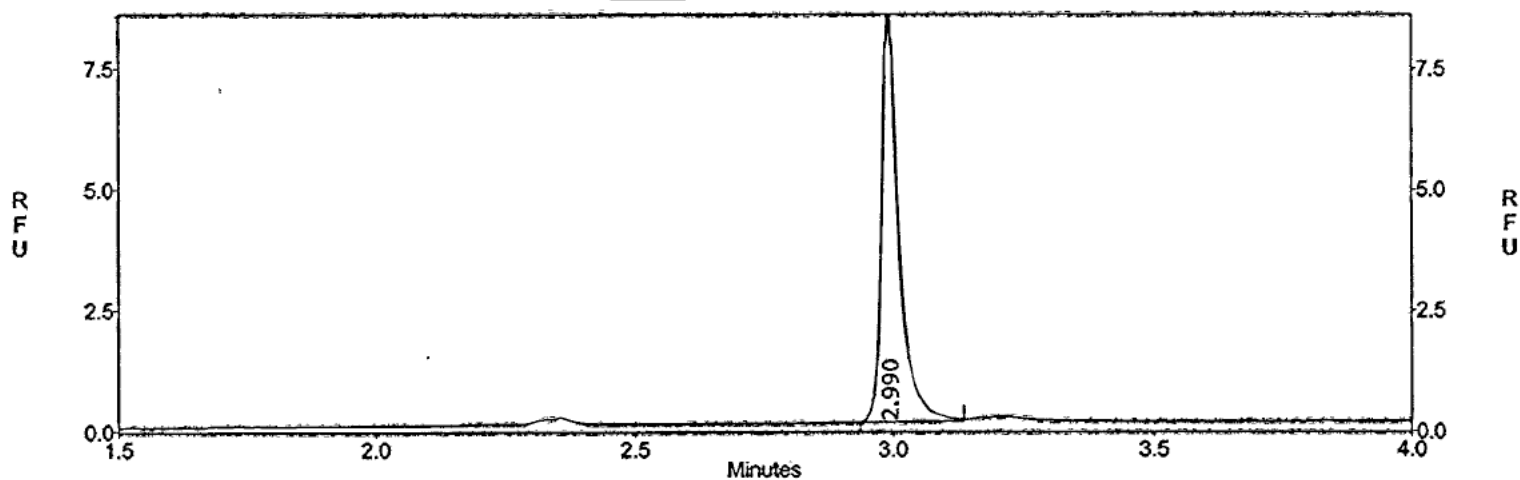
File : c:\pace\ce\_1[REDACTED]1\tighar\q1.1\Ncq1'12b

Acquired : Oct 10, 2001 10:00:34

## Channel A Results

Peak #	Mig Time	Area
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	2.99	19593152.000

c:\pace\ce\_1[REDACTED]1\tighar\q1.1\Ncq1'12b - Channel A

*No mtDNA detected*

Used 7ul (diluted 0 x = 0.6 ng/7ul)

Cycle Sequenced *10/10/01*Sequenced *10/10/01*

██████████ Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

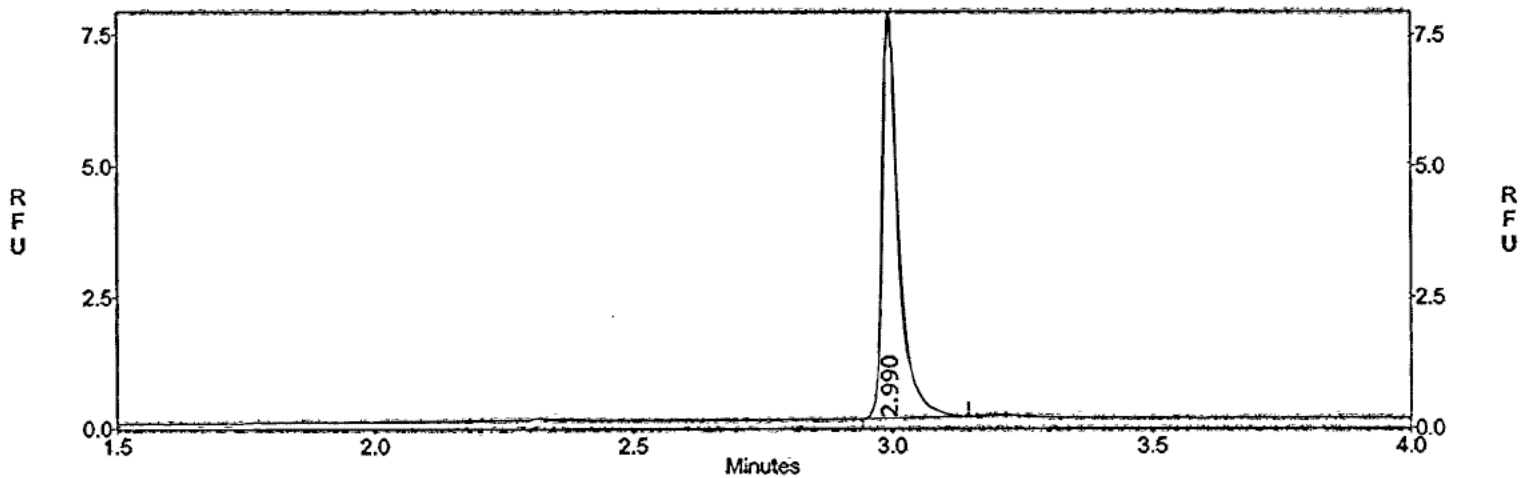
File : c:\pace\ce\_1██████████\tighar\q1.1\Rbq1'12b

Acquired : Oct 10, 2001 10:12:16

# Channel A Results

Peak #	Mig Time	Area
----	-----	-----
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	2.99	16858714.000

c:\pace\ce\_1██████████1\tighar\q1.1\Rbq1'12b -- Channel A



*N<sub>c</sub> mtDNA detected*

Used 7ul (diluted 0 x = 0 . 0 ng/7ul)

Cycle Sequenced 10/10/01

Sequenced 10/10/01

██████████ Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

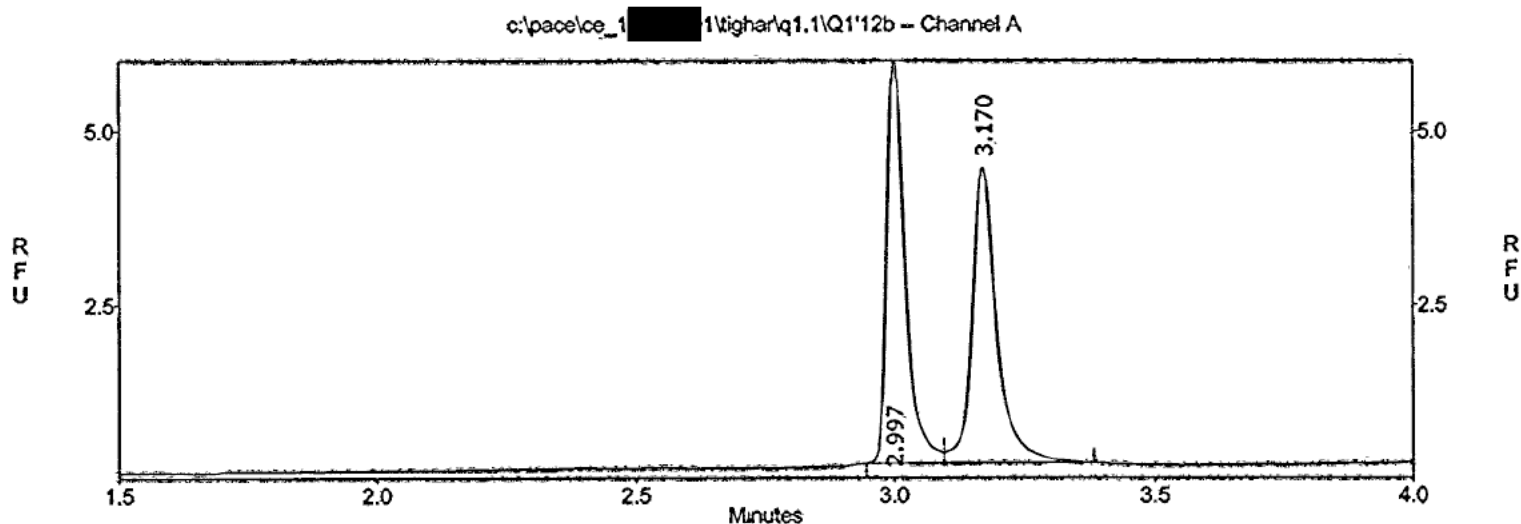
1ul analysis

File : c:\pace\ce\_1\██████████1\tighar\q1.1\Q1'12b

Acquired : Oct 10, 2001 10:23:55

# Channel A Results

Peak #	Mig Time	Area
---	-----	-----
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	3.00	14478138.000
2	3.17	14042963.000



$$Q1.1 = \frac{140.43}{3.17} = 44.30$$

$$200bp = \frac{144.78}{3.00} = 48.26$$

$$\frac{44.30}{48.26} \times 9.6 = 8.81 \text{ ng/ul}$$

$$= 61.7 \text{ ng/7ul}$$

Used 7ul (diluted 3 x = 20.6 ng/7ul)

Cycle Sequenced 10/10/01

Sequenced 10/10/01

Biologist DNA UII

FBI Laboratory - mtDNA

010223012 MQ BO - TIGHAR

Q1.1 - swab of button

1ul analysis

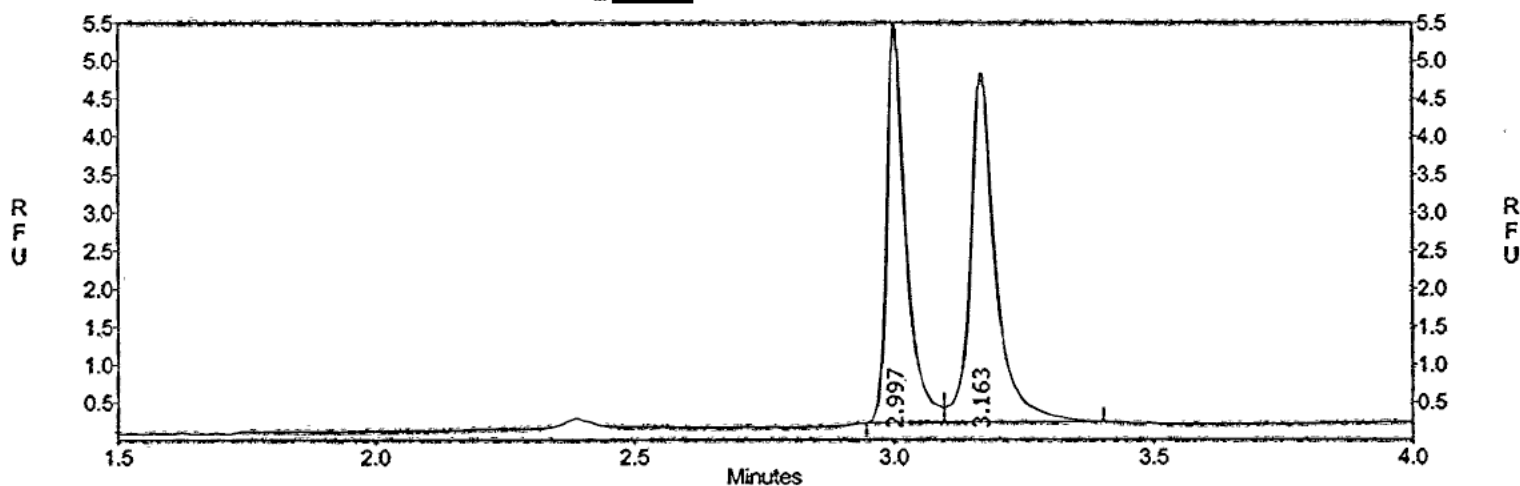
File : c:\pace\ce\_1\1\tighar\q1.1\Pcq1'12b

Acquired : Oct 10, 2001 10:35:37

# Channel A Results

Peak #	Mig Time	Area
--	2.15	0.000
--	2.58	0.000
--	2.69	0.000
1	3.00	13438056.000
2	3.16	15611875.000

c:\pace\ce\_1\1\tighar\q1.1\Pcq1'12b - Channel A



$$HL60 = \frac{156.12}{3.16} = 49.41$$

$$200bp = \frac{134.38}{3.00} = 44.79$$

$$\frac{49.41}{44.79} \times 9.6 = 10.59 \text{ ng/ul}$$

$$= 74.1 \text{ ng/7ul}$$

Used 7ul (diluted 4 x = 18.5 ng/7ul)

Cycle Sequenced 10/10/01

Sequenced 10/10/01

Edited 10/11/01



**Sample Sheet "010223012 Q1.1 10/10/01 HB"**  
Sequencing Analysis 3.3, ©1989-1998 PE Applied Biosystems

Page 1 of 1

#	Used	F	Sample Name	Comments	D	Inst.	File	A	P	P	P	P
1	On	H	HL60 Q1.1 a1 10/10/01	010223012MQ 10/10/01 19.4ng	D	sn 888	dRho	On	Off			
2	On	H	HL60 Q1.1 b2 10/10/01	010223012MQ 10/10/01 19.4ng	D	sn 888	dRho	On	Off			
3	On	H	HL60 Q1.1 a2 10/10/01	010223012MQ 10/10/01 21.8ng	D	sn 888	dRho	On	Off			
4	On	H	HL60 Q1.1 b1 10/10/01	010223012MQ 10/10/01 21.8ng	D	sn 888	dRho	On	Off			
5	On	H	HL60 Q1.1 c1 10/10/01	010223012MQ 10/10/01 21.9ng	D	sn 888	dRho	On	Off			
6	On	H	HL60 Q1.1 d2 10/10/01	010223012MQ 10/10/01 21.9ng	D	sn 888	dRho	On	Off			
7	On	H	HL60 Q1.1 c2 10/10/01	010223012MQ 10/10/01 18.5ng	D	sn 888	dRho	On	Off			
8	On	H	HL60 Q1.1 d1 10/10/01	010223012MQ 10/10/01 18.5ng	D	sn 888	dRho	On	Off			
9	On	N	NC Q1.1 a1 10/10/01	010223012MQ 10/10/01 0.0ng	D	sn 888	dRho	On	Off			
10	On	N	NC Q1.1 b2 10/10/01	010223012MQ 10/10/01 0.0ng	D	sn 888	dRho	On	Off			
11	On	N	NC Q1.1 a2 10/10/01	010223012MQ 10/10/01 3.6ng	D	sn 888	dRho	On	Off			
12	On	N	NC Q1.1 b1 10/10/01	010223012MQ 10/10/01 3.6ng	D	sn 888	dRho	On	Off			
13	On	N	NC Q1.1 c1 10/10/01	010223012MQ 10/10/01 3.1ng	D	sn 888	dRho	On	Off			
14	On	N	NC Q1.1 d2 10/10/01	010223012MQ 10/10/01 3.1ng	D	sn 888	dRho	On	Off			
15	On	N	NC Q1.1 c2 10/10/01	010223012MQ 10/10/01 0.0ng	D	sn 888	dRho	On	Off			
16	On	N	NC Q1.1 d1 10/10/01	010223012MQ 10/10/01 0.0ng	D	sn 888	dRho	On	Off			
17	On	Q	Q1.1 a1 10/10/01	010223012MQ 10/10/01 19.0ng	D	sn 888	dRho	On	Off			
18	On	Q	Q1.1 b2 10/10/01	010223012MQ 10/10/01 19.0ng	D	sn 888	dRho	On	Off			
19	On	Q	Q1.1 a2 10/10/01	010223012MQ 10/10/01 20.6ng	D	sn 888	dRho	On	Off			
20	On	Q	Q1.1 b1 10/10/01	010223012MQ 10/10/01 20.6ng	D	sn 888	dRho	On	Off			
21	On	Q	Q1.1 c1 10/10/01	010223012MQ 10/10/01 22.2ng	D	sn 888	dRho	On	Off			
22	On	Q	Q1.1 d2 10/10/01	010223012MQ 10/10/01 22.2ng	D	sn 888	dRho	On	Off			
23	On	Q	Q1.1 c2 10/10/01	010223012MQ 10/10/01 20.6ng	D	sn 888	dRho	On	Off			
24	On	Q	Q1.1 d1 10/10/01	010223012MQ 10/10/01 20.6ng	D	sn 888	dRho	On	Off			
25	On	R	RB Q1.1 a1 10/10/01	010223012MQ 10/10/01 0.0ng	D	sn 888	dRho	On	Off			
26	On	R	RB Q1.1 b2 10/10/01	010223012MQ 10/10/01 0.0ng	D	sn 888	dRho	On	Off			
27	On	R	RB Q1.1 a2 10/10/01	010223012MQ 10/10/01 0.0ng	D	sn 888	dRho	On	Off			
28	On	R	RB Q1.1 b1 10/10/01	010223012MQ 10/10/01 0.0ng	D	sn 888	dRho	On	Off			
29	On	R	RB Q1.1 c1 10/10/01	010223012MQ 10/10/01 2.1ng	D	sn 888	dRho	On	Off			
30	On	R	RB Q1.1 d2 10/10/01	010223012MQ 10/10/01 2.1ng	D	sn 888	dRho	On	Off			
31	On	R	RB Q1.1 c2 10/10/01	010223012MQ 10/10/01 0.0ng	D	sn 888	dRho	On	Off			
32	On	R	RB Q1.1 d1 10/10/01	010223012MQ 10/10/01 0.0ng	D	sn 888	dRho	On	Off			
33	Off				D	sn 888	dRho					
34	Off				D	sn 888	dRho					
35	Off				D	sn 888	dRho					
36	Off				D	sn 888	dRho					

OK; needs A4/B4

Thu, Oct 11, 2001

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Edited 10.18.01



**Sample Sheet "010223012MQQ1.1A4B410/12/01HB"**  
Sequencing Analysis 3.3, ©1989-1998 PE Applied Biosystems

Page 1 of 2

#	Used	F	Sample Name	Comments	D	Inst. File	A	P	P
1	On	H	HL60 Q1.1 a4 10/12/01	010223012MQ 10/10/01 21.8ng	D	dRDT matrix 12/00	On	Off	
2	Off				D	dRDT matrix 12/00			
3	On	H	HL60 Q1.1 B4 10/12/01	010223012MQ 10/10/01 19.4ng	D	dRDT matrix 12/00	On	Off	
4	Off				D	dRDT matrix 12/00			
5	On	N	NC Q1.1 a4 10/12/01	010223012MQ 10/10/01 0.0ng	D	dRDT matrix 12/00	On	Off	
6	Off				D	dRDT matrix 12/00			
7	On	N	NC Q1.1 B4 10/12/01	010223012MQ 10/10/01 0.0ng	D	dRDT matrix 12/00	On	Off	
8	Off				D	dRDT matrix 12/00			
9	On	C	Q1.1 a4 10/12/01	010223012MQ 10/10/01 20.6ng	D	dRDT matrix 12/00	On	Off	
10	Off				D	dRDT matrix 12/00			
11	On	C	Q1.1 B4 10/12/01	010223012MQ 10/10/01 19.0ng	D	dRDT matrix 12/00	On	Off	
12	Off				D	dRDT matrix 12/00			
13	On	F	RB Q1.1 a4 10/12/01	010223012MQ 10/10/01 0.0ng	D	dRDT matrix 12/00	On	Off	
14	Off				D	dRDT matrix 12/00			
15	On	F	RB Q1.1 B4 10/12/01	010223012MQ 10/10/01 0.0ng	D	dRDT matrix 12/00	On	Off	
16	Off				D	dRDT matrix 12/00			
17	Off				D	dRDT matrix 12/00			
18	Off				D	dRDT matrix 12/00			
19	Off				D	dRDT matrix 12/00			
20	Off				D	dRDT matrix 12/00			
21	Off				D	dRDT matrix 12/00			
22	Off				D	dRDT matrix 12/00			
23	Off				D	dRDT matrix 12/00			
24	Off				D	dRDT matrix 12/00			
25	Off				D	dRDT matrix 12/00			
26	Off				D	dRDT matrix 12/00			
27	Off				D	dRDT matrix 12/00			
28	Off				D	dRDT matrix 12/00			
29	Off				D	dRDT matrix 12/00			
30	Off				D	dRDT matrix 12/00			
31	Off				D	dRDT matrix 12/00			
32	Off				D	dRDT matrix 12/00			
33	Off				D	dRDT matrix 12/00			
34	Off				D	dRDT matrix 12/00			
35	Off				D	dRDT matrix 12/00			
36	Off				D	dRDT matrix 12/00			

OK-mixture

Thu, Oct 18, 2001

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2 of 2

FBI Laboratory  
DNA Analysis Unit II

Laboratory #: 010223012 MQ BO

FBI File #: 95D-HQ-1334954

Case Summary Date: 10/19/2001

Nucleotide Sequence Results

Specimen	Q1.1 swab from button
Confirmed Range	15998-16389
HV1	16069 N 16126 N 16189 N 16261 N 16270 N 16304 N 16319 N
Confirmed Range	49-407
HV2	73 G 150 N 263 G 295 N 315.1 C

Sequences Analyzed

YES= sequence obtained NO= no sequence obtained

NA= sequence not analyzable

Specimen	HV 1A/1B	HV 2A/2B
Q1.1	YES/YES	YES/YES
HL60	YES/YES	YES/YES
RB	NO/NO	NO/NO
NC	NO/NO	NO/NO

1 Q1.1 a1 10/10/01 4 Q1.1 b2 10/10/01 10 Q1.1 B4 10/12/01 13 5 rCRS 15998-16390 14 3 Q1.1 b1 10/10/01 9 Q1.1 a4 10/12/01	16000 16010 16020 16030 16040 16050 16060 16070	
1 Q1.1 a1 10/10/01 4 Q1.1 b2 10/10/01 10 Q1.1 B4 10/12/01 13 5 rCRS 15998-16390 14 3 Q1.1 b1 10/10/01 9 Q1.1 a4 10/12/01	16080 16090 16100 16110 16120 16130 16140 16150	--> --> -->
1 Q1.1 a1 10/10/01 4 Q1.1 b2 10/10/01 10 Q1.1 B4 10/12/01 13 5 rCRS 15998-16390 14 3 Q1.1 b1 10/10/01 9 Q1.1 a4 10/12/01	16160 16170 16180 16190 16200 16210 16220 16230	--> --> -->
1 Q1.1 a1 10/10/01 4 Q1.1 b2 10/10/01 10 Q1.1 B4 10/12/01 13 5 rCRS 15998-16390 14 3 Q1.1 b1 10/10/01 9 Q1.1 a4 10/12/01	16240 16250 16260 16270 16280 16290 16300 16310	
1 Q1.1 a1 10/10/01 4 Q1.1 b2 10/10/01 10 Q1.1 B4 10/12/01 13 5 rCRS 15998-16390 14 3 Q1.1 b1 10/10/01 9 Q1.1 a4 10/12/01	<-- <-- <-- <--	
1 Q1.1 a1 10/10/01 4 Q1.1 b2 10/10/01 10 Q1.1 B4 10/12/01 13 5 rCRS 15998-16390 14 3 Q1.1 b1 10/10/01 9 Q1.1 a4 10/12/01	16320 16330 16340 16350 16360 16370 16380 16390	
1 Q1.1 a1 10/10/01 4 Q1.1 b2 10/10/01 10 Q1.1 B4 10/12/01 13 5 rCRS 15998-16390 14 3 Q1.1 b1 10/10/01 9 Q1.1 a4 10/12/01	<-- <-- <-- <--	16069 N (C,T) 16126 N (T,C) 16189 N (T,C) 16261 N (T,C) 16270 N (T,C) 16304 N (C,T) 16319 N (G,A)

15998-16389

1 Q1.1 c1 10/10/01 4 Q1.1 d2 10/10/01 7 5 rCRS 00049-00407 9	50 60 70 80 90 100 110 120 130
2 Q1.1 c2 10/10/01 3 Q1.1 d1 10/10/01	140 150 160 170 180 190 200 210 220
1 Q1.1 c1 10/10/01 4 Q1.1 d2 10/10/01 7 5 rCRS 00049-00407 9	230 240 250 260 270 280 290 300 310
2 Q1.1 c2 10/10/01 3 Q1.1 d1 10/10/01	320 330 340 350 360 370 380 390 400
1 Q1.1 c1 10/10/01 4 Q1.1 d2 10/10/01 7 5 rCRS 00049-00407 9	<--<--<--
2 Q1.1 c2 10/10/01 3 Q1.1 d1 10/10/01	

49-401

73G  
150V ⇒ N (T > C)  
263G  
295V ⇒ N (C / T)  
315.1 C

1 NC Q1.1 a1 10/10/01	10	20	30	40	50	60	70	80	90
2 NC Q1.1 a2 10/10/01									
3 NC Q1.1 b1 10/10/01									
4 NC Q1.1 b2 10/10/01									
5 NC Q1.1 a4 10/12/01									
6 NC Q1.1 B4 10/12/01									
	100	110	120	130	140	150	160	170	180
1 NC Q1.1 a1 10/10/01									
2 NC Q1.1 a2 10/10/01									
3 NC Q1.1 b1 10/10/01									
4 NC Q1.1 b2 10/10/01									
5 NC Q1.1 a4 10/12/01									
6 NC Q1.1 B4 10/12/01									
	190	200	210	220	230	240	250	260	270
1 NC Q1.1 a1 10/10/01									
2 NC Q1.1 a2 10/10/01									
3 NC Q1.1 b1 10/10/01									
4 NC Q1.1 b2 10/10/01									
5 NC Q1.1 a4 10/12/01									
6 NC Q1.1 B4 10/12/01									
	280	290	300	310	320	330	340	350	360
1 NC Q1.1 a1 10/10/01									
2 NC Q1.1 a2 10/10/01									
3 NC Q1.1 b1 10/10/01									
4 NC Q1.1 b2 10/10/01									
5 NC Q1.1 a4 10/12/01									
6 NC Q1.1 B4 10/12/01									
	370	380	390	400	410	420	430	440	450
1 NC Q1.1 a1 10/10/01									
2 NC Q1.1 a2 10/10/01									
3 NC Q1.1 b1 10/10/01									
4 NC Q1.1 b2 10/10/01									
5 NC Q1.1 a4 10/12/01									
6 NC Q1.1 B4 10/12/01									
	460	470	480	490	500	510	520	530	540
1 NC Q1.1 a1 10/10/01									
2 NC Q1.1 a2 10/10/01									
3 NC Q1.1 b1 10/10/01									
4 NC Q1.1 b2 10/10/01									
5 NC Q1.1 a4 10/12/01									
6 NC Q1.1 B4 10/12/01									
	550	560	570	580	590	600	610	620	630
1 NC Q1.1 a1 10/10/01									
2 NC Q1.1 a2 10/10/01									
3 NC Q1.1 b1 10/10/01									
4 NC Q1.1 b2 10/10/01									
5 NC Q1.1 a4 10/12/01									
6 NC Q1.1 B4 10/12/01									

NA

640

650

660

670

680

690

700

710

720

1 NC Q1.1 a1 10/10/01  
2 NC Q1.1 a2 10/10/01  
3 NC Q1.1 b1 10/10/01  
4 NC Q1.1 b2 10/10/01  
5 NC Q1.1 a4 10/12/01  
6 NC Q1.1 B4 10/12/01

<--

NA

1 NC Q1.1 c1 10/10/01	10	20	30	40	50	60	70	80	90
2 NC Q1.1 c2 10/10/01									
3 NC Q1.1 d1 10/10/01									
4 NC Q1.1 d2 10/10/01									
	100	110	120	130	140	150	160	170	180
1 NC Q1.1 c1 10/10/01									
2 NC Q1.1 c2 10/10/01									
3 NC Q1.1 d1 10/10/01									
4 NC Q1.1 d2 10/10/01									
	190	200	210	220	230	240	250	260	270
1 NC Q1.1 c1 10/10/01									
2 NC Q1.1 c2 10/10/01									
3 NC Q1.1 d1 10/10/01									
4 NC Q1.1 d2 10/10/01									
	280	290	300	310	320	330	340	350	360
1 NC Q1.1 c1 10/10/01									
2 NC Q1.1 c2 10/10/01									
3 NC Q1.1 d1 10/10/01									
4 NC Q1.1 d2 10/10/01									
	370	380	390	400	410	420	430	440	450
1 NC Q1.1 c1 10/10/01									
2 NC Q1.1 c2 10/10/01									
3 NC Q1.1 d1 10/10/01									
4 NC Q1.1 d2 10/10/01									
	460	470	480	490	500	510	520	530	540
1 NC Q1.1 c1 10/10/01									
2 NC Q1.1 c2 10/10/01									
3 NC Q1.1 d1 10/10/01									
4 NC Q1.1 d2 10/10/01									
	550	560	570	580	590	600	610	620	630
1 NC Q1.1 c1 10/10/01									
2 NC Q1.1 c2 10/10/01									
3 NC Q1.1 d1 10/10/01									
4 NC Q1.1 d2 10/10/01									
	640	650	660	670	680	690	700	710	720
1 NC Q1.1 c1 10/10/01									
2 NC Q1.1 c2 10/10/01									
3 NC Q1.1 d1 10/10/01									
4 NC Q1.1 d2 10/10/01									
	730	740	750	760	770	780	790	800	810
1 NC Q1.1 c1 10/10/01									
2 NC Q1.1 c2 10/10/01									
3 NC Q1.1 d1 10/10/01									
4 NC Q1.1 d2 10/10/01									

RB Q1.1 HV1-MQ 010223012 MQ 10/18/01

1 RB Q1.1 a1 10/10/01	10	20	30	40	50	60	70	80	90
2 RB Q1.1 a2 10/10/01									
3 RB Q1.1 b1 10/10/01									
4 RB Q1.1 b2 10/10/01									
5 RB Q1.1 a4 10/12/01									
6 RB Q1.1 B4 10/12/01									
	100	110	120	130	140	150	160	170	180
1 RB Q1.1 a1 10/10/01									
2 RB Q1.1 a2 10/10/01									
3 RB Q1.1 b1 10/10/01									
4 RB Q1.1 b2 10/10/01									
5 RB Q1.1 a4 10/12/01									
6 RB Q1.1 B4 10/12/01									
	190	200	210	220	230	240	250	260	270
1 RB Q1.1 a1 10/10/01									
2 RB Q1.1 a2 10/10/01									
3 RB Q1.1 b1 10/10/01									
4 RB Q1.1 b2 10/10/01									
5 RB Q1.1 a4 10/12/01									
6 RB Q1.1 B4 10/12/01									
	280	290	300	310	320	330	340	350	360
1 RB Q1.1 a1 10/10/01									
2 RB Q1.1 a2 10/10/01									
3 RB Q1.1 b1 10/10/01									
4 RB Q1.1 b2 10/10/01									
5 RB Q1.1 a4 10/12/01									
6 RB Q1.1 B4 10/12/01									
	370	380	390	400	410	420	430	440	450
1 RB Q1.1 a1 10/10/01									
2 RB Q1.1 a2 10/10/01									
3 RB Q1.1 b1 10/10/01									
4 RB Q1.1 b2 10/10/01									
5 RB Q1.1 a4 10/12/01									
6 RB Q1.1 B4 10/12/01									
	460	470	480	490	500	510	520	530	540
1 RB Q1.1 a1 10/10/01									
2 RB Q1.1 a2 10/10/01									
3 RB Q1.1 b1 10/10/01									
4 RB Q1.1 b2 10/10/01									
5 RB Q1.1 a4 10/12/01									
6 RB Q1.1 B4 10/12/01									
	550	560	570	580	590	600	610	620	630
1 RB Q1.1 a1 10/10/01									
2 RB Q1.1 a2 10/10/01									
3 RB Q1.1 b1 10/10/01									
4 RB Q1.1 b2 10/10/01									
5 RB Q1.1 a4 10/12/01									
6 RB Q1.1 B4 10/12/01									

NA

RB Q1.1 HV1-MQ 010223012 MQ 10/18/01

640 650 660 670 680 690 700 710 720

1 RB Q1.1 a1 10/10/01  
2 RB Q1.1 a2 10/10/01  
3 RB Q1.1 b1 10/10/01  
4 RB Q1.1 b2 10/10/01  
5 RB Q1.1 a4 10/12/01  
6 RB Q1.1 B4 10/12/01

<--

<--



730 740 750 760 770 780 790 800 810

1 RB Q1.1 a1 10/10/01  
2 RB Q1.1 a2 10/10/01  
3 RB Q1.1 b1 10/10/01  
4 RB Q1.1 b2 10/10/01  
5 RB Q1.1 a4 10/12/01  
6 RB Q1.1 B4 10/12/01

<--

<--



<--

<--

NA

1 RB Q1.1 c1 10/10/01	10	20	30	40	50	60	70	80	90
2 RB Q1.1 c2 10/10/01									
3 RB Q1.1 d1 10/10/01									
4 RB Q1.1 d2 10/10/01									
	100	110	120	130	140	150	160	170	180
1 RB Q1.1 c1 10/10/01									
2 RB Q1.1 c2 10/10/01									
3 RB Q1.1 d1 10/10/01									
4 RB Q1.1 d2 10/10/01									
	190	200	210	220	230	240	250	260	270
1 RB Q1.1 c1 10/10/01									
2 RB Q1.1 c2 10/10/01									
3 RB Q1.1 d1 10/10/01									
4 RB Q1.1 d2 10/10/01									
	280	290	300	310	320	330	340	350	360
1 RB Q1.1 c1 10/10/01									
2 RB Q1.1 c2 10/10/01									
3 RB Q1.1 d1 10/10/01									
4 RB Q1.1 d2 10/10/01									
	370	380	390	400	410	420	430	440	450
1 RB Q1.1 c1 10/10/01									
2 RB Q1.1 c2 10/10/01									
3 RB Q1.1 d1 10/10/01									
4 RB Q1.1 d2 10/10/01									
	460	470	480	490	500	510	520	530	540
1 RB Q1.1 c1 10/10/01									
2 RB Q1.1 c2 10/10/01									
3 RB Q1.1 d1 10/10/01									
4 RB Q1.1 d2 10/10/01									
	550	560	570	580	590	600	610	620	630
1 RB Q1.1 c1 10/10/01									
2 RB Q1.1 c2 10/10/01									
3 RB Q1.1 d1 10/10/01									
4 RB Q1.1 d2 10/10/01									
	640	650	660	670	680	690	700	710	720
1 RB Q1.1 c1 10/10/01	<--								
2 RB Q1.1 c2 10/10/01	<--								
3 RB Q1.1 d1 10/10/01	<--								
4 RB Q1.1 d2 10/10/01									
	730	740	750	760	770	780	790	800	810
1 RB Q1.1 c1 10/10/01	<--								
2 RB Q1.1 c2 10/10/01	<--								
3 RB Q1.1 d1 10/10/01	<--								
4 RB Q1.1 d2 10/10/01									

1 HL60 Q1.1 a1 10/10/01 4 HL60 Q1.1 b2 10/10/01 11 HL60 Q1.1 B4 10/12/01 7 5 rCRS 15998-16390 9 2 HL60 Q1.1 a2 10/10/01 3 HL60 Q1.1 b1 10/10/01 10 HL60 Q1.1 a4 10/12/01	16000 16010 16020 16030 16040 16050 16060 16070
1 HL60 Q1.1 a1 10/10/01 4 HL60 Q1.1 b2 10/10/01 11 HL60 Q1.1 B4 10/12/01 7 5 rCRS 15998-16390 9 2 HL60 Q1.1 a2 10/10/01 3 HL60 Q1.1 b1 10/10/01 10 HL60 Q1.1 a4 10/12/01	16080 16090 16100 16110 16120 16130 16140 16150
1 HL60 Q1.1 a1 10/10/01 4 HL60 Q1.1 b2 10/10/01 11 HL60 Q1.1 B4 10/12/01 7 5 rCRS 15998-16390 9 2 HL60 Q1.1 a2 10/10/01 3 HL60 Q1.1 b1 10/10/01 10 HL60 Q1.1 a4 10/12/01	16160 16170 16180 16190 16200 16210 16220 16230
1 HL60 Q1.1 a1 10/10/01 4 HL60 Q1.1 b2 10/10/01 11 HL60 Q1.1 B4 10/12/01 7 5 rCRS 15998-16390 9 2 HL60 Q1.1 a2 10/10/01 3 HL60 Q1.1 b1 10/10/01 10 HL60 Q1.1 a4 10/12/01	16240 16250 16260 16270 16280 16290 16300 16310
1 HL60 Q1.1 a1 10/10/01 4 HL60 Q1.1 b2 10/10/01 11 HL60 Q1.1 B4 10/12/01 7 5 rCRS 15998-16390 9 2 HL60 Q1.1 a2 10/10/01 3 HL60 Q1.1 b1 10/10/01 10 HL60 Q1.1 a4 10/12/01	16320 16330 16340 16350 16360 16370 16380 16390

ok

