Pasadena Police Department Regional Crime Laboratory
Proficiency Test Report Form

SECTION: Toxicology
ANALYST: Derek Sanders
DATE COMPLETED: 11/15/13

<table>
<thead>
<tr>
<th>TEST INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Test Source:</td>
</tr>
<tr>
<td>2. Test Identifier: FTC-B/L13-1661</td>
</tr>
<tr>
<td>Date Due: 11/15/13</td>
</tr>
<tr>
<td>If External:</td>
</tr>
<tr>
<td>4. Type of Test:</td>
</tr>
<tr>
<td>Case Re-Analysis</td>
</tr>
<tr>
<td>5. Test Description: (e.g. paint exam, DNA typing, bullet comparison, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST REVIEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Test Results:</td>
</tr>
<tr>
<td>Error Type:</td>
</tr>
<tr>
<td>Describe:</td>
</tr>
<tr>
<td>Corrective Action:</td>
</tr>
<tr>
<td>Describe:</td>
</tr>
<tr>
<td>Comments:</td>
</tr>
<tr>
<td>Quality Manager: Azell Carter</td>
</tr>
</tbody>
</table>

Approval Date: April 1, 2013
Effective Date: April 8, 2013
Approved by: Laboratory Director Pamela J. McInnis/Quality Manager Azell Carter
# Pasadena Police Department Regional Crime Laboratory Proficiency Test Report Form

**SECTION:** Toxicology  
**ANALYST:** Derek Sanders  
**DATE COMPLETED:** 10/21/13

## TEST INFORMATION

1. **Test Source:**  
   - [ ] Internal  
   - [x] External

2. **Test Identifier:** Test 13-599/L13-1435  
   - **Date Received:** 8/01/2013
   - **Date Due:** 9/30/13

3. **If External:**  
   - **Source:** CTS  
   - **Date Sent:** 10/22/13

4. **Type of Test:**  
   - [ ] Open  
   - [x] Blind  
   - Case Re-Analysis (Case # ____________ )

5. **Test Description:**  
   - (e.g. paint exam, DNA typing, bullet comparison, etc.)  
   - Urine Drug

## TEST REVIEW

1. **Test Results:**  
   - [x] Satisfactory  
   - [ ] Unsatisfactory

2. **Error Type:**  
   - [x] None  
   - [ ] I  
   - [ ] II  
   - [ ] III
   - **Describe:**

3. **Corrective Action:**  
   - [x] N/A  
   - [ ] Yes
   - **Describe:**

4. **Comments:** Research Test

5. **Quality Manager:**  
   - [Signature]  
   - **Date:** 11/13/2013

---

Approval Date: April 1, 2013  
Effective Date: April 8, 2013  
Approved by: Laboratory Director Pamela J. McInnis/Quality Manager Azell Carter
This test was designed as an evaluation of samples and the data reporting format for a proposed Forensic Toxicology Urine-Drug proficiency test. This Research Test Series offering provided the examiners the opportunity to analyze case-like samples of human urine for the presence and concentration of controlled substances and/or metabolites. Participants were requested to analyze the urine samples and report the presence of any controlled substances/metabolites, any quantitative data obtained including the uncertainty associated with these results, methods used, their conclusions and comments as well as their overall impression of the test.

Each sample set contained three testing events with an individual case scenario as seen on the data sheet, each containing one specimen bottle of human urine.

**SAMPLE PREPARATION:**
The urine used was certified drug-free 100% human urine. All urine used for this test was from the same lot.

A stock solution of 1.0mg/mL of each drug in methanol was used to spike each item. These solutions were obtained in sealed ampoules and were not opened until a volume of the solution was needed for production. Items were prepared at separate times using the following procedure, and different glassware was used for each item.

**ITEMS 1, 2, and 3 (PREPARATION):** Sample preparation consisted of adding a predetermined amount of drug stock solution to a 500mL graduated cylinder containing human urine. The urine was then transferred to a beaker where the equivalent of 2% w/v sodium fluoride was added and then stirred with a magnetic stirrer for 20 minutes before pouring 50mL of the mixture into each of the pre-labeled specimen bottles. All bottles were placed in a refrigerator immediately after production until the sample sets were prepared.

**SAMPLE SET ASSEMBLY:** Each sample set was prepared containing Items 1, 2, and 3 and was placed into a Department of Transportation regulated shipping container. Each sample pack was labeled with test number and returned to the refrigerator until shipment.

<table>
<thead>
<tr>
<th>Item 1 Drug (Concentration)</th>
<th>Item 2 Drug (Concentration)</th>
<th>Item 3 Drug (Concentration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-aminoflunitrazepam</td>
<td></td>
<td>S-(-)-Methamphetamine</td>
</tr>
<tr>
<td>(560ng/mL)</td>
<td></td>
<td>(640ng/mL)</td>
</tr>
<tr>
<td>11-nor-9-Carboxy-THC</td>
<td></td>
<td>S-(-)-Amphetamine</td>
</tr>
<tr>
<td>(200ng/mL)</td>
<td></td>
<td>(300ng/mL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benzoylcegonine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(400ng/mL)</td>
</tr>
</tbody>
</table>

Please note that the Preparation Value is the value used for calculations during the test preparation phase and may not necessarily represent the final concentration of the samples. It is advised to wait for the Grand Mean statistics available in the Summary and Individual Reports before evaluating performance.
SECTION: Toxicology
ANALYST: Derek Sanders
DATE COMPLETED: 6/07/13

TEST INFORMATION
1. Test Source: [ ] Internal [x] External
2. Test Identifier: Test 13-843 Date Received: 4/24/2013
   Date Due: 6/01/13
3. If External: [ ] Source
   Volpe National Transportation Systems Center
   Date Sent: 6/07/13
4. Type of Test: [ ] Open [ ] Blind
   [ ] Case Re-Analysis (Case #
5. Test Description: (e.g. paint exam, DNA typing, bullet comparison, etc.)
   Blood Alcohol

TEST REVIEW
1. Test Results: [x] Satisfactory [ ] Unsatisfactory
2. Error Type: [x] None [ ] I [ ] II [ ] III
   Describe:
3. Corrective Action: [x] N/A [ ] Yes
   Describe:
5. Quality Manager: Azell Carter
   Date: 7/03/2013

Approval Date: April 1, 2013
Effective Date: April 8, 2013
Approved by: Laboratory Director Pamela J. McInnis/Quality Manager Azell Carter
# Pasadena Police Department Regional Crime Laboratory Proficiency Test Report Form

**SECTION:** Toxicology  
**ANALYST:** Derek Sanders  
**DATE COMPLETED:** 3/05/13

## TEST INFORMATION

1. **Test Source:**  
   - [ ] Internal  
   - [x] External

2. **Test Identifier:** Test 13-564  
   **Date Received:** 2/08/2013  
   **Date Due:** 3/06/13

3. **If External:**  
   - **Source CTS**  
   **Date Sent:** 3/06/13

4. **Type of Test:**  
   - [ ] Open  
   - [x] Blind  
   - [ ] Case Re-Analysis

**Test Description:** (e.g. paint exam, DNA typing, bullet comparison, etc.)  
Blood Alcohol

## TEST REVIEW

1. **Test Results:**  
   - [x] Satisfactory  
   - [ ] Unsatisfactory

2. **Error Type:**  
   - [x] None  
   - [ ] I  
   - [ ] II  
   - [ ] III

**Describe:**

3. **Corrective Action:**  
   - [x] N/A  
   - [ ] Yes

**Describe:**

4. **Comments:** Pre-distribution Testing

5. **Quality Manager:**  
   **Date:** 7/05/2013
Manufacturer's Information

Each sample set consisted of four vials of blood, each with a different blood alcohol concentration (BAC). Participants were requested to analyze each vial and report the blood alcohol concentration.

SAMPLE PREPARATION-
A stock solution of ethanol in water was used to spike each item. The stock solution was prepared by combining 10 grams of absolute ethanol with enough distilled water to produce a solution of 100 milliliters. The stock solution was stored in a covered flask, which was opened only when a volume of the solution was needed for production.

In order to obtain sufficient volume for this test, three batches were prepared of each item (A, B and C). Each batch and each item were prepared separately using the following procedure and all glassware was cleaned between preparations.

ITEMS 1, 2, 3 and 4 (PREPARATION): Sample preparation consisted of adding a predetermined amount of ethanol stock solution to a 500mL graduated cylinder containing human whole blood (which had been drawn into citric acid preservative blood bank bags). The blood was then transferred to a beaker, where the equivalent of 1% w/v sodium fluoride was added and then stirred with a magnetic stirrer for 10 minutes before pipetting 5mL of the mixture into each of the pre-labeled vials, which contained 12mg potassium oxalate and 15mg sodium fluoride (this NaF was included in the 1% w/v NaF calculation). The vials were sealed and inverted 8-10 times to mix the chemicals in the vials with the blood solution. All vials were placed in a refrigerator immediately after production until the sample sets were prepared.

SAMPLE SET ASSEMBLY: Once verification was completed, each sample set was prepared containing an Item 1, 2, 3 and 4 from the same batch and was placed into a Department of Transportation regulated shipping container. Each sample pack was labeled with test number and batch letter and returned to the refrigerator until shipment.

VERIFICATION-
Laboratories that conducted predistribution analysis of the samples reported consistent results for each batch that were comparable to the preparation BAC.

<table>
<thead>
<tr>
<th>Item</th>
<th>Preparation BAC (g/100mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>0.13</td>
</tr>
<tr>
<td>Item 2</td>
<td>0.00</td>
</tr>
<tr>
<td>Item 3</td>
<td>0.04</td>
</tr>
<tr>
<td>Item 4</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Please note that the Preparation Value is the value used for calculations during the test preparation phase and may not necessarily represent the final concentration of the samples. It is advised to wait for the Grand Mean statistics available in the Summary and Individual Reports before evaluating performance.
Test Description:
Investigators have submitted four vials of blood from separate cases to be examined; each was taken from a person suspected of driving under the influence of alcohol. Using your laboratory's procedures, analyze each vial and report the blood alcohol concentration.

Please disregard the vials labeling with regard to NaF; additional NaF was added to achieve a 1% w/v concentration in the blood in the vials.

Items Submitted (Sample Pack BAC1):
Items 1-4: Vials of Blood

Predistribution Test Laboratory Information
Laboratory Name: Pasadena Police Department Regional Crime Lab
Location (City/State): Pasadena, Texas

If you would like to have your Predistribution Results included in the final reports, please resubmit your data on the official data sheet during the regular distribution testing period.

1a.) What is the blood alcohol concentration of the sample in each of the vials? (Results should be reported using your laboratory reporting criteria for decimal places and units.)

<table>
<thead>
<tr>
<th>Units</th>
<th>Item 1: 0.174</th>
<th>Item 2: 0.020</th>
<th>Item 3: 0.038</th>
<th>Item 4: 0.177</th>
</tr>
</thead>
</table>

1b.) Are the values listed above:

☐ The mean of duplicate / several determinations? ☑ The lowest value of duplicate / several determinations?

☐ Other? (Specify): __________________________

Please return all pages of this data sheet.
2.) Please list your raw data determinations below in g/100mL. (Results not reported in g/100mL will be excluded from statistical calculations).

<table>
<thead>
<tr>
<th>Item 1 (g/100mL)</th>
<th>Item 2 (g/100mL)</th>
<th>Item 3 (g/100mL)</th>
<th>Item 4 (g/100mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.128</td>
<td>0</td>
<td>0.032</td>
<td>0.178</td>
</tr>
<tr>
<td>0.127</td>
<td>0</td>
<td>0.032</td>
<td>0.177</td>
</tr>
<tr>
<td>0.125</td>
<td>0</td>
<td>0.040</td>
<td>0.123</td>
</tr>
<tr>
<td>0.124</td>
<td>0</td>
<td>0.040</td>
<td>0.184</td>
</tr>
</tbody>
</table>

3a.) Batch A, B or C (letter found on Item label on blood tubes): __________

3b.) Date Samples Received: 8 Feb 2013

3c.) Date(s) Samples Analyzed: 5 March 2013

4.) Method of Analysis:

- [ ] Headspace GC
- [ ] Direct Injection GC
- [ ] Alcohol Dehydrogenase

- [ ] Other: ____________________________________________  

5.) Additional Comments

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Return Instructions

Please fax your results by March 06, 2013

Fax: 1-571-434-1937 or Toll-free: 1-866-FAX-2CTS (329-2287)

Questions? Contact us:

Telephone: +1-571-434-1925 (8 am-4:30 pm EST)

email: forensics@cts-interlab.com

Please return all pages of this data sheet.
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Record and Results

Chemist: Derek Sanders

Area of Proficiency tested: Drug Analysis

Date of Test Completion: December 31, 2012

Proficiency Test Service Provider: Collaborative Testing Services, Inc.

Source of Test: Internal

Test Number: 12-501

Lab Number: L12-0448

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained with Quality Assurance manager and a copy will be placed in the chemist's personal training manual.

Congratulations!

Azell Carter
Quality Manager
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Record and Results

Chemist: Derek Sanders

Area of Proficiency tested: Toxicology (Blood-Drug)

Date of Test Completion: November 09, 2012

Proficiency Test Service Provider: College of American Pathologists

Source of Test: External

Test Number: FTC-B 2012

Lab Number: L12-1698

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained with Quality Assurance manager and a copy will be placed in the chemist's personal training manual.

Congratulations!

Azell Carter
Quality Manager
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Record and Results

Chemist: Derek Sanders

Area of Proficiency tested: Toxicology (Urine-Drug)

Date of Test Completion: November 09, 2012

Proficiency Test Service Provider: College of American Pathologists

Source of Test: External

Test Number: FTC-B 2012

Lab Number: L12-1698

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained with Quality Assurance manager and a copy will be placed in the chemist's personal training manual.

Congratulations!

Azell Carter
Quality Manager
The College of American Pathologists recommends that the reader of this methodology comparison not be misled as a sole criterion for judging the performance of any individual clinical laboratory.

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<table>
<thead>
<tr>
<th>Test</th>
<th>ITC-07</th>
<th>ITC-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A</td>
<td>NICOTINIC</td>
<td>1. A</td>
</tr>
<tr>
<td>2. 2</td>
<td>NICOTINIC</td>
<td>2. 2</td>
</tr>
<tr>
<td>3. 3</td>
<td>NICOTINIC</td>
<td>3. 3</td>
</tr>
<tr>
<td>4. 4</td>
<td>NICOTINIC</td>
<td>4. 4</td>
</tr>
<tr>
<td>5. 5</td>
<td>NICOTINIC</td>
<td>5. 5</td>
</tr>
<tr>
<td>6. 6</td>
<td>NICOTINIC</td>
<td>6. 6</td>
</tr>
<tr>
<td>7. 7</td>
<td>NICOTINIC</td>
<td>7. 7</td>
</tr>
<tr>
<td>8. 8</td>
<td>NICOTINIC</td>
<td>8. 8</td>
</tr>
<tr>
<td>9. 9</td>
<td>NICOTINIC</td>
<td>9. 9</td>
</tr>
</tbody>
</table>

**FTC-B 2012 Forensic Toxicology, Criministics**

Evaluations:
- Original: 12/10/2012
- In Process: 9/10/2012
- Released: 11/06/2012
- CAP Number: 719412-01
- ITC Number: 22454202
- College of American Pathologists
- 800.331.0400 - info@cap.org

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**Advancing Excellence**

- College of American Pathologists
Chemist: Derek Sanders

Area of Proficiency tested: Blood Alcohol

Date of Test Completion: October 23, 2012

Proficiency Test Service Provider: Collaborative Testing Services, Inc.

Source of Test: External

Test Number: 12-565

Lab Number: L12-1774

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained with Quality Assurance manager and a copy will be placed in the chemist's personal training manual.

Congratulations!

Azell Carter
Quality Manager
Each sample set consisted of four vials of blood, each with a different blood alcohol concentration (BAC). Participants were requested to analyze each vial and report the blood alcohol concentration.

SAMPLE PREPARATION:
A stock solution of ethanol in water was used to spike each item. The stock solution was prepared by combining 15 grams of absolute ethanol with enough distilled water to produce a solution of 150 milliliters. The stock solution was stored in a covered flask, which was opened only when a volume of the solution was needed for production.

In order to obtain sufficient volume for this test, three batches were prepared of each item (A, B and C). Each batch and each item were prepared separately using the following procedure and all glassware was cleaned between preparations.

ITEMS 1, 2, 3 and 4 (PREPARATION): Sample preparation consisted of adding a predetermined amount of ethanol stock solution to a 500mL graduated cylinder containing human whole blood (which had been drawn into citric acid preservative blood bank bags). The blood was then transferred to a beaker, where the equivalent of 1% w/v sodium fluoride was added and then stirred with a magnetic stirrer for 10 minutes before pipetting the mixture into the pre-labeled vials, which contained 12mg potassium oxalate and 15mg sodium fluoride (this NaF was included in the 1% w/v NaF calculation). The vials were sealed and inverted 8-10 times to mix the chemicals in the vials with the blood solution. All vials were placed in a refrigerator immediately after production until the sample sets were prepared.

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<th>Preparation BAC (g/100mL)</th>
</tr>
</thead>
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<td>0.27</td>
</tr>
<tr>
<td>Item 2</td>
<td>0.12</td>
</tr>
<tr>
<td>Item 3</td>
<td>0.15</td>
</tr>
<tr>
<td>Item 4</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Please note that the Preparation Value is the value used for calculations during the test preparation phase and may not necessarily represent the final concentration of the samples. It is advised to wait for the Grand Mean statistics available in the Summary and Individual Reports before evaluating performance.
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Record and Results

Chemist: Derek Sanders

Area of Proficiency tested: Toxicology (Blood-Drug)

Date of Test Completion: May 03, 2012

Proficiency Test Service Provider: College of American Pathologists

Source of Test: External

Test Number: FTC-A 2012

Lab Number: L12-0486

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained with Quality Assurance manager and a copy will be placed in the chemist’s personal training manual.

Congratulations!

Azell Carter
Quality Manager
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Record and Results

Chemist: Derek Sanders

Area of Proficiency tested: Toxicology (Urine-Drug)

Date of Test Completion: May 03, 2012

Proficiency Test Service Provider: College of American Pathologists

Source of Test: External

Test Number: FTC-A 2012

Lab Number: L12-0486

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained with Quality Assurance manager and a copy will be placed in the chemist's personal training manual.

Congratulations!

Azell Carter
Quality Manager
<table>
<thead>
<tr>
<th>Method</th>
<th>FTC 01</th>
<th>FTC 02</th>
<th>FTC 04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You Read</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Response</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zolpidem</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphenhydramine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meperidine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxycodone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTC 03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTC 05</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PASADENA POLICE DEPARTMENT
Regional Crime Laboratory
923 Shaw Avenue
Pasadena, Texas 77506
(713) 475-7866
(713) 475-2022 - FAX

LABORATORY REPORT

Lab Number: L12-0486  Report Number: 1
Case#: FTC-A 2012  Complainant: State Of Texas
Offense Date: 03/06/2012  Offense Charge: Proficiency Test
Report Date: 05/03/2012
Submitting Agency: Pasadena Police Department
Submitted By: Pam McInnis  Submission Date: 03/06/2012

Suspect(s):

Evidence:
001.1. Sample container containing a blood sample.
001.2. Sample container containing a blood sample.
001.3. Sample container containing a blood sample.
001.4. Specimen container containing a urine specimen.

Results:
001.1. Analysis of the submitted sample did determine the presence of ethyl alcohol at the concentration of 0.069 grams per 100 milliliters of blood. Additional analysis of the submitted sample did determine the presence of monoacetylmorphine, morphine and oxycodone.
001.2. Analysis of the submitted sample did not determine the presence of ethyl alcohol. Additional analysis of the submitted sample did determine the presence of lorazepam and hydromorphone.
001.3. Analysis of the submitted sample did not determine the presence of ethyl alcohol. Additional analysis of the submitted sample did determine the presence of phenobarbital, phenytoin, methylenedioxy methamphetamine (mdma) and methylenedioxyamphetamine (mda).
001.4. Analysis of the submitted specimen did determine the presence of zolpidem.

Unless otherwise requested, toxicology specimens will be discarded one year after date of receipt.

Derek Sanders
Senior Forensic Chemist

This Laboratory is Accredited by Texas Department of Public Safety and ASCLD/LAB.
Pasadena Police Department Regional Crime Laboratory

Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CTS 11-565 Blood Alcohol

Date Completed: Nov 2011

Were all reported results correct? Yes

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

The results from CTS are available in the test folder. They may be contacted with questions about the Proficiency Test.

Claudia Busby
Quality Manager

1/31/2012
Chemist: Derek Sanders

Area of Proficiency tested: Blood Alcohol

Date of Test Completion: Nov 2011

Proficiency Test Service Provider: CTS

Test Number: CTS 11-565

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Drugs

Date of Test Completion: June 2011

Proficiency Test Service Provider: CTS

Test Number: CTS 11-501

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: Internal

Test and Manufacturer: CTS 11-501 Drugs

Date Completed: June 2011

Were all reported results correct? Yes

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

The results from CAP are available in the test folder. They may be contacted with questions about the Proficiency Test.

Claudia Busby
Quality Manager

1/31/2012
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External
Test and Manufacturer: FTC-A Blood Drug, urine drug
Date Completed: May 2011
Were all reported results correct? Yes
Are analytical discrepancies present? No
Is the proficiency test graded as satisfactory? Yes
Is corrective action required? No
Do you think this test was representative of our casework? Yes

The results from CAP are available in the test folder. They may be contacted with questions about the Proficiency Test.

Claudia Busby
Quality Manager

1/31/2012
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Blood drug, urine drug

Date of Test Completion: May 2011

Proficiency Test Service Provider: CAP

Test Number: CAP FTC-A

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager
Chemist: Derek Sanders

Area of Proficiency tested: Blood Drug

Date of Test Completion: November 12, 2010

Proficiency Test Service Provider: CAP

Test Number: CAP FTC-B 2010

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager
To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review  

Source of Test: External  

Test and Manufacturer: CAP FTC-B 2010  

Date Completed: November 12, 2010  

Were all reported results correct? Yes  

Are analytical discrepancies present? No  

Is the proficiency test graded as satisfactory? Yes  

Is corrective action required? No  

Do you think this test was representative of our casework? Yes  

The results from CAP are available in the test folder. They may be contacted with questions about the Proficiency Test.

Claudia Busby  
Quality Manager  

2/8/2011
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Blood Alcohol

Date of Test Completion: September 28, 2010

Proficiency Test Service Provider: CTS

Test Number: CTS 10-565 Blood Alcohol

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager
To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CTS 10-565 Blood Alcohol

Date Completed: September 28, 2010

Were all reported results correct? Yes

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

The results from CTS are available in the test folder. They may be contacted with questions about the Proficiency Test.

Claudia Busby  
Quality Manager  

2/8/2011
Chemist: Derek Sanders

Area of Proficiency tested: Urine Toxicology

Date of Test Completion: October 29, 2009

Proficiency Test Service Provider: CAP

Test Number: UT-C 2009

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CAP UT-C 2009 Urine Toxicology

Date Completed: October 29, 2009

Were all reported results correct? Yes

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by CAP. They may be contacted with questions about the Proficiency Test.

Claudia Busby
Quality Manager

12/29/2009
Chemist: Derek Sanders

Area of Proficiency tested: Blood Alcohol

Date of Test Completion: October 26, 2009

Proficiency Test Service Provider: CTS

Test Number: 09-565

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review  

Source of Test: External  
Test and Manufacturer: CTS 09-565 Blood Alcohol  
Date Completed: October 26, 2009  
Were all reported results correct? Yes  
Are analytical discrepancies present? No  
Is the proficiency test graded as satisfactory (no analytical errors)? Yes  
Is corrective action required? No  
Do you think this test was representative of our casework? Yes  

I am providing you with the report issued by CTS. They may be contacted with questions about the Proficiency Test.

Claudia Busby  
Quality Manager

12/29/2009
Manufacturer's Information

Test No. 09-565: Blood Alcohol

Each sample pack consisted of four vials of blood, each with a different blood alcohol concentration (BAC).

SAMPLE PREPARATION-
A stock solution of ethanol in water was used to spike each item. The stock solution was prepared by combining 10 grams of absolute ethanol with enough distilled water to produce a solution of 100 milliliters. The stock solution was stored in a covered flask, which was opened only when a volume of the solution was needed for production.

In order to obtain the sufficient volume needed for this test, three batches were prepared of each item (A, B and C). Each batch of all items were prepared separately using the following procedure and all glassware was cleaned between preparations.

ITEMS 1, 2, 3 and 4 (PREPARATION): Sample preparation consisted of adding a predetermined amount of ethanol stock solution to a 500mL graduated cylinder containing human whole blood (which had been drawn into citric acid preservative blood bank bags). The blood was then transferred to a beaker, where the equivalent of 1% w/v sodium fluoride was added and then stirred with a magnetic stirrer for 10 minutes before pipetting the mixture into the prelabeled vials, which contained 12mg potassium oxalate and 15mg sodium fluoride (this NaF was included in the 1% w/v NaF calculation). The vials were sealed and inverted 8-10 times to mix the chemicals in the vials with the blood solution. All vials were placed in a refrigerator immediately after production until the sample packs were prepared.

SAMPLE PACK ASSEMBLY: Once predistribution results were received, a sample pack was prepared containing an Item 1, 2, 3 and 4 from the same batch and were placed into a Department of Transportation regulated mailing system. Each sample pack was labeled with test number and batch letter and returned to the refrigerator until shipment.

VERIFICATION-
Laboratories that conducted predistribution analysis of the samples reported consistent results for each batch that were comparable to the preparation target Blood Alcohol Concentrations.

<table>
<thead>
<tr>
<th>Item</th>
<th>Preparation Target BAC (g/100mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>0.17</td>
</tr>
<tr>
<td>Item 2</td>
<td>0.13</td>
</tr>
<tr>
<td>Item 3</td>
<td>0.24</td>
</tr>
<tr>
<td>Item 4</td>
<td>0.04</td>
</tr>
</tbody>
</table>

The information presented here is that received from the sample manufacturer. It presents details of the design specification for the test samples and/or details of how they were prepared. This information does not necessarily represent the answers that should or could be obtained from an examination of the sample. Final interpretation of the results should be deferred until the summary report is available.
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Urine Toxicology

Date of Test Completion: August 13, 2009

Proficiency Test Service Provider: CAP

Test Number: UT-B 2009

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
Pasadena Police Department Regional Crime Laboratory  
Proficiency Test Review Form

To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CAP UT-B 2009 Urine Toxicology

Date Completed: August 13, 2009

Were all reported results correct? Yes

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by CAP. They may be contacted with questions about the Proficiency Test.

Claudia Busby  
Quality Manager

11/16/2009
The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.

<table>
<thead>
<tr>
<th>Test</th>
<th>Method</th>
<th>Specimen</th>
<th>Your Result</th>
<th>Intended Response</th>
<th>Your Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urine Toxicology ID</td>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-06</td>
<td>AMPHETAMINE</td>
<td></td>
<td>[41]</td>
</tr>
<tr>
<td></td>
<td>TLC KIT</td>
<td>UT-06</td>
<td>EPHEDRINE/PSEUDOEPHED.</td>
<td></td>
<td>[41]</td>
</tr>
<tr>
<td>Urine Toxicology ID</td>
<td>GAS CHROMATOGRAPHY</td>
<td>UT-07</td>
<td>ETHANOL</td>
<td></td>
<td>[41]</td>
</tr>
<tr>
<td></td>
<td>TLC KIT</td>
<td>UT-07</td>
<td>DIPHENHYDRAMINE</td>
<td></td>
<td>[41]</td>
</tr>
<tr>
<td>Urine Toxicology ID</td>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-08</td>
<td>HYDROCODONE</td>
<td></td>
<td>[41]</td>
</tr>
<tr>
<td></td>
<td>TLC KIT</td>
<td>UT-08</td>
<td>HYDROMORPHONE</td>
<td></td>
<td>[41]</td>
</tr>
<tr>
<td>Urine Toxicology ID</td>
<td>GAS CHROMATOGRAPHY</td>
<td>UT-09</td>
<td>ETHANOL</td>
<td></td>
<td>[41]</td>
</tr>
<tr>
<td>Urine Toxicology ID</td>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-10</td>
<td>METHADONE/METAB</td>
<td></td>
<td>[41]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-10</td>
<td>MORPHINE</td>
<td></td>
<td>[41]</td>
</tr>
</tbody>
</table>

CAP Number: 7194312-01
Institution: Pasadena Police Department
Attention: Claudia Busby
City / State: Pasadena TX 77506-1428

Kit ID: 21529596
Kit Mailed: 7/20/2009
Original Evaluation: 8/26/2009
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Controlled Substances

Date of Test Completion: April 2009

Proficiency Test Service Provider: CTS

Test Number: 09-501

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: Internal

Test and Manufacturer: CTS, 09-501

Date Completed: April 2009

Were all reported results correct? Yes

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

The results for the proficiency test are included here. If you have any questions, contact CTS.

Claudia Busby  
Quality Manager

8/11/2009
Test Summary: Each sample pack consisted of two items. Item 1 contained 200 mg of powder consisting of Diphenhydramine. Item 2 contained 300 mg of powder consisting of approximately 10% Methylphenidate HCl. (Please see the Summary Report for additional summary comments and information.)

### Identification

<table>
<thead>
<tr>
<th>Participant: U4928A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item 1</strong></td>
</tr>
<tr>
<td><strong>Identification Methods</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Other:</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Item 2</strong></th>
<th><strong>Methylphenidate</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identification Methods</strong></td>
<td>Color</td>
</tr>
<tr>
<td></td>
<td>Crystal</td>
</tr>
<tr>
<td></td>
<td>TLC</td>
</tr>
<tr>
<td><strong>Other:</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Consensus Results

<table>
<thead>
<tr>
<th>Participants: 692</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item 1</strong></td>
</tr>
<tr>
<td><strong>Item 2</strong></td>
</tr>
</tbody>
</table>

To view and print the Summary Report go to: www.ctsforensics.com
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Urine Toxicology

Date of Test Completion: March 18, 2009

Proficiency Test Service Provider: CAP

Test Number: UT-A 2009

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review  

Source of Test: External  

Test and Manufacturer: CAP UT-A 2009 Urine Toxicology  

Date Completed: March 18, 2009  

Were all reported results correct? Yes  

Are analytical discrepancies present? No  

Is the proficiency test graded as satisfactory (no analytical errors)? Yes  

Is corrective action required? No  

Do you think this test was representative of our casework? Yes  

I am providing you with the report issued by CAP. They may be contacted with questions about the Proficiency Test.

Claudia Busby  
Quality Manager  

5/6/2009
**INSTITUTION:** Pasadena Police Department  
Pasadena TX 77506  

**ATTENTION:** Claudia Busby  

**CAP NUMBER:** 7194312-01  

**KIT INFORMATION:**  
- Kit ID: 21529595  
- Kit Mailed: 3/2/2009  
- Original Evaluation: 4/10/2009  

**COPIED TO:** CAP  

**NEXT MAILING DATE:** 7/20/2009  

**LEGEND:** Exception Reason Codes appearing in this evaluation:  
**<NONE>**

---

The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
<table>
<thead>
<tr>
<th>Test</th>
<th>Method</th>
<th>Specimen</th>
<th>Your Result</th>
<th>Intended Response</th>
<th>Your Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urine Toxicology ID</td>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-01</td>
<td>AMPHETAMINE</td>
<td>AMPHETAMINE</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-01</td>
<td>METHAMPHETAMINE</td>
<td>AMPHETAMINE GROUP METAMPHETAMINE</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-02</td>
<td>COCAINE (PARENT DRUG)</td>
<td>BENZOYLECGONINE COCAINE (PARENT DRUG) ECGONINE METHYL ESTER ETHANOL</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-02</td>
<td>BENZOYLECGONINE</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-02</td>
<td>ECGONINE METHYL ESTER</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Urine Toxicology ID</td>
<td>TLC KIT</td>
<td>UT-03</td>
<td>MEPROBAMATE</td>
<td>MEPROBAMATE DELTA-9-THC-COOH CANNABINOID</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-03</td>
<td>CANNABINOID</td>
<td></td>
<td>Good</td>
</tr>
</tbody>
</table>

The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
### Urine Toxicology | UT-A 2009
--- | ---
| Test | Method | Specimen | Your Result | Intended Response | Your Grade |
| Urine Toxicology ID | GAS CHROMATOGRAPHY | UT-04 | ETHANOL | ACETAMINOPHEN | Good |
| | | | | BUTALBITAL | Good |
| | | | | BARBITURATE GROUP | Good |
| | | | | FLUOXETINE | Good |
| | | | | NORFLUOXETINE | Good |
| | | | | ETHANOL | Good |
| Urine Toxicology ID | ENZYME IMMUNOASSAY | UT-04 | ACETAMINOPHEN | | Good |
| | | | | BUTALBITAL | Good |
| | | | | FLUOXETINE | Good |
| | | | | NORFLUOXETINE | Good |
| Urine Toxicology ID | ENZYME IMMUNOASSAY | UT-05 | COCAINE (PARENT DRUG) | 6-MONOOACETYLMORPHINE | Good |
| | | | | BENZYLCOCAINE | Good |
| | | | | MORPHINE | Good |
| | | | | COCAINE (PARENT DRUG) | Good |
| | | | | OPIATE GROUP | Good |
| | | UT-05 | BENZYLCOCAINE | | Good |
| | | UT-05 | MORPHINE | | Good |

The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Urine Toxicology

Date of Test Completion: November 10, 2008

Proficiency Test Service Provider: CAP

Test Number: UT-C 2008

Chemist Derek Sanders has successfully completed the above proficiency. This
document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager
To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External
Test and Manufacturer: CAP UT-C 2008 Urine Toxicology
Date Completed: November 10, 2008
Were all reported results correct? Yes
Are analytical discrepancies present? No
Is the proficiency test graded as satisfactory (no analytical errors)? Yes
Is corrective action required? No
Do you think this test was representative of our casework? Yes

I am providing you with the report issued by CAP. They may be contacted with questions about the Proficiency Test.

Claudia Busby
Quality Manager

2/2/2009
ORIGINALEVALUATION

UT-C 2008 Urine Toxicology

INSTITUTION: Pasadena Police Department
Pasadena TX 77506

ATTENTION: Claudia Bushy

CAP NUMBER: 7194312-01   Kit# 1

KIT INFORMATION: Kit ID: Kit Mailed: Original Evaluation:
20630908  10/13/2008  11/19/2008

COPIED TO: CAP

Next Mailing Date: 3/2/2009

LEGEND: Exception Reason Codes appearing in this evaluation:
<NONE>

The College of American Pathologists recommends that the results of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
### EVALUATION

#### ORIGINAL

<table>
<thead>
<tr>
<th>Test</th>
<th>Method</th>
<th>Specimen</th>
<th>Your Result</th>
<th>Intended Response</th>
<th>Your Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urine Toxicology ID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLC KIT</td>
<td>UT-11</td>
<td>OXYCODONE</td>
<td>ACETAMINOPHEN</td>
<td>Ethanol, Oxycodone</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>UT-11</td>
<td>ACETAMINOPHEN</td>
<td>Ethanol</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>GAS CHROMATOGRAPHY</td>
<td>UT-11</td>
<td>ETHANOL</td>
<td>DIPHENHYDRAMINE</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>TLC KIT</td>
<td>UT-12</td>
<td>DIPHENHYDRAMINE</td>
<td>Ranitidine</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UT-13</td>
<td>PHENTERMINE</td>
<td>Phentermine</td>
<td>Sertraline, Amines, AMPHETAMINE GROUP</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>UT-13</td>
<td>SERTRALINE</td>
<td>DELTA-9-THC-COOH</td>
<td>CANNABINODS, KETAMINE</td>
<td>Good</td>
</tr>
<tr>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-14</td>
<td>CANNABINODS</td>
<td>BUFRENORPHINE, NORBUPRENORPHINE, MORPHINE, OPIATE GROUP</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>Urine Toxicology ID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-15</td>
<td>MORPHINE</td>
<td>BUFRENORPHINE, NORBUPRENORPHINE, MORPHINE, OPIATE GROUP</td>
<td>Good</td>
<td></td>
</tr>
</tbody>
</table>

The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Blood Alcohol

Date of Test Completion: October 29, 2008

Proficiency Test Service Provider: CTS

Test Number: 08-565

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
Pasadena Police Department Regional Crime Laboratory  
Proficiency Test Review Form

To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: External  
Test and Manufacturer: CTS 08-565 Blood Alcohol  
Date Completed: October 29, 2008

Were all reported levels within an acceptable range? Yes  
Are analytical discrepancies present? No  
Is the proficiency test graded as satisfactory (no analytical errors)? Yes  
Is corrective action required? No  
Do you think this test was representative of our casework? Yes

I am providing you with the report issued by CTS. They may be contacted with questions about the Proficiency Test.

Claudia Busby  
Quality Manager

2/2/2009
Individual Report  
Test 08-565:  
Blood Alcohol  

Test Summary: Each sample pack consisted of four vials of blood with differing amounts of ethanol to produce the target blood alcohol concentration. [See the Summary Report for additional summary comments and information.]

<table>
<thead>
<tr>
<th>Examination Results</th>
<th>This participant's results are part of Batch C</th>
</tr>
</thead>
</table>

**What is the blood alcohol concentration (g/100mL) of the sample in each of the vials?**  
If more than one determination was taken for each item, list the value of each separate determination.

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Reporting Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported Results:</td>
<td>0.000</td>
<td>0.184</td>
<td>0.041</td>
<td>0.087</td>
</tr>
</tbody>
</table>

Listing of Raw data reported and used in statistical analysis.

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
</tr>
</thead>
</table>

Calculated Mean: 0.0000

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
</tr>
</thead>
</table>

**Response Summary for Batch C**

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
</tr>
</thead>
</table>

**Target BAC:** 0 0.20 0.05 0.10

Grand Mean: 0.194 0.044 0.093

Standard Deviation: 0.0081 0.0031 0.0047

†Please note Statistical Analysis for this Item has not been provided due to the zero value of most responses. This did not allow for the generation of accurate statistics.

*"X" next to the Calculated Mean represents extreme data. Raw data was excluded from the Grand Mean and Standard Deviation.

* See Additional Comments

---

**Preliminary ASCLD/LAB Response Summary for Batch C**

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
</tr>
</thead>
</table>

**Target BAC:** 0 0.20 0.05 0.10

Grand Mean: 0.195 0.044 0.092

Standard Deviation: 0.0057 0.0022 0.0034

This summary has only been provided to participants who have indicated that they are submitting their results for review by the ASCLD/LAB Toxicology Proficiency Review Committee. The statistics shown are limited to the ASCLD/LAB accredited participants that have authorized the release of their results to the PRC.

These statistics are considered preliminary as they could change without notice prior to their release to the ASCLD/LAB Toxicology PRC and are provided as a self evaluation tool.

---

To view and print the Summary Report go to: www.collaborativetesting.com
Chemist: Derek Sanders

Area of Proficiency tested: Urine Toxicology

Date of Test Completion: August 14, 2008

Proficiency Test Service Provider: CAP

Test Number: UT-B 2008

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager
To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CAP UT-B 2008

Date Completed: August 14, 2008

Were all reported identifications correct? Yes

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

CAP may be contacted with questions about the Proficiency Test. The results are in the proficiency folder.

Claudia Busby
Quality Manager

9/25/2008
Chemist: Derek Sanders

Area of Proficiency tested: Drug Analysis

Date of Test Completion: May 22, 2008

Proficiency Test Service Provider: CTS

Test Number: 08-501

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager
To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: Internal

Test and Manufacturer: CTS 08-501 Drug Analysis

Date Completed: May 22, 2008

Were all reported identifications correct? Yes

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by CTS. They may be contacted with questions about the Proficiency Test.

Claudia Busby  
Quality Manager

8/26/2008
**Individual Report**  
**Test 08-501: Drug Analysis**

**Test Summary:** Each sample pack consisted of two items. Item 1 contained 100 mg of powder consisting of approximately 90% Ketamine Hydrochloride. Item 2 contained 200 mg of Caffeine. *(Please see the Summary Report for additional summary comments and information.)*

<table>
<thead>
<tr>
<th>Identification</th>
<th>Controlled Substance(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participant: U4928A</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Item 1</strong> Ketamine</td>
<td></td>
</tr>
<tr>
<td>Identification Methods</td>
<td></td>
</tr>
<tr>
<td>✓ Color</td>
<td>✓ FTIR</td>
</tr>
<tr>
<td>✓ Crystal</td>
<td>✓ GC</td>
</tr>
<tr>
<td>✓ TLC</td>
<td>✓ LC</td>
</tr>
<tr>
<td>✓ UV</td>
<td>✓ GC/MS</td>
</tr>
<tr>
<td>Microscopic</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td><strong>Item 2</strong> No controlled substance detected/identified</td>
<td></td>
</tr>
<tr>
<td>Identification Methods</td>
<td></td>
</tr>
<tr>
<td>✓ Color</td>
<td>✓ FTIR</td>
</tr>
<tr>
<td>✓ Crystal</td>
<td>✓ GC</td>
</tr>
<tr>
<td>✓ TLC</td>
<td>✓ LC</td>
</tr>
<tr>
<td>✓ UV</td>
<td>✓ GC/MS</td>
</tr>
<tr>
<td>Microscopic</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

**Consensus Results:**

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Ketamine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 2</td>
<td>No controlled substance detected/identified</td>
</tr>
</tbody>
</table>
To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CAP UT-A 2008

Date Completed: April 3, 2008

Were all reported inclusions correct? No

Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? N/A

Are analytical discrepancies present? Yes

Is the proficiency test graded as satisfactory (no analytical errors)? No

Is corrective action required? Yes

Do you think this test was representative of our casework? Yes

A copy of the results and the corrective action will be maintained in the proficiency folder.

Claudia Busby
Quality Manager

9/25/2008
Chemist: Derek Sanders

Area of Proficiency tested: Urine Toxicology

Date of Test Completion: November 17, 2007

Proficiency Test Service Provider: CAP

Test Number: UT-C 2007

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CAP UT-C 2007 Urine Toxicology

Date Completed: November 17, 2007

Were all reported identifications correct? Yes

Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? N/A

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by CTS. They may be contacted with questions about the Proficiency Test.

Claudia Busby
Quality Manager

1/1/2008
<table>
<thead>
<tr>
<th>Test</th>
<th>Method</th>
<th>Specimen</th>
<th>Your Result</th>
<th>Intended Response</th>
<th>Your Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>UT-C 2007 urine toxicology</td>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-11</td>
<td>AMPHETAMINE</td>
<td>AMINES</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-11</td>
<td>METHAMPHETAMINE</td>
<td>CANNABINODS</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-11</td>
<td>CANNABINODS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UT-C 2007 urine toxicology</td>
<td>TLC KIT</td>
<td>UT-12</td>
<td>PHENCYCLIDINE</td>
<td>ETHANOL</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>GAS CHROMATOGRAPHY</td>
<td>UT-12</td>
<td>ETHANOL</td>
<td>PHENCYCLIDINE</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>TLC KIT</td>
<td>UT-13</td>
<td>VERAPAMIL &amp;/OR METAB</td>
<td>VERAPAMIL &amp;/OR METAB</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-14</td>
<td>DOXEPIN</td>
<td>DOXEPIN</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-14</td>
<td>NORDOXEPIN</td>
<td>METHANOL</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-15</td>
<td>THEOPHYLLINE</td>
<td>THEOPHYLLINE</td>
<td>Good</td>
</tr>
</tbody>
</table>

The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Blood Alcohol

Date of Test Completion: October 22, 2007

Proficiency Test Service Provider: CTS

Test Number: 07-565

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CTS 07-565 Blood Alcohol

Date Completed: October 22, 2007

Were all reported inclusions correct? N/A

Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? Yes

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by CTS. They may be contacted with questions about the Proficiency Test.

Claudia Busby  
Quality Manager

1/1/2008
Manufacturer's Information
Test No. 07-565: Blood Alcohol

Each sample pack consisted of four vials of blood, each with a different target blood alcohol concentration.

A stock solution of ethanol in water was used to spike each item. The stock solution was prepared by combining 10 grams of absolute ethanol with enough distilled water to produce a solution of 100 milliliters. The stock solution was stored in a covered flask, which was opened only when a volume of the solution was needed for production.

Sample preparation consisted of adding a predetermined amount of ethanol stock solution to a 500mL graduated cylinder containing human whole blood (which had been drawn into citric acid preservative bloodbank bags). The blood was then transferred to a beaker, where the equivalent of 1% w/v sodium fluoride was added and then stirred with a magnetic stirrer for 5 minutes before pipetting the mixture into the prelabeled vials, which contained 12mg potassium oxalate and 15mg sodium fluoride (this NaF was included in the 1% w/v NaF calculation). In order to obtain sufficient volume this procedure was done a second time to create two batches of each sample (A and B). Each sample was prepared separately, and all glassware was cleaned between preparations. The vials were sealed and inverted 8-10 times to mix the chemicals in the vials with the blood solution. All vials were placed in a refrigerator immediately after production until the sample packs were prepared.

<table>
<thead>
<tr>
<th>Item</th>
<th>Target BAC (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>0.11</td>
</tr>
<tr>
<td>Item 2</td>
<td>0.07</td>
</tr>
<tr>
<td>Item 3</td>
<td>0.27</td>
</tr>
<tr>
<td>Item 4</td>
<td>0.19</td>
</tr>
</tbody>
</table>

The information presented here is that received from the sample manufacturer. It presents details of the design specification for the test samples and/or details of how they were prepared. This information does not necessarily represent the answers that should or could be obtained from an examination of the sample. Final interpretation of the results should be deferred until the summary report is available.
Individual Report
Test 07-565:

Blood Alcohol

Test Summary: Each sample pack consisted of four vials of blood with differing amounts of ethanol to produce the target blood alcohol concentration. [See the Summary Report for additional summary comments and information.]

<table>
<thead>
<tr>
<th>Examination Results</th>
<th>This participant's results are part of Batch B</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the blood alcohol concentration (g/100mL) of the sample in each of the vials?</td>
<td></td>
</tr>
<tr>
<td>If more than one determination was taken for each item, list the value of each separate determination.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reported Results:</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Reporting Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.109</td>
<td>0.066</td>
<td>0.276</td>
<td>0.195</td>
<td>Mean</td>
</tr>
</tbody>
</table>

Listing of Raw data reported and used in statistical analysis.

<table>
<thead>
<tr>
<th>Item</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Reported Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.1110</td>
<td>0.1090</td>
<td>0.1090</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 2</td>
<td>0.0660</td>
<td>0.0670</td>
<td>0.0670</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 3</td>
<td>0.2790</td>
<td>0.2780</td>
<td>0.2720</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 4</td>
<td>0.1970</td>
<td>0.1910</td>
<td>0.1970</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calculated Mean</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.1097</td>
<td>0.0667</td>
<td>0.2763</td>
<td>0.1950</td>
</tr>
</tbody>
</table>

Response Summary for Batch B

<table>
<thead>
<tr>
<th>Target BAC</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.11</td>
<td>0.07</td>
<td>0.27</td>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td>Grand Mean</td>
<td>0.1054</td>
<td>0.0628</td>
<td>0.2625</td>
<td>0.1862</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.0046</td>
<td>0.0036</td>
<td>0.0112</td>
<td>0.0076</td>
</tr>
</tbody>
</table>

To view and print the Summary Report go to: www.collaborativetesting.com
Chemist: Derek Sanders

Area of Proficiency tested: Urine Toxicology

Date of Test Completion: August 3, 2007

Proficiency Test Service Provider: CAP

Test Number: UT-B 2007

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager
Pasadena Police Department Regional Crime Laboratory  
Proficiency Test Review Form

To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CAP UT-B 2007 Urine Toxicology

Date Completed: August 3, 2007

Were all reported inclusions correct? Yes

Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? N/A

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by CTS. They may be contacted with questions about the Proficiency Test.

Claudia Busby  
Quality Manager

9/5/2007
<table>
<thead>
<tr>
<th>INSTITUTION:</th>
<th>Pasadena Police Department Pasadena TX 77506</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTENTION:</td>
<td>Claudia Busby</td>
</tr>
<tr>
<td>CAP NUMBER:</td>
<td>7194312-01 Kit# 1</td>
</tr>
<tr>
<td>COPIED TO:</td>
<td>CAP</td>
</tr>
</tbody>
</table>

**LEGEND:** Exception Reason Codes appearing in this evaluation: <NONE>

---

Reviewed By _________________________________

Date _________________________________
<table>
<thead>
<tr>
<th>Test</th>
<th>Specimen</th>
<th>Your Result</th>
<th>Intended Response</th>
<th>Your Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urine Toxicology ID</strong></td>
<td>UT-06</td>
<td>TRAMADOL</td>
<td>AMITRIPTYLINE</td>
<td>Good</td>
</tr>
<tr>
<td>TLC KIT</td>
<td>UT-06</td>
<td>AMITRIPTYLINE</td>
<td>NORTRIPTYLINE</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>UT-06</td>
<td>NORTRIPTYLINE</td>
<td>TRAMADOL</td>
<td></td>
</tr>
<tr>
<td><strong>Urine Toxicology ID</strong></td>
<td>UT-07</td>
<td>ETHANOL</td>
<td>ACETAMINOPHEN</td>
<td>Good</td>
</tr>
<tr>
<td>GAS CHROMATOGRAPHY</td>
<td>UT-07</td>
<td>DEXTROMETHORPHAN</td>
<td>DIPHENDRamine</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>UT-07</td>
<td>ETHANOL</td>
<td>EPHEDRINE/PSEUDOEPHED.</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>UT-07</td>
<td>PHENYLPROPANOLAMINE</td>
<td>ETHANOL</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>UT-07</td>
<td>PSEUDOEPHEDRINE</td>
<td>METHADONE/METAB</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Urine Toxicology ID</strong></td>
<td>UT-08</td>
<td>METHADONE/METAB</td>
<td>METHANOL</td>
<td>Good</td>
</tr>
<tr>
<td>TLC KIT</td>
<td>UT-08</td>
<td>METHADONE/METAB</td>
<td>METHADONE/METAB</td>
<td></td>
</tr>
</tbody>
</table>
### UT-B 2007 Urine Toxicology

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Specimen</th>
<th>Your Result</th>
<th>Intended Response</th>
<th>Your Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urine Toxicology ID</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-09</td>
<td>ALPRAZOLAM &amp;/OR METAB</td>
<td>ALPRAZOLAM &amp;/OR METAB, BENZODIAZEPINE GROUP, ETHANOL, RANITIDINE</td>
<td>Good</td>
</tr>
<tr>
<td>GAS CHROMATOGRAPHY</td>
<td>UT-09</td>
<td>ETHANOL</td>
<td>ETHANOL</td>
<td>Good</td>
</tr>
<tr>
<td>TLC KIT</td>
<td>UT-09</td>
<td>RANITIDINE</td>
<td>RANITIDINE</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Urine Toxicology ID</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLC KIT</td>
<td>UT-10</td>
<td>CODEINE</td>
<td>ACETAMINOPHEN, BARBITURATE GROUP, BENZODIAZEPINE GROUP, BUTALBITAL, CODEINE, ETHANOL, MORPHINE, OPIATE GROUP, OXAZEPAM</td>
<td>Good</td>
</tr>
<tr>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-10</td>
<td>MORPHINE</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>UT-10</td>
<td>OXAZEPAM</td>
<td></td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>UT-10</td>
<td>BUTALBITAL</td>
<td></td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>GAS CHROMATOGRAPHY</td>
<td>UT-10</td>
<td>ETHANOL</td>
<td>ETHANOL</td>
<td>Good</td>
</tr>
<tr>
<td>TLC KIT</td>
<td>UT-10</td>
<td>ACETAMINOPHEN</td>
<td></td>
<td>Good</td>
</tr>
</tbody>
</table>

The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
Chemist: Derek Sanders

Area of Proficiency tested: Urine Toxicology

Date of Test Completion: April 10, 2007

Proficiency Test Service Provider: CAP

Test Number: UT – A 2007

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: UT-A 2007 CAP

Date Completed: April 10, 2007

Were all reported inclusions correct? Yes

Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? N/A

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by David Rossi. He may be contacted with questions about the Proficiency Test.

Claudia Busby
Quality Manager

4/20/2007
| INSTITUTION: | Pasadena Police Department  
Pasadena TX 77506 |
| ATTENTION: | Claudia Busby |
| CAP NUMBER: | 7194312-01  
Kit# 1 |
| KIT INFORMATION: | Kit ID: 19776069  
Kit Mailed: 3/5/2007  
| COPIED TO: | CAP |
| IMPORTANT NOTES: | * Ethanol was present as an analyte solvent in specimen UT-04. Participants' results indicating either presence or absence of Ethanol in the specimen were not penalized. |
| LEGEND: | Exception Reason Codes appearing in this evaluation:  
<NONE> |

The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
<table>
<thead>
<tr>
<th>Test</th>
<th>Specimen</th>
<th>Your Result</th>
<th>Intended Response</th>
<th>Your Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urine Toxicology ID</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-05</td>
<td>METHLENE DIOXYMETHAMPHET</td>
<td>EPHEDRINE&lt;br&gt;EPHEDRINE/PSEUDOEPHED,&lt;br&gt;METHLENE DIOXY AMPHET&lt;br&gt;METHLENE DIOXY M ETHAMPHET&lt;br&gt;AMPHETAMINE GROUP&lt;br&gt;PHENYLPROPANOLAMINE&lt;br&gt;PSEUDOEPHEDRINE</td>
<td>Good</td>
</tr>
<tr>
<td><strong>TLC KIT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UT-05</td>
<td>UT-05</td>
<td>METHLENE DIOXY AMPHET</td>
<td>PSEUDOEPHEDRINE</td>
<td>Good</td>
</tr>
<tr>
<td>UT-05</td>
<td>UT-05</td>
<td>PSEUDOEPHEDRINE</td>
<td></td>
<td>Good</td>
</tr>
</tbody>
</table>

The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
Chemist: Derek Sanders

Area of Proficiency tested: Drug Analysis

Date of Test Completion: May 11, 2007

Proficiency Test Service Provider: CTS

Test Number: 07-501

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: Internal
Test and Manufacturer: CTS 07-501 Drug Analysis
Date Completed: May 11, 2007

Were all reported identifications correct? Yes
Were all reported negatives correct? Yes
Were all results reported as inconclusive consistent with written laboratory guidelines? N/A
Was basis for inconclusive interpretation documented? N/A
Were all quantitative results within written laboratory guidelines? N/A
Are analytical discrepancies present? No
Is the proficiency test graded as satisfactory (no analytical errors)? Yes
Is corrective action required? No
Do you think this test was representative of our casework? Yes

I am providing you with the report issued by CTS. They may be contacted with questions about the Proficiency Test.

Claudia Busby
Quality Manager

9/5/2007
Manufacturer's Information
Test No. 07-501: Drug Analysis

Each sample pack consisted of two items. Item 1 contained approximately 300mg of dried and crushed Oregano leaves (a herb). Oregano is not a controlled substance in the United States. Item 2 contained approximately 300mg dried and crushed plant material consisting of Marihuana (Cannabis). Marihuana (Cannabis) is a Schedule I controlled substance in the United States.

The oregano was baked at 200°C for 20 minutes in an attempt to remove some of the herb smell. The marihuana was received as a portion of a pressed/dried block, this was crushed using a food processor and the majority of stems and seeds were removed by hand.
Test Summary: Each sample pack consisted of two items. Item 1 contained approximately 300mg of dried and crushed Oregano leaves (a herb). Item 2 contained approximately 300mg dried and crushed plant material consisting of Marihuana (Cannabis). (Please see the Summary Report for additional summary comments and information.)

### Identification

<table>
<thead>
<tr>
<th>Participant: U4928A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item 1</strong></td>
</tr>
<tr>
<td>No controlled substance detected/identified</td>
</tr>
<tr>
<td><strong>Identification Methods</strong></td>
</tr>
<tr>
<td>✓ Color</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Other:</td>
</tr>
<tr>
<td><strong>Item 2</strong></td>
</tr>
<tr>
<td>Marihuana</td>
</tr>
<tr>
<td><strong>Identification Methods</strong></td>
</tr>
<tr>
<td>✓ Color</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

### Consensus Results

<table>
<thead>
<tr>
<th>Participants: 627</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item 1</strong></td>
</tr>
<tr>
<td>No controlled substance detected/identified</td>
</tr>
<tr>
<td><strong>Item 2</strong></td>
</tr>
<tr>
<td>Marihuana is the official US DEA spelling, other recognized spellings / drug components are: Marihuana, Cannabis, Delta 9- Tetrahydrocannabinol (D9-THC), Cannabinol (CBN), Cannabidiol (CBD)</td>
</tr>
</tbody>
</table>

To view and print the Summary Report go to: www.collaborativetesting.com
Chemist: Derek Sanders

Area of Proficiency tested: Toxicology – Urine Drug

Date of Test Completion: November 14, 2006 (One day late)

Proficiency Test Service Provider: College of American Pathologists (CAP)

Test Number: UT-C 2006

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: External  
Test and Manufacturer: CAP UT-C 2006  
Date Completed: November 14, 2006

Were all reported inclusions correct? Yes  
Were all reported exclusions correct? N/A  
Were all results reported as inconclusive consistent with written laboratory guidelines? N/A  
Was basis for inconclusive interpretation documented? N/A  
Were all quantitative results within written laboratory guidelines? N/A  
Are analytical discrepancies present? Yes  
Is the proficiency test graded as satisfactory (no analytical errors)? Yes – with the explanation provided by Derek Sanders describing the difficulty in seeing Fluoxetine on the GC/MS with the appropriate trouble shooting that was done.  
Is corrective action required? Yes – Analysis not reported on time  
Do you think this test was representative of our casework? Yes

I am providing you with the report issued by the manufacturer. Please review the report for information that may provide possible improvements for our lab such as comparison of procedures and reporting between laboratories.

Claudia Busby  
Quality Manager

1/2/2007
Data from this program do not necessarily indicate the superiority or inferiority of instruments, reagents, or other materials used by participating laboratories. Use of these data to suggest such superiority or inferiority may be deceptive and misleading. The College will take all steps open to it under the law to prevent unauthorized reproduction of substantial portions of the material in this Report, deceptive use of any such material, and any unauthorized use of the College's name or logo in connection with promotional efforts by marketers of laboratory equipment, reagents, materials, or services.
Target concentrations of each drug present are included for your reference.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Specimen</th>
<th>Target Concentration*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td>UT-11</td>
<td>2000 ng/mL</td>
</tr>
<tr>
<td>Delta-9-THC-COOH</td>
<td>UT-11</td>
<td>75 ng/mL</td>
</tr>
<tr>
<td>Nortriptyline</td>
<td>UT-11</td>
<td>1500 ng/mL</td>
</tr>
<tr>
<td>Meperidine</td>
<td>UT-12</td>
<td>3000 ng/mL</td>
</tr>
<tr>
<td>Normeperidine</td>
<td>UT-12</td>
<td>5000 ng/mL</td>
</tr>
<tr>
<td>Chlorpheniramine</td>
<td>UT-13</td>
<td>3000 ng/mL</td>
</tr>
<tr>
<td>Dextromethorphan</td>
<td>UT-13</td>
<td>3000 ng/dL</td>
</tr>
<tr>
<td>Pseudoephedrine</td>
<td>UT-13</td>
<td>2000 ng/dL</td>
</tr>
<tr>
<td>Fluoxetine</td>
<td>UT-14</td>
<td>200 ng/mL</td>
</tr>
<tr>
<td>Norfluoxetine</td>
<td>UT-14</td>
<td>3000 ng/mL</td>
</tr>
<tr>
<td>Acetaminophen</td>
<td>UT-15</td>
<td>100 mcg/mL</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>UT-15</td>
<td>5000 ng/mL</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>UT-15</td>
<td>1000 ng/mL</td>
</tr>
</tbody>
</table>

* Target concentrations represent the weighed-in amount verified at ± 10% for the drug.

Participants are marked incorrect if they report a drug present when it is not. They are not marked incorrect if they do not report a drug present. False positives are marked incorrect whereas false negatives are not marked incorrect.

Participants are reminded that only false positive results are penalized in the UT Survey, therefore, it is not necessary to indicate on the test result form which analytes are tested for in the laboratory. If a laboratory reports a drug on the test result form solely as an indication that it was tested for, but not identified by the laboratory, this result will be assessed as a false positive if the result is inconsistent with drugs known to be present in the specimen. Please note that "participants" in the data section of this report indicates the number of participants (entities enrolled in the UT Survey) that submitted a result(s) for each specimen in this Survey Set. Reported percentages for each analyte are based upon the number of present responses for that analyte as compared to the total number of respondents for that specimen.
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Blood Alcohol

Date of Test Completion: November 7, 2006

Proficiency Test Service Provider: Collaborative Testing Services, Inc. (CTS)

Test Number: 06-565

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CTS 06-565

Date Completed: November 7, 2006

Were all reported inclusions correct? Yes

Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? N/A

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by the manufacturer. Please review the report for information that may provide possible improvements for our lab such as comparison of procedures and reporting between laboratories.

Claudia Busby
Quality Manager

1/2/2007
Manufacturer's Information

Test No. 06-565: Blood Alcohol

Each sample pack consisted of four vials of blood, each with a different target blood alcohol concentration.

A stock solution of ethanol in water was used to spike each item. The stock solution was prepared by combining 10 grams of absolute ethanol with enough distilled water to produce a solution of 100 milliliters. The stock solution was stored in a covered flask, which was opened only when a volume of the solution was needed for production.

Sample preparation consisted of adding a predetermined amount of ethanol stock solution to a 500mL graduated cylinder containing human whole blood (which had been drawn into citric acid preservative bloodbank bags). The blood was then transferred to a beaker, where the equivalent of 1% w/v sodium fluoride was added and then stirred with a magnetic stirrer for 5 minutes before pipetting the mixture into the prelabeled vials, which contained 12mg potassium oxalate and 15mg sodium fluoride (this NaF was included in the 1% w/v NaF calculation). In order to obtain sufficient volume this procedure was done a second time to create two batches of each sample (A and B). Each sample was prepared separately, and all glassware was cleaned between preparations. The vials were sealed and inverted 8-10 times to mix the chemicals in the vials with the blood solution. All vials were placed in a refrigerator immediately after production until the sample packs were prepared.

<table>
<thead>
<tr>
<th>Item</th>
<th>Target BAC (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>0.05</td>
</tr>
<tr>
<td>Item 2</td>
<td>0.20</td>
</tr>
<tr>
<td>Item 3</td>
<td>0.00</td>
</tr>
<tr>
<td>Item 4</td>
<td>0.12</td>
</tr>
</tbody>
</table>

The information presented here is that received from the sample manufacturer. It presents details of the design specification for the test samples and/or details of how they were prepared. This information does not necessarily represent the answers that should or could be obtained from an examination of the sample. Final interpretation of the results should be deferred until the summary report is available.
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Toxicology – Urine Drug

Date of Test Completion: August 18, 2006

Proficiency Test Service Provider: College of American Pathologists (CAP)

Test Number: UT-B 2006

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

[Signature]
Claudia Busby
Quality Manager
### UT-B 2006 Urine Toxicology

<table>
<thead>
<tr>
<th>Test</th>
<th>Method</th>
<th>Specimen</th>
<th>Your Result</th>
<th>Intended Response</th>
<th>Your Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urine Toxicology ID</td>
<td>'TLC KIT'</td>
<td>UT-06</td>
<td>NO DRUGS DETECTED</td>
<td>NO DRUGS DETECTED</td>
<td>Good</td>
</tr>
<tr>
<td>Urine Toxicology ID</td>
<td>ENZYME IMMUNOASSAY</td>
<td>UT-07</td>
<td>EPHEDRINE/PSEUDOEPHED</td>
<td>EPHEDRINE/EPHEDRINE/PSEUDOEPHED,PSEUDOEPHEDRINE,AMPHETAMINE GROUP,PHENYLPROPAOLAMINE</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>'TLC KIT'</td>
<td>UT-07</td>
<td>PHENYLPROPAOLAMINE</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Urine Toxicology ID</td>
<td>GAS CHROMATOGRAPHY</td>
<td>UT-08</td>
<td>ETHANOL</td>
<td>COTININE,EThANOL,METHANOL,NICOTINE</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>'TLC KIT'</td>
<td>UT-08</td>
<td>METHANOL</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-08</td>
<td>NICOTINE</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-08</td>
<td>COTININE</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Urine Toxicology ID</td>
<td>'TLC KIT'</td>
<td>UT-09</td>
<td>LIDOCAINE</td>
<td>LIDOCAINE</td>
<td>Good</td>
</tr>
<tr>
<td>Urine Toxicology ID</td>
<td>GAS CHROMATOGRAPHY</td>
<td>UT-10</td>
<td>ETHANOL</td>
<td>NORPROPOXYPHENE,PROP0XYPHENE,ETHANOL(ANALYTE SOLV)</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>'TLC KIT'</td>
<td>UT-10</td>
<td>PROPOXYPHENE</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT-10</td>
<td>NORPROPOXYPHENE</td>
<td></td>
<td>Good</td>
</tr>
</tbody>
</table>

The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
<table>
<thead>
<tr>
<th>EVALUATION ORIGINAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>UT-B 2006 Urine Toxicology</td>
</tr>
</tbody>
</table>

The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CAP UT-B 2006

Date Completed: August 18, 2006

Were all reported inclusions correct? Yes

Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? N/A

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by the manufacturer. Please review the report for information that may provide possible improvements for our lab such as comparison of procedures and reporting between laboratories.

Claudia Busby  
Quality Manager

9/12/2006
Proficiency Test Completion Record  
Pasadena Police Department Crime Laboratory  

Chemist: Derek Sanders  

Area of Proficiency tested: Controlled Substances  

Date of Test Completion: May 3, 2006  

Proficiency Test Service Provider: CTS  

Test Number: 06-501  

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.  

Claudia Busby  
Quality Manager
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CTS 06-501

Date Completed: May 3, 2006

Were all reported inclusions correct? Yes
Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? N/A

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by the manufacturer. Please review the report for information that may provide possible improvements for our lab such as comparison of procedures and reporting between laboratories.

Claudia Busby
Quality Manager

9/12/2006
**Test Summary:** Each sample pack consisted of two items. Item 1 contained powdered Lactose. Item 2 contained 200 mg of powder consisting of approximately 12% Alprazolam; the remainder of the sample consisted of Lactose. (Please see the Summary Report for additional summary comments and information.)

<table>
<thead>
<tr>
<th>Identification</th>
<th>Controlled Substance(s)</th>
<th>Salt Form?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant: U4928A</td>
<td>                </td>
<td></td>
</tr>
<tr>
<td>Item 1</td>
<td>No controlled substance detected/identified</td>
<td></td>
</tr>
<tr>
<td>Item 2</td>
<td>Alprazolam</td>
<td>Not Determined</td>
</tr>
</tbody>
</table>

**Consensus Results:**

<table>
<thead>
<tr>
<th>Controlled Substance(s)</th>
<th>Salt Form?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>No controlled substance detected/identified</td>
</tr>
<tr>
<td>Item 2</td>
<td>Alprazolam</td>
</tr>
</tbody>
</table>

**Identification Methods**

- ✔ Color
- ___ Crystal
- ___ TLC
- ✔ UV
- ___ FTIR
- ___ LC
- ___ GC
- ✔ GC/MS

Other:
Chemist: Derek Sanders

Area of Proficiency tested: Toxicology – Urine Drug

Date of Test Completion: March 24, 2006

Proficiency Test Service Provider: College of American Pathologists (CAP)

Test Number: UT-A 2006

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager
To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CAP UT-A 2006

Date Completed: March 24, 2006

Were all reported inclusions correct? Yes

Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? N/A

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by the manufacturer. Please review the report for information that may provide possible improvements for our lab such as comparison of procedures and reporting between laboratories.

Claudia Busby  
Quality Manager

4/13/2006
Original Evaluation

UT-A 2006 Urine Toxicology

Institution: Pasadena Police Department
Pasadena TX 77506

Attention: Claudia Bushy

Cap Number: 7194312-01

Kit Information:

- Kit ID: 19063442
- Kit Mailed: 3/6/2006

Copied To: CAP

Legend: Exception Reason Codes appearing in this evaluation: <NONE>

Reviewed By

Date

The College of American Pathologists recommends that the results of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
The College of American Pathologists recommends that the result of this interlaboratory comparison not be used as a sole criterion for judging the performance of any individual clinical laboratory.
Chemist: Derek Sanders

Area of Proficiency tested: Toxicology – Blood Alcohol

Date of Test Completion: November 15, 2005

Proficiency Test Service Provider: DOT

Test Number: #64

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: DOT #64

Date Completed: November 15, 2005

Were all reported inclusions correct? Yes

Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? Yes - Screw top tube on one of four samples not tight on receipt.

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by the manufacturer. Please review the report for information that may provide possible improvements for our lab such as comparison of procedures and reporting between laboratories.

Claudia Busby
Quality Manager

12/21/2005
## NHTSA Blood Alcohol Proficiency Test No 64 October 2005

<table>
<thead>
<tr>
<th>N</th>
<th>TECH.</th>
<th>BLUE</th>
<th>GREEN</th>
<th>RED</th>
<th>WHITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>111</td>
<td>All</td>
<td>Mean</td>
<td>0.088</td>
<td>0.138</td>
<td>0.194</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Std. Dev.</td>
<td>0.0075</td>
<td>0.0096</td>
<td>0.0107</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CV, %</td>
<td>8.508</td>
<td>6.869</td>
<td>5.525</td>
</tr>
<tr>
<td></td>
<td></td>
<td>low</td>
<td>0.043</td>
<td>0.093</td>
<td>0.129</td>
</tr>
<tr>
<td></td>
<td></td>
<td>high</td>
<td>0.114</td>
<td>0.179</td>
<td>0.245</td>
</tr>
<tr>
<td>92</td>
<td>1</td>
<td>Mean</td>
<td>0.088</td>
<td>0.139</td>
<td>0.195</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Std. Dev.</td>
<td>0.0070</td>
<td>0.0077</td>
<td>0.0069</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>Mean</td>
<td>0.088</td>
<td>0.135</td>
<td>0.189</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Std. Dev.</td>
<td>0.0091</td>
<td>0.0066</td>
<td>0.0083</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>Mean</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Mean</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>Mean</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>Mean</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Target**: 0.088 0.140 0.195 0.055

### TECHNIQUE:

1: GC Headspace
   GC Headspace with Internal Standard

2: GC Direct Injection of Whole Blood
   GC Direct Injection of Whole Blood with Internal Standard

3: GC Injection of Treated Portion (extract, distillate, etc.)
   GC Injection of Treated Portion with Internal Standard

4: Dichromate Oxidation

5: Enzymatic

6: Unspecified
Chemist: Derek Sanders

Area of Proficiency tested: Toxicology – Blood Alcohol

Date of Test Completion: October 6, 2005

Proficiency Test Service Provider: CTS

Test Number: #05-565

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: CTS #05-565

Date Completed: October 6, 2005

Were all reported inclusions correct? Yes

Were all reported exclusions correct? N/A

Were all results reported as inconclusive consistent with written laboratory guidelines? N/A

Was basis for inconclusive interpretation documented? N/A

Were all quantitative results within written laboratory guidelines? Yes

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by the manufacturer. Please review the report for information that may provide possible improvements for our lab such as comparison of procedures and reporting between laboratories.

Claudia Busby
Quality Manager

12/21/2005
Each sample pack consisted of four vials of blood with different target blood alcohol concentrations.

A stock solution of ethanol in water was used to spike each item. The stock solution was prepared by combining 10 grams of absolute ethanol with enough distilled water to produce a solution of 100 milliliters. The stock solution was stored in a covered flask, which was opened only when a volume of the solution was needed for production.

Sample preparation consisted of adding a predetermined amount of ethanol stock solution to a 500mL graduated cylinder containing human whole blood (which had been drawn into citric acid preservative bloodbank bags). The blood solution was transferred to a beaker, where the equivalent of 1% w/v sodium fluoride was added and then stirred with a magnetic stirrer for 5 minutes before pipetting the mixture into the prelabeled vials, which contained 12mg potassium oxalate and 15mg sodium fluoride (this NaF was included in the 1% w/v NaF calculation). In order to obtain sufficient volume this procedure was done a second time to create two batches of samples. Each item was prepared separately, and all glassware was cleaned between preparations. The vials were sealed and inverted 8-10 times to mix the chemicals in the vials with the blood solution. All vials were placed in a refrigerator immediately after production until the sample packs were prepared.

<table>
<thead>
<tr>
<th>Item</th>
<th>Target BAC (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.11</td>
</tr>
<tr>
<td>2</td>
<td>0.03</td>
</tr>
<tr>
<td>3</td>
<td>0.08</td>
</tr>
<tr>
<td>4</td>
<td>0.17</td>
</tr>
</tbody>
</table>

The information presented here is that received from the sample manufacturer. It presents details of the design specification for the test samples and/or details of how they were prepared. This information does not necessarily represent the answers that should or could be obtained from an examination of the sample. Final interpretation of the results should be deferred until the summary report is available.
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Controlled Substances

Date of Test Completion: June 30, 2005

Proficiency Test Service Provider: CTS

Test Number: #05-501

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External
Test and Manufacturer: CTS #05-501
Date Completed: April 25, 2005

Were all reported inclusions correct? Yes
Were all reported exclusions correct? NA
Were all results reported as inconclusive consistent with written laboratory guidelines? NA

Was basis for inconclusive interpretation documented? NA
Were all quantitative results within written laboratory guidelines? NA
Are analytical discrepancies present? No
Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No
Do you think this test was representative of our casework? Yes

I am providing you with the report issued by the manufacturer. Please review the report for information that may provide possible improvements for our lab such as comparison of procedures and reporting between laboratories.

Claudia Busby
Quality Manager

7/18/2005
Manufacturer's Information
Test No. 05-501: Drug Analysis

Each sample pack consisted of two items. Item 1 contained "over the counter" [non-prescription] Acetaminophen tablets that were ground to powder in a mortar and pestle and portioned into 200 mg samples. Acetaminophen is not a controlled substance in the United States. Item 2 contained 285 mg of powder consisting of approximately 2.1% Oxycodone HCl; the remainder of the sample consisted of Acetaminophen. Oxycodone HCl is a Schedule II controlled substance in the United States.
<table>
<thead>
<tr>
<th>EVIDENCE SUBMITTED</th>
<th>MICROSCOPIC</th>
<th>DUQUENOIS-LEVINE</th>
<th>MODIFIED DUQUENOIS-LEVINE</th>
<th>JANOVSKY</th>
<th>FERRICYANIDE</th>
<th>MARQUIS</th>
<th>VAN URK'S</th>
<th>COBALT THIOCYANATE</th>
<th>MODIFIED COBALT THIOCYANATE</th>
<th>GC/MS BLANK</th>
<th>GC/MS</th>
<th>GC</th>
<th>UV</th>
<th>FTIR</th>
<th>CRYSTAL TESTS</th>
<th>TLC</th>
<th>TOXI-LAB</th>
<th>ODOR</th>
<th>PDR-VISUAL</th>
<th>WEIGHT/ VOLUME</th>
<th>RESULTS/ COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explant &amp; Paper &amp; white powder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>neg</td>
<td>neg</td>
<td>pos light blue</td>
<td>pos light blue</td>
<td>OK</td>
<td></td>
<td>pos APAP</td>
<td>pos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Neg for APAP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>neg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pos APAP/oxycodone</td>
<td></td>
<td>pos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Proficiency Test Completion Record
Pasadena Police Department Crime Laboratory

Chemist: Derek Sanders

Area of Proficiency tested: Blood Alcohol Quantitation

Date of Test Completion: May 13, 2005

Proficiency Test Service Provider: NHTSA Department of Transportation

Test Number: Test Number 63

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External
Test and Manufacturer: NHTSA Department of Transportation
Date Completed: May 13, 2005

Were all reported inclusions correct? Yes
Were all reported exclusions correct? NA
Were all results reported as inconclusive consistent with written laboratory guidelines? NA
Was basis for inconclusive interpretation documented? NA
Were all quantitative results within written laboratory guidelines? Yes
Are analytical discrepancies present? No
Is the proficiency test graded as satisfactory (no analytical errors)? Yes
Is corrective action required? No
Do you think this test was representative of our casework? Yes

I am providing you with the report issued by the manufacturer. Please review the report for information that may provide possible improvements for our lab such as comparison of procedures and reporting between laboratories.

Claudia Busby
Quality Manager

7/18/2005
<table>
<thead>
<tr>
<th>N</th>
<th>TECH.</th>
<th>BLUE</th>
<th>GREEN</th>
<th>RED</th>
<th>WHITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>All</td>
<td>Mean</td>
<td>0.239</td>
<td>0.081</td>
<td>0.158</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Std. Dev.</td>
<td>0.0127</td>
<td>0.0053</td>
<td>0.0077</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CV, %</td>
<td>5.316</td>
<td>6.634</td>
<td>4.846</td>
</tr>
<tr>
<td></td>
<td></td>
<td>low</td>
<td>0.203</td>
<td>0.067</td>
<td>0.136</td>
</tr>
<tr>
<td></td>
<td></td>
<td>high</td>
<td>0.298</td>
<td>0.095</td>
<td>0.190</td>
</tr>
<tr>
<td>96</td>
<td>1</td>
<td>Mean</td>
<td>0.239</td>
<td>0.080</td>
<td>0.158</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Std. Dev.</td>
<td>0.0109</td>
<td>0.0048</td>
<td>0.0073</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>Mean</td>
<td>0.244</td>
<td>0.081</td>
<td>0.157</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Std. Dev.</td>
<td>0.0203</td>
<td>0.0073</td>
<td>0.0066</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>Mean</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>Mean</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>Mean</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Mean</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**TECHNIQUE:**

1: GC Headspace
   GC Headspace with Internal Standard

2: GC Direct Injection of Whole Blood
   GC Direct Injection of Whole Blood with Internal Standard

3: GC Injection of Treated Portion (extract, distillate, etc.)
   GC Injection of Treated Portion with Internal Standard

4: Dichromate Oxidation

5: Enzymatic

6: Unspecified
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SODIUM FLUORIDE</td>
<td>10 mg/ml</td>
<td>POTASSIUM OXALATE</td>
<td>4 mg/ml</td>
</tr>
<tr>
<td>Blue</td>
<td>0.244 %w/v</td>
<td></td>
<td>0.236 %w/v</td>
</tr>
<tr>
<td>Green</td>
<td>0.023 %w/v</td>
<td></td>
<td>0.022 %w/v</td>
</tr>
<tr>
<td>Red</td>
<td>0.157 %w/v</td>
<td></td>
<td>0.150 %w/v</td>
</tr>
<tr>
<td>White</td>
<td>0.042 %w/v</td>
<td></td>
<td>0.041 %w/v</td>
</tr>
</tbody>
</table>

Optional 6 Digit Self I.D. #
(Do not use letters)

DATE SAMPLES RECEIVED: 4/28/05

DATE OF ANALYSIS: 3/13/2005

TECHNIQUE OF ANALYSIS: (PLEASE CIRCLE)

1. GC Headspace with or without Internal Standard
2. GC Direct Injection of Whole Blood with or without Internal Standard
3. GC Injection of Treated Portion (extract, distillate, etc.) with or without Internal Standard
4. Dichromate Oxidation
5. Enzymatic

VNTSC P 7000.23 (Rev. 9/96)
Chemist: Derek Sanders

Area of Proficiency tested: Urine Drug

Date of Test Completion: April 25, 2005

Proficiency Test Service Provider: Varian Toxi-Lab

Test Number: #50401

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist's personal training manual.

Claudia Busby
Quality Manager

Revision 4-1-2005
Pasadena Police Department Regional Crime Laboratory
Proficiency Test Review Form

To: Derek Sanders
From: Claudia Busby, Quality Manager
Subject: Proficiency Test Notification and Review

Source of Test: External

Test and Manufacturer: Varian Toxi-Lab #50401

Date Completed: April 25, 2005

Were all reported inclusions correct? Yes

Were all reported exclusions correct? NA

Were all results reported as inconclusive consistent with written laboratory guidelines? NA

Was basis for inconclusive interpretation documented? NA

Were all quantitative results within written laboratory guidelines? NA

Are analytical discrepancies present? No The manufacturer placed a small amount of amphetamine in the sample that is currently below the detection level of the GC/MS. It was picked up on the screen but not the mass spec. That analyte may have been stuck in the injection port. The column on the Varian will be changed to see if the sensitivity can be improved.

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the report issued by the manufacturer. Please review the report for information that may provide possible improvements for our lab such as comparison of procedures and reporting between laboratories.

Claudia Busby
Quality Manager

7/18/2005
Number of Subscribers: 24

HISTORY:

A young mother with a history of drug abuse was trying to regain custody of her two small children. The judge in the case ordered the woman to submit to a drug test before giving a final ruling.

Results of Reporting Laboratories

<table>
<thead>
<tr>
<th>Analytes Present</th>
<th>Concentration</th>
<th>Referee</th>
<th>Domestic</th>
<th>U*</th>
<th>TNP**</th>
</tr>
</thead>
<tbody>
<tr>
<td>amphetamine†</td>
<td>0.5 μg/mL</td>
<td>0/4</td>
<td>5/17</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>amphetamine class††</td>
<td></td>
<td>1/4</td>
<td>1/17</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>methamphetamine</td>
<td>3.0 μg/mL</td>
<td>4/4</td>
<td>17/17</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Δ⁹-THC-COOH</td>
<td>200 ng/mL</td>
<td>3/4</td>
<td>15/16</td>
<td>94%</td>
<td></td>
</tr>
</tbody>
</table>

*U – Number of laboratories that reported this analyte as an unidentified substance.
**TNP – Number of laboratories that indicated they do not test for or report this analyte.
†A few laboratories reported amphetamine class in addition to amphetamine and/or methamphetamine. In this case only the amphetamine and/or methamphetamine results were tabulated.
††Reporting amphetamine class is an acceptable result. These numbers reflect laboratories that did not also report amphetamine and/or methamphetamine.

None
AMPHETAMINE/METHAMPHETAMINE (TOXI•LAB® Drug Compendium, PHOTO•GRAMS® A, Rₛ 0.32 and Rₛ 0.22)

Amphetamine and methamphetamine were correctly identified by 35%† and 100% of the proficiency participants, respectively.

Amphetamine (originally named phenylisopropylamine), first synthesized in 1887, was largely ignored until 1927, when its properties as an elevator of blood pressure, bronchial expander, and central nervous system stimulant were studied. In 1932 it was introduced in a nasal inhaler to be used as a substitute for ephedrine. Amphetamine first became available in tablet form by prescription for use in the treatment of narcolepsy and ADHD (attention deficit hyperactivity disorder) in 1937.

Because of its stimulant effects, amphetamine gained popularity during the years of the great depression, and its use surged with the coming of World War II. Pharmaceutical companies encouraged the use of the drug to make people happy and productive, and physicians were liberal with their prescriptions.

Methamphetamine appeared in 1919 as the N-methyl derivative of amphetamine. It is the more potent of the two drugs and has a longer duration of action. Research scientists using MRIs and PET scans found abnormal brain chemistry in methamphetamine abusers. Dopamine transporter levels were significantly reduced, which correlated with motor slowing and memory impairment. It is unknown whether the abnormalities are reversible with treatment or long abstinence, but researchers believe that neuronal damage is long-term.

Amphetamine and methamphetamine were placed under regulatory control in the 1970s due to potential for abuse. Today they are DEA Schedule II drugs primarily prescribed to treat narcolepsy, obesity, and attention deficit with hyperactivity disorder (ADHD). Researchers note that low doses of methamphetamine do not cause neurotoxicity in children with ADHD.

Methamphetamine is primarily excreted unchanged (44%) with a small fraction (6%) eliminated as amphetamine. This proficiency was very representative of these proportions (see Discussion). Both substances exist as dextro- and levo- isomers. Most illicit preparations contain a racemic mixture of both d- and l- forms. While medical use of methamphetamine and amphetamine has declined, its popularity for illicit use, whether ingested, snorted, injected, or smoked, has been increasing full force.

THC-COOH (TOXI•LAB THC II Procedure)

THC-COOH was correctly identified by 94% of reporting laboratories.

Tetrahydrocannabinol (THC) is the most active constituent of marijuana (cannabis sativa) and is found in various parts of the Indian hemp plant. It is classified as a hallucinogenic and can be smoked or ingested, resulting in sedation, hallucinations, and euphoria. The earliest known reference to cannabis occurred in 2737 B.C. It is attributed to Emperor Shen Nung, who in a Chinese pharmacological treatise, reportedly told his people of its medicinal value.

The most abundant metabolite of THC found in urine is 11-nor-∆⁹-tetrahydrocannabinol-9-carboxylic acid (∆⁹-THC-COOH). TOXI•LAB AB does not detect THC-COOH; however, the TOXI•LAB THC II procedure is an effective method for detection of this analyte. The procedure incorporates solid phase extraction with thin layer chromatography. Screening levels for immunoassay methods are generally 100, 50, or 20 ng/mL. The TOXI•LAB THC II procedure has a detection limit of 15 ng/mL and is therefore very useful for confirmation.

This proficiency was spiked with ∆⁹-THC-COOH, which reacts the same as ∆⁸-THC-COOH when using immunoassay and/or the TOXI•LAB THC II procedure. However, those laboratories using GC/MS may have encountered difficulty in detecting ∆⁸-THC-COOH because this is not the metabolite commonly recognized for THC confirmation. A few laboratories using GC/MS indicated that although the screen was positive, there was no ∆⁹-THC-COOH present upon confirmation. This was an acceptable result.

† Percentages are derived by combining Domestic and International results. ††TNP† results are not included in computing the percentages.
DISCUSSION

Amphetamine Detection

As previously mentioned, approximately 44% of a methamphetamine dose is eliminated in urine unchanged. Only a small amount (~6%) is excreted as amphetamine. This proportion was well demonstrated by the proficiency sample. Methamphetamine was spiked at 3.0 μg/mL and amphetamine at 0.5 μg/mL, which is the limit of detection (LOD). Amphetamine should have been visible at this concentration. Only five of the reporting labs detected amphetamine, not all were using GCMS. This may be due to several reasons:

1. Mixing – mix gently by complete inversion for minimum of 2 min. Less time—less efficient extraction.
2. Salt – Pipette all of the organic layer into the aluminum cup(s). Take care to make sure no aqueous layer is pipetted as well. Salt from the aqueous layer in the cup will decrease the amount of drug that is adsorbed on to the disc.
3. Heat – Excessive heat may cause loss of heat-labile drugs, which includes the SMAs.
   - Concentrating the organic layer on to the disc does not have a definitive time frame other than to remove the disc as soon as it is dry. The "preservative" on the TOXI-DISC A helps prevent this somewhat, but extended heating will destroy drug.
   - Heat activation of the inoculated chromatogram for 1-2 min prior to migration is important to drive off moisture, however this step must be performed with the disc portion off the electric warmer.
   - For the same reason, following migration, the chromatogram should be removed from the electric warmer as soon as the developing solution has evaporated.
4. Reagents – SMAs require strong formaldehyde vapors for optimum detection. The chromatogram must be exposed, front and back, from 5-30 min. Prior to dipping in the sulfuric acid, excess formaldehyde must be removed from the chromatogram. Heat the lower two-thirds, which includes the SMAs, for 5 sec only. Extended heating at this point, may remove too much formaldehyde and effect the detection of SMAs.

We provide LODs for each drug in the Compendium, however, it is recommended that each laboratory determine their own. Variables such as condition of reagents, environment, and technique may exist from lab to lab that can influence detectability. Following the Quality Control protocol for TOXI-LAB and meeting the requirements will reduce variations in the performance of the method.

SMA Differentiation: Interpretation

On TOXI•LAB A, several sympathomimetic amines migrate between R₀ 0.10 and 0.35 and have similar color characteristics, which may make specific identification difficult. Although methamphetamine is easily visualized on TOXI•LAB A in this sample, it is important to validate the results using the SMA Differentiation procedure with either acetone or acetaldehyde (see TOXI-LAB Drug Compendium, TOXI-TIPS).

SUMMARY

1. The Sympathomimetic Amines (Amphetamines) Differentiation with Acetone or Acetaldehyde is recommended for the differentiation and identification of individual SMAs.
2. Follow quality control guidelines to ensure that specimen results can meet or surpass stated parameters (i.e., detection limits) of the method. Analyze a positive and negative control per each analytical run to verify that QC requirements are met.
Your support of the TOXI-LAB Proficiency Testing Program, whether it has been just a few months or for many years, has been greatly appreciated. For almost 25 years, the proficiency program has been a useful training tool for laboratories performing toxicological analysis. Thank you for all of the constructive feedback regarding the quality of the program. We are honored to have been able to provide a product that you felt was very informative and educational for technologists working in the field of Toxicology. It was a learning experience for us as well. Thank you again for your past support of the TOXI-LAB Proficiency Testing Program.

Sandi Garcia and I would like to personally say that we are very proud of and impressed by the performance of all of our customers during the history of the Proficiency program. It is very satisfying to know that together we have contributed in a small way to providing better health care for the world.

Best Regards,

Sue Cohen
TOXI-LAB Product Manager

REFERENCES:

Baselt, R.C.; Disposition of Toxic Drugs and Chemicals in Man, 7th ed.; Chemical Toxicology Institute: Foster City, CA, 2004


TOXI-LAB Drug Compendium; Varian Inc., Lake Forest, CA, 1996
<table>
<thead>
<tr>
<th>EVIDENCE SUBMITTED</th>
<th>SPECIMEN Specimen cup &amp; a Urine Specimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOLATILES</td>
<td></td>
</tr>
<tr>
<td>GC-HS</td>
<td></td>
</tr>
<tr>
<td>INTERNAL STANDARD</td>
<td></td>
</tr>
<tr>
<td>DILUTION</td>
<td></td>
</tr>
<tr>
<td>ODOR</td>
<td></td>
</tr>
<tr>
<td>IMMUNOASSAY</td>
<td>pos amphet/meth, Ecstasy</td>
</tr>
<tr>
<td>TOXILAB A</td>
<td>pos methamphetamine</td>
</tr>
<tr>
<td>TOXILAB B</td>
<td></td>
</tr>
<tr>
<td>TOXILAB BENZOYLECGONINE</td>
<td></td>
</tr>
<tr>
<td>GC-MS</td>
<td>pos methamphetamine, THC TMS (AR)</td>
</tr>
<tr>
<td>GAS CHROMATOGRAPHY</td>
<td>pos methamphetamine</td>
</tr>
<tr>
<td>(RT)</td>
<td></td>
</tr>
<tr>
<td>TLC</td>
<td></td>
</tr>
<tr>
<td>DERIVITIZING REAGENT</td>
<td>methanol</td>
</tr>
<tr>
<td>RECONSTITUTING SOLVENT</td>
<td>SA for all</td>
</tr>
<tr>
<td>OTHER</td>
<td></td>
</tr>
<tr>
<td>VOLUME / WEIGHT</td>
<td>~100.0 mL</td>
</tr>
<tr>
<td>RESULTS / COMMENTS</td>
<td>pos Methamphetamine, Cannabinoids</td>
</tr>
</tbody>
</table>
Chemist: Derek Sanders

Area of Proficiency tested: Toxicology – Urine Drug

Date of Test Completion: March 2005

Proficiency Test Provider: Toxi-Lab

Test Number: 50201

Chemist Derek Sanders has successfully completed the above proficiency. This document will be retained in the chemist’s personal training manual.

Claudia Busby
Quality Assurance Manager

Date: 5/9/2005
Revised 10-20-04
To: Derek Sanders  
From: Claudia Busby, Quality Manager  
Subject: Proficiency Test Notification and Review

Source of Test: Toxi-Lab

Test Identification: #50201

Date Completed: March 2005

Were all reported inclusions correct? Yes

Were all reported exclusions correct? Yes

Were all results reported as inconclusive consistent with written laboratory guidelines? Yes

Was basis for inconclusive interpretation documented? Yes

Were all quantitative results within laboratory guidelines? N/A

Are analytical discrepancies present? No

Is the proficiency test graded as satisfactory (no analytical errors)? Yes

Is corrective action required? No

Do you think this test was representative of our casework? Yes

I am providing you with the summary report issued by the manufacturer. Please review the report for information that may provide possible improvements for our laboratory.
Number of Subscribers: 40

HISTORY:

A 25-year-old female was involved in a motor vehicle accident. The officer responding to the scene noted that the subject had droopy eyes, seemed confused, and was unaware of her location. The woman was transported to the hospital where she gave consent for a toxicological analysis.

Results of Reporting Laboratories

<table>
<thead>
<tr>
<th>Analytes Present</th>
<th>Concentration</th>
<th>Referee</th>
<th>Domestic</th>
<th>International</th>
<th>U*</th>
<th>TNP**</th>
</tr>
</thead>
<tbody>
<tr>
<td>doxepin</td>
<td>1.5 µg/mL</td>
<td>4/4</td>
<td>17/18</td>
<td>94%</td>
<td>1/3</td>
<td>33%</td>
</tr>
<tr>
<td>nordoxepin</td>
<td>2.0 µg/mL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>trazodone/nefazodone metabolite (mCPP)</td>
<td>2.5 µg/mL</td>
<td>3/4</td>
<td>14/17</td>
<td>82%</td>
<td>3/3</td>
<td>0%</td>
</tr>
</tbody>
</table>

*U – Number of laboratories that reported this analyte as an unidentified substance.
**TNP – Number of laboratories that indicated they do not test for or report this analyte.

<table>
<thead>
<tr>
<th>Analytes Incorrectly Reported</th>
<th>Domestic</th>
<th>International</th>
</tr>
</thead>
<tbody>
<tr>
<td>maprotiline</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>nefazodone</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>pyrilamine</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
DOXEPIN (TOXI•LAB® Drug Compendium, PHOTO•GRAMS® A, Rf 0.52)

Eighty-six percent* of the reporting participants identified doxepin and metabolite correctly.

Doxepin (Sinequan®) is a dibenzoxepin derivative and the first of a family of tricyclic psychotherapeutic agents. It is recommended for the treatment of psychoneurotic patients with depression and/or anxiety. Doxepin is virtually devoid of euphoria as a side effect and has not been demonstrated to produce the physical tolerance or psychological dependence associated with addictive compounds. Anti-anxiety effect is apparent before the antidepressant effect, which may not be evident for two to three weeks.

Although rapidly metabolized, the mechanisms and products formed from doxepin have not been fully elucidated. Less than 1% is eliminated in urine as unchanged drug. Nortoxil® (TOXI•LAB Drug Compendium, PHOTO•GRAMS® A, Rf 0.27) is a dibenzoxepin derivative and the first of a family of tricyclic psychotherapeutic agents. It is recommended for the treatment of psychoneurotic patients with depression and/or anxiety. Doxepin is virtually devoid of euphoria as a side effect and has not been demonstrated to produce the physical tolerance or psychological dependence associated with addictive compounds. Anti-anxiety effect is apparent before the antidepressant effect, which may not be evident for two to three weeks.

Although rapidly metabolized, the mechanisms and products formed from doxepin have not been fully elucidated. Less than 1% is eliminated in urine as unchanged drug. Nortoxil, the primary metabolite, has pharmacologic and toxicologic properties comparable to its parent. The existence of other metabolites has been postulated on the basis of animal studies.

Doxepin may be confused with pyrilamine at Stage I and II, but good differentiation occurs at Stage III. (See specific PHOTO•GRAMS.) Doxepin and pyrilamine can also be differentiated by migrating in 2 mL of chloroform and 50 µL of NH₄OH. Doxepin migrates to Rf 0.50 and pyrilamine migrates to Rf 0.30.

TRAZODONE/NEFAZODONE METABOLITE (TOXI•LAB Drug Compendium, PHOTO•GRAMS A, Rf 0.60, Rf 0.27)

Trazodone/nefazodone metabolite was correctly identified by 70% of the reporting laboratories.

Trazodone (Desyrel) and nefazodone (Serzone) are both antidepressants similar in structure and chemically unrelated to other tricyclic or tetracyclic antidepressants.

Only 1% of a dose of trazodone or nefazodone is excreted in urine as parent drug. If parent drug is present, trazodone and nefazodone may be easily differentiated by their Stage I reactions of blanch and red-orange, respectively (see PHOTO•GRAMS A: trazodone Rf 0.60; nefazodone Rf 0.60). They have the same major metabolite, meta-chlorophenyl-piperazine (mCPP), which is detected at Rf 0.27 and has a characteristic pink flash reaction in Stage II of TOXI•LAB A. This sample contained only the mCPP metabolite, which is often the only component present in an actual urine as a result of trazodone ingestion. So far, the appearance of an additional red-orange metabolite just above the disc in Stage I has been the only way of differentiating nefazodone from trazodone when parent is not present. When mCPP is detected without either parent present, we recommend that “trazodone/nefazodone” metabolite be reported, unless a medication history is available or another methodology is used that is capable of detecting other metabolic products that may differentiate the two analytes. Your laboratory must also decide if a metabolite will be reported without a standard.

The unique pink flash reaction for both of these drugs will be visualized only if the chromatogram is dipped into the water jar once quickly and then held in the air for observation. The mixture of sulfuric acid and water generates heat required for development. Additionally, if the water for Stage II detection becomes too acidic, the flash reactions will not occur. It is recommended that the water be changed every 5–10 chromatograms.

* Percentages are derived by combining Domestic and International results. “TNP” results are not included in computing the percentages.
SUMMARY

1. Migration with an alternate developing fluid and appropriate standards will help differentiate doxepin and pyrilamine.

2. To detect TOXI-LAB A Stage II flash reactions, take care to dip the chromatogram once quickly into the water jar, then hold it in the air to allow the exothermic reaction to take place. Change the water in the Stage II dipping jar every 5–10 chromatograms.

3. The metabolite mCPP is common to both trazodone and nefazodone. When parent drug is not present, it is recommended that “trazodone/nefazodone metabolite” be reported.

Your results for February were very good. Now, get cranking and ace April’s proficiency.

Sincerely,

Sandra Garcia
Proficiency Coordinator

REFERENCES:

1. Baselt, R.C.; Disposition of Toxic Drugs and Chemicals in Man, 7th ed.; Chemical Toxicology Institute: Foster City, CA, 2004

2. TOXI-LAB Drug Compendium; Varian Inc., Lake Forest, CA, 1996