



## State of North Carolina

ROY COOPER  
ATTORNEY GENERAL

Department of Justice  
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October 1, 2013

Senator Thom Goolsby  
Representative Jamie Boles  
Representative Pat Hurley  
Co-Chairs, Joint Legislative Oversight Committee on Justice and Public Safety

North Carolina General Assembly  
Raleigh, NC 27601-2808

RE: Report on work of the NC State Crime Laboratory during FY  
12-13

Dear Members:

Pursuant to Session Law 2013-360, Section 17.2, the Department of Justice is pleased to submit the Fiscal Year 12-13 Annual Report for the NC State Crime Laboratory to the Joint Legislative Oversight Committee on Justice and Public Safety. In addition to the data on evidence submissions, case completion, and other workload measures, the report provides updates on significant achievements and internal improvements that focus on quality of analysis, efficiency of analysis, and transparency of analysis.

Thank you for the opportunity to provide this information. We would be happy to respond to any questions you may have regarding this report.

Very truly yours,

A handwritten signature in black ink that reads "Kristi Hyman". The signature is fluid and cursive, with a long horizontal line extending from the end.

Kristi Hyman  
Chief of Staff

KH/ml

cc: Kristine Leggett  
Fiscal Research Division

# **NORTH CAROLINA STATE CRIME LABORATORY REPORT—**

## **FISCAL YEAR 2012-2013<sup>1</sup>**

This Report is presented to the Chairs of the North Carolina General Assembly Joint Legislative Oversight Committee on Justice and Public Safety and to the North Carolina General Assembly Fiscal Research Division as directed by Section 17.2 of S.L. 2013-360.

The referenced statutory Section directs that the Department of Justice report annually each October 1<sup>st</sup> on the work of the North Carolina State Crime Laboratory (Crime Lab) during the previous fiscal year. This legislative provision is consistent with the Crime Lab's continuing goal of highlighting its critical need for substantial additional personnel and resources to meet its statutorily mandated responsibilities in the 21<sup>st</sup> century.

### **1. Crime Lab Achievements.**

In many respects, fiscal year (FY) 2012-2013 was a significant period in the history of the Crime Lab.

#### **A. ISO/IEC 17025 Accreditation.**

In September, 2012, the Crime Lab began operation under ISO/IEC 17025, the highest international standards and protocols applicable to forensic science laboratories. After intense review by the independent accrediting agency Forensic Quality Services, full ISO/IEC 17025 accreditation was awarded to the Crime Lab in early June, 2013.

#### **B. Forensic Scientist Certification.**

All eligible Crime Lab scientists currently performing casework have become independently certified by an outside agency in their respective forensic disciplines.

#### **C. DNA Quality Assurance Audit.**

For the third successive year, the Crime Lab's Forensic Biology (DNA) Section received perfect independent Quality Assurance Standards Audit scores under rigorous FBI standards.

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<sup>1</sup>*This Report addresses only the statutorily mandated "previous fiscal year" (July 1, 2012, - June 30, 2013), and thus does not discuss the significant Crime Lab operational changes, including separation of the Lab from the State Bureau of Investigation and the new toxicology positions provided in the Appropriations Act of 2013 (ratified July 25, 2013, and generally effective July 1, 2013), or other developments occurring on or after July 1, 2013.*

#### **D. DNA Database.**

The DNA database managed by the Crime Lab exonerated 76 individuals and solved crimes with 248 database "hits."

#### **E. Forensic Science Advisory Board.**

The North Carolina Forensic Science Advisory Board, composed of 17 renowned national forensic experts, continued to offer its collective experience as a complement to the Crime Lab's work. In reviewing Crime Lab operations, the Board has publicly highlighted a "dedicated and well trained and knowledgeable analytical staff," the "impressive, innovative paperless electronic system for recording analytical tests," and "an industry leading policy of releasing all laboratory casework notes with each laboratory report to streamline fulfillment of discovery requests."

It may also be noted that each case completed by a Crime Lab scientist receives thorough peer review by another qualified analyst before a Laboratory Report may be issued, and that Crime Lab scientists annually must complete proficiency tests provided by an outside agency with 100% accuracy required.

### **2. Internal Improvements.**

Simultaneously with achieving accreditation and other accomplishments during FY 2012-2013, the Crime Lab also focused on measures designed to ensure the most effective and efficient use of existing personnel and resources.

#### **A. Lean Six Sigma Project.**

A forensic laboratory workflow consulting corporation, which completed its work between January and May, 2013, brought a private sector perspective to Crime Lab operations. The consultants introduced the Crime Lab to the Lean Six Sigma methodology developed by the Toyota and Motorola corporations. Using "lean" principles to "remove the unnecessary" and "six sigma" concepts to "improve the necessary," Crime Lab scientists were successful in identifying potential avenues for shrinking Crime Lab processing time.

As a result of the Lean Six Sigma project, Crime Lab work in certain high volume disciplines has been strategically redistributed with dramatic results. In the Drug Chemistry Section, for example, the number of cases completed between Jan., 2013, and May, 2013, increased by 93%, just shy of the Lean Six Sigma project goal of 100% goal set for the *end* of the year, December, 2013. The Forensic Biology (DNA) Section experienced a 56% reduction in case processing time during the first five months of 2013.

Also within the same time frame, the overall efficiency of the DNA Database Section in processing both Convicted Offender and Arrestee samples increased by 41%, well in excess of the Lean Six Sigma project goal of 25%. The pending number of Convicted Offender and Arrestee samples waiting processing was reduced by 67% and 47% respectively. Based upon this progress

with Convicted Offender and Arrestee samples, it is anticipated that the DNA Database Section will be current in both categories before the end of the calendar year.<sup>2</sup>

Crime Lab Managers have also begun the extension of Lean Six Sigma methodology into other Lab disciplines.

#### **B. Robotic Technology.**

Robotic technology has been initiated in the Crime Lab's Forensic Biology (DNA) Section with the goal of accelerating DNA analysis.

#### **C. Lab Information Management System.**

The Crime Lab electronic information management system (Forensic Advantage), commended as noted above by the Advisory Board, has been enhanced to facilitate production of discovery information and communication from prosecutors regarding case dispositions.

#### **D. Lab Legal Counsel.**

Full time, on-site Crime Lab legal counsel continues to be in daily contact with representatives of all components of the criminal justice system to coordinate the progress of Crime Lab cases.

#### **E. Case Management Guidelines.**

Case Management Guidelines, similar to those in place at public forensic laboratories throughout the country, were drafted during the fiscal year with the aim of sequencing and streamlining the Crime Lab's evidence intake procedures. The aim is to avoid bottlenecks in pending work queues caused by cases submitted with a disproportionate number of evidentiary items.

### **3. Ongoing Challenges.**

Unfortunately, notwithstanding multiple outstanding achievements, Crime Lab operations during FY 2012-2013 also reflected ongoing challenges extending from previous years.

Although effective, the internal improvements previously described could not offset the "perfect storm" created by 1) continuing case submissions in relentless numbers from North Carolina's 100 counties, 2) the "live courtroom testimony in every case" requirement imposed upon forensic scientists by the June, 2009, US Supreme Court decision in *Melendez-Diaz v. Massachusetts*, and 3) the failure of North Carolina a) to allocate Crime Lab forensic scientist positions in appropriate numbers to manage the issues created by #s 1 and 2, and b) to fund Crime Lab scientist positions at a pay level sufficient to curb the departure of fully trained, experienced and independently certified Crime Lab analysts for significantly better paying opportunities in both the public and private sectors, many within the state.

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<sup>2</sup>As of the date of this Report, the Convicted Offender pending number has been reduced by 87% and the Arrestee number by 97%.

## A. Submissions.

In North Carolina, the nation's 10<sup>th</sup> most populous state, more than 20,000 law enforcement officers and over 600 law enforcement agencies routinely submit evidence in criminal cases to the Crime Lab. In FY 2012-2013, over 35,000 case submissions, more than 75% of which included multiple items of evidence, were accepted at the Crime Lab's three locations. The Raleigh Crime Lab location received 22,262 case submissions in addition to 11,159 CODIS and 17,611 DNA on ARREST submissions for a total of 51,032. The Triad and Western Regional Laboratories took in 7,137 and 5,725 case submissions respectively, bringing the Crime Laboratory total to 63,894.

### a. Forensic Discipline & Lab Location Submissions Breakdown.<sup>3</sup>

Broken down by forensic discipline and Crime Laboratory location, the FY 2012-2013 distribution of case submissions is follows:

|                             | <u>Raleigh</u> | <u>Triad</u> | <u>Western</u>                            |
|-----------------------------|----------------|--------------|-------------------------------------------|
| Drug Chemistry & Toxicology | 16,666         | 6,570        | 5,375 (incl. 11 Toxicology*) <sup>4</sup> |
| Forensic Biology            | 2,469          | 239*         | 21*                                       |
| CODIS                       | 11,159         | 0            | 0                                         |
| DNA upon Arrest             | 17,611         | 0            | 0                                         |
| Latent & Digital            | 1,360          | 154          | 179 (incl. 1 Digital*)                    |
| Trace Evidence              | 1,057          | 158*         | 80                                        |
| Firearm & Tool Mark         | 710            | 16*          | 70                                        |

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<sup>3</sup>This information is provided in compliance with S.L. 2013-360 (1) which requires that the Annual Crime Lab Report contain "Information about the workload of the Laboratory during the previous fiscal year, including the number of submissions, identified by the forensic discipline, received at each locations of the Laboratory."

<sup>4</sup>Case submissions to a Regional Laboratory for a forensic discipline not offered at that Lab (identified by the \* symbol) were transferred to the appropriate Lab location for analysis. The chart reflects all cases received at each Lab location, whether or not the requested analysis was offered at that Lab.

The Western Regional Laboratory provides Drug Chemistry, but not Toxicology, analyses as well as Latent Evidence and Firearm & Tool Mark examinations. In Trace Evidence, only fire debris in arson cases is examined at the Western Lab. The Western Lab does not conduct Forensic Biology analyses nor is it able to accept CODIS or DNA upon Arrest samples.

The Triad Regional Laboratory provides Drug Chemistry, including Toxicology, analyses as well as Latent & Digital Evidence examinations. The Triad Lab does not perform examinations of Trace Evidence, does not conduct Forensic Biology analyses, nor is it able to accept CODIS or DNA upon Arrest samples.

## b. County by County Submissions Breakdown<sup>5</sup>.

Broken down by each individual North Carolina county, case and evidence item submissions over the past four fiscal years are as follows:

|            | 7/1/2009 to 6/30/2010 |                 | 7/1/2010 to 6/30/2011 |                 | 7/1/2011 to 6/30/2012 |                 | 7/1/2012 to 6/30/2013 |                 |
|------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|-----------------|
| County     | Submissions           | Items Submitted | Submissions           | Items Submitted | Submissions           | Items Submitted | Submissions           | Items Submitted |
| Alamance   | 504                   | 1441            | 529                   | 1200            | 497                   | 964             | 520                   | 893             |
| Alexander  | 159                   | 372             | 136                   | 327             | 188                   | 273             | 135                   | 282             |
| Alleghany  | 33                    | 68              | 44                    | 140             | 31                    | 58              | 32                    | 50              |
| Anson      | 80                    | 202             | 70                    | 197             | 93                    | 264             | 102                   | 280             |
| Ashe       | 39                    | 93              | 49                    | 114             | 59                    | 128             | 77                    | 132             |
| Avery      | 102                   | 137             | 98                    | 121             | 74                    | 112             | 84                    | 143             |
| Beaufort   | 485                   | 786             | 596                   | 953             | 519                   | 735             | 514                   | 656             |
| Bertie     | 104                   | 211             | 86                    | 136             | 96                    | 165             | 73                    | 105             |
| Bladen     | 97                    | 318             | 192                   | 402             | 216                   | 364             | 145                   | 249             |
| Brunswick  | 387                   | 763             | 459                   | 755             | 514                   | 822             | 494                   | 634             |
| Buncombe   | 957                   | 2012            | 1112                  | 2070            | 1133                  | 1845            | 1213                  | 2061            |
| Burke      | 352                   | 571             | 349                   | 665             | 407                   | 705             | 370                   | 547             |
| Cabarrus   | 539                   | 1041            | 671                   | 1271            | 1002                  | 1680            | 901                   | 1460            |
| Caldwell   | 302                   | 585             | 266                   | 593             | 268                   | 537             | 366                   | 743             |
| Camden     | 14                    | 22              | 24                    | 25              | 23                    | 31              | 18                    | 26              |
| Carteret   | 371                   | 568             | 434                   | 660             | 419                   | 593             | 409                   | 549             |
| Caswell    | 74                    | 192             | 72                    | 155             | 88                    | 204             | 52                    | 125             |
| Catawba    | 641                   | 1304            | 703                   | 1403            | 709                   | 1411            | 663                   | 1315            |
| Chatham    | 177                   | 437             | 148                   | 361             | 181                   | 284             | 200                   | 493             |
| Cherokee   | 135                   | 338             | 130                   | 226             | 119                   | 318             | 97                    | 264             |
| Chowan     | 65                    | 104             | 46                    | 69              | 66                    | 96              | 48                    | 79              |
| Clay       | 52                    | 110             | 61                    | 111             | 41                    | 64              | 27                    | 37              |
| Cleveland  | 601                   | 1113            | 546                   | 1128            | 556                   | 1125            | 430                   | 978             |
| Columbus   | 150                   | 316             | 229                   | 465             | 277                   | 522             | 229                   | 401             |
| Craven     | 386                   | 885             | 441                   | 884             | 371                   | 689             | 324                   | 632             |
| Cumberland | 2293                  | 4143            | 2312                  | 3774            | 1909                  | 3212            | 1465                  | 2299            |
| Currituck  | 94                    | 136             | 78                    | 194             | 88                    | 132             | 79                    | 179             |
| Dare       | 236                   | 466             | 211                   | 500             | 318                   | 809             | 304                   | 595             |
| Davidson   | 1386                  | 2392            | 1381                  | 2552            | 1375                  | 2197            | 1112                  | 1793            |

<sup>5</sup> This information is provided in compliance with S.L. 2013-360 (3) which requires that the Annual Crime Lab Report contain "A breakdown by county of the number of submissions received by the Laboratory in the previous fiscal year."

The numbers in these tables do not include CODIS or DNA upon Arrest submissions.

|             |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|
| Davie       | 76   | 140  | 61   | 186  | 71   | 129  | 55   | 76   |
| Duplin      | 338  | 693  | 325  | 751  | 414  | 790  | 376  | 782  |
| Durham      | 948  | 2733 | 1440 | 3655 | 1952 | 4346 | 1859 | 4434 |
| Edgecombe   | 347  | 634  | 260  | 507  | 277  | 480  | 455  | 834  |
| Forsyth     | 737  | 2181 | 981  | 1874 | 824  | 1564 | 696  | 1292 |
| Franklin    | 186  | 440  | 159  | 336  | 144  | 432  | 129  | 414  |
| Gaston      | 1065 | 1617 | 1203 | 1689 | 1618 | 2128 | 1094 | 1656 |
| Gates       | 13   | 29   | 15   | 65   | 18   | 48   | 13   | 29   |
| Graham      | 63   | 149  | 102  | 290  | 73   | 206  | 56   | 222  |
| Granville   | 162  | 333  | 186  | 328  | 245  | 378  | 336  | 495  |
| Greene      | 180  | 478  | 114  | 371  | 166  | 517  | 189  | 331  |
| Guilford    | 1760 | 3667 | 1622 | 3212 | 1902 | 3350 | 1857 | 2967 |
| Halifax     | 224  | 761  | 270  | 837  | 359  | 1619 | 314  | 956  |
| Harnett     | 282  | 810  | 296  | 607  | 268  | 495  | 336  | 604  |
| Haywood     | 203  | 441  | 237  | 480  | 236  | 429  | 235  | 352  |
| Henderson   | 393  | 610  | 361  | 683  | 325  | 546  | 376  | 626  |
| Hertford    | 125  | 261  | 115  | 189  | 97   | 149  | 102  | 151  |
| Hoke        | 250  | 818  | 341  | 1172 | 279  | 799  | 267  | 844  |
| Hyde        | 38   | 64   | 24   | 86   | 45   | 64   | 32   | 44   |
| Iredell     | 650  | 1131 | 611  | 1054 | 645  | 1115 | 528  | 730  |
| Jackson     | 127  | 208  | 117  | 313  | 128  | 283  | 139  | 301  |
| Johnston    | 836  | 1627 | 963  | 1995 | 870  | 1726 | 693  | 1374 |
| Jones       | 72   | 112  | 118  | 249  | 80   | 124  | 57   | 73   |
| Lee         | 232  | 526  | 329  | 555  | 300  | 566  | 433  | 586  |
| Lenoir      | 253  | 598  | 401  | 695  | 360  | 590  | 214  | 373  |
| Lincoln     | 258  | 477  | 209  | 447  | 145  | 281  | 110  | 225  |
| Macon       | 93   | 149  | 115  | 303  | 125  | 261  | 112  | 187  |
| Madison     | 62   | 78   | 91   | 122  | 62   | 101  | 88   | 139  |
| Martin      | 175  | 406  | 120  | 340  | 143  | 273  | 151  | 241  |
| McDowell    | 178  | 290  | 171  | 299  | 157  | 247  | 158  | 215  |
| Mecklenburg | 420  | 734  | 423  | 726  | 432  | 749  | 402  | 535  |
| Mitchell    | 56   | 67   | 91   | 135  | 77   | 117  | 50   | 88   |
| Montgomery  | 61   | 133  | 126  | 246  | 171  | 287  | 157  | 206  |
| Moore       | 589  | 1098 | 516  | 926  | 514  | 792  | 443  | 749  |
| Nash        | 396  | 828  | 445  | 839  | 358  | 683  | 378  | 645  |
| New Hanover | 572  | 1475 | 684  | 1659 | 599  | 1590 | 565  | 1164 |
| Northampton | 65   | 181  | 84   | 141  | 60   | 199  | 20   | 37   |
| Onslow      | 544  | 1181 | 620  | 1222 | 959  | 1718 | 675  | 1264 |
| Orange      | 271  | 774  | 294  | 686  | 429  | 786  | 453  | 843  |
| Pamlico     | 20   | 72   | 85   | 112  | 55   | 71   | 39   | 40   |
| Pasquotank  | 214  | 424  | 211  | 537  | 167  | 359  | 190  | 386  |
| Pender      | 164  | 316  | 150  | 252  | 167  | 319  | 118  | 167  |
| Perquimans  | 44   | 82   | 55   | 113  | 31   | 73   | 29   | 58   |
| Person      | 108  | 256  | 150  | 274  | 231  | 305  | 182  | 218  |
| Pitt        | 672  | 1204 | 722  | 1414 | 800  | 1226 | 644  | 1032 |

|              |      |      |     |      |      |      |     |      |
|--------------|------|------|-----|------|------|------|-----|------|
| Polk         | 58   | 95   | 79  | 165  | 89   | 155  | 77  | 109  |
| Randolph     | 512  | 958  | 609 | 1007 | 700  | 1094 | 607 | 968  |
| Richmond     | 191  | 530  | 315 | 617  | 318  | 620  | 344 | 624  |
| Robeson      | 551  | 1488 | 460 | 1252 | 496  | 1364 | 496 | 1189 |
| Rockingham   | 442  | 871  | 336 | 721  | 426  | 872  | 391 | 790  |
| Rowan        | 666  | 1122 | 392 | 709  | 386  | 753  | 315 | 576  |
| Rutherford   | 227  | 394  | 241 | 399  | 250  | 417  | 199 | 321  |
| Sampson      | 224  | 559  | 255 | 598  | 391  | 692  | 261 | 613  |
| Scotland     | 222  | 607  | 304 | 858  | 367  | 1018 | 264 | 642  |
| Stanly       | 172  | 402  | 189 | 375  | 179  | 377  | 145 | 302  |
| Stokes       | 119  | 201  | 168 | 332  | 195  | 312  | 174 | 347  |
| Surry        | 311  | 579  | 344 | 778  | 390  | 620  | 422 | 779  |
| Swain        | 72   | 186  | 93  | 279  | 87   | 255  | 84  | 293  |
| Transylvania | 84   | 202  | 103 | 245  | 95   | 146  | 106 | 176  |
| Tyrrell      | 30   | 32   | 37  | 46   | 26   | 39   | 24  | 67   |
| Union        | 311  | 633  | 365 | 914  | 458  | 824  | 438 | 747  |
| Vance        | 269  | 540  | 181 | 401  | 148  | 397  | 187 | 498  |
| Wake         | 1016 | 2849 | 895 | 2272 | 1010 | 1956 | 490 | 1524 |
| Warren       | 83   | 213  | 64  | 189  | 43   | 115  | 27  | 88   |
| Washington   | 105  | 134  | 65  | 85   | 30   | 53   | 106 | 120  |
| Watauga      | 171  | 279  | 219 | 397  | 232  | 365  | 273 | 586  |
| Wayne        | 490  | 1128 | 451 | 1013 | 550  | 1281 | 482 | 1272 |
| Wilkes       | 223  | 443  | 264 | 485  | 342  | 550  | 256 | 592  |
| Wilson       | 502  | 1086 | 520 | 1135 | 575  | 1303 | 614 | 1322 |
| Yadkin       | 144  | 279  | 98  | 183  | 126  | 251  | 99  | 147  |
| Yancey       | 48   | 88   | 132 | 198  | 163  | 227  | 95  | 158  |

## B. Case Completions.

Despite the extraordinary number of case and evidence item submissions reflected above, only 124 total case working scientist positions were funded by the State at the Crime Lab for evidence analysis during FY 2012-2013. In the previous fiscal year, budget cuts had eliminated five Crime Lab positions. Attrition (discussed below) also drastically impacted the Crime Laboratory, particularly at the Triad location. Nonetheless, by diligently working thousands of hours, including mandatory overtime, Crime Lab scientists at the Raleigh Lab completed 14,074 cases during the fiscal year in addition to processing 20,412 CODIS and 4,153 DNA on Arrest samples for a total of 38,639. In addition, 1,281 cases were completed at the Triad Lab and 4,295 at the Western Lab, bringing the Crime Laboratory total to 44,215.

**a. Forensic Discipline & Lab Location Case Completion Breakdown.<sup>6</sup>**

Broken down by forensic discipline and Crime Laboratory location, the FY 2012-2013 distribution of case completions is as follows:

|                             | <u>Raleigh</u> | <u>Triad</u> | <u>Western</u>                        |
|-----------------------------|----------------|--------------|---------------------------------------|
| Drug Chemistry & Toxicology | 8,396          | 1,219        | 4,075 (Drug Chem. only <sup>7</sup> ) |
| Forensic Biology            | 2,218          | 0            | 0                                     |
| CODIS                       | 20,412         | 0            | 0                                     |
| DNA upon Arrest             | 4,153          | 0            | 0                                     |
| Latent & Digital            | 1,242          | 62           | 69                                    |
| Trace Evidence              | 1,470          | 0            | 86                                    |
| Firearm & Tool Mark         | 748            | 0            | 65                                    |

**C. *Melendez-Diaz*.**

During FY 2012-2013, the fallout onto Crime Lab operations emanating from the June, 2009, *Melendez-Diaz v. Massachusetts* US Supreme Court decision continued unabated. In that case, the high court held that the Confrontation Clause of the US Constitution required a forensic scientist to present evidence of testing results against a criminal defendant “live” at trial rather than by means of a sworn affidavit, the previous long standing practice not only in North Carolina but across the US. As a result, Crime Lab analysts began traveling thousands of miles across North Carolina to testify in criminal cases, including both District and Superior Court DWI trials in all 100 counties. The effect upon the Crime Lab was immediate and devastating.

Within six months, the court/travel time of Raleigh Crime Lab toxicologists (analysts who test blood for the presence of drugs and/or alcohol, typically in DWI cases) had multiplied 600%. Similarly, DNA analyst court time doubled between 2009 and 2011. Absent additional offsetting Crime Lab scientist positions being funded (none allocated either in FY 2012-2013 or previous years<sup>8</sup>), pending caseload inventories in all disciplines began growing (and continue to grow) inexorably at an alarming rate. Unfortunately, this development was inevitable as every analyst hour expended in court requirements is an equivalent hour not spent in scientific casework at the Laboratory.

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<sup>6</sup>This information is provided in compliance with S.L. 2013-360 (2) which requires that the Annual Crime Lab Report contain “information about the number of cases completed in the previous fiscal year, identified by forensic discipline, at each location of the Laboratory.”

<sup>7</sup>See FN<sup>4</sup> referencing services offered at each regional laboratory.

<sup>8</sup>It is again noted that this Report addresses the 2012-2013 fiscal year and thus does not consider the impact of the new toxicology positions provided in the ratified Appropriations Act of 2013 (generally effective July 1, 2013). However, while notable in toxicology, the effects of *Melendez-Diaz* extend to all Crime Lab disciplines.

Expanding overtime to cover lengthy drive times to and from western North Carolina courts and other travel costs were additional outgrowths from *Melendez-Diaz*.

**a. Court Hours.**

In FY 2012-2013, Crime Lab scientists accumulated 2,822 hours in court time, of which only 257 or approximately 9 % represented hours in actual court testimony. The total hours translate into 70.55 five-day weeks, well over an entire year of analyst time away from the Laboratory. During the five months of the Lean Six Sigma project discussed above, the Forensic Biology Section alone accumulated 285 court hours, with only 30, or approximately 10 %, involving actual court testimony and the remainder being accounted for by travel, court preparation and wait times.

**b. Need for Western Regional Laboratory Expansion.**

The substantial utilization of Crime Lab analyst time in court appearances attributable to the *Melendez-Diaz* decision is aggravated by the location of Forensic Biology capabilities solely at the Raleigh Laboratory. Similarly, while the Drug Chemistry discipline (not including toxicology) is represented at the Crime Lab's three locations in Raleigh, Greensboro and Asheville, no toxicology capability is currently available in western North Carolina<sup>9</sup>.

Approximately 38% of all toxicology submissions to the Crime Lab in FY 2012-2013 originated in counties served by the Western Regional Laboratory, but were transmitted to the Raleigh or Triad Labs for analysis. Likewise, roughly 20% of forensic biology submissions during the fiscal year came from Western Lab counties, but could only be worked at the Raleigh Lab.

As a consequence, in addition to the necessary transfer of evidence for analysis, Crime Lab DNA scientists and toxicologists were constantly required to travel either from Raleigh or Greensboro to testify regarding testing results in District and Superior Court trials throughout the thirty-eight western counties. Given the extensive travel distances involved across our lengthy state, even a casual observer and certainly a forensic laboratory efficiency consultant would recommend expansion of the forensic biology and toxicology disciplines to western North Carolina, notwithstanding the resultant requisite personnel, instrumentation and construction costs.

As indicated in FNs 1 and 3 of this Report, the absence of toxicologists at the Western Regional Laboratory was addressed by the General Assembly in the 2013 Appropriations Act, but no additional DNA or other discipline positions were approved nor was any legislative action taken regarding capital construction. In compliance with the General Assembly's directive in S.L. 2012-142, Section 15.4 to present a plan for "a Western Regional Laboratory to be located on the Edneyville Campus of the Training Academy," the NC Department of Justice and the Crime Lab, on Feb. 1, 2013, delivered such a plan to designated committees of the General Assembly. This plan envisioned a 36,050 square foot facility costing an estimated \$16.8 million.

The new Western Regional Laboratory would be expected to provide not only the existing forensic services, drug chemistry, latent evidence and firearm and tool mark evidence, but would add toxicology, forensic biology (DNA), digital evidence and vehicle processing services for

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<sup>9</sup>See FN <sup>3</sup>.

western North Carolina. This composite facility would afford western counties better and quicker access to Crime Lab forensic scientists analyzing evidence and providing expert testimony, closer availability of a broad range of forensic disciplines, decreased casework turnaround time, and a substantial reduction in the court/travel time of Crime Lab analysts. At the same time, Crime Lab scientists at the Raleigh and Triad locations, especially with reference to the new Western Lab services, would be freed to focus exclusively on matters arising in central and eastern North Carolina with similar benefits to those areas.

\$1,442,000 was appropriated by the 2012-2013 General Assembly to provide “funding to complete full planning for the Western Crime Laboratory.” The appropriation references the 36,050 square foot facility and \$16.8 million cost projected for a Western Regional Laboratory at Edneyville in the legislatively mandated 2012 Report. However, that Report also estimated a 26 month time frame for facility construction. Hence, pending a capital appropriation for building and instrumentation costs and the subsequent completion of construction, substantial expenditures will be required for the temporary accommodation of additional personnel,<sup>10</sup> specifically in western North Carolina, to confront the “perfect storm” described herein.

#### **D. Forensic Scientist Pay.**

Complicating the mission critical challenges created by unrelenting numbers of case submissions, limited personnel, and time-consuming court appearances are the related factors of uncompetitive pay for Crime Lab Forensic Scientists and persistent employee attrition from the Crime Lab to better paying equivalent positions in both the private and public sectors. In FY 2012-2013, the Crime Lab lost 18 employees, 10.5 % of the Lab workforce. Sadly, this percentage is only slightly less than the 12.9 % in the previous fiscal year.

##### **a. “Better Employment.”**

Nine of the FY 2012-2013 departing employees, exactly 50%, indicated “better employment” as the reason for leaving, three were retirements and the remainder fell into some aspect of the “other” category. Several in the “better employment” group gave up positions at the Triad Regional Laboratory. Some service interruptions understandably resulted at that location, necessitating the transfer of certain pending work to the Raleigh Laboratory.

An independent survey commissioned in early 2013 by the NC Department of Justice studied the salaries of Crime Lab Forensic Scientists in comparison with those offered at other public forensic laboratories in North Carolina as well as in the neighboring states of Virginia, South Carolina and Georgia. Preliminary results presented during the fiscal year indicated a striking disparity in the extent that Crime Lab Forensic Scientist “salaries fell below the average minimum, maximum, and survey total averages in many instances.”

The early survey findings are consistent with anecdotal information received by the Crime Lab that the “better employment” explanation noted in exit interviews frequently included salary increases at the \$20,000 level. Presented with an opportunity to boost household income by

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<sup>10</sup>See FNs 1 & 3.

raises approaching 50%, young parents understandably most often have put family interests first and moved to more lucrative employment. It may also be noted that the 2011 legislation which mandated certification for the Crime Lab's Forensic Scientists (without any additional remuneration) greatly increased the requirements of the job as well as the marketability of Crime Lab Forensic Scientists to other employers both in this State and beyond.

**b. Vacancy Consequences.**

Unfortunately, a vacated Crime Lab position creates two detrimental effects: 1) a void in the workforce, with a consequent reduction in productivity attributable to the open position until such time as it becomes filled, and 2) a time-consuming process to hire a replacement employee. The latter routinely includes position posting, application reviews, live interviews, and background investigations coupled with polygraph testing, followed by selection, and then an internal training period of at least six to eight months and longer depending upon the discipline and the experience of the hiree.

Crime Lab Forensic Scientist positions demand highly-skilled, well-educated individuals, usually with extensive chemistry or biology credentials. Given the nature of forensic work, involving contraband materials and evidence intended for criminal trials, as well as the 100% accuracy required, the time involved in the recruitment, hiring, training and development of a viable and proficient new forensic scientist is necessary to ensure employees of the highest caliber. The serious responsibilities to the public and the criminal justice system imposed upon the Crime Lab and its scientists demand nothing less.

However, the high quality of Crime Lab employees and, as noted above, the enhancement of their credentials with independent certification, makes them attractive to private and public employers with greater funding. Assuming a two year investment in employing, training and developing a new Crime Lab scientist, coupled with the attendant salary and the costs associated with selection and hiring, the State loses a minimum of \$114,625 per position when a Crime Lab analyst leaves for other, "better," employment. Not included are the related costs to, and the frustration of, the State criminal justice system attributable to case postponements resulting in part from a shortage of analysts available to address the Crime Lab's caseload inventory.

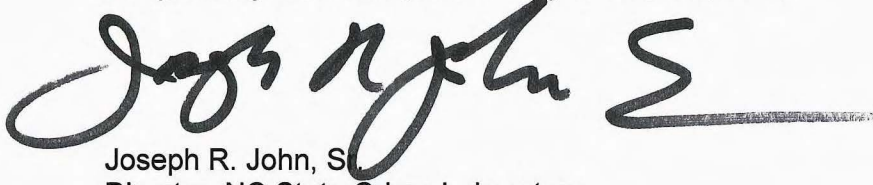
The "revolving door" created by the nine FY 2012-2013 "better employment" Crime Lab departures, therefore, came at a cost to North Carolina of at least \$1,031,625. When the \$1,116,259 figure associated with ten "better employment" Crime Lab departures in the previous fiscal year is factored in, the total two year loss to the State is a stunning \$2,147,884. Allocating even a portion of that amount to salary increases for Crime Lab Forensic Scientists would likely have closed the "revolving door" in most instances.

#### 4. Conclusion.<sup>11</sup>

To conclude, in FY 2012-2013, the Crime Lab has successfully upgraded its efficiency through the use of streamlined evidence management processes, improved coordination with the courts, a forensic laboratory workflow consultant, mandatory overtime and the strategic redistribution of Crime Lab work. While adding these operational developments, the Crime Lab has simultaneously earned international accreditation, individual certification for all eligible Lab analysts, and perfect scores on independent audits. Nonetheless, the fiscal year has also seen the Crime Lab's continued confrontation with the combined effects of crushing caseloads, inadequate staff and resources, employee attrition, and the judicial requirement that Lab scientists personally testify in every court proceeding across North Carolina.

Unfortunately, the sum of the Crime Lab's internal efforts, while helpful, has not been successful in countering the rising tide of demand for the Crime Lab's services or the exodus of well-qualified and highly trained Crime Lab analysts to higher paying forensic science opportunities elsewhere. Current case load inventories, especially in the disciplines of Forensic Biology and Drug Chemistry/Toxicology, remain substantial, and it appears they can be fully remedied only with the infusion of Crime Lab Forensic Scientists in a number commensurate with the demand, and by retaining those scientists over a period of years through the establishment of a competitive pay scale for their services.

Respectfully submitted, this 1<sup>st</sup> day of October, 2013



Joseph R. John, S.  
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<sup>11</sup>S.L. 2013-360 (4) also provides that the Annual Crime Lab Report contain "An average estimate of the dollar and time cost to perform each type of procedure and analysis performed by the Laboratory." The Crime Lab performs hundreds of procedures within its several forensic disciplines and it would require a vast undertaking of time and resources to quantify each as to cost. If what is desired consists of the cost of each general type of analysis conducted by the Crime Lab, e.g., a toxicology analysis, a firearm examination, etc., it appears there are sources such as "Project Foresight" operating out of West Virginia University which are working to compile such data for forensic laboratories. The Crime Lab anticipates beginning participation in "Project Foresight" after the first of the calendar year and hopes to be in a position to present significant pertinent information regarding category 2013-360 (4) in the Fiscal Year 2013-2014 Annual Report.