

**National Institute of Justice**

*Office of Investigative and Forensic Sciences*

Final Reports Submitted Under Forensic DNA Backlog Reduction Program  
Fiscal Year 2010 Awards

August 2012

This document presents final grant reports report submitted to the U.S. Department of Justice. These reports have not been published by the Department. Opinions or points of view expressed are those of the authors and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

## FY10 Backlog Final Reports

This table is a summary of DNA Backlog Awards issued in FY2010. Following this table are their respective abstracts.

FY10 Recipient Name	Award Number	Award Amount
<a href="#">State of Alaska Department of Public Safety</a>	2010-DN-BX-K061	\$207,143
<a href="#">Alabama Department of Forensic Sciences</a>	2010-DN-BX-K115	\$977,422
<a href="#">Arkansas State Crime Laboratory</a>	2010-DN-BX-K089	\$655,503
<a href="#">Arizona Department of Public Safety</a>	2010-DN-BX-K123	\$529,918
<a href="#">Arizona Criminal Justice Commission</a>	2010-DN-BX-K113	\$815,490
<a href="#">San Diego County, California</a>	2010-DN-BX-K077	\$274,261
<a href="#">Fresno County Sheriff Department, California</a>	2010-DN-BX-K093	\$120,000
<a href="#">Kern County District Attorney, California</a>	2010-DN-BX-K088	\$217,581
<a href="#">County of Ventura, California</a>	2010-DN-BX-K087	\$100,102
<a href="#">City of Los Angeles, California</a>	2010-DN-BX-K104	\$1,246,257
<a href="#">City of San Diego, California</a>	2010-DN-BX-K080	\$283,722
<a href="#">Sacramento County, California</a>	2010-DN-BX-K071	\$435,152
<a href="#">County of San Bernardino, California</a>	2010-DN-BX-K116	\$492,591
<a href="#">California Department of Justice</a>	2010-DN-BX-K050	\$1,937,262
<a href="#">Los Angeles County Sheriff's Department, California</a>	2010-DN-BX-K100	\$1,561,300
<a href="#">County of Alameda, California</a>	2010-DN-BX-K082	\$228,894
<a href="#">County of Santa Clara, California</a>	2010-DN-BX-K064	\$255,873
<a href="#">County of San Mateo, California</a>	2010-DN-BX-K054	\$163,633
<a href="#">Orange County Sheriff-Coroner Department, California</a>	2010-DN-BX-K067	\$358,567
<a href="#">Contra Costa County, California</a>	2010-DN-BX-K127	\$206,267
<a href="#">City And County of San Francisco, California</a>	2010-DN-BX-K124	\$320,274
<a href="#">Oakland Police Department, California</a>	2010-DN-BX-K068	\$371,622
<a href="#">City and County of Denver, Colorado</a>	2010-DN-BX-K158	\$203,992
<a href="#">Colorado Department of Public Safety</a>	2010-DN-BX-K154	\$580,593
<a href="#">Connecticut Department of Public Safety</a>	2010-DN-BX-K066	\$482,762
<a href="#">D.C. Metropolitan Police Department</a>	2010-DN-BX-K108	\$393,960
<a href="#">Delaware Health and Social Services</a>	2010-DN-BX-K057	\$284,323
<a href="#">Palm Beach County Sheriff's Office, Florida</a>	2010-DN-BX-K078	\$403,372
<a href="#">Miami Dade Police Department, Florida</a>	2010-DN-BX-K081	\$1,023,044
<a href="#">Florida Department of Law Enforcement</a>	2010-DN-BX-K101	\$3,460,812
<a href="#">St. Lucie County Sheriff's Office, Florida</a>	2010-DN-BX-K092	\$120,404
<a href="#">Pinellas County, Florida</a>	2010-DN-BX-K128	\$333,220
<a href="#">Broward County Sheriff's Office, Florida</a>	2010-DN-BX-K121	\$491,061
<a href="#">Georgia Bureau of Investigation</a>	2010-DN-BX-K094	\$2,147,541
<a href="#">Honolulu Police Department, Hawaii</a>	2010-DN-BX-K091	\$162,603
<a href="#">Iowa Department of Public Safety</a>	2010-DN-BX-K152	\$247,571

<a href="#">Idaho State Police</a>	2010-DN-BX-K156	\$161,260
<a href="#">Illinois State Police</a>	2010-DN-BX-K166	\$2,567,585
<a href="#">Northeastern Illinois Regional Crime Laboratory</a>	2010-DN-BX-K167	\$285,287
<a href="#">DuPage County Sheriff Department, Illinois</a>	2010-DN-BX-K146	\$285,287
<a href="#">Indiana State Police</a>	2010-DN-BX-K150	\$619,386
<a href="#">Marion County-Indianapolis Forensic Services Agency, Indiana</a>	2010-DN-BX-K200	\$366,000
<a href="#">Johnson County Kansas</a>	2010-DN-BX-K159	\$146,000
<a href="#">Kansas Bureau of Investigation</a>	2010-DN-BX-K172	\$386,672
<a href="#">Commonwealth of Kentucky</a>	2010-DN-BX-K118	\$585,500
<a href="#">Louisiana State Police</a>	2010-DN-BX-K099	\$1,340,084
<a href="#">Massachusetts State Police</a>	2010-DN-BX-K106	\$1,042,765
<a href="#">City of Boston, Massachusetts</a>	2010-DN-BX-K122	\$307,967
<a href="#">Anne Arundel County, Maryland</a>	2010-DN-BX-K126	\$135,682
<a href="#">Maryland State Police</a>	2010-DN-BX-K102	\$359,687
<a href="#">Baltimore County, Maryland</a>	2010-DN-BX-K072	\$228,266
<a href="#">Prince George's County, Maryland</a>	2010-DN-BX-K095	\$342,645
<a href="#">Montgomery County, Maryland</a>	2010-DN-BX-K070	\$103,236
<a href="#">City of Baltimore, Maryland</a>	2010-DN-BX-K105	\$469,149
<a href="#">Maine State Police</a>	2010-DN-BX-K059	\$150,000
<a href="#">Michigan State Police</a>	2010-DN-BX-K153	\$2,322,645
<a href="#">Hennepin County, Minnesota</a>	2010-DN-BX-K155	\$107,965
<a href="#">Minnesota Department of Public Safety</a>	2010-DN-BX-K164	\$527,121
<a href="#">St. Louis County, Missouri</a>	2010-DN-BX-K149	\$170,244
<a href="#">St. Louis Metro Police Department, Missouri</a>	2010-DN-BX-K147	\$350,292
<a href="#">St. Charles County, Missouri</a>	2010-DN-BX-K148	\$36,866
<a href="#">Missouri State Highway Patrol</a>	2010-DN-BX-K173	\$433,826
<a href="#">Board of Police Commissioners, Kansas City, Missouri</a>	2010-DN-BX-K163	\$389,367
<a href="#">Mississippi Department of Public Safety</a>	2010-DN-BX-K044	\$387,663
<a href="#">Montana Department of Justice</a>	2010-DN-BX-K157	\$150,000
<a href="#">Charlotte-Mecklenburg Police Department, North Carolina</a>	2010-DN-BX-K165	\$349,200
<a href="#">North Carolina Department of Crime Control and Public Safety</a>	2010-DN-BX-K198	\$1,646,246
<a href="#">North Dakota Office of the Attorney General</a>	2010-DN-BX-K162	\$150,000
<a href="#">Nebraska State Patrol</a>	2010-DN-BX-K199	\$250,756
<a href="#">New Hampshire Department of Safety</a>	2010-DN-BX-K060	\$150,000
<a href="#">New Jersey Department of Law and Public Safety</a>	2010-DN-BX-K086	\$1,312,628
<a href="#">City of Albuquerque, New Mexico</a>	2010-DN-BX-K107	\$182,756
<a href="#">State of New Mexico</a>	2010-DN-BX-K063	\$410,730
<a href="#">Las Vegas Metropolitan Police Department, Nevada</a>	2010-DN-BX-K076	\$872,138
<a href="#">Suffolk County, New York</a>	2010-DN-BX-K084	\$246,252
<a href="#">County of Westchester, New York</a>	2010-DN-BX-K042	\$220,330
<a href="#">Monroe County, New York</a>	2010-DN-BX-K090	\$238,475

<a href="#">County of Erie, New York</a>	2010-DN-BX-K109	\$526,201
<a href="#">New York State Police, New York</a>	2010-DN-BX-K096	\$982,414
<a href="#">Onondaga County Health Department, New York</a>	2010-DN-BX-K047	\$152,935
<a href="#">Nassau County, New York</a>	2010-DN-BX-K049	\$225,515
<a href="#">City of New York, Office of Chief Medical Examiner</a>	2010-DN-BX-K058	\$1,000,000
<a href="#">City of Columbus, Ohio</a>	2010-DN-BX-K056	\$149,688
<a href="#">City of Mansfield, Ohio</a>	2010-DN-BX-K046	\$305,000
<a href="#">Cuyahoga County Coroner's Office, Ohio</a>	2010-DN-BX-K073	\$105,000
<a href="#">State of Ohio Office of The Attorney General</a>	2010-DN-BX-K111	\$831,053
<a href="#">Montgomery County, Ohio</a>	2010-DN-BX-K085	\$249,688
<a href="#">Stark County, Ohio</a>	2010-DN-BX-K075	\$106,400
<a href="#">Hamilton County, Ohio</a>	2010-DN-BX-K062	\$105,000
<a href="#">Oklahoma State Bureau of Investigation</a>	2010-DN-BX-K051	\$571,115
<a href="#">City Of Tulsa, Oklahoma</a>	2010-DN-BX-K079	\$317,089
<a href="#">Oregon State Police</a>	2010-DN-BX-K161	\$451,278
<a href="#">Allegheny County Forensic Lab Division, Pennsylvania</a>	2010-DN-BX-K065	\$283,541
<a href="#">Pennsylvania State Police</a>	2010-DN-BX-K053	\$1,110,575
<a href="#">City of Philadelphia, Pennsylvania</a>	2010-DN-BX-K114	\$968,799
<a href="#">Instituto de Ciencias Forenses, Puerto Rico</a>	2010-DN-BX-K069	\$439,101
<a href="#">Rhode Island Public Safety Grant Administration Office</a>	2010-DN-BX-K125	\$150,000
<a href="#">County of Richland, South Carolina</a>	2010-DN-BX-K074	\$113,950
<a href="#">South Carolina Law Enforcement Division</a>	2010-DN-BX-K103	\$1,399,617
<a href="#">South Dakota Office of the Attorney General</a>	2010-DN-BX-K175	\$150,000
<a href="#">Tennessee Bureau of Investigations</a>	2010-DN-BX-K098	\$2,069,661
<a href="#">City of Austin, Texas</a>	2010-DN-BX-K045	\$182,097
<a href="#">University of North Texas Health Science Center</a>	2010-DN-BX-K119	\$785,138
<a href="#">Texas Department of Public Safety</a>	2010-DN-BX-K043	\$2,401,320
<a href="#">Harris County, Texas</a>	2010-DN-BX-K097	\$796,580
<a href="#">Tarrant County, Texas</a>	2010-DN-BX-K052	\$280,892
<a href="#">County of Bexar, Texas</a>	2010-DN-BX-K048	\$127,119
<a href="#">City of Houston, Texas</a>	2010-DN-BX-K112	\$1,143,339
<a href="#">Utah Department of Public Safety</a>	2010-DN-BX-K117	\$281,036
<a href="#">Virginia Department of Forensic Science</a>	2010-DN-BX-K120	\$920,520
<a href="#">Vermont Department of Public Safety</a>	2010-DN-BX-K055	\$150,000
<a href="#">Washington State Patrol</a>	2010-DN-BX-K174	\$1,004,276
<a href="#">Wisconsin Department of Justice</a>	2010-DN-BX-K151	\$713,980
<a href="#">West Virginia State Police</a>	2010-DN-BX-K083	\$230,014
<a href="#">Wyoming Office of the Attorney General</a>	2010-DN-BX-K160	\$150,000
<b>TOTAL FUNDING</b>		<b>\$64,811,981</b>

**FY10 Recipient Name:** State of Alaska Department of Public Safety

**Award Number:** 2010-DN-BX-K061

**Award Amount:** \$207,143

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Alabama Department of Forensic Sciences

**Award Number:** 2010-DN-BX-K115

**Award Amount:** \$977,422

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Arkansas State Crime Laboratory

**Award Number:** 2010-DN-BX-K089

**Award Amount:** \$655,503

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

The goal is to utilize the Forensic Casework DNA Backlog Reduction Program FY 2010 to decrease turnaround time, increase analyst throughput and decrease the number of backlogged DNA cases.

The objectives are to hire 3 additional Physical Evidence-Serologists to screen evidence for blood and semen and 2 additional DNA analysts to process this screened evidence for DNA upgrade the capillary electrophoresis instruments to increase throughput and decrease processing time by purchasing 3 3500xl

**PROGRESS REPORT 1:** October 1, 2010 – December 31, 2010

The goal is to utilize the Forensic Casework DNA Backlog Reduction Program FY 2010 to decrease turnaround time, increase analyst throughput and decrease the number of backlogged DNA cases.

Progress Oct. - Dec. 10 - The lab has ordered the 3 - 3500xL from Applied Biosystems. They are set to be installed at the end of Jan. The 3500xLs have already been validated and the lab will be ready for the change over once they are installed and performance checked. The 5 forensic scientists have been hired and are set to start in Jan. We expect to begin to see the impact of the new hires within 6 months.

**PROGRESS REPORT 2:** January 1, 2011 – June 30, 2011

The goal is to utilize the Forensic Casework DNA Backlog Reduction Program FY2010 to decrease turnaround time, increase analyst throughput and decrease the number of backlogged DNA cases. The objectives are to hire 3 additional Physical Evidence-Serologists to screen evidence for blood and semen and 2 additional DNA analysts to process this screened evidence for DNA upgrade the capillary electrophoresis instruments to increase throughput and decrease processing time by purchasing 3 3500xl.

Progress Jan. - Jun 2011: The 3 3500xl from Applied Biosystems have been installed,

performance checked, and are being utilized in processing casework. This objective (increasing throughput and decreasing processing time) is complete.

3 Physical Evidence-Serology analysts and 2 DNA analysts were hired and started on Jan.9, 2011. The 3 Physical Evidence-Serology analysts resigned (4/28, 4/29, 4/29/11). The positions have been advertised. One Physical Evidence-Serology analyst has been hired with a start date of 7/11/11. We are in the process of filling the other 2 Physical Evidence-Serology positions. The 2 DNA analysts are currently training under qualified DNA analysts. They are expected to complete their training in August 2011. This objective is not complete.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

The goal is to utilize the Forensic Casework DNA Backlog Reduction Program FY2010 to decrease turnaround time, increase analyst throughput and decrease the number of backlogged DNA cases. The objectives are to hire 3 additional Physical Evidence-Serologists to screen evidence for blood and semen and 2 additional DNA analysts to process this screened evidence for DNA.

The following changes were made to the grant in this period:

1. Because of problems of retaining the new analysts, we were not spending the salary and fringe categories as quickly as expected. A Budget Modification GAN was approved to utilize some of these funds to pay JusticeTrax LIMS maintenance fees for the Forensic Biology licenses and purchase an EZ1xl instrument.

Items completed during this period:

1. The JusticeTrax maintenance fees for the Forensic Biology licenses have been paid. The EZ1xl has been purchased and received. It is currently undergoing performance checks and will be utilized in casework once these are complete.
2. One Physical Evidence analyst was hired on 7/11/11, completed training on 10/17/11 and began processing property cases for serological evidence.
3. One Physical Evidence analyst was hired 9/19/11 and is expected to complete training 1/10/12. This analyst will process property cases for serological evidence once her training is complete.
4. One Physical Evidence analyst was hired 12/12/11 and is expected to complete training in March 2012. This analyst will process property cases for serological evidence once her training is complete.
5. Two new DNA analysts were hired on 11/14/11 (the 2 DNA analysts that we hired in January 2011- one resigned in Aug. 2011 and the other transferred positions Nov. 2011). These analysts are expected to complete training in July 2012.

Challenges faced during this period:

1. Retaining Physical Evidence and DNA analysts once they are hired and trained. This has set us back on our progress for FY10 funding.

Summary: The turnaround time number for the end of this period looks as if the grant funding is not helping our situation but in fact it is. Now that we have one Physical Evidence trained, she is tackling the property crime backlog. These cases are typically the oldest cases

in this section dating back to early 2011. Because she is working these older cases, the turnaround time is higher in this reporting period. We anticipate as the other two physical evidence analysts and DNA analyst are trained and processing cases, the property crime backlog and turnaround time will decrease, causing a decrease in the overall turnaround time.

We have completed all objectives and purchased all equipment in this grant and are requesting closeout of this grant.

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**FY10 Recipient Name:** Arizona Department of Public Safety

**Award Number:** 2010-DN-BX-K123

**Award Amount:** \$529,918

**Final Report:**

**GOALS AND OBJECTIVES:** The goals and objectives of this grant are to improve DNA sample processing, reduce backlogs and improve CODIS hits by purchasing one laser micro-dissection instrument, one integrated sample handling and extraction robot, an upgrade to one existing robot to an integrated sample handling and extraction robot, 37 DNA lab automation computer workstations and 12 Gene Mapper ID-X software licenses. NOTE: The goals and objectives have been updated as a result of a GAN received in December 2011.

**PROGRESS REPORT 1:** October 1, 2010 – December 31, 2010

The FY10 Forensic DNA Backlog Reduction Program Award was dated October 1, 2010 as the start date. Since this Grant was awarded to purchase DNA equipment for capacity enhancement purposes, no cases have yet been processed through the use of this award. The procurement process has been initiated, but significant time will be required to purchase the equipment, finish installation, complete instrument validation, etc. Therefore, no expenditures have been made during these first three months of this Grant and no equipment purchased.

**PROGRESS REPORT 2:** January 1, 2011 – June 30, 2011

During this semi-annual period, January 1, 2011 to June 30, 2011, the AZ DPS Crime Laboratory proceeded with the procurement of one advanced capillary electrophoresis system as specified in the grant application. (Note for clarification: A second capillary electrophoresis instrument was purchased at the same time on the FY09 Forensic DNA Backlog Reduction Program) This FY10 instrument has been installed and the instrument manufacturer, Applied Biosystems, has provided training, including hands on applications. Some test samples have been run, but a full validation must still be completed. The training is provided free with the instrument purchase. Also purchased was the capillary electrophoresis software, including the server license and a 10-pack client license. No supplies were purchased in the reporting period, but will be purchased after July 1, 2011 to complete the validation.

Regarding the second part of the grant, the purchase of a laser micro-dissection instrument, the Arizona State Procurement process has begun, but a system has not yet been purchased. Purchase, installation and validation are planned for completion in the next six months by the end of the grant period, March 31, 2012.

The goals and objectives of this grant were to improve DNA sample processing, reduce

backlogs and improve CODIS hits by purchasing the one advanced capillary electrophoresis instrument and a laser micro-dissection instrument. The progress toward the goals of purchasing the items is listed above and the performance metrics are listed on the attached performance metrics form. (Note for clarification: In the prior performance metrics portion of the progress report for October to December 2010, the initial backlog reported (2,261) was an inadvertent carry over of the backlog reported on the FY09 grant (2009-DN-BX-K086). The correct backlog for October 1, 2010 of 2,625 DNA cases was reported on the performance metrics portion of the January to June 2011 progress report.)

### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

During this reporting period July 1, 2011 to December 31, 2011 the Arizona Department of Public Safety Crime Laboratory requested a no-cost grant adjustment. This adjustment was required to effectively utilize the awarded funds and to improve DNA capacity.

The original grant award approved one capillary electrophoresis unit for the DPS DNA Database Unit and Gene Mapper ID-X software licenses for DNA databasing. These items were approved for purchase with FY09 monies on Grant 2009-DN-BX-K086. Therefore, this Grant (FY10 funds) was approved for changes as follows:

- Purchase 12 Gene Mapper ID-X software client licenses for DNA Casework, providing the new software to all DPS DNA Casework analysts (25 licenses in FY09 & 12 licenses in FY10 for a total of 37 licenses for all three Regional Crime Labs performing DNA analysis). The Gene Mapper ID-X software has mixture deconvolution and expert system capabilities included, which the current software does not. Since most casework DNA now involves DNA mixtures, mixture deconvolution software is a direct casework capacity enhancement.
- Purchase 37 DNA lab automation computer work stations. This provides a computer workstation for each DNA analyst located at their laboratory bench space for quickly tracking samples with bar codes making sure they are in the correct location, interfacing with the Crime Lab's LIMS and automation systems which integrate the robots and genetic analyzer systems enhancing analysis throughput times.
- Upgrade one existing Qiagen robot for the Central Regional Crime Lab DNA Casework Unit in Phoenix and purchase a companion Qiagen robot for the Southern Regional Crime Lab DNA Casework Unit in Tucson. These large integrated sample handling and extraction robots greatly enhance capabilities to robotically process samples.

In addition to the changes discussed above the AZ DPS Crime Laboratory System continues with other portions of the Grant previously approved. These portions are as follows:

- Purchase and implement a Laser Microdissection (LMD) microscope to improve the throughput of DNA casework samples, particularly violent crimes involving male/female mixed DNA samples. This LMD method will replace traditional differential extractions to separate male and female cells, will replace DNA quantitation analyses and will replace DNA clean-up procedures as DNA inhibitors are left behind during the microdissection process.
- Purchase supplies to validate two AB 3500xl Genetic Analyzers (capillary electrophoresis) units purchased from the FY09 Grant Award (2009-DN-BX-K086), a Laser Microdissection (LMD) microscope and two large integrated sample handling and extraction robots to be purchased on this Grant, 2010-DN-BX-K123.



As of December 31, 2011, the following has been accomplished now that the GAN's were approved in December, 2011.

- The GeneMapper ID-X licenses were purchased and placed in use for DNA analysts.
- The validation supplies for two new AB 3500XL genetic analyzers were purchased and used to complete the validation, by December 31, 2011. The new 3500 XL instruments were then available to be put into use in January, 2012, to provide a significant capacity enhancement for processing DNA database samples.
- 37 DNA lab automation computer workstations have been ordered with receipt anticipated in January, 2012.
- A Sole Source GAN was approved for the purchase of one new DNA Qiagen robot and the upgrade of a second DNA robot. The order has been placed for these DNA robots.
- The purchase of the laser micro-dissection instrument for enhancing the collection of samples and speeding DNA processing, has been progressing through the Arizona Procurement process with a competitive bid. This instrument purchase should be completed prior to March 31, 2012.

#### PROGRESS REPORT 4: January 1, 2012 – June 30, 2012

Since this grant award ended March 31, 2012, this progress report covers the three months of January 1, 2012 to March 31, 2012.

As of March 31, 2012, the following was accomplished in the final 3 months of the grant period. All remaining capacity enhancement equipment and supplies were purchased and received. These include:

- 37 DNA Automation computer workstations were received and configured to interface with the AZ DPS Crime Laboratory's Laboratory Information and Management System (LIMS) and with the GeneMapper ID-X Software previously purchased on this grant. GeneMapper ID-X was written to interface with Windows XP, but all new computers now come with Windows 7 and Applied Biosystems, the GeneMapper ID-X Software developer, had to provide an upgrade to allow GeneMapper ID-X to interface with Windows 7. This upgrade was completed by Applied Biosystems and available to AZ DPS in March 2012. Therefore, the migration to the new more efficient DNA Automation workstations took place in March, the final month of the grant.
  - The new DNA Qiagen Sample Handling and Extraction Robot was received and installed. Also, the upgrade of an existing Qiagen Robot to a full Sample Handling and Extraction Robot was completed and installed. Both robots required only minor validations as a previously purchased Qiagen Sample Handling and Extraction Robot underwent a full, detailed validation.
  - The Laser Microdissection instrument for enhancing DNA collection from criminal evidence, particularly sex assaults, was received and installed. This instrument also required a manufacturer's upgrade to Windows 7 to become fully functional. The validation supplies were purchased and utilized in the validation.
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**FY10 Recipient Name:** Arizona Criminal Justice Commission

**Award Number:** 2010-DN-BX-K113

**Award Amount:** \$815,490

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** San Diego County, California

**Award Number:** 2010-DN-BX-K077

**Award Amount:** \$274,261

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

- Goal 1 - Purchase a microscopic imaging system for screening of sexual assault case evidence.
- Goal 2 - Purchase upgraded computer equipment for the Lab's local CODIS system.
- Goal 3 - Use award funds to provide continuing education opportunities to DNA analysts via a variety of seminars that will satisfy the federal continuing education requirements for DNA analysts. Travel and training expenses will not exceed 5 percent of total award funds.
- Goal 4 - Use award funds to finance the validation of the Lab's Tecan EVO-150.
- Goal 5 - The Lab will use award funds to purchase one-year maintenance agreements for six pieces of DNA analysis equipment acquired with last year's award.

**PROGRESS REPORT 1: October 1, 2010 – December 31, 2010**

- Goal 1: Progress - A request for bids has been issued through the County's Department of Purchasing and Contracting. We expect to receive the responses to this request, and award a contract for the imaging system, early in 2011.
- Goal 2: Progress - We are coordinating the purchase of four CODIS client computers through our Department's data services division. We expect to purchase an upgraded CODIS server toward the end of the award period.
- Goal 3: Progress - Arrangements are being made to have two DNA analysts attend the 2011 meeting of the American Academy of Forensic Sciences using award funds.
- Goal 4: Progress - A request for bids has been issued through the County's Department of Purchasing and Contracting. We expect to receive the responses to this request, and award a contract for the validation service, early in 2011.
- Goal 5: Progress - We are working with suppliers to purchase maintenance agreements for the described equipment. We expect to complete these purchases early in 2011.

**PROGRESS REPORT 2: January 1, 2011 – June 30, 2011**

- Goal 1: Progress - A contract to provide the imaging system has been awarded to Nikon Instruments and a purchase order has been placed. We expect to take delivery on the system early in the next reporting period.
- Goal 2: Progress - We have completed the purchase and installation of four CODIS client computers through our Department's data services division. We expect to purchase an upgraded CODIS server toward the end of the award period.

Goal 3: Progress - Two DNA analysts attended the 2011 meeting of the American Academy of Forensic Sciences using award funds. We were planning to have one analyst attend the spring meeting of the California Association of Criminalists, and another the Bode Advanced DNA Technical Workshop - West. Owing to a scheduling conflict, both these analysts attended the Bode meeting.

Goal 4: Progress - A contract for validation services has been awarded to Sorenson Forensics, and the validation is currently in progress.

Goal 5: Progress - All of the planned maintenance agreements have been purchased.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goal 1: Progress – The imaging system has been installed and is currently in use.

Goal 2: Progress - We have completed the purchase and installation of four CODIS client computers and a new CODIS server through our Department's data services division.

Goal 3: Progress - Two DNA analysts attended the 2011 meeting of the American Academy of Forensic Sciences using award funds. We were planning to have one analyst attend the spring meeting of the California Association of Criminalists, and another the Bode Advanced DNA Technical Workshop - West. Owing to a scheduling conflict, both these analysts attended the Bode meeting.

Goal 4: Progress – The validation is complete, pending receipt and approval of the final documentation.

Goal 5: Progress - All of the planned maintenance agreements have been purchased.

#### FINAL REPORT: January 1, 2012 – June 30, 2012

Goal 1: Progress – The imaging system has been installed and is currently in use.

Goal 2: Progress - We have completed the purchase and installation of four CODIS client computers and a new CODIS server through our Department's data services division. We have also purchased several computers and printers for our LIMS, using excess funds transferred from other categories of our award budget (please see GAN #3).

Goal 3: Progress - Two DNA analysts attended the 2011 meeting of the American Academy of Forensic Sciences using award funds. We were planning to have one analyst attend the spring meeting of the California Association of Criminalists, and another the Bode Advanced DNA Technical Workshop - West. Owing to a scheduling conflict, both these analysts attended the Bode meeting.

Goal 4: Progress – The validation is complete, and the Tecan instrument is currently in use.

Goal 5: Progress - All of the planned maintenance agreements have been purchased.

A note about the performance metrics – the rather dramatic increase in our average turnaround time during this reporting period was caused by the completion of a number of very old analysis requests, some of them dating back several years. The availability of overtime funds from our 2011 DNA Backlog Program award made it possible for us to address these requests.

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**FY10 Recipient Name:** Fresno County Sheriff Department, California

**Award Number:** 2010-DN-BX-K093

**Award Amount:** \$120,000

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

The goal of this grant is to analyze 20 backlogged cases using the funding provided

**PROGRESS REPORT 1: October 1, 2010 – December 31, 2010**

This grant was awarded on 9/13/2010. The Fresno County Board of Supervisors accepted this award 10/19/2010.

In order to reduce the DNA case backlog the Sheriff's Department Forensic Laboratory is using accredited/certified DNA laboratories to analyze the backlogged cases. As we have not closed out the 2009 DNA backlog Reduction Grant, no funds have been encumbered or expended using the 2010 grant. The completion of the 2009 grant is expected in January of 2010, this will allow us to start the 2010 grant in late January or early February.

Within the time frame of this progress report zero backlogged DNA cases have been sent out for analysis and zero have been returned from the vendor after analysis. During this reporting period zero cases were sent for upload into CODIS. During this reporting period we have received zero CODIS hits on these cases.

The goal of this grant is to analyze 20 backlogged cases using the funding provided

**PROGRESS REPORT 2: January 1, 2011 – June 30, 2011**

This grant was awarded on 9/13/2010. The Fresno County Board of Supervisors accepted this award 10/19/2010.

In order to reduce the DNA case backlog the Sheriff's Department Forensic Laboratory is using accredited/certified DNA laboratories to analyze the backlogged cases. During this period we were able to close out the 2009 DNA backlog Reduction Grant, thus freeing up the funding from the 2010 grant and allowing us to start using this year funds to reduce out backlogged DNA cases.

Within the time frame of this progress report 17 backlogged DNA cases have been sent out for analysis and 7 have been returned from the vendor after analysis. During this reporting period two cases were sent for upload into CODIS. During this reporting period we have received no CODIS hits on these cases.

The goal of this grant is to analyze 20 backlogged cases using the funding provided. We are currently well over half way to our goal for this grant, with almost nine more months left in the grant. We should easily be able to meet or surpass the goals set forth in this grant.

**PROGRESS REPORT 3: July 1, 2011 – December 31, 2011**

This grant was awarded on 9/13/2010. The Fresno County Board of Supervisors accepted this award 10/19/2010.

In order to reduce the DNA case backlog the Sheriff's Department Forensic Laboratory is using accredited/certified DNA laboratories to analyze the backlogged cases.

Within the time frame of this progress report 19 backlogged DNA cases have been sent out for analysis and 22 cases were returned. A total of 36 cases have been sent out for analysis during the life of this grant. During this reporting period seven cases were sent for upload

into CODIS. A total of 9 cases have been uploaded into CODIS during the life of this grant. During this reporting period we have received 2 CODIS hits.

In this process we have found that getting the cases out is not an issue, but getting the cases back from our private vendor has been a speed bump in the process. We have been working through these issues with our service providers. They have been very willing to work with us to get the cases completed in order to meet the goal that we have set for ourselves with these funds.

The goal of this grant was to analyze 20 backlogged cases using the funding provided. We have currently sent out a total of 36 cases which meets and exceeds our goals for these funds.

#### FINAL REPORT:

This grant was awarded on 9/13/2010. The Fresno County Board of Supervisors accepted this award 10/19/2010.

In order to reduce the DNA case backlog the Sheriff's Department Forensic Laboratory is using accredited/certified DNA laboratories to analyze the backlogged cases.

A total of 39 cases were sent out for analysis during the life of this grant. A total of 12 cases have been uploaded into CODIS during the life of this grant. During this grant period, we have received a total of 4 CODIS hits.

Over the life of this grant we have been working through issues with our service providers to get all of the submitted cases analyzed. They have been very willing to work with us and have worked with us to get the cases completed in order to meet and surpass the goal that we have set for ourselves with these funds.

The goal of this grant was to analyze 20 backlogged cases using the funding provided. We were able to send out a total of 39 cases which meets and exceeds our goals for these funds.

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**FY10 Recipient Name:** Kern County District Attorney, California

**Award Number:** 2010-DN-BX-K088

**Award Amount:** \$217,581

**Final Report:**

#### GOALS AND OBJECTIVES OF PROJECT:

1. To maintain and/or increase capacity; to decrease TAT
2. To continue to participate in and expand the DNA Property Crime Program
3. Elimination of bottleneck at preliminary screening of evidence
4. Reduce and/or eliminate backlog

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

The following goals and objectives were set for this award:

1. To maintain and/or increase capacity; to decrease TAT:

The goal of continued support of two (2) forensic science personnel has been met. With the funding provided through the NIJ 2010 DNA Backlog Grant, the Lab was in a position to continue to fund these positions for the remainder of the County's fiscal year. This goal has been met.

Turn-around-time increased from the baseline established September 30, 2010. This is largely due to the 3 holidays during the October through December quarter, which is equivalent to approximately 15 days. The Lab anticipates seeing a reduction in the TAT from this matrix, as there will be less interruptions due to the holidays.

Taking into consideration that as DNA proves more and more valuable in both the identification of suspects and prosecution of those suspects, more and more submissions will be made; however, staff size does not have the opportunity to increase to meet demand. For example, the Lab received in excess of 200 submissions during this quarter as indicated by the table below:

Samples Submitted by Offense	Oct-Nov 2010
Theft	7
Sexual Assault	123
Burglary	44
Assault	9
Homicide	24
Grand Theft Auto	5
Robberies	4
Officer Involved Shooting	1
Paternity Testing	3
Attempt Homicide	4
Vehicular Manslaughter	1
Total Submissions	223

2. To continue to participate in and expand the DNA Property Crime Program: The Lab is continuing to participate in the Property Crime program and has extended it beyond the initial agency and pilot program. The Property Crime program has been especially successful and has presented excellent opportunities to obtain DNA, enter those profiles into CODIS, obtain a “hit,” or numerous “hits” related to on-going criminal activity.
3. Elimination of bottleneck at preliminary screening of evidence: The Lab had determined that a bottleneck was created at the screening process for DNA, with the removal of a non-functioning microscope. Included in the RFA was a request to purchase a new multi-functional screening microscope. A number of manufacturers were found, features were reviewed and staff determined that a particular microscope would best fit the DNA section’s needs. Five vendors were sent specifications and asked to submit bids. The microscope will be purchased next quarter when the procurement process has been completed.
4. Reduce and/or eliminate backlog: The baseline 179 backlog submissions were increased by 213, and 227 submissions were completed. The Lab anticipates increased submissions and increased Backlog due to the increased demand for DNA analyses. It is the Lab’s goal to effectively and efficiently reduce, if not eliminate that backlog.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

1. To maintain and/or increase capacity; to decrease TAT: The first goal of retaining two qualified experience DNA analysts was met and with funding provided by the NIJ 2010 DNA Backlog grant.

TAT has an increase this reporting period by 27.6 days; however, analysts have been completing backlog cases which greatly affect the TAT. During this reporting period 16 completed cases were over six (6) months old and of those 16 cases eight (8) cases were in excess of one (1) year old.

Additionally impacting the TAT:

- (a) A number of the analysts had big court cases, which required extensive preparation time, and them away from case work;
- (b) DNA staff has been working on a mixture Method update, which again is necessary, but takes staff away from case work; and
- (c) Staff was required to complete proficiency testing for the two new kits that staff has begun to use (Quant Dui and ID Plus).

The following table indicates the casework increase for the last six (6) month for the DNA Unit, and is broken out by type of exam requested by the submitting agencies: Exam Requested by Agency	
Bio Trace	16
Forensic Biology/DNA	154
Known Reference	169
Paternity DNA	5
Sexual Assault	58
Total DNA Unit Related	402

2. To continue to participate in and expand the DNA Property Crime

The Lab is continuing with the Property Crimes. All Felony Property Crimes requests with possible DNA are submitted to the District Attorney’s Major Crimes Prosecutor, “Gate-keeper.” The Gate-keeper reviews the case to assure that it meets very specific criteria; one such requirement is that it must be a felony case to be submitted to the Lab for possible DNA analysis. The Project is very successful and will continue as staffing, time and funding allows.

- 2. Elimination of bottleneck at preliminary screening of evidence: The microscope has been purchase, delivered, installed, staff has received training and it is fully functional at the screening stage of process. This has greatly assisted in reducing the bottleneck.
- 4. Reduce and/or eliminate backlog: Again, as staff works diligently to reduce existing backlog, while working current caseload, with special attention to those involving violent crimes, new cases continue to be submitted to the Lab. Priority is given to the high-profile and violent crime cases, again, all cases are submitted to the Gate-keeper for approval to move forward for DNA analysis.

The table below indicates the DNA Unit of the Lab’s current backlog: BACKLOG	
Bio Trace	4
Forensic DNA	165
Known Reference	8
Paternity DNA	6
Sex Asst	28
Special PE	2
Total	213

Grant funded analysts’ activities during the reporting period:

One analyst:

Testified in a homicide case involving DNA, which resulted in a guilty conviction. She assisted in DNA sample collection training for law enforcement officers in Kern County on three occasions and participated in four crime-scene callout investigations including two homicides. She was instrumental in the validation of a new DNA quantitation method as published by the Robin Cotton Group using a NIST standard curve which increased accuracy while decreasing cost. She also trained all other Kern County Crime Lab DNA Analysts in this new method. The new quantitation method is less time-consuming than the previous method and should assist in the reduction of TAT and backlog.

During this reporting she completed DNA analysis for the following cases: CASES COMPLETED DURING REPORTING PERIOD	
Burglary	11
Homicide	6
Sexual Assault	3
Assist	2
Theft	2
Grand Theft Auto	2
Paternity DNA	1
Total	27

Another analyst:

Primarily worked on the Lab's backlog. He started on his first arson backlog case using a new kit. The kit is more sensitive and better able to handle inhibition in samples. Using this kit he was able to produce a DNA profile from the arson evidence submitted, which will be uploaded to CODIS. Additionally, he is responsible for the quality assurance review of kits as they are delivered to the DNA Unit prior to use and participates on the crime scene call out team.

He completed the following sample analysis: CASE COMPLETED DURING REPORTING PERIOD	
Burglary	11
Homicide	9
Sexual Assault	7
Assault	1
Theft	3
Attempted Homicide	2
Att Corporal Punishment	1
Robbery	4
Possession of Firearm	2
Total	40

During this reporting period the DNA Unit analyzed vaginal swabs from a sexual assault homicide case. Analysts were able to develop a DNA profile, using this DNA profile they were able to eliminate the two main suspects. The DNA profile has been up-loaded to CODIS.

PROGRESS REPORT 3: July 1, 2011 – September 30, 2011 – FINAL

The following goals and objectives were set for this award:



1. To maintain and/or increase capacity; to decrease TAT: The first goal, retention two qualified experience DNA analysts, was met with funding provided by the NIJ 2010 DNA Backlog grant.

Turn around time (TAT) has an increase this reporting period by 4.4 from the baseline; however, analysts have been completing backlog cases which impacts the TAT. During this reporting period 13 completed cases were over six (6) months old.

Additionally impacting the TAT:

- (a) DNA staff has been working on a mixture Method update, which again is necessary, but takes staff away from case work; and
- (b) Staff was required to complete validation for the two new kits that staff began to use (Quant Duo and ID Plus).

The following table reflects the exams requested by submitting agencies over the last three months, July, August and September, 2011. This is an average of 13.4 requests per DNA analyst per month. Exams Requested by Agency	
Bio Trace	6
Forensic DNA	81
Known Reference	81
Paternity DNA	1
Sexual Assault	32
Total DNA Unit Related	201

2. To continue to participate in and expand the DNA Property Crime Program: The Lab is continuing with the Property Crimes as time permits. Felony Property Crimes with possible DNA, continue to be screened and approved by the District Attorney's Major Crimes Prosecutor, "Gate-keeper." The Project is very successful and will continue as staff's time permits and funding allows.
3. Elimination of bottleneck at preliminary screening of evidence:  
The microscope was purchased, installed and staff received training on the operation of the instrument. This Goal has been met.
4. Reduce and/or eliminate backlog:  
Staff works diligently to reduce existing backlog, while working current caseload, with special attention to those cases, which involve violent crimes, as new cases continue to be submitted to the Lab. Priority is given to the high-profile and violent crime cases, again, all cases are submitted to the Gate-keeper for approval to move forward for DNA analysis. However, as more law enforcement is trained in the proper collection of evidence for possible DNA; Prosecution and Defense attorney realize the impact of DNA evidence; and Judges and Juries begin to expect DNA evidence; the demand for analysis continues to grow as well as the backlog. This is especially true when one considers the success rate for property crimes.

The table below indicates current Backlog for the Biological Sciences Section of the KRCL: Exam	Final Quarter
Bio Trace	6
Forensic DNA	231
Known Reference	20
Paternity DNA	3
Sex Assault	44
Spec Physical Evidence	2
Total	306

In addition to casework, the analyst has been working on validating a new statistics software program for the DNA Unit that deals with modified random match probability statistics.

During this reporting she completed DNA analysis for the following offenses: CASES COMPLETED DURING REPORTING PERIOD	
Burglary	7
Homicide	3
Sexual Assault	14
Assault	2
Attempt Homicide	3
Possession Firearm	1
Car jacking	1
Robbery	1
Total	32

**Summary:**

With funding provided by the 2010-DN-BX-K088 DNA Backlog Reduction (Grant), the DNA Analysis Unit was in a position to retain two qualified DNA Scientists (analysts). The analysts complete a total of 181 cases during the twelve month grant period. Additionally, the analysts perform technical peer review of other analysts' cases.

Had the Unit lost the staff, it would have taken years to replace the analysts, if and when funding became available again. Additionally, the new hires would require training and several years of experience to reach the level of the current analysts.

Retention of the analysts allowed them with the opportunity to participate as trainees on the Crime Scene call-out team, evenings and weekends. This is at no cost to the Grant, but a tremendous service to the victims of violent crimes.

The light microscope was purchased, installed, configured and staff received operational training. This purchase has proven invaluable at the preliminary screening of evidence for possible biological trace and has virtually eliminated the bottleneck that had existed.

During the Grant period 131 profiles have been uploaded to CODIS, 60 CODIS Hits have been obtained, and the grant funded analysts have worked, assisted with and completed 181 cases.

\*Note: A correction was made to the optional matrix for all reporting periods to reflect grant funded analysts only.

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**FY10 Recipient Name:** County of Ventura, California

**Award Number:** 2010-DN-BX-K087

**Award Amount:** \$100,102

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of Los Angeles, California

**Award Number:** 2010-DN-BX-K104

**Award Amount:** \$1,246,257

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of San Diego, California

**Award Number:** 2010-DN-BX-K080

**Award Amount:** \$283,722

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Sacramento County, California

**Award Number:** 2010-DN-BX-K071

**Award Amount:** \$435,152

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** County of San Bernardino, California

**Award Number:** 2010-DN-BX-K116

**Award Amount:** \$492,591

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** California Department of Justice

**Award Number:** 2010-DN-BX-K050

**Award Amount:** \$1,937,262

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Los Angeles County Sheriff's Department, California

**Award Number:** 2010-DN-BX-K100

**Award Amount:** \$1,561,300

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** County of Alameda, California

**Award Number:** 2010-DN-BX-K082

**Award Amount:** \$228,894

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

The goal of this grant proposal is to continue funding two full-time Criminalists as well as provide funding for service / maintenance contracts. One of the funded Criminalists will be responsible for DNA casework and technical reviews. The other Criminalist (DNA Technical Lead) will be responsible for technical aspects of the DNA unit as well as oversight of the day-to-day quality assurance and accreditation compliance activities. The DNA Technical Lead will perform technical and administrative reviews, conduct and review validations and conduct casework on a part time basis.

The objectives for funding two full-time Criminalists are to improve the efficiency and effectiveness of the DNA unit, increase the case productivity through staffing as well as reducing turnaround times.

**PROGRESS REPORT 1: October 1, 2010 – December 31, 2010**

Approximately \$194,000 of the 2010 DNA grant is allocated for funding staff.

Approximately \$35,000 is allocated for service / maintenance contracts.

At this time the ACSO Crime Lab has used approximately \$3,000 for a service / maintenance contract. It is anticipated that funding for the other service / maintenance contracts will be obligated in April / May 2011.

It is anticipated that funding from this grant proposal for staffing will begin drawing down in February / March 2011. These funds will be used to continue funding the two Criminalist positions previously funded by the 2006 – 2009 DNA grants.

**PROGRESS REPORT 2: January 1, 2011 – June 30, 2011**

At this time the ACSO Crime Lab has expended approximately \$98,000 to continue funding the two Criminalist positions previously funded by the 2006 – 2009 DNA grants.

The ACSO Crime Lab has used approximately \$24,000 for a service / maintenance contract for Applied Biosystems.

The remaining funds will be used to continue funding the two Criminalist positions. All funds are anticipated to be spent by the end of the grant period.

PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

At this time the ACSO Crime Lab has expended all the remaining funds on funding the two Criminalist positions.

The ACSO Crime Lab is expecting \$32,001.45 of program income from the County of Alameda which will be used to purchase supplies and kits for two unfinished validations (Y-filer, Identifiler Plus). It is anticipated that the program income will be expended by the end of the grant period – March 31, 2012. If not, a GAN will be submitted to extend the grant.

PROGRESS REPORT 4: January 1, 2012 – April 30, 2012

At this time the ACSO Crime Lab has expended all funds.

The ACSO Crime Lab did not receive the expected \$32,001.45 in program income from the County of Alameda before the end of the grant period – March 31, 2012. As a result, a check in the amount of \$32,001.45 of unspent program income is being returned to OJP.

FINAL REPORT:

The ACSO Crime Lab successfully met all the goals of this grant proposal. In summary funds from this grant proposal continued to fund two Criminalist positions (DNA Technical Lead and Criminalist) previously funded by the 2006-2009 DNA grants and service / maintenance contracts for DNA instrumentation.

The overall success of this grant was evident with the increased case productivity, maintaining the turn around time and capacity of samples analyzed per month per analyst.

As of April 30, 2012 the DNA unit has completed 85 cases with a turn around time of 48 days.

In 2011 the DNA unit completed 214 cases with a turn around time of 58 days.

In 2010 the DNA unit completed 179 cases with a turn around time of 50 days.

In 2009 the DNA unit completed 173 cases with a turn around time of 139 days.

From October 1 through December 31, 2010, the optional metrics were not reported but have been included in the final cumulative metrics.

From October 1, 2010 through March 31, 2012, the cumulative metrics are as follows. The average number of days between the submission of a sample and the delivery of the test results to the requesting agency was approximately 55 days. The average number of samples analyzed per analyst per month was 29 samples. Grant funded analysts completed 57 cases, uploaded 21 profiles to CODIS of which 8 obtained hits.

Without the assistance of funds from this grant the ACSO Crime Lab would not be as successful as it is today in meeting the needs of our law enforcement agencies including our own agency.

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**FY10 Recipient Name:** County of Santa Clara, California

**Award Number:** 2010-DN-BX-K064

**Award Amount:** \$255,873

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Objective #1 – Backlog reduction

In the grant proposal, the first objective was described as follows: “Analyze 155 backlogged cases using grant funds. This will include a combination of backlogged cases as of October 1, 2010, and those that are received during the grant period, backlogged, and then assigned and completed before the end of the grant. The laboratory adopts the definition of “backlogged request” as defined in the grant solicitation: “A request that has been submitted to the DNA laboratory and is not completed within 30 days.”

Objective #2 – Turnaround time

In the grant proposal, the second objective was described as follows: “Turnaround times for DNA casework will improve from an average of 79 days to 70 days from date of submission to date of review.” It should be noted that 79 days was the projected turnaround time when the proposal was written and the actual average turnaround time on October 1, 2010 was 84 days.

Objective #3 – Sample throughput

In the grant proposal, the third objective was described as follows: “Casework throughput will improve from 19 samples per analyst per month to 24 samples per analyst per month.”

At the end of this three month reporting period, 946 samples had been processed by the 14 analysts doing DNA casework (one analyst only does screening casework, and the three DNA supervisors are counted as one analyst), which equates to 22.5 samples per analyst per month. This is an improvement from the beginning of the reporting period, but is still shy of the 24 sample goal. It is anticipated that this goal can be achieved once the enhanced chemistry and new employees are online.

**PROGRESS REPORT 1: October 1, 2010 – December 31, 2010**

The required performance metrics have been submitted through GMS.

The main objectives for this award were to reduce the backlog, reduce turn-around times, and increase sample throughput; each is discussed in further detail in the paragraphs that follow.

To achieve these goals, the laboratory used grant funds to pay the salary and benefits of two Criminalists, and to purchase an enhanced amplification chemistry for validation (5 kits) and casework use (7 kits). Both Criminalists funded under this award have been focused on completing backlogged DNA casework (includes biological screening tasks). The amplification kits have been used to complete the validation and staff training and casework implementation are expected to commence in February.

Objective #1 –

On October 1, 2010, there were 173 backlogged DNA cases. As of December 31, 2010, the backlog consisted of 153 cases. Of the 173 cases backlogged on October 1, 2010, 59 were completed, 46 were in progress, and 68 remained unassigned. There were 223 new requests made during this reporting period; 55 of these are complete, 84 are in progress, and 84 remain unassigned. Grant-funded employees have completed 18% (21) of the 114 completed cases.

The enhanced amplification chemistry is in the final stages of validation, and therefore, a reduction in turnaround time cannot yet be correlated to this grant-funded supply. The new chemistry is expected to reduce turn-around times due to increased sensitivity, the ability to overcome inhibition, improved balance, reduced amplification time, and a reduction in the number of required amplifications.

Objective #2 –

At the end of the reporting period, the average turnaround time from date of submission to the date of review was 95.59 days, which is a significant increase from the beginning of the grant period. This can be partially attributed to the departure of an employee that consistently completed at least 25 cases per quarter with an average turnaround time around 35 days. A second high-producing employee (~15 cases per quarter with an average turnaround time of ~30 days) separated from the laboratory at the end of November. Both positions have been filled by analysts whose experience should serve to normalize and further reduce the turnaround time. This trend may not be apparent for two more quarters since the new employees require some training before they can start casework.

As mentioned above, the enhanced amplification chemistry will streamline workflow and serve not only to help reduce backlog, but also reduce turnaround times.

Objective #3 –

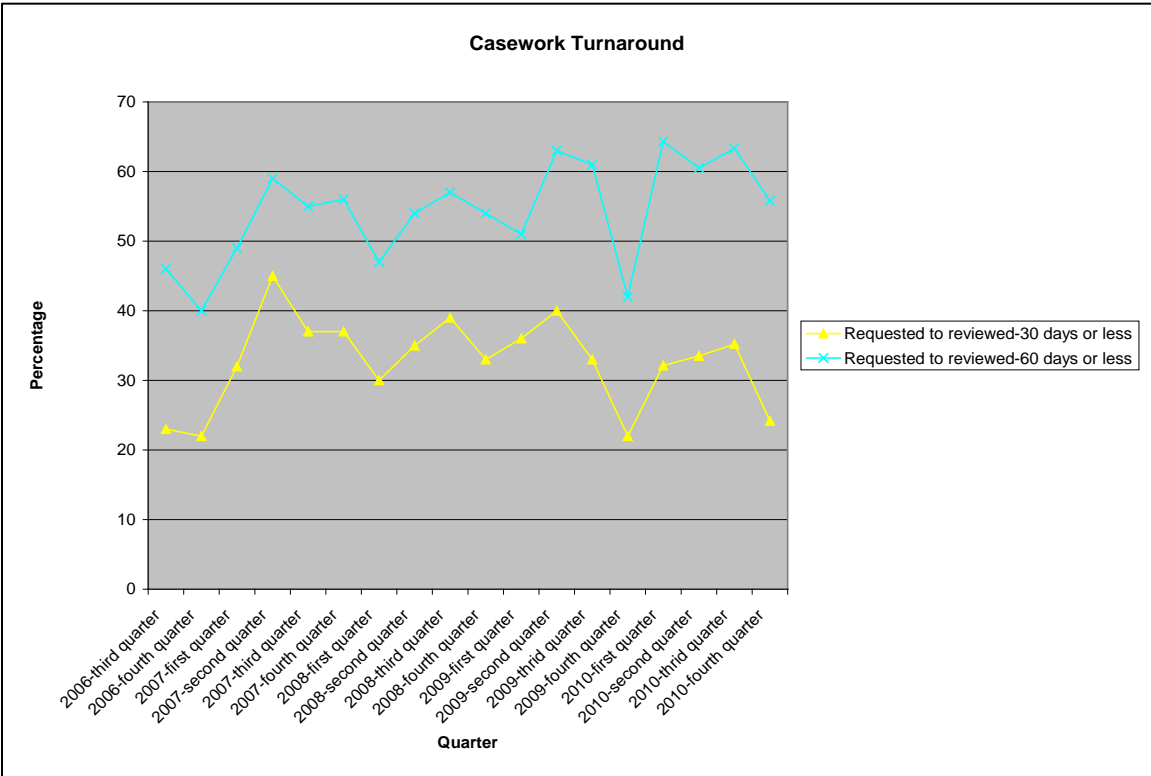
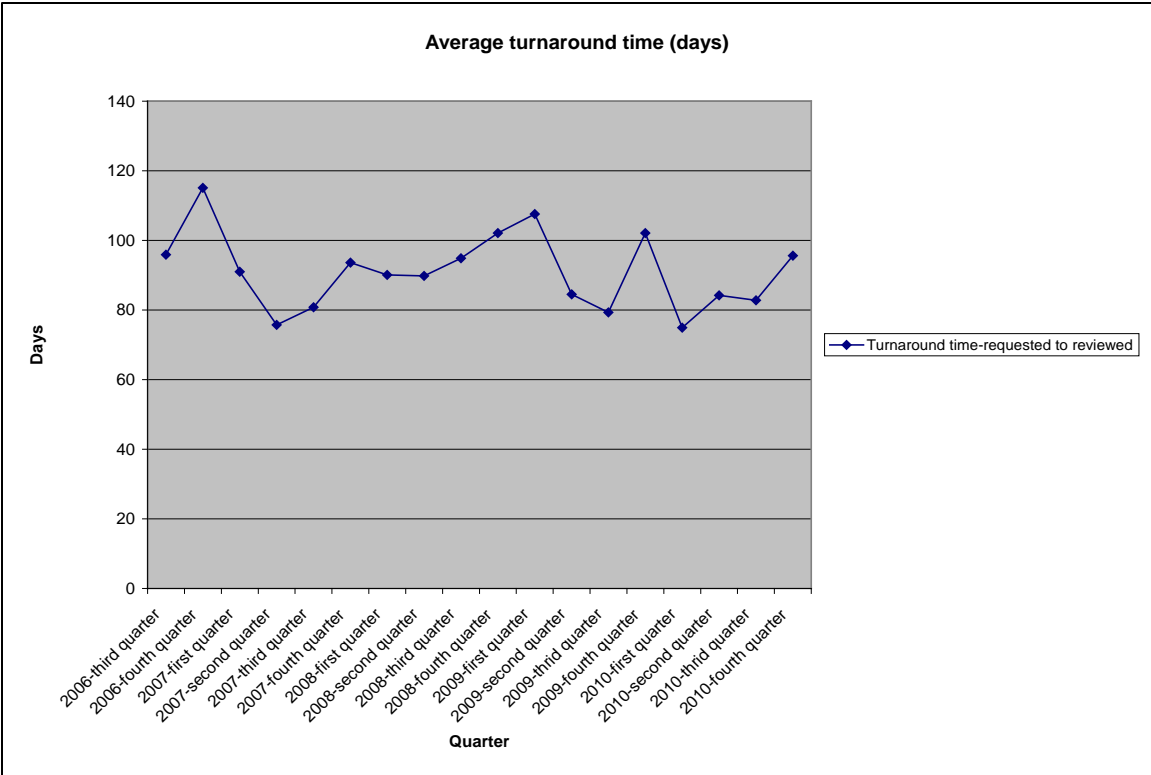
At the end of this three month reporting period, 946 samples had been processed by the 14 analysts doing DNA casework (one analyst only does screening casework, and the three DNA supervisors are counted as one analyst), which equates to 22.5 samples per analyst per month. This is an improvement from the beginning of the reporting period, but is still shy of the 24 sample goal. It is anticipated that this goal can be achieved once the enhanced chemistry and new employees are online.

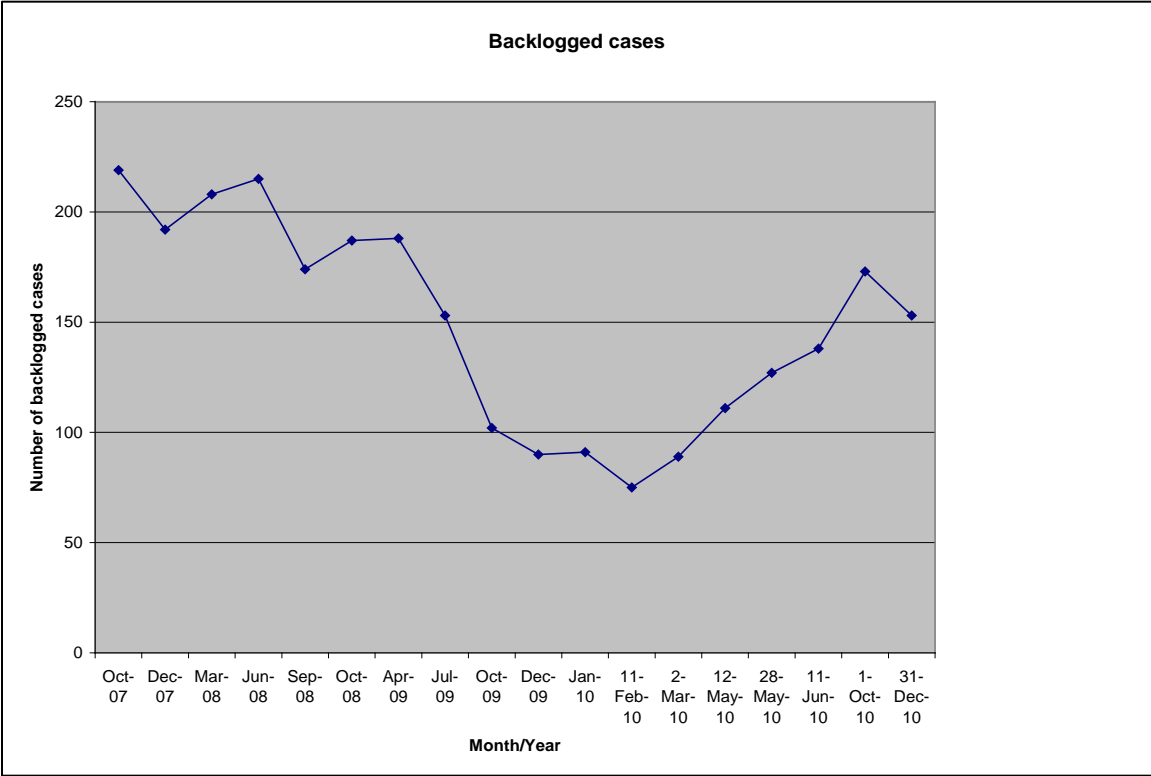
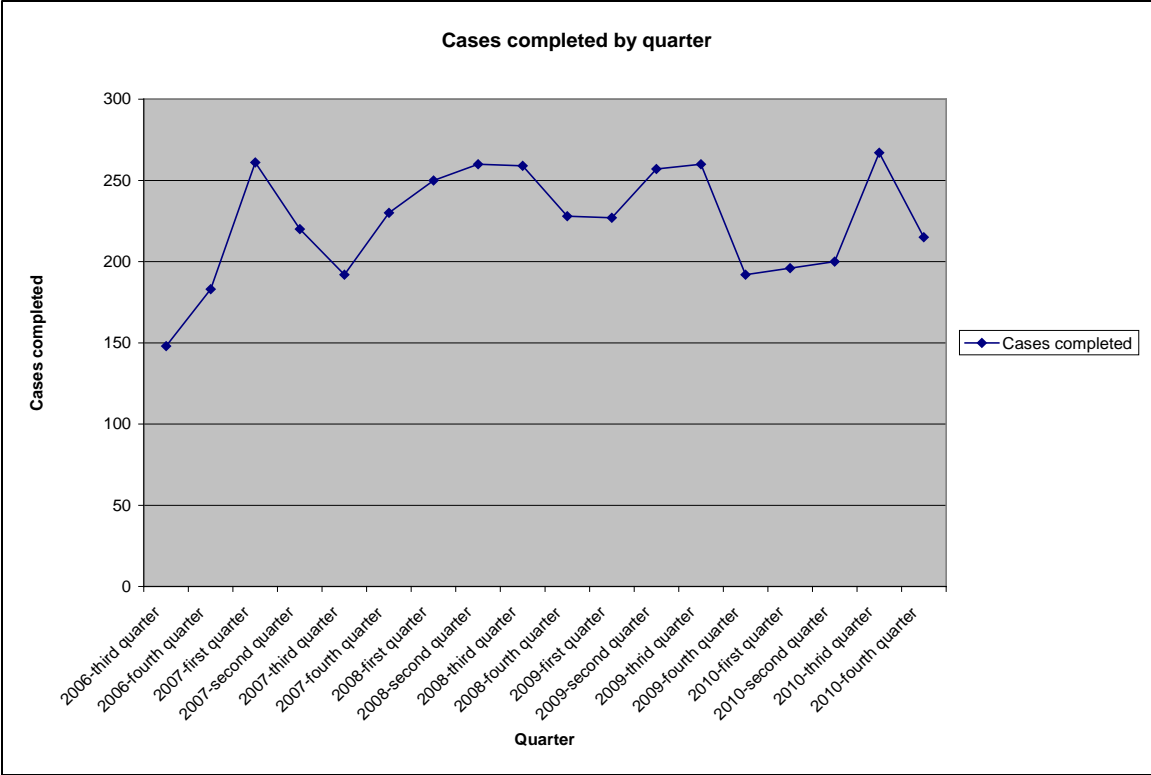
The charts and tables that follow summarize some of the performance metric trends discussed above:

Analyst Completed Cases 10/1/2010 - 12/31/2010						
	Requested to Reviewed					Cases Completed
	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	
	30	60	30	60		
Analyst	3	5	60.00	100.00	28.60	5
Analyst	3	5	60.00	100.00	21.00	5
Analyst	1	6	7.14	42.86	105.36	13
Cardosa	5	11	17.86	39.29	157.32	28
Analyst	6	11	35.29	64.71	78.88	17
Analyst	8	15	44.44	83.33	40.33	18
Analyst	1	1	16.67	16.67	201.00	5
Analyst	0	4	0.00	22.22	148.06	18
Analyst	8	19	28.57	67.86	64.32	28
Analyst	6	12	30.00	60.00	79.45	19
Analyst	5	8	35.71	57.14	73.93	14
Analyst	0	0	0.00	0.00	110.50	2
Analyst	2	4	28.57	57.14	78.86	7
Analyst	1	4	7.69	30.77	84.85	13
Analyst	2	5	28.57	71.43	86.00	7
Analyst	1	7	7.14	50.00	130.50	13
Analyst	0	3	0.00	100.00	46.33	3
Totals/Averages	52	120	24.19	55.81	95.59	215

Highlighted analysts are grant-funded.

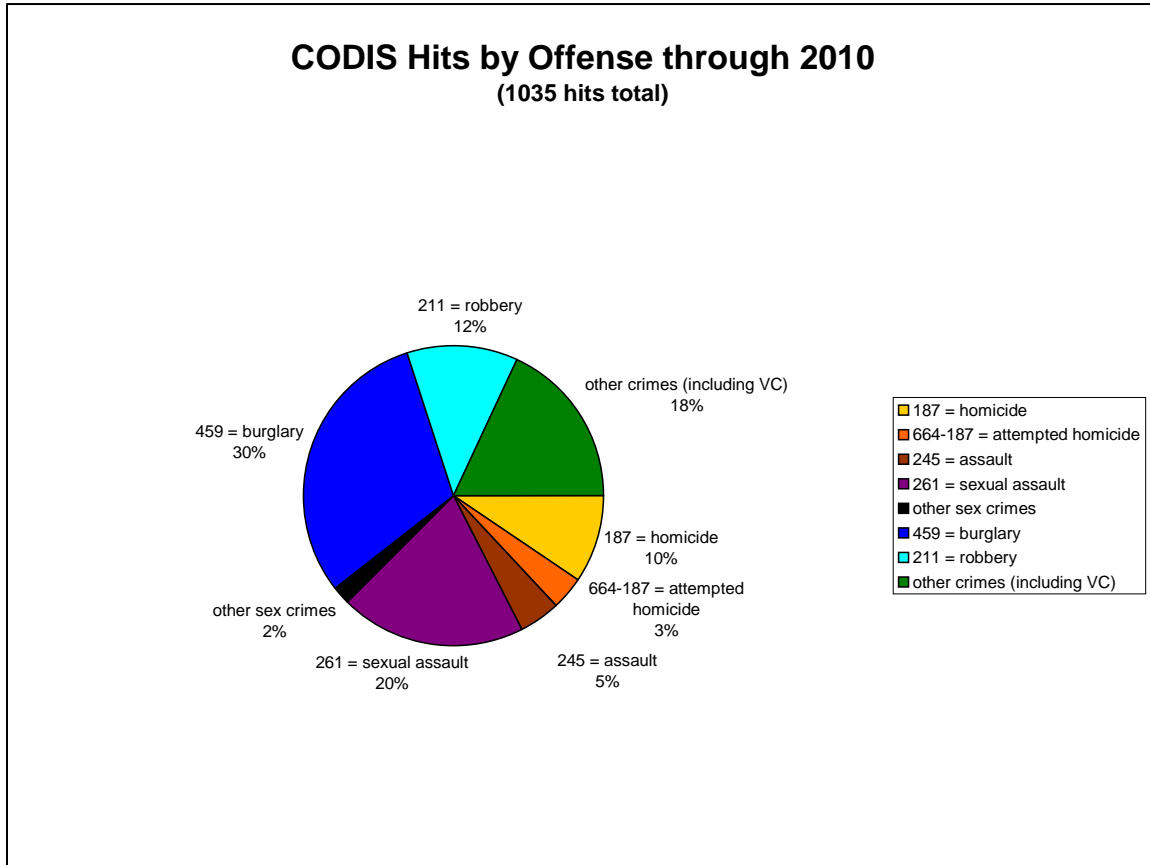




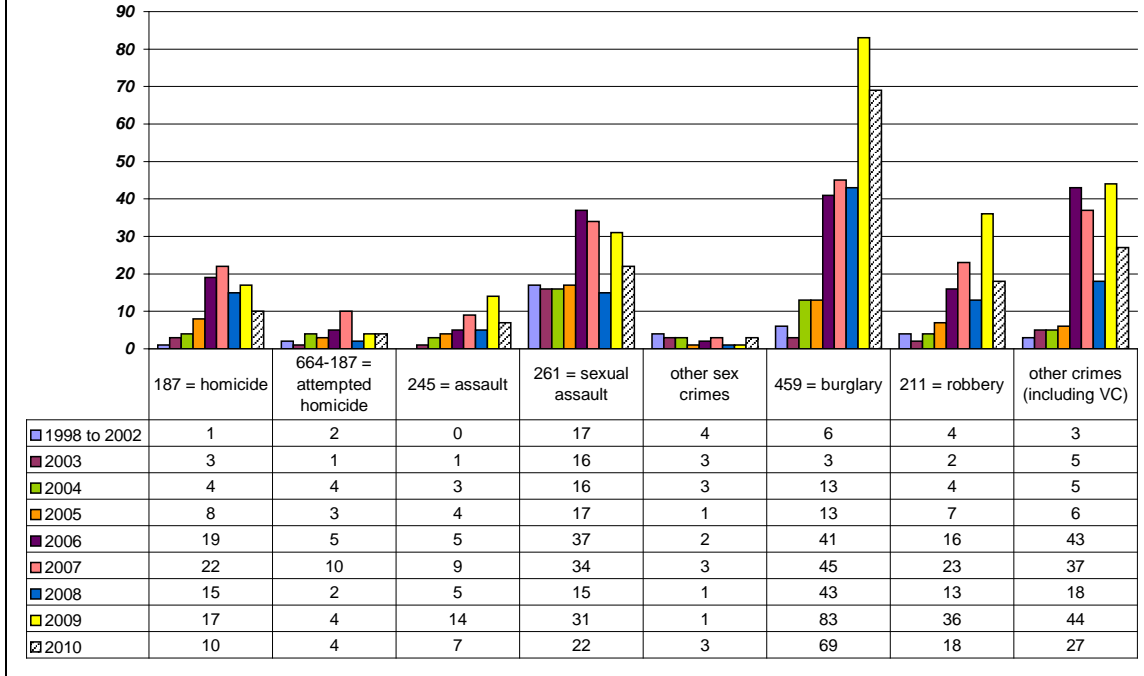


GAN activity: One GAN was submitted and approved in this reporting period to change the Authorized Signing Official and the grant Point of Contact. The former Laboratory Director previously held these roles and he has since retired. An Assistant District Attorney will act as the Authorized Signing Official and a Supervising Criminalist will resume the role of Point of Contact.

CODIS activity: Grant-funded employees have submitted 18 profiles into CODIS during this reporting period, which resulted in five hits as of December 31, 2010. The following charts summarize CODIS hits made unit-wide through the end of 2010.



**CODIS Hits by Offense per Year  
through 2010  
(1035 hits total)**



**PROGRESS REPORT 2: January 1, 2011 – June 30, 2011**

The required performance metrics have been submitted through GMS.

The main objectives for this award were to reduce the backlog, reduce turn-around times, and increase sample throughput; each is discussed in further detail in the paragraphs that follow. To achieve these goals, the laboratory used grant funds to pay the salary and benefits of two Criminalists, and to purchase an enhanced amplification chemistry for validation (5 kits) and casework use (3 kits), silver themal cycler blocks (4 total), and one UV crosslinker. Both Criminalists funded under this award have been focused on completing backlogged DNA casework (includes biological screening tasks). The amplification kits have been used to complete the validation and staff training, and the chemistry was implemented for casework use as of May 2011. The silver themal cycler blocks are currently in the validation stages, and the UV crosslinker is being utilized to decontaminate consumables.

**Objective #1 –**

On October 1, 2010, there were 173 backlogged DNA cases. As of June 30, 2011, the backlog consisted of 197 cases. Of the 173 cases backlogged on October 1, 2010, 118 were completed, 14 were in progress, and 41 remained unassigned. There were 491 new requests made during this reporting period; 283 of these are complete, 113 are in progress, and 95 remain unassigned. Grant-funded employees have completed 20% (81) of the 401 completed cases.

The Identifiler® Plus validation was completed on March 22, 2011 and all analysts completed competencies as of May 4, 2011. A reduction in turnaround time cannot yet be correlated to this grant-funded supply as many of the cases processed with this kit have not been completed. The new chemistry is expected to reduce turn-around times due to increased sensitivity, the ability to overcome inhibition, improved balance, reduced amplification time, and a reduction in the number of required amplifications.

Objective #2 –

At the end of the reporting period, the average turnaround time from date of submission to the date of review was 96 days, which is a significant increase from the beginning of the grant period. The increase in turnaround times may be attributed to the following factors: 1) productivity typically decreases during the holiday season due to scheduled time-off, 2) approximately ten analysts spent a week at training in February, 3) there was a quality control issue with the TE buffer purchased through a vendor which shut the unit down for approximately one week in March, 4) a quality control issue was identified with the lot of Yfiler® kits received from Applied Biosystems, and the manufacturer could not replace the lot until the end of March, and 5) a position was vacated in November 2010 by a highly productive analyst and the individual who filled that vacancy just began casework in July 2011.

As mentioned above, the enhanced amplification chemistry will streamline workflow and serve not only to help reduce backlog, but also reduce turnaround times.

Objective #3 –

In the grant proposal, the third objective was described as follows: “Casework throughput will improve from 19 samples per analyst per month to 24 samples per analyst per month.”

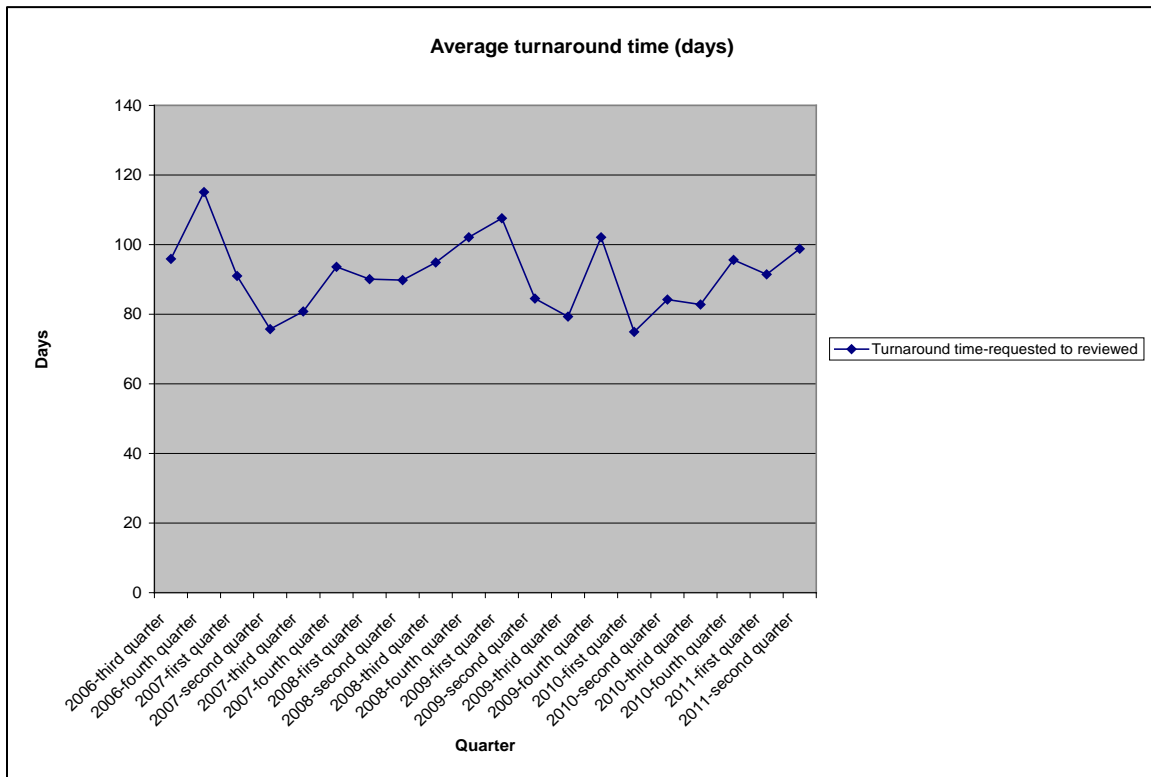
At the end of this reporting period, 1413 samples had been processed by the 14 analysts doing DNA casework (one only does screening casework, and the three DNA supervisors are counted as one analyst), which equates to 17 samples per analyst per month. It is anticipated that this goal can be achieved once the enhanced chemistry has taken effect and the new employee is online.

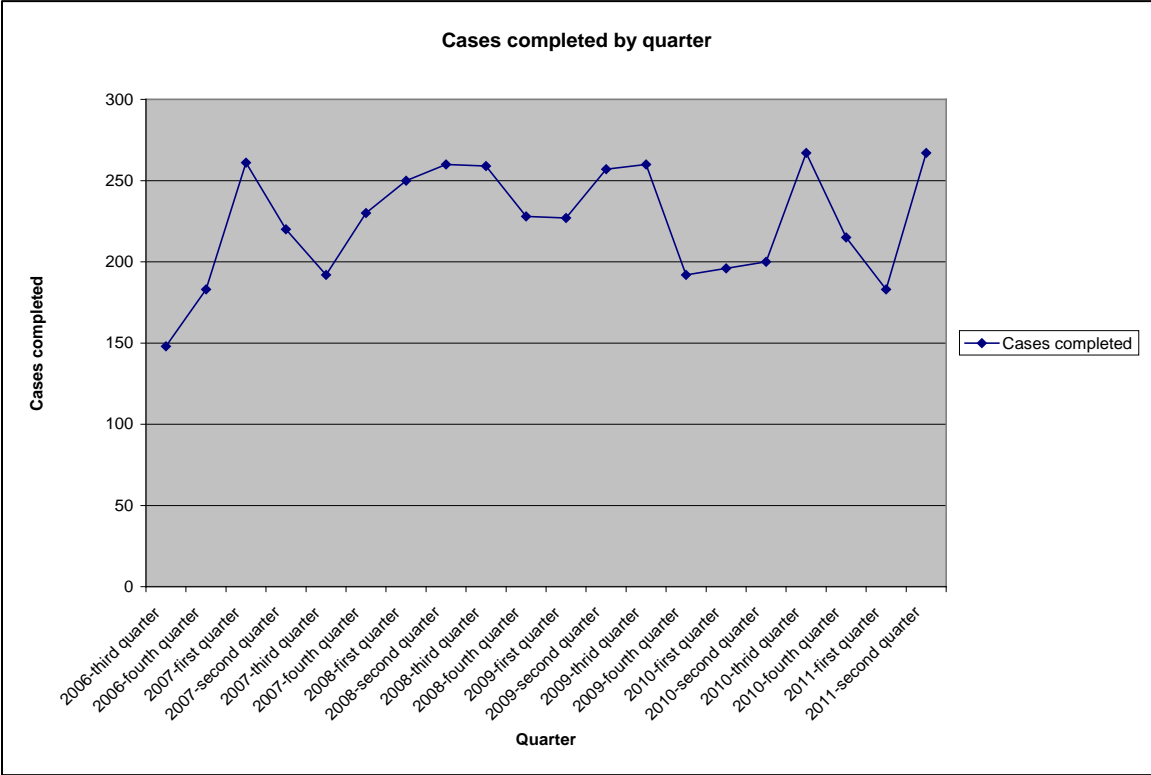
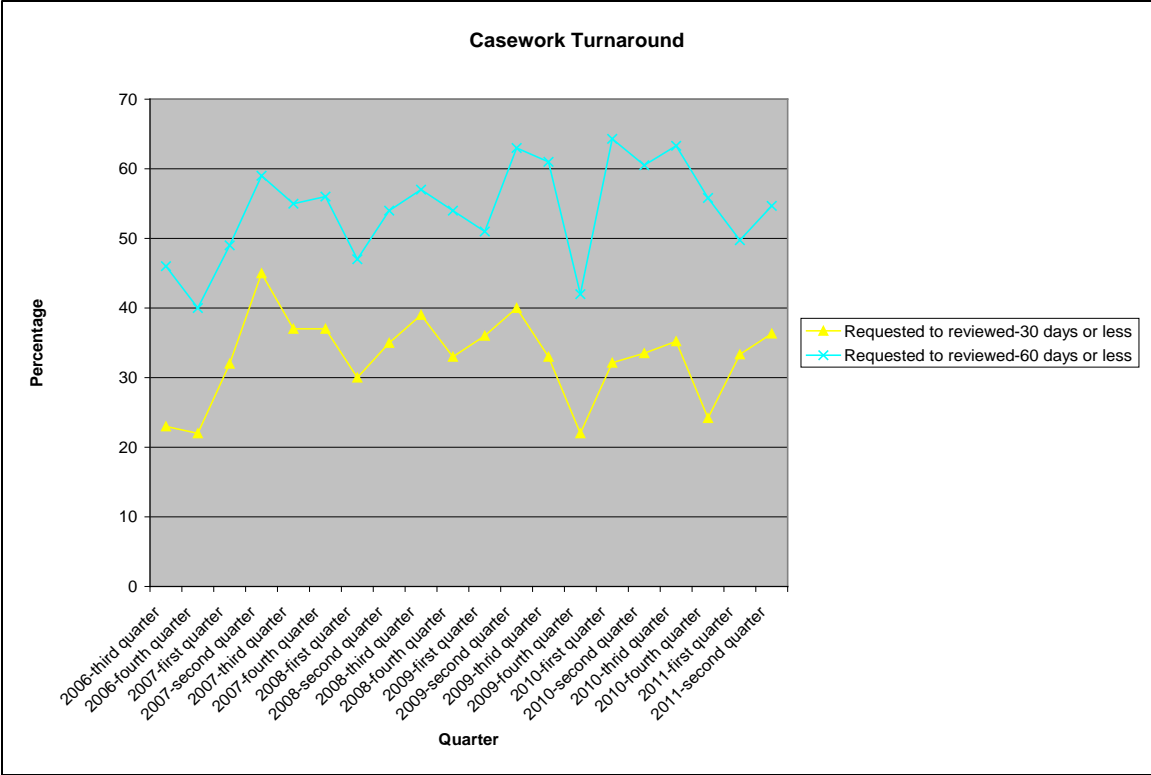
The charts and tables that follow summarize some of the performance metric trends discussed above:

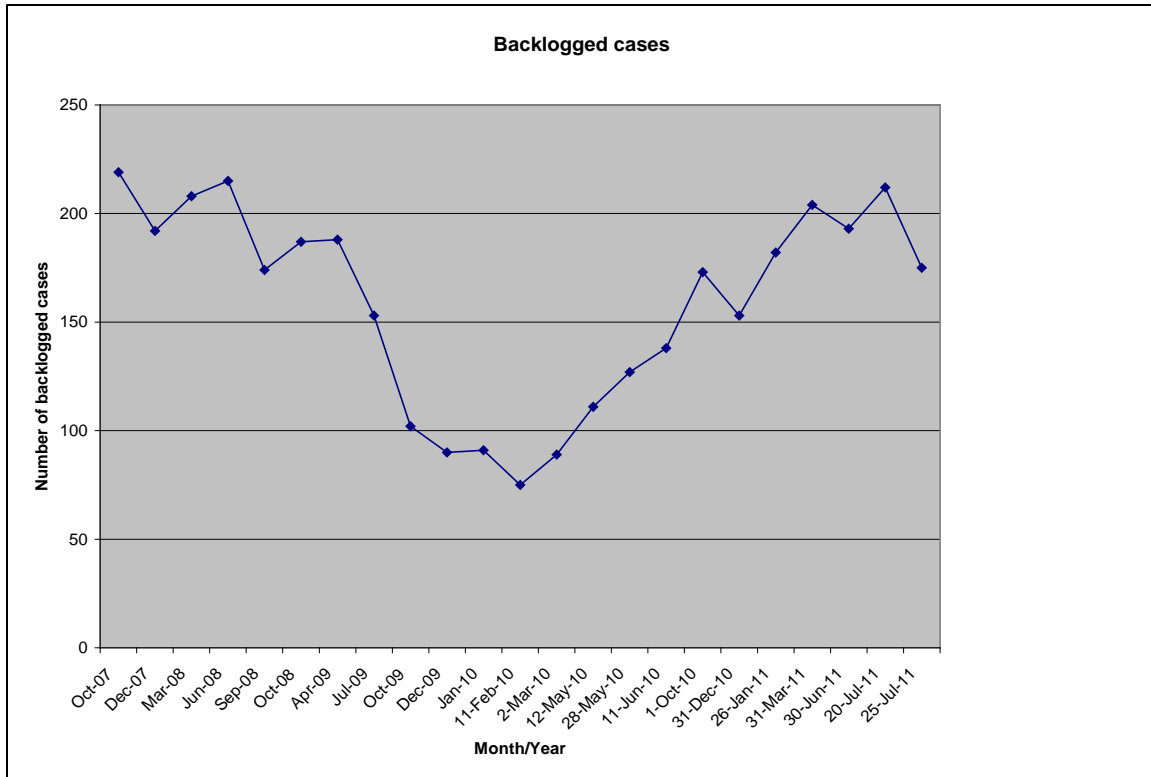
7/25/2011

### Analyst Completed Cases 1/1/2011 - 6/30/2011

	Requested to Reviewed					Assigned to Completed					Cases Completed
	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	
	30	60	30	60		30	60	30	60		
	7	10	58.33	83.33	54.42	9	11	75.00	91.67	42.67	12
	17	17	100.00	100.00	5.29	17	17	100.00	100.00	2.53	17
	8	13	29.63	48.15	73.89	13	25	48.15	92.59	36.85	27
	13	24	30.95	57.14	77.98	19	30	45.24	71.43	39.98	42
	14	17	41.18	50.00	79.97	17	28	50.00	82.35	41.65	34
	4	5	15.38	19.23	282.31	4	5	15.38	19.23	201.08	26
	4	13	17.39	56.52	72.83	12	23	52.17	100.00	27.91	23
	9	10	47.37	52.63	70.05	9	11	47.37	57.89	55.26	19
	34	42	61.82	76.36	48.15	39	55	70.91	100.00	21.91	52
	8	14	26.67	46.67	105.50	10	19	33.33	63.33	50.10	30
	13	20	27.08	41.67	118.00	24	35	50.00	72.92	52.25	47
	4	5	33.33	41.67	101.42	6	7	50.00	58.33	65.00	12
	5	13	14.29	37.14	96.54	9	21	25.71	60.00	63.06	34
	3	5	16.67	27.78	160.44	3	7	16.67	38.89	81.33	18
	9	15	37.50	62.50	84.83	11	16	45.83	66.67	54.25	24
	1	6	5.00	30.00	124.95	4	9	20.00	45.00	83.75	20
	5	8	38.46	61.54	77.85	10	11	76.92	84.62	37.77	13
<b>Totals/Averages</b>	<b>158</b>	<b>237</b>	<b>35.11</b>	<b>52.67</b>	<b>95.79</b>	<b>216</b>	<b>330</b>	<b>48.00</b>	<b>73.33</b>	<b>54.29</b>	<b>450</b>





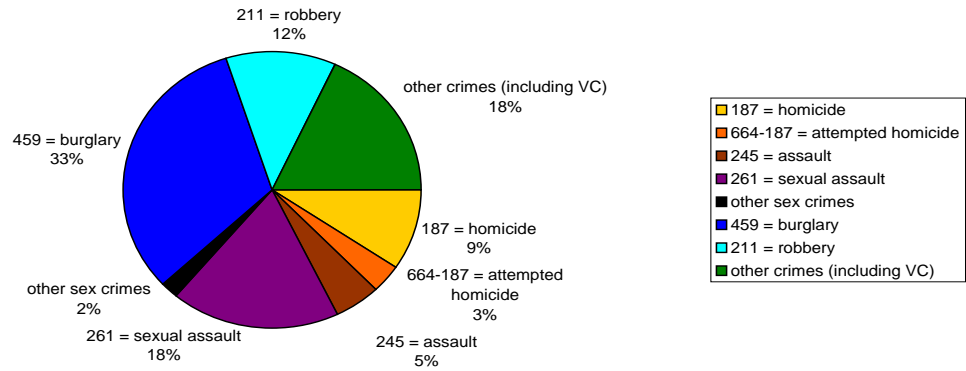


GAN activity: Three GANs were submitted and approved in this reporting period. One changed the Authorized Signing Official from Supervising Deputy District Attorney to the laboratory's new Director. A second GAN added Supervising Criminalist as an Alternate Contact. The third GAN was a budget modification in which we reduced the number of Identifiler® Plus kits needed for casework (from seven to three) and allocated the balance of the funds for critical equipment, specifically thermal cycler blocks (4) and a UV crosslinker (1).

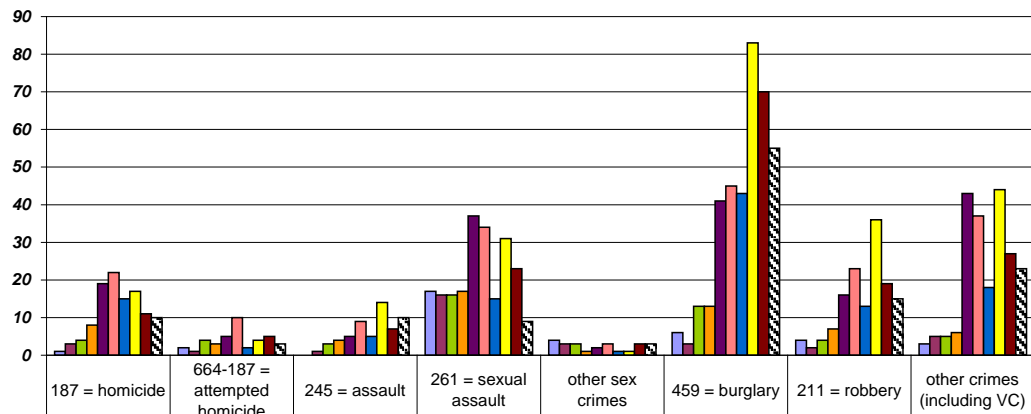
CODIS activity: Grant-funded employees have submitted 33 profiles into CODIS during this reporting period, and have obtained 27 CODIS hits. The following charts summarize CODIS hits made unit-wide through June 30, 2011.



## CODIS Hits by Offense through June 30, 2011 (1168 hits total)



## CODIS Hits by Offense per Year through June 30, 2011 (1168 hits total)



Year	187 = homicide	664-187 = attempted homicide	245 = assault	261 = sexual assault	other sex crimes	459 = burglary	211 = robbery	other crimes (including VC)
1998 to 2002	1	2	0	17	4	6	4	3
2003	3	1	1	16	3	3	2	5
2004	4	4	3	16	3	13	4	5
2005	8	3	4	17	1	13	7	6
2006	19	5	5	37	2	41	16	43
2007	22	10	9	34	3	45	23	37
2008	15	2	5	15	1	43	13	18
2009	17	4	14	31	1	83	36	44
2010	11	5	7	23	3	70	19	27
2011	10	3	10	9	3	55	15	23

### PROGRESS REPORT 3: July 1, 2011 – December 31, 2012

The required performance metrics have been submitted through GMS. Metrics were based on cases completed by grant-funded employees and cases in which a grant-funded supply was used. The funding allocated for salary and benefits was exhausted on August 7<sup>th</sup>, 2011. Between August 7<sup>th</sup> and December 31<sup>st</sup>, 2011 the two Criminalists started using the grant-funded Identifiler® Plus kits exclusively. This approach eliminated the possibility of double-counting grant-funded activities (e.g., personnel and supplies) and facilitated easier reporting. Because the kits were not being depleted as quickly as expected and the expiration date was fast approaching, the remaining members of the Forensic Biology Unit began using these kits on December 12<sup>th</sup>, 2011. The cases worked using the grant kits were tracked in LIMS by kit lot number (1102013 and 1102011).

The grant-funded activities were therefore reported in the following manner:

Activities attributed to grant-funded employees: Work attributable to two the analysts between July 1<sup>st</sup>, 2011 and August 7<sup>th</sup>, 2011. (11 CODIS entries, 7 CODIS hits, 12 cases completed)

Activities attributed to grant-funded supplies: Work attributable to the two analysts between August 7<sup>th</sup>, 2011 and December 12<sup>th</sup>, 2011, plus any case worked by other members of the Forensic Biology Unit between December 12<sup>th</sup> and December 31<sup>st</sup> involving the grant-funded Identifiler® Plus lots (1102013 and 1102011). (24 CODIS entries, 21 CODIS hits, 72 cases completed)

The kits have been depleted as of today's date; however, all cases associated with them have not yet been completed and entered into CODIS. A final report will be issued as soon as all cases have dispositioned.

Goals/objectives: The main objectives for this award were to reduce the backlog, reduce turn-around times, and increase sample throughput; each is discussed in further detail in the paragraphs that follow. To achieve these goals, the laboratory used grant funds to pay the salary and benefits of two Criminalists, and to purchase an enhanced amplification chemistry for validation (5 kits) and casework use (3 kits), silver thermal cycler blocks (4 total), and one UV crosslinker. Both Criminalists funded under this have been focused on completing backlogged DNA casework (includes biological screening tasks). The amplification kits have been used to complete the validation and staff training, and the chemistry was implemented for casework use as of May 2011. The silver thermal cycler blocks are currently in the validation stages, and the UV crosslinker is being utilized to decontaminate consumables.

#### Objective #1 – Backlog reduction – GOAL ACHIEVED

In the grant proposal, the first objective was described as follows: “Analyze 155 backlogged cases using grant funds. This will include a combination of backlogged cases as of October 1, 2010, and those that are received during the grant period, backlogged, and then assigned and completed before the end of the grant.”

At the beginning of the award period (October 1<sup>st</sup>, 2010), there were 173 backlogged DNA cases. Of the 173 cases backlogged on October 1, 2010, 143 have been completed, 22 are in progress, and 8 remain unassigned.

At the beginning of this reporting period (July 1<sup>st</sup>, 2011) the backlog consisted of 199 cases. At the end of this reporting period (December 31<sup>st</sup>, 2011) the backlog was reduced to 130 cases. There were 538 new cases submitted to the laboratory during this reporting period; 324 of these are complete, 140 are in progress, and 74 remain unassigned. Grant-funded employees completed 93 backlogged cases during this reporting period and 197 cases since the commencement of this grant.

#### Objective #2 – Turn-around time – GOAL IN PROGRESS

In the grant proposal, the second objective was described as follows: “Turn-around times for DNA casework will improve from an average of 79 days to 70 days from date of submission to date of review.” It should be noted that 79 days was the projected turn-around time when the proposal was written and the actual average turnaround time on October 1<sup>st</sup>, 2010 was 84 days. At the end of the reporting period, the average turn-around time from date of submission to the date of review was 78 days, which is a slight decrease from the beginning of the grant period; however, this is a marked improvement from the last reporting period in which the average turn-around time was 96 days.

The Identifiler® Plus validation was completed on March 22<sup>nd</sup>, 2011 and all analysts completed competencies as of May 4<sup>th</sup>, 2011. The new chemistry was expected to reduce turn-around times due to increased sensitivity, the ability to overcome inhibition, improved balance, reduced amplification time, and a reduction in the number of required amplifications. To determine if the implementation of this kit did indeed reduce turn-around times, the average turn-around time (from the date assigned to the date completed) was calculated for the six months before the kit was implemented (November 1<sup>st</sup>, 2010-April 30<sup>th</sup>, 2011) and also for the six months after the kit was implemented (May 1<sup>st</sup>, 2011-October 31<sup>st</sup>, 2011). The average turn-around time did decrease from 52 days to 48 days upon implementation of the kit. Based on this evaluation, the laboratory is optimistic that the average turn-around time goal of 70 days may be achieved by the end of the award period for this grant.

#### Objective #3 – Sample throughput – GOAL IN PROGRESS

In the grant proposal, the third objective was described as follows: “Casework throughput will improve from 19 samples per analyst per month to 24 samples per analyst per month.”

At the end of this reporting period, 1612 samples had been processed by the 14 analysts doing DNA casework (one analyst only does screening casework, and the three DNA supervisors are counted as one analyst), which equates to 19 samples per analyst per month. This was an improvement from the last reporting period in which the average number of samples per analyst per month was 17. It is anticipated that sample throughput will increase slightly during the last months of this grant.

The charts and tables that follow summarize some of the performance metric trends discussed above (grant funded activities have been highlighted with an arrow where applicable):

Analyst Completed Cases 7/1/2011 - 12/31/2011											
1/26/2012	Requested to Reviewed					Assigned to Completed					Cases Completed
	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	
	30	60	30	60		30	60	30	60		
	4	4	80.00	80.00	163.80	4	4	80.00	80.00	162.80	5
	3	4	60.00	80.00	51.40	5	5	100.00	100.00	11.40	5
	10	15	40.00	60.00	72.72	11	20	44.00	80.00	50.28	25
	16	34	29.63	62.96	92.93	35	54	64.81	100.00	26.11	52
	8	9	29.63	33.33	81.26	8	11	29.63	40.74	63.59	27
	7	10	46.67	66.67	83.07	7	10	46.67	66.67	75.80	15
	15	25	36.59	60.98	73.83	18	34	43.90	82.93	39.07	41
	9	14	31.03	48.28	120.21	10	17	34.48	58.62	91.90	29
	43	59	58.90	80.82	50.21	63	71	86.30	97.26	22.75	72
	16	32	33.33	66.67	64.00	22	40	45.83	83.33	43.13	48
	12	21	28.57	50.00	82.71	21	41	50.00	97.62	30.24	42
	45	51	77.59	87.93	33.71	55	58	94.83	100.00	16.00	58
	5	5	50.00	50.00	71.70	5	5	50.00	50.00	50.70	9
	6	9	33.33	50.00	95.22	6	11	33.33	61.11	61.61	18
	7	13	25.93	48.15	137.44	8	17	29.63	62.96	82.19	27
	0	5	0.00	20.00	135.96	1	14	4.00	56.00	89.16	25
	3	3	75.00	75.00	26.25	3	4	75.00	100.00	12.50	4
Totals/Averages	209	313	41.63	62.35	78.41	282	416	56.18	82.87	44.87	502

Analyst Completed Cases 7/1/2011 - 8/7/2011											
1/26/2012	Requested to Reviewed					Assigned to Completed					Cases Completed
	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	
	30	60	30	60		30	60	30	60		
	1	1	100.00	100.00	11.00	1	1	100.00	100.00	11.00	1
	2	2	33.33	33.33	113.83	2	2	33.33	33.33	101.83	6
	4	6	36.36	54.55	88.00	7	11	63.64	100.00	22.55	11
	2	2	25.00	25.00	81.75	2	2	25.00	25.00	69.50	8
	0	2	0.00	40.00	158.00	0	2	0.00	40.00	140.20	5
	4	4	50.00	50.00	60.50	4	7	50.00	87.50	30.50	8
	3	5	30.00	50.00	92.90	3	6	30.00	60.00	74.50	10
	15	18	75.00	90.00	36.65	19	20	95.00	100.00	19.10	20
	2	2	40.00	40.00	95.00	2	3	40.00	60.00	82.60	5
	5	5	100.00	100.00	19.00	5	5	100.00	100.00	7.20	5
	3	3	75.00	75.00	57.25	3	4	75.00	100.00	26.00	4
	2	2	50.00	50.00	80.25	2	2	50.00	50.00	48.00	3
	1	1	20.00	20.00	216.40	1	2	20.00	40.00	109.20	5
	1	3	25.00	75.00	43.50	1	4	25.00	100.00	40.25	4
	0	0	0.00	0.00	131.33	0	0	0.00	0.00	105.33	3
Totals/Averages	45	56	45.92	57.14	81.03	52	71	53.06	72.45	53.19	98

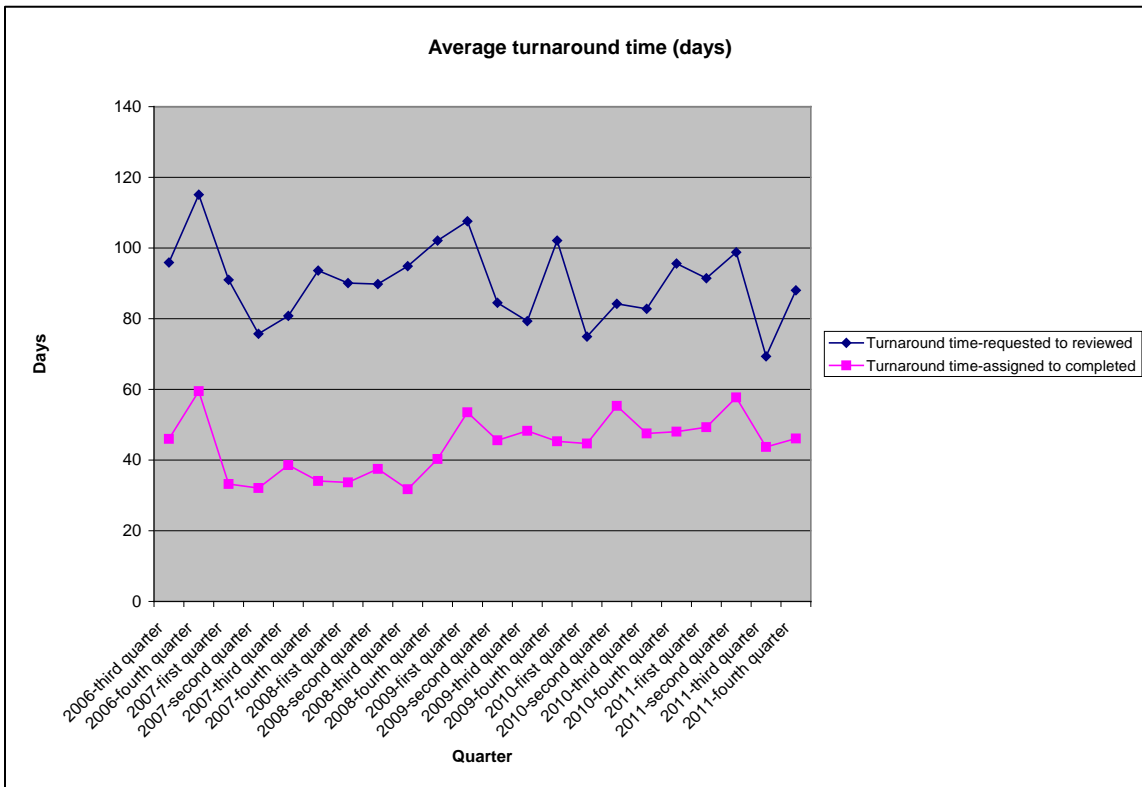
(cases attributable to grant-funds have been highlighted above (personnel))

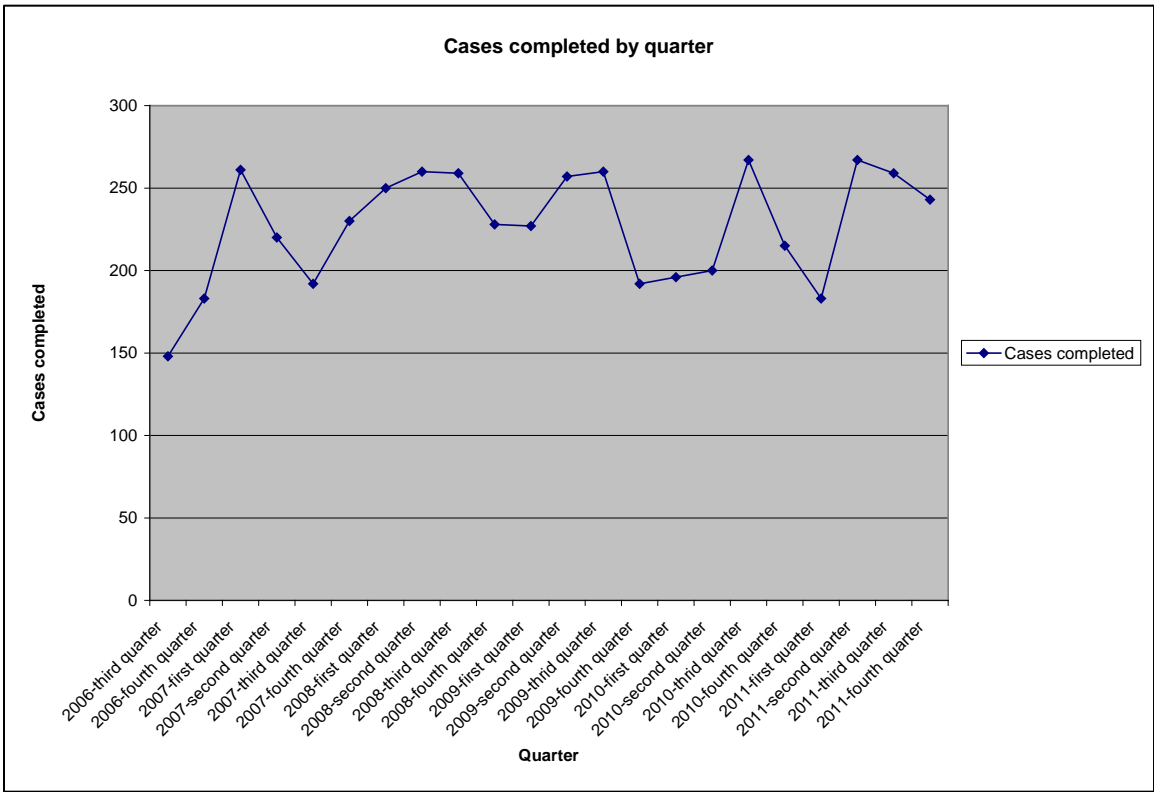
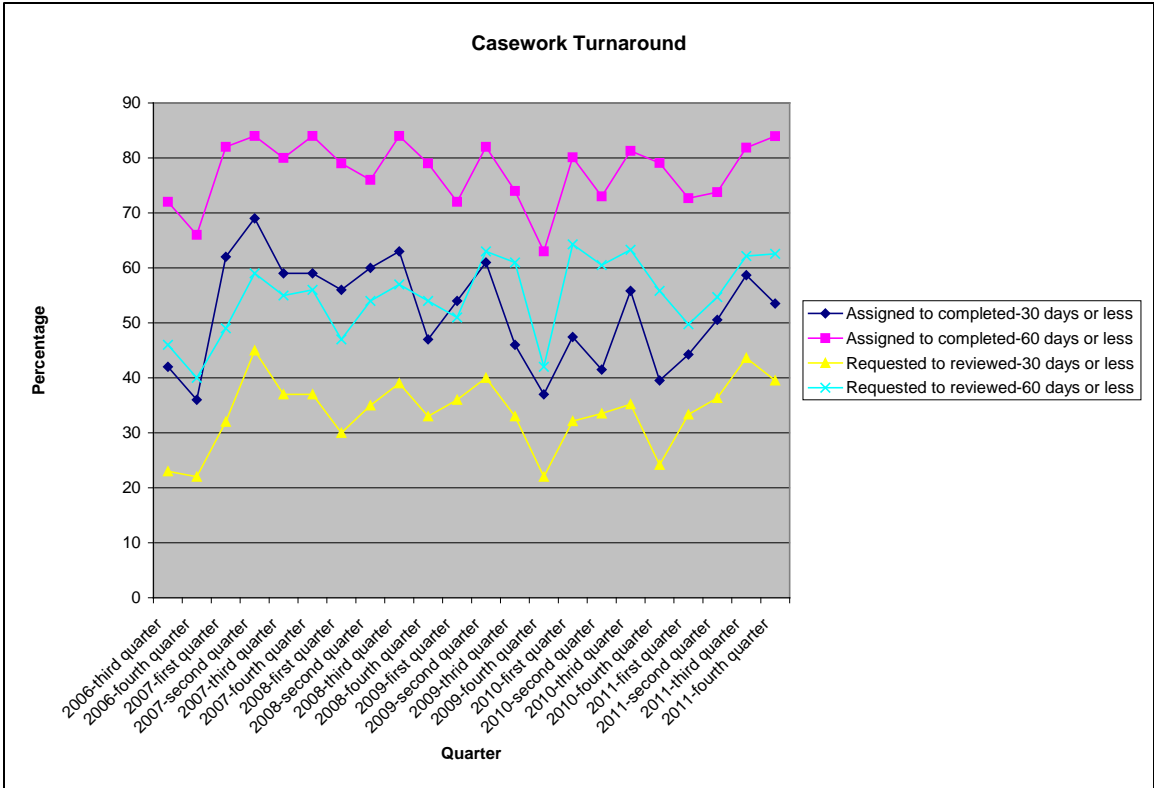
1/26/2012

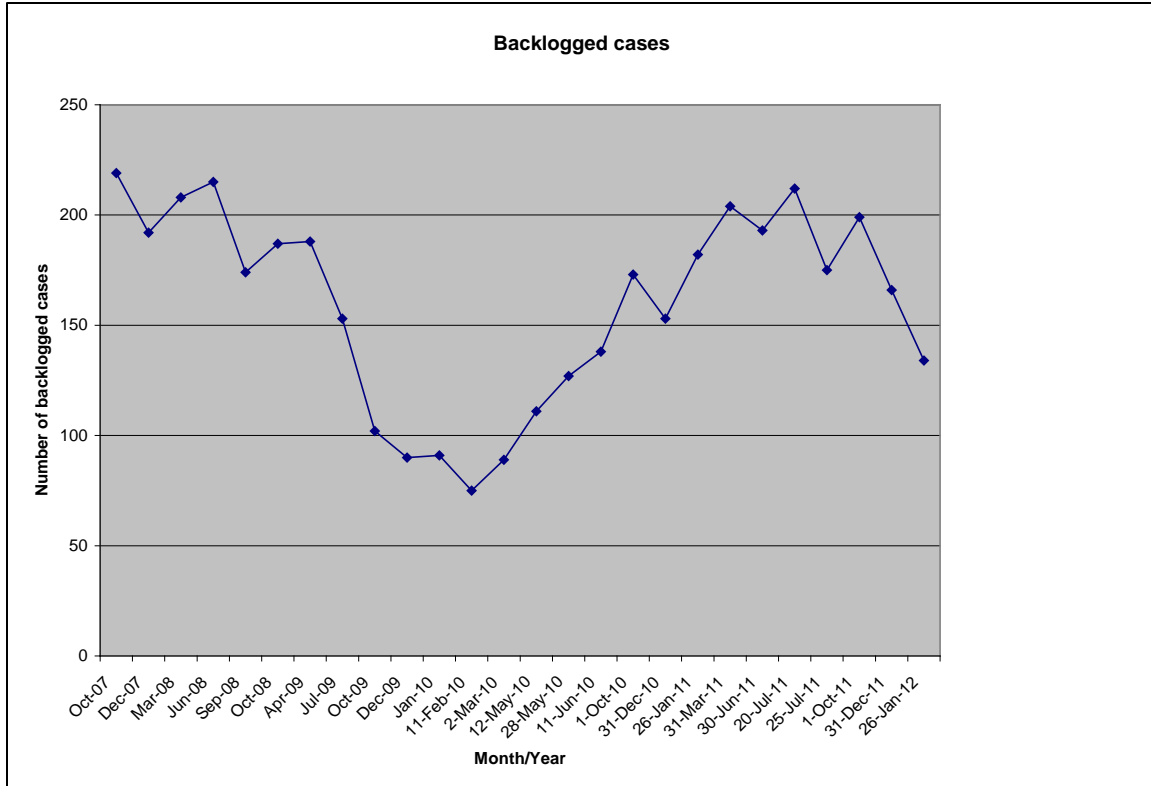
**Analyst Completed Cases**  
8/7/2011 - 12/12/2011

	Requested to Reviewed					Assigned to Completed					Cases Completed
	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	
	30	60	30	60		30	60	30	60		
	4	4	80.00	80.00	163.80	4	4	80.00	80.00	162.80	5
	2	3	50.00	75.00	61.50	4	4	100.00	100.00	11.50	4
	7	9	46.67	60.00	67.13	7	14	46.67	93.33	34.67	15
	9	23	26.47	67.65	77.29	24	34	70.59	100.00	27.15	34
	5	6	31.25	37.50	79.50	5	7	31.25	43.75	63.06	16
	6	7	75.00	87.50	36.75	6	7	75.00	87.50	35.38	8
	11	20	36.67	66.67	65.93	13	24	43.33	80.00	42.27	30
	3	3	33.33	33.33	183.56	4	5	44.44	55.56	114.44	9
	25	35	54.35	76.09	51.43	39	44	84.78	95.65	23.72	45
	14	28	35.00	70.00	60.93	20	35	50.00	87.50	37.55	40
	4	11	13.79	37.93	86.83	11	28	37.93	96.55	35.24	29
	40	46	78.43	90.20	24.75	49	51	96.08	100.00	15.39	51
	3	3	50.00	50.00	66.00	3	3	50.00	50.00	52.50	6
	5	7	41.67	58.33	49.75	5	8	41.67	66.67	44.08	12
	5	9	38.46	69.23	70.69	6	9	46.15	69.23	59.15	13
	0	4	0.00	26.67	127.00	1	11	6.67	73.33	67.73	15
	3	3	75.00	75.00	26.25	3	4	75.00	100.00	12.50	4
Totals/Averages	146	221	43.45	65.77	66.47	204	292	60.71	86.90	38.49	336

(cases attributable to grant-funds have been highlighted above (supplies used through 12/12/11))



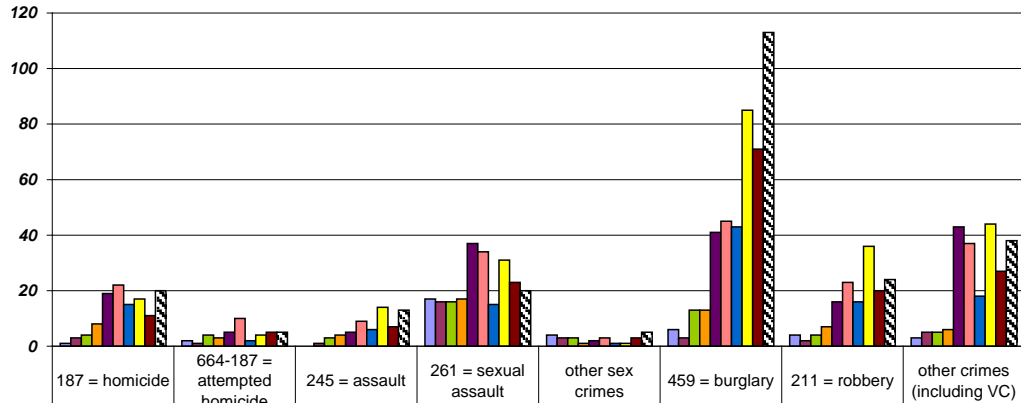




GAN activity: No grant adjustments were made during this reporting period.

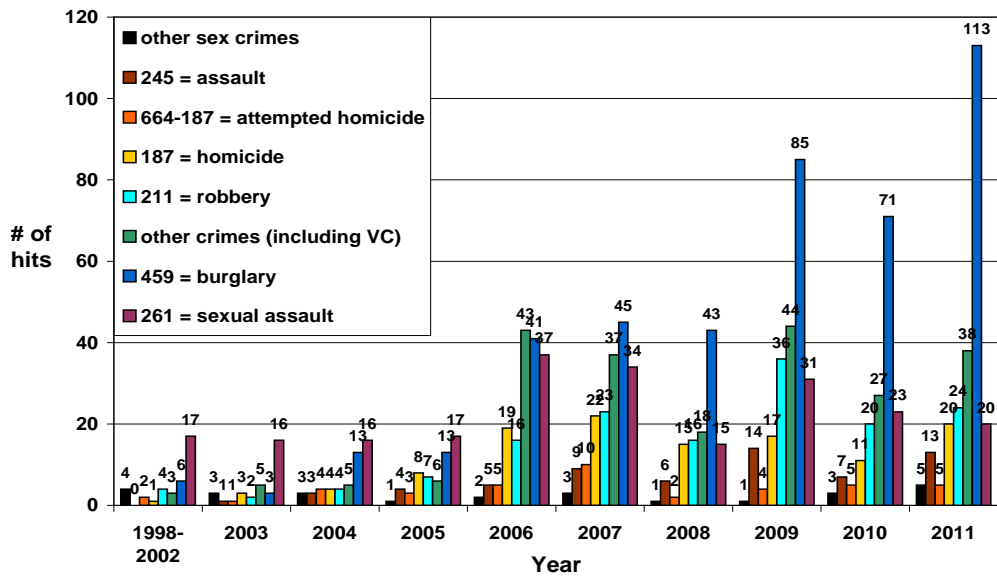
CODIS activity: Grant-funded employees have submitted 11 profiles into CODIS during this reporting period, and have obtained 7 CODIS hits. 24 profiles were searched in CODIS as a result of funding used for supplies (i.e., Identifiler® Plus kits), and as a result, 21 hits were returned. It should be noted that several cases processed with grant-funded kits were not eligible for CODIS entry, but the profiles generated held significant probative value. The following charts summarize CODIS hits made unit-wide through December 31, 2011.

### CODIS Hits by Offense per Year through December 31, 2011 (1286 hits total)



	187 = homicide	664-187 = attempted homicide	245 = assault	261 = sexual assault	other sex crimes	459 = burglary	211 = robbery	other crimes (including VC)
1998 to 2002	1	2	0	17	4	6	4	3
2003	3	1	1	16	3	3	2	5
2004	4	4	3	16	3	13	4	5
2005	8	3	4	17	1	13	7	6
2006	19	5	5	37	2	41	16	43
2007	22	10	9	34	3	45	23	37
2008	15	2	6	15	1	43	16	18
2009	17	4	14	31	1	85	36	44
2010	11	5	7	23	3	71	20	27
2011	20	5	13	20	5	113	24	38

### CODIS Hits per Offense 1998 - December 30, 2011





#### PROGRESS REPORT 4: January 1, 2012 – March 22, 2012 (FINAL REPORT)

The required performance metrics have been submitted through GMS. Metrics were based on cases completed by grant-funded employees and cases in which a grant-funded supply was used. The funding allocated for salary and benefits was exhausted on August 7<sup>th</sup>, 2011. Between August 7<sup>th</sup> and December 31<sup>st</sup> 2011 the two Criminalists started using the grant-funded Identifiler® Plus kits exclusively. This approach eliminated the possibility of double-counting grant-funded activities (e.g., personnel and supplies) and facilitated easier reporting. Because the kits were not being depleted as quickly as expected and the expiration date was fast approaching, the remaining members of the Forensic Biology Unit began using these kits on December 12<sup>th</sup>, 2011. The cases worked using the grant kits were tracked in LIMS by kit lot number (1102013 and 1102011).

The grant-funded activities were therefore reported in the following manner:

Activities attributed to grant-funded employees: Work attributable to the two analysts between October 1<sup>st</sup>, 2011 and August 7<sup>th</sup>, 2011. (Cumulative total: 62 CODIS entries, 39 CODIS hits, 114 cases completed).

Activities attributed to grant-funded supplies: Work attributable to the two analysts between October 1<sup>st</sup>, 2011 and December 12<sup>th</sup>, 2011, plus any case worked by other members of the Forensic Biology Unit between December 12<sup>th</sup> and March 22<sup>nd</sup> involving the grant-funded Identifiler® Plus lots (1102013 and 1102011). (This reporting period: 23 CODIS entries, 20 CODIS hits, 52 cases completed/Cumulative total: 47 CODIS entries, 41 CODIS hits, 124 cases completed).

#### Goals/objectives:

The main objectives for this award were to reduce the backlog, reduce turn-around times, and increase sample throughput; each is discussed in further detail in the paragraphs that follow. To achieve these goals, the laboratory used grant funds to pay the salary and benefits of two Criminalists, and to purchase an enhanced amplification chemistry for validation (5 kits) and casework use (3 kits), silver thermal cycler blocks (4 total), and one UV crosslinker. Both Criminalists funded under this award have been focused on completing backlogged DNA casework (includes biological screening tasks). The amplification kits have been used to complete the validation and staff training, and the chemistry was implemented for casework use as of May 2011. The silver thermal cycler blocks have been validated and are available for casework use, and the UV crosslinker is being utilized to decontaminate consumables.

#### Objective #1 – Backlog reduction – GOAL ACHIEVED

In the grant proposal, the first objective was described as follows: “Analyze 155 backlogged cases using grant funds. This will include a combination of backlogged cases as of October 1, 2010, and those that are received during the grant period, backlogged, and then assigned and completed before the end of the grant.”

At the beginning of the award period (October 1<sup>st</sup>, 2010), there were 173 backlogged DNA cases. Of the 173 cases backlogged on October 1, 2010, 150 have been completed, 15 are in progress, and 8 remain unassigned.

At the beginning of this reporting period (January 1, 2012) the backlog consisted of 166 cases. At the end of this reporting period (March 22, 2012) the backlog was reduced to 109 cases. There were 169 new cases submitted to the laboratory during this reporting period; 43 of these are complete, 90 are in progress, and 36 remain unassigned.

Grant funds were used to complete 52 backlogged cases during this reporting period. The total number of backlogged cases completed during this grant is 238 (114 completed by grant-funded employees and 124 completed using grant-funded supplies).

#### Objective #2 – Turn-around time – GOAL ACHIEVED

In the grant proposal, the second objective was described as follows: “Turn-around times for DNA casework will improve from an average of 79 days to 70 days from date of submission to date of review.” It should be noted that 79 days was the projected turn-around time when the proposal was written and the actual average turnaround time on October 1<sup>st</sup>, 2010 was 84 days. To leverage this difference, achievement of this goal is better measured by evaluating turn-around time increases/decreases by number of days.

At the end of the reporting period, the average turn-around time from date of submission to the date of review was 75 days, which is a significant decrease from the 84-day turn-around time at the beginning of the grant period, and a three day decrease from the past reporting period.

In essence, this goal was achieved – the turn-around time did decrease by nine days from the turn-around time on October 1, 2010 (from 84 to 75 days), which is what was projected at the time the proposal was written (from 79 to 70 days). This achievement can be attributed, in large part, to implementation of an enhance amplification chemistry. This chemistry serves to reduce amplification time, reduce the number of necessary amplifications, overcome inhibition, and streamline interpretation due to increased sensitivity and improved balance.

#### Objective #3 – Sample throughput – GOAL NOT ACHIEVED

In the grant proposal, the third objective was described as follows: “Casework throughput will improve from 19 samples per analyst per month to 24 samples per analyst per month.”

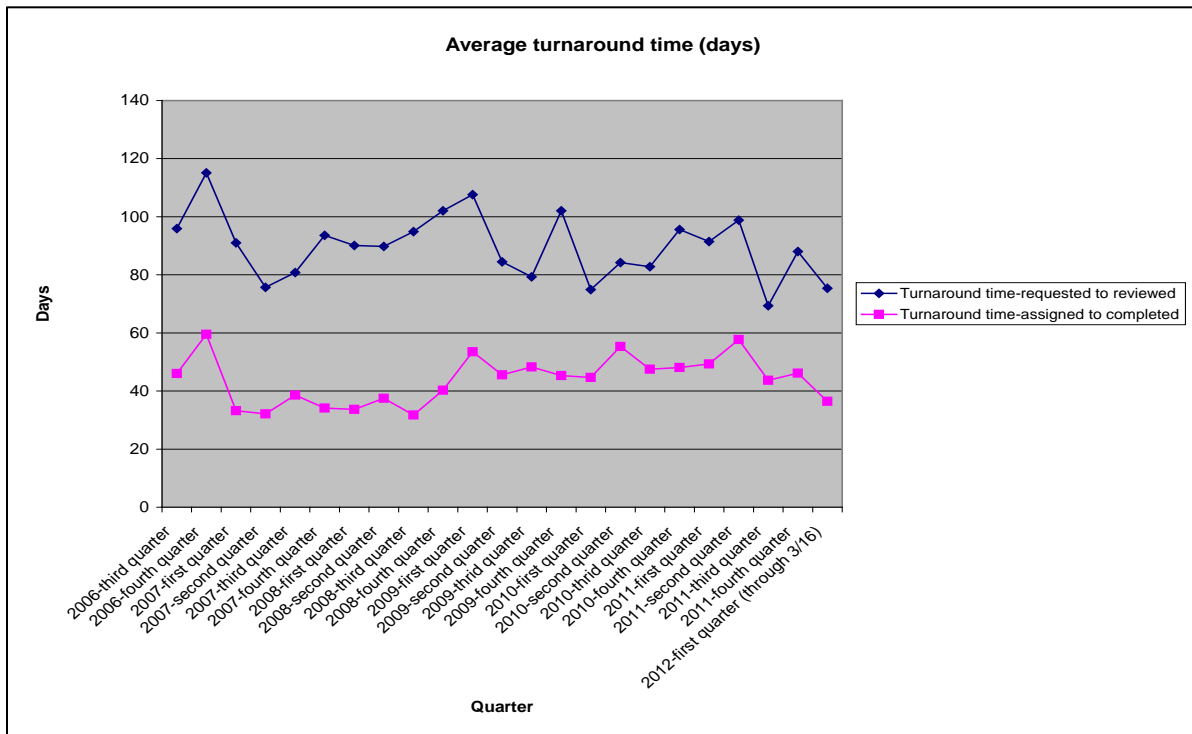
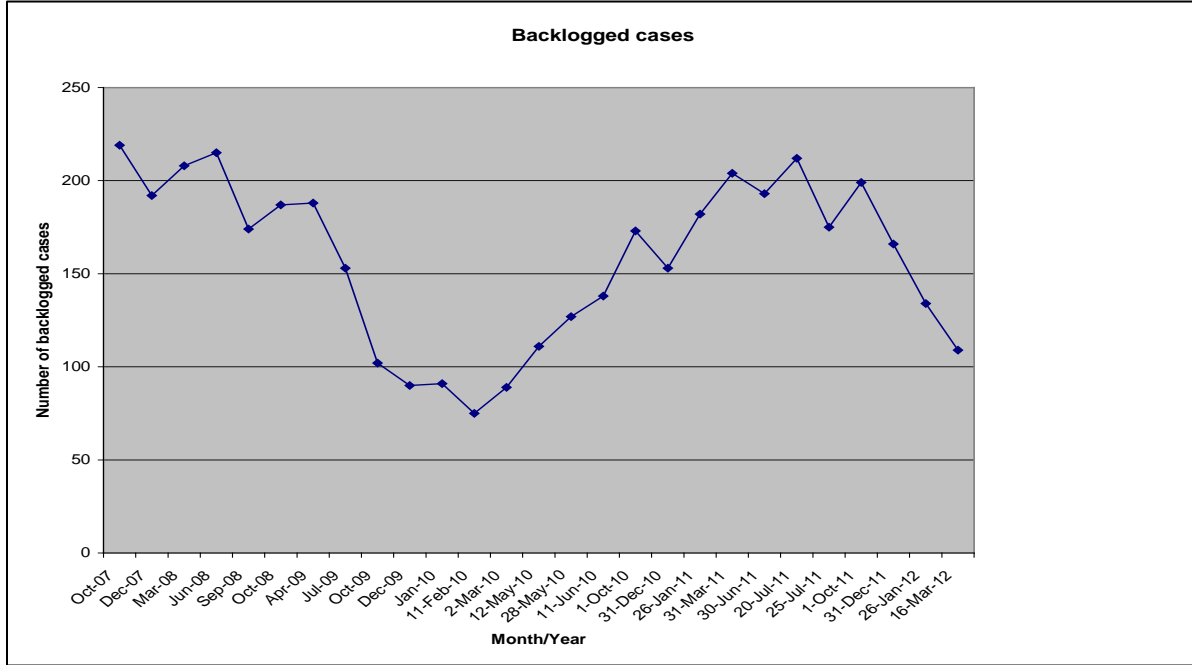
During this reporting period, 529 samples had been processed by the 14 analysts doing DNA casework which equates to approximately 15 samples per analyst per month (this calculation was based on 2.5 months rather than three months as statistics associated with this performance metric were run on March 16, 2012). This the fewest samples analyzed per analyst per month during all reporting periods and fewer than the value established at the beginning of the grant.

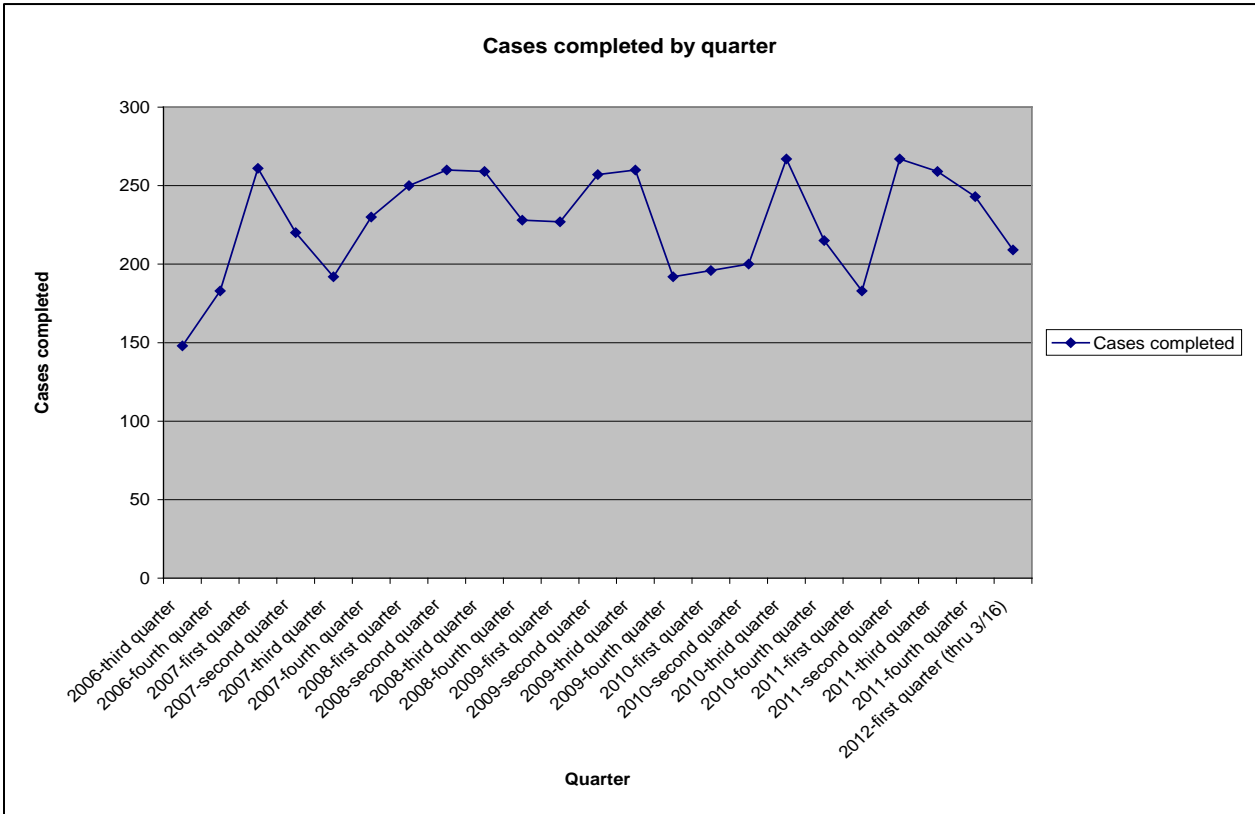
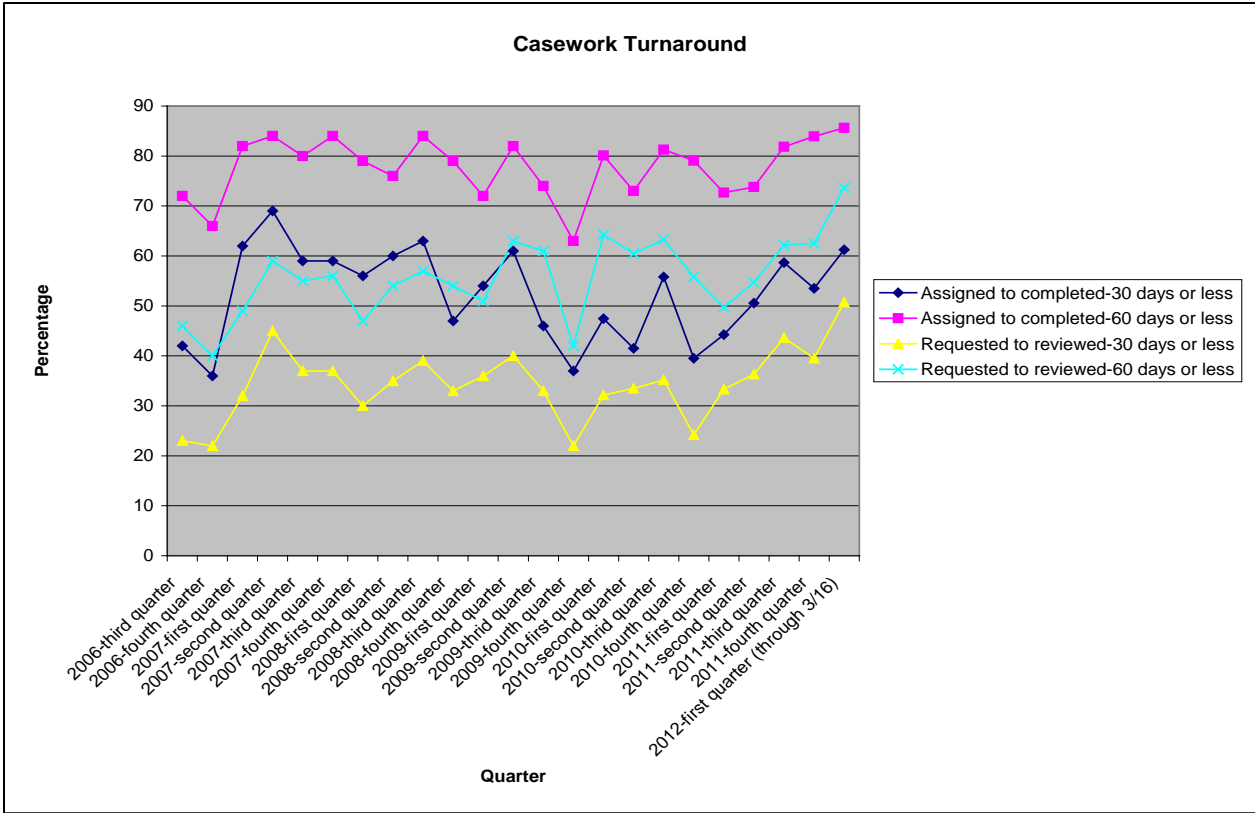
Due to budgetary constraints, analysts have been tasked with working fewer samples per case supplement to conserve resources. The goal of this approach is to focus on the most probative items of evidence first, and then reevaluate the need to process additional items in future supplements. Often times, this is cost-effective – the first round of testing answers the question(s) at hand and precludes the need to process the remaining items. This approach may be one explanation that sample counts went down in this reporting period.

Further, restrictions have been placed on our user agencies in terms of the number of contact DNA samples they are permitted to submit; three for property crimes and six for crimes against

persons. The decrease in submissions that has resulted could be a second reason that sample counts went down in this reporting period.

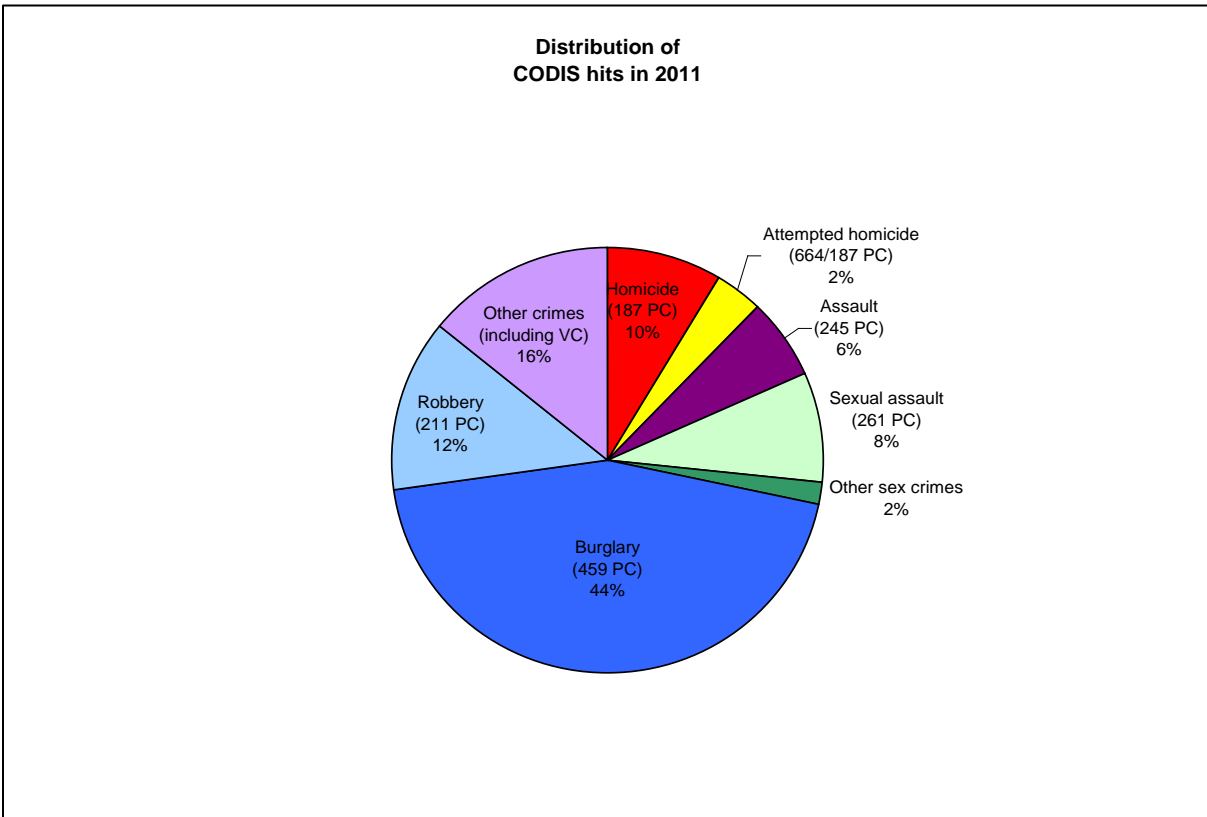
The charts and tables that follow summarize some of the performance metric trends discussed above (grant funded activities have been highlighted with an arrow where applicable):



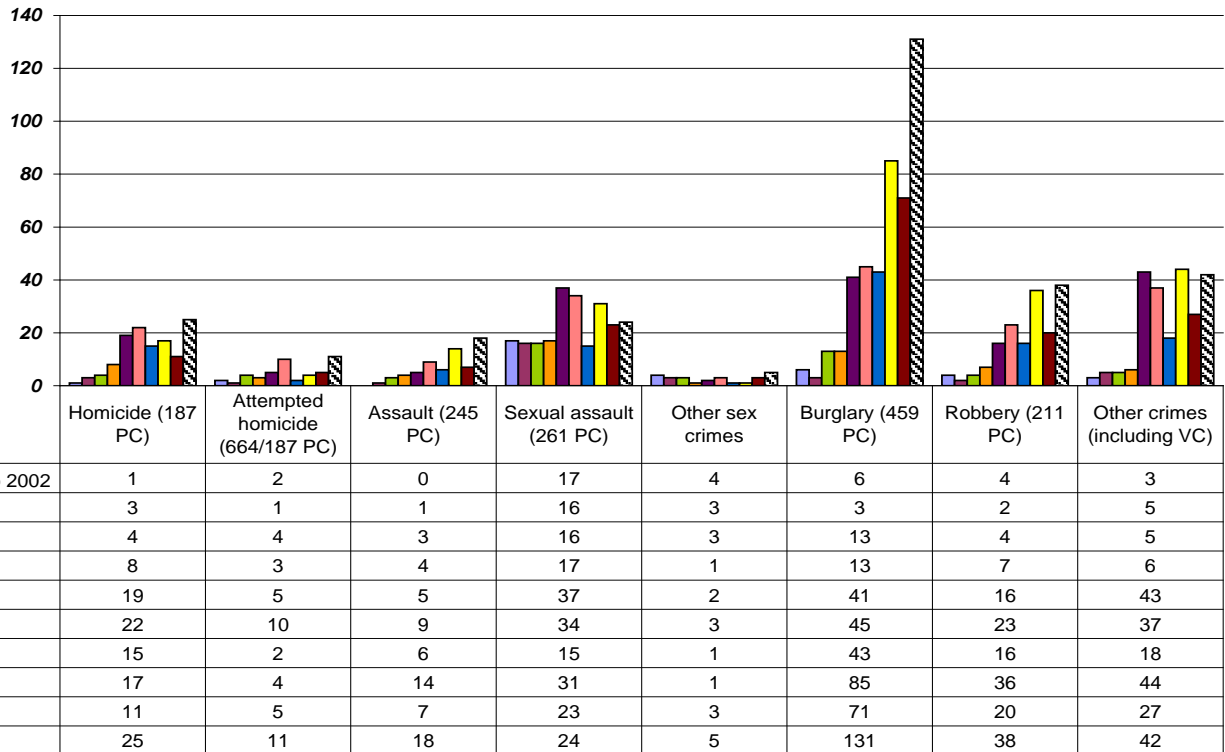


GAN activity: No grant adjustments were made during this reporting period.

CODIS activity: As a result of funding under this grant, 23 profiles have been entered into CODIS and 20 hits have been returned during this reporting period. During the entire grant cycle, 109 profiles have been entered into CODIS and 80 hits have been obtained as a result of grant funding for personnel and supplies (62 entries and 39 hits for grant-funded employees and 47 entries and 41 hits for cases using grant-funded supplies). It should be noted that several cases processed with grant-funded kits were not eligible for CODIS entry, but the profiles generated held significant probative value. The following charts summarize CODIS hits made unit-wide through March 22, 2012.



**CODIS Hits by Offense per Year  
through 1998 - March 22, 2012  
(2633 hits total)**



**FY10 Recipient Name:** County of San Mateo, California

**Award Number:** 2010-DN-BX-K054

**Award Amount:** \$163,633

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

- Goal 1: All necessary performance verification experiments will be completed.
- Goal 2: Purchase a freezer for the Forensic Biology Unit.
- Goal 3: Purchase 3 Microcentrifuges.
- Goal 4: Purchase DNA Kits (chemicals) to be used by members of the Forensic Biology DNA Unit for processing DNA type cases.
- Goal 5: Hire a Criminalist (contractor) to support the Forensic Biology Unit staff by directly engaging in handling, screening, and analyzing forensic casework evidence that may contain DNA.
- Goal 6: Hire 2 part-time Laboratory Interns (contractors) to be engaged in supporting staff member assigned to the Forensic Biology Unit.
- Goal 7: Purchase several software applications in order to maintain the flow of casework through the section

PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

- Goal 1: No 2010 DNA Backlog funds were used during this reporting period.
- Goal 2: No 2010 DNA Backlog funds were used during this reporting period.
- Goal 3: No 2010 DNA Backlog funds were used during this reporting period.
- Goal 4: No 2010 DNA Backlog funds were used during this reporting period.
- Goal 5: A candidate has been identified & a contract is expected to be finalized by the next reporting period.
- Goal 6: In the process of identifying potential candidates.
- Goal 7: No 2010 DNA Backlog funds were used during this reporting period

PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

- Goal 1: The San Mateo County Sheriff's Office Forensic Laboratory conducted a method validation of the laboratory's EZ1 instrument for low DNA evidence samples and is currently using this process in casework.
  - Goal 1 completed.
- Goal 2: A Modification was submitted by the San Mateo County Sheriff's Office Forensic Laboratory requesting a change to our original application for the request of the purchase of a freezer and add the purchase of two printers. In April 2011, once the modification was approved, the San Mateo County Sheriff's Office Forensic Laboratory requested a bid from a County contracted vendor, purchased, installed, and began using two HP Color LaserJet CP6015dn printers.
  - Goal 2 completed.
- Goal 3: In April 2011, the San Mateo County Sheriff's Office Forensic Laboratory sent out requests for bids for the purchase of the three Microcentrifuge Galaxy 16DH microcentrifuges, and purchased, installed, and began using the three microcentrifuges.
  - Goal 3 completed.
- Goal 4: In April 2011, the San Mateo County Sheriff's Office Forensic Laboratory requested a bid from a County contracted vendor and purchased ten AmpFLSTR Identifiler PCR Kits. These kits are currently being used for casework.
- Goal 5: A contract was executed for one Criminalist to assist with casework in Forensic Biology/DNA. She was competency and proficiency test and is currently working casework in Forensic Biology/DNA.
- Goal 6: A Modification was submitted by the San Mateo County Sheriff's Office Forensic Laboratory requesting an increase to the number of part-time Laboratory Interns from two to three. Once the modification was approved, the Laboratory interviewed and selected three candidates, conducted background investigations, and executed contracts for the three interns to assist in the Forensic Biology/DNA. By the end of this reporting period, the three interns fulfilled their contractual obligations for this grant by performing non-critical tasks such as cleaning glassware and assisting with the method validation listed in Goal 1.
  - Goal 6 completed.
- Goal 7:
  1. A Modification was submitted requesting an increase to the original amount for the THEMIS: Forensic Biology Module software update. Once the modification was

approved, in April 2011, the San Mateo County Sheriff's Office Forensic Laboratory requested a bid from a vendor based on sole source requirements and purchased the software. The Forensic Biology/DNA Section met with RJ Lee (the vendor) to discuss laboratory requirements and the vendor is currently in the process of building the module for the laboratory. The anticipated installation date is August 2011.

2. In February 2011, the San Mateo County Sheriff's Office Forensic Laboratory requested a bid from a County contracted vendor and purchased five GeneMapper ID v 3.2 software packages. The San Mateo County Sheriff's Office Forensic Laboratory conducted a performance verification of each software package and is currently using it for casework.

Goal 7 (2) completed.

**Program Match:**

The San Mateo County Sheriff's Office Forensic Laboratory is to report as MATCH \$29,232.84. Therefore, additional supplies ordered and received during this reporting period (from January 1 to June 30, 2011) are found on the following documentation:

<u>Vendor</u>	<u>Reference #</u>	<u>Amount</u>
Qiagen Inc.	94047036	\$ 2,890.76
Applied Biosystems	97930313	\$12,079.29
Millipore Corp	5550577	\$5,903.36
Applied Biosystems	98124849	\$8,942.34
Applied Biosystems	98229324	\$2,219.75
Serological Research SeraTec	57421105653	\$795.26
NIST Human DNA	57421105653	\$483.26
Applied Biosystems	98286453	\$1,179.19
Applied Biosystems	98312581	\$405.16
Applied Biosystems	98363458	\$1,552.89
Applied Biosystems	98373857	\$4,689.42
Applied Biosystems	98436744	\$7,951.69
Applied Biosystems	98243787	\$1,549.40

The San Mateo County Sheriff's Office Forensic Laboratory's supplies ordered and received during this grant period for our PROGRAM MATCH Funds totaled: \$50,641.77

**PROGRESS REPORT 3: July 1, 2011 – December 31, 2011**

Goal 1: Goal 1 completed in previous Reporting Period.

Goal 2: Goal 2 completed in previous Reporting Period.

Goal 3: Goal 3 completed in previous Reporting Period.

Goal 4: The San Mateo County Sheriff's Office Forensic Lab purchased 10 AmpFLSTR Identifiler Kits, 10 EZ1 DNA Investigator Kits, and 2 Quantifier DUO Kits.

Goal 4 completed.

Goal 4 was completed per the laboratory's application; however, due to cost savings of \$2887.75 we will be purchasing 7 more kits.

Goal 5: One contract Criminalist completed a total of 35 forensic biology cases using 2010 Backlog DNA Grant funding.

Goal 5 completed.

Goal 6: Goal 6 completed in previous Reporting Period.



Goal 7:

1. The Forensic Biology module in Themis was built per the specifications requested by members of the forensic biology section. The module was installed and is currently being tested by personnel.
2. Goal 7 (2) completed in previous Reporting Period.

\* Table 2 Performance Matrix

The number of CODIS hits exceeds the number of CODIS entries due to the fact that the CODIS hits are from CODIS entries from prior Reporting Periods and were initially unidentified.

PROGRESS REPORT 4: January 1, 2012 – March 31, 2012

Goal 1: Goal 1 completed in Reporting Period #2.

Goal 2: Goal 2 completed in Reporting Period #2.

Goal 3: Goal 3 completed in Reporting Period #2.

Goal 4: As stated in Reporting Period #3, the original goal for the purchase of kits, stated in our application, was completed. During this reporting period, the laboratory purchased an additional 7 EZ1 DNA Investigator Kits using cost savings.

Goal 4 completed.

Goal 5: Goal 5 completed in Reporting Period #3.

Goal 6: Goal 6 completed in Reporting Period #2.

Goal 7:

1. The Forensic Biology module in Themis was installed during the last reporting period and is currently in use by examiners in the Forensic Biology Section.
2. Goal 7 (2) completed in Reporting Period #3.

Goal 7 completed.

FINAL REPORT: The Sheriff's Office Forensic Laboratory's goals under this grant were to decrease the number backlogged cases and turnaround times.

Award funds were used to:

- Fund overtime for 4 examiners and 1 supervisor to perform biology casework and case reviews;
- Purchase 3 microcentrifuges and 2 printers;
- Purchase chemicals to process DNA casework;
- Fund a part-time Criminalist to perform casework and case reviews;
- Fund 3 part-time Interns to perform non-critical tasks and method validation;
- Purchase 5 full licenses for GeneMapper ID v. 3.2 software; and
- Purchase a Biology Module addition to THEMIS (laboratory information mgmt system).

At the beginning of this grant period, the number of backlogged cases was 220 cases and the turnaround time was 154 days; at the end of this grant period the number of unassigned backlogged cases was 274 and the turnaround time was 206 days.

The Forensic Biology Section completed 323 cases using grant funds during the grant period (01 October 2010 until 31 March 2012).

The overall number of backlogged DNA cases and the turnaround time increased during this grant period and the number of samples analyzed per analyst per month decreased due to three major factors:

1. A qualified DNA examiner continued to work only on a part-time basis at no more than 20 hours per week. The laboratory decided to use this half position as cost savings instead of hiring another part-time employee. This examiner resigned at the end of May 2012.
2. A qualified DNA examiner was on parental leave from December 2011 until May 2012. Although this examiner returned to the San Mateo County Sheriff's Office Forensic Laboratory in May, she chose to return as a part-time employee and, as a result, she only works approximately 32 hours per week.
3. A qualified DNA examiner was permanently transferred to another section of the Laboratory in 2009 and that position has not been replaced in Forensic Biology.

As a direct result of not filling the part-time vacancy left by an examiner only working 20 hours per week, the parental leave of the one fully trained examiner and her return to the laboratory on a decreased schedule, and the permanent transfer of one trained examiner to another section with no unit replacement, less casework was assigned and completed by the unit, leading to an increase in backlogged cases and turnaround times.

Unfortunately, since neither the permanent transfer of an examiner to another section nor the parental leave absences of two members of the unit were considered at the beginning of this grant period, we did not anticipate a slowdown in case production. In totality, the absence of these unit members greatly contribute to our increased number of backlogged cases and increased turnaround times and we anticipate this trend to continue until the unit is fully staffed.

As of June 1, 2012, the Forensic Biology Section's current staffing is as follows:

- One (1) Supervisor
- Two (2) fully trained and qualified full time examiners
- One (1) fully trained and qualified part time examiner
- Three (3) partially trained full time examiners
- One (1) fully trained and qualified part time contract criminalist
- Two (2) part time interns

All supplies were purchased, received, and put in place at the Forensic Laboratory. This has relieved the bottlenecks that were existent due to the lack of ability to use various instruments and techniques prior to their validation.

Goal 1: All necessary performance verification experiments will be completed

**GOAL COMPLETED**

The San Mateo County Sheriff's Office Forensic Laboratory conducted a method validation of the laboratory's EZ1 instrument for low DNA evidence samples and is currently using this process in casework.

Goal 2: Purchase a freezer for the Forensic Biology Unit.

#### GOAL COMPLETED

A Modification was submitted by the San Mateo County Sheriff's Office Forensic Laboratory requesting a change to our original application for the request of the purchase of a freezer and add the purchase of two printers. In April 2011, once the modification was approved, the San Mateo County Sheriff's Office Forensic Laboratory requested a bid from a County contracted vendor, purchased, installed, and began using two HP Color LaserJet CP6015dn printers.

Goal 3: Purchase 3 Microcentrifuges.

#### GOAL COMPLETED

In April 2011, the San Mateo County Sheriff's Office Forensic Laboratory sent out requests for bids for the purchase of the three Microcentrifuge Galaxy 16DH microcentrifuges, and purchased, installed, and began using the three microcentrifuges.

Goal 4: Purchase DNA Kits (chemicals) to be used by members of the Forensic Biology DNA Unit for processing DNA type cases.

#### GOAL COMPLETED

10 AmpFLSTR Identifiler PCR Kits, 2 Quantifiler DUO DNA Kits, 17 EZ1 Investigator DNA Kits were ordered. These kits were used to perform casework on backlogged samples and for method validation of the laboratory's EZ1 instrument for low DNA evidence samples.

Goal 5: Hire a Criminalist (contractor) to support the Forensic Biology Unit staff by directly engaging in handling, screening, and analyzing forensic casework evidence that may contain DNA.

#### GOAL COMPLETED

One contract Criminalist completed a total of 35 forensic biology cases using 2010 Backlog DNA Grant funding.

Goal 6: Hire 2 part-time Laboratory Interns (contractors) to be engaged in supporting staff member assigned to the Forensic Biology Unit.

#### GOAL COMPLETED

A Modification was submitted by the San Mateo County Sheriff's Office Forensic Laboratory requesting an increase to the number of part-time Laboratory Interns from two to three. Once the modification was approved, the Laboratory interviewed and selected three candidates, conducted background investigations, and executed contracts for the three interns to assist in the Forensic Biology/DNA. By the end of this reporting period, the three interns fulfilled their contractual obligations for this grant by performing non-critical tasks such as cleaning glassware and assisting with the method validation listed in Goal 1.

Goal 7: Purchase several software applications in order to maintain the flow of casework through the section.

#### GOAL COMPLETED

1. A Forensic Biology Module for the laboratory's information management system (THEMIS) was built per the specifications requested by members of the forensic laboratory section, the software was installed, and is in use by personnel.

2. The San Mateo County Sheriff's Office Forensic Laboratory purchased five full licenses for GeneMapper ID v 3.2 software. The software was installed and is in use by personnel.

Program Income / Match

Since the San Mateo County Sheriff's Office Forensic Laboratory is considered a Fee For Service Laboratory, \$29,232.84 Match (Recipient Share) is required. Therefore, additional supplies ordered and received during this grant period are found on the following documentation:

<b><i>Vendor</i></b>	<b><i>Reference #</i></b>	<b><i>Amount</i></b>
Qiagen Inc.	94047036	\$ 2,890.76
Applied Biosystems	97930313	\$12,079.29
Millipore Corp	5550577	\$5,903.36
Applied Biosystems	98124849	\$8,942.34
Applied Biosystems	98229324	\$2,219.75
Serological Research SeraTec	57421105653	\$795.26
NIST Human DNA	57421105653	\$483.26
Applied Biosystems	98286453	\$1,179.19
Applied Biosystems	98312581	\$405.16
Applied Biosystems	98363458	\$1,552.89
Applied Biosystems	98373857	\$4,689.42
Applied Biosystems	98436744	\$7,951.69
Applied Biosystems	98243787	\$1,549.40

The San Mateo County Sheriff's Office Forensic Laboratory's supplies ordered and received during one reporting period exceeded our match requirement and as a result we are only reporting Funds that totaled: \$50,641.77.

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**FY10 Recipient Name:** Orange County Sheriff-Coroner Department, California

**Award Number:** 2010-DN-BX-K067

**Award Amount:** \$358,567

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Contra Costa County, California

**Award Number:** 2010-DN-BX-K127

**Award Amount:** \$206,267

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Goal #1: The goal of the project is to increase case throughput via the maintenance funding for two grant-funded dedicated DNA analysts to screen for DNA evidence and perform DNA typing using the existing methods in the Biology Unit. The grant funded DNA analysts will be dedicated to DNA casework. *As a result, the case throughput capacity should increase and turnaround times should decline.* Based on a two year average (October 08 to October 10) the turnaround time for a Forensic Biology Unit request is 236 days. The breakdown for the three Forensic Biology Unit request types are: DNA specific requests 273 days,

Preliminary Screenings 222 days and Sexual Assault Evidence Collection Kit Processing 142 days.

Goal #2: Each of the two grant-funded DNA analysts will increase the Forensic Biology Unit's overall case output by a minimum of 20 case requests (an estimated 46 forensic DNA samples) during the grant period.

PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

Goal #1 - Progress Oct-Dec 2010: The turnaround time for the Forensic Biology Unit actually increased during this first reporting period to 370 days. This increase is due to the fact that approximately 50% of the total cases completed were in an "aged backlog" and ranged from 1,482 to 231 days old. The completion of these "aged" cases adversely adds to the turnaround time, however, by removing them we decrease the overall volume of older cases. Once these older cases are removed the turnaround time should improve, but these spikes are attributed to cases of significant age. During this award period our backlog decreased from 192 to 180, a total reduction of 12 cases. We will continue to work down our aged backlog in an effort to meet our goal, and increase our throughput capacity. Another DNA analyst has recently completed their competence as has begun casework, which further adds to our throughput capabilities. Recent validation of robots for sample set-up will also help to increase our case throughput.

Goal #2 - Progress Oct-Dec 2010: During this 3 month reporting period, no grant funds have been drawn down on the FY 2010 award, therefore, there is no activity to report.

PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

Goal #1 Progress Jan-June 2011: The turnaround time for the Forensic Biology Unit was reduced from 370 days last reporting period to 288 days, which is still slightly higher than the original 236 day turn around time that was based on a two year average. The turn around time continues to vary due to the fact that our "aged backlog" has such a large age range. During this award period our backlog decreased from 180 to 170, a total reduction of 10 cases. We will continue to work down our aged backlog in an effort to meet our goal, and increase our throughput capacity. One DNA analyst is in training and with this addition to our staff we will continue to make progress toward our capacity goals.

Goal #2 Progress Jan-June 2011: During this six month reporting period, one grant funded DNA analyst completed 12 cases (which included 37 forensic DNA samples) and the second grant funded DNA analysts completed 8 cases (which included 49 samples). To date, a total of 20 cases have been completed and 86 forensic DNA samples have been produced. Our goal of completing a minimum of 20 cases per analyst is well underway. The estimate of 46 forensic DNA samples has been well exceeded by our completion of 86 samples.

PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goal #1 Progress July-Dec 2011: The turnaround time for the Forensic Biology Unit was reduced from 370 days to 288 in reporting period #2 and has now increased to 305 days, which is higher than the original 236 day turn around time that was based on a two year average. The turn around time continues to vary due to the fact that our "aged backlog" has such a large age range. During this award period our backlog decreased from 192 (original

value) to 190, a total reduction of 2 cases. We will continue to work down our aged backlog in an effort to meet our goal, and increase our throughput capacity. Our aged backlog now has 73 cases older than 365 days. One DNA analyst is in training and with this addition to our staff we will continue to make progress toward our capacity goals.

Goal #2 Progress July-Dec 2011: During this six month reporting period, one grant funded DNA analyst completed 7 cases (which included 20 forensic DNA samples) and the second grant funded DNA analysts completed 7 cases (which included 20 samples). To date, a total of 34 cases have been completed and 126 forensic DNA samples have been produced. Our goal of completing a minimum of 20 cases per analyst is well underway (analyst #1 completed 19 cases and analyst #2 completed 15 cases). The estimate of 46 forensic DNA samples has been well exceeded by our completion of 126 samples.

#### PROGRESS REPORT 4: January 1, 2012 – March 31, 2012

Goal #1 Progress Jan-March 2012: The turnaround time for the Forensic Biology Unit was reduced from 370 days (based on a two year average) to 288 in reporting period #1, increased to 305 days in reporting period #2, then was reduced to 236 days in reporting period #3, and continued declining to 219 days in reporting period #4, the lowest over the lifetime of the grant. The turn around time continues to vary due to the fact that our “aged backlog” has such a large age range. Our aged backlog now has only 77 cases older than 365 days. During this award period 21 cases were completed, 85 samples were processed and our overall backlog remained steady at 191 cases. We will continue to work down our aged backlog in an effort to meet our operational goals, and increase our throughput capacity. One DNA analyst, currently in training, will be a welcomed addition to our DNA Unit as we continue to make progress toward our capacity goals.

Goal #2 Progress Jan-March 2012: During this three month reporting period, one grant funded DNA analyst completed 5 cases (which included 13 forensic DNA samples) and the second grant funded DNA analysts completed 5 cases (which included 22 samples). To date, a total of 44 cases have been completed and 161 forensic DNA samples have been produced. Our goal of completing a minimum of 20 cases per analyst has been achieved (analyst #1 completed 24 cases and analyst #2 completed 20 cases). The estimate of 46 forensic DNA samples has been well exceeded by our completion of 161 samples.

#### FINAL REPORT:

Goal #1 Final Report: With the addition of the two NIJ grant funded analysts dedicated to DNA casework, the Biology/DNA Unit was able to increase throughput and complete 19 more cases during this 18 month award period than in the previous 18 month period. The turnaround time for the Forensic Biology Unit was reduced from 370 days (based on a two year average) to 288 in reporting period #1, increased to 305 days in reporting period #2, then was reduced to 236 days in reporting period #3, and continued declining to 219 days in reporting period #4, the lowest over the lifetime of the grant. However, the turn around time continues to vary due to the fact that our “aged backlog” has such a large age range. Our aged backlog has only 77 cases now older than 365 days.

The number of samples analyzed per analyst per month did reflect a drop from 8 at the beginning of the award period to 4 at the end of the award period. This decline can be attributed to the fact that our lab staff have collectively been working to meet our new

accreditation criteria as we work to become ISO compliant in 2012. In addition, the laboratory staff including the DNA analysts have been involved with the preparation and planning of our new laboratory, which we should move into this summer. However, the two NIJ grant funded analysts dedicated their time to casework and recorded the highest numbers of cases completed during the funded award period.

Goal #2 Final Report: At the completion of this grant, a total of 44 cases have been completed and 161 forensic DNA samples have been produced by the two NIJ grant funded analysts. We met our goal of completing a minimum of 20 cases per analyst (analyst #1 completed 24 cases and analyst #2 completed 20 cases). The estimate of 46 forensic DNA samples has been well exceeded by our completion of 161 samples. In addition to the 44 cases completed, 25 profiles were uploaded to CODIS and 29 CODIS Hits were generated. By the completion of this award period all grant funds were consumed.

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**FY10 Recipient Name:** City And County of San Francisco, California

**Award Number:** 2010-DN-BX-K124

**Award Amount:** \$320,274

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Oakland Police Department, California

**Award Number:** 2010-DN-BX-K068

**Award Amount:** \$371,622

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City and County of Denver, Colorado

**Award Number:** 2010-DN-BX-K158

**Award Amount:** \$203,992

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Colorado Department of Public Safety

**Award Number:** 2010-DN-BX-K154

**Award Amount:** \$580,593

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Connecticut Department of Public Safety

**Award Number:** 2010-DN-BX-K066

**Award Amount:** \$482,762

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** D.C. Metropolitan Police Department

**Award Number:** 2010-DN-BX-K108

**Award Amount:** \$393,960

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Delaware Health and Social Services

**Award Number:** 2010-DN-BX-K057

**Award Amount:** \$284,323

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Palm Beach County Sheriff's Office, Florida

**Award Number:** 2010-DN-BX-K078

**Award Amount:** \$403,372

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

- Goal 1: Continue federal grant support for two Forensic Scientists in the Forensic Biology Unit (FBU) to reduce the backlog through increased casework productivity
- Goal 2: Validation of the two Qiagen EZ XL which are bench-top mini-robots capable of conducting extraction analysis on 14 samples.
- Goal 3: Validation of two Eppendorf ThermoMixers needed for the heating and shaking of the evidentiary samples.
- Goal 4: The PBSO FBU implemented an In-House Document scanning Initiative in 2009 to reduce the storage issues associated with the excessive number of FBU quality, policy and technical manuals, casework files and validation data that is routinely requested for discovery.
- Goal 5: Validation of GeneMapper ID-X
- Goal 6: Purchase the Qiagen QIA SP Symphony liquid handler (added 11/30/11 GAN #6)

**PROGRESS REPORT 1: October 1, 2010 – December 31, 2010**

- Goal 1: Currently the 2 analysts are supported through a 2009 Backlog Reduction Grant. It is anticipated that the 2009 Backlog Reduction Funds requested to support two DNA analysts will be exhausted in March, 2011. The 2010 Backlog Reduction monies will then be used to maintain the salaries and benefits of these two analysts at this time. In October of 2010, the two Forensic Scientists successfully passed the PBSO FBU



DNA Laboratory Bench Practicum, the written Comprehensive DNA Examination and the court mock trial. Both of the analysts 2010-DN-BX-K078 3 have been assigned and have completed their first external proficiency examination as per FBI Quality Assurance Standards. The analysts have each been partnered with a Senior Scientist for the next three months and have been assigned their first DNA cases. The two FS accomplished the following casework analysis:

# Submissions	# Items Worked	# Stains tested	Stains w/ DNA	Active Cases	DNA Reports Out	NO-Suspect Cases	Average Turn Around Time-days
39	55	68	49	5	14	5	60

Goal 2: 2 Qiagen EZ XL robots were ordered in November. These robots will be installed in January and undergo a performance check as per FBI Quality Assurance Standards in May when two interns begin their internships.

Goal 3: Two Eppendorf Thermomixers were ordered in November. These mixers feature quick heat-up and cooling rates for increased throughput, digital display of all parameters, a short-mix function for vortex applications, and programmable intermittent mixing. These mixers were selected because they are able to shake and heat simultaneously which is necessary for both EX+Z1XL and PrepFiler extraction methods. These thermomixers will undergo a performance check as per FBI Quality Assurance Standards in May when two interns begin their internships.

Goal 4: This is a continuation of the paper-less initiative from the 2009 Backlog Reduction Grant. The contracted temporary employees had a background check completed before initiating the scanning process. There is an existing indexing station provided by PBSO. All documents have been scanned as per the current protocol designed and developed specifically for FBU documents. In this grant period over 2,300 casefiles have been scanned.

The documents will be surveyed and quality controlled for accuracy and quality. The electronic documents will be secured on a PBSO server.

Eventually, all hard copies will be destroyed as the Florida statutes allow electronic copies of originals to maintain the original status.

Goal 5: The GeneMapperID-X training recently conducted in the PBSO FBU has demonstrated that there are many useful modules available in this software product than what is currently available in GeneMapper ID. This includes that identification of samples within the GeneMapper® ID-X project that are eligible for Mixture Analysis whereby samples are assessed according to sample type, analysis status and allele label status. The program categorizes and segregates eligible samples by the minimum number of contributors contained in each sample (1, 2, or 3 or more contributors) thus improving the time and interpretation inclusion and exclusion consistency. This program extracts and separates contributor profiles into individual

major and minor genotype combinations for all markers present. (2 contributors only) and filters known profiles from selected sample profiles (2 contributors only) and importantly, calculates statistics using population databases stored within the software. The PBSO database can be imported for use in the statistics module. Up to 15 clients can be supported on the existing GMID-X full station. In order to accommodate all of the analyst and the workstations, the following list summarizes the computers in need of GMID-X.

GenemapperID-X Client software licenses - 13

- These licenses have been ordered and the software received.
- Installation will be forth-coming
- The following thirteen (13) computers will need a copy of the GMID-X software program:
  - FBU Manager 1
  - CODIS Administrator 1
  - Sr. Forensic Scientists 5
  - Forensic Scientist 6

PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

Goal 1: The two analysts were supported through a 2009 Backlog Reduction Grant. The 2009 Backlog Reduction Funds requested to support two DNA analysts were exhausted in March, 2011 and since this time the analysts have been supported by the 2010 Backlog Reduction monies. The analysts are conducting independent casework. The following metrics accomplished by the two analysts include testing from March 15th through June 30th:

# Submissions	# Items Worked	# Stains tested	Stains w/DNA	Active Cases	DNA Reports Out	NO-Suspect Cases	Average Turn Around Time-days
190	376	451	275	57	80	29	83

It is important to note that one of the analysts is mentoring a summer intern from Marshall University. The project includes the validation of GeneMapper IDX and ARMEDExpert mixture deconvolution software. The PBSO NIJ supported analyst wrote the manual for the USACIL mixture software when she was employed at NIST prior to her hire at PBSO and as a result has been spending a significant amount of time monitoring the project.

Goal 2: Two Eppendorf Thermomixers were ordered in November and have been received. These thermomixers are undergoing a performance check in tandem with the Qiagen EZ1 instruments. The results obtained to date demonstrate that the thermomixers are performing optimally and appropriately. More validation studies are underway.

Goal 3: This is a continuation of the paper-less initiative from the 2009 Backlog Reduction Grant. In this current grant period over 8,600 casefiles have been scanned. The individual conducting the scanning process has designed and presented an initiation

powerpoint training module to all of the FBU staff in anticipation of using the scanned documents for discoveries etc.

Goal 4: An intern from Marshall University has initiated her internship project of validating GenemapperID-X Client software licenses. Validation of GeneMapper ID-X (GMID-X) began May 20, 2011 utilizing the raw data from the original validation of PBSO's 3130xl. As of June 28, 2011 the following studies have been completed: known samples and stutter, non-probative, reproducibility, precision, sensitivity and stochastic, mixtures, NIST, contamination and analytical threshold. The validation will continue with the re-analysis of the raw data obtained from the performance check of PBSO's second 3130xl. Upon completion of GMID-X's validation for use during routine casework, the program will also be validated as an expert system using the PowerPlex16 amplification kit and 3130xl platform. The expert system portion of GMID-X will be validated by running more than 500 single source samples through the software and determining the applicable peak quality values for the laboratory. The expert tool portion of GMID-X will also be evaluated for its use in deconvoluting two and three-person DNA mixtures.

PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goal 1: Currently the two analysts were originally supported through a 2009 Backlog Reduction Grant. It is anticipated that the 2010 Backlog Reduction Funds requested to support two DNA analysts will be exhausted in March, 2012. The 2011 Backlog Reduction monies will then be used to maintain the salaries and benefits of these two analysts at this time. The two Forensic Scientists have successfully passed all external proficiencies and continue to analyze casework evidence. These two analysts each report out more cases on a monthly basis than the rest of the staff. Interestingly, the number of reports completed has decreased slightly because the Forensic Biology Unit has initiated a new mixture deconvolution worksheet. The rules are based on the *SWGDM Interpretation Guidelines for Autosomal STR Typing by Forensic DNA Testing Laboratories* published in January 2010. The two FS accomplished the following casework analysis.

	# Submissions	# Items Worked	# Stains tested	Stains w/DNA	Active Cases	DNA Reports Out	NO-Suspect	Average Turn Around Time-days
							Cases	
Jan-Jun 2011	256	499	581	354	74	74	38	77
Jul-Dec 2011	189	444	793	533	99	93	50	76
TOTAL 2011	445	943	1374	887	173	167	88	77

Goal 2: The EZ1-C and EZ-1 D performance checks were completed by a summer intern as previously reported. The final evaluation of the data and implementation of the EZ1-C and EZ1-D instruments was in August, 2011

The AB 7500 performance checks were completed by a summer intern as previously reported. The final evaluation of the data and implementation of the AB7500 instrument was in October, 2011

Goal 3: Validation of the two Eppendorf ThermoMixers was successfully completed.

Goal 4: This is a continuation of the paper-less initiative from the 2009 Backlog Reduction Grant. All documents have been scanned as per the current protocol designed and developed specifically for FBU documents. Between July 1 and December 31st, 2011:

Approximately

4,900+ casefiles were scanned

4,000+ DNA Allele profile Datasheets were scanned (StarCall)

The documents will be surveyed and quality controlled for accuracy and quality. The electronic documents will be secured on a PBSO server. Eventually, all hard copies will be destroyed as the Florida statutes allow electronic copies of originals to maintain the original status.

Goal 5: The GeneMapperID-X software was validated by an intern from Marshall University over the 2011 summer. The final data was recently collated and presented for the interns Masters Degree thesis project. GeneMapper ID-X and ArmedXpert are two software tools available to assist with DNA mixture interpretation. This project focused on the applicability of using these tools for DNA mixture interpretation through examination of mixture calculations, mixture deconvolution of two and three-person mixtures and statistical estimates of combined probability of exclusion and likelihood ratio. Varying mixture ratios were utilized to research the ability of each software tool to perform reliable mixture calculations. GMID-X was also be evaluated for its use as an expert system for single source samples. The intern provided critical validation data regarding the feasibility of using GeneMapperID-X on routine casework then secondarily conducted an inordinate number of studies to ascertain the Expert System component of the software.

This data is still being summarized and it is anticipated that the analyst will be using the analysis function of the software in 2012. The reason the implementation was significantly longer than anticipated is as follows:

In 2010:

- GMID is a standalone software package. In order to review other analyst's data project files need to be export onto a common network and imported into the software.
- GMID- Service pack upgrades prevent analysts from seeing other analyst's raw data. (Causes a break in the file pile for original analysis).
- Location of where the 3130xl network drive is mapped can prevent analyst's form seeing other analyst's raw data.
- Agency begins installing Windows operating system 7 on new computers.
- Spoke with ABI tech support about our networking issues- suggested to purchase GMIDX software. This software houses projects in a database- all client computers can see project files in database. This removes the necessity to export and import data. Were told by ABI that GMIDX is compatible with Windows 7.

- Purchase and receive GMIDX software in December of 2010.

In 2011:

- March install the full server installation suite on a dedicated “server” laptop. Prepare GMIDX software for arrival of intern. Laptop has Windows XP as operating System.
- May graduate intern arrives to conduct GMIDX validation.
- IS attempts to install Client version of GMIDX software on second analyst computer (computer has windows XP as operating system). Client version GMIDX cannot see the GMIDX server- IS loads full installation software on second analyst computers. Two computers cannot talk to each other.
- May – July graduate intern performs validation of GMIDX v1.2
- July TL returns from maternity leave. Investigates why client software cannot see server laptop. Received two different versions of GMIDX software. Full installation suite is v. 1.1 client versions is 1.2. As per ABI the full installation software and client GMIDX software must be the same version.
- August- ABI sends the 1.2 upgrade for the GMIDX full installation software.
- September- IS upgrades the GMIDX version on the sever laptop. Attempt to install GMIDX on TL computer. Version 1.2 is not compatible with Windows 7. Contact ABI; working on a fix no time line for new version.
- December receive v1.3 upgrade of GMIDX Full installation Suite and Client Software.

2012

- Decide to halt review of GMIDX validation. Will need to conduct a PC of version 1.3 and Sorenson Forensic Scheduled to arrive in Feb. to Validate YSTRs and PP16 on the 9700. Will be repeated 90% of what was done in the GMIDX 1.2 validation. Sorenson Forensics will be using GMIDX version 1.3 for validation analysis.
- January- IS upgrades server laptop to Windows 7 and successfully installs GMIDX software. 1.3 client version of software is installed on TL computer. Client and server can see each other. TL will test software. Will notify IS when to begin installing IDX on remaining computers.

Goal 6: Funds to assist in the purchase of the Qiagen QIA SP Symphony liquid handler were obtained through a Budget Modification GAN. Purchase is anticipated in early 2012.

## FINAL REPORT

Goal 1: Continue federal grant support for two Forensic Scientists in the Forensic Biology Unit (FBU) to reduce the backlog through increased casework productivity.

**PROGRESS:** The 2010 Backlog Reduction Funds requested to support two DNA analysts were exhausted in March, 2012. The two analysts had been supported by the 2010 DNA Backlog Grant from approximately April, 2011 through March 31 2012. During this time period the two Forensic Scientists successfully passed all external proficiencies, annual bloodborne pathogen and court testimony monitoring and continue to analyze casework evidence. One of the analysts has also successfully passed the American Board of Criminalistics Molecular Biology Certification Examination and the second analyst has an examination date secured for April, 2012.

In addition, both analysts presented at the February Florida Forensic Symposium in Miami including a picture on DNA room temperature storage and GeneMapperID-X/ArmedXpert software programs. One of the analysts was also a mentor to a Marshall University intern during the 2011 summer internship program.

These two analysts each report out a significant portion of the overall Forensic Biology Unit casework. The following metrics were generated over the regarding the amount of casework analysis conducted by the two grant-supported analysts:

April 11, 2011 through March 31, 2012	# Submissions	# Items Worked	# Stains tested	Stains w/DNA	Active Cases	DNA Reports Out	NO-Suspect	Average Turn Around Time-days
							Cases	
Analyst #1	401	737	886	558	105	121	54	78
Analyst #2	261	444	570	399	84	87	41	89
<b>TOTAL</b>	<b>662</b>	<b>1181</b>	<b>1456</b>	<b>957</b>	<b>189</b>	<b>208</b>	<b>95</b>	<b>83</b>

Goal 2: Qiagen EZ-1 - to increase the DNA extraction efficiency of the laboratory by purchasing two additional EZ1 robots. The two EZ1 robots were purchased and placed in the center of the lab proper in order for all analysts to have access. In addition, during the sample processing, the reason PBSO implemented the use of the EZ1 was to offer an alternative to using the 96-well BioMek robotic format when fewer than 14 samples need to be extracted. The validation of the EZ1 XL and the Thermomixers over the past year has demonstrated the robot to be easy to use, reliable and sensitive. The expected results have been that the addition of the EZ1 instruments and Thermomixers have increased the efficiency of analyzing small numbers of samples and emergency cases.

PROGRESS: Purchased, received, performance checked and in use.

Goal 3: Eppendorf Thermomixers

The Thermomixer R, is a system that had previously been validated in-house for the existing EZ-1 instruments, and used for simultaneous mixing and temperature control. The thermomixers offers counter- cooling ability which provides efficient cooling. As a result, the temperature control functions and range of applications has been more diverse. The thermomixers are used in conjunction with the existing EZ1 protocols.

PROGRESS Purchased, received, performance checked and in use.

Goal 4: The PBSO FBU implemented an In-House Document scanning Initiative in 2009 to reduce the storage issues associated with the excessive number of FBU quality, policy and technical manuals, casework files and validation data that is routinely requested for discovery. To alleviate some of the cost and burden of retrieving documents from the contracted storage facility of Iron Mountain, the Forensic Sciences Division purchased a high volume movable shelving system and all of the DNA casefiles and validation books have been retrieved from Iron Mountain and are now stored in the new CaseFile room. However, this room is shared by the other seven disciplines thereby making this a finite space with limited capacity. The Forensic Sciences Division purchased a high quality high speed Image Formula DR-9080C with Capture Perfect software and an hp psc 750XI system which is for

scanning and archiving *documents to the secure designated server*. In addition, Microsoft Photo Editor is used to adjust the contrast and brightness for optimum reproduction of the documents

PROGRESS: This is a continuation of the paper-less initiative from the 2009 Backlog Reduction Grant. All documents have been scanned as per the current protocol designed and developed specifically for FBU documents. Between the time the grant monies were available for this project (April, 2011) through the end of the grant (March 31, and February 13<sup>th</sup> 2012 when the 2010 Backlog budget for this project was exhausted, the following was accomplished:

Casefiles scanned:	9,503
Starcall project scans:	4000

#### Goal 5: Validation of GeneMapper ID-X Licenses:

STATUS: Purchased, received, validated and loaded onto analysts laptops.

Issues with the implementation of the GMID-X software which has prevented its use for casework to date:

2010

- GMID is a standalone software package. In order to review other analyst's data project files need to be exported onto a common network and imported into the software.
- Windows service pack upgrades prevent analysts from seeing other analyst's raw data. (Causes a break in the file path of original analysis).
- Location of where the 3130xl network drive is mapped can prevent analyst's from seeing other analyst's raw data.
- Agency begins installing Windows operating system 7 on new computers.
- Spoke with ABI tech support about our networking issues- suggested to purchase GMIDX software. This software houses projects in a database- all client computers can see project files in database. This removes the necessity to export and import data. Were told by ABI that GMIDX is compatible with Windows 7.
- Purchase and receive GMIDX software in December of 2010.

2011

- March install the full server installation suite on a dedicated "server" laptop. Prepare GMIDX software for arrival of intern. Laptop has Windows XP as operating system.
- May- graduate intern arrives to conduct GMIDX validation.
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- May – July graduate intern performs validation of GMIDX v1.2
- July TL returns from maternity leave. Investigates why client software cannot see server laptop. Received two different versions of GMIDX software. Full installation suite is v. 1.1 client versions is 1.2. As per ABI,

the full installation software and client GMIDX software must be the same version.

- August- ABI sends the 1.2 upgrade for the GMIDX full installation software.
- September- IS upgrades the GMIDX version on the sever laptop. Attempt to install GMIDX on TL computer. Version 1.2 is not compatible with Windows 7. Contact ABI; working on a fix no time line for new version.
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2012

- Decide to halt review of GMIDX validation. Will need to conduct a PC of version 1.3 and Sorenson Forensics is scheduled to arrive in Feb. to validate YSTRs and PP16 on the 9700. Will be repeating 90% of what was done in the GMIDX 1.2 validation. Sorenson Forensics will be using GMIDX version 1.3 for validation analysis.
- January- IS upgrades server laptop to Windows 7 and successfully installs GMIDX software. 1.3 client version of software is installed on TL computer. Client and server can see each other. TL will test software. Will notify IS when to begin installing IDX on remaining computers.
- February 29, 2012-Sorenson on site to conduct validation of PP16 and 9700. Validation Data analyzed on GMIDX v1.3. Validation of GMIDX v1.3 is underway.
- Will install GMIDX on analyst's computer upon completion of validation.

Goal 6: Purchase the Qiagen QIA SP Symphony liquid handler

The Qiagen QIA SP Symphony liquid handler has been purchased and is on-site

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**FY10 Recipient Name:** Miami Dade Police Department, Florida

**Award Number:** 2010-DN-BX-K081

**Award Amount:** \$1,023,044

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Florida Department of Law Enforcement

**Award Number:** 2010-DN-BX-K101

**Award Amount:** \$3,460,812

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** St. Lucie County Sheriff's Office, Florida

**Award Number:** 2010-DN-BX-K092

**Award Amount:** \$120,404

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Pinellas County, Florida

**Award Number:** 2010-DN-BX-K128

**Award Amount:** \$333,220

**Final Report:**

Goal 1. To increase the number of extracted samples that can be analyzed, by multiples analysts, or using multiple chemistries, at a given time, thus relieving bottlenecks associated with instrument availability.

This objective was achieved. The Applied Biosystems 3130XL (16 capillary instrument) was purchased, installed, validated (performance checked) and brought on line for case work. The first casework run on the instrument occurred on February 10, 2012. The process included the validation and use of the associated software: GeneMapper IDX. Software was installed at each analyst's desks to allow multiple analysts access to data for processing and review at the same time. The result has been an increase in the average number of analyses per month, per analyst. It should be noted; however, that the average number of analyses per month is based on the number of FTE budgeted. During the last reporting period (Jan 1-Mar 31) the actual number of analysts was reduced due to maternity leave and analyst-in-training. Thus, the reporting value is lower than actual (42.6 vs. 51.0).

Goal 2. To increase the efficiency, and thus analysis time, of extractions of swabs and cuttings by introducing robotics with magnetic bead technology to the analysis process.

The objective has been met. Three ABI Automate extraction robots were received and their validations completed. All analysts were trained in the use of both Prepfilers and Prepfilers BTA extraction chemistries.

The laboratory has seen a significant >50% increase in evidence submissions associated with burglaries and home invasions. Most items of evidence are simple blood swabs or touch samples. The robotics are ideal for quickly processing these samples. Without this automation, the laboratory's backlog would be substantially higher OR the laboratory would have to turn away casework. While the average turn around time and back log has increased, the number of case samples has also dramatically increased as has the number of analyses per analyst.

Goal 3. To increase the number of property crimes submitted for analysis by removing submission limitations based on capacity.

There has been a greater than 50% increase in the number of property crime submissions. The laboratory has had significance success with CODIS hits associated with these submissions. Submission limitations now only include misdemeanor

cases, all felony cases with *relevant and probative* evidence are accepted for submission.

Goal 4. To establish and maintain an average turn around time of 30 days or less DNA submissions.

The laboratory was unable to achieve this goal within the grant period. The turnaround time has increased to ~52.8 days (Average: Jan - March, 2012). This increase was due to three major factors. 1) A more than expected increase in rate of case submissions. 2) A decrease in analytical staff due to maternity leave and one unanticipated resignation/relocation within the grant period. Additional staff has been added and training is near completion. Additionally, another position was added using 2011 Grant funding, which should mitigate the turn around time issue and add stability to the staffing levels. Finally, the rate of submission of case samples appears to be stabilizing, allowing for more reliable predictions and better case management processes.

Goal 5. To establish an average number of analysis per analyst per month (as defined below) of at least 45.

This objective was only met by using the true number of analyses per month per analyst calculations. From Jan 1, 2012 to March 31, 2012 the laboratory performed 1376 DNA analyses. The laboratory funds 6 full time analysts, thus that equates to 42.6 analyses per analyst per month. However; in actuality the laboratory had 5 casework analysts (one position was in-training for most of award period). Based upon 5 analysts the actual number of analyses per month per analyst was 51.0.

Goal 6. To establish and maintain that no more than 10% of DNA cases become “backlog” cases, i.e. no more than 10% of cases have a final turn-around time of more than 30 days.

This objective was not met. The average turnabout time at the end of the award period was 52.8 days. More than 35% of those cases had an average turn around time of greater than 30 days. This was the results of more case submissions than projected and reduced staffing levels. However, it must be noted that, given these circumstances the addition of the 16 capillary genetic analyzer and the extraction robotics were critical. Without the additional automation both the backlog and the average turn around time would be significantly higher.

It is the opinion of the laboratory that the grant funds provided by and projects completed with this award were critical to the laboratory’s continued development and case management. The DNA section in the laboratory has only been fully operational since January 2010. In that time period, case submissions greatly exceeded initial projections. The instrumentation and processes that were validated and implemented using these funds allowed the laboratory to meet the needs of the law enforcement community. The long-term benefits cannot be measured in such a short award/reporting period; however, they are obvious in the daily efficiency improvements of the laboratory.

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**FY10 Recipient Name:** Broward County Sheriff's Office, Florida

**Award Number:** 2010-DN-BX-K121

**Award Amount:** \$491,061

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Georgia Bureau of Investigation

**Award Number:** 2010-DN-BX-K094

**Award Amount:** \$2,147,541

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Honolulu Police Department. Hawaii

**Award Number:** 2010-DN-BX-K091

**Award Amount:** \$162,603

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Iowa Department of Public Safety

**Award Number:** 2010-DN-BX-K152

**Award Amount:** \$247,571

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Idaho State Police

**Award Number:** 2010-DN-BX-K156

**Award Amount:** \$161,260

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:** Provide the Biology/DNA section with training for 6 analysts, equipment that will benefit both Database and Casework, and reagents and supplies that will allow us to provide service to our law enforcement agency customers.

The objective of this grant is to make the Database analysis process more efficient. Samples will be located in the laboratory where they will be processed; samples will be logged into the system in the laboratory; the purchase of the minicentrifuge and pipettes will eliminate the need to borrow these items from Casework; computers will allow access to online procedures and electronic analysis worksheets in the laboratory; a Biomek 3000 will simplify the tedious preparation of database samples. Automation with this system avoids contamination and decreases hands-on time for each process.

**PROGRESS REPORT 1:** October 1, 2010 – December 31, 2010

During this reporting period the following items were purchased:

Database sample filing system - received and installed;  
3 desktop computers/monitors - not received at end of reporting period;  
Minicentrifuge - received; and  
Biomek 3000 w/Promega accessories - not received at end of reporting period.  
One analyst has prepaid registration and purchased airfare for training.  
All items received at this point were immediately put to use as there was no performance verification or validation required.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

During this reporting period, the analysts have either scheduled or attended the requested training. So far we have had analysts attend AAFS, Green Mountain DNA Conference, and CAC 117th Seminar. All proposed equipment and supply purchases have been completed and received. The Biomek 3000 w/Promega accessories has been received and installed. As the instrument and chemistry requested was identical to the system already in place, only minimal performance verification was necessary after installation. There was no retraining of staff following the performance verification.

The mobile filing system was completed during this reporting period. The new system has increased our available storage by at least five times what we had. This will accommodate the samples we will be receiving with the new all felons legislation for the next several years. It also allows a little more flexibility for upgrades to increase capacity if necessary.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

During this reporting period, analysts attended training at Promega, MAFS and CODIS. The attendees provided reports of the presentations to the remainder of the staff thus benefitting the entire unit.

The performance verification and the additional automation validation were completed on the Biomek 3000. The instrument was not brought on-line during this reporting period due to analytical method updates pending approval.

The three desktop computers and monitors were installed in the laboratory and placed into service. This does save time because analysts do not have to stop the lab work to go to a different area to print their data. While this is not a huge impact on the database backlog, it does allow the analysts to spend more time in the lab rather than the office.

During this time the sole database analyst was removed from sample processing due to a quality issue. Retraining was necessary therefore no samples were analyzed during this time by this analyst.

#### PROGRESS REPORT 4: January 1, 2012 – June 30, 2012

During this reporting period the Biomek 3000 was brought on-line and ## samples were processed.

The only qualified database analyst, while going through retraining, resigned during this reporting period. A second database analyst began training during this timeframe. Neither analyst was approved for the processing of database samples.

The new Biomek 3000 was used for analyst training and to process 156 database samples in conjunction with analyst training during the reporting period. The 156 samples were uploaded to CODIS.

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**FY10 Recipient Name:** Illinois State Police

**Award Number:** 2010-DN-BX-K166

**Award Amount:** \$2,567,585

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Northeastern Illinois Regional Crime Laboratory

**Award Number:** 2010-DN-BX-K167

**Award Amount:** \$285,287

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** DuPage County Sheriff Department, Illinois

**Award Number:** 2010-DN-BX-K146

**Award Amount:** \$285,287

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Indiana State Police

**Award Number:** 2010-DN-BX-K150

**Award Amount:** \$619,386

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

- Goal 1 - To reduce the casework backlog by allowing analysts to work overtime.
- Goal 2 - To increase capacity of the DNA lab by providing contracts for maintenance of the LIMS System and DNA instruments.
- Goal 3 - To increase capacity of the DNA lab by providing continuing education for biology personnel.
- Goal 4 - To increase capacity of the DNA lab by new and replacement equipment.
- Goal 5 - To reduce the casework backlog through the outsourcing of backlogged DNA cases.

**PROGRESS REPORT 1:** October 1, 2010 – December 31, 2010

Goal 1 - In this reporting period ISP DNA analysts worked 770 hours of grant funded overtime impacting 268 cases. These cases resulted in 110 profiles being entered into CODIS which yielded 36 CODIS hits.

Goal 2 - Funds were paid for the annual LIMS maintenance agreement.

Goal 3 - No continuing education was provided in this reporting period due to prior year grant funding.

Goal 4 - No equipment was purchased under this award due to prior year grant funding.

Goal 5 - No DNA cases were outsourced under this award due to prior year grant funding.

Performance Metrics Note: The number of samples analyzed per analyst per month seems to have dropped significantly. This may just be due to time off that many analysts take at the

end of the year, thus reducing overall unit productivity at the end of the reporting period. Another potential cause may be that the reduced backlog led to analysts working with smaller batches. While working smaller batches may improve the case turnaround time, the overall number of samples processed will be reduced.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

Goal 1 - In this reporting period ISP DNA analysts worked 1566 hours of grant funded overtime impacting 469 cases. These cases resulted in 185 profiles being entered into CODIS which yielded 69 CODIS hits.

Goal 2 - Two ABI 7500s that were included in the maintenance agreement were repaired.

Goal 3 - Three forensic biologists attended external training. Annual DNA in-service training was provided for the entire Biology Section.

Goal 4 - Four refrigeration units were purchased for evidence and reagent storage. An autoclave, 4 thermal cyclers, 2 UPSs, pipettors and a hot plate/stirrer were purchased for examination of biological evidence.

Goal 5 - Seven criminal paternity cases were outsourced for interpretation and statistical calculations during this rating period.

#### Performance Metrics Notes

Using the same procedure for turnaround time as before demonstrates improvement from 42 to 30 days. A revised method of generating this data that accounts for the fact that some cases are worked by separate serology and DNA analysts has been developed. The actual time to complete the entire case is longer as compared to cases worked start to finish by one analyst. Using the revised method the average case turnaround is 60 days. CODIS hit reports, which take only a few days, were not included in this statistic, since no additional evidence is submitted and no evidence testing is conducted. Including hit reports changes the average number to 53 days.

The number of samples analyzed per analyst per month is slightly lower than at the beginning of the award period. This is likely due to several analysts being assigned duties in addition to casework. One analyst was working on the validation on PowerPlex 16 Hot Start, four were working on setup and validation of automation and two were working on YSTR validation.

#### Correction to Last Report

The number of cases analyzed for the October-December 2010 reporting period was reported as 413 in the Performance Metrics. This number should have been 268. The incorrect number failed to account for cases where an analyst worked overtime on the same case in multiple pay periods, and cases where two analysts worked overtime on the same case (one for serology and a second on DNA analysis). Under Goals #1 of the attachment the correct number was reported, but this was not consistent with the Performance Metrics.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goal 1 - In this reporting period ISP DNA analysts worked 1148 hours of grant funded overtime impacting 357 cases. These cases resulted in 103 profiles being entered into CODIS which yielded 47 CODIS hits.

- Goal 2 – Annual preventive maintenance was conducted for all Applied Biosystems 3130 and 7500 instruments. Additionally a hard drive was replaced for one 7500 and a pump was replaced for one 3030.
- Goal 3 - Four forensic biologists attended external training including: one to the Promega Symposium, one to the MAFS Meeting and two to a Beckman Class for operation and maintenance of the robots.
- Goal 4 – The ABI 3500 genetic analyzer that will be used for in-house analysis of offender samples was purchased and delivered.
- Goal 5 – The ability to interpret criminal paternity cases in-house was attained making outsourcing to this analysis no longer necessary.

#### Performance Metrics Notes

Using the same process to generate the turnaround time as was used at the start of the grant demonstrates a very slight increase from 30 to 31 days. A revised method of generating this data that accounts for the fact that some cases are worked by separate serology and DNA analysts has been developed. The actual time to complete the entire case is longer as compared to cases worked start to finish by one analyst. Using the revised method the average case turnaround is 57 days. CODIS hit reports, which take only a few days to complete, were not included in this statistic, since no additional evidence is submitted and no evidence testing is conducted. Including hit reports changes the average number to 53 days.

Again the number of samples analyzed per analyst per month is lower than at the beginning of the award period. This is likely due to several factors including a change over to PowerPlex 16 HS, and start up of automation and YSTRs.

Correction to Last Report: The average number of samples analyzed per analysts per month was changed for the Jan-June 2011 period from 73 in the previous report to 44 in this report. Two factors necessitated this change. First it was realized that the total number of samples analyzed for 6 months was divided by only 3 months. Second, the number of samples analyzed was divided by 39 analysts, but only 32 analysts contributed to the analysis.

#### PROGRESS REPORT 4: January 1, 2012 – March 1, 2012

- Goal 1 - In this reporting period ISP DNA analysts worked 15 hours of grant funded overtime impacting 9 cases. These cases did not result in any additional profiles being entered into CODIS.
- Goal 2 – No activity occurred during this progress period.
- Goal 3 - No activity occurred during this progress period.
- Goal 4 – The ABI 3500 genetic analyzer that will be used for in-house analysis of offender samples was installed by the vendor. Test samples were run and analyzed. The data quality was not as good expected, so the vendor was contacted and an appointment was scheduled to troubleshoot and/or repair the instrument.
- Goal 5 – The ability to interpret criminal paternity cases in-house was attained making outsourcing of this analysis no longer necessary.

### Performance Metrics Notes

Using the same process to generate the turnaround time as was used at the start of the grant demonstrates a slight decrease from 31 to 29 days. A revised method of generating this data that accounts for the fact that some cases are worked by separate serology and DNA analysts has been developed. The actual time to complete the entire case is longer as compared to cases worked start to finish by one analyst. Using the revised method the average case turnaround is 45 days. This represents a 12 day decrease from the last reporting period. CODIS hit reports, which take only a few days to complete, were not included in this statistic, since no additional evidence is submitted and no evidence testing is conducted. This decrease may be due to the approval and use of automation for casework which started in January 2012. DNA robots were purchased with 2009 DNA grant funding, but due to time required for validation, just became operational.

The number of samples analyzed per analyst per month is higher than the previous reporting period. This is likely due to analysts being for adjusted and comfortable with the changeover to automation, PowerPlex 16 HS and associated new interpretation guidelines.

### Correction to Last Report

The number of cases analyzed and delivered to the requesting agency was reported as 413 cases in report# 1 covering the Oct 2010 to Dec 2010 period. During the second reporting period it was realized that some cases were double counted in the first period and the number was corrected to 268 cases. In moving to the current progress report format in report #3 the original incorrect number of 413 was carried over. This report again corrects that to 268 cases.

### FINAL REPORT:

- Goal 1 – Personnel funds were used to work 3499 hours of grant funded overtime impacting 1103 cases. These cases resulted in 398 profiles being entered into CODIS which yielded 152 CODIS hits. Laboratory IT staff used 25 hours of grant funded overtime to set up a server and system for storage of DNA casework data and assist the CODIS and casework analyst as needed.
- Goal 2 – Funds budgeted for contracts were used for maintenance agreements for The LIMS system and DNA equipment. Annual preventive maintenance was conducted for all Applied Biosystems 3130 and 7500 instruments. Additionally contracted service kept instruments operational by replacing hard drive for one 7500 and a pump for one 3130.
- Goal 3 – All DNA analysts were provided required continuing education. A DNA in-service training was conducted for all analysts. Additionally one analyst received outside training at each of the following: the Promega Symposium, MAFS Meeting, Promega Direct Amp workshop, Missing and Unidentified Person Workshop, AAFS Meeting, and Bode DNA Workshop. Two analysts attended a Beckman Class for operation and maintenance of the robots and 9 attended an in-service on YSTRs.
- Goal 4 – The ABI 3500 genetic analyzer that will be used for in-house analysis of offender samples was purchased, delivered and installed. A service call has been scheduled to optimize the instrument. Two new repeat pipettors, a refrigerator and Harris



punch were also purchased for CODIS. Replacement equipment purchased included, 3 thermal cyclers, 8 pipettors, an autoclave, a hotplate/stirrer and 4 refrigerators

Goal 5 – Interpretation and statistical calculations for DNA profiles from 7 criminal paternities was outsourced. The ability to interpret criminal paternity cases in-house was attained during the grant making outsourcing additional cases for this analysis unnecessary.

**Program Successes:**

Grant funding resulted in 1103 cases being worked and 152 CODIS hits being generated. These cases would not have been able to be completed in the same timeframe without grant funded overtime. Completion of these cases had a positive impact on the backlog and case turnaround time.

Equipment purchased will give ISP the ability to analyze offender samples in-house for the first time since the Indiana program started in 1996.

Replacement equipment and service contracts aided in keeping analysts productive.

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**FY10 Recipient Name:** Marion County-Indianapolis Forensic Services Agency, Indiana

**Award Number:** 2010-DN-BX-K200

**Award Amount:** \$366,000

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Johnson County Kansas

**Award Number:** 2010-DN-BX-K159

**Award Amount:** \$146,000

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Objective 1: Dedicate personnel for biological screening and DNA analysis.

Objective 2: Increase analysis of biological evidence on violent crimes and burglaries.

Objective 3: Reduce backlogged DNA casework primarily for UCR part 1 crimes.

**PROGRESS REPORT 1: October 1, 2010 – December 31, 2010**

The (FY2010) Forensic DNA Backlog Reduction Program grant was officially awarded to the Johnson County Sheriff's Office Criminalistics Laboratory on September 16, 2010. No progress was made on this grant in the first quarter due to the open (FY2009) Forensic DNA Backlog Reduction Program grant. It is anticipated that the (FY2009) grant will be completed by July 31, 2011. Shortly thereafter, action towards completing the (FY2010) Forensic DNA Backlog Reduction Program grant will commence. There are no equipment purchases or outsourced casework analyses to be performed under the (FY2010) Forensic DNA Backlog Reduction Program grant.

PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

The (FY2010) Forensic DNA Backlog Reduction Program grant was officially awarded to the Johnson County Sheriff's Office Criminalistics Laboratory on September 16, 2010. No progress was made on this grant in the second and third quarters due to the open (FY2009) Forensic DNA Backlog Reduction Program grant. It is anticipated that the (FY2009) grant will be completed by July 31, 2011. Shortly thereafter, action towards completing the (FY2010) Forensic DNA Backlog Reduction Program grant will commence. There are no equipment purchases or outsourced casework analyses to be performed under the (FY2010) Forensic DNA Backlog Reduction Program grant.

PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

The (FY2010) Forensic DNA Backlog Reduction Program grant was officially awarded to the Johnson County Sheriff's Office Criminalistics Laboratory on September 16, 2010. No progress was made on this grant in the first, second, and third quarters due to the open (FY2009) Forensic DNA Backlog Reduction Program grant. The (FY2009) grant was completed on July 13, 2011 and work towards accomplishing the goals for this grant commenced shortly thereafter. There are no equipment purchases or outsourced casework analyses to be performed under this grant. On May 26, 2011, the Program Manager approved a change of scope GAN to use the awarded funds to pay the salary and benefits for three Forensic Scientists instead of two Forensic Scientists. This change would decrease the term of the award period to approximately 32 weeks. It is anticipated that the funding for this grant will be expended on or before March 31, 2012.

Objective 1: Dedicate personnel for biological screening and DNA analysis.

This objective has been achieved and is a work in progress. Funding for the salaries and benefits for three Forensic Scientist (FS) positions was drawn down during this reporting period. All of the grant funded FS positions are fully trained, proficiency tested, and perform casework examinations in biology processing and DNA analysis. Generally, any given case is assigned to one FS who works the case from start to finish (biology processing and DNA analysis). In the Biology section, any given case is tracked as two separate examinations. First, the evidence will be examined for biological evidence and will be statistically tracked as (1) biology case with (x) items analyzed. If biological material is indicated or identified, the evidence will be examined for DNA. The DNA examination of that same case will be statistically tracked as (1) DNA case with (x) DNA samples analyzed. The forensic casework productivity statistics for all three grant funded FS position during the fourth and fifth quarters (July 14, to Dec. 31, 2011) are listed below:

Number of Biology cases analyzed –	128	DNA profiles entered into CODIS –	84
Number of Biology items analyzed –	489	Number of CODIS hits –	7
Number of DNA cases analyzed –	126		
Number of DNA samples analyzed –	465		

Objective 2: Increase analysis of biological evidence on violent crimes and burglaries.

This objective has been achieved to date and is a work in progress. Priority analysis is given to UCR part 1 violent crimes and burglaries. There are seven FS positions assigned to the Biology section (4 budgeted FTE's + 3 granted funded FTE's). During this reporting period, an equivalent of 6 FTE's contributed to casework productivity. The DNA Technical Leader

performed duties other than casework during this reporting period. One FS was on maternity leave as well. The forensic casework productivity statistics for the entire Biology section, during the fourth and fifth quarters (July 14, to Dec. 31, 2011):

Number of Biology cases analyzed – 274  
Number of Biology items analyzed – 1044  
Number of DNA cases analyzed – 268  
Number of DNA samples analyzed – 1003  
Number of Biology items submitted for analysis – 1021  
Number of DNA items submitted for analysis – 1031

Objective 3: Reduce backlogged DNA casework primarily for UCR part 1 crimes. This objective has been achieved to date and is a work in progress. The statistics listed below represent the progress made in this reporting period and comparisons to previous years. A final analysis of the statistics will be made for the entire grant period in the final report. The forensic casework productivity statistics during the fourth and fifth quarters (July 14, to Dec. 31, 2011):

Total backlog of DNA samples at the beginning of the grant period (Oct. 1, 2010) – 472  
Total backlog of DNA samples on December 31, 2011 – 272  
Total backlog of UCR part 1 violent crime DNA samples on Dec. 31, 2011 – 78  
Total backlog of UCR part 1 burglary DNA samples on Dec 31, 2011 – 76  
Total backlog of DNA samples at the end of the grant period – pending  
Average turn-around-time (TAT) of DNA samples at beginning of grant period – 87 days  
Average TAT of DNA samples on December 31, 2011 – 46 days  
Average TAT of DNA samples at the end of grant period – pending  
Decrease in TAT (Oct. 1, 2010 average TAT minus Dec. 31, 2011 average TAT) – 41 days

Average number of DNA samples analyzed/analyst at beginning of the grant period – 32  
Average number of DNA samples analyzed/analyst for the fourth and fifth quarters – 28  
Average number of DNA samples analyzed/analyst at the end of the grant period – pending  
Increase DNA throughput for the lab (additional DNA samples analyzed per analyst) – pending

Total number of DNA samples analyzed for the year 2008 – 1791  
Total number of DNA samples analyzed for the year 2009 – 1843  
Total number of DNA samples analyzed for the year 2010 – 2146  
Total number of DNA samples analyzed for the year 2011 – 2129

Total number of DNA profiles entered into CODIS in 2007 – 296  
Total number of DNA profiles entered into CODIS in 2008 – 392  
Total number of DNA profiles entered into CODIS in 2009 – 408  
Total number of DNA profiles entered into CODIS in 2010 – 360  
Total number of DNA profiles entered into CODIS in 2011 – 367

Total number of DNA hits from CODIS in 2007 – 98

Total number of DNA hits from CODIS in 2008 – 101  
Total number of DNA hits from CODIS in 2009 – 103  
Total number of DNA hits from CODIS in 2010 – 130  
Total number of DNA hits from CODIS in 2011 – 67

Summary: The biology processing and DNA item backlogs and turnaround times are declining. The DNA backlog has decreased from 472 items on October 1, 2010 to 272 items on December 31, 2011. The biology processing backlog has decreased from 4797 items on October 1, 2010 to 1402 items on December 31, 2011. The DNA turnaround time has decreased from 87 days on October 1, 2010 to 46 days for the year ending on December 31, 2011. The output capacity for DNA analyses has remained constant over the past two years; however, the impact of the three grant funded FS represents 47 percent of the biology items examined and 46 percent of the DNA samples analyzed. A total of 2146 DNA samples were analyzed in 2010 while 2129 DNA samples were analyzed in 2011.

#### FINAL REPORT

The (FY2010) Forensic DNA Backlog Reduction Program grant was officially awarded to the Johnson County Sheriff's Office Criminalistics Laboratory on September 16, 2010. No progress was made on this grant in the first, second, and third quarters due to the open (FY2009) Forensic DNA Backlog Reduction Program grant. The (FY2009) grant was completed on July 13, 2011 and work towards accomplishing the goals for this grant commenced shortly thereafter. There were no equipment purchases or outsourced casework analyses to be performed under this grant. On May 26, 2011, the Program Manager approved a change of scope GAN to use the awarded funds to pay the salary and benefits for three Forensic Scientists instead of two Forensic Scientists. This change would decrease the term of the award period to approximately 32 weeks. The funding for this grant was expended on March 17, 2012.

Objective 1: Dedicate personnel for biological screening and DNA analysis.

This objective has been achieved as a continuation of previous NIJ DNA Backlog Reduction grant awards. The three grant funded FS positions have been previously trained; proficiency tested, and authorized to perform casework examinations in biology processing and DNA analysis. Generally, any given case is assigned to one FS who works the case from start to finish (biology processing and DNA analysis). In the Biology section, case analyses are tracked as two separate examinations. First, the evidence will be examined for biological evidence and will be statistically tracked as (1) biology case with (x) items analyzed. If biological material is indicated or identified, the evidence will be examined for DNA. The DNA examination of that same case will be statistically tracked as (1) DNA case with (x) DNA samples analyzed. The forensic casework productivity statistics for all three grant funded FS position during the entire active period of this award (July 2011 to March 2012) are listed below:

Number of Biology cases analyzed – 166	DNA profiles entered into CODIS – 103
Number of Biology items analyzed – 643	Number of CODIS hits – 18
Number of DNA cases analyzed – 160	
Number of DNA samples analyzed – 662	

Objective 2: Increase analysis of biological evidence on violent crimes and burglaries.

This objective has been achieved. Priority analysis is given to UCR part 1 violent crimes and burglaries. As of March 27, 2012, the DNA item backlog consisted of 57 items (22%) from UCR part 1 person's crimes, 75 items (29%) from burglaries, and 128 items (49%) from other crimes such as theft, auto theft, and CDP. The forensic casework productivity statistics for the entire Biology section, during the active period (July 2011 to March 2012) are listed below:

Number of Biology cases analyzed – 372  
Number of Biology items analyzed – 1412  
Number of DNA cases analyzed – 384  
Number of DNA samples analyzed – 1457  
DNA profiles entered into CODIS – 276  
Number of CODIS hits – 64  
Number of Biology items submitted for analysis – 1488  
Number of DNA items submitted for analysis – 1461

Objective 3: Reduce backlogged DNA casework primarily for UCR part 1 crimes.  
This objective has been achieved. The statistics listed below represent the progress made during the active period of this grant (July 2011 to March 2012):

Total backlog of DNA samples at the beginning of the grant period (Oct. 1, 2010) – 472  
Total backlog of DNA samples on March 27, 2012 – 260  
Total backlog of UCR part 1 violent crime DNA samples on March 27, 2012 – 57  
Total backlog of UCR part 1 burglary DNA samples on March 27, 2012 – 75  
Total backlog of DNA samples at the end of the grant period – 260  
Average turn-around-time (TAT) of DNA samples at beginning of grant period – 87 days  
Average TAT of DNA samples on March 31, 2012 – 43 days  
Decrease in TAT (Oct. 1, 2010 average TAT minus March, 2012 average TAT) – 44 days  
Average number of DNA samples analyzed/analyst at beginning of the grant period – 32  
Average number of DNA samples analyzed/analyst at the end of the grant period – 25

Total number of DNA samples analyzed for the year 2008 – 1791  
Total number of DNA samples analyzed for the year 2009 – 1843  
Total number of DNA samples analyzed for the year 2010 – 2146  
Total number of DNA samples analyzed for the year 2011 – 2129

Total number of DNA profiles entered into CODIS in 2007 – 296  
Total number of DNA profiles entered into CODIS in 2008 – 392  
Total number of DNA profiles entered into CODIS in 2009 – 408  
Total number of DNA profiles entered into CODIS in 2010 – 360  
Total number of DNA profiles entered into CODIS in 2011 – 367

Total number of DNA hits from CODIS in 2007 – 98  
Total number of DNA hits from CODIS in 2008 – 101  
Total number of DNA hits from CODIS in 2009 – 103  
Total number of DNA hits from CODIS in 2010 – 130  
Total number of DNA hits from CODIS in 2011 – 67

Summary: There are seven FS positions assigned to the Biology section (4 budgeted FTE's + 3 granted funded FTE's). During the entire active period for this award, an equivalent of 6 FTE's contributed to casework productivity. The DNA Technical Leader performed duties other than casework during this reporting period. One FS was on maternity leave as well.

The biology processing and DNA item backlogs and turnaround times are declining. The DNA backlog has decreased from 472 items on October 1, 2010 to 260 items on March 27, 2012. The biology processing backlog has decreased from 4797 items on October 1, 2010 to 1311 items on March 27, 2012. The DNA turnaround time has decreased from 87 days on October 1, 2010 to 43 days for the year ending on March 31, 2012. The output capacity for DNA analyses has remained relatively constant over the past two years; however, the three grant funded FS positions represent 46 percent of the biology items examined and 45 percent of the DNA samples analyzed over the award period.

An interesting shift in CODIS data was observed in 2011. Even though more DNA profiles were entered into CODIS in 2011 when compared to 2010 data, there were significantly fewer CODIS hits. After reviewing case data and the offense types examined, it was discovered that the number of property crime cases that received DNA analysis in 2011 decreased by approximately 50%. In 2010, approximately 36% of cases having DNA analysis performed were property crimes. In 2011, only 18% of the DNA cases analyzed were property crimes. Based on this information alone, it appears that DNA profiles obtained from property crime cases may yield more CODIS hits.

The statistics generated for the month of March 2012, was reduced significantly due to preparations for a move into a new crime laboratory. The move of the crime laboratory took place during the week of April 2, 2012. The new address for the Johnson County Sheriff's Office Criminalistics Laboratory is 11890 S. Sunset Drive, Olathe, Kansas 66061-2792.

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**FY10 Recipient Name:** Kansas Bureau of Investigation

**Award Number:** 2010-DN-BX-K172

**Award Amount:** \$386,672

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Commonwealth of Kentucky

**Award Number:** 2010-DN-BX-K118

**Award Amount:** \$585,500

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Louisiana State Police

**Award Number:** 2010-DN-BX-K099

**Award Amount:** \$1,340,084

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Massachusetts State Police

**Award Number:** 2010-DN-BX-K106

**Award Amount:** \$1,042,765

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of Boston, Massachusetts

**Award Number:** 2010-DN-BX-K122

**Award Amount:** \$307,967

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Anne Arundel County, Maryland

**Award Number:** 2010-DN-BX-K126

**Award Amount:** \$135,682

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Maryland State Police

**Award Number:** 2010-DN-BX-K102

**Award Amount:** \$359,687

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Goal – Reduce the DNA casework backlog, reduce forensic DNA sample turnaround time, and increase throughput of the DNA laboratory within the Forensic Biology Section.

Objective #1 – Eliminate the current DNA casework backlog.

Objective #2 – Continue to build infrastructure through knowledge and technology.

**PROGRESS REPORT 1: October 1, 2010 – December 31, 2010**

Goal – During the reporting period the DNA casework backlog decreased, and the turnaround time decreased. The samples analyzed per analyst remained constant.  
(See performance measures)

Objective #1 – During the reporting period a purchase order was opened for the outsourcing to be performed under this grant and a GAN was issued that removed the special conditions of the grant. No outsourcing occurred.

Objective #2 – During the reporting period 1 forensic scientist traveled to the CODIS Meeting in Salt Lake City, Utah.

PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

Goal – During the reporting period the DNA casework backlog decreased, and the turnaround time decreased while the samples analyzed per analyst increased. (See performance measures)

Objective #1 – During the reporting period 54 cases were sent to the contract lab for analysis of which 53 cases were direct outsourced from the submitting agency eliminating the need to come into the MSP-FSD laboratory and be added to the MSP-FSD backlog.

Objective #2 – During the reporting period 2 forensic scientists attended the AAFS meeting in Chicago, Illinois; 2 forensic scientists attended the Bode East Meeting in Amelia Island, Florida; and 1 forensic scientist and 1 lab tech attended the MAAFS meeting in Virginia Beach, Virginia.

PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goal – During the reporting period the DNA casework backlog and the turnaround time both slightly increased, but remained well below the starting metrics. The samples analyzed per analyst slightly decreased, but remained above the starting metric. (See performance measures)

Objective #1 – During the reporting period 133 cases were sent to the contract lab for analysis of which 77 cases were direct outsourced from the submitting agency eliminating the need to come into the MSP-FSD laboratory and be added to the MSP-FSD backlog. Also during the reporting period the Biology staff worked 106 hours of overtime reviewing the outsourced casework.

Objective #2 – During the reporting period 1 forensic scientist attended the Association of Forensic DNA Analysts and Administrators meeting in San Antonio, Texas; 2 forensic scientists attended the Green Mountain DNA Conference in Burlington, Vermont; and 1 forensic scientist attended the International Symposium on Human Identification in National Harbor, Maryland. Also during the reporting period 3 additional microscopes and 1 additional thermal cycler were purchased to minimize bottlenecks in the laboratory. Lastly, during the reporting period 18 new computers were purchased to replace the existing supply that was five years old.

PROGRESS REPORT 4: January 1, 2012 – March 31, 2012

Goal – During the reporting period the DNA casework backlog and the turnaround time both decreased. The samples analyzed per analyst significantly increased. (See performance measures)

Objective #1 – During the reporting period 13 cases were sent to the contract lab for analysis and all 13 cases were direct outsourced from the submitting agency eliminating the need to come into the MSP-FSD laboratory and be added to the MSP-FSD backlog. Also during the reporting period the



Biology staff worked 101.5 hours of overtime reviewing the outsourced casework.

Objective #2 – During the reporting period 1 additional microscope was purchased to minimize bottlenecks in the laboratory. Furthermore, ABBYY FlexiCapture Software was purchased to automate the data entry associated with DNA database sample information cards that accompany the submission of DNA database samples.

**FINAL REPORT:**

Goal – *Reduce the DNA casework backlog, reduce forensic DNA sample turnaround time, and increase throughput of the DNA laboratory within the Forensic Biology Section.*

The grant accomplished all three prongs of the goal. First, the DNA casework backlog was reduced 52% from a starting point of 153 cases to an ending point of 73 cases. Second, the forensic DNA sample turn around time was reduced 23% from a starting point of 202 days to an ending point of 156 days. Third, the throughput of the DNA laboratory was increased 64% from a starting point of 22 samples analyzed per analyst per month to an ending point of 36 samples analyzed per analyst per month.

Objective #1 – *Eliminate the current DNA casework backlog.*

During the grant period 200 cases were sent to the contract lab for analysis of which 143 cases were direct outsourced from the submitting agency eliminating the need to come into the MSP-FSD laboratory and be added to the MSP-FSD backlog. Also during the grant period the Biology staff worked 207.5 hours of overtime reviewing the outsourced casework.

Objective #2 – *Continue to build infrastructure through knowledge and technology.*

During the grant period 11 analysts and technicians participated in continuing education funded by this grant. Also, equipment purchased with funds from this grant included 4 microscopes to accommodate additional staff, 1 thermal cycler to accommodate increased in-house analysis, and 18 desktop computers to replace existing workstations that had exceeded their recommended lifespan.

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**FY10 Recipient Name:** Baltimore County, Maryland

**Award Number:** 2010-DN-BX-K072

**Award Amount:** \$228,266

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Prince George's County, Maryland

**Award Number:** 2010-DN-BX-K095

**Award Amount:** \$342,645

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Montgomery County, Maryland

**Award Number:** 2010-DN-BX-K070

**Award Amount:** \$103,236

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of Baltimore, Maryland

**Award Number:** 2010-DN-BX-K105

**Award Amount:** \$469,149

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Maine State Police

**Award Number:** 2010-DN-BX-K059

**Award Amount:** \$150,000

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Michigan State Police

**Award Number:** 2010-DN-BX-K153

**Award Amount:** \$2,322,645

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Hennepin County, Minnesota

**Award Number:** 2010-DN-BX-K155

**Award Amount:** \$107,965

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

- Goal 1 – To efficiently manage an increasing caseload of sexual assaults the lab will purchase a digital documentation system, mixture deconvolution software, and an alternate light source. *(Mixture deconvolution software was added and a fluorescent microscope removed, a GAN documenting this change was submitted.*
- ~~Goal 2 – To use funds to allow Biology staff to work overtime to help deplete the backlog of cases waiting for DNA analysis.~~ *(This goal has been eliminated and a GAN documenting this change was submitted )*
- Goal 3 – To use funds to purchase supplies to support the additional samples processed due to overtime and productivity improvements.

**PROGRESS REPORT 1:** October 1, 2010 – December 31, 2010

- Goal 1 – In this reporting period the lab continues to research vendors and suppliers

Goal 2 – ~~No overtime has been used during this reporting period.~~ (This goal has been eliminated)

Goal 3 – During this reporting period no supplies have been purchased.

**PROGRESS REPORT 2: January 1, 2011 – June 30, 2011**

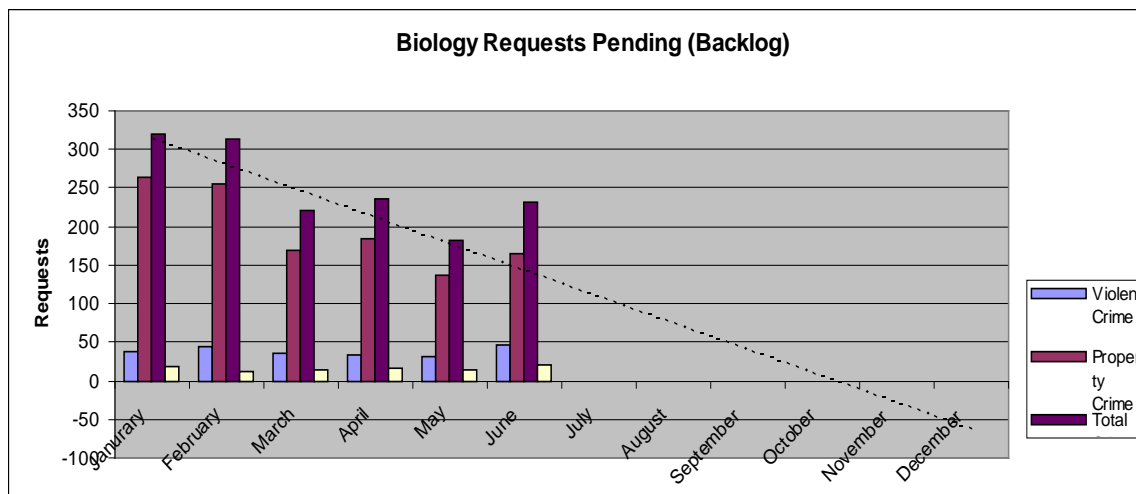
Goal 1 –The lab has requested a sole source agreement with NicheVision to purchase 6 license agreements for the mixture deconvolution software ArmedExpert. The proper requests were filed with Hennepin County Purchasing (May 2, 2011), but the lab has not yet received a go ahead with the purchase. In addition, the lab is in negotiation with a vendor (Mideo Systems) to purchase a system that will add to the lab capabilities in digital documentation and greatly enhance the current digital information and documentation system. Once final agreements can be reached, we intend to purchase in the third quarter of 2011.

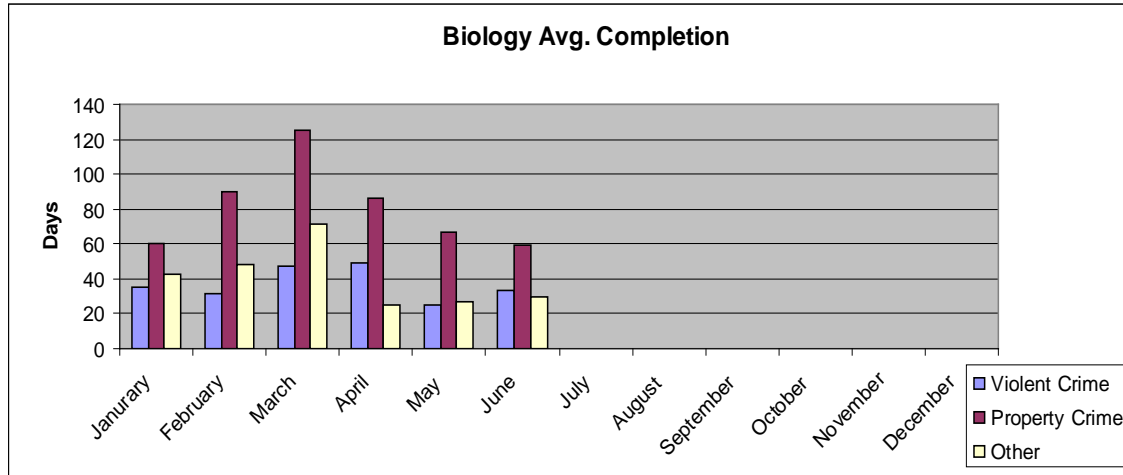
An alternate light source that has the capability of providing multi wave length light as well as magnification on an articulating arm is in the purchasing system and needs permission from county purchasing to complete the transaction.

During this reporting period the lab experienced a slight increase in backlogged cases and an increase in turn around time from previous months. This can be attributed to a full scale in-house validation of the Identifiler Plus amplification kit and a complete re-work of the labs DNA interpretation guidelines. The new guidelines are conforming to the SWGDAM recommendations. Over 1000 man hours went into this project, so the labs output was impacted.

Goal 2 – **This Goal has been eliminated**

Goal 3 – Supplies have not been purchased through the end of this reporting period. The lab intends to purchase supplies in the third or fourth quarter of 2011.





### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

**Goal 1:** During this reporting period the lab has purchased 7 users licenses for the data analysis software ArmedXpert. The system has been installed and a two day training course was provided by the vendor. The lab is currently working to validate the population stats portion of the software and implement use and workflow procedures so we can incorporate the software into our casework SOPs. The mixture deconvolution portion of the software will be implemented at a time later than the population statistics and batch searching features due to the time it will take to validate this portion of the software and then train the staff.

We are working with the vendor to allow us to use two different theta values in our population database, this has slowed down the implementation process.

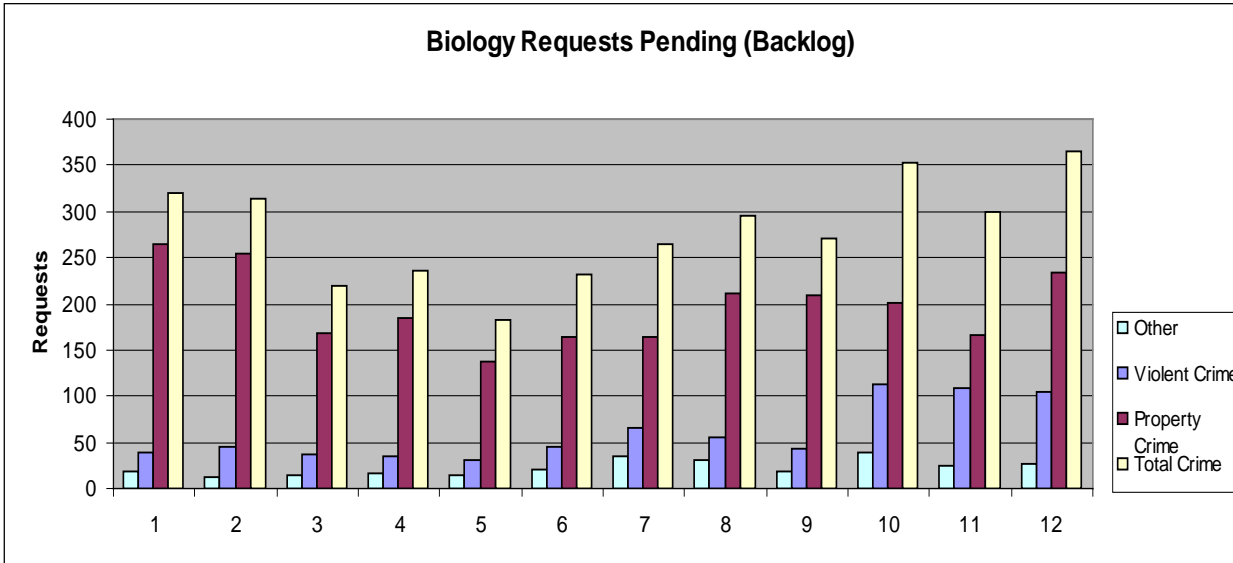
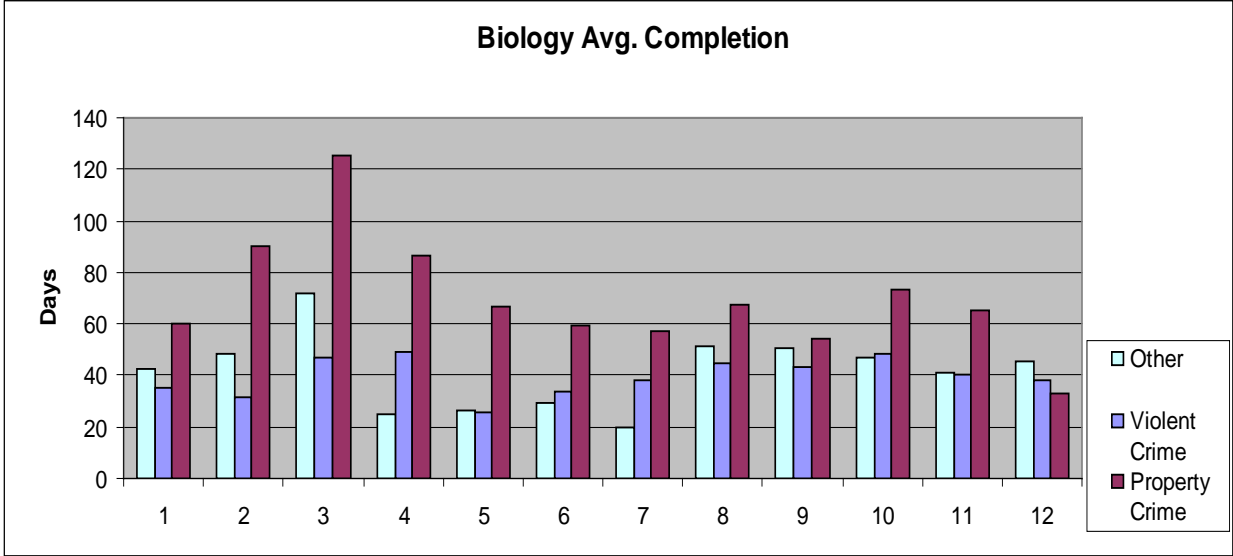
The lab purchased three user licenses for the Mideo Caseworks software to improve the documentation of biology screening case notes. This software has the ability to easily record all of the information from serology screening and produce an easy to read template with all of the relevant information as well as detailed photos of the evidence. This information can then be seamlessly transferred and stored in the labs LIMS for easy electronic review and retrieval.

The Mideo Caseworks has only recently been installed and the lab is still in the process of determining the details in exactly how it will be used and how the templates will be created.

The lab purchased and received the ALS system that will be installed in the Biology screening room to assist in the visualization of seminal fluid stains on items submitted from sexual assaults. The ALS requires installation that has been scheduled for late February.

**Goal 2 – This goal has been eliminated**

Goal 3 – Approximately \$6000 in supplies were purchased during this reporting period, however they have not yet been used for casework samples



The lab saw an uptick in the number of backlogged cases. Primary causes are big increase in submissions of property crimes and additional evidence submitted from cases worked under a cold case grant. In addition one DNA analysts left in August and another has been out on extended maternity leave.

FINAL REPORT:

Goal 1: To efficiently manage an increasing caseload of sexual assaults the lab will purchase a digital documentation system, mixture deconvolution software, and an alternate light source.

Final Progress: The Hennepin County Sheriff's Crime Lab purchased the Mideo Caseworks software package to more effectively and efficiently document evidence and be able to maintain an electronic copy of evidence images and associated notes. The software package has been completely installed and training of analysts has been completed. Casework implementation is expected in the third quarter of 2012.

The lab will use this software to digitally capture images of the evidence and then load the images on to a notes template that will contain a checklist of information relating to observations, tests and other pertinent data. This notes report will then be stored in the laboratories information management system and can be easily accessed for review, and final reporting. This new software will replace the labs current method of evidence documentation which consisted of handwritten sketches, and descriptive narratives of the evidences appearance. As the new software is implemented we anticipate a substantial increase in biology screening efficiency and the screening process will be more complete and have a very professional appearance.

Mixture deconvolution software was purchased to assist in breaking the bottleneck in the DNA data analysis and report generation stage. Batch processing, while extremely efficient in moving samples through the DNA processing stage, tends to dump voluminous amounts of data on the reporting analyst and this portion of the process has become our rate limiting step. ArmedExpert from Nichevision, has been completely installed and training of seven analysts has been completed. Casework implementation is expected in the fourth quarter of 2012. With ArmedXpert it is anticipated that reporting analysts will be able to drop the ad hoc system currently in use and combine a majority of the data analysis into this one program, creating a more consistent and simplified way to manage data, interpret mixtures, perform statistical analysis and enter samples to CODIS.

A forensic alternate light source (ALS) was purchased from Foster and Freeman. This light has been installed and is operational. Screening evidence for biological fluids is a critical aspect in forensic biology, this instrument is a significant upgrade from the labs previous handheld ALS.

Purchasing and implementing new software into casework procedures takes time. Performance metrics have not been significantly affected by the new processes due to the lack of time since implementation; however, experience suggests the lab will see improved productivity in the future due to the new software and this will be reflected in productivity measurements in future awards.

This goal has been met.

Goal 2 – To use funds to purchase supplies to support the additional samples processed due to productivity improvements.

Final Progress: Because of continued productivity improvements the HCSO now processes over 3000 DNA casework samples per year compared to approximately 1700 samples in 2009, an increase of 76% in just two years. The HCSO used funds from this award to purchase approximately \$7,000 in supplies. Supplies included capillary arrays, personal protective equipment, pipette tips, CE supplies, pH meter, vortex mixers and pipettes. The lab purchased two Hand held CrimeLights® for the identification of seminal fluid stains at crime scenes.

Performance metrics attributed to supplies funded by this award are based on the percentage of award funds to overall Biology lab supply budget. The award funds for supplies represent approximately 1.1% of the labs 18 month supply budget. The lab has a CODIS hit rate (Total CODIS hits/specimen entries) of 45.3%. These values are used to determine the number of CODIS samples entered and CODIS hits attributable to supply funds.

During this award period the HCSO lab submitted 717 samples for inclusion to CODIS. Applying the 1.1% value to total CODIS submissions, 8 CODIS submissions can be attributed to this award. Since the labs CODIS hit rate is approximately 50%, 4 CODIS hits can be attributed to this award. The following cases are representative of the CODIS submissions and CODIS matches generated by the HCSO Lab using supply funds from this award:

Case No.	Offense	Results
1. 11-0459	Robbery	CODIS match to profile from a glove
2. 11-0703	Residential Burglary	CODIS match to profile from a water bottle
3. 11-0885	Residential Burglary	CODIS match to profile from blood on a shirt
4. 11-1047	Sexual Assault	Unidentified male profile submitted to CODIS
5. 11-1303	Accident – Fleeing scene	Unidentified profile from airbag submitted to CODIS
6. 11-1315	Theft from Auto	CODIS match to profile from an allen wrench ratchet
7. 11-1624	Business Burglary	Unidentified profile from a glove submitted to CODIS
8. 11-2247	Residential Burglary	Profile from a bandaid matching suspect offered to CODIS

This goal has been met.

**FY10 Recipient Name:** Minnesota Department of Public Safety

**Award Number:** 2010-DN-BX-K164

**Award Amount:** \$527,121

**Final Report:**

GOALS AND OBJECTIVES OF PROJECT: The overall goals of the 2010 grant are to identify and reduce the number of backlogged DNA cases and support activities that contribute to high quality work in the DNA area.

The plan outlined to accomplish these goals, along with the progress of each plan are listed below.

- Goal 1: Increase personnel capacity to by funding paid overtime hours for DNA scientist to perform both serological examinations and DNA analysis on backlogged cases AND by funding a temporary position to support the Biology section.
- Goal 2: Support the analysis of Biology cases through the purchase of consumable supplies used to perform serological examinations and DNA analysis.
- Goal 3: Support the analysis of Biology cases through the purchase of instrumentation that would either increase capacity or replace instruments toward the end of their life-cycle.
- Goal 4: Support the continued quality of work by providing funding for DNA scientists to attending training events.
- Goal 5: Support of DNA casework through the funding of service contracts to ensure that the instrumentation used is maintained in good working order and repairs are made in a timely manner.

PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

The BCA Forensic Science Service conduct DNA analysis in two laboratories, one in St. Paul and one in Bemidji, MN. The 2010 DNA Backlog Reduction grant became available in October, 2010. However, The BCA Lab system is still utilizing portions of the 2009 DNA Backlog Reduction grant until the end of March 2011.

\*No overtime hours have been funding with grant money during this reporting period.

- Goal 1: No funding from this grant has been used to fund this position this reporting period. The position continues to be funded with 2009 DNA Backlog Grant funding through March 31, 2011.
- Goal 2: No supplies were purchased with grant funding during this reporting period.
- Goal 3: No instruments were purchases with grant funding during this reporting period.
- Goal 4: No training events were attending with the use of grant funding during this reporting period.
- Goal 5: No 2010 grant funding was used for service contracts during this reporting period. Service contracts on all instrumentation will continue to be funded with 2009 DNA Backlog Reduction Grant through March 31, 2011.

PROGRESS REPORT 2: January 1, 2011 – June 30, 2011



The BCA Forensic Science Service conduct DNA analysis in two laboratories, one in St. Paul and one in Bemidji, MN. The 2010 DNA Backlog Reduction grant became available in October, 2010. However, The BCA Lab system is still utilizing portions of the 2009 DNA Backlog Reduction grant until the end of March 2011.

Goal 1a: Laboratory Management determined to utilize State funding for all overtime until the end of the State Fiscal Year 11, which ended on June 30, 2011.

Therefore, no overtime hours have been funding with grant money during this reporting period.

Goal 1b: This position was funded through the 2009 DNA Backlog Reduction Grant through March 31, 2011. Funding for the position was changed to the 2010 Backlog grant as of April 1, 2011 and funding continued through June 30, 2011.

Goal 2: Laboratory Management determined to utilize State funding for all supplies until the end of the State Fiscal Year 11, which ended on June 30, 2011. Therefore, no supplies were purchased with grant funding during this reporting period.

Goal 3: A GAN was submitted to NIJ in February, 2011 which requested changes to the types of equipment to be purchased with grant funding. The approved GAN allowed for the trade-in of two of the existing AB 7000 Real Time PCR units toward the purchase of two AB 7500 Real-Time units and a centrifuge in place of the liquid handling systems that were part of the original approved budget. As stated in the GAN, the Laboratory had used 2009 DNA Backlog Reduction grant money to purchase the liquid handling systems.

During this reporting period, the BCA initiated the purchasing process for the following equipment items:

- 2 – AB 7500 Real-Time PCR instruments
- 2 – AB 9700 Thermocyclers
- 1 – QIAgen 4 – 16 centrifuge

At the end of the reporting period, the two AB 7500 instruments have been delivered, one to the St. Paul laboratory and one to the Bemidji Laboratory. Both instruments have been set-up by an AB technician. Validation studies are currently in progress to bring these instruments on-line. The AB 9700 thermocyclers and the QIAgen centrifuge have also been delivered and are already in use for casework.

Goal 4: No training events were attending with the use of grant funding during this reporting period.

Goal 5: Service contracts on all instrumentation was funded with 2009 DNA Backlog Reduction Grant through March 31, 2011. Beginning April 1, 2011, all instrumentation not covered under warranty was covered under a service contract with AB funded with the 2010 DNA Backlog Reduction Grant.

### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goal 1a: The BCA Laboratory began using the grant to fund overtime for scientists to work on backlog cases during the pay period ending August 2. During this report period, a total of 725 hours of overtime were claimed to work on part or

all of 757 cases. This comprised approximately 48% of all cases reported by the BCA FSS during this reporting period.

- Goal 1b: The support position continued to be funded by the 2010 DNA Backlog Reduction Grant on a full time basis through the reporting period. The person in this position performed all quality control procedures on instruments and reagents and was responsible to keeping QC records for the section. As a result, DNA scientists would focus on casework.
- Goal 2: The BCA began using the grant to purchase supplies for DNA analysis in July. During this reporting period a total of \$88,922.05 of grant funding was used to purchase supplies. The majority of this funding was used to purchase amplification kits from Applied Biosystems and DNA extraction kits from Promega. The kits were not in wide spread use by the end of this grant period.
- Goal 3: No additional equipment was purchased with grant funding during this reporting period. Validations studies and performance checks were completed on all the instruments purchased during the previous reporting period and are now on-line for casework.
- Goal 4: Two BCA scientists attended the Promega International Symposium of Human Identification in Washington, D.C in October. Travel, lodge, meals, and registration fees for the symposium were paid using grant funding. One scientist attended a familial searching workshop and the other attended a workshop on mixture interpretation while at the symposium.
- Goal 5: All instrumentation not covered under warranty was covered under service contracts. Preventive Maintenance procedures were performed on all genetic analyzers in Bemidji and St. Paul during this reporting period. Also during this reporting period, the BCA Laboratory made use of a state agreement with Specialty Underwriters, Inc. to facilitate the service contracts with AB. This contract resulted in a savings in the overall cost of the service contracts to the State of Minnesota

Performance Measure Calculations: BCA scientists track the case numbers of the cases they work using overtime hours on their time books. These case numbers were transferred to a spreadsheet and a comparison was made to the spreadsheets used to track CODIS uploads and CODIS hits over the reporting period to which of these cases resulted in a profile being uploaded or a CODIS hit. All profiles uploaded CODIS were profiles entered into the Forensic Database and does not include any samples uploaded to the Offender Database, since no grant funding was used for offender samples. Supplies were purchased for DNA testing during this reporting period, but were not yet in widespread use by the end of December. Therefore no cases were counted as being worked with the supplies purchased with grant funding.

FINAL REPORT: January 1, 2012 – March 31, 2012 - Final

- Goal 1a: BCA DNA scientists claimed a total of 119 hours to perform analysis on part or all of 111 cases during this reporting period. This means that the grant provided a total of 844 hours of overtime that BCA scientists utilized to work on part or all of 868 cases. The number of cases worked with overtime hours during this

period (111) were not counted in the total number of cases analyzed with grant funding, as they would have been counted twice.

- Goal 1b: The Research Scientist 1 support position was funded by the 2010 DNA Backlog Reduction Grant on a full time basis through the pay period ending February 14, 2012. The person in this position performed all quality control procedures on instruments and reagents and was responsible to keeping QC records for the section. As a result, DNA scientists would focus on casework.
- Goal 2: The BCA FSS utilized grant funding to purchase a number of DNA amplification and quantitation kits from Applied Biosystems, as well as some miscellaneous consumable supplies used in DNA analysis during this reporting period. All cases in which DNA analysis was performed during this period utilized amplification, quantitation kits, or both, that were purchased with grant funding. Therefore, the number of cases reported as being analyzed and reported as a result of the grant is the total number of the cases in which DNA was performed.
- Goal 3: No additional equipment was purchased with grant funding during this reporting period. Validations studies and performance checks were completed on all the instruments purchased during the previous reporting period and are now on-line for casework.
- Goal 4: No BCA scientists attending training during this reporting period.
- Goal 5: All instrumentation not covered under warranty was covered under service contracts utilizing a State contract with Specialty Underwriters. No service calls were necessary on any instrumentation during this reporting period and all instruments were on-line for the entire period.

Performance Measure Calculations: All DNA cases analyzed and reported during this reporting period utilized supplies purchased with 2010 DNA Backlog Grant funding. Therefore, the number of cases reported in the performance metrics reflects the total number of DNA cases reported during this grant period. BCA scientists track the case numbers of the cases they work using overtime hours on their time books. However, cases worked with overtime funding were not included in totals for this period to avoid counting them twice.

The number of CODIS uploads represents the total number of samples uploaded to the forensic database during the reporting period and does not include any samples uploaded to the Offender Database, since no grant funding was used for offender samples. The number of CODIS hits attributed to the grant during this grant period was determined by comparing the case numbers from all CODIS hits (from the CODIS Scorecard) to the case numbers of all cases worked with grant funding during this period.

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**FY10 Recipient Name:** St. Louis County, Missouri

**Award Number:** 2010-DN-BX-K149

**Award Amount:** \$170,244

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Goal 1 - To maintain two full-time and one part-time biological screener and a part-time technician to assist with maintaining and/or reducing the turn-around-time and increase the number of eligible samples entered into the CODIS database.

Goal 2 - To purchase equipment to facilitate the implementation of a LIMS system.

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

Goal 1 - To maintain two full-time and one part-time biological screener and a part-time technician to assist with maintaining and/or reducing the turn-around-time and increase the number of eligible samples entered into the CODIS database.

Progress (October 1, 2010 - December 31, 2010) Two full-time employees' positions were maintained with grant funding. One finished her training program on December 7, 2010 and is working independently. A part-time biological screener continues to assist the Biology/DNA unit. A part-time DNA technician, is still currently in training with an anticipated completion date of January 2011. One analyst has been on maternity leave since September 13th and is scheduled to return from leave in January 2011. The St. Louis County Crime Laboratory has seen an increase in turn-around-time for this reporting period. There are several factors which have negatively impacted the backlog. The DNA Unit has seen a 62 % increase in the number of cases submitted. The DNA technical leader gained additional duties in July, 2010 and has had limited time to handle casework samples. The St. Louis County Crime Laboratory is implementing a new LIMS system and this process has taken analysts away from casework. Despite all the factors above which negatively impact the backlog, the grant funded employees have assisted in making this significant increase in caseload a manageable task. The St. Louis County Crime Laboratory has seen an increase in the number of CODIS hits obtained.

Goal 2 - To purchase equipment to facilitate the implementation of a LIMS system.

Progress (October 1, 2010 – December 31, 2010) The Biology/DNA Unit is in the process of finalizing the configuration of the new LIMS system. Due to St. Louis County Purchasing Guidelines, no purchases can be made from October through mid January. Once the restrictions are listed bids will be put out for the requested equipment.

\* The performance metric data submitted for the July – December reporting period covers metrics from Oct. 1, 2010 – December 30, 2010. The 2010 DNA Backlog Reduction Grant started on Oct. 1, 2010. The July – Sept. metrics were reported under the 2009 DNA Backlog Reduction Grant.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

Goal 1 - To maintain two full-time and one part-time biological screener and a part-time technician to assist with maintaining and/or reducing the turn-around-time and increase the number of eligible samples entered into the CODIS database.

Progress (January 1, 2011 – June 30, 2011) - All grant funded employees are currently fully trained and working independently. Despite the increase in cases submitted to the laboratory for analysis the turn-around-time decreased from 300 days to 264 days. The DNA Unit uploaded 178 samples to the CODIS database and received 73 hits for this reporting period. The DNA Unit is currently on track for a 22% increase in the number of CODIS Hits for

2011.

Goal 2 - To purchase equipment to facilitate the implementation of a LIMS system.

Progress (January 1, 2011 – June 30, 2011) - The LIMS system implementation has currently been put on hold due to unforeseen circumstances. The funds that were appropriated for the LIMS system implementation will now be used to purchase computer equipment to upgrade our current CODIS server to support the pending software upgrade. A purchase request has been made through departmental purchasing procedures for the CODIS equipment.

FINAL REPORT: October 1, 2010 – September 30, 2011

Goal 1 - To maintain two full-time and one part-time biological screener and a part-time technician to assist with maintaining and/or reducing the turn-around-time and increase the number of eligible samples entered into the CODIS database.

Progress (October 1, 2010 – September 30, 2011)

The two full-time and one part-time biological screener and part-time technician have completed 696 biology cases during this grant award. The part-time technician has also assisted the laboratory with administrative duties, reagent preparation and critical reagent analysis. The work performed by these grant funded individuals allows the DNA analysts to work full-time in the DNA unit. The St. Louis County Police Crime Laboratory Biology/DNA Unit saw a decrease in turn-around-time from 300 days to 190 days. This decrease in turn-around-time is partially due to limiting offenses which will be analyzed by the laboratory, however, without these grant funded individuals the full-time DNA analysts would also be required to screen all the cases which could potentially increase the turn-around-time to triple its current levels.

\* The 696 cases completed noted under the final “optional” metric is for cases completed during the grant award period (October 1, 2010 – September 30<sup>th</sup>, 2011) by the grant funded biological screeners. The metrics reported for cases completed under the “optional” metrics for grant period October – December, 2010 and January – June, 2011 were reported for DNA cases completed only. During those grant periods the “optional” metrics were interpreted as being for DNA cases completed only due to samples per analyst only being reported for DNA in addition to the metric requesting CODIS upload information. The current statistical tracking mechanism the laboratory uses will not accurately accommodate capturing this information after the reporting period therefore, the “final” optional metric is the correct number of cases completed by grant funded analysts. It should be noted that the samples uploaded to CODIS and Hits obtained is still accurate for all reporting periods since all biological screening analysis is done by grant funded employees.

Goal 2 - To purchase equipment to upgrade our current CODIS server to support a CODIS software upgrade.

Progress (October 1, 2010 – September 30, 2011)

The FBI is in the process of upgrading the CODIS software used for DNA searches. The new software will be implemented by state, and minimum hardware requirements must be met to support the new software. A CODIS server, two client computers, a printer and

associated computer parts were purchased and received by the laboratory. The state of Missouri is currently scheduled for the upgrade in early 2012 and our new server will be installed in concordance with the upgrade. The additional CODIS workstations and printer will be installed upon the completed background check of the designated computer services individual who is assigned to the laboratory for CODIS computer maintenance. This purchase will allow the continued use of the CODIS system for investigative purposes by the St. Louis County Police Crime Laboratory DNA Unit. Without this purchase, the DNA Unit would not be able to use CODIS as an investigative aid which would be a great disservice to the citizens of St. Louis County.

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**FY10 Recipient Name:** St. Louis Metro Police Department, Missouri

**Award Number:** 2010-DN-BX-K147

**Award Amount:** \$350,292

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Goal 1 – Decrease backlog of DNA cases by hiring additional department employees

Goal 2 – Decrease backlog of cases by using overtime to screen evidence and perform DNA analysis.

**PROGRESS REPORT 1: October 1, 2010 – December 31, 2010**

Goal 1 – Decrease backlog of DNA cases by hiring additional department employees

PROGRESS (Oct-Dec 2010) – The laboratory has one signed off DNA analyst and a new hire is set to start training in January. We are continuing to interview applicants to fill a third position.

Goal 2 – Decrease backlog of cases by using overtime to screen evidence and perform DNA analysis.

PROGRESS (Oct-Dec 2010) – Due to the ongoing 2009 DNA Backlog Reduction Grant, no work has commenced for the 2010 DNA Backlog Grant. Since there has been no completed DNA analysis as of this writing, no samples have been entered into CODIS to produce possible hits. We do anticipate CODIS entries and hits by the next reporting period. The laboratory still anticipates meeting the commitment of completing at least 350 cases by the end of the 2010 Grant period.

SLMPD would like to thank NIJ for making these funds available as well as all the support resources that are provided with this funding. The crime lab is more than satisfied with these results and will continue to have long term benefits from this funding.

**PROGRESS REPORT 2: January 1, 2011 – June 30, 2011**

Goal 1 – Decrease backlog of DNA cases by hiring additional department employees

PROGRESS (Jan. 1 – June 30, 2011) – The laboratory has one DNA analyst in training. We are continuing to interview applicants to fill the other 2 positions. We had an analyst in training but she accepted another position. We hired the part-time analyst in mid-June. She is completely trained and continues to work as the CODIS assistant and DNA analyst. She has not completed any casework at this time as her time has been spent assisting the CODIS Administrator.

Goal 2 – Decrease backlog of cases by using overtime to screen evidence and perform DNA analysis.

PROGRESS (Jan. 1 – June 30, 2011) – In 2009 – 2010 the laboratory inventoried all its freezers with samples dating back to pre-1986 and researched all the cases. Any case within the statute of limitations that had not already been adjudicated and still had probative evidence was added to the DNA backlog. This increased our backlog numbers significantly. The project is ongoing and we expect to see a continued increase in the number of cases eligible for work under the Backlog Reduction Grant. The laboratory however, has already met its commitment of completing at least 350 cases by the end of the 2010 Grant period. Overtime funds from the FY2010 grant were available starting 02/28/11 and these cases were completed using overtime funds as the analyst[s] hired with grant funds are still in training. SLMPD would like to thank NIJ for making these funds available as well as all the support resources that are provided with this funding. The crime lab is more than satisfied with these results and will continue to have long term benefits from this funding.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goal 1 – Decrease backlog of DNA cases by hiring additional department employees  
PROGRESS (July. 1 – December 31, 2011) – The laboratory has three DNA analysts hired and in training. We hired the part-time analyst in mid-June. She is completely trained and continues to work as the CODIS assistant and DNA analyst. She has not completed any casework at this time as her time has been spent assisting the CODIS Administrator.

Goal 2 – Decrease backlog of cases by using overtime to screen evidence and perform DNA analysis.

PROGRESS (July 1 – December 31, 2011) – In 2009 – 2010 the laboratory inventoried all its freezers with samples dating back to pre-1986 and researched all the cases. Any case within the statute of limitations that had not already been adjudicated and still had probative evidence was added to the DNA backlog. This increased our backlog numbers significantly. The project is ongoing and we expect to see a continued increase in the number of cases eligible for work under the Backlog Reduction Grant. The laboratory however, has already met its commitment of completing at least 350 cases by the end of the 2010 Grant period. Overtime funds from the FY2010 grant were available starting 02/28/11 and these cases were completed using overtime funds as the analyst[s] hired with grant funds are still in training.

SLMPD would like to thank NIJ for making these funds available as well as all the support resources that are provided with this funding. The crime lab is more than satisfied with these results and will continue to have long term benefits from this funding.

#### FINAL REPORT:

Goal 1 – Decrease backlog of DNA cases by hiring additional department employees

PROGRESS (October 1, 2010 – December 31, 2011) – The three DNA analysts hired and in training are expected to complete their training by the end of March or early April. Once signed off, it is expected that the backlog numbers will decrease. We hired the part-time analyst in mid-June. She is completely trained and continues to work as the CODIS assistant and DNA analyst. She has not completed any casework at this time as her time has been spent assisting the CODIS Administrator, however, she is in the process of beginning some casework.

Goal 2 – Decrease backlog of cases by using overtime to screen evidence and perform DNA analysis.

PROGRESS (October 1, 2010 – December 31, 2011) – In 2009 – 2010 the laboratory inventoried all its freezers with samples dating back to pre-1986 and researched all the cases. Any case within the statute of limitations that had not already been adjudicated and still had probative evidence was added to the DNA backlog. This increased our backlog numbers significantly. The project is ongoing and we expect to see a continued increase in the number of cases eligible for work under the Backlog Reduction Grant. The laboratory however, has met its commitment of completing at least 350 cases by the end of the 2010 Grant period. Overtime funds from the FY2010 grant were available starting 02/28/11 and these cases were completed using overtime funds as the analyst[s] hired with grant funds are still in training. The turnaround time also increased dramatically. That was due to report review. This is expected to decrease in the future due to a reorganization of the job roles here in our laboratory.

SLMPD would like to thank NIJ for making these funds available as well as all the support resources that are provided with this funding. The crime lab is more than satisfied with these results and will continue to have long term benefits from this funding.

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**FY10 Recipient Name:** St. Charles County, Missouri

**Award Number:** 2010-DN-BX-K148

**Award Amount:** \$36,866

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

The primary objective of this DNA backlog reduction award is to increase the overall DNA analysis throughput of the SCCSDCL's DNA Section. Three goals for this award are:

- 1) Reduce the turnaround time for DNA cases to less than 55 days
- 2) Increase the average number of DNA samples analyzed per analyst to greater than 40/month
- 3) Reduce the DNA backlog by 20%

**PROGRESS REPORT 1:** October 1, 2010 – December 31, 2010

The St. Charles County Sheriff's Department Criminalistics Laboratory [SCCSDCL] performed limited activity specifically related to this award during the period October 1 to December 31, 2010.

In addition to accepting the award, minimal supplies were purchased (pipette tips and one 3130 capillary array). These supplies have not yet been used for casework. Baseline data



was provided for the Performance Metrics; however, since there was limited activity related to this award, no other data was reported and was indicated as “NA” in the report. Data for this period was included in the laboratory’s FY09 Backlog Reduction semi-annual progress report. Once the overtime funding from the Lab’s FY09 award is spent down (anticipated January 2011), funding from this FY10 award will be used for reimbursing overtime expenses as well as the purchase of additional supplies approved under this award.

The primary objective of this DNA backlog reduction award is to increase the overall DNA analysis throughput of the SCCSDCL’s DNA Section. Three goals for this award are:

- 1) Reduce the turnaround time for DNA cases to less than 55 days
- 2) Increase the average number of DNA samples analyzed per analyst to greater than 40/month
- 3) Reduce the DNA backlog by 20%

These goals will be accomplished by using funding from this award to increase the overall efficiency of the DNA Section through the purchase of DNA supplies and analyst overtime to process DNA cases.

The SCCSDCL anticipates successful completion of this program within the grant period.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

The primary objective of this DNA backlog reduction program is to enhance the capacity and reduce the backlog of the St. Charles County Sheriff’s Department Criminalistics Laboratory’s (SCCSDCL) DNA Section through the prudent use of analyst overtime and the purchase of DNA testing supplies. Three goals for this award are:

- 1) Reduce the DNA backlog by 20%
- 2) Reduce the turnaround time for DNA cases to less than 55 days
- 3) Increase the average number of DNA samples analyzed per analyst to over 40/month

The SCCSDCL worked 197 hours of overtime under this award during the reporting period (January – June 2011) - after it completed working overtime under its previous DNA Capacity award (FY09). This included approximately 20 hours to validate the laboratory’s new EZ-1 robot. During the reporting period gloves, pipet tips, a genetic analyzer capillary array and DNA extractors were purchased and used for casework analysis.

Goal #1: At the end of the reporting period the DNA backlog was 302 cases. An increase of 28% since the beginning of the award period.

Goal #2: At the end of the reporting period the turnaround time was 156 days.

Goal #3: The average number of samples analyzed/analyst/month was 24 at the end of the reporting period and was 45 for February and March 2011.

Circumstances Affecting Goals: The number of DNA cases submitted for analysis has remained steady as compared to the first 6 months of 2010. Time spent on EZ-1 validation, rewriting manuals and updating DNA protocols pulled analysts away from some of their

casework responsibilities. Towards the end of the reporting period one of the Lab's DNA analysts was pulled away from DNA responsibilities to spend significant time working cases in another discipline. This left only one analyst to work DNA cases.

The SCCSDCL anticipates successfully completion of this project by the end of the project period.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

The primary objective of this DNA backlog reduction program is to enhance the capacity and reduce the backlog of the St. Charles County Sheriff's Department Criminalistics Laboratory's (SCCSDCL) DNA Section through the prudent use of analyst overtime and the purchase of DNA testing supplies. Three goals for this award are:

- 1) Reduce the DNA backlog by 20%
- 2) Reduce the turnaround time for DNA cases to less than 55 days
- 3) Increase the average number of DNA samples analyzed per analyst to over 40/month

The SCCSDCL worked 210.5 hours of overtime under this award during the reporting period (July – December 2011). This included approximately 20 hours spent validating a new amplification kit (ID+) and the laboratory's 3130 genetic analyzer. During the reporting period pipet tips, reaction tubes & strips, septa, and genetic analyzer capillary arrays were purchased and for casework analysis.

Goal #1: At the end of the reporting period the DNA backlog was 516 cases (less than 5% are crimes against persons).

Goal #2: At the end of the reporting period the average turnaround time was 100 days. A decrease of 36% from last reporting period.

Goal #3: The average number of samples analyzed/analyst/month was 31 for the reporting period. An increase of 25% from the last reporting period.

Circumstances Affecting Goals: The number of DNA cases (particularly property crimes) submitted for analysis has increased significantly as compared to the first 6 months of 2010. Time spent on validation, updating DNA manuals & protocols and an internal DNA audit pulled analysts away from casework responsibilities. Additionally, one of the Lab's two DNA analysts was pulled away from DNA responsibilities to spend significant time working cases and training an analyst in another discipline. This left only one analyst to work DNA cases.

The SCCSDCL anticipates successfully completion of this project by the end of the project period.

#### FINAL REPORT:

The primary objective of this DNA backlog reduction program is to enhance the capacity and reduce the backlog of the St. Charles County Sheriff's Department Criminalistics Laboratory's (SCCSDCL) DNA Section through the prudent use of analyst overtime and the purchase of DNA testing supplies. Three goals for this award are:

- 1) Reduce the DNA backlog by 20%

- 2) Reduce the turnaround time for DNA cases to less than 55 days
- 3) Increase the average number of DNA samples analyzed per analyst to over 40/month

The SCCSDCL worked 503 hours of overtime under this award from February 2011 thru March 2012. This included approximately 20 hours spent validating a new amplification kit (ID+) and the laboratory's 3130 genetic analyzer. During the project period pipet tips, reaction tubes & strips, septa, and genetic analyzer capillary arrays were purchased for casework analysis.

Goal #1: At the end of the project period the DNA backlog was 493 cases (less than 5% are crimes against persons).

Goal #2: At the end of the project period the average turnaround time was 228 days. The average during the entire project was 161 days.

Goal #3: The average number of samples analyzed/analyst/month was 43 at the end of the project period. An increase of almost 80% from the beginning of the project period.

#### Circumstances Affecting Goals:

The extreme increase in the number of DNA cases (particularly property crimes) submitted for analysis during the project period as compared to early 2010 - when the application was written and the goals/objectives established for this project – directly contributed to the rise in the DNA case backlog. Time spent on validation, updating DNA manuals & protocols and an internal DNA audit pulled analysts away from casework responsibilities during the project. Additionally, one of the Lab's two DNA analysts was pulled away from DNA responsibilities to spend significant time working cases and training an analyst in another discipline. This left only one analyst to work DNA cases during several months of the project period. These factors decreased the number of cases that could be analyzed and contributed to an increase in the turnaround time. An emphasis on working some of the older backlogged DNA property crime cases during the first 3 months of 2012 also directly contributed to a sharp rise in the turnaround time at the end of the project period.

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**FY10 Recipient Name:** Missouri State Highway Patrol

**Award Number:** 2010-DN-BX-K173

**Award Amount:** \$433,826

#### **Final Report:**

##### **GOALS AND OBJECTIVES OF PROJECT:**

A goal of this program is to leverage the automation capacity of our laboratory to facilitate an increase in throughput and a decrease in backlogs. A tangential goal of automation of the DNA procedure is to allow casework Criminalists more time for the decision-making and interpretation steps essential to the analysis process.

It is anticipated that the purchase of an eight-capillary Genetic Analyzer, supplies and the funding to cover our annual maintenance agreements for 10 instruments will help us achieve our goals of reducing our backlog by 30% and reducing our average turnaround below 200 days. We would anticipate completing an additional 635 cases in house in 18 months. Using

the Federal funding requested under this FY2010 program should reduce the backlog by 30%. Currently our average DNA Sample throughput per criminalist per month is 20 samples. In addition to our efforts to reduce the backlog by 30%, our goal would be to increase our sample throughput by 30% as well to 26 samples per criminalist per month

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

##### Purpose, Goals, and Objectives

The overall goals of the program are to leverage the laboratory's automation capacity in order to reduce the backlog by 30%, and increase our sample throughput to 26 samples per criminalist per month.

##### Progress update

Since October 1, 2010 under this award (2010-DN-BX-K173), we have purchased \$39,753.15 in consumables and have put out for bid on a microscope.

##### Program challenges

Monthly DNA case submissions continue to increase at an alarming rate. Validating and learning all of our new technology and bioinformatics (obtained from previous grants) has become a challenge. Moving people off casework to focus on validation is a delicate balancing act. At the present time we currently have three validation projects ongoing. We are making significant changes under these grant programs; however, validation and changing workflow is time consuming and challenging. Our backlogs and turnaround are currently suffering as we accomplish these tasks. Our hope is that when finally implemented, the changes under these grant programs will significantly improve our workflow and enable to better meet these challenges.

##### Conclusions

We have only begun spending down this grant, most of our focus of this grant was to purchase consumables to leverage our automation capacity once up and running. We are on pace to be up and running with our automation and informatics in the first quarter of 2011. At that point, we plan to purchase a 3500 genetic analyzer to further increase our capacity.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

##### Purpose, Goals, and Objectives

The overall goals of the program are to leverage the laboratory's automation capacity in order to reduce the backlog by 30%, and increase our sample throughput to 26 samples per criminalist per month.

##### Progress update

Since January 1, 2011 under this award (2010-DN-BX-K173), we have purchased an additional \$28,786.75 in consumables, purchased two comparison microscopes, maintenance contracts for fourteen instruments and a 3500 Genetic Analyzer.

##### Program challenges

Monthly DNA case submissions continue to increase at an alarming rate. Validating and learning all of our new technology and bioinformatics (obtained from previous grants) has

become a challenge. Moving people off casework to focus on validation is a delicate balancing act. At the present time we currently have three validation projects ongoing.

We are making significant changes under these grant programs; however, validation and changing workflow is time consuming and challenging. Our backlogs and turnaround are currently suffering as we accomplish these tasks. Our hope is that when finally implemented, the changes under these grant programs will significantly improve our workflow and enable to better meet these challenges.

#### Conclusions

We have made significant progress spending down this grant, most of our focus of this grant was to purchase consumables to leverage our automation capacity once up and running. We had a goal of being up and running with our automation and informatics in the first quarter of 2011. As of June 1, 2011 we were up and running with our Tecan robotic workstation. Our STaCS LIMS project is nearing completion; during implementation we required some additional customization that pushed us back a couple months. We should have STaCS and the Tecan integrated very soon. We purchased a 3500 genetic analyzer for Cape Girardeau to further increase our capacity for multicapillary instruments. We anticipate beginning validation on that instrument in August.

#### Change request:

Originally we reported 1546 cases completed Jan-Jun 2011. That number was reported in error. We capture a variety of metrics. The 1546 was the number of reports we produced. As many cases may have multiple reports (eg. stain id, CODIS, additional references, etc.), that number does not reflect the number of cases worked. From Jan-Jun, 2011 we worked 873 total cases. We do not do overtime or outsourcing, so these DNA cases were all worked with supplies purchased from the grant.

### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

#### Purpose, Goals, and Objectives

The overall goals of the program are to leverage the laboratory's automation capacity in order to reduce the backlog by 30%, and increase our sample throughput to 26 samples per criminalist per month.

#### Progress update

Prior to July 1, 2011 many of the major purchases under this award had been acquired. Since July 1, 2011 we have focused on purchasing supplies to support ongoing casework. The purchase of an AB 3500 Genetic Analyzer under this award in May, 2011 has initiated a validation project for our Cape Girardeau laboratory. The main validation for the 3500 in our system is being completed in Cape Girardeau, which will enable us to effect performance checks of the 3500's at our other labs once procured.

#### Program challenges

Monthly DNA case submissions continue to increase. Moreover, the numbers of samples submitted per case is rising. Validating new technologies is a continuous challenge. Moving people off casework to focus on validation is a delicate balancing act. Presently we have three validation projects ongoing in addition to trying to implement STaCS DNA.

We are making significant changes under these grant programs; however, validation and changing workflow is time consuming and challenging. Our backlogs and turnaround are currently suffering as we accomplish these tasks. Our hope is that when finally implemented, the changes under these grant programs will significantly improve our workflow and enable to better meet these challenges.

#### Conclusions

We made significant progress spending down this grant in the early part of the year. Most of our focus during the latter half of the year was to purchase consumables to leverage our automation capacity. Our STaCS LIMS project will be implemented the first week in January 2012 and the 3500 Genetic Analyzer purchased under this award should be completely validated by the end of January 2012. We anticipate an early closeout of this award.

Although we have been unsuccessful so far in our attempts to significantly reduce backlog, we have been able to increase our average samples per criminalist per month to 28 which surpasses our goal of 26.

### PROGRESS REPORT 4: January 1, 2012 – June 30, 2012

#### Purpose, Goals, and Objectives

The overall goals of the program are to leverage the laboratory's automation capacity in order to reduce the backlog by 30%, and increase our sample throughput to 26 samples per criminalist per month.

#### Progress update

Much of this grant was spent down prior to January 1, 2012. Since January 1, 2012 we have focused on purchasing supplies to support ongoing casework.

During this reporting period we completed the validation of the AB 3500 Genetic Analyzer purchased under this award in May, 2011 for our Cape Girardeau laboratory. We anticipate competency testing and putting this instrument on-line on or about April 1, 2012.

#### Program challenges

Validating new instruments and methods during this grant period was challenging. Moreover during this grant period we lost two Criminalists and had to hire replacements who are in training and are not productive yet.

Our backlogs and turnaround time are suffering as we complete these validations and train new employees.

#### Conclusions

We made significant progress spending down this grant; however due to the aforementioned challenges, our goals for turnaround time, sample throughput and backlog reduction are largely unmet.

### FINAL REPORT:

#### Purpose, Goals, and Objectives

The overall goals of the program are to leverage the laboratory's automation capacity in order to reduce the backlog by 30%, and increase our sample throughput to 26 samples per criminalist per month.

### Progress update

Since October 1, 2010, under this award (2010-DN-BX-K173), we have purchased \$132,331.88 in consumables, two comparison microscopes, maintenance contracts for fourteen instruments and a 3500 Genetic Analyzer.

During the July-December 2011 reporting period we exceeded our sample throughput goal by analyzing an average of 28 samples per criminalist and nearly doubled our case output. The AB 3500 Genetic analyzer purchased for the Cape Girardeau Laboratory is validated and we anticipate starting case work on it in April, 2012.

### Program challenges

Monthly DNA case submissions continue to increase at an alarming rate. Moreover, the numbers of samples submitted per case are rising as well. Validating new technologies is a continuous challenge and moving people off casework to focus on validation is a delicate balancing act. During the course of this grant we had three validation projects ongoing in addition to trying to implement STaCS DNA.

In addition to the aforementioned challenges, we had two criminalists leave during this grant period, which required us to hire replacements and begin training them. Training and validations pull criminalists from doing casework; as such, backlogs and turnaround suffer.

### Conclusions

We made significant progress spending down this grant and with those monies were able to purchase supplies and maintenance contracts to maximize up-time of our instruments and casework. Although we were able to build some capacity, our goals for turnaround time, sample throughput and backlog reduction were not met.

Despite not meeting casework goals, with this funding we were able to complete several validation projects that we hope will increase throughput in the near future.

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**FY10 Recipient Name:** Board of Police Commissioners, Kansas City, Missouri

**Award Number:** 2010-DN-BX-K163

**Award Amount:** \$389,367

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Mississippi Department of Public Safety

**Award Number:** 2010-DN-BX-K044

**Award Amount:** \$387,663

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Montana Department of Justice

**Award Number:** 2010-DN-BX-K157

**Award Amount:** \$150,000

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

The goals and objectives of the project include:

- i) a reduction in forensic DNA sample turn-around-time,
- ii) an increase in forensic DNA sample throughput and
- iii) a decrease in the forensic DNA casework backlog.

**PROGRESS REPORT 1: October 1, 2010 – December 31, 2010**

Limited progress has been made towards the goals and objectives for this grant due to the resignation of the DNA technician to be paid from this funding and due to a laboratory construction project that displaced the DNA section around December 15, 2010. The project is scheduled to continue through the end of February 2011.

Case turn-around-time improved slightly from 115 days to 111 days. Sample throughput saw an unusual spike in the number of samples at the beginning of the grant period (48 per analyst per month versus 38 per analyst per month at the end of the reporting period). The 38 sample number is more reflective of a general increase in throughput from earlier reporting periods. The number of backlogged DNA cases improved slightly from 59 to 56 cases backlogged.

**PROGRESS REPORT 2: January 1, 2011 – June 30, 2011**

During this reporting period, the HVAC re-engineering project was completed and the Serology/DNA section was brought back on-line in mid-March of this year. Additionally, one of our two serologists was out on maternity leave for 3 months. Current forensic sample turn-around-time is 112 days. The turn-around-time has been maintained in part by allowing the backlog of property crime cases to increase (total backlog now at 73 cases) as work was focused on person crimes. Forensic sample throughput dipped back to 33 samples per analyst per month primarily due to the types of cases being processed. As no funds have been used for casework purposes during this reporting period for the reasons listed above, no profiles have been added to CODIS and no hits from CODIS have been obtained.

**PROGRESS REPORT 3: July 1, 2011 – December 31, 2011**

Current forensic sample turn-around-time is 111 days which has remained steady throughout the project period. Forensic sample throughput is at 39 samples per analyst per month. With the exception of a spike in the initial reporting period, this measure has remained consistent and consistently above this measure from previous project periods (which was in the 20s). Current case backlog is 91 cases. This value is up from previous reporting periods. Case submissions as well as the types of cases submitted (person vs. property) has remained steady. However, during this period we have begun validation on three DNA extraction robots that were recently purchased with FY09 DNA Backlog Reduction Grant Funds (the studies are about 50% completed) and are instituting a recently validated expert system for convicted offender sample processing which will increase the time for our Serologist/CODIS DNA Technicians to focus on casework as opposed to CODIS sample processing. All validation work is/was performed using laboratory funds. We recently received approval for



a project period GAN for this grant to allow us time to obtain approval for a change of scope GAN to further improve throughput in CODIS sample processing and concomitantly increase serology and DNA casework throughput. As no funds have been used for casework purposes during this reporting period for the reasons listed above, no profiles have been added to CODIS and no hits from CODIS have been obtained.

#### PROGRESS REPORT 4: January 1, 2012 – June 30, 2012 (FINAL REPORT)

The average number of forensic DNA samples processed per month per analyst at the beginning of the award period was 48 and is at 40 at the end of the reporting period. This metric for the most recent reporting period represents the more consistent value for this category over the past several reporting periods. This change reflects the normal variation due to case submission and circumstances.

The DNA case turn-around-time at the beginning of the award period was 115 days and is 145 days at the end of this reporting period. We will explain the increase in turn-around-time for this most recent reporting period as a result of significant health related issues that plagued 3 of the 6 people in our serology/DNA section this past winter. As the statistics are generated for cases that are “reported out” in January through June of this year, many of those cases first came into the lab in the fall of 2011 prior to our health issues. Also, we continue to be hampered by not receiving timely communication from our user agencies. We are exploring different ways of processing casework flow through the laboratory in an effort to address this concern.

The number of backlogged cases at the beginning of the award period was 59 and is 71 at the end of this reporting period. This change reflects the normal variation due to case submission and circumstances.

Our section underwent many changes during this funding period. A DNA technician whose salary was to be paid by this grant resigned early in the grant cycle. An IT technician position whose salary was to be paid by this grant was never hired due to re-organization of our IT Department; this was not finalized until late in the grant cycle. The section was displaced from our laboratory facilities for 3 months during an HVAC re-engineering project in the fall of 2010. We had one serologist on maternity leave for three months in 2011. We had significant health related matters for half of our section beginning in the fall of 2011 and finally our other serologist has just gone out on maternity leave. Though this information sounds like cries of woe, we are excited by what the future has in store for us.

We were able to extend the grant period and make significant budget modifications in a GAN that was approved this last spring. We purchased equipment (BSD punch and service contract) and supplies (FTA card-based convicted offender collection kits) to update our Convicted Offender Databasing Program. We were able to purchase replacement computers and a server for our Convicted Offender Databasing Program as well. We also purchased GMID-X genetic analyzer software in preparation for a purchase of an ABI 3500 genetic analyzer which was recently acquired using FY11 grant funds. All in all, we are in a good position to take advantage of recent purchases and expect them to have significant effects on our continued goals of increasing throughput and decreasing turn-around-times.

The State of Montana is very appreciative of the assistance NIJ has provided and continues to provide.

As no funds have been used for casework purposes during this reporting period for the reasons listed above, no profiles were been added to CODIS and no hits from CODIS have been obtained.

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**FY10 Recipient Name:** Charlotte-Mecklenburg Police Department, North Carolina

**Award Number:** 2010-DN-BX-K165

**Award Amount:** \$349,200

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** North Carolina Department of Crime Control and Public Safety

**Award Number:** 2010-DN-BX-K198

**Award Amount:** \$1,646,246

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** North Dakota Office of the Attorney General

**Award Number:** 2010-DN-BX-K162

**Award Amount:** \$150,000

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Nebraska State Patrol

**Award Number:** 2010-DN-BX-K199

**Award Amount:** \$250,756

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** New Hampshire Department of Safety

**Award Number:** 2010-DN-BX-K060

**Award Amount:** \$150,000

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** New Jersey Department of Law and Public Safety

**Award Number:** 2010-DN-BX-K086

**Award Amount:** \$1,312,628

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of Albuquerque, New Mexico

**Award Number:** 2010-DN-BX-K107

**Award Amount:** \$182,756

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** State of New Mexico

**Award Number:** 2010-DN-BX-K063

**Award Amount:** \$410,730

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Las Vegas Metropolitan Police Department, Nevada

**Award Number:** 2010-DN-BX-K076

**Award Amount:** \$872,138

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Suffolk County, New York

**Award Number:** 2010-DN-BX-K084

**Award Amount:** \$246,252

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** County of Westchester, New York

**Award Number:** 2010-DN-BX-K042

**Award Amount:** \$220,330

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Goal 1: Training – Allow analysts to attend the 2011 Promega meeting in October, 2011.

Goal 2: Equipment - Purchase and validate equipment to help reduce backlog.

Goal 3: Supplies - Purchase supplies to be used in casework.

Goal 4: Technician - Utilize a temporary laboratory technician.

Goal 5: Service contract- purchase service contracts on the genetic analyzers and real-time PCR instruments.

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

During this reporting period we have attempted to address our goals and objectives of reducing our backlog in several ways.

- Goal 1: The only money for training is for the Oct 2011 Promega meeting
- Goal 2: The laboratory has received a quote from ABI on the purchase of a model 3500 genetic analyzer. We are currently in the process of writing up the order
- Goal 3: We are in the process of writing up the order for supplies to be used in this grant. The sole source GAN was recently accepted and we can now proceed with the supply order as well as the equipment order.
- Goal 4: These funds have not been utilized as the technician employed still has funding from the 09 Backlog grant. This money will run out shortly and she will then be picked up by the 2010 money.
- Goal 5: Service contracts have been obtained on two genetic analyzers and one real-time instrument.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

During this reporting period we have attempted to address our goals and objectives of reducing our backlog in several ways.

- Goal 1: The only money for training is for the Oct 2011 Promega meeting.
- Goal 2: The laboratory has purchased a model 3500 Genetic Analyzer. We are currently in the process of validating this instrument.
- Goal 3: Supplies have been purchased.
- Goal 4: Has been carried over from previous BLR grant.
- Goal 5: Service contracts have been obtained on two genetic analyzers and one real-time instrument.

Metrics 7, 8, and 9 were "0" because the laboratory was participating in a State funded Byrne grant to address backlog burglary cases. A room, equipment, and Byrne funded supplies were dedicated to this grant. We have completed that grant and now will be using the designated room, equipment, and BLR supplies to address cases as outlined in our current BLR grant. A system has been set-up in our LIMS specifically to tag BLR cases and to associate any supplies purchased under this grant to those cases.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

- Goal 1: Training – Allow analysts to attend the 2011 Promega meeting in October, 2011. DNA technical leader and 1 DNA analyst attended the 2011 Promega meeting
- Goal 2: Equipment - Purchase and validate equipment to help reduce backlog. Instrument validation continues. Delay in bringing it on line is a result of growing backlog and the need to allocate resources to casework. We are making every effort to devote some time each week toward finishing the validation.
- Goal 3: Supplies - Purchase supplies to be used in casework. Supplies were purchased and used in the analysis of backlogged case work
- Goal 4: Technician - Utilize a temporary laboratory technician. A budget modification was obtained to allow us to hire two temporary technicians instead of 1. Each worked on assisting analysts in the extraction, quantification, amplification and data capture on

the following number of Backlogged DNA cases that were identified as funded through this grant

Technician # 1 A. D. – 74 cases

Technician #2 A.V. - 177 cases

Goal 5: Service contract- purchase service contracts on the genetic analyzers and real-time PCR instruments. Service contracts have been obtained on two genetic analyzers and one real-time instrument

#### FINAL REPORT:

Goal 1: Training - In addition to having analysts attend the Promega Meeting we were able to send several analysts to a Forensic DNA Relationship Training class in New York City as well as a DNA session at a regional DNA meeting.

Goal 2: Equipment - Purchase and validate equipment to help reduce backlog. Instrument validation continues. Delay in bringing it on line is a result of growing backlog and the need to allocate resources to casework. We are making every effort to devote some time each week toward finishing the validation. Validation is almost complete.

Goal 3: Supplies - Purchase supplies to be used in casework. Supplies were purchased and used in the analysis of backlogged case work.

Goal 4: Technician - Utilize a temporary laboratory technician. A budget modification was obtained to allow us to hire three temporary technicians instead of 1. Each worked on assisting analysts in the extraction, quantification, amplification and data capture on the following number of backlogged DNA cases that were identified as funded through this grant. Total number of cases they have assisted on is 83.

Goal 5: Service contract- purchase service contracts on the genetic analyzers and real-time PCR instruments. Service contracts have been obtained on two genetic analyzers and one real- time instrument.

Funding from this grant has greatly assisted the laboratory in addressing the increase in demand for the examination of all categories of crimes, particularly burglaries. Between 2010 and 2011 the number of burglary submissions to the laboratory has doubled .In addition our County has also experienced an increase in home invasion cases some of which have started out as burglaries. The confrontations that have resulted have in some cases been extremely violent.

Because of the increase in the home invasion potential of burglary cases, police are now placing greater emphasis on the investigation and collection of DNA evidence. They understand the potential for CODIS to provide them with an effective tool in rapidly identifying a suspect and possibly preventing a future incident. Subsequently the laboratory not only must examine a greater number of submissions of these types of cases but must provide a much faster turnaround time for investigators. This grant has played an important part in our efforts to provide investigators with the information they need on these types of cases.

Funding has permitted us to hire several technicians to assist analysts with the increase in caseloads caused by the added burglary submissions. These technicians help perform ancillary functions that would divert analysts from their primary missions if they had to perform them

themselves. Technicians help in the evidence examination process, help prepare reagents, set up runs, accumulate data and perform numerous QA functions necessary to maintain the quality of analysis. This permits analysts to identify the best samples for DNA analysis and to issue reports to user agencies in a timelier manner. These technicians add a much needed boost in capacity for the DNA laboratory. Funding also covers service agreements that keep our DNA instruments in proper working order, reducing down time due to breakdowns and repair. The funding provided for supplies also assist us in being able to cover the costs of attacking the backlog this increase in submissions has caused. We are currently finishing up the validation of the instrument purchased through this grant and its addition will also add to the labs capacity to handle the increase in cases.

Just prior to the beginning of this grant State funding cuts eliminated 3 grant positions in our DNA section. In addition 3 members of our current DNA staff were on maturity leave during various periods covered in this grant. The combination of these factors has contributed to the backlog and turnaround time of cases we are currently experiencing. Without the funding provided by this grant our backlog and turnaround time would be much greater and our ability to serve our user agencies would have been seriously impaired.

The laboratory would like to thank the NIJ for the assistance they have provided over the years, particularly lately, during the difficult economic times we face. The NIJ's support in a wide variety of areas have helped our laboratory enhance our operations, increase our capacity to handle the rise in cases submissions and given us a tool to tackle the challenge of case backlogs. We thank the NIJ for its support and hope to continue this cooperative relationship in the future.

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**FY10 Recipient Name:** Monroe County, New York

**Award Number:** 2010-DN-BX-K090

**Award Amount:** \$238,475

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** County of Erie, New York

**Award Number:** 2010-DN-BX-K109

**Award Amount:** \$526,201

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** New York State Police, New York

**Award Number:** 2010-DN-BX-K096

**Award Amount:** \$982,414

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Onondaga County Health Department, New York

**Award Number:** 2010-DN-BX-K047

**Award Amount:** \$152,935

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Nassau County, New York

**Award Number:** 2010-DN-BX-K049

**Award Amount:** \$225,515

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of New York, Office of Chief Medical Examiner

**Award Number:** 2010-DN-BX-K058

**Award Amount:** \$1,000,000

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of Columbus, Ohio

**Award Number:** 2010-DN-BX-K056

**Award Amount:** \$149,688

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of Mansfield, Ohio

**Award Number:** 2010-DN-BX-K046

**Award Amount:** \$305,000

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Cuyahoga County Coroner's Office, Ohio

**Award Number:** 2010-DN-BX-K073

**Award Amount:** \$105,000

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Goal 1: Reduce forensic DNA sample turnaround time by 20%.

Objective A: DNA Tech's will complete training

Objective B: DNA Tech's will begin preparatory work for analysts

Objective C: Track all samples worked by analysts on a monthly basis

Goal 2: Increase throughput of the public DNA Laboratory by 33%.

- Objective A: Install and validate 3500 Genetic Analyzer
  - Objective B: Install, validate and begin utilizing Maxwell-16 Extraction machine.
  - Objective C: Complete required training of Lab personnel for the 3500
  - Objective D: Begin utilizing the 3500 by January of 2012
  - Objective E: Track all cases and samples worked by analysts on a monthly basis
  - Goal 3: Reduce the DNA forensic casework backlog by 12%.
    - Objective A: Lab supervisor to complete monthly cumulative tracking of cases worked utilizing Tracking Spreadsheet
    - Objective B: Supervisor to schedule monthly meetings with lab and grant personnel
    - Objective C: Procure identified equipment and supplies
- Note – Objectives for Goals have been identified and reported on in the progress section.

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

The prior year, NIJ FY09 Forensic DNA Backlog Reduction Grant Award is still in progress and has not been closed out. Therefore, we have not spent any of the funds for this current NIJ FY09 Forensic DNA Backlog Reduction Grant Award #2009-DN-BX-K149.

The request to obtain a contractor to hire two DNA techs is in the beginning process. There will be a Request for Proposal to seek competitive bidders for the services required. In the next quarter, the bid will be advertised competitively for potential contractors

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

A typo occurred in the first reporting period report. Instead of 150 backlogged cases, we actually had 120. Numbers reflected in this report are accurate.

Goal 1: There has been no change in DNA sample turnaround time during this reporting period. DNA technicians have yet to be hired although significant progress has been made to do so. We are anticipating that DNA Technicians will be hired by September 1, 2011.

Goal 2: There has been no change in throughput time during this reporting period. Again, the DNA technicians have yet to be hired as well as the fact that there has been no change in automated equipment. A 3500 Genetic analyzer is being purchased through other grant funds (2009 Urban Area Security Initiative) and we anticipate the installation during the third quarter of this year (2011).

Goal 3: There has been no change in backlog during this reporting period. Due to the difficulties in hiring DNA Technicians casework backlog has actually increased. A total of 110 new DNA requests have been added to the DNA backlog and a total of 85 DNA reports were released during this reporting period.

Despite no progress toward stated goals there has been progress in the hiring of two DNA Technicians. As originally intended, the Request for Proposal (RFP) for the Technicians was not necessary and we have completed and posted a Request for Qualifications (RFQ) for the Technicians. The RFQ has effectively reduced the hire time process by six months or more. The job posting has gone up and we anticipate hiring technicians by September 1, 2011.



In addition to the hiring of technicians, the forensic lab is in the process of purchasing a 3500 Genetic analyzer with leveraged funds from a Homeland Security Grant (2009 Urban Area Security Initiative).

We fully anticipate that performance metrics will improve by the end of the year as a result of DNA technicians beginning employment and the installation of new equipment.

During this reporting period analyst and supervisors time has been spent in preparing and completing the ASCLD/LAB-International certification. The audit occurred in May of this year and we have only 13 non-compliant areas out of 200. The forensic lab is now in the process of corrective action on the non-compliant areas and anticipates full accreditation soon.

### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goal 1: There has been significant progress toward this goal during this reporting period. Two Full time DNA Technicians were hired and brought on line on September 12, 2011. The Tech's are currently completing all required training and have also been assisting analysts, and collecting paperwork and compiling DNA case files since mid-October. The Technician's will complete training and increase their duties in February of 2012 to include serological screening for rape kits.

During this reporting period DNA Sample time has been reduced by 9%. These numbers are attributed to the following:

- DNA Tech's coming on line as well as Analysts dedicated time increasing (we had one analyst on maternity leave and one splitting time in the Parentage and ID section).
- Validation and implementation of one of two purchased Maxwell 16 Extraction systems
- Decrease of paperwork and input by the implementation of an in-house excel based system with interlinked worksheets for different stages of analysis. This has streamlined the amount of data input that the analysts must complete as it populates data from the previous stage of analysis to the next stage without entering the data at each step of the process. Each analyst is responsible for submitting monthly reports to the Lab Supervisor who then tracks monthly lab results.

Goal 2: There has been significant progress on this goal as well in this reporting period. Throughput has been increased by 36%. Again, these numbers are attributable to the DNA Tech's, implementation of equipment and the tracking system. One Maxwell 16 instrument was validated and brought on line during this reporting period and the other Maxwell 16 has been acquired by the lab and will be validated in the first quarter of 2012. The 3500 Genetic Analyzer has been purchased under a different grant and will be validated in the first and second quarter of 2012. Approved supplies under the grant have been procured and will be completely purchased, invoiced and paid for in the first quarter of 2012. A total of 8 DNA IQ Casework Prokits for Maxwell Extraction out of 50 purchased have been utilized during the reporting period and a total of 58 DNA reports have been completed.

Goal 3: Backlog for this reporting period has been reduced by 26%. The backlog for the Lab continues to fluctuate depending upon the amount of new cases submitted to the Lab. In this reporting period, cases submitted remained steady however; we anticipate an increase in cases as we begin to accept rape kits to the Lab. The DNA Technicians will complete training for rape kits and will begin completing serological screening for rape kits as of February 1, 2012. Again, backlog has been reduced by the addition of personnel to the Lab, Equipment coming on line and the implementation of the Tracking system.

FINAL REPORT: PROGRESS REPORT 4: January 1, 2012 – June 30, 2012

Goal 1: The Two Full time DNA Technicians have successfully completed all required training and are in full swing assisting analysts. The Techs have been assigned to assist with rape kit tests that the Laboratory began accepting in February of 2012. During this reporting period the Laboratory saw an increase of turnaround time of 11.11%. For the entire grant period there was no change in the average number of days between the submission of a sample and the delivery of test results (120). In the third reporting period there was a significant drop to 108 that was attributed to the Tech's and instrumentation coming on line however; the laboratory began accepting non-fatal cases (rape kits) in February of 2012 which has impacted turnaround significantly. In addition the Trace Evidence Department had a significant delay due to waiting for additional evidence in a homicide case. This delay in turn impacted the DNA Lab's turnaround time. The DNA Technical manager and supervisor continues to track all Laboratory data on a monthly basis.

Goal 2: There has been adequate progress on this goal as well in this reporting period. Throughput has been increased by an additional 6.5% in this reporting period. For the entire grant period throughput has increased by 26.66%. Throughput has been attributed to the DNA Tech's and the implementation of equipment. One Maxwell 16 instrument is fully on line during this reporting period and the other Maxwell 16 was validated in the first quarter of 2012 and is now in full usage during this reporting period. The 3500 Genetic Analyzer that was purchased under a different grant is still in validation. Approved supplies under the grant have been procured, invoiced and paid in this reporting period. All 50 DNA IQ Casework Prokits for Maxwell Extraction were purchased have been utilized during the reporting period. A total of 132 cases were worked as a result of supplies that were purchased under this grant award.

Goal 3: Backlog for this reporting period has increased by 1.6%. The reduction in Backlog for the entire grant period has been reduced by 10.44%. The backlog for the Lab continues to fluctuate due to the amount of new non-fatal cases submitted to the Lab and delays in the trace evidence department. All identified equipment and supplies have been purchased during the grant reporting period.

Funds under this grant (\$105,000.00) award were allocated to the following activities:

1. Salary and fringes for the hire of two DNA Technicians (\$56,360.61). The two technicians were brought on line on September 12, 2011. The Technicians are hourly workers and grant funds were allocated to salary and fringes (FICA and retirement). The Technicians successfully completed competency training and began assisting analysts in

February of 2012. They were assigned to assist in the serological testing of rape kits that the Lab began accepting in February of 2012.

2. The purchase of one Promega Maxwell (R) 16 Forensic Instrument (\$28,002.01). This instrument was procured in the first quarter of 2012 and is fully validated and on line.
3. The procurement of various supplies (\$20,637.38) including:
  - DNA IQ Casework Prokits for Maxwell 16. Note that all casework as a result of these supplies purchased under this award has been tracked utilizing the Lab's data tracking system that the DNA Technical Manager and supervisor has implemented.
  - Various Pipette and filter tips.
  - Various chemicals and supplies (Protinease, Phenol, chloroform, alcohol, lysis buffer, DNA IQ reactions, Capillaries, matrix dye standards and micro amp tubes).

All activities under this grant award are completed and all funds have been expended.

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**FY10 Recipient Name:** State of Ohio Office of the Attorney General

**Award Number:** 2010-DN-BX-K111

**Award Amount:** \$831,053

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:** The following goals and objectives were set for award 2010-DN-BX-K111. The progress in meeting each objective is stated below.

**Goal:** In conjunction with NIJ's FY 2010 Forensic DNA Backlog Reduction Goal, BCI&I will reduce forensic DNA sample turnaround time, increase the throughput of its DNA laboratories, and reduce its DNA forensic casework backlog.

**Objective 1:** By the end of the project period, BCI&I will reduce its DNA sample turnaround time (the sum of the average turnaround for biology results and the average turnaround for DNA results on cases completed both in-house and outsourced to a vendor) to 100 days by increasing its forensic DNA capacity and testing the majority of casework samples in-house. Note – this Objective amended via a Scope Change on 4/19/2011.

**Objective 2:** By the end of the project period, BCI&I will increase its forensic DNA casework capacity through the purchase and validation of two Tecan Freedom Evo® 150 robotic platforms, two Tecan Freedom Evo® 75 platforms, and one 96-well GeneAmp® PCR system.

A budget modification GAN was approved on 04/20/2011 that removed the 96-well GeneAmp® PCR system line item and added an Applied Biosystems 3130xl Genetic Analyzer.

**Objective 3:** Throughout the project period, BCI&I will limit outsourcing of DNA casework to the following three instances: (1) controlling turnaround time, (2) cases requiring

specialized technology, and (3) to comply with court directives that require a neutral third-party laboratory. BCI&I will process forensic DNA casework in-house for all other instances.

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

Objective 1: Objective 1 was written with regard to BCI&I's in-house turnaround time of only DNA testing. The objective excludes testing time of biology and outsourced samples as is the case in the first performance metric reported above. At the end of December 2010, the turnaround time for only the DNA testing of in-house samples was 58.4 days.

The BCI&I laboratory expects the reported timeframe to somewhat increase between the period when the FY 09 Backlog Reduction grant funds are exhausted and the time when the newly purchased robots under this grant award are validated and online. Robots purchased using these funds have not yet arrived.

To bring Objective 1 in-line with the first performance metric required for progress reports, BCI&I will submit a scope change document to NIJ during the next reporting period. The scope change will alter Objective 1 by establishing a turnaround time goal that includes the sum of the average turnaround for biology results and the average turnaround for DNA results on cases completed both in house and outsourced to a vendor.

Final achievement of Objective 1 is still pending.

Objective 2: All robots have been ordered but have not yet arrived.

Final achievement of Objective 2 is still pending.

Objective 3: No FY 2010 DNA Backlog Reduction funds were expended or obligated during the reporting period, and no outsourcing activities took place as a result of this grant award.

Final achievement of Objective 3 is still pending.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

Objective 1: During the reporting period, the Ohio Attorney General's Office and the Bureau of Criminal Identification and Investigation underwent an administration change. As part of the change, a top to bottom analysis of the DNA laboratory system was conducted through a five-day Kaizen event aimed at reducing processing time and improving customer satisfaction while maintaining high quality. BCI&I teamed up with the Ohio Department of Administrative Services, Cintas Corporation, and Parker Hannifin Corporation in a public/private partnership to improve laboratory processes and better serve BCI&I's stakeholders. Through execution of Kaizen, a method that uses Lean and Six Sigma tools to identify value added steps in a process while removing waste and variation, the team mapped out BCI&I's current forensic biology and DNA practices and developed a new and improved process.

The combined turnaround time decreased from 149.4 days at the beginning of the award, to 136.4 days at the end of the reporting period. Cases continue to be outsourced as new robots are not yet online.

Final achievement of Objective 1 is still pending.

Objective 2: All robots have been delivered and installed. Validation is underway.

Final achievement of Objective 2 is still pending.

Objective 3: During the first half of the year, 218 cases were outsourced either to control turnaround time or due to the need for specialized technology. Forty-five of these cases were reported to the requesting agency during the reporting period, and 25 profiles were entered into CODIS resulting in eight hits.

Final achievement of Objective 3 is still pending.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Objective 1: The combined turnaround time decreased from 149.4 days at the beginning of the award to 103.1 days at the end of the reporting period. Implementation of an automated pathway for differential extractions in the Richfield laboratory and system-wide process changes made as a result of the Kaizen event contributed to the decrease. (Please see Progress Report 2 for more details regarding the Kaizen event.)

Final achievement of Objective 1 is still pending.

Objective 2: Validation of one of the Tecan Freedom Evo® 150 robots was completed in the Richfield laboratory. Validation is underway on the other 150 robot, in the London laboratory. Performance checks on the Tecan Freedom Evo® 75 robots (one at Richfield and one at London) are pending. The Applied Biosystems 3130xl Genetic Analyzer (that was added to the budget through a budget modification GAN) has been delivered, validated, and is online in the Richfield laboratory.

Final achievement of Objective 2 is still pending.

Objective 3: During the reporting period, 164 grant-funded cases were reported to the requesting agency, and 123 profiles were entered into CODIS, resulting in 34 hits. \*

Final achievement of Objective 3 is still pending.

\*Previously 34 was reported as the number of CODIS hits during July – December 2011. The number is being revised to 20, as 34 was reported in error.

#### PROGRESS REPORT 4: January 1, 2012 – March 31, 2012

Objective 1: The combined turnaround time decreased from 149.4 days at the beginning of the award to 94.4 days at the end of March 2012. This decrease was achieved in spite of the elimination of outsourcing DNA casework.

Final achievement of Objective 1 is complete.

Objective 2: Validation of the second Tecan Freedom Evo® 150 robots continued in the London laboratory. Performance checks on the Tecan Freedom Evo® 75 robots (one at Richfield and one at London) were in process. The Applied Biosystems 3130xl Genetic Analyzer (that was added to the budget through a budget modification GAN) was delivered, validated, and is online in the Richfield laboratory.

Final achievement of Objective 2 is still pending due to the ongoing validation of the Tecan Freedom Evo® 150 robot.

Objective 3: A total of 217 forensic DNA cases were outsourced during the life of the grant. A total of 157 profiles were entered into CODIS, resulting in 37 hits.

Final achievement of Objective 3 is complete.

#### FINAL REPORT:

During the project period and with the assistance of funding provided by the 2010 Forensic DNA Backlog Reduction Program, the average turnaround time for a case analyzed by the Bureau of Criminal Identification and Investigation (BCI) decreased by more than 36% from 149.4 days to 94.4 days. During that time period, the average number of samples processed per analyst per month increased by 52% from 41.2 to 62.5. The DNA case backlog was decreased from 1475 to 931. This represents a 37% reduction in the DNA backlog. Progress Report 2 stated that 218 cases had been submitted to outside laboratories for testing. One case number was erroneously duplicated in this count due to a second submission to the vendor laboratory. The number of cases should have been 217 as listed in the Final Report. The DNA testing in these 217 cases was performed through outsourcing efforts using FY 2010 Forensic DNA Backlog Reduction grant funding.

The Tecan robots have expanded the automation capabilities in the BCI laboratories. The robots also enable redundancy in each lab should units be out of service. The Promega Corporation Differex separation reagents have been validated on the Tecan 150 platform to create an automated pathway for testing sexual assault samples. Further applications for the robots are anticipated going forward.

Of the 37 CODIS hits resulting from testing performed with FY 2010 Forensic DNA Backlog Reduction Program funding, several assisted in the investigation of rapes. One example is a case in which a 48-year-old female was abducted by a stranger and taken to an abandoned house. The victim was vaginally and orally assaulted by the unknown suspect. A rape kit was collected and screened by a BCI analyst. The semen-positive vaginal sample was outsourced to LabCorp for DNA testing. A male profile was obtained and subsequently uploaded to CODIS with a hit to a known offender.

Another success story resulting from FY 2010 Forensic DNA Backlog Reduction funding comes about from a case submitted to BCI by the Cuyahoga County Cold Case Unit. In 1998, a male broke into a female's apartment and vaginally raped the victim. After screening was performed by a BCI analyst, the case was submitted to LabCorp for DNA analysis. A male profile was obtained with a subsequent CODIS hit. The person identified eventually pleads guilty to rape, aggravated burglary, and aggravated robbery. His plea added 30 years to the 20-year sentence he was serving for a previous sexual assault. Jackson was convicted of prior rapes of 7- and 11-year-old girls. He is not eligible for release from prison until 2059.

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**FY10 Recipient Name:** Montgomery County, Ohio

**Award Number:** 2010-DN-BX-K085

**Award Amount:** \$249,688

**Final Report:**

#### GOALS AND OBJECTIVES OF PROJECT:

1. Reduce the turn-around-time for DNA cases by 20%
2. Increase the monthly total number of samples worked per analyst by 20%
3. Provide required annual training for DNA analysts
4. Purchase preventative maintenance contracts for DNA instrumentation

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

During this reporting period, no activity occurred on this grant. Therefore, no funds were expended.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

During this reporting period, the following expenditures occurred:

1. Travel and registration expenses for one analyst to attend the Bode Technologies conference
2. Preventative maintenance contracts for two capillary electrophoresis units, two automated workstations, STaCS and one real-time PCR unit.
3. Annual update contract for GeneMarker HID network maintenance

##### Progress on Goals:

Goal 1: The turn-around-time at the end of this reporting period was 23.5 days, which is a 51% reduction. We will attempt to maintain this turn-around-time for the remainder of the grant period.

Goal 1: At the end of this reporting period, each analyst was analyzing 37 samples per month. This is a 48% increase of the start of the award period. We will attempt to maintain this statistic for the remainder of the grant period.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goals were added at the suggestion of the Program Office. Adding these goals will accurately reflect the use of the funding awarded to the Miami Valley Regional Crime Lab.

During this reporting period, the following expenditures occurred:

1. Travel and registration expenses for one analyst to attend the Midwestern Association of Forensic Scientists meeting in Chicago, IL.
2. Preventative maintenance contracts for one real-time PCR unit, the temperature monitoring system, and the universal power supply.
3. Overtime for the DNA analysts to process backlog cases

##### Progress on goals:

Goal 1 – The turnaround time at the end of this reporting period is 32.6 days. This is an increase of 9 days from the previous reporting period. However, this is still below the goal of 38.4 days (20% reduction from beginning of the award period).

Goal 2 – Each analyst is processing, on average, 35 DNA samples per month. This is a slight decrease from the previous reporting period. However, this is still above the goal of 30 samples per analyst per month.

Goal 3 – Since this goal was added at this time, it should be noted that all analysts have received annual required training as a result of these funds. Therefore, this goal has been met.

Goal 4 – The final preventative maintenance contracts were purchased during this period. Therefore, this goal has been met.

Overtime funding is allocated in this grant budget. Therefore, casework metrics have been provided with this report.

Challenges: The section has seen an increase in the number of backlog cases. A clear reason for this is not known. It seems to be a compilation of several influences including the wrap up of validations, resignation of a DNA analyst, and a slight increase of the number of cases submitted to the section.

Successes: The validation and integration of the automated workstations, STaCS software and the in-house spreadsheet for case documentation was completed on December 23, 2011. Funds from this grant and previous grants were used to accomplish this project. Competency tests were provided to the DNA analysts which should be completed by the end of January 2012. At that time, the analysts will be able to use the workstations and all existing software support to process casework.

#### PROGRESS REPORT 4: January 1, 2012 – June 30, 2012

During this reporting period, the following expenditures occurred:

1. Overtime to work backlogged cases; total hours = 91.25. This included evidence screening for body fluids, extraction and analysis of DNA, and technical review of the case.
2. Relationship calculation software
3. QIAcube extraction workstation
4. EZ1 Advanced XL extraction workstation

Progress on goals:

Goal 1 – Reduce the turn-around-time for DNA cases by 20%

The turnaround time at the end of this reporting period is 51 days. This is an increase of 19 days from the previous reporting period. To reach this goal, the turnaround time needed to be reduced to at least 38 days. This goal was met during the previous reporting periods, but has gradually crept up since the first reporting period.

Goal 2 – Increase the monthly total number of samples worked per analyst by 20%

Each analyst is processing, on average, 29 DNA samples per month. This is a decrease from the previous reporting period and is just below the stated goal of a 20% increase to 30 samples per analyst per month.

Goal 3 – Provide required annual training for DNA analysts

This goal was met in the previous reporting period. No expenditures for training were made in this reporting period.

Goal 4 – Purchase preventative maintenance contracts for DNA instrumentation

This goal was met in the previous reporting period. No expenditures for maintenance contracts were made in this reporting period.



Overtime funding is allocated in this grant budget. Therefore, casework metrics have been provided with this progress report. During this reporting period, the analysts worked 90.25 hours of overtime.

Challenges: As reported on the last progress report, the section has seen an increase in the number of backlog cases. Contributing factors to this increase include: resignation of one DNA analyst, continued validation of technologies, ancillary duties of the staff, and a slight increase of the number of cases submitted to the section.

Successes: The validation and integration of the automated workstations, STaCS software and the in-house spreadsheet for case documentation was completed on December 23, 2011. Funds from this grant and previous grants were used to accomplish this project. Competency tests were provided to the DNA analysts and completed during this reporting period. At this time, the analysts are able to use the automated workstations and all existing software support to process casework.

#### FINAL REPORT:

The goals of this grant were as follows:

Goal 1 – Reduce the turnaround time for DNA cases by 20%

At the beginning of the grant period, the turnaround time was 48 days. A 20% reduction of this would have resulted in a turnaround time of 38 days. During the first three reporting periods, this goal was met as measured by the turnaround times of 36, 23.5 and 32.6 days, respectively.

As of this final report, the turnaround time is 51. This seems mostly due to the fact that the staff in the DNA section has been reduced due to the resignation of one analyst in November 2011. Additionally, the staff has worked to finish validations and competency testing on new technologies. Most of this work occurred in the last six months of this grant period.

Without the overtime resources afforded by this grant, our turnaround time might have increased significantly more. The use of funds for working backlog cases assisted the staff in controlling the turnaround time while still performing validations and competency testing. Specifically, the analysts worked 254.75 hours of overtime to analyze 884 cases. Within those cases worked, the following number of DNA profiles was uploaded: 89 to national and 60 to state. Of those profiles uploaded, there were 96 forensic unknowns. Fourteen of those profiles hit convicted offenders and nine hits linked cases for investigation.

Goal 2 – Increase the monthly total number of samples worked per analyst by 20%

At the beginning of the grant period, each analyst was working 25 samples per month. A 20% increase of this would have resulted in 30 samples worked each month. During the first reporting periods, we reached this goal. In this reporting period, we reported 29 samples per analyst per month. While this is one shy of the number needed to reach goal and a decrease from previous reporting periods, the resources afforded by the grant funds allowed us to stay remarkably close to the goal.

At the beginning of the last reporting period, each of the three analysts was completing automation validations and competency testing. In order to give each analyst the time necessary to perform these tasks, the decision was made to process most cases for serology screening and hold the DNA samples to run in large batches on the automated workstations. This contributed to the reduction in the total number of samples worked.

**Goal 3 – Provide required annual training for DNA analysts**

Each of the DNA analysts attended training in 2011. Grant funds were used to pay for two of these events and related costs. The other analysts in the section were able to attend training that was at no cost to the laboratory.

**Goal 4 – Purchase preventative maintenance contracts for DNA instrumentation**

Maintenance contracts were purchased for the following instrumentation in DNA:

- Two 3130xl instruments
- Tecan Evo 150 workstation
- Tecan Evo 200 workstation
- Two 7500 real time PCR units
- Universal power supply
- Temperature verification system
- STaCS DNA software

Additional purchases which impacted the overall success of the grant were:

- Temperature verification kit for the 7500 real time PCR units
  - Two extraction workstations (validations pending)
  - Upgrade of the electrical service in the DNA office
  - Software upgrade to GeneMarker ID
  - Purchase of relationship calculation software
  - Diamond scribes to remove hairs from permanent mounting media on microscope slides
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**FY10 Recipient Name:** Stark County, Ohio

**Award Number:** 2010-DN-BX-K075

**Award Amount:** \$106,400

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

The goals for the DNA backlog reduction program at the Canton-Stark County Crime Laboratory are as follows: (1) reduce the number of backlogged cases awaiting biological screening and/or DNA typing, (2) reduce the overall turnaround time for evidence with a DNA request and (3) increase the capacity and efficiency of examinations in the DNA evidence workflow. The laboratory plans to achieve these goals by implementation of photodocumentation hardware, digital asset management software and a second thermal cycler. The laboratory has set forth the following objectives for the attainment of the program goals:

Objective 1: The laboratory will purchase photodocumentation hardware with digital asset management software.

Objective 1.1: The laboratory will implement the photodocumentation hardware and digital asset management software into casework.

Objective 1.2: The laboratory will integrate the electronic data generated by the photodocumentation software and equipment with the existing laboratory management software.

Objective 2: The laboratory will purchase an additional thermal cycler.

Objective 2.1: The laboratory will performance check and approve the thermal cycler for casework.

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

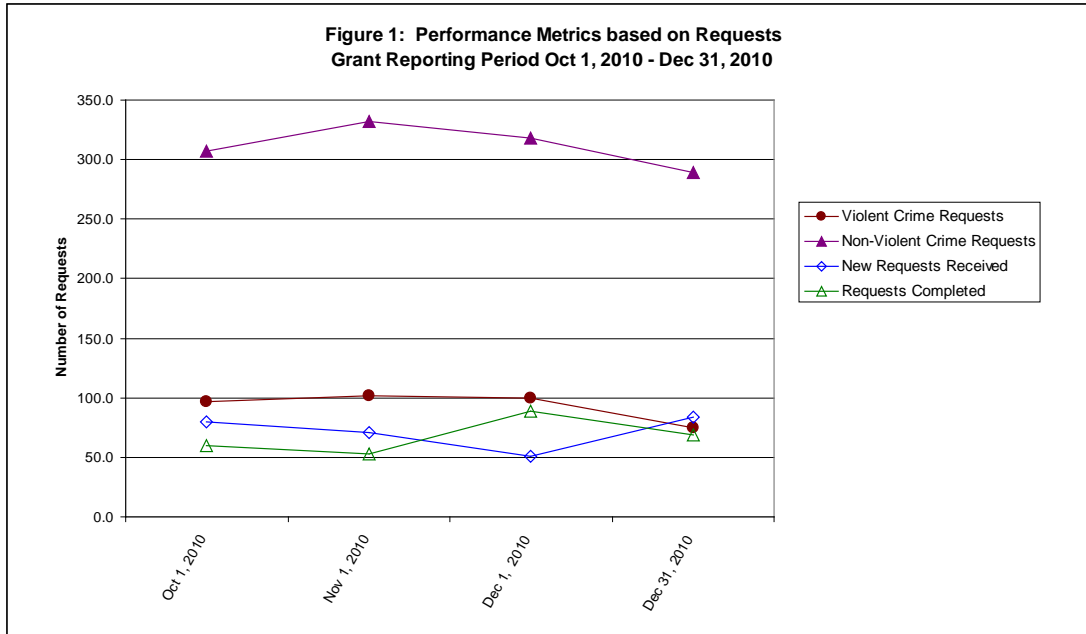
Objective 1: *The hardware and software was not acquired by the end of the reporting period.*

Objective 2: *The thermal cycler was not acquired by the end of the reporting period.*

#### Reporting Period Comments

The apparent increase turnaround time and decrease in analyst productivity indicated by the performance metrics is misleading. During the reporting period, the key personnel involved in the project were out of the laboratory more than normal for the following: training and conference attendance (112 man hours), government holidays (120 man hours) and personal time off (168 man hours). Without these absences from the laboratory, turnaround times and analyst productivity are expected to be approximately what they were at the beginning of the reporting period.

Despite the increase in turnaround time and decrease in analyst productivity demonstrated by the reported performance metrics, the laboratory has not experienced an overall increase in the number of requests waiting for testing. The Canton-Stark County Crime Laboratory keeps the majority of its statistics based on the number of requests, not the number of cases. Figure 1 depicts the fluctuation in the number of requests for violent crime requests waiting for testing, the number of non-violent crime requests waiting for testing, the number of new requests submitted to the Biology/DNA section of the laboratory and the number of Biology/DNA requests completed during the reporting period.



The laboratory did not acquire the equipment intended for purchase with the grant funds due to the brevity of this reporting period. In addition, due to organizational financial rules, purchases are suspended during the month of December. It is the intention of the laboratory to place the order for the thermal cyclor as well as to begin the bidding process for the photodocumentation equipment and software in the coming weeks so that further progress toward the project goals and objectives can commence.

## PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

Objective 1: *The hardware and software was delivered to the laboratory. The staff received training on the new equipment on May 3 & 4, 2011.*

Objective 1.1: *The photodocumentation hardware and digital asset management software was incorporated into casework in May 2011 following staff training. Objective 1.1 complete.*

Objective 1.2: *The laboratory is waiting on software updates to the existing laboratory management software. Until these updates are completed, the integration of the electronic data generated by the photodocumentation software will not be able to be completed.*

Objective 2: *The thermal cyclor was delivered to the laboratory in March 2011. Objective 2 (including all subsections) complete.*

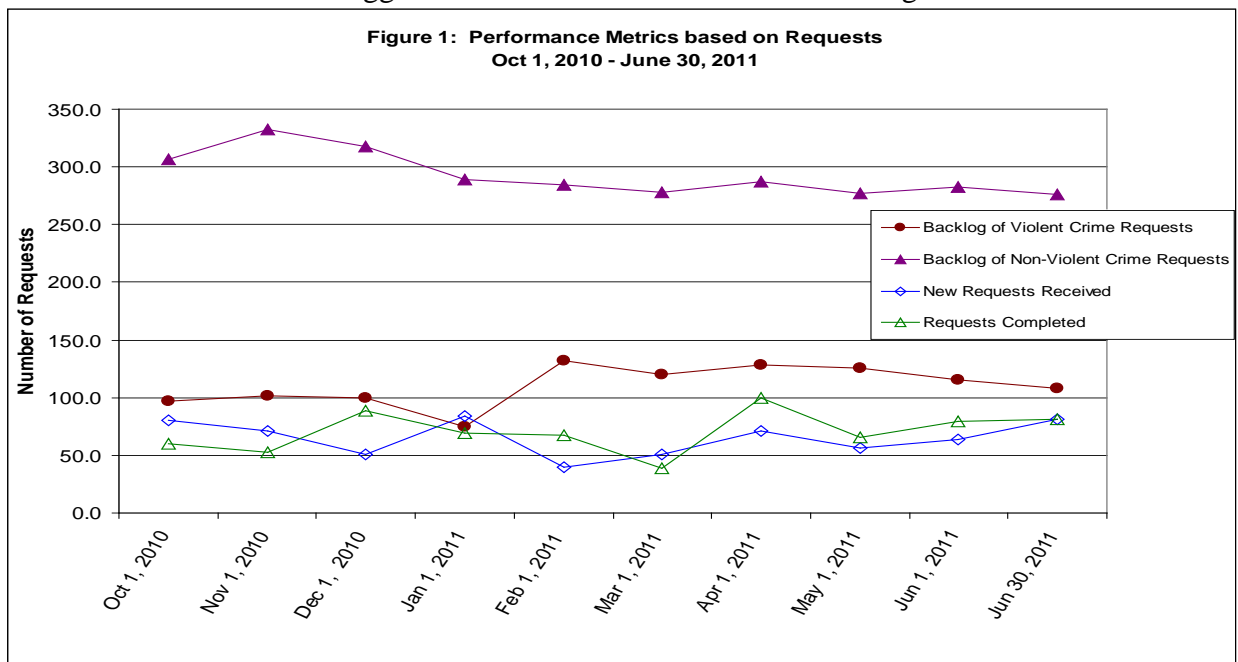
Objective 2.1: *The thermal cyclor was performance checked and approved for casework on May 1, 2011. Objective 2.1 complete*

### Reporting Period Comments:

The laboratory is well on the way to completing the objectives set out for the attainment of the overall program goals. The last and final portion of this project, integration of the photodocumentation equipment (objective 1.2), will satisfy all of the objectives of this program. However, the overall impact of the project on the backlog, turnaround time,

capacity and efficiency of the laboratory will not be fully realized for some time following full implementation of this project.

The perceived increase in case turnaround time recorded in the performance metrics results from the laboratory's increased ability to process older backlogged cases, mostly non-violent crime requests, in recent months (Figure 1). The laboratory has been able to process the oldest cases in the backlog while still meeting required deadlines for the more recent violent offenses. The laboratory continues to demonstrate a decrease in the overall number of cases in the backlog. Since January, the backlog total has been reduced by 34 cases. The laboratory anticipates that the casework turnaround time will improve in future months as more of the older backlogged cases are eliminated from the backlog.



### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

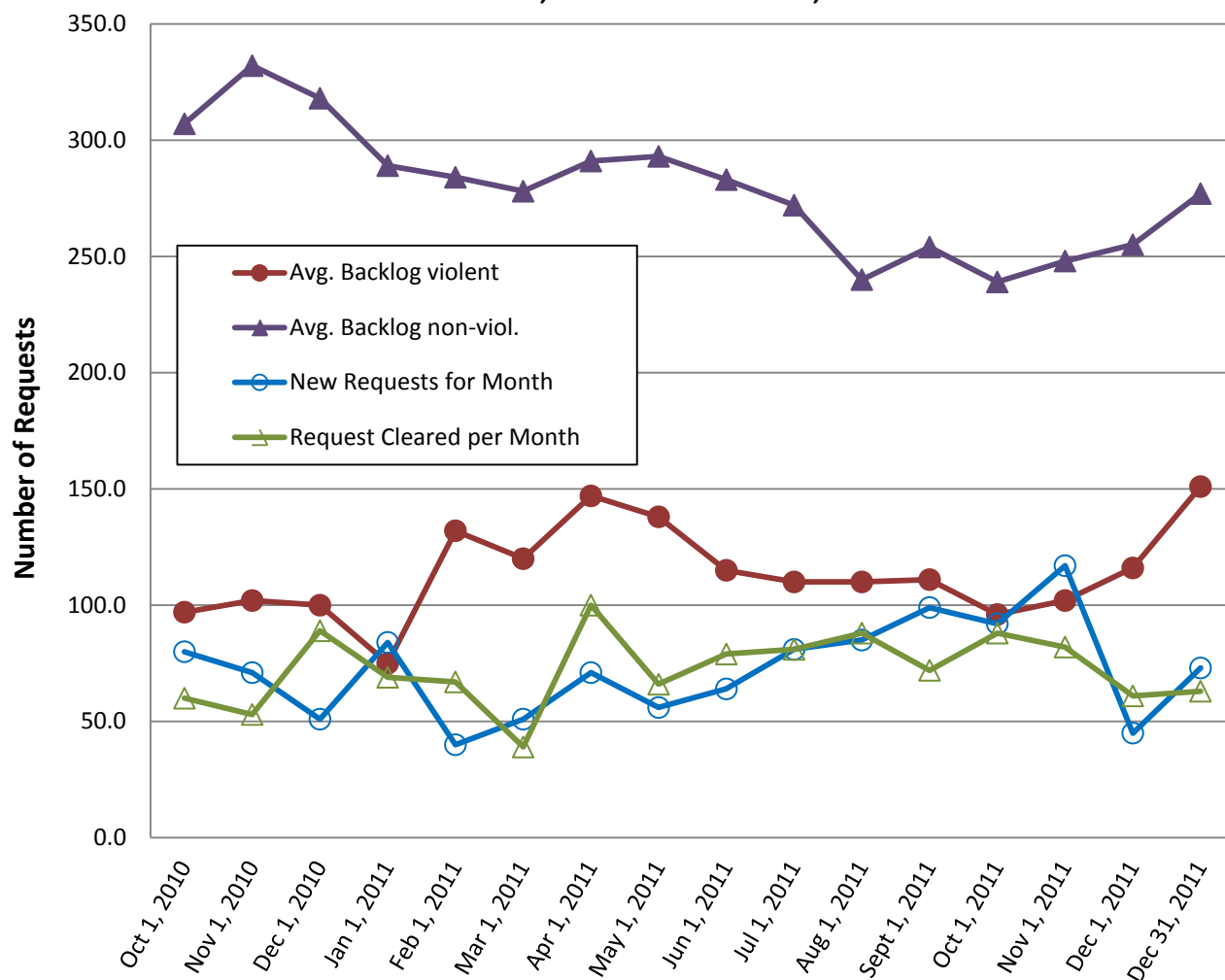
Objective 1.2: *The laboratory is still waiting on the final delivery of the software updates to the existing laboratory management software. A draft version of the updates to the laboratory management software was submitted to the laboratory for review in November 2011. However, the software was sent back to the developer for debugging. The developer expects to deliver the final version of the updated laboratory management software in the coming weeks so that the integration of the electronic data generated by the photodocumentation software can be completed.*

The laboratory has completed all but one of the objectives set out for the attainment of the overall program goals. The last and final portion of this project, integration of the photodocumentation equipment (objective 1.2), will satisfy all of the objectives of this program. However, the overall impact of the project on the backlog, turnaround time, capacity and efficiency of the laboratory will not be fully realized for some time following full implementation of this project.

The perceived increase in case turnaround time from 128 days to 147 days recorded in the performance metrics from October 1, 2010 through December 31, 2011 results from three main factors: increased processivity of the oldest cases in the backlog, increased demand and reduced analyst availability. The laboratory has been able to process more of the oldest requests (mostly non-violent crimes) over the course of the grant period (Figure 1). By processing the oldest cases in the backlog, the reported turnaround timeframe from request submission to report delivery is similarly increased. The laboratory also experienced a steady increase in new requests for biology/DNA analysis from May 2011 through November 2011. This increased demand outstripped the laboratory's current ability to continue to work the oldest cases in the backlog while still meeting required deadlines for major investigations of violent crimes and court dates. At the same time that the laboratory was experiencing the increased demand, the laboratory also experienced additional planned and unplanned unavailability of key personnel involved in completing biology/DNA casework for the following: training and conference attendance (56 man hours), government holidays (144 man hours) and personal time off (264 man hours).

Despite the challenges experienced during this reporting period, the laboratory continues to demonstrate a decrease in the overall number of cases in the backlog and an improved turnaround time with regard to backlogged non-violent crime requests.

**Figure 1: Performance Metrics based on Requests  
October 1, 2010 - December 31, 2011**



FINAL REPORT: March 26, 2012

Objective 1.2: *The laboratory has received the final delivery of the software updates to the existing laboratory management software as well as the software interface which will allow integration of information from the photodocumentation systems into the laboratory management software. Objective 1.2 complete. All Objectives for this project are complete.*

The laboratory has completed all of the objectives set out for the attainment of the overall program goals. However, the overall impact of the project on the backlog, turnaround time, capacity and efficiency of the laboratory will not be fully realized for some time following full implementation of this project.

The photodocumentation equipment purchased by the laboratory has been a great improvement over manual note-taking methods. Though the ability to integrate the photodocumentation equipment with the laboratory management software was not completed until the very end of the project, the impact of the photodocumentation equipment was quickly realized in the improved quality and clarity of the examination notes generated with the photodocumentation equipment. Now that the data generated from the photodocumentation software will be able to be electronically integrated into the laboratory management software, the laboratory will be able to make steps to become even more efficient.

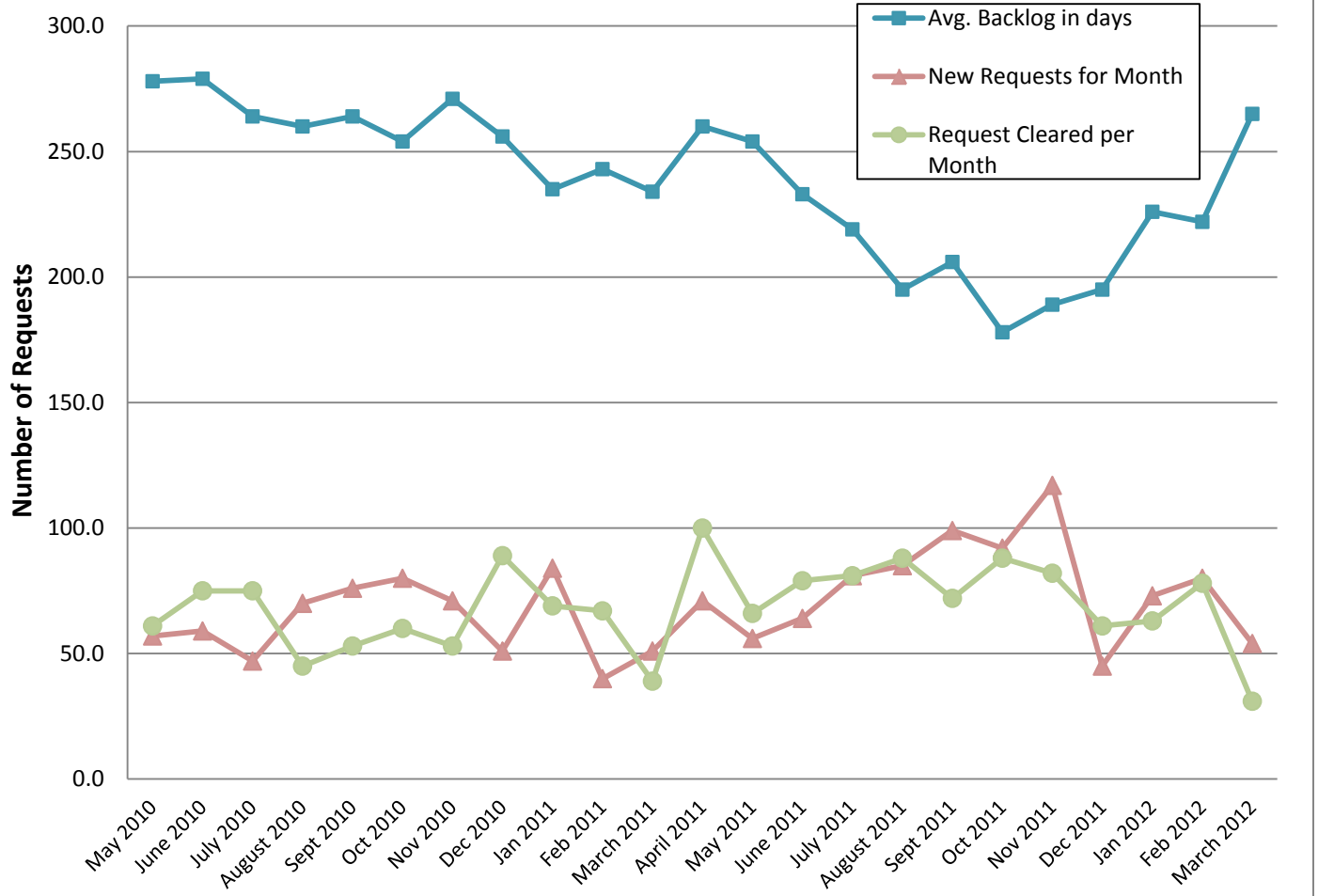
The addition of the second thermal cycler has also been helpful in that it has increased the capacity and flexibility of DNA processing. Moreover, the second thermal cycler has been able to be used as a back-up instrument when the older instrument has been in need of maintenance so that DNA processing can continue without interruption.

The key personnel involved in the project were hampered by two main factors during the course of this project: reduced analyst availability and unexpected administrative issues. The laboratory experienced reduced analyst availability through the planned and unplanned unavailability of key personnel involved in completing biology/DNA casework for the following: training and conference attendance, government holidays and personal time off. This was experienced throughout the project period but was most notable in late 2011 into 2012. Additionally, the laboratory experienced the unexpected loss of the laboratory director in early 2012 which put additional casework & non-casework duties on the biology/DNA analysts in order to fill the operational needs previously completed by the laboratory director. As a result of this administrative issue, the ability of the biology/DNA staff to focus on casework was severely hindered and adversely affected the performance metrics for the final reporting period (Figure 1).

Despite the challenges experienced during this project period, the laboratory has laid the groundwork for further efficiency improvements at the laboratory. Though not clearly demonstrated by the performance metrics, this project has been beneficial to the laboratory. Throughout the project, the laboratory has been able to process more of the oldest cases in the backlog. However, this achievement resulted in an increase in the turnaround time from the request submission to the delivery of the report. Prior to the start of this project, the laboratory had focused an increasing number of resources to meeting deadlines for court cases and major criminal investigations instead of processing cases in the backlog. The laboratory is now in a better position to be able to process priority cases as well as those in the non-priority backlog. The laboratory expects to see future improvements such as quicker turnaround time, reduced backlogged, increased capacity and improved efficiency as a result of this project.



**Figure 1: Performance during the FY2010 Project Period**



**FY10 Recipient Name:** Hamilton County, Ohio

**Award Number:** 2010-DN-BX-K062

**Award Amount:** \$105,000

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

*Goal 1:* To reduce the backlog by 32 old cases. Because of the continuing impact of the economic recession in this region, public funding continues at drastically reduced levels. Grant funds will insure supplies are available to process backlogged cases. The laboratory will process these cases in-house using existing procedures and recently upgraded equipment.

*Goal 2:* To reduce the turnaround time by at least 5%. Even though the turnaround time continues to increase, the laboratory is taking steps to improve its efficiency and effectiveness. Feedback to submitting officers will help eliminate the submission of items with a low probability of producing CODIS eligible DNA profiles.

*Goal 3:* To complete implementation of automated systems purchased as a result of previous grant funded projects. At the completion of validation, analysts will fully integrate them into the workflow of the laboratory. This will contribute to improving the turnaround time.

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

*Goal 1:* Because Hamilton County was closing its books during this quarter, it was not possible to purchase the supplies needed for this grant-funded effort. The laboratory focused on completing the requirements of the previous FY 09 DNA grant, which overlaps this grant. Hence, the laboratory made no progress towards this goal, it is still pending.

*Goal 2:* No grant funds were expended during this period to address the need to reduce the turnaround time. Hence, this goal is still pending. Time was devoted to training a new analyst, using extraction kits before they expired, and complete ISO assessment remediation requirements. These administrative efforts temporarily distracted analysts from casework, but having completed them, the laboratory will be in a better position to increase efficiency. The analysts also set up a procedure for collecting statistics regarding the most effective evidence items for producing “Touch DNA” profiles. This information will form the basis of limiting submissions in the future.

*Goal 3:* The laboratory made little real progress towards this goal and it is still pending. Analysts still have to validate the Qiagility liquid handling robot so it can be used for casework. Conversely, all analysts concentrated on initiating the extraction phase of many cases in order to consume the extraction kits before they expired at the end of the year. Twice as many cases are now in progress as in the previous quarter and these will be reported as further analytical steps are completed. The previous purchase of the two EZ1 extraction robots made this possible.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

*Goal 1:* The laboratory is in the process of allowing the previous blanket purchase orders to expire before ordering the supplies needed for this grant. Additionally, there are minor changes being implemented to the laboratory management structure. These will result in the DNA Technical Leader having greater direct control over the DNA grant administration. In fact, by the end of 2012, the DNA Technical Leader will assume full control of the DNA grants as both the financial and programmatic point of contact. Because of these situations, no progress was made directly towards using grant funds to meet the goal of reducing the backlog by 32 cases.

*Goal 2:* The turnaround time has remained high although the backlog has been decreasing. The backlog is decreasing because of a reduced level of submission due to changes in policy on what cases will be accepted. We are now limiting submissions of “touch DNA” to those items brought to the crime scene by the perpetrator. We are still working our way through all the cases that were submitted under the old rules in which we accepted anything. Consequently, we are still processing time consuming cases. When we have worked our way through those cases, we can expect to start seeing a true reduction in turnaround time.

*Goal 3:* Substantial progress was made towards completing the validation of the liquid handling robot. That work is almost complete. We expect this goal to be met shortly. Additionally, we have completed recalibrations of the pipettes and one of the analysts has met her continuing education requirements. One of the major accomplishments during this reporting period was the installation of the new CODIS terminal. This project required overcoming major hardware/software incompatibility problems. Now that those problems are under control we can turn our attention to casework.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

*Goal 1:* Supplies were purchased with grant funds and 32 cases were in fact processed. The backlog statistics indicate that number of unprocessed cases continues to decrease for a variety of reasons. These include increased efficiency, more stringent submission policies and the implementation of automated processes.

*Goal 2:* Even though the turnaround time has been decreasing, it is still more than at the start of the grant. We are continuing to fully implement grant funded improvements.

*Goal 3:* The validation of the liquid handling robot is now complete and the analysts are learning how to incorporate that technology into their workflow. This has contributed to the decrease of backlogged cases. Additionally, two analysts met their continuing education requirements by attending the Promega and MAFS conferences.

#### FINAL REPORT:

*Goal 1:* Goal 1 of reducing the backlog by 32 cases was met. 32 cases were analyzed with grant funds of which 16 generated CODIS eligible DNA profiles. As of this date, 8 have produced DNA hits. This is in line with the laboratory's general experience in that about 22 to 24% of our DNA cases produce CODIS hits.

*Goal 2:* Goal 2 of reducing the turnaround time by 5% was not met. On the other hand, the turnaround time essentially remained the same without increasing. Of course it varied both up and down during the course of the grant period. This was largely due to administrative distractions rather than technical reasons. Preparation for the first annual ISO surveillance visit, dealing with numerous problems caused by the changeover to a new CODIS terminal, and dealing with the untimely death of the Coroner all required time away from performing casework. Additionally, the DNA Technical Leader/CODIS Administrator became the section supervisor (Chief DNA Analyst) as part of the laboratory restructuring in preparation for the Laboratory Director's retirement in December. This required her to take time away from casework to perform the normal personnel management functions of a manager. It is to the analyst's credit that they were able to maintain the same level of samples per analyst per month as in previous periods.

The significant success during this period was the dramatic decrease in backlogged cases. This resulted from the cases submitted under the new rules finally coming up for analysis. These cases were submitted during the period when restrictions were imposed on "Touch DNA" submissions. In Jan. 2011, the laboratory imposed a policy of only

accepting “Touch DNA” evidence that had been brought to the crime scene by the perpetrator. This eliminated a large amount of unproductive work that previously would have detected the victim’s DNA or mixtures not suitable for CODIS entry. To underscore this policy and improve the collection efficiency of investigating officers, the laboratory provided them with a reference card of the most (and least) productive types of evidence. The information on this card was derived by the laboratory director from a careful study of over 1,000 cases analyzed the previous year. This project was actually a refinement of a similar study he completed the previous year based on work reported by Cecelia Crouse at the October 2009 Grantee’s meeting. These results were summarized in a table and reduced to a color coded card. A small amount of grant funds (\$250.00) were devoted to printing 500 laminated, color, pocket-sized reference cards. We are continuing to use these cards when instructing officers about evidence collection. See the separate attachment.

*Goal 3: Goal 3 of completing the validation of the Qiagility automated system was accomplished and the instrument is now being used for casework.*

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**FY10 Recipient Name:** Oklahoma State Bureau of Investigation

**Award Number:** 2010-DN-BX-K051

**Award Amount:** \$571,115

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City Of Tulsa, Oklahoma

**Award Number:** 2010-DN-BX-K079

**Award Amount:** \$317,089

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Oregon State Police

**Award Number:** 2010-DN-BX-K161

**Award Amount:** \$451,278

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Allegheny County Forensic Lab Division, Pennsylvania

**Award Number:** 2010-DN-BX-K065

**Award Amount:** \$283,541

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Pennsylvania State Police

**Award Number:** 2010-DN-BX-K053

**Award Amount:** \$1,110,575

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of Philadelphia, Pennsylvania

**Award Number:** 2010-DN-BX-K114

**Award Amount:** \$968,799

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Instituto de Ciencias Forenses, Puerto Rico

**Award Number:** 2010-DN-BX-K069

**Award Amount:** \$439,101

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Rhode Island Public Safety Grant Administration Office

**Award Number:** 2010-DN-BX-K125

**Award Amount:** \$150,000

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** County of Richland, South Carolina

**Award Number:** 2010-DN-BX-K074

**Award Amount:** \$113,950

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Broadly it is the overall goal of the RCSD to improve DNA analysis capacity and to reduce backlogged DNA casework. Please note that the RCSD Forensic Lab calculates the backlog when the Lab takes custody of the case, not when it is logged into evidence.

Objective 1: *Reduce backlogged DNA casework*

Objective 2: *Reduce turnaround time*

Note: Please add specific objectives here. Specific purchases, specific budget expenditures that will help to reduce your backlog and turnaround time – for example, the hiring of and role descriptions of the Specialist and Analyst should go here.

## PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

Note that 2010 funds were not accessed during this period.

## PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

Broadly it is the overall goal of the RCSD to improve DNA analysis capacity and to reduce backlogged DNA casework. Please note that the RCSD Forensic Lab calculates the backlog when the Lab takes custody of the case, not when it is logged into evidence. FY2010 funds were not accessed until February 1, 2011 and reflect the salaries are the DNA Specialist and one DNA Analyst. The DNA specialist has continued in her role of DNA evidence and casework. She conducts quality assurance/quality control functions, evidence processing, evidence transfers, administrative functions, data archiving, and immunological, and biochemical analyses on evidence submitted. She handles all cases through extraction for the two non grant-funded analysts. She conducts physical, microscopic, immunological, and biochemical analyses on evidence submitted, provides testimony in federal, state and local courts, processes crime scenes, provides forensic training or instruction to law enforcement officers, other representatives of the criminal justice community and other individuals as requested and she assists in the development and validation of new or improved DNA methodologies,

Objective 1: At the beginning of the award period the number of backlogged cases was 9. At the end of the reporting period the number was at 136. The reason for the increase in number of backlogged cases during this period was that the RCSD Forensic Laboratory DNA Section provided evidence gathering training to all sworn RCSD personnel. This training has resulted in a substantial increase in the number of items being submitted for analysis, particularly as it pertains to sexual assault cases (clothing, bed linens, etc). In addition, Richland County has experienced an increase in the number of criminal incidents in recent months, which has also led to an increase in evidence being submitted for analysis.

Objective 2: At the beginning of the period, the number of days required for case turnaround was 79 and at the end of this reporting period, the number of days was 54.

Optional Metric: During the award period, the grant funded analyst processed 165 cases, 44 profiles were entered into CODIS and 15 CODIS hits were made

## PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Broadly it is the overall goal of the RCSD to improve DNA analysis capacity and to reduce backlogged DNA casework. Please note that the RCSD Forensic Lab calculates the backlog when the Lab takes custody of the case, not when it is logged into evidence. FY2010 funds were accessed until February 1, 2011 and reflect the salaries are the DNA Specialist and one DNA Analyst. The DNA specialist has continued in her role of DNA evidence and casework. She conducts quality assurance/quality control functions, evidence processing, evidence transfers, administrative functions, data archiving, and immunological, and biochemical analyses on evidence submitted. She handles all cases through extraction for the two non grant-funded analysts. She conducts physical, microscopic, immunological, and biochemical analyses on evidence submitted, provides testimony in federal, state and local courts, processes crime scenes, provides forensic training or instruction to law enforcement

officers, other representatives of the criminal justice community and other individuals as requested and she assists in the development and validation of new or improved DNA methodologies,

*Objective 1: Reduce backlogged DNA casework.*

At the beginning of the award period the number of backlogged cases was 9. At the end of the reporting period the number was at 319. The reason for the increase in number of backlogged cases during this period was that the RCSD Forensic Laboratory DNA Section provided evidence gathering training to all sworn RCSD personnel. This training has resulted in a substantial increase in the number of items being submitted for analysis, particularly as it pertains to sexual assault cases (clothing, bed linens, etc) and property crimes. Property crimes account for 70% of all submissions for analysis. The process and productivity of the RCSD Forensic Laboratory did not change during this period, but the number of samples submitted for analysis did increase significantly, leading to the increase in backlogged cases.

*Objective 2: Reduce turnaround time.*

At the beginning of the period, the number of days required for case turnaround was 79 and at the end of this reporting period, the number of days was 53. Case turnaround time did not change in a significant way during this period.

Optional Metric: During the award period, the grant funded analyst processed 263 cases, 67 profiles were entered into CODIS and 10 CODIS hits were made

**PROGRESS REPORT 4: January 1, 2012 – March 31, 2012**

Broadly it is the overall goal of the RCSD to improve DNA analysis capacity and to reduce backlogged DNA casework. Please note that the RCSD Forensic Lab calculates the backlog when the Lab takes custody of the case, not when it is logged into evidence. FY2010 funds were not accessed until February 1, 2011 and reflect the salaries are the DNA Specialist and one DNA Analyst. The DNA specialist has continued in her role of DNA evidence and casework. She conducts quality assurance/quality control functions, evidence processing, evidence transfers, administrative functions, data archiving, and immunological, and biochemical analyses on evidence submitted. She handles all cases through extraction for the two non grant-funded analysts. She conducts physical, microscopic, immunological, and biochemical analyses on evidence submitted, provides testimony in federal, state and local courts, processes crime scenes, provides forensic training or instruction to law enforcement officers, other representatives of the criminal justice community and other individuals as requested and she assists in the development and validation of new or improved DNA methodologies,

*Objective 1: Reduce backlogged DNA casework.*

At the beginning of the award period the number of backlogged cases was 9. At the end of the reporting period (March 30, 2012) the number was at 118. The reason for the increase in number of backlogged cases during this period was that the RCSD Forensic Laboratory DNA Section provided evidence gathering training to all sworn RCSD personnel. This training has resulted in a substantial increase in the number of items being submitted for analysis, particularly as it pertains to sexual assault cases (clothing, bed linens, etc) and property

crimes. Property crimes account for 70% of all submissions for analysis. The process and productivity of the RCSD Forensic Laboratory did not change during this period, but the number of samples submitted for analysis did increase significantly, leading to the increase in backlogged cases. Despite the increase from the beginning of the grant period, the number of backlogged cases is still down from 319 as of December 2011.

*Objective 2: Reduce turnaround time.*

At the beginning of the period, the number of days required for case turnaround was 79 and at the end of this reporting period, the number of days was 36. Case turnaround time did decrease in a significant way during this period.

Optional Metric: During the reporting period, the grant funded analyst processed 65 cases, 36 profiles were entered into CODIS and 4 CODIS hits were made

**FINAL REPORT:**

Broadly it was the overall goal of the RCSD to improve DNA analysis capacity and to reduce backlogged DNA casework. Please note that the RCSD Forensic Lab calculates the backlog when the Lab takes custody of the case, not when it is logged into evidence. FY2010 funds were not accessed until February 1, 2011 and reflect the salaries are the DNA Specialist and one DNA Analyst until March 31, 2012. The DNA specialist has continued in her role of DNA evidence and casework. She conducts quality assurance/quality control functions, evidence processing, evidence transfers, administrative functions, data archiving, and immunological, and biochemical analyses on evidence submitted. She handles all cases through extraction for the two non grant-funded analysts. She conducts physical, microscopic, immunological, and biochemical analyses on evidence submitted, provides testimony in federal, state and local courts, processes crime scenes, provides forensic training or instruction to law enforcement officers, other representatives of the criminal justice community and other individuals as requested and she assists in the development and validation of new or improved DNA methodologies,

*Objective 1: Reduce backlogged DNA casework.*

At the beginning of the award period the number of backlogged cases was 9. At the end of the reporting period the number was at 118. The reason for the increase in number of backlogged cases during this period was that the RCSD Forensic Laboratory DNA Section provided evidence gathering training to all sworn RCSD personnel. This training has resulted in a substantial increase in the number of items being submitted for analysis, particularly as is pertains to sexual assault cases (clothing, bed linens, etc) and property crimes. Property crimes account for 70% of all submissions for analysis. The process and productivity of the RCSD Forensic Laboratory did not change during this period, but the number of samples submitted for analysis did increase significantly, leading to the increase in backlogged cases.

*Objective 2: Reduce turnaround time.*

At the beginning of the period, the number of days required for case turnaround was 79 and at the end of this reporting period, the average number of days required for case turnaround over the life of the project was 49. Case turnaround time did change in a significant way since the beginning of the award.



Optional Metric: During the award period, the grant funded analyst processed 493 cases, 147 profiles were entered into CODIS and 29 CODIS hits were made.

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**FY10 Recipient Name:** South Carolina Law Enforcement Division

**Award Number:** 2010-DN-BX-K103

**Award Amount:** \$1,399,617

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** South Dakota Office of the Attorney General

**Award Number:** 2010-DN-BX-K175

**Award Amount:** \$150,000

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Tennessee Bureau of Investigations

**Award Number:** 2010-DN-BX-K098

**Award Amount:** \$2,069,661

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of Austin, Texas

**Award Number:** 2010-DN-BX-K045

**Award Amount:** \$182,097

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** University of North Texas Health Science Center

**Award Number:** 2010-DN-BX-K119

**Award Amount:** \$785,138

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Texas Department of Public Safety

**Award Number:** 2010-DN-BX-K043

**Award Amount:** \$2,401,320

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Goal 1: Reduce backlog by utilizing grant-funded overtime for existing staff to conduct casework analysis.

Goal 2: Enhance capacity

Objective A: Purchase robotic liquid handlers, thermal cyclers, microcentrifuges, centrifuges, microscopes, heater/shakers, an autoclave, pipettors, PCR set-up hoods, and computers. Note, this goal was modified through Budget Modification GANs approved on 1/5/2011 and 6/7/2011. Goal also modified by a Scope GAN approved on 9/6/2011

Objective B: Purchase high-density shelving for newly completed laboratory spaces

Objective C: Purchase maintenance agreements for existing equipment

Goal 3: Allow staff to attend training opportunities

Goal 4: Hire/maintain twelve additional Forensic Scientists who will be actively involved in casework activities. Note, this goal was modified to hire 12 instead of the original 4 additional forensic scientists through a Budget Modification GAN approved 1/5/2011

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

This grant was awarded and to be started 10-01-2010. However, Texas Department of Public Safety laboratories were still using the 2009 grant award and did so through December 2010. No funds from this 2010 award were expended during this three month period. This grant project will commence for the Texas DPS on January 1, 2011. There is therefore no activity to report for this three month period.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

This DNA Backlog Reduction project effectively commenced on January 1, 2011. DNA Analysts in the eight Texas DPS Crime Laboratories examined forensic DNA cases on overtime, which was work performed after already working 40 hours per work week on state funding. Those cases worked during overtime hours are the ones counted as grant DNA cases. Grant provided funds were also used for supplies to examine these forensic DNA cases. All supply funds used since the inception of this project on or after January 1, 2011 have come from either state funds or from within this FY 2010 grant.

Approximately 70 forensic DNA analysts participated in the project. The number of cases examined are reported separately in this progress report. The goal for the entire project is to complete 1,500 forensic DNA cases, and evidence in 647 cases were examined during this six month project period.

**TRAINING:** Using grant funds during this project period, fourteen DNA analysts attended the American Academy of Forensic Science Annual Meeting in Chicago in February, where they obtained valuable information in the subject of forensic DNA testing and were able to see new products and instruments used for DNA analysis.

In April, one DNA analyst from the Corpus Christi Lab attended the Bode Conference on DNA testing in San Diego, California.

In June, one DNA analyst from our El Paso Lab attended training on the Tecan robot for DNA extractions at Durham, North Carolina. Also in June, a number of our DNA analysts attended the Association of Forensic DNA Analysts and Administrators Seminar in San Antonio, Texas. Two days of papers were presented there on forensic DNA testing, along with product demonstrations. This continuing education helps these analysts stay abreast with

the latest and most efficient techniques for DNA testing.

EQUIPMENT: During this period, the following two items of equipment were ordered:

- 1) An upgrade of an Applied Biosystems Avant genetic analyzer to a model 3130 for the McAllen Lab
- 2) A 3130 Genetic Analyzer was ordered for the Houston lab

These acquisitions have been completed and the equipment is being validated for use to analyze forensic DNA cases. This equipment will help to accommodate increased quantities of DNA samples being submitted to these labs for analysis.

Other items of equipment requested in the grant application, or subsequent grant adjustments, will be requisitioned during the next six months.

Additional Personnel:

Through a grant adjustment, approval was provided for us to employ twelve additional personnel to assist in biological evidence screening. Employment of those personnel has taken longer than anticipated, but most of them are either now employed, or they have been selected and will start work by the end of August. The plan is to train them to screen evidence and then have the DNA testing completed by our experienced DNA analysts.

This project is only slightly behind schedule, and it is anticipated that activity will increase during the second half of the year. We still expect to meet the project goal of completing the testing of evidence in 1,500 forensic DNA cases.

PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

The equipment goal was modified through budget modification GANs in the first reporting period of the year, and most drastically by a Scope GAN approved on 9/6/2011.

Goal #1: Backlog Reduction

During this grant period, supplies for processing DNA cases were ordered, and DNA analysts in the eight forensic DNA labs worked during overtime hours each week to complete the analysis of DNA evidence. The number of cases processed in each of the eight laboratories is stated in a table on an attached sheet. Once the DNA analysis was completed on each case and the lab report written, a technical and an administrative review of the case was conducted before the report was issued. The appropriate DNA profiles were entered from each case into the CODIS database at the local, state, and NDIS levels. Searches of the CODIS databases are performed weekly to ascertain if DNA from forensic samples can be matched to either DNA from evidence in other forensic cases, or to DNA profiles from offenders. DNA matches are reported to the investigating law enforcement agency once the match is confirmed. During this period, screening of evidence for biological material was completed on a total of 705 forensic cases, and DNA analysis was completed on evidence in 632 of mostly the same forensic cases. DNA profiles were uploaded into CODIS at either the SDIS or NDIS level on 430 of these cases, and into NDIS on 310 cases. CODIS hits were obtained on evidence from 122

cases. When combined with activity reported in progress report number 2, ninety percent of the goal of working 1,500 forensic cases has been achieved.

#### Goal #2: Capacity Enhancement

Equipment Acquisition: During this grant period, equipment was purchased to enhance the capacity of the respective laboratories.

- 1) High density shelving was ordered for the new crime laboratory facilities in both Weslaco and Corpus Christi. The shelving has been installed in Weslaco and the lab staff has moved into the new lab facility. In Corpus Christi, construction of the new lab is scheduled for completion in January 2012, with installation of the shelving scheduled for either January or February 2012.
- 2) A Qiagen EZ-1 robotic liquid sampler was acquired for use in the Waco Laboratory for the extraction of DNA from difficult evidence samples.
- 3) An order was placed for 65 Touch Smart computers to be distributed to all eight DNA Forensic DNA laboratories. These will be used in conjunction with a new laboratory information management system to better track DNA samples and to document work performed on those samples, as well as to report findings.
- 4) Pipettors were purchased for the DNA sections of the Corpus Christi, Houston, and Weslaco laboratories. These are used for sample collection in both the DNA quantitation and extraction processes.
- 5) A thermal cycler was purchased from Applied Biosystems for the Corpus Christi lab to be used in the PCR process with evidence DNA samples.
- 6) Centrifuges were ordered for the Corpus Christi, Garland, and Weslaco laboratories to use in the extraction of DNA samples.
- 7) Two uninterrupted power supply units were purchased for the Corpus Christi laboratory to use with genetic analyzers.
- 8) PCR work stations were ordered for the Weslaco laboratory, to be used in the PCR setup process.
- 9) Thermo mixers were acquired by the Waco laboratory to be used in the DNA extraction process.
- 10) Two autoclaves were acquired for the Weslaco lab for sterilizing reagents and for the autoclaving of bio-hazard evidence before disposal.
- 11) One microscope was acquired for the Weslaco laboratory for the examination of evidence samples for the presence of spermatozoa.
- 12) Sixteen computer work stations were ordered to be used as CODIS data entry computers in the eight DPS DNA laboratories.

In addition to the acquisition of new equipment, a contractor moved a walk-in freezer from the old crime lab in Houston to a new bio-evidence warehouse there. The freezer will be used for the storage of DNA evidence. Also, the staff of the DPS McAllen Laboratory moved from a small crowded facility to the new DPS Weslaco Crime Laboratory in November and have installed and validated both new and existing DNA instruments and will greatly be able to enhance their work output in the new larger facility.

Goal #3 Training: A number of DPS DNA Analysts attended training events during this grant period both inside and outside of Texas.

- 1) Two persons worked on Masters Degrees at the University of Florida.
- 2) Twelve analysts attended the Association of DNA Analysts and Administrators meeting in San Antonio July 7-8, 2011.
- 3) Eighteen analysts attended the International Symposium on Human Identification Meeting in National Harbor, Maryland, October 4-6, 2011.
- 4) Five analysts attended the National CODIS Conference in Jacksonville, Florida, November 14-16, 2011.

This continuing education helped greatly to assure that the DPS DNA analysts were employing the latest and optimal procedures for forensic DNA testing, and that they are aware of specific challenges that may arise in casework.

#### Goal #4: Hire and Train Eleven Forensic Scientists and one Evidence Technician

These Forensic Scientists, once trained, are screening evidence in DNA cases. Then the screened samples are forwarded to a DNA analyst in each lab for completion of the DNA testing.

### FINAL REPORT

Goal 1: Reduce backlog by utilizing grant funded overtime for existing staff to conduct casework DNA analysis, and to use grant funded consumable supplies. The goal was to complete 1,500 forensic biology cases over the project term.

Over the fourteen month period of the project from January 1, 2011 through February 29, 2012, DPS laboratory staff ordered consumable supplies needed for the screening and DNA analysis of evidence from forensic biology cases. Using these supplies, approximately seventy of the DPS state funded staff of DNA Forensic Scientists worked overtime, paid by grant funds, to screen and analyze biology evidence and develop DNA profiles, then to upload the eligible profiles into CODIS, and issue lab reports. This same activity took place in all eight DPS DNA laboratories across the state (Austin, Corpus Christi, McAllen, Lubbock, El Paso, Garland, Waco, and Houston). The Forensic Scientists testified in criminal trials, where requested. CODIS database searches were conducted weekly, and hits, when obtained, were reported to the respective law enforcement agencies. Work was performed and laboratory reports issued on a total of 1,552 forensic biology cases over the period of the project. The attached document reflects by laboratory the number of cases screened for biology evidence, and the number of cases where both screening and DNA analysis was completed. This goal was achieved.

#### Goal 2: Capacity Enhancement

Equipment Acquisition: During the fourteen month duration of this grant project, capital equipment was purchased and placed into service in one or more of the eight DPS DNA Crime Laboratories.

The list of equipment acquired is included in progress reports #2 and #3. All of this equipment has been installed and validated and will greatly enhance the capacity for DNA work output in these laboratories.

#### Goal 3: Training

A total of fifty-one DPS DNA analysts attended training conferences during 2011 using funds provided through this grant. They met their requirements for continuing education,

while also learning new and better techniques for the forensic testing of DNA evidence. Details of that training are stated in Progress Reports #2 and #3.

In addition, the following DPS DNA Forensic Scientists attended training at an American Academy of Forensic Sciences meeting in Atlanta, Georgia held February 22-24, 2012: NAMES REMOVED FOR PRIVACY

Also, the following DNA Forensic Scientists attended an Association of Forensic DNA Analysts and Administrators Meeting in Austin, Texas February 2-3, 2012: NAMES REMOVED FOR PRIVACY

All of this training met the goal for this project of satisfying continuing education requirements for DPS DNA analysts.

**Goal 4: Hire and Train Eleven Forensic Scientists and one Evidence Technician**

As stated in Progress Report #3, the twelve positions were filled by employing new personnel. They have been trained to screen biological material in evidence samples and are now performing those tasks in six of the eight DPS DNA laboratories. They are helping greatly to affect the reduction of the DNA backlog.

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**FY10 Recipient Name:** Harris County, Texas

**Award Number:** 2010-DN-BX-K097

**Award Amount:** \$796,580

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

Goal 1 - To complete screening and reviewing of backlogged cases using overtime funds.

Goal 2 - To improve our ability to complete DNA analysis and store results more efficiently.

Goal 3 - To provide training opportunities for DNA personnel through relevant meetings and expert evaluations.

Goal 4 - To hire contract Personnel.

**PROGRESS REPORT 1: October 1, 2010 – December 31, 2010**

Goal 1 - To complete screening and reviewing of backlogged cases using overtime funds.

At this time, approximately \$34, 917.87 has been expended for overtime to process backlogged cases.

Goal 2 - To improve our ability to complete DNA analysis and store results more efficiently

The following items/service has been purchased and is currently in use:

1 - Tecan EVO

3 - Microsoft Office Licenses

1 - Wall Mount Computer

8 - Chairs

1 - Ductless Fume Hood

1 – Pipette

Goal 3 - To provide training opportunities for DNA personnel through relevant meetings and expert evaluations.

No funds have been expended for travel.

Goal 4 - To hire contract Personnel.

We have hired (1) DNA Analyst III, (1) DNA Lab Technician, (1) DNA Systems Analyst, and (6) Serologists.

PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

Goal 1 - We no longer use overtime for screening and reviewing backlogged cases. The funds used during this reporting period were used only for supplies (and contract employees, explained below). Funds for supplies were used to work 261 cases during this reporting period.

Goal 2 - The following items/service has been purchased and is currently in use (cumulative):

- 1 - Tecan EVO
- 3 - Microsoft Office Licenses
- 1 - Wall Mount Computer
- 8 - Chairs
- 1 - Ductless Fume Hood
- 1 - Pipette
- 1 - Computype
- 1 - Crating Charge for Ductless Fume Hood
- 1 - Activated Bonded Charcoal Filter
- 1 - Filter Housing, Polypropylene for Valuline
- 1 – Supplies (Y-Filer AmpflSTR Kits, Identifiler PLUS AmpflSTR Kits, Quantifiler DUO Kits, Qiagen Kits)

Goal 3 - AAFS - Chicago, IL - 4 Staff members attended  
AFDAA - San Antonio, TX - 5 Staff members attended

Goal 4 - During this reporting period, there were six Serology contract staff members who performed only Serology screening. In total, they screened 1,030 cases to prepare them for DNA testing during this reporting period. Two additional Serology contract staff members were hired during this reporting period (one to replace a contractor who resigned during this reporting period; we now have a total of 7 contract serologist). Both of the new hires were in training only during this reporting period.

Three additional contractors, a DNA Systems Analyst, a DNA Validation Analyst and a DNA Technician were also under contract during this reporting period. None of these contractors conduct casework; their job is to make the case working analysts more productive. The DNA Systems Analyst developed several queries and converted excel workbooks used for DNA processing to Microsoft SQL databases for the Forensic Genetics Laboratory (Forensic Genetics Database, DNA Case Database).

The DNA Validation Analyst completed seven validations including validation of the new Tecan instrument, a new QIASymphony instrument and the Barcode System among others. The technician assisted with evidence submission entry into our LIMS, case report distribution (faxing and emailing), reagent preparation, preparation of stain cards (she made approximately 848 stain cards during this reporting period), and sterilization of supplies/solutions.

### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goal 1 - To complete screening and reviewing of backlogged cases using overtime funds.

We no longer use overtime for screening and reviewing backlogged cases. The funds used during this reporting period were used only for supplies (and contract employees, explained below). Funds for supplies were used to work 576 cases during this reporting period. The contract serologist performed serology and prepared 860 cases for DNA testing.

Goal 2 - To improve our ability to complete DNA analysis and store results more efficiently.

The following items/service has been purchased and is currently in use

(cumulative):

- 1 - Tecan EVO
- 3 - Microsoft Office Licenses
- 1 - Wall Mount Computer
- 8 - Chairs
- 1 - Ductless Fume Hood
- 1 - Pipette
- 1 - CompuType
- 1 - Crating Charge for Ductless Fume Hood
- 1 - Activated Bonded Charcoal Filter
- 1 - Filter Housing, Polypropylene for Valuline
- 3 - Books
- 1 - Service Maintenance Agreement – Tecan Freedom EVO
- 1 - Supplies (Qiagen Kits, Identifiler PLUS AmpflSTR Kits, Quantifiler DUO Kits)

Goal 3 - To provide training opportunities for DNA personnel through relevant meetings

Meetings attended (cumulative):

- AAFS - Chicago, IL - 4 Staff members attended
- AFDAA (winter meeting) - Austin, TX - 5 Staff members attended
- AFDAA (summer meeting) - San Antonio, TX - 5 Staff members attended
- SWAFS – Houston, TX – 19 members attended

International Symposium on Human Identification (Promega) - National Harbor, Maryland - 5 Staff members attended

Goal 4 - To hire contract Personnel.

At the beginning of this reporting period, there were six Serology contract staff members who performed only Serology screening, a DNA Validation Analyst and a DNA technician. In total, the contract serologist screened 860 cases to prepare them for DNA testing during this reporting period. Our contract serologist staff has decreased to one contract serologist during this reporting period due to our ability to hire permanent staff. One additional contractor, a DNA Technician/Photographer was hired during this reporting period. The additional DNA technician/Photographer was in Laboratory training during this reporting period along with photographing evidence. 482 photographs of evidence were taken by this position during this reporting period. The technician assisted with evidence submission entry into our LIMS, case report distribution (faxing



and emailing), reagent preparation, preparation of stain cards(approximately 643 stain cards during this reporting period), and sterilization of supplies/solutions.

The DNA Validation Analyst completed the validation of Identifiler Plus on the Tecan with Barcodes Template v3.0 during this reporting period. The DNA validation analyst does not conduct casework; their job is to make the case working analysts more productive.

#### PROGRESS REPORT 4: January 1, 2012 – March 30, 2012

Goal 1 - We no longer use overtime for screening and reviewing backlogged cases. No funds were used during this reporting period for supplies.

Goal 2 - To improve our ability to complete DNA analysis and store results more efficiently.

The following items/service has been purchased and is currently in use (cumulative):

- 1 - Tecan EVO
- 3 - Microsoft Office Licenses
- 1 - Wall Mount Computer
- 8 - Chairs
- 1 - Ductless Fume Hood
- 1 - Pipette
- 1 - Computype
- 1 - Crating Charge for Ductless Fume Hood
- 1 - Activated Bonded Charcoal Filter
- 1 - Filter Housing, Polypropylene for Valuline
- 6 – Books
- 1 – Service Maintenance Agreement – Tecan Freedom EVO
- 1 – Supplies (Qiagen Kits, Identifiler PLUS AmpflSTR Kits, Quantifiler DUO Kits)
- 2-Color printers
- 1-Computype-software development
- 1- Computype zebra printer
- 3- Computype cordless scanners
- 1-Docking station
- 2- Washable wireless keyboards
- 1 – CODIS system upgrade- server, software and computers (3)

Goal 3 - To provide training opportunities for DNA personnel through relevant meetings

Meetings attended (cumulative):

- AAFS 2011- (February, 2011) Chicago, IL - 4 Staff members attended
- AFDAA winter meeting (February, 2011) - Austin, TX - 5 Staff members attended
- AFDAA summer meeting (June, 2011) - San Antonio, TX - 5 Staff members attended
- SWAFS – (Oct, 2011) Houston, TX – 19 members attended
- International Symposium on Human Identification (Promega) - (Oct, 2011)  
National Harbor, Maryland - 5 Staff members attended

AFDAA Winter Meeting 2012 (February, 2012) Austin, TX-5 Staff members attended  
AAFS 2012 (February, 2012) Atlanta, Georgia -4 Staff members attended

Goal 4 - To hire contract Personnel. At the beginning of this reporting period, we hired one serology contract staff member and replaced one serology contract staff member. The contract staff funded from this grant during this time period consisted of two Serology contract staff members and one DNA Technician/Photographer. In total, the contract serologist screened 229 cases to prepare them for DNA testing during this reporting period. The DNA Technician/Photographer photographed 354 evidence during this reporting period along with their duty of sterilizing of supplies/solutions.

**FINAL REPORT:**

Goal 1 - To complete screening and reviewing of backlogged cases using overtime funds. During the duration of this grant, \$34,917.87 was used for overtime to process 65 backlogged cases and 837 DNA cases were worked with grant purchased supplies for a total of 902 DNA cases. No cases were outsourced using funds from this grant award.

Goal 2 - To improve our ability to complete DNA analysis and store results more efficiently. The following items/service was purchased during the duration of this grant:

- 1 - Tecan EVO
- 3 - Microsoft Office Licenses
- 1 - Wall Mount Computer
- 8 - Chairs
- 1 - Ductless Fume Hood
- 1 - Pipette
- 1 - Computype
- 1 - Crating Charge for Ductless Fume Hood
- 1 - Activated Bonded Charcoal Filter
- 1 - Filter Housing, Polypropylene for Valuline
- 6 - Books
- 1 - Service Maintenance Agreement - Tecan Freedom EVO
- 1 - Supplies (Qiagen Kits, Identifiler PLUS AmpflSTR Kits, Quantifiler DUO Kits)
- 2-Color printers
- 1-Computype-software development
- 1- Computype zebra printer
- 3- Computype cordless scanners
- 1-Docking station
- 2- Washable wireless keyboards
- 1 - CODIS system upgrade- server, software and computers (3)

Goal 3 - To provide training opportunities for DNA personnel through relevant meetings Meetings attended during the duration of this grant:

- AAFS 2011- (February, 2011) Chicago, IL - 4 Staff members attended
- AFDAA winter meeting (February, 2011) - Austin, TX - 5 Staff members attended

AFDAA summer meeting (June, 2011) - San Antonio, TX - 5 Staff members attended  
SWAFS – (Oct, 2011) Houston, TX – 19 members attended  
International Symposium on Human Identification (Promega) - (Oct, 2011) National Harbor,  
Maryland - 5 Staff members attended  
AFDAA Winter Meeting 2012 (February, 2012) Austin, TX (five people)  
AAFS 2012 (February, 2012) Atlanta, Georgia (four people)

Goal – 4: To hire contract Personnel.

During the duration of this grant the contract Serology/ Technician staff hired performed screening on 2119 cases for DNA testing, prepared 1491 stain cards and photographically documented 836 cases.

During the duration of this grant the contract DNA Systems Analyst developed several queries and converted excel workbooks used for DNA processing to Microsoft SQL databases for the Forensic Genetics Laboratory (Forensic Genetics Database, DNA Case Database).

During the duration of this grant the contract DNA Validation Analyst completed several validations including validation of the new Tecan instrument, a new QIASymphony instrument, the Barcode System and Identifiler Plus on the Tecan with Barcodes Template v3.0 among others.

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**FY10 Recipient Name:** Tarrant County, Texas

**Award Number:** 2010-DN-BX-K052

**Award Amount:** \$280,892

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

There are eight goals that the TCME will accomplish in order to improve and increase DNA capacity of the DNA Laboratory.

Goal #1: Purchase, install, and validate the equipment necessary to extract and purify samples using a much faster automated instrument. The QIAgen EZ1 XL Advanced and the Thermoshaker instruments will allow samples to be completely extracted in as little time as an hour.

Goal #2: Purchase, install, and validate the QIAgility Liquid Handler which can set-up quantification and amplification plates in an automated system. Also, purchase Qiagen service to customize the protocols and service to verify calibration of automated liquid handlers.

Goal #3: Purchase and install a LIM System which includes software and a computer server that would ensure the laboratory is following required guidelines on documentation and quality assurance.

Goal #4: Purchase equipment that would assist in the calibration of the thermal cyclers which would ensure complete and accurate temperature variations for successful amplifications.

Goal #5: Purchase the needed supplies that would be utilized for the validation of new instrumentation.

- Goal #6: Purchase the needed pipettes for the set-up station at the EZ1 instruments.
- Goal #7: Purchase a printer for the bank of EZ1 instruments and the QIAgility.
- Goal #8: Purchase a computer work station to allow timely evidence transfers using the county's LIMS.
- Goal #9: Provide education for four Forensic Biologists that will satisfy the CE requirements.

#### PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

- Goal #1: In this reporting period, the lab has received approval for the QIAGEN sole source GAN. Three EZ1 XL Advanced Instruments were ordered and received. The Thermoshakers have been ordered; however, have not been received at the lab yet.
- Goal #2: In this reporting period, the lab has received approval for the QIAGEN sole source GAN. The QIAgility was ordered and received by the laboratory. Qiagen has set-up the instrument and provided a day of training. Customization of protocols has been purchased; however, service has yet to be done. Formal quote was received for calibration of instrument.
- Goal #3: In this reporting period, the lab has purchased this software and LIMS system; however, the lab has yet to receive the purchased items.
- Goal #4: In this reporting period, no quotes or research has been done for this item.
- Goal #5: In this reporting period, three Qiagen Investigator kits have been ordered and received.
- Goal #6: In this reporting period, no pipettes have been purchased.
- Goal #7: In this reporting period, printers were researched.
- Goal #8: In this reporting period, the lab has researched the requirements needed to be on the computer such as server software and service packs.
- Goal #9: In this reporting period, one analyst has attended the CODIS conference in Salt Lake City. Also, two analysts have registered for the Academy meeting in Chicago.

#### Performance Metrics

The performance measures, the average number of days from request to authorized report release and the average number of samples worked by each analyst each month, were collected, calculated, and recorded using an Excel program. The dates were recorded in an Excel program by the Crime Lab Secretary whose responsibility is to send out the DNA reports to submitting agencies. The number of samples worked by each analyst was recorded by the Crime Laboratory Director when the case was completed. And it was the ultimate responsibility of the Business Manager to compile the information together in the Excel program where the data can be maintained and the required information could be calculated. There were several factors such as training, grant duties and activities, and CODIS activities that affected the turnaround time and number of samples analyzed during this reporting period.

#### PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

- Goal #1: In this reporting period, the lab has received all of the equipment. The instruments are in the process of being validated.
- Goal #2: In this reporting period, the lab is currently in the process of validation of the QIAgility.

- Goal #3: The lab has received the server and software. A week long training session occurred in May 2011. The lab is in the process of getting all documents into the LIMS system so it can be implemented into the workflow.
- Goal #4: In this reporting period, no quotes or research has been done for this item.
- Goal #5: In this reporting period, four Qiagen Investigator kits have been ordered and received. Also, a flip-cap adapter for the QIAgility has been ordered.
- Goal #6: In this reporting period, no pipettes have been purchased.
- Goal #7: In this reporting period, a printer was purchased and received.
- Goal #8: In this reporting period, the lab has purchased a computer work station and received the computer.
- Goal #9: In this reporting period, two analysts have attended the AAFS conference in Chicago. Also, two analysts have registered for the AFDA meeting in San Antonio in July.

Performance Metrics: The performance measures, the average number of days from request to authorized report release and the average number of samples worked by each analyst each month, were collected, calculated, and recorded using an Excel program. The dates were recorded in an Excel program by the Crime Lab Secretary whose responsibility is to send out the DNA reports to submitting agencies. The number of samples worked by each analyst was recorded by the Crime Laboratory Director when the case was completed. And it was the ultimate responsibility of the Business Manager to compile the information together in the Excel program where the data can be maintained and the required information could be calculated.

There were several factors such as training, grant duties and activities, and CODIS activities that affected the turnaround time and number of samples analyzed during this reporting period.

#### PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

- Goal #1: In this reporting period, the EZ1s are in the process of being validated.
- Goal #2: In this reporting period, the QIAgility in the process of being validated.
- Goal #3: The lab is in the process of getting all documents into the Qualtrax LIMS system so it can be implemented into the laboratory workflow. The lab is working with company to get several issues resolved before it can be used in the lab.
- Goal #4: In this reporting period, a quote was obtained and the temperature probe was ordered. Unfortunately, the wrong temperature probe was received. The lab is in the process of getting the issue resolved.
- Goal #5: In this reporting period, Fitzco tubes were received to be used during the validation of the EZ1s.
- Goal #6: In this reporting period, no pipettes have been purchased.
- Goal #7: In this reporting period, a printer was installed in the laboratory so that documents would be able to be printed from the EZ1s and QIagility; however, the computers for the instruments have not been networked to the printer.
- Goal #8: In this reporting period, the computer work station has been installed in the lab, but the label printer does not work on the new computer. Our IT department is working on this issue.

Goal #9: In this reporting period, two analysts attended the AFDA meeting in San Antonio in July of 2011.

Performance Metrics: The progress report includes corrections to previously submitted performance metrics. A change in the manner in which DNA samples were tabulated within our business management software went into effect October 1, 2010 and led to inadvertent duplicate counting of samples for statistical purposes on some DNA cases. This issue was discovered during this reporting period and corrections were made accordingly to the number of samples/analyst/month. A correction to backlog numbers for reporting period two is being made due to the fact that the previous number did not exclude samples that had been in the laboratory for less than 30 days. Corrections are also being made to the figures for average turnaround time. The use of multiples spreadsheets maintained by several individuals resulted in omissions in calculation of these numbers. A change has been made to our procedures and a single Excel spreadsheet updated by the Crime Lab Secretary and maintained by the Crime Lab Director will now generate all numbers for performance measures.

The main factor affecting the metrics during this time period was the move of the Crime laboratory to a new building. The amount of time it took to pack, move, and unpack our laboratory took time away from casework and validations. The analysts involvement in training, grant activities, quality assurance, and CODIS activities were also factors that affected the turnaround time and number of samples analyzed during this reporting period.

#### FINAL REPORT:

The Tarrant County Medical Examiner (TCME) Crime Laboratory applied for and was awarded grant 2010-DN-BX-K052 under the DNA Backlog Reduction grant program. The amount awarded was \$280,892. The funds awarded were used to purchase equipment, supplies and services for validation, education, software licenses, and a LIMS for document management. The main objective of the grant project was to improve DNA analysis capacity of the Tarrant County Medical Examiner's DNA laboratory.

The TCME Crime Laboratory had nine goals to achieve during the life of the grant that would allow the laboratory to eventually decrease the turn around time for cases, reduce backlog, and increase the number of samples worked. The lab was able to successfully achieve all of the goals as far as purchasing all equipment, services and software. Several items are still in the process of being validated at the close of the grant. List below are the goals and how each goal was achieved.

Goal #1: To purchase, install, and validate three Qiagen EZ1 Advanced instruments. These instruments will be used as an automated purification step in the extraction procedure. The automation will take the place of our current manual method which is more time consuming and opens the door for human error. The EZ1 samples also exhibit less inhibition than the samples purified organically which could significantly decrease our turn around time by decreasing the number of amplifications we perform. The automation will allow the samples to be purified in only seventeen minutes where our current method takes hours. These instruments are in the final stages of validation and will be online in the near future.

Goal #2: To purchase, install, and validate a Qiagen Qiagility instrument. The liquid handler will be used for quantification setup, normalization, and amplification setup. The automation will take the place of our current manual method which is more time consuming and opens the door for human error. With the use of automation, the setup will not take long and it allows the analyst to be doing other tasks. The instrument is in the process of being validated and a service to have it calibrated and additional protocol support has been purchased. The calibration service has been purchased but has not been performed by the close of the grant. The service has been set for completion in May 2012.

Goal #3: To purchase and install a LIMS document manager. The LIMS purchased is Qualtrax. Many of our quality documents including training, manuals, and logs have been imported into the new system. The software also has workflow and testing features which are in the process of being developed. Qualtrax is not fully online at the close of the grant, but will be in place in the near future. The purchase included hardware, software, training, and maintenance.

Goal #4: To purchase a temperature probe. The temperature probe was ordered; however, we are still waiting for delivery of this item. The temperature probe will assist in the calibration of the thermal cyclers which would ensure complete and accurate temperature variations for successful amplifications.

Goal #5: To purchase supplies for the validations to be completed on the instruments purchased on the grant. All items on the supply list were purchased and have been or will be used for validations of the Qiagen EZ1s and Qiagility.

Goal #6: To purchase pipettes and shaking heat blocks to be used for the validation of instruments. Eight pipettes were purchased and received from Rainin to be used for the Qiagen EZ1 area and for the validation of the Qiagen Qiagility. Also, two shaking heat blocks that are being used for the validation of the EZ1s have been received and installed.

Goal #7: To purchase a color printer for the EZ1 and Qiagility documents to be printed on. A printer was purchased and installed in the laboratory so that documents would be able to be printed from the EZ1s and Qiagility; however, the computers for the instruments have yet to be networked to the printer. The printer was attached to the evidence check-in computer purchased.

Goal #8: To purchase a computer work station that will allow for timely evidence transfers, a client CODIS workstation and appropriate software license, and two Adobe licenses. The evidence check-in computer has been installed and put into use in the lab, but we are waiting on a new label printer. The two Adobe licenses have been purchased and installed. The CODIS workstation and license have been purchased, but they have yet to be received by the close of the grant.

Goal #9: Funding allowed analysts to obtain the required amount of Continuing Education needed for qualified DNA analysts. Four analysts went to an American Academy of Forensic Science meeting, two analysts went to Association of Forensic DNA Analysts and Administrators, and one analyst went to the CODIS meeting.

Performance Metrics: In this final report, the cumulative metrics for the grant lifecycle have been entered into the final column. Metrics for January 1, 2012 – March 31, 2012, (final reporting period) are included in the Jan – June 2012 column.

The performance measures, the average number of days from request to authorized report release and the average number of samples worked by each analyst each month, were collected, calculated, and recorded using an Excel program. The dates were recorded in an Excel program by the Crime Lab Secretary whose responsibility is to send out the DNA reports to submitting agencies. The number of samples worked by each analyst was recorded by the Crime Laboratory Director when the case was completed. The Crime Laboratory Director compiled the information together in the Excel program where the data is maintained and the required information could be calculated.

The main factor affecting the metrics during this time period was the move of the Crime laboratory to a new building. The amount of time it took to pack, move, and unpack our laboratory took time away from casework and validations. The analysts involvement in training, grant activities, quality assurance, and CODIS activities were also factors that affected the turnaround time and number of samples analyzed during this reporting period.

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**FY10 Recipient Name:** County of Bexar, Texas

**Award Number:** 2010-DN-BX-K048

**Award Amount:** \$127,119

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** City of Houston, Texas

**Award Number:** 2010-DN-BX-K112

**Award Amount:** \$1,143,339

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Utah Department of Public Safety

**Award Number:** 2010-DN-BX-K117

**Award Amount:** \$281,036

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Virginia Department of Forensic Science

**Award Number:** 2010-DN-BX-K120

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**Award Amount:** \$920,520

**Final Report:** *This project is still in progress*

**FY10 Recipient Name:** Vermont Department of Public Safety

**Award Number:** 2010-DN-BX-K055

**Award Amount:** \$150,000

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Washington State Patrol

**Award Number:** 2010-DN-BX-K174

**Award Amount:** \$1,004,276

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Wisconsin Department of Justice

**Award Number:** 2010-DN-BX-K151

**Award Amount:** \$713,980

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** West Virginia State Police

**Award Number:** 2010-DN-BX-K083

**Award Amount:** \$230,014

**Final Report:** *This project is still in progress*

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**FY10 Recipient Name:** Wyoming Office of the Attorney General

**Award Number:** 2010-DN-BX-K160

**Award Amount:** \$150,000

**Final Report:**

**GOALS AND OBJECTIVES OF PROJECT:**

The following goals and objectives were set for this award:

- 1) Reduce the DNA casework backlog
  - Objective A: Use overtime for existing staff
  - Objective B: Purchase necessary supplies
- 2) Increase the DNA analysis capacity at the WSCL

Objective A: Use overtime for staff to do validation projects

Note – more specific objectives should be listed for this goal

PROGRESS REPORT 1: October 1, 2010 – December 31, 2010

Goal #1: This goal is still pending.

During this period, the WSCL has devoted 19 overtime hours to casework DNA analysis towards reducing the backlog. Work on seven cases has been funded through this grant.

The acquisition of necessary supplies is beginning.

Goal #2: This goal is still pending.

PROGRESS REPORT 2: January 1, 2011 – June 30, 2011

Goal #1: This goal is still pending

During this period, the WSCL has devoted 200 overtime hours to casework DNA analysis towards reducing the backlog. Work on 43 cases has been funded through this grant this period.

The acquisition of necessary supplies is continuing.

Goal #2: This goal is still pending

During this period, the WSCL has devoted 46 overtime hours to validating new processes to increase analysis capacity. Validation of a Qiagility robot for use with quantitation of casework samples, and the validation of VSD punchers for Offender samples are examples.

PROGRESS REPORT 3: July 1, 2011 – December 31, 2011

Goal #1: This goal is still pending

During this period, the WSCL has devoted approximately 235 overtime hours to casework DNA analysis towards reducing the backlog. Work on 48 cases has been funded through this grant this period.

The acquisition of necessary supplies is continuing.

Goal #2: This goal is complete

During this period, the WSCL has devoted 10 overtime hours to validating new processes to increase analysis capacity.

During this period, the WSCL completed validating new processes to increase analysis capacity.

Validation of a Qiagility robot for use with quantitation of casework samples is complete.

The validation of AB Identifiler Plus kits for use with casework and offender samples is complete.

The validation of the AB 3500 genetic analyzer for use with offender samples is complete.

The validation of the BSD punchers for use with offender samples is complete.

FINAL REPORT:

Goal #1: This goal is complete

During this entire grant period, the WSCL has devoted approximately 454 overtime hours to casework DNA analysis towards reducing the backlog. Work on 98 cases has been funded through this grant.

The acquisition of necessary supplies is complete.

Goal #2: This goal is complete

During this entire grant period, the WSCL has devoted 56 overtime hours to validating new processes to increase analysis capacity.

During this period, the WSCL completed validating new processes to increase analysis capacity.

Validation of a Qiagility robot for use with quantitation of casework samples is complete.

The validation of AB Identifiler Plus kits for use with casework and offender samples is complete.

The validation of the AB 3500 genetic analyzer for use with offender samples is complete.

The validation of the BSD punchers for use with offender samples is complete.

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