OKLAHOMA STATE BUREAU OF INVESTIGATION

CODIS UNIT TRAINING MANUAL

Revision 13 – effective December 02, 2024

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Introduction

Goals (to Table of Contents)

The goal of the CODIS Unit training program is to provide the new criminalist or technician with the information and skills needed to become a successful CODIS criminalist or technician. Upon completion of the requirements in this training manual, the trainee will be familiar with the general operation, policies and procedures of the OSBI CODIS Unit and will be prepared to perform the duties of a CODIS criminalist or technician.

Upon completion of the training program, the criminalist trainee will possess:

- Knowledge of the principles and practices of DNA analysis as they relate to the analysis of offender database samples
- Knowledge of the theory and application of instrumentation and specialized techniques used to examine offender database samples
- Ability to perform analysis on offender database samples independently and proficiently
- Ability to perform hit verifications and accurately report results to law enforcement agencies
- Ability to testify in courts of law regarding his/her analyses
- Ability to perform maintenance and performance checks on equipment used in the lab for DNA analysis
- Ability to administratively and technically review CODIS analyses

Upon completion of the training program, the technician trainee will possess:

- Knowledge of the principles and practices of DNA analysis as they relate to the analysis of offender database samples
- Knowledge of the theory and application of instrumentation and specialized techniques used to examine offender database samples
- Ability to perform maintenance and performance checks on equipment used in the lab for DNA analysis on offender database samples
- Ability to administratively review CODIS analyses

The Training Manual (to Table of Contents)

Reference: OSBI Criminalistics Services Division Quality Manual: QP19 - Training

The purpose of the CODIS Unit Training Manual is to provide a uniform training program for CODIS criminalists and technicians employed by the Oklahoma State Bureau of Investigation. The Training Program is designed to develop a person with a good scientific background into a qualified CODIS criminalist or technician by providing the trainee with the knowledge and application of accepted procedures of offender DNA analysis. This training manual is designed to provide exposure to tests, methods, techniques, and procedures presently and formerly used in the DNA community and accepted by the courts. It will provide information pertaining to literature specific to the field of DNA analysis and to the laws governing the handling of offender samples. Additionally, if a previously qualified Criminalist should need re-training due to an extended absence, disqualification, transfer, etc., the parameters set

forth in this Training Manual will be followed in order to re-qualify the individual. The re-training process will be evaluated and approved by the Technical Manager.

After successful completion of all the assignments within the training manual, a competency test will be assigned to the trainee. Trainees will be assigned a competency test prior to participating in any DNA analysis.

General duties, such as logging in offender samples and laboratory QC procedures (i.e. lab cleaning, temperature monitoring), may be performed independently after completion of the relevant assignments upon guidance from the Technical Manager.

The training period and/or training program may be modified by the Technical Manager to account for a trainee's prior experience/training. If the training program is modified for a trainee due to previous experience, that modifications will be documented in a memo from the Technical Manager.

Prior to a trainee beginning the training program, the trainee's educational transcripts should be reviewed by the Technical Manager. Prior to a trainee being released for analysis, the Technical Manager shall document compliance with the FBI Quality Assurance Standards for DNA Databasing Laboratories Standard 5.4.1. The OSBI Forensic Biology Discipline uses the date of hire/appointment/promotion as the defined date to use for determining the applicable version of the QAS for requirements to assess education, experience and training of individuals.

Instructions for the Trainee (to Table of Contents)

The trainee is responsible for becoming competent in each topic presented. The trainee must remain self-motivated and understand that it is his/her responsibility to learn the basic principles and fundamentals necessary to become a qualified CODIS criminalist or technician. He/she is responsible for asking questions, taking notes, and completing all assignments/tasks successfully and in a timely manner.

The trainee is expected to keep a digital notebook of all work completed. The trainee's notebook should be organized. The notebook should have all appropriate forms documenting assignments and analyses performed. Upon successful completion of each applicable assignment, the trainee must prepare an in-depth summary including the results of the tests performed and the theory behind the tests for each testing procedure. Photographic documentation may also be present, as required.

The trainee will keep a daily log of all activities. The trainee will provide, at a minimum, a monthly training report to the trainer which details all of his/her monthly activities. The monthly training report is **due to the trainer by the third working day of the following month**.

In addition, as an employee of the Oklahoma State Bureau of Investigation, other reports are required and must be completed in a timely manner. These include: training and testimony activities as required by OSBI CSD Administration.

Information in the readings may overlap on some subjects. The readings are required and cover the material needed for adequate understanding of the subject matter. Procedures for all tests are found in the CODIS Unit Policy Manual or the Forensic Biology Unit Policy Manual. When appropriate, the trainee will assist with offender sample DNA analysis under direct supervision of a qualified CODIS criminalist.

The trainee will be given quizzes and written examinations (open and/or closed book) throughout the training period. The minimum passing score is 80%. Any score less than 80% is considered failing and the topic must be covered again.

The trainee is responsible for his/her own actions. Any unethical behavior, unauthorized release of confidential information, insubordination, etc. will not be tolerated.

The trainee is to complete all tasks listed in each section of training, unless otherwise directed by the Technical Manager. If the trainee does not have a clear understanding of the subject area covered, it is his/her responsibility to seek clarification from the trainer. Once trainees have completed each task, the trainee will initial and date the task checklist. In doing so, the trainee is indicating that he/she has completed the task as instructed and all questions have been answered to his/her satisfaction. If a trainee is finished with a task and requires feedback or instruction from the trainer, it is the responsibility of the trainee to update the trainer with a status update and their request for further instruction. Trainers have other assignments and responsibilities and may not always be able to follow up with trainees immediately. It will help efficiency if the trainee is pro-active in making the trainer aware of their progress and needs.

Instructions for the Trainer (to Table of Contents)

The trainer should ensure that each trainee is provided with the basic principles and fundamentals necessary to become a qualified CODIS criminalist or technician. All of the listed topics must be thoroughly covered and appropriately documented once each task is successfully completed.

The trainee's performance will be evaluated during the course of the program. The trainer should review the trainee's notebook at least once per month and document the review in the monthly training report. The trainer must submit monthly written evaluations of the trainee's progress to the trainee, supervisor, Criminalistics Administrator, and the Technical Manager. **The monthly training report should be completed by the fifth working day of the month or as soon as possible after receipt of the training log**. The monthly training report should include:

- An evaluation of the trainee's notebook,
- A summary of the progress made during the month including
    1. Problem areas identified during the month,
    2. Trainee's strong points,
- Trainee's weak points and suggested remedies,
- Statement concerning trainee's overall performance, and
- Plans for the upcoming month.

This report will be in memorandum format. Separate memoranda must be written for each trainee. Each memorandum will become part of the training history of the trainee and will be used to document the trainee's progress toward qualification. The format for the monthly report to the Criminalistics Administrator is as follows:

Example Monthly Training Memorandum

MEMORANDUM (on official letterhead stationary)

TO: Criminalistics Administrator
THROUGH: Technical Manager
FROM: Trainer
DATE: Date
SUBJECT: Monthly Training Update for (Name)

This report reviews and evaluates the CODIS training of (Name) for the month of _____.

1. A summary of the progress/training completed during the month

2. An evaluation of the trainee's notebook

3. An evaluation of the progress/training completed during the month, to include:
   a. Problem areas identified during the month
   b. Trainee's strong points
   c. Trainee's weak points and suggested remedies
   d. Statement concerning trainee's overall performance

4. Plans for the upcoming month

cc: Trainee
Trainee's Supervisor
Quality Manager (if different from Criminalistics Administrator reported to)

If helpful, the trainer may require the trainee to submit a weekly or biweekly summary of training activities completed, started, or in-progress. However, the trainee is required to submit a monthly progress report to the trainer by the third working day of the month. This assists the trainer in preparing the monthly written evaluation. The trainer will discuss the monthly evaluation with the trainee prior to forwarding it to the Criminalistics Administrator of the CODIS Unit through the Technical Manager. Any comments by the trainee or trainer are to be included with the report.

The periodic quizzes or written examinations (open and/or closed book) given to the trainee to monitor his/her progress are kept on file with the Technical Manager. Prior to being administered, the trainer will go over the subject material covered in the examination and ensure the trainee has been adequately instructed to allow them to successfully complete each question. Any score less than 80% is considered failing and the topic must be covered again. Successful completion of an assignment is required before proceeding to the next assignment unless approval to do otherwise is obtained from the Technical Manager.

An assessment sheet documenting each phase of instruction will be placed in the trainee's notebook and should be completed after successful completion of each assignment. When the

trainee satisfactorily completes all of the assignments of the training manual, the Technical Manager of the CODIS Unit will review and approve each section and document that the trainee is qualified to perform the duties of a CODIS criminalist/technician. If the trainee cannot meet the criteria expected of him/her during the period allowed for training, steps will be taken to achieve the successful completion of the program.

The trainer is to ensure all tasks listed in each section of training have been completed by the trainee. The trainer is to provide the trainee the opportunity to ask questions regarding the material covered in each section and answer them to the best of his/her knowledge. If any questions are asked that the trainer cannot adequately explain, he/she is to seek clarification from the appropriate personnel (CODIS Supervisor/Technical Manager/other qualified CODIS criminalists). Once the trainer has gone over each assigned task with the trainee, the trainer will initial and date the task checklist for that assignment.

Coordination of the Training Program (to Table of Contents)
The trainer will be an experienced CODIS criminalist assigned by the Technical Manager. The trainer may delegate certain duties and blocks of instruction to other CODIS criminalists, but will be responsible for the overall training.

Training Period (to Table of Contents)
Reference: OSBI Policy and Procedures: Policy 202.1, 214

It is estimated that this training manual can be completed in 6 months to 1 year. Based on experience and/or education, some individuals may require less time than others to complete training. The length of the training period will be at the discretion of the Criminalistics Administrator and Technical Manager for the CODIS Unit. Training includes successful completion of all assignments, examinations, and competency tests.

The training period and/or training program may be modified by the Technical Manager to account for a trainee's prior experience/training (this will be documented in a Memorandum to be placed in the trainee's notebook).

Per OSBI policy, the "Responding to Persons with Mental Illness" training must be completed within 2 weeks of the start date of any new employee. This task is part of the "Orientation to the Laboratory Facility" Assignment.

Per OSBI policy, Hazard Communication (Haz Com) training must be completed within the first 30 days of employment. This task is part of the "Laboratory Safety" Assignment.

Transition (to Table of Contents)
The trainer must ensure that the transition from training to independent analysis/quality control takes place as smoothly as possible. For a period of time as specified in the Release for Analysis Memo, the Technical Manager or designee should review all of his/her plates and hit verifications.

Confidentiality and Release of Information (to Table of Contents)

References: OSBI Policy and Procedure Manual: Policy 201 – Media Relations,
OSBI Policy and Procedure Manual: Policy 206 – Open Records Act
OSBI Quality Manual: QP 18 – Management Reviews
CODIS Policy Manual

Confidentiality is defined as something done or communicated in confidence - a secret. All information regarding offender samples, case information, including but not limited to names, circumstances, or results is confidential information.

Case specifics can only be given to the District Attorney of the county of offense and the original requesting agency. Contact the Supervisor for the release of information to people other than those stated above, such as a Public Information Officer, defense attorneys, or other Agents/Law Enforcement officials. The release of offender sample information is outlined in the CODIS Policy Manual.

Successful Completion of Assignments (Expected Results)

All exams have a key and will be scored according to that key. For practical portions of assignments, previously analyzed or duplicate samples will be used. Expected results are based on results obtained previously by qualified analysts. Successful completion for each sample is achieved if all reported genotypes are concordant with the previous analysis. Some variations may occur due to kit differences and these should be explained within the training documentation. Also, there may be instances where samples have less or more complete profiles than previous analyses. This is common due to sampling variation. As long as there is no reason to suspect that an overreaching issue has affected an entire plate, and partial genotypes are concordant with their previously analyzed counterparts, the analysis may be considered successful by the trainer during the evaluation.

Assignments for the Technician Trainee (to Table of Contents)

Assignment	Completion Date
Orientation to the Laboratory Facilities	
Laboratory Safety	
OSBI Policies and Procedures	
Introduction to Quality Assurance Programs	
CODIS Web Program	
CODIS Policy Manual	
Ethics	
History of CODIS	
Legal	
Pipetting	
Collection and Submittal of Offender Samples	
NDIS Procedures	
DNA Overview	
Sample Prep and Amplification	
Capillary Electrophoresis	
Data Analysis	
Administrative Reviews	
Special Project (Optional)	
Competency	

Assignments for the Criminalist Trainee (to Table of Contents)

Assignment	Completion Date
Orientation to the Laboratory Facilities	
Laboratory Safety	
OSBI Policies and Procedures	
Introduction to Quality Assurance Programs	
CODIS Web Program	
CODIS Policy Manual	
Ethics	
History of CODIS	
Legal	
Pipetting	
Collection and Submittal of Offender Samples	
NDIS Procedures	
CODIS Database	
DNA Overview	
Sample Prep and Amplification	
Capillary Electrophoresis	
Data Analysis	
Offender Analysis	
Administrative Reviews	
Hit Verifications	
Technical Reviews	
Courtroom Testimony	
Special Project (Optional)	
Competency	

Orientation to the Laboratory Facility (Up to Assignments)

Goals:

1. To familiarize the trainee with the laboratory facility.
2. To obtain the trainee's access to internet, email, and phone systems.
3. To familiarize the trainee with security procedures.
4. For the trainee to complete required mental illness training.

Note: Items in the task table which are greyed out are covered in the OSBI CSD New Employee General Training Manual. They do not need to be completed again.

Tasks:

In-processing at Headquarters (NETM 2.0)

The appropriate human resources staff will set up a schedule for getting supplies, covering insurance, etc.

> Note: The Supervisor (or designee) will ensure the trainee has completed the in-processing at Headquarters. If any areas have not been covered, the Supervisor (or designee) should ensure the necessary steps are taken to complete them.

Receipt of Supplies and Equipment (NETM 3.0)

During the in-processing at Headquarters, the trainee should expect to receive the necessary supplies and issued equipment from various departments, as required for their job title. Once at the laboratory, the trainee may also receive additional laboratory supplies, as applicable to his/her individual job duties.

> Note: The trainer will ensure the trainee has been issued all of the necessary supplies and equipment as needed to perform his/her assigned duties. This includes appropriate laboratory supplies, as applicable to his/her individual job duties.

Tour of the Laboratory Facility (NETM 3.0)

The trainee will tour the laboratory facility with his/her trainer (or designee). The tour will introduce the trainee to all units of the laboratory system and the services and responsibilities of each unit.

> Note: The trainer will ensure the trainee has been provided a tour of the laboratory facility.

Introduction to Laboratory Security (NETM 3.0)

Security is an ongoing responsibility at the OSBI. Maintaining a secure facility ensures that sensitive materials and information remain available to only those who need access to it. Each area of the laboratory has restricted access, which is only given to authorized personnel as deemed necessary by the Criminalistics Division Director. The trainee is to become familiar with the procedures for maintaining building security as detailed in the OSBI Policy and Procedure

Manual (Policy 104 – Security) and the CSD Quality Manual (QP 20 – Lab Security).

Note: The Supervisor (or designee) will ensure the trainee has met with the Facilities Manager and has been issued the appropriate building key(s)/fob(s) and building alarm code(s). The Supervisor or designee should ensure the employee's ID badge is working properly and he/she has access to his/her respective areas.

Receipt of Security Devices (NETM 3.0)

The trainee will be issued security devices (individual keys, proximity devices, access cards, lock codes, alarm codes) in accordance with QP 20 – Lab Security. The trainee is responsible for maintaining any security device assigned to him/her in a safe location and follow all security requirements accordingly.

Note: The Supervisor (or designee) will ensure the trainee has been issued all appropriate security devices in accordance with QP 20 – Lab Security and understands how to use each security device. This may be accomplished by either written or oral questioning.

Access to the OSBI e-mail system (NETM 2.0)

The trainee will be issued an individual user account and password during in-processing at Headquarters allowing them access to the OSBI e-mail/network system. The trainee should verify he/she can access the e-mail/network system and become familiar with its uses and functions.

Note: The Supervisor (or designee) will ensure the trainee has access to the OSBI e-mail/network system and is familiar with sending and receiving e-mails.

Access to the OSBI intranet and internet (NETM 2.0)

The trainee will be issued an individual user account and password during the in-processing at Headquarters allowing them access to the OSBI intranet. The trainee should verify he/she can access the OSBI intranet and Internet and become familiar with the uses, restrictions, and functions.

Note: The Supervisor (or designee) will ensure the trainee has access to the OSBI intranet and Internet, is familiar with the various sections found there, and understands management has the right to monitor usage. This should include submission of the OSBI System Authorization Access Request (SAAR) form to IT.

Access to the OSBI Time and Leave and IPR systems (NETM 2.0 and Supervisor Meeting)

The trainee will be issued an individual user account and password after in-processing at Headquarters allowing them access to the OSBI Time and Leave and Internal Purchase Request (IPR) systems. The trainee should verify he/she can access the Time and Leave and IPR systems and become familiar with their uses and functions.

Note: The Supervisor (or designee) will ensure the trainee has access to the OSBI Time and Leave and IPR systems and is familiar with filling out Time Sheets and submitting IPRS.

Access to the OSBI Forensic Science Center (FSC) Phone System (NETM 3.0)
The trainee will be issued an individual phone number by the FSC Facilities Manager allowing them access to the OSBI FSC phone system. The trainee should verify he/she can access the phone system and become familiar with its uses and functions.

> Note: The Supervisor (or designee) will ensure the trainee has access to the OSBI FSC phone system and has been assigned an individual login and password, and the laboratory directory has been updated accordingly.

Training Office New Employee Modules
Per CALEA standard 41.2.7 (d) on Mental Illness, there must be documented entry level training of agency personnel. In accordance with OSBI Policy 114 – Responding to Persons with Mental Illness, the trainee will complete the "Responding to Persons with Mental Illness" training module within two weeks of their start date. Once complete, the trainee will send the OSBI training office notification of completion. Other modules that will need to be completed may include CALEA, Digital Signatures, Diversity and Inclusion, Emergency Management Policy, Workday, Ethics, OSBI Internal Purchase Request, Outlook Web Mail, SAR, Sexual Harassment and Discrimination, and Training, etc. A link to the required modules requiring completion will be sent via email to each new employee by the training office.

> Note: The Supervisor (or designee) will ensure the trainee has been provided access to the mental health training module and completes the training within the **first two weeks** of employment. Once the trainee has successfully completed the module, verification of completion will be sent to the OSBI training office and a copy of the completion verification retained in the trainee's individual training manual.

Meeting with Unit Supervisor
The Unit Supervisor will hold a private meeting with the trainee and go over what is expected of him/her throughout the training program and as an employee of the OSBI. This is an opportunity for the trainee to ask any questions over any areas covered during the in-processing assignment. The trainee will be provided a copy of the OSBI Employee Handbook and should become familiar with the material. The trainee will also be provided instruction on the various reports they must complete throughout the training program and as an employee of the OSBI. The trainee will also be provided instruction on the chain of command within the OSBI, the Criminalistics Services Division, and the respective laboratory unit as well as an overview of the OSBI and CSD organizational charts.

> Note: The Supervisor or designee should ensure the trainee has the opportunity to go over any areas in this section of the training program and answer any questions he/she may have. The Supervisor will also introduce the employee to the various reports required for his/her individual job duties, and ensure the trainee understands what reports must be submitted, when each report must be submitted, and to whom each report must be submitted. This may include Workday timesheets and Training Logs. The Supervisor will also provide instruction on the chain of command within the OSBI and the OSBI and CSD organizational charts and ensure the trainee has demonstrated knowledge of the organizational structure of the agency, division, and unit.

Access to the LIMS System (NETM 3.0)

The Unit Supervisor will assist trainee with placing appropriate shortcuts to the OSBI LIMS systems on their computer workstations. These systems are the programs used in-house to track samples/evidence and analysis. The trainee will require access to the "Receive", "CoDNA", and "Config". The LIMS Administrator will issue the trainee an account including a user name and password. In some cases, a signature will need to be captured so that signatures may be applied to reports and/or letters.

OSBI CSD New Employee General Training Manual

The trainee will complete the OSBI CSD New Employee General Training Manual (and any associated assignments) in QMS.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			In-Processing at Headquarters
			Receipt of Supplies and Equipment
			Tour of the Laboratory Facility
			Introduction to Laboratory Security
			Receipt of Security Devices
			Access to OSBI e-mail System
			Access to the OSBI Intranet and Internet
			Access to Time and Leave System
			Access to IPR System
			Access to FSC Phone System
			Mental Illness Training Module
			Training Office Additional Modules
			Meeting with Unit Supervisor
			Access to LIMS System
			Completion of OSBI CSD New Employee General Training Manual

Assignment Completion Timeline

The timeline for completion of this assignment will be four to six weeks.

Trainer Notes:

Laboratory Safety (Up to Assignments)

Goals:

1. To familiarize the trainee with Laboratory Safety Policies.
2. To familiarize the trainee with Bloodborne Pathogens.
3. To familiarize the trainee with Chemical Hygiene / Hazard Communication (Haz Com).
4. To familiarize the trainee with accident reporting.
5. To familiarize the trainee with Emergency Management policies.
6. To ensure the trainee has adequate working knowledge of Laboratory Safety.

Note: Items in the task table which are greyed out are covered in the OSBI CSD New Employee General Training Manual. They do not need to be completed again.

Tasks:

Read OSBI Policy 121 – OSBI Safety Plan (NETM 3.0)

A CODIS criminalist/technician must be acutely aware of the potential hazards to himself/herself and others during the examination of biological specimens and the use of hazardous materials. The trainee will become familiar with his/her responsibilities regarding laboratory safety in accordance with OSBI Policies 121 through 121.5. The trainee will read all sections of Policies 121 through 121.5 and ensure he/she has a good understanding of the content within.

> Note: The Supervisor (or designee) will ensure the trainee has the necessary Personal Protective Equipment (PPE) issued to him/her and knows the procedure for getting additional PPE as needed. The trainer will ensure the trainee is familiar with the locations of all eyewash stations, safety showers and first aid kits in the laboratory area.

Bloodborne Pathogens Training (NETM 3.0)

Before being able to handle evidence or offender samples that may be contaminated with blood or body fluids or conduct any activity where there is a reasonable expectation that the trainee may encounter blood or body fluid, bloodborne pathogens training must be completed. This material is contained in a Power Point presentation that is available from the Safety Coordinator. The trainee should know his/her employee responsibilities regarding bloodborne pathogens.

> Note: The trainer will ensure the trainee has completed the Bloodborne Pathogens training as soon as reasonably possible and before being exposed to potential hazards in the laboratory. The Bloodborne Pathogens Training presentation may be found on the OSBI Intranet or from the Safety Coordinator. Ensure the trainee understands all material covered in the presentation.
> Once the trainee has successfully completed the module, verification of completion should be sent to the OSBI training office and a copy of the completion verification retained in the trainee's individual training manual.

Chemical Hygiene/Hazard Communication (Haz Com) Training (NETM 3.0)
A chemical hazard is any chemical that is a physical or health hazard. Before being able to work with chemicals or conduct any activity where there is a reasonable expectation that the trainee may encounter chemicals, Chemical Hygiene/Hazardous Communication training must be completed. This material is contained in a Power Point presentation that is available from the Safety Coordinator. The trainee should know his/her employee responsibilities regarding chemical hygiene.

> Note: The trainer will ensure the trainee has completed the Chemical Hygiene/Haz Com training as soon as reasonably possible (within the **first 30 days** of employment) and before being exposed to potential hazards in the laboratory. The Chemical Hygiene/Hazardous Communication Training presentation may be found on the OSBI Intranet or from the Safety Coordinator.
> Ensure the trainee understands all material covered in the presentations. Once the trainee has successfully completed the module, verification of completion should be sent to the OSBI training office and a copy of the completion verification retained in the trainee's individual training manual.

Hepatitis B Form
The Code of Federal Regulations (CFR) states that "*Hepatitis B vaccination shall be made available after the employee has received the training required in paragraph (g) (2) (vii) (1) and within 10 working days of initial assignment to all employees who have occupational exposures unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons*". Whether the employee elects to receive the vaccine or not, the Hepatitis B form must be completed and returned to the Human Resources section.

> Note: The Supervisor (or designee) will ensure the trainee has received a copy of the Hepatitis B form. Once the form is completed, the Supervisor or designee will ensure the original signed form is returned to the Human Resources section. A copy of the completed form may be placed in the trainee's training manual; the trainee will make the decision on whether or not to include this form in his/her training manual.

Safety Data Sheets (NETM 3.0)
A Safety Data Sheet (SDS) is a written information sheet concerning a chemical. Each SDS is prepared in accordance with 20 CFR 1910.1200. An SDS typically consists of information prepared by the manufacturer and details potential hazards, characteristics, and precautions relevant to the product. The trainee will become familiar with the location of the SDS associated with chemicals to which he/she may be exposed.

> Note: The trainer will ensure the trainee knows the location of the SDS for the entire Forensic Biology Discipline (CODIS Unit and Forensic Biology Units) and what to do in case of exposure to one of the chemicals.

Chemical Information List (NETM 3.0)
The Chemical Information List (CIL) is a complete list of all chemicals in the work place or unit.

The trainee will become familiar with the location of the CIL for his/her laboratory unit.

> Note: The trainer will ensure the trainee knows the location of the CIL for the entire Forensic Biology Discipline (CODIS Unit and Forensic Biology Units), the location of each chemical found within the CIL, and the proper procedures to be used when handling each chemical.

OSBI Accident Report Form 121.5A (NETM 3.0)
Any injury, chemical exposure, or biohazard risk exposure should be reported immediately to the employee's supervisor. The trainee should become aware of the procedural guidelines to follow in case of an accident, the medical recommendations for each accident type and how to complete the OSBI Accident Report Form 121.5A (if applicable).

> Note: The Supervisor (or designee) will ensure the trainee has a copy of the OSBI Accident Report Form 121.5A and understands the procedures to be followed in the event of an accident. A copy of the form should be placed in the trainee's individual training manual.

Oklahoma State Department of Health Form 207 (NETM 3.0)
Any injury, chemical exposure, or biohazard risk exposure should be reported immediately to the employee's supervisor. The trainee should become aware of the procedural guidelines to follow in case of an accident, the medical recommendations for each accident type, and how to complete the Oklahoma State Department of Health (OSDH) Form 207 (if applicable).

> Note: The Supervisor (or designee) will ensure the trainee has a copy of the OSDH Form 207 and understands when this form should be filled out. A copy of the form should be placed in the trainee's individual training manual.

Emergency Management (NETM 3.0)
Certain events can necessitate implementation of the Emergency Management Policy. The trainee will become familiar with the building evacuation plan, the shelter in place plan, and the chemical spill plan for the laboratory and what is expected of him/her in the event of an emergency. The trainee must also be able to locate the building evacuation and shelter-in-place plans for the laboratory.

Biohazard Waste Handling (NETM 3.0)
The Department of Transportation requires all personnel who participate in the packaging and/or shipping of medical waste to complete training on handling and transportation upon hiring, and again every three years of employment. The trainee will be required to complete modules as required by the current biohazard waste contractor. The trainer will ensure that access is granted to the trainee to complete the required biohazard waste training.

> Note: The trainer will ensure the trainee knows the location of the building evacuation and shelter in place plans. The trainer will also ensure the trainee knows where to go in the event of an evacuation or shelter-in-place incident.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read OSBI Policy 121
			Complete Bloodborne Pathogen Training
			Complete Chemical Hygiene / Haz Com Training
			Complete Hepatitis B Form
			Review / Discuss Safety Data Sheets
			Review / Discuss Chemical Information List
			Review / Discuss OSBI Accident Report Form 121.5A
			Review / Discuss Oklahoma State Department of Health Form 207
			Review / Discuss Emergency Management
			Complete ODOT / Biohazard Waste Training

Assignment Completion Timeline
The timeline for completion of this assignment will be one week.

Trainer Notes:

OSBI Policy and Procedures Assignment (Up to Assignments)

Goals:

1. To familiarize the trainee with OSBI Policy and Procedures.
2. To ensure the trainee has adequate working knowledge of OSBI Policy and Procedures.

Note: Items in the task table which are greyed out are covered in the OSBI CSD New Employee General Training Manual. They do not need to be completed again.

Tasks:

OSBI Policy and Procedures Manual

In accordance with OSBI Policy 100 – Policy and Procedure, "*All employees will be responsible for maintaining a working knowledge of the Policy and Procedure as issued by the OSBI Director or their Division Director, knowing the content of all Directives that apply to their individual work assignments, and complying with the guidelines set forth. Employees will be held accountable for knowledge, understanding, and compliance with all Directive contents. An employee will be charged with failure to comply with a Directive unless it can be shown that the employee was not properly informed of its existence."*

To ensure compliance with this directive, the trainee will read the assigned OSBI Policy and Procedures (as applicable to his/her individual job duties) and ensure he/she has a working knowledge of the content within. Once each policy has been read, the trainee will initial the policy review table below indicating completion of each section of reading.

Policy Title	Policy #	Date Reviewed
Message From the Director	-	
Mission, Vision and Values	-	NETM 2.0
History and Functions	-	
Organizational Structure Overview	-	
OSBI Facilities	-	
OSBI Commission	-	
Commissioned Personnel Code of Ethics	-	
Code of Ethics	-	
Policy and Procedure	100	
Director Notification	101	
Notification of Serious Injury or Death of Employee and Employee Assistance	102	
Authority and Responsibility	103	
Authority and Responsibility – Office of Professional Stds	103.1	
Security-Employee/Visitor Identification	104	
Secondary Employment	105	NETM 2.0
Use of Communication Devices and Services	106	
Radio Communications	107	
Personal Appearance	108	NETM 2.0

Policy Title	Policy #	Date Reviewed
Motor Vehicle Issuance/Residency Requirements	109	NETM 2.0
OSBI Progressive Discipline	110	NETM 2.0
Office Closings or Reduced Services	111	NETM 2.0
Internal Agency Grievance Resolution Procedure	112	
Service of Subpoenas	113	
Responding to Persons with Mental Illness	114	
Attendance and Leave	115.	NETM 2.0
Funeral Attendance	116	
Personnel Early Warning System	118	
Physical Conditioning of Personnel	119	
Mandatory Fitness-for-Duty Evaluations	120	
OSBI Safety Plan	121	NETM 3.0
OSBI Chemical Hygiene Plan	121.1	NETM 3.0
Occupational Exposure to Blood	121.2	NETM 3.0
Respiratory Protection	121.3	NETM 3.0
OSBI Emergency Management Policy	121.4	NETM 3.0
Reporting Work-Related Accident, Injury, Illness and Exposure	121.5	NETM 3.0
Harassment and Discrimination	122	NETM 2.0
Employment of Relatives	123	
Volunteer Personnel	124	
Drug Free Workplace	125	NETM 2.0
Chaplaincy Program	126	
Practicum-Intern Personnel	127	
Use of OSBI Letterhead	129	NETM 2.0
Social Media Use	130	NETM 2.0
Complaints Against OSBI Employees	133	
Tobacco-Free Work Place	134	
Temporary Light Duty Assignments	135	
Naloxone Program	136	
Media Relations	201	
Training and Career Development	202.1	NETM 2.0
Educational Assistance Program	202.2	NETM 2.0
Conducting Training	202.3	NETM 2.0
Employee Travel Reimbursement	205	

Policy Title	Policy #	Date Reviewed
Open Records Act	206	
Contracts and Acquisitions	208	
Asset and Personal Issue Inventory	209	
Fiscal Management	210	
Motor Vehicle Accidents/Incidents & Other Property Loss	211	
Motor Vehicle Maintenance and Operation	212	
Performance Evaluation	214	NETM 2.0
OSBI Recruitment Plan	215.1	
Interview and Selection Procedures	215.2	
Promotional Postings	215.3	
Classification and Compensation	218	
Cash Incentive Awards	220	
Awards	221	
Personnel On-Call Status	222	
Use of Evidence for Training Purposes	225	NETM 2.0
Discovery Orders in Criminal Cases	226	NETM 2.0
Administrative Access to Employee Work Areas and Products	227	
Access to Personnel Records	228	
Computer Operations	229	
Line Inspections	230	
Planning and Research	231	

Open book written examination (CSD CODIS Quiz 1)
Once the trainee has completed each task listed in this section of the training program, he/she will be given a comprehensive open book examination covering areas of OSBI Policy and Procedures. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read the Assigned OSBI Policy and Procedures
			Pass Open Book Written Examination

Assignment Completion Timeline
The timeline for completion of this assignment will be two weeks.

Trainer Notes:

Introduction to Quality Assurance Programs (Up to Assignments)

Goals:

1. To introduce the trainee to Quality Assurance programs.
2. To familiarize trainee with the CSD Quality Assurance System.

Note: Items in the task table which are greyed out are covered in the OSBI CSD New Employee General Training Manual. They do not need to be completed again.

Tasks:

Read

Complete the readings assigned below. If the trainee does not have a clear understanding of any of the subject area read, he/she is to seek clarification from his/her trainer, the CODIS Supervisor, or the Technical Manager.

Meet with CSD Quality Manager

After completion of the assigned readings, the trainee will meet with the CSD Quality Manager. The Quality Manager will explain the CSD QA program and answer any questions the trainee may have about quality assurance programs.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read "About ANAB"
			Read "History of ANAB"
		NETM 6.0	Read "ANAB Guiding Principles"
		NETM 5.0	Review Accreditation Requirements
			Read Chapter 3: Ensuring High Standards of Laboratory Performance from The Evaluation of Forensic DNA Evidence (NRC 1996)
			Read the FBI's Quality Assurance Standards for DNA Databasing Laboratories
		NETM 5.0	Read the OSBI CSD Quality Manual
		NETM 5.0	Meet with the OSBI CSD Quality Manager

Assignment Completion Timeline

The timeline for completion of this assignment will be two weeks.

Trainer Notes:

CODIS Web Program (Up to Assignments)

Goals:

1. To familiarize the trainee with the BEAST Config program.
2. To familiarize the trainee with setting up new users of the CODIS Web Program.
3. To familiarize the trainee with resetting passwords for users of the CODIS Web Program.

Tasks:

Read

Complete the readings assigned below. If the trainee does not have a clear understanding of any of the subject area read, the trainee is responsible to seek clarification from the trainer, the CODIS Supervisor, or the Technical Manager.

Observe

Once the reading is successfully completed, the trainee will shadow a trained criminalist or laboratory technician from the CODIS Unit through the processes of creating and documenting a CODIS Web Program account for a new user and resetting a password for a CODIS Web Program user.

Create 5 New User Accounts

Once the trainee has completed each task listed in this section of the training program, he/she will be given the opportunity to log in 5 new user accounts. The trainer or designee will monitor the trainee as they go through each step of the process. If any problems are observed, remedial training may be assigned by the Technical Manager.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read "CODIS Web Training Program for Analysts"
			Review Forms "Training Checklist", "Roster", and "Individual MOU"
			Shadow Trained CODIS Personnel as they create new CODIS Web User Accounts and Reset Passwords
			Create 5 New CODIS Web User Accounts under Observation

Assignment Completion Timeline

The timeline for completion of this assignment will be one week.

Trainer Notes:

CODIS Policy Manual (Up to Assignments)

Goals:

1. To familiarize trainee with the CODIS Unit Quality Assurance Program.
2. To ensure the trainee has an adequate working knowledge of OSBI CODIS Unit protocols.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor, or the Technical Manager.

Open book written examination (CSD CODIS Quiz 3)

Once the trainee has completed each task listed in this section of the training program, he/she will be given a comprehensive open book examination covering areas of CODIS Policy Manual. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read CODIS Unit Policy Manual: CODIS Quality Assurance Procedures
			Read CODIS Quality Control Procedures (QC1-11)
			Pass Open Book Written Examination

Assignment Completion Timeline

The timeline for completion of this assignment will be one week.

Trainer Notes:

Ethics (Up to Assignments)

Goals:

1. To introduce the trainee to the issue of ethics in forensic science.
2. To familiarize the trainee with expectations of conduct.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor, or the Technical Manager.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read "Code of Ethics and Ethics in the Courtroom"
			Refresh on Guiding Principles
			Read "Bad Science"
			Read "On Being a Scientist"
			Read "Ethics and Forensic Science"
		NETM 6.0	Read OSBI Policy "Code of Ethics"

Assignment Completion Timeline

The timeline for completion of this assignment will be one week.

Trainer Notes:

History of CODIS (Up to Assignments)

Goals:

1. To familiarize the trainee with the history of the CODIS program

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor, or the Technical Manager.

Closed book written examination (CSD CODIS Quiz 4)

Once the trainee has completed each task listed in this section of the training program, he/she will be given a comprehensive closed book examination covering areas of the History of CODIS. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read Chapter 8: DNA Databases: Uses and Issues from Advanced Topics in Forensic DNA Typing: Methodology (Butler, 2014)
			Read Handout "Origins of CODIS"
			Read "CODIS" Brochure from the FBI
			Pass Closed Book Written Examination

Assignment Completion Timeline

The timeline for completion of this assignment will be one week.

Trainer Notes:

Legal (Up to Assignments)

Goals:

1. To familiarize the trainee with the Oklahoma State Statutes establishing the OSBI DNA Database.
2. To familiarize the trainee with the evolution of qualifying offenses in Oklahoma.
3. To familiarize the trainee with the U.S. Statutes governing the CODIS Database.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor, or the Technical Manager.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read Oklahoma Statute Title 74 Section 150.27
			Read Oklahoma Statute Title 74 Section 150.27a
			Read Oklahoma Statute Title 20 Section 1313.2
			Read Oklahoma Statute Title 22 Section 991a (I through K)
			Read Oklahoma Statute Title 22 Section 18
			Read Oklahoma Statute Title 22 Section 152
			Oklahoma State Statute Title 22 Section 210
			Oklahoma State Stature Title 57 Sections 593-595
			Read Handout "Evolution of Qualifying Offenses"
			Read the Federal DNA Identification Act of 1994
			Read the Privacy Act of 1996 for NDIS
			Read the Justice for All Act of 2004
			Read the DNA Fingerprint Act of 2005 Title X, Sections 1001 through 1005
			Read the NDIS Memorandum of Understanding
			Pass Open Book Written Examination

Open book written examination (CSD CODIS Quiz 5)
Once the trainee has completed each task listed in this section of the training program, he/she will be given a comprehensive open book examination covering areas of Legal aspects of CODIS. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Assignment Completion Timeline
The timeline for completion of this assignment will be one week.

Trainer Notes:

Pipetting (Up to Assignments)

Goals:

1. To familiarize the trainee with the pipettors used in the CODIS Unit.
2. To ensure the trainee can accurately pipette.

Once the trainee has completed the pipetting exercises, the trainee will calculate the percent error for each average volume by using the following formula:

$$\frac{\text{Delivered Weight - Expected Weight}}{\text{Expected Weight}} \times 100$$

The percent error should be within 3% of the expected weight for all volumes greater than 10µL, and within 10% for all volumes less than or equal to 10µL. If the average percent error for any volume exceeds these limits, remedial training may be assigned by the Technical Manager.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read Handout "Pipettes Overview"
			Read User's Manual(s) for All Appropriate Pipettors
			Successfully Pass Pipetting Exercise

Assignment Completion Timeline

The timeline for completion of this assignment will be one week.

Trainer Notes:

Collection and Submittal of Offender Samples (Up to Assignments)

Goals:

1. To familiarize the trainee with receiving and entering offender samples.
2. To familiarize the trainee with the CoDNA software.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor, or the Technical Manager.

Shadowing

Once you have successfully completed the reading assignments, you will shadow a trained criminalist or laboratory technician from the CODIS Unit as they guide you through the process of receiving offender samples, how they are logged into the OSBI information system, how to check for duplicate samples, what to do with duplicate samples, and proper storage of samples.

Log in 100 new offender samples

Once you have observed a trained CODIS criminalist or technician and are familiar with the accessioning process for offender samples, you will be given the opportunity to log in 100 new offender samples. Your trainer or designee will monitor you as you go through each step of the process. If any problems are observed, remedial training may be assigned by the Technical Manager.

Closed book written examination (CSD CODIS Quiz 6)

Once the trainee has completed each task listed in this section of the training program, he/she will be given a comprehensive closed book examination covering all areas of Collection and Submittal of Offender Samples. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Review CODIS Policy DBQM_7 Facilities and Sample Control
			Shadow Trained CODIS Criminalist or Technician
			Independently Log in 100 Offender Samples
			Pass Closed Book Written Examination

Assignment Completion Timeline
The timeline for completion of this assignment will be one week.

Trainer Notes:

NDIS Procedures (Up to Assignments)

Goal:

1. To familiarize the trainee with the NDIS Procedures governing use of the CODIS system.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor, or the Technical Manager.

Open book written examination (CSD CODIS Quiz 7)

Once the trainee has completed each task listed in this section of the training program, he/she will be given a comprehensive open book examination covering all areas of NDIS Procedures. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read NDIS Procedures
			Pass Open Book Written Examination

Assignment Completion Timeline

The timeline for completion of this assignment will be two weeks.

Trainer Notes:

CODIS Database (Up to Assignments)

NOTE: Only Criminalists are required to complete this training. This module requires a CODIS account to be issued by the FBI.

Goals:

1. To familiarize the trainee with the CODIS software.
2. To familiarize the trainee with CODIS Data Entry and Search Procedures.

Tasks:

CODIS Training Class

The trainee is to complete the FBI-sponsored online CODIS Software Training Modules. These modules will teach the trainee the basic functions of the CODIS Database and operating software and provide the opportunity for hands-on interaction with a simulated CODIS database. Once the trainee has successfully completed the assigned modules, the trainee will have a general understanding of CODIS database functions at the local, state and national levels.

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor, or the Technical Manager.

Shadowing

Once the trainee has successfully completed the reading assignments, he/she will shadow a qualified criminalist from the CODIS Unit as they demonstrate how to create a common message format (.cmf) file and import samples into the State CODIS database. He/she will then independently create a .cmf file containing offender samples and successfully import them into the State CODIS database.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read CODIS_1 Data Entry and Search Procedures
			Complete All Assigned On-Line Modules in the CODIS Learning Management System
			Shadow Qualified Criminalist

Assignment Completion Timeline
The timeline for completion of this assignment will be two weeks.

Trainer Notes:

DNA Overview (Up to Assignments)

Goals:

1. To review the scientific basics of DNA.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor or the Technical Manager. The trainer may assign additional reading material to adjust for any gaps in coursework or experience. Any additional training references completed in the course of this assignment should be documented in the trainee's manual.

Closed book written examination (CDS CODIS Quiz 8)

Once the trainee has completed each task listed in this section of the training program, he/she will be given a comprehensive closed book examination covering areas of DNA Overview. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read Chapter 2: Basics of DNA Biology and Genetics from Fundamentals of Forensic DNA Typing (Butler, 2009)
			Read "DNA the Indispensable Forensic Science Tool", Chapter 13 *Criminalistics* by Saferstein (8th Edition)
			Read 13 CODIS Core STR Loci Diagram and 18 CODIS Core STR Loci Diagram
			Read Chapter 13: Y-Chromosome DNA Testing, Chapter 14: Mitochondrial DNA Analysis, Chapter 15: X-Chromosome Analysis from Advanced Topics in Forensic DNA Typing: Methodology (Butler, 2014)
			Pass Closed Book Written Examination

Assignment Completion Timeline

The timeline for completion of this assignment will be one week.

Trainer Notes:

Sample Prep and Amplification (Up to Assignments)

Goals:

1. To familiarize the trainee with proper sampling techniques for offender samples.
2. To familiarize the trainee with DNA amplification from offender samples.
3. To familiarize the trainee with the GlobalFiler Express® Amplification Kits.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor, or the Technical Manager.

Shadowing

Once the trainee has completed the reading assignments, he/she will shadow a trained Criminalist from the CODIS Unit as they amplify at least one full plate of convicted offender samples. In doing so, the trainee will observe the proper way to set up an amplification plate using the GlobalFiler Express® Amplification Kit and the applicable thermal cycler(s), and how to properly document your analysis.

Amplification of offender samples

Once the trainee has observed a trained criminalist and is familiar with the amplification process, he/she will independently set-up and amplify one plate of assigned offender training samples (Initials-Training Plate 1) using the GlobalFiler Express® Amplification Kit. After Training Plate 1 has been amplified, a qualified criminalist will run and analyze the data to ensure there are no profile discrepancies. At this point, the trainer and trainee will decide whether further plates may be assigned to increase comfort and confidence in the procedure.

If any problems are observed throughout the amplification process, remedial training may be assigned by the Technical Manager.

Summary

Once completed, the trainee will prepare an in-depth summary of what he/she observed in the amplification assignment. Include the theory behind the amplification method used, the results of the amplification process, any observations the trainee may have had, etc. This will be assessed by the trainer or designee.

Closed book written examination (CSD CODIS Quiz 9)

Once the trainee has completed each task listed in this section of the training program, he/she will be given a comprehensive closed book examination covering areas of Sample Prep and Amplification. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Notes for the Trainee:
When punching buccal samples on FTA cards, it is imperative that the layer behind the FTA paper is not accidentally punched through and included with the sample in the well. During the OSBI internal validation it was shown that the inclusion of this layer of "backing" severely inhibits the PCR reaction.

If a sample is blood on non-FTA cards, the PrepNGo incubation must be used. If any samples on a plate require PrepNGo buffer, the associated negative controls on the plate must also include the incubation reagent and procedure.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read Handout "Harris Micro-Punch"
			Read Chapter 4: PCR Amplification: Capabilities and Cautions from Advanced Topics in Forensic DNA Typing: Methodology (Butler, 2014)
			Read Chapter 5: Short Tandem Repeat (STR) Loci and Kits from Advanced Topics in Forensic DNA Typing: Methodology (Butler, 2014)
			Watch PCR Instructional Videos
			Review Short Tandem Repeat Presentations on the STRbase website (www.strbase.nist.gov)
			Read Development of a PCR System (Perkin Elmer, pp. 2-1 through 2-7)
			Read the PowerPlex Fusion System Technical Manual, sections 1 through 4
			Read the GlobalFiler Express User Guide Chapters 1 and 2
			Read Prep-n-go Buffer Product Insert
			Read the User's Manual for all applicable Thermal Cyclers

			Read CODIS Policy Setup of Direct Amplification of DNA from FTA / non-FTA Punches using PowerPlex Fusion Half Reaction Volume
			Read CODIS Policy Manual CODIS_3 Direct Amplification of DNA using GlobalFiler Express System
			Shadow Trained Criminalist from the CODIS Unit
			Successfully Amplify all Assigned Offender Samples
			Complete Summary
			Pass Closed Book Written Examination

Assignment Completion Timeline
The timeline for completion of this assignment will be two weeks.

Additional Instructions to the Trainer:
Once the trainee has completed the reading assignments, the trainer will have the trainee observe them or another qualified criminalist while the trainer/designee amplifies at least one full plate of offender samples. As the trainer/designee demonstrates each step in the amplification process, they will go over any applicable theory behind the step you are demonstrating. The trainer should demonstrate how to set up an amplification plate using GlobalFiler Express ®Kit and the appropriate thermal cycler(s), and how to properly document the analysis.

Once the trainee has observed the amplification process, they will independently set-up their assigned samples using the manual method and amplify them. The trainer will observe them while they perform this assignment to ensure they are using proper techniques.

Once the trainee has amplified their plates, the trainer will run the samples and analyze the data. Import the samples into CODIS using a .cmf file and search them against the convicted offender index. Print the results of all matches and verify that there are no discrepancies between the profiles (the match results should be kept in the trainee's notebook for reference). If any problems are observed throughout the amplification process, notify the CODIS Supervisor and the Technical Manager. The Technical Manager will determine if a memorandum regarding the incident should be written and appropriate corrective action needed.

The trainee will independently punch and amplify (at a minimum) one plate. After the process is complete, the trainer should have an informal discussion to determine whether the assignment of additional plate(s) may be advisable to increase confidence and familiarity with the process. This assignment of additional plate(s) is not considered remediation.

Trainer Notes:

Capillary Electrophoresis (Up to Assignments)

Goals:

1. To familiarize the trainee with capillary electrophoresis.
2. To familiarize the trainee with Life Technologies 3500xL Genetic Analyzer.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor or the Technical Manager.

Shadowing

Once the trainee has completed the reading assignments, he/she will shadow a trained Criminalist from the CODIS Unit as they perform a 3500xL set-up for at least one full plate of convicted offender samples. In doing so, the trainee will be instructed on the proper way to set up a 3500xL plate, how to set-up the 3500xL Genetic Analyzer, how to start a run and how to properly document the analysis.

Running the 3500xL Genetic Analyzer

The 3500xL Genetic Analyzer separates fluorescently labeled DNA fragments based on size using capillary electrophoresis. Utilizing a multi-component fluorescent detection system, this instrument allows for simultaneous detection of DNA fragments on a 24 capillary array. The data collection software stores the raw fluorescent intensity data in the instrument's oracle database, which can later be retrieved for genetic typing utilizing sophisticated software packages such as GeneMapper ID-X (GMID-X).

Once the trainee has observed a trained Criminalist and is familiar with the 3500xL run process, he/she will independently set-up and run a previously amplified plate of samples) using the3500xL Genetic Analyzer. The amplification plate used should be freshly amplified or frozen directly after amplification for preservation. If a training plate is not available which meets these criteria, an amplification plate run by a criminalist may be used provided that the genetic analysis has already been completed and the plate will not need to be re-injected. After the run has been completed, the trainer will evaluate the data to assess whether or not any concerns exist. If, after the initial plate has been completed, the trainer and trainee will discuss whether or not additional plates will be run to address comfort levels and/or familiarity with the policies and procedures.

If any problems are observed throughout the capillary electrophoresis process, remedial training may be assigned by the Technical Manager.

Summary

Once completed, the trainee will prepare an in-depth summary of what he/she observed in the capillary electrophoresis assignment. Include the theory behind capillary electrophoresis, the instrumentation used in the CODIS Unit, any observations you may have had, etc. This will be

assessed by the trainer or designee.

Closed book written examination (CSD CODIS Quiz 10)
Once the trainee has completed each task listed in this section of the training program, he/she will be given a comprehensive closed book examination covering areas of Capillary Electrophoresis. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Notes for the Trainee:
When importing plate records into the 3500xL collection software, it is necessary to select .txt from the dropdown menu for "file type" when navigating to the file location.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read Sections 1 through 6 and 8 from the 3500 User Guide
			Review PowerPoint Presentation Advanced Capillary Electrophoresis
			Read CODS_4 3500xL Genetic Analyzer Analysis
			Read CODIS policy QC_11 3500xL Genetic Analyzer
			Read Chapter 6: Capillary Electrophoresis: Principles and Instrumentation from Advanced Topics in Forensic DNA Typing: Methodology (Butler, 2014)
			Read Chapter 9: Fundamentals of DNA Separation and Detection from Fundamentals of Forensic DNA Typing (Butler, 2009)
			Shadow Qualified Criminalist from the CODIS Unit
			Successfully Run Offender Samples on 3500xL DNA Analyzer
			Pass Closed Book Written Examination
			Complete Summary

Assignment Completion Timeline

The timeline for completion of this assignment will be two weeks.

Additional Instructions to the Trainer

Once the trainee has completed the reading assignments, the trainer will have the trainee observe them while the trainer performs a 3500xL set-up on at least one full plate of offender samples. As the trainer demonstrates each step in the 3500xL set-up process, go over any applicable theory behind the step being demonstrated. The trainer should explain how to prepare the 3500xL Genetic Analyzer for a run, and how to properly document the analysis. The trainer (or designee) is to demonstrate how to properly set-up the 3500xL Genetic Analyzer for a run. This includes installing a capillary array, daily maintenance, performing a spatial calibration, performing a spectral calibration and properly documenting your maintenance performed. The trainer should also demonstrate how to set up a plate record in the collection software without importing the record. This is necessary when performing QC plates, research plates, etc.

Once the trainee has observed the 3500xL set-up process and how to prepare the 3500xL Genetic Analyzer for analysis, the trainee will independently set-up previously amplified samples and run them. The trainer will observe them while they perform this assignment to ensure they are using proper techniques.

Once the trainee has run their plate, the trainer will analyze the samples according to policy. At this point, the trainer and trainee should discuss whether the assignment of additional plates are necessary for comfort and familiarity with the policy and procedures.

If any problems are observed throughout the capillary electrophoresis process, notify the CODIS Supervisor and the Technical Manager. The Technical Manager will determine if a memorandum regarding the incident should be written and appropriate corrective action needed.

Trainer Notes:

Data Analysis (Up to Assignments)

Goals:

1. To familiarize the trainee with data analysis using GeneMapper ID-X v1.6
2. To familiarize the trainee with CODIS Unit documentation.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor or the Technical Manager.

Shadowing

Once the trainee has completed the reading assignments, he/she will shadow a qualified criminalist from the CODIS Unit as they analyze at least one full plate of convicted offender samples. In doing so, the trainee will be instructed on the proper way to analyze samples using Data Collection Software, GMID-X analysis software and how to properly document the analysis.

GeneMapper ID-X Analysis Software

The 3500xL Genetic Analyzer detects DNA fragments by automated fluorescence scanning detection. The GeneMapper ID-X (GMID-X) software analyzes the data collected by the instrument to size and quantify the DNA fragments. GeneMapper ID-X analysis includes:

- Establishing a baseline,
- Adjusting for spectral overlap of dye emission,
- Peak detection,
- Peak size calling,
- Finding the lane or injection containing the allelic ladder,
- Creating allele size categories based on imported allelic ladder data,
- Removing labels from stutter peaks by applying a filter,
- Assigning the appropriate allele label to sample alleles,
- Process Component-Based Quality Values (PQVs),
- Automated concordance checks, and
- Building a table containing genotypes for all samples.

The project window is the primary window for GeneMapper ID-X. It allows for adding samples, initiating analysis, and exporting data to various databases and reports.

Data Analysis

Once the trainee has observed a qualified criminalist and is familiar with the data analysis process, he/she will independently analyze the samples assigned to them using GMID-X software and properly document the analysis.

Once the trainee has successfully analyzed the assigned samples, the trainer will verify the results to ensure there are no discrepancies. If any problems are observed throughout the data

analysis process, remedial training may be assigned by the Technical Manager.

Summary
Once completed, the trainee will prepare an in-depth summary of what he/she observed in the data analysis assignment. Include the theory behind the ABI Data Collection Software, GMID-X software, the results of your analysis, any observations the trainee may have had, etc. This will be assessed by the trainer or designee.

Closed book written examination (CSD CODIS Quiz 11)
Once the trainee has completed each task listed in this section of the training program, he/she will be given a comprehensive closed book examination covering all areas of Data Analysis. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read Chapter 10 STR Genotyping and Data Interpretation from Fundamentals of Forensic DNA Typing (Butler, 2009)
			Read GeneMapper ID-X Software version 1.5 Quick Start Guide
			Read GeneMapper ID-X Software version 1.5 Getting Started Guide
			Read GeneMapper ID-X Software v. 1.6 User Bulletin
			Read CODIS Policy CODIS_5 Genemapper ID-X Data Analysis
			Read CODIS Policy CODIS_6 DNA Interpretation Guidelines for Database Samples
			Read CODIS Policy CODIS_7 Management of Data
			Shadow Trained Criminalist from the CODIS Unit
			Successfully Analyze Offender Samples using GeneMapper ID-X
			Pass Closed Book Written Examination
			Complete Summary

Assignment Completion Timeline
The timeline for completion of this assignment will be three weeks.

Additional Instructions for the Trainer

Once the trainee has completed the reading assignments, the trainer will have the trainee observe them or another qualified CODIS criminalist while they analyze at least one full plate of offender samples. The trainer or designee will explain how the ABI Data Collection Software works in conjunction with GMID-X Software, how samples are analyzed and how to properly document the analysis. The trainer should take special care to show the trainee features of the software which will aid in efficient analysis. These features should include: the ability to delete sample files within the electropherogram view, the use of color coding to direct attention to problem areas, and the ability to have peak height ratios calculated in the electropherogram view. Once the trainee has observed the data analysis process, they will independently analyze a set of samples assigned by the CODIS Supervisor. The trainer will observe them while they perform this assignment to ensure they are using proper data analysis techniques.

Once the trainee has completed the analysis of their assigned samples, the trainer will verify their results to ensure they have properly analyzed and documented their samples. If any problems are observed, notify the CODIS Supervisor and the Technical Manager. The Technical Manager will determine if a memorandum should be written and appropriate corrective action needed.

Trainer Notes:

Offender Analysis (Up to Assignments)

Goals:

1. To give the trainee experience analyzing offender samples independently.
2. To familiarize the trainee with proper CODIS Unit Documentation.

Tasks:

Independent Offender Analysis

For this assignment, the trainee will independently analyze 4 full plates of offender samples following the CODIS Policy Manual. (The number of assigned plates may be adjusted in cases where the trainee has previous experience). In doing so, the trainee will utilize the skills he/she has developed in previous assignments and demonstrate their ability to independently analyze offender samples through every step of the CODIS analysis process. Each plate will be technically reviewed by the trainer or designee. Upon successful analysis of each plate of samples, the trainee will create a .cmf file and have the profiles searched against the CODIS database. All samples successfully profiled must match the profile stored in the database. If any problems are observed throughout the data analysis process, remedial training may be assigned by the Technical Manager.

The analysis must be properly documented on the CODIS analysis forms. All forms from each plate of offender samples will be thoroughly evaluated for completeness. Label each offender sample as "TS-sample number", and label each plate as "(Your Initials)-TP-Year-Type of Plate-(sequential number)". All appropriate information should be burned onto a CD-R or stored on the server and retained in his/her training notebook.

Offender Number Example:	Plate Name Examples:
TS-D06-1212	ABC-TP-2018-FP-0001

Once the trainee has successfully analyzed all 360 offender samples, he/she will prepare an in-depth summary of what they observed in the troubleshooting assignment. Include what difficulties were encountered during sample analysis, what steps were taken to correct any difficult samples, as well as any other observations made. This will be assessed by the trainer or designee.

On the last plate, six mock hit verification samples will be incorporated for analysis. The trainer will assign these sample numbers and explain to the trainee how to name them. The analysis results for these samples will be used in a later training assignment titled "Hit Verifications".

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Successfully Analyze Offender Samples
			Import CMF files into CODIS and generate the BEAST update file as specified in CODIS policy
			Search Training Samples Against Offender Index
			Investigate and Document Any/All Discrepancies
			Complete Summary

Assignment Completion Timeline
The timeline for completion of this assignment will be twelve weeks.

Additional Instructions to the Trainer
The trainer is to assign the trainee 360 previously profiled convicted offender samples. The trainee will independently analyze these samples to completion, following CODIS policies and procedures. Should the trainee have any questions throughout the analysis process, the trainer should give them the necessary help they need, but try to keep the trainee's analysis as independent as possible. This assignment is designed to evaluate their abilities to independently process convicted offender samples. As the trainer, any concerns should be brought to the attention of the CODIS Supervisor and the Technical Manager.

Once the trainee has completed the analysis of each plate of samples, the training samples will be searched against the state offender index to verify the profile obtained from the trainee is correct. If any unexplainable profile discrepancies are observed, the Technical Manager will determine if a memorandum should be written and appropriate corrective action needed.

Trainer Notes:

Administrative Reviews (Up to Assignments)

Goals:

1. To familiarize the trainee with performing administrative reviews

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor or the Technical Manager.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read OSBI CSD QP 31 - Reviews
			Read CODIS Policy Hit Verification Procedures
			Read Section CODIS DBQM_12 Review
			Review Hit Verification Files with Trainer (including both Offender and Forensic Hits)
			Review Hit Information Section of CoDNA with Trainer
			Do a Pre-Admin Review of 5 Hit Verification Files, which are then reviewed by a qualified Criminalist
			Discuss any Discrepancies in Pre-Admin Review Files with Trainer Generate a Checklist to aid you in your AR process

Assignment Completion Timeline

The timeline for completion of this assignment will be two weeks.

Trainer Notes:

Technical Reviews (Up to Assignments)

Goals:

1. To familiarize the trainee with performing technical reviews

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor or the Technical Manager.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Review OSBI CSD QP 31 - Reviews
			Review CODIS DBQM_12 - Review
			Review Completed Offender Analysis Plates with Trainer
			Do a Pre-Technical Review on 5 Offender Analysis Plates, which are then reviewed by a qualified Criminalist
			Discuss any Discrepancies in Pre-Admin Review Files with Trainer

Assignment Completion Timeline

The timeline for completion of this assignment will be four weeks.

Trainer Notes:

Hit Verifications (Up to Assignments)

Goals:

1. To familiarize the trainee with Hit Verification documentation.
2. To familiarize the trainee with the different types of hits encountered.
3. To familiarize the trainee with using the CoDNA software to write hit verification letters.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor or the Technical Manager.

Review

Review hit verification files to get an understanding of the documentation required by policy and the variety of hits the trainee will encounter.

Shadow

After completion of the reading assignments and review of hit verification files, you will observe your trainer or another qualified CODIS criminalist as he/she prepares a hit verification file. The trainer or designee will demonstrate the use of the CoDNA software for documenting and creating hit verification letters and will answer any questions the trainee may have.

Prepare Mock Hit Verification Files

The trainee will prepare mock hit verification files using the 4 mock hit verification samples ran in the "Offender Analysis" Assignment as well as one forensic hit verification sample and one national offender hit. The mock hit verification files will be administratively reviewed by the trainer or designee.

Summary

Once completed, the trainee will prepare an in-depth summary of what he/she observed in the hit verification assignment. This will be assessed by the trainer or designee.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read CODIS_2 Hit Verifications
			Review Assigned Hit Verification Files
			Observe Qualified Criminalist use CoDNA to Write Hit Verification Letters (the observation should encompass offender and forensic hits)
			Create Hit Verification Files for the 4 Hit Verification Sample Plates ran in the Offender Analysis Assignment
			Complete Summary

Assignment Completion Timeline
The timeline for completion of this assignment will be one week.

Trainer Notes:

Special Project (Optional) (Up to Assignments)

Goals:

1. To give the trainee experience in completing a research project.
2. To familiarize the trainee with proper OSBI validation procedures.

The Technical Manager may assign the trainee an individual project. This project may consist of a small validation or a research study that would benefit the DNA laboratory. The project will need to be approved by the appropriate Administration following approval by the Biology Subcommittee. This project is to be completed according to applicable OSBI Forensic Biology Policy Manual and Quality Assurance Standards. Detailed notes and tables should be compiled. A summary will be required, and upon completion, approval from the Biology Subcommittee and Administration will be required. The Technical Manager and/or trainer will provide the trainee with more detailed instructions upon assignment of a specific project.

Tasks:

Read

Complete the readings assigned below. If you do not have a clear understanding of any of the subject area you have read, seek clarification from your trainer, the CODIS Supervisor or the Technical Manager.

Obtain Approval for Purchasing, Storing, and Using New Reagents

Refer to OSBI Policy 121.2 concerning proper procedures for procuring new reagents. The trainee must coordinate with the laboratory safety officer, supervisor, and technical manager prior to submitting the validation plan. This approval must be obtained prior to the Biology Subcommittee review of the validation plan.

Prepare Validation Plan Proposal

The validation plan must include a) a full description of the proposed change, b) goal(s) and objective(s), c) financial impact d) description of the evaluation process that will be used to determine the new/modified method, equipment, or software is suitable for use as described in detail in QP 21.2 – Evaluation of Methods, Instruments, Equipment, and Software.

Submit Validation Plan to Biology Subcommittee for Approval

The Biology Subcommittee will review the validation plan and either approve the plan as proposed or request modifications. If modifications are required, the trainee will be required to amend the validation plan and then re-submit it to the Biology Subcommittee.

Submit Validation Plan to Administration for Approval

The approved plan will be submitted to the Administration. The Administration will present the plan during an administrative staff meeting to discuss whether the plan should be approved or denied.

Perform Individual Project
The trainee will perform the project as outlined in the validation plan. Deviations to the individual project must be discussed prior to finalizing the project. Depending on the degree of deviation the trainee may be required to seek approval from the Biology Subcommittee and/or the Administration.

Submit Finalized Project Summary and Data to Biology Subcommittee
A final summary and all the data supporting the project summary will be submitted to the Biology Subcommittee for review. The final summary must include a) range and accuracy of values obtained, b) quality control measures which must be incorporated with the method, c) final draft of the technical protocol and any quality control/calibration protocols required, and d) final cost/benefit analysis. The Subcommittee will review the summary and recommend approval or further validation. If further validation is recommended, the trainee will proceed with additional testing.

Submit Approved Validation for Final Approval
Once approved by the Biology Subcommittee, the final summary will be forwarded to the Administration to obtain final approval as described in QP 21.2 – Evaluation of Methods, Instruments, Equipment, and Software.

Assist Technical Manager with Implementation of the Method into the CODIS Unit Since the validation plan and all related documentation will be archived by the Technical Manager, the trainee must provide all finalized documents and data related to this project. The trainee will assist the technical manager in developing training materials on the method. The trainee may assist in developing a competency test for the method or evaluating the results of individual competency tests.

Per provisions in The FBI Quality Assurance Standards Audit for DNA Databasing Laboratories, the trainee involved in a validation project may have their involvement in the process considered as the competency assignment and be waived from an individual competency test at the discretion of the Technical Manager.

Task Checklist

Trainee Initials	Date	Supervisor or Trainer Initials	Task
			Read OSBI CSD QP 21.2
			Read the FBI's QAS for DNA Databasing Laboratories, Standard 8 (Validations)
			Obtain Approval for Purchasing, Storing, and Using New Reagents (if applicable)
			Prepare Validation Plan Proposal
			Submit Validation Plan to Biology Subcommittee for Review/Approval
			Submit Validation Plan to CSD Administration for Review/Approval
			Perform Individual Project
			Submit Finalized Project Summary to Biology Subcommittee
			Submit Subcommittee Approved Validation Summary to CSD Administration for Approval
			Assist Technical Manager with Implementation of the Method into the CODIS Unit (as assigned)

Assignment Completion Timeline

The timeline for completion of this assignment will be dependent upon the project assigned. The timeline will be defined by the Technical Manager upon assignment of the project.

Trainer Notes:

Courtroom Testimony (Up to Assignments)

Goals:

1. To familiarize the trainee with courtroom procedures and decorum.
2. To ensure the trainee can relate scientific information to a lay audience.

Task:

Mock Court

General Guidelines for Mock Court

A mock court incorporates all aspects of the training and is held subsequent to the Hit Verification Assignment. One of the mock hit verifications will be used for the mock court.

The atmosphere of the trial will be formal. Therefore, it will be conducted in the same manner as a real courtroom situation including conduct and procedures.

All mock trials will cover standard procedural questions (for example, qualifying the witness and general laboratory procedures), chain of custody questions and technical questions over the reported results.

The Technical Manager and trainer must agree with the selection of participants for the trial. There may be two defense lawyers and two prosecutors at the trial, consisting of at least one qualified CODIS criminalist for each side.

Harassment of the expert witness by defense counsel or prosecutor will be kept to the minimum necessary to achieve the desired goal. Questioning by both the prosecutor(s) and defense attorney(s) should be relevant and realistic.

Mock trials may be conducted at any of the forensic biology laboratories; however, mock trials must be conducted in the presence of the Technical Manager. The mock trial will be recorded. The recording may be viewed by the trainee at a later date to identify weak and strong points in the trainee's testimony. The recording will be retained by the trainee.

In addition, each trial participant/observer will complete the Witness Critique form attached to OSBI CSD Quality Procedure 32 – Testimony (or similar form) and submit the form to the Technical Manager for determination of an average score. Additional comments/observations will be compiled by the individual trial participants/observers and submitted to the Technical Manager as soon as possible. The Technical Manager will be responsible for relaying any additional comments/observations to the trainee.

Immediately following the mock court, the trainee will be excused while the trial participants evaluate the trainee's performance.

The trainee will be notified of the outcomes for the mock court after the completion mock court.

Time Constraints for Mock Court
The mock court will not exceed a 2.5 hour maximum time limit.

Prior to trial, the "District Attorney" and the "Defense Attorney" may agree to selected items to be introduced at trial in order to remain within the set time constraints.

The trial may be stopped at any time at the request of any of the involved parties.

Outcomes for the Mock Court
There are two (2) potential outcomes for a trainee's mock court:

- Satisfactory
- Not Satisfactory

If the panel conducting the mock trial determines that the trainee's performance was not satisfactory, additional technical (troubleshooting type) questions may be asked and/or remedial training may be assigned by the Technical Manager.

This evaluation may be followed by a short performance critique.

Assignment Completion Timeline
The timeline for completion of this assignment will be two weeks.

Trainer Notes:

Competency (Up to Assignments)

Goals:

1. To ensure the trainee has the ability to successfully analyze offender samples independently.
2. To ensure the trainee is familiar with the policies and procedures utilized in DNA analysis of offender samples.

Tasks

Your Competency assignment will be sent to you in the form of a memo. In addition, you will have to successfully complete an oral and/or written examination. A passing score is 80% or greater. Any score less than 80% will require remedial training.

Assignment Completion Timeline

The timeline for completion of this assignment will be determined by the Technical Manager and included in the competency assignment memo.

Trainer Notes:

GLOSSARY (to Table of Contents)

Accredited Laboratory-
A laboratory that has received formal recognition that it is competent and meets or exceeds a list of standards, including the FBI Director's Quality Assurance Standards, to perform specific tests by a nonprofit professional association of persons actively involved in forensic science that is nationally recognized within the forensic community in accordance with the provisions of the Federal DNA Identification Act or subsequent laws. Oklahoma State Statute 74:150.37 requires that "all forensic laboratories. . . shall be accredited" and further requires that accreditation be based ISO 17025 standards.

Accuracy-
The degree of conformity of a measured quantity to its actual (true) value.

Amelogenin-
The locus indicating the sex of the sample.

Biological Evidence-
Evidence commonly recovered from crime scenes in the form of hair, tissue, bones, teeth, blood or other bodily fluids.

Biological Fluids-
Fluids that have human or animal origin, most commonly encountered at crime scenes (e.g. blood, mucous, perspiration, saliva, semen, vaginal fluid and urine).

Cell-
The smallest component of life capable of independent reproduction and from which DNA is isolated for forensic analysis.

Chain of Custody-
A record of individuals who have had physical possession of the evidence and the process used to maintain and document the chronological history of the evidence. (Documentation can include, but is not limited to: name or initials of the individual collecting the evidence, each person or entity subsequently having physical possession of it, dates the items were collected or transferred, where the item(s) were collected from, agency and case number, victim's or suspect's name (if known), and a brief description of the item.)

Chromosome-
The biological structure by which hereditary information is physically transmitted from one generation to the next.

Clean/Sanitize-
The process of removing biological and/or chemical contaminants from tools, surfaces and/or equipment.

CODIS-
Combined DNA Index System is an electronic database of DNA profiles. Started as a Pilot Program in 1990. These profiles are generated from offenders and/or from crime scene evidence. State statutes determine which offenses are required to be included in the database. The database also includes a missing persons index.

Contamination-
The undesirable transfer of material to physical evidence (DNA) from another source.

Controls-
Tests designed to demonstrate that a procedure worked correctly and performed in parallel with experimental samples.

Control Samples-
Cuttings, swabs, etc. from unstained adjacent material. A control sample is material of a known source that presumably was uncontaminated during the commission of the crime (e.g. a sample to be used in laboratory testing to ensure that the surface on which the sample is deposited does not interfere with testing. For example, when a bloodstain is collected from a carpet, a segment of unstained carpet may be collected). The control sample should be taken adjacent to the biological stain being collected.

Cross Contamination-
The undesirable transfer of material between two or more sources of physical evidence.

Denaturing-
A process of breaking the hydrogen bonds that hold the DNA strands together, allowing the strands to be separated. Process is done either by heating or chemically. It is a reversible process (renaturing).

DNA (Deoxyribonucleic acid)-
The molecule that encodes genetic information. DNA is a chemical substance contained in cells (that contain a nucleus) which determines each person's individual characteristics. An individual's DNA is unique except in cases of identical twins.

DNA Analysis-
The process of testing to identify DNA patterns or types. In the forensic setting, this testing is used to exclude or include individuals as possible sources of body fluid stains (blood, saliva, semen) and other biological evidence (bones, teeth, hair). This testing can also be used to indicate parentage.

DNA Polymerases-
The enzymes that copy DNA.

DNA Profile-
The result of the determining the relative positions of DNA sequences at several locations on

the molecule. Each person (except identical twins) has a unique DNA profile when used in the context of the CODIS database, which evaluates 13 specific DNA locations.

Double Helix-
The shape the DNA assumes after it replicates during cell life.

EDTA-
Ethylene Diamine Tetra-Acetic Acid

Electropherogram-
The graphic representation of the separation of molecules by electrophoresis or other means of separation.

Electrophoresis-
A method of separating large molecules (such as DNA fragments) from a mixture of similar molecules. An electric current is passed through a medium at a different rate, depending on its electrical charge and size. Separation of DNA markers is based on these differences.

Elimination/ Reference Samples-
A term used to describe a sample of known source taken for comparison purposes.

(EXAMPLE)
An elimination sample is one of known source taken from a person who had lawful access to the crime scene (e.g. blood or cheek [buccal] swabs for DNA analysis, fingerprints from occupants, tire tread impressions from police vehicles, footwear impressions from emergency medical personnel) to be used for comparison with evidence of the same type.

A reference sample is material of a verifiable/documented source which, when compared with evidence of an unknown source, could show an association or linkage between an offender, crime scene and/or victim (e.g. a carpet cutting taken from a location suspected as the point of transfer for comparison with the fibers recovered from the suspect's shoes, a sample of paint removed from a suspect's vehicle to be compared with paint found on a victim's vehicle following an accident, or a sample of the suspect's and/or victim's blood submitted for comparison with a bloodstained shirt recovered as evidence).

Evidence-
Something that can help identify the responsible persons, establish an element of crime, reconstruct crime events or link crimes.

Exclusion-
A DNA test result indicating that an individual is excluded as the source of the DNA evidence. It is a failure to match between two DNA profiles

Forensic Science-
The application of science to analyze evidence involved in criminal and civil litigation.

Fragile Evidence-
Evidence that will lose its evidentiary value if not preserved and protected, either because of its nature or the conditions at the scene (e.g. blood in the rain).

Gene-
The basic unit of heredity.

Genetics-
The study of the patterns of inheritance of specific traits.

Genome-
All DNA in a cell.

Genotype-
The genetic makeup of an organism.

Heredity-
The transmission of characteristics from one generation to the next.

Latent Print-
A print impression that is not readily visible, made by contact with a surface.

Locus (pl. loci)-
The specific physical location of a gene on a chromosome.

Marker-
Pieces of DNA sequence of known locations on chromosomes that are used to identify the specific genetic variations an individual possesses.

Offender Hit-
A CODIS match between a crime scene profile and an offender profile.

Personal Protective Equipment (PPE)-
Articles such as disposable (latex) gloves, masks, shoe covers and eye protection that are utilized to provide a barrier to keep biological or chemical hazards from contacting the skin, eyes, and mucous membranes and to avoid contamination of biological samples.

Polymerase Chain Reaction (PCR)-
A duplicating process that yields millions of copies of a desired portion of DNA through repeated cycling of a reaction, using heating/cooling and chemicals. This process enables scientists to obtain genetic information from small or degraded specimens.

An enzymatic process in which a specific region of DNA is replicated over and over again to yield many copies of a particular sequence. The product is sometimes called an amplicon.

Random Match Probability-
The likelihood that a person randomly selected from the population will have an identical STR profile or combination of genotypes as the DNA markers tested.

Restriction Enzyme-
A protein harnessed from bacteria that recognizes specific, short nucleotide sequences and cuts DNA at those sites.

Restriction Fragment Length Polymorphism (RFLP)-
The variation between individuals in DNA fragment sizes cut by specific restriction enzymes.

Satellite DNA-
A repeated region of a DNA strand. Typically designated by the length of the core repeat unit as well as the number of repeats in the overall length of the repeat region.

Sequencing-
Determination of the order of base sequences in a DNA molecule.

Short Tandem Repeats (STRs)-
Multiple copies of a short identical DNA sequence arranged in direct succession in particular regions of chromosomes. 2 to 6 base pairs long. Are easily amplified by PCR. The number of repeats in STR markers can be highly variable among individuals, making them effective for human identification purposes.

Stochastic Effects-
The result of too little DNA, resulting in potential allele drop-out or drop-in and/or peak height imbalance.

Stutter-
Artifact sometime observed when alleles are amplified using PCR. Stutter products are amplicons that are typically one or more repeat units less in size than the allele and arise during PCR because of strand slippage.

Trace Evidence-
Physical evidence that results from the transfer of small quantities of materials (e.g. hair, textile fibers, paint chips, glass fragments, gunshot residue particles).

VNTR-
Variant number of tandem repeats. 10 to 100 bases in length.

Y-STR-
Short tandem repeat regions found on the Y chromosome.

History (to Table of Contents)

Revision#	Issue Date	Document History
Rev. 0	8/1/2011	Original issue
Rev. 1	6/1/2012	Changed analyst to criminalist throughout; added references to technician; added assignments for Reagent Preparation and Biomek FX; changed all references to Forensic DNA Typing (Butler, 2005) to Fundamentals of Forensic DNA Typing (Butler, 2009) and updated chapter numbers. Increased number of references; removed outdated or no longer relevant references; added hyperlinks throughout; added tables outlining assignments relevant for technician trainees and criminalist trainees; added goals for trainee in Introduction. Added references and tasks relevant to Yfiler analysis.
Rev. 2	12/01/2013	Added sections for review training; grammatical corrections and updates to references throughout as needed.
Rev. 3	12/15/2014	Deleted "effective date" column in OSBI Policy and Procedures reading list section. Modified Collection and Submittal Quiz to coincide with previous Revision's correction of key.
Rev. 4	12/15/2015	Removed Extraction, Reagent Preparation, and Biomek FX assignments. Removed References associated with Extraction and Biomek FX assignments. Removed References and assignment requirements associated with Y-STR analysis. Added required reading for PowerPlex® Fusion and removed readings regarding Identifiler®. Updated all mentions of the amplification kit, capillary electrophoresis instrument and DNA fragment analysis software. Updated references to the CODIS Policy and Procedure Manual to reflect most recent revision. Moved required reading for Harris Punch and Biomek 3000 Maintenance and Calibration to the Amplification assignment. Added additional manual set-up plate to Amplification assignment. Changed required number of plates from 10 to 5 on the Offender Analysis assignment. Updated applicable Exams and Exam Keys to correspond to updates to CODIS Policy and Procedure updates (implementation of PowerPlex Fusion direct amplification using 3500xL Genetic Analyzer and GMID-X version 1.2 analysis software). Deleted reference to Biomek amp setup. Deleted Y-STR reference in Offender Analysis. Added forensic and national hit verifications to mock samples. Added sections of "notes for the trainee" with helpful hints discovered during the internal validation and competency exams. Removed Closed Book Examination in Sample Preparation and Amplification Section since there was previously

		no exam for amplification.
Rev. 5	06/01/2016	Typos corrected and Quizzes and Keys updated to reflect current information.
Rev. 6	11/30/2017	Added page numbers to entire document. Added CODIS Web Program Assignment. Added requirement for Biohazard Waste Handling to Laboratory Safety section. Changed Plate number requirements for Amplification and Genetic Analysis Assignments to 1 minimum, and extra plate(s) upon consultation between the Trainee and Trainer. Updated ASCLD/LAB references to ANAB. Added and removed relevant references Added task to Introduction to the laboratory section on gaining access to applicable LIMS System modules. Updated number of samples in Offender Analysis Assignment. Updated genetic analysis assignment to allow for the use of a plate other than the training plate to avoid training plates that may be affected by sitting idle for a time period of training progression.
Rev. 7	09/01/2018	Section I (Training Program) – added information regarding re-training of analysts/technicians. Modified Instructions to Trainee section to remove reference to 31-Day Reports and replace with training and testimony activities as required by CSD Administration. Added “(if applicable)” after the requirement for the Supervisor to introduce trainee how to submit IPRs, as not all trainees may be assigned this task. Add section regarding Closed Book Examination for the CODIS Web Program Assignment and Sample Prep and Amplification Assignment sections. Change “Complete” to “Pass” in the written examination portions of the Task Checklist for the CE and Data Analysis Assignment sections. Update Validation section to coincide with QP 21.2 naming and add info regarding the validation project involvement may be considered as the analyst/technician individual competency.

		Add in Courtroom Testimony section that if needed, additional technical (troubleshooting type) questions may be included. Re-do all Task List Tables to convert to more efficient format (Excel) and remove all section breaks to prevent issue with page numbering encountered in the past. Add/update two references to Legal section references and task checklist and correct typo “1196” to “1996” in task checklist.
Rev. 8	09/12/2019	Re-organized Table of Contents and document by moving “Special Project (Optional)” after “Courtroom Testimony” and “Technical Reviews” before “Courtroom Testimony.” Same re-organization for the “Assignments for the Criminalist Trainee” checklist. *Introduction* section, *The Training Manual*, last paragraph, added “Prior to a trainee being released for analysis, the TM shall document” QAS compliance. *Introduction* section, *Instructions for the Trainee*, last paragraph, added instructions for trainee to proactively notify trainer after completing task(s) and/or if needing feedback and/or instruction from trainer. *CODIS Reference Material* section, added #2 – Duplicate Sample Decision Tree to “Collection and Submittal of Offender Samples.” *Orientation to the Laboratory Facility* section: in *Tour of the Laboratory Facility* – removed sentence stating that lab tour normally performed by a Criminalistics Administrator; changed heading “Mental Illness Training Module” to “Training Office New Employee Modules” and added clarification that Training Office will send any required training modules to the employee via email link; *Meeting with Unit Supervisor*, in removed reference to OSBI Employee Handbook; added “Training Office Additional Modules” to *Task Checklist*. *Laboratory Safety* – changed “Hepatitis B training” to “Hepatitis B Form” in header and changed “should” to “may be” for including the completed form in the trainee’s training manual, clarifying it is up to the trainee (in compliance with HIPAA privacy). Also clarified that any required biohazard waste training necessary will be provided and made accessible to the trainee. *CODIS Policy Manual* – changed written exam from closed book to open book to coincide with the directions on the exam itself. *Pipetting* – modified second exercise by adding 300µL volume and removing 400 to 1000µL volumes since CODIS no longer uses single-channel electronic pipet for those volume ranges. Changed

		last exercise to an observation evaluation since CODIS only has a 1-10µL multi-channel electronic pipet now and volumes that small cannot be reliably weighed using our weigh boats and balance. *NDIS Procedures* – Revised entire NDIS Procedures exam and key to align with the revised NDIS Procedures, effective 05-01-19. *CODIS Database* – added note clarifying that the module only applies to Criminalists trainees. *DNA Overview* – added that additional readings can be assigned by trainer, and if so, should be documented in trainee's notebook. Added "and 18 CODIS Core STR Loci Diagram" to checklist. *Sample Prep and Amplification* – removed references to 9700 thermal cyclers and replaced with general thermal cycler wording. Includes Proflex policy in the checklist. *Capillary Electrophoresis* – added "Read Chapter 6…" to the checklist. *Offender Analysis* – added "and generate the BEAST update…" to the checklist. Training References – Replaced previous NDIS Procedures, effective 01-01-15, with revised NDIS Procedures, effective 05-01-19. Corrected minor typographical errors and formatting throughout.
Rev. 9	11/01/2020	Annual review. Incorporated deviations: • Defining date of hire/appointment/promotion as the defined date for determining the applicable version of QAS for assessing education, experience and training. • Amplification exam and key added due to discrepancies identified in Rev. 8 indicating an exam would be given and contradicting Rev. 4 history indicating the exam was removed. No exam or key was present after Rev. 4 so they were reincorporated. • 3500xL Setup & Maintenance assignment, exam, and exam key. Removed 9700 thermal cycler references, incorporating exclusive use of ProFlex PCR Systems for analysis of all offender samples (blood/buccal) with completion of recent supplemental validation/performance checks. *Orientation to the Laboratory Facility* – added OSBI CSD New

		Employee General Training Manual requirements. *Data Analysis* – added GMID-X training material for reference *Hit Verifications* – added in task checklist that observation should encompass offender and forensic hits *Courtroom Testimony* – changed mock trial recording(s) to be retained by trainee instead of TM. Removed all "Final Assessment" signature pages as they are not necessary. The "Task Checklist" included with all assignments reflect the completion of the required components of the assignment with a completed checklist serving as completion of the related assignment. Removal of the signature pages allows for easier recording of completion of tasks without locking the PDF document to prevent future edits/notations when other areas of the checklist/assignment require sign-off. Updated monthly training memorandum template. Minor grammatical/typo corrections throughout. Updated all references from 2011 QAS to 2020 QAS. Updated QAS and Audit Document from 2011 to 2020. Added 2020 guidance document. Updated NDIS Operational Procedures from v8 to v9. Updated Guiding Principles from ASCLD-LAB to ANAB.
Rev. 10	12/05/2021	Annual review. Corrected arrangement of "Spectral" and "Spatial" in 3500xL Setup and Maintenance Task Checklist under the last 2 "Task" in the table. Updated safety coordinator in exam key for Laboratory Safety Exam.
Rev. 11	09/01/2022	Added the effective date to the footer. Removed 3500xL Setup and Maintenance Assignment Added note to several assignments regarding items that are covered in the CSD New Employee General Training Manual and greyed out assignment tasks that need not be duplicated. Removed requirement for a summary in the Web Program Assignment Removed requirement for a summary in the Collection and Submittal of Offender Samples Assignment. Removed references to Biomek 3000, and removed requirement to

		setup using automation. Updated references to CODIS manual to include policy number Replaced references to PowerPlex Fusion with GlobalFiler Express. Removed requirement to read the Commissioned Personnel Code of Ethics Replaced references to punch solution with PrepNGo Buffer Replaced the "PCR Movie" with two instructional videos from thermofisher since the previous link was no longer good Updated GeneMapper ID-X version to 1.6 and added the User Bulletin to the assigned reading Revised Collection and Submittal Assignment Exam to incorporate duplicate decision tree questions Revised Amplification and CE Exams to incorporate GlobalFiler Express Protocols and reagents as well as Off Scale Reduction Changed footers in all quizzes to give them all unique form numbers CDS CODIS Quiz #, and started with revision number 1 for all attachments since they were not their own forms previously.
Rev. 12	12/01/2023	Annual Review Incorporated Deviation(s): -Added attachments for CODIS competency test: Technical Questions, Technical Questions Key, Mock Trial Evaluation Form Updated OSBI Seal on title page Removed link on p.2 to "3500XL Setup and Maintenance", assignment was removed from manual in previous revision p.11: Added reference to SAAR form under the "Access to OSBI intranet and internet" section p.12: Changed references to "Employee Self Service" and "Time and Leave" to "Workday"; changed reference to "Work Activity Reports" to "Workday timesheets" p.18-19: Added the following policies to the table: 103.1 Authority & Responsibility – Office of Professional Standards, 129 Practicum – Intern Personnel, 134 – Tobacco Free Workplace, 135 – Temporary Light Duty Assignments, 136 – Naloxone Program p.20: Updated table formatting and removed "NETM 5.0" p. 44: Corrected spelling of "Guidelines" in table p.69: Updated Lab Director from Andrea Fielding to Janice Joslin

Rev. 13	12/02/2024	Annual Review
		p.22: Removed references to Web Programs quiz

APPROVAL

Per OSBI CSD QP 2 (Document Control), technical protocols/procedures, discipline quality manuals, and related attachments and references will be approved by the appropriate technical manager and the OSBI CSD director, or designee.

Joe Orcutt,
Technical Manager,
Forensic Biology Discipline

Signature

11/25/2024
Date

Janice Joslin,
Laboratory Director,
OSBI CSD

Signature

11/25/2024
Date