WASHINGTON STATE PATROL

CRIME SCENE RESPONSE TEAM
TRAINING MANUAL

CRIME LABORATORY DIVISION

August 2023

Table of Contents

INTRODUCTION

A. CRIME SCENE INVESTIGATION TRAINING PLAN

The Crime Scene Investigation Training Plan was adapted from guidelines set forth by trade associations and scientific and technical working groups established and/or sponsored by the Federal Bureau of Investigation.

Refer to WSP Crime Laboratory Division (CLD) Quality Operations Manual (QOM), Section 7 Personnel Qualifications and Training.

PURPOSE

To provide Trainee, Secondary, and Primary Responders on the Crime Scene Response Team (CSRT) with the necessary instruction to allow professional growth and expertise in the Crime Scene Investigation discipline.

EMPLOYEE DEVELOPMENT

CLD employees interested in joining the CSRT who have approval through their chain of command will be allowed to enter into a 3 month trial service period. This period is meant as an informal introduction to the nature of CSRT work, where employees will dedicate at least one week per month toward on-call responses. Additional time spent responding to scenes will require Supervisor approval. At the end of the 3 month period, an evaluation of how the employee fits in with the CSRT program will be discussed with the CSRT Manager, the employee, and their Supervisor. Upon successful completion of the trial service period and approval from the Division Commander, the employee will become a Trainee member of the CSRT.

The length of the training period is a highly variable matter and will be left to the determination of the trainer. Certain individuals may require less time than others, depending on experience, education, availability, and/or learning ability. The training time will also vary depending on the time required to enroll the trainee in the proper adjunctive training courses.

Throughout the training period, the trainee will observe tasks on scene to become familiar with different forms of case evidence, documentation, packaging, and applied analytical techniques. The trainee may assist with tasks on scene, under the direct supervision of a qualified examiner, only for tasks in training modules for which there is no competency test required. Once the trainee has successfully completed a module, they may independently perform tasks that fall under the given module.

The training modules that do not have associated competency tests are:

Module 2.0: Cognitive Bias and Ethics
Module 3.0: Searching Methods
Module 5.0: Firearm Safety
Module 6.0: Ammunition
Module 12.0: Trace Evidence
Module 13.0: Drug Related Evidence and Safety

Module 14.0: Arson and Explosive Evidence
Module 15.0: Crime Scene Documentation
Module 19.0: Recovery and Processing of Human Remains
Module 20.0: Crime Scene Reports and Case File Management
Module 22.0: Technical Review
Module 23.0: Administrative Review

The training plan consists of three sections: Step One, Step Two, and Step Three:

- Step One includes modules for a trainee to complete in order to be elevated to a Secondary Responder. If a trainee does not successfully complete these modules within 18 months, consideration should be given to additional training, additional time to focus on crime scene training, or termination of the trainee's assignment to the CSRT. Promotion to Secondary Responder is at the discretion of the CSRT Manager and will be dependent on the trainee's scene experience and training plan progress.

- Step Two includes modules for a Secondary Responder to complete in order to be elevated to a Primary Responder and should be achieved within 12 months after completion of Step One. If a Secondary Responder does not successfully complete these modules within the allotted time period, consideration should be given to additional training or termination of the responder's services.

- Step Three is for Primary Responders and should be completed within 3 months following the completion of Step Two.

At the completion of the training plan, an exit interview should take place between the trainee, trainer, and Technical Lead(s). The purpose of this interview is to provide feedback regarding the training plan in general and to the trainee as they prepare to perform independent casework.

STEP ONE: Module 1.0 must be completed first. Unless otherwise noted in the module, the remaining modules do not need to be completed in the order listed. It is beneficial to complete Module 4.0 in the early stages of Step One as many of the modules incorporate crime scene photography.

- 1.0 CRIME SCENE ORIENTATION AND FOUNDATION
- 2.0 COGNITIVE BIAS AND ETHICS
- 3.0 SEARCHING METHODS
- 4.0 CRIME SCENE PHOTOGRAPHY
- 5.0 FIREARM SAFETY
- 6.0 AMMUNITION
- 7.0 COLLECTION OF FIRARMS AND AMMUNITION
- 8.0 TOOL MARK EVIDENCE
- 9.0 SEROLOGY
- 10.0 LATENT PRINTS
- 11.0 IMPRESSION EVIDENCE
- 12.0 TRACE EVIDENCE
- 13.0 DRUG RELATED EVIDENCE AND SAFETY
- 14.0 ARSON AND EXPLOSIVES EVIDENCE

- 15.0 CRIME SCENE DOCUMENTATION
- 23.0 ADMINISTRATIVE REVIEW

STEP TWO: Unless otherwise noted in the module, the modules do not need to be completed in the order listed. Module 21.0 must be completed after the completion of the preceding modules in this training manual (except for module 19.0).

- 16.0 BLOODSTAIN PATTERN ANALYSIS
- 17.0 3D LASER SCANNING
- 18.0 SHOOTING INCIDENT RECONSTRUCTION
- 19.0 RECOVERY AND PROCESSING OF HUMAN REMAINS
- 20.0 CRIME SCENE REPORTS AND CASE FILE MANAGEMENT
- 21.0 COMPETENCY TEST

STEP THREE:

- 22.0 TECHNICAL REVIEW

MODULE 19.0 RECOVERY AND PROCESSING OF HUMAN REMAINS – Qualification as a Primary Responder can be achieved without the completion of this module. However, the Primary Responder must complete this module before they are able to lead scenes that involve the recovery and processing of human remains.

MODULE 23.0 ADMINISTRATIVE REVIEW – Will only be completed by those who are new to the WSP and who haven't previously been approved for administrative review in another WSP Crime Laboratory discipline.

At the discretion of the CSRT Manager, a Secondary Responder may be released to respond as a Primary Responder to requests that fall within the training sections completed. A modified competency test (and moot court, if applicable) must be successfully completed. An IOC from the Technical Lead(s) will be completed with a recommendation that the trainee is qualified to respond as a Primary Responder for specific modules.

All Primary Responders shall participate in continuing education to maintain competency and develop advanced knowledge and abilities. The FLSB shall make every effort to make such training available to all members of the CSRT.

TRAINING TO COMPETENCY OBJECTIVES

The trainee must demonstrate knowledge of required objectives by communicating an understanding of the objectives and underlying principles. Competency tests (when required) must also be successfully completed, as determined by the Technical Lead(s). Prior to the trainee taking a competency, a discussion should occur between the trainer and the Technical Lead(s) to determine if the trainee is ready for the competency or if additional training is needed. Proper set-up of the competency tests will be discussed and the competency samples (when appropriate) will be provided to the trainer.

The competency tests are skill based and are graded/evaluated by the Technical Lead(s) according to the appropriate answer or evaluation sheets which are stored on the CSRT SharePoint. If the competency is performed correctly, based on the evaluation criteria, the trainee passes the competency. If the trainee performs incorrectly, competency of the topic has failed to be demonstrated. The trainee will undergo additional training prior to attempting the competency again.

The training elements and benchmarks have been established to accomplish each of the objectives. The modules which do not have competency tests will be evaluated by the trainer, or the individual providing the training, based on the performance of the trainee and his/her understanding of the module topics.

INSTRUCTIONS FOR THE TRAINEE

The trainee is expected to keep a training record (physical or digital) on all work completed. The completed Training Checklists, training certificates, and training feedback will also be retained.

The training binder should contain the types of tests, examinations or experiments observed and performed; notes and comments on each type of test; and the review of pertinent literature.

MOOT COURT

Each case a forensic examiner analyzes has the potential of involving him/her as an expert witness in courtroom testimony. The trainee must never underrate this important aspect of the work. It is the trainer's responsibility to ensure that the trainee is thoroughly prepared for legal questioning. This can be done by a combination of mock trials, pre-arranged as well as impromptu question and answer sessions, pertinent literature review, and observation of courtroom testimony given by experienced examiners.

A mock trial may take place at any point after the trainee has completed a module of this training manual, following a practical examination of a mock case incorporating that module.

A final mock trial will take place, to include any or all aspects of this training program, as part of Module 21.0 Competency Test. If the trainee has testimony experience, a question and answer session to replicate court testimony may substitute for the mock trial requirement.

RECOMMENDED FORMAL TRAINING

In some cases, formal training offered by the CLD or agencies and organizations outside the WSP may substitute for all or a portion of the required training. Formal laboratory training for a part-time responder's primary functional area may also substitute for the required training. The content of the formal training shall be reviewed by the Technical Lead(s) to determine which benchmarks have been met by the formal training and which training elements can be substituted.

TRAINEE EVALUATION GUIDELINES

The following categories will be evaluated throughout the trial-service and Step 1 of the training plan utilizing the *CSRT Trainee Feedback Worksheet* (CSRT SharePoint). The primary and secondary responders should discuss the trainee's progress during the on-call week prior to the worksheet being filled out. The worksheet should be filled out by the most senior member of the on-call team in the week following the on-call week. The worksheet will then be provided to the trainee for review and comments, after which the

trainee will sign the worksheet and send it to the CSRT Manager and Technical Lead(s). A copy of the worksheet will be kept in the training binder and in the trainee's folder on the CSRT SharePoint. Quarterly feedback from the CSRT Manager should be provided to the trainee's supervisor.

Descriptions of behavior are given to provide standardization in evaluating trainees throughout their training period:

ATTITUDE

1. Acceptance of Feedback – Evaluates the way the trainee accepts the trainer's criticism and how that feedback is used to further the learning process and improve performance.

   Unacceptable: Rationalizes mistakes, denies that errors have been made, and is argumentative with the trainer or supervisor when errors are brought to the trainee's attention. Refuses to or does not attempt to make corrections to improve behavior. Considers criticism as a personal attack. Mistakes are repetitive and deceptive.

   Acceptable: Accepts criticism in a positive manner and applies it to improve performance and further the learning process.

   Superior: Actively solicits criticism/feedback. Adapts and creates ways to facilitate the learning process. Improves in weak areas by making time to practice. Studies material for improving. Considers criticism as educational feedback for self-improvement.

2. Attitude toward crime scene work – Evaluates how the trainee views the work performed in terms of personal goals, motivation and acceptance of responsibilities of the job.

   Unacceptable: Views crime scene work only as a job. Shows little dedication to learning evidence processing skills. Actively complains about the amount of time spent on scene or complains about responding to multiple scenes in an on-call week.

   Acceptable: Demonstrates an active interest in learning evidence processing and is serious about taking on scene duties.

   Superior: Uses on-duty time to further job knowledge. Solicits assistance from others to learn more about the job. Works at fitting into the team concept. Practices with equipment to gain proficiency. Asks questions to learn from others.

KNOWLEDGE

1. Knowledge of WSP, FLSB, and CLD policies and procedures – Evaluates the trainee's knowledge of procedures used throughout the agency. Procedures such as operation of agency vehicles, care of agency equipment, sick/vacation time usage are some of the common areas.

   Unacceptable: Has no knowledge of procedures and makes no effort to overcome this deficiency. Does not follow basic procedures and thinks they were made for someone else

Acceptable: Understands the need for rules and regulations. Follows those rules and works on increasing knowledge.

Superior: Knows most, if not all, agency policies. Makes valid recommendations to improve policies.

2. Knowledge of CSRT procedures – Evaluates the trainee's knowledge of crime scene-related procedures and CSRT-specific policies.

   Unacceptable: Makes no effort to learn procedures and routinely complains about the rules and regulations. Intentionally circumvents procedures or minimizes their importance.

   Acceptable: Follows instructions and procedures. Understands the importance of specific procedures and the value of these procedures for courtroom testimony and accreditation.

   Superior: Knows all CSRT procedures and how to document them. Makes valid recommendations to improve procedures.

PERFORMANCE

1. Driving Skills – Evaluates trainee's skill in the operation of a Crime Scene Unit vehicle under normal driving conditions.

   Unacceptable: Frequently violates traffic laws. Involved in chargeable accidents. Does not wear seat belt. Constantly exceeds posted speed limits. Fails to adjust speed to adapt to changing conditions. Causes preventable damage to vehicle in minor collisions.

   Acceptable: Obeys traffic laws. Maintains control of the vehicle. Performs all the mechanics of driving required to drive safely. Drives defensively.

   Superior: Sets an example for lawful and courteous driving. Maintains complete control of vehicle at all times. Follows vehicle maintenance schedules.

2. Crime Scene Assessment Skills – Evaluates the trainee's ability to evaluate the crime scene to determine what needs to be done and in what order. Evaluates trainee's ability to identify items at a crime scene or conditions that require a priority of processing over other things that need to be done.

   Unacceptable: Is not systematic and continually picks up evidence before locating it photographically and in their notes. Does not pay attention to transient evidence. Cannot decide in what order to do things and continually must be told by the trainer step by step what to do next. Frequently overlooks evidence.

   Acceptable: Understands that each crime scene is unique and completes a thorough walk-through of the scene to determine what needs to be done. Is systematic in planning what to do at the scene. Coordinates efforts with other personnel performing tasks

while on scene. Is aware of transient evidence and takes appropriate steps to immediately protect or collect it.

Superior: Quickly assesses the crime scene noting any type of evidence that requires priority treatment. Is thorough and detailed in the examination of the crime scene. Delegates duties to secondary responders appropriately. Not reluctant to make the extra effort to move around the scene to ensure a thorough assessment has been completed.

3. Digital Camera Operation – Evaluates the trainee's ability to correctly operate the digital camera and all associated photography equipment. Is able to properly load and unload the camera card. Utilize various features on the camera to obtain clearly focused and properly exposed images of interest.

   Unacceptable: Does not understand how to use the camera. Is not able to operate the camera to obtain proper overall, evidence establishing, and close-up images. Mishandles camera equipment and risks damaging equipment or damages equipment due to improper handling. Does not utilize a tripod when needed. Does not pay attention to camera settings and images are compromised as a result.

   Acceptable: Understands the working parts of the camera. Is able to obtain images that are focused and properly composed. Comfortable with camera settings to change on the fly during the scene to ensure proper exposure for each image. Utilized the correct lenses and focal lengths for overall, evidence establishing, and close-up images. Uses a tripod effectively when needed.

   Superior: Spends time learning the modes and buttons of the camera beyond what is required. Utilizes time to practice taking images to improve knowledge and skill. Produces excellent images and seldom needs to re-shoot on scene for correction.

4. Latent Print Processing – Evaluates the trainee's ability to properly develop and lift latent fingerprints on a variety of surfaces and observes if the trainee properly completes the latent lift cards, noting exactly where each latent was lifted.

   Unacceptable: Consistently puts on too much powder, thereby obliterating the fingerprint. Does not know how or have the dexterity to properly tape and lift latent prints and place them onto lift cards. Consistently forgets to complete the latent print card correctly. Does not note where the prints were lifted. Cannot lift palm or multiple fingerprints correctly.

   Acceptable: Applies the proper amount of fingerprint powder and usually develops quality prints. Properly completes the information needed on the lift card. Has learned to lift large areas such as palms or multiple fingerprints at a time.

   Superior: Easily picks up the techniques used to develop and lift fingerprints. Always completes the back of the lift card correctly. Obtains good lifts from complex surfaces.

5. Hand Drawn Diagrams/Sketches – Evaluates the trainee's ability to prepare a sketch of the crime scene, indicating the layout of the scene and where relevant evidence was located. Evaluates the trainee's ability to prepare descriptive diagrams.

   Unacceptable: Sketches incorrectly depicts what the scene actually looked like. Depicts the layouts of scenes incorrectly by mixing up rooms or locations within the scene. Consistently does not indicate cardinal directions. Does not include case identifiers, date, or initials.

   Acceptable: Prepares sketches that are neat and are an accurate representation of the crime scene. Includes all appropriate case information, date, and initials.

   Superior: Takes the time to ensure that everything relevant to the scene is included in the sketch. Goes to extra effort to ensure the sketch is neat and descriptive of what the crime scene looked like.

6. Time Management – Evaluates the trainee's ability to utilize time effectively. Determine if the trainee has the ability to maximize the time available for tasks.

   Unacceptable: Does not exhibit any time management skills that assist in completing tasks in a reasonable length of time. Takes an inordinate amount of time to complete assignments or training modules. Shows frustration or confusion when placed under time constraints and cuts corners to meet these restraints.

   Acceptable: Appropriately uses time to complete work within reasonable lengths of time. All work is completed in a timely manner according to the procedures taught. Shows some ability to multitask and handle several tasks at one time. Demonstrates good prioritization skills.

   Superior: Is able to work under pressure with little or no negative effect. Does all work correctly and effectively. Can multitask easily and exhibits the ability to appropriately prioritize tasks.

7. Crime Scene Safety/Contamination Prevention – Evaluates the trainee's ability to use universal precautions at all scenes. Determines whether a trainee has situational awareness in the field. Evaluates the trainee's ability to prevent contamination of evidence while performing routine on-scene duties.

   Unacceptable: Fails to utilize proper personal protective equipment (PPE) prior to handling biohazard evidence. Does not properly change gloves once biohazard evidence has been handled. Careless with evidence handling and glove changing to the point where secondary DNA transfer or exposure to biohazard samples could occur. Handles personal or agency issued mobile phones while wearing gloves. Constantly has their DNA profile show up in samples as a source of contamination.

   Acceptable: Uses gloves and other appropriate PPE, regardless of whether biohazards are visible or not. Mindful of preventing contamination by employing appropriate behaviors on-scene such as changing gloves appropriately and wearing protective

shoe covers when necessary. Is mindful not to talk excessively when in close contact with evidence that will likely be submitted for DNA analysis. Rarely has their DNA profile show up in samples as a source of contamination. Comfortable with use of power tools during evidence collection.

Superior: Always has gloves available and changes them frequently. Is vigilant about preventing cross contamination when processing and/or collecting evidence. May wear masks when sampling for DNA. Does not have their DNA profile show up as a source of contamination. Is proficient in power tool use on scene and takes time to practice with tools outside of on-scene time.

8. Firearms Handling – Evaluates the trainee's knowledge of firearms, ability to properly make them safe, and overall understanding and implementation of firearms safety. Is able to package firearms correctly.

   Unacceptable: Does not understand how firearms operate. Is not able to safely unload a firearm. Points the firearm in unsafe directions when handling. Handles a firearm with finger in the trigger guard. Does not properly package a firearm on scene.

   Acceptable: Is able to safely unload and package a firearm. Makes sure the firearm is pointed in a safe direction at all times during handling. Comfortable with multiple firearm types and only requires consultation for rarely encountered firearm models.

   Superior: Has taken time to understand firearms and how they function across multiple platform types. Is cognizant of firearms safety and implements that procedure when handling firearms.

9. Evidence Collection Skills – Evaluates the trainee's ability to properly collect physical and trace evidence. Evaluates the trainee's ability to follow procedures on handling biohazard evidence.

   Unacceptable: Loses trace evidence by not collecting it properly. Does not separate evidence properly, risking contamination in the process. Must be told each time exactly how to collect the evidence step by step. Operates power tools unsafely.

   Acceptable: Uses proper collection methods when collecting a variety of evidence.

   Superior: Takes extra time to ensure that evidence is collected properly. Protects themselves from biohazard material by utilizing PPE when necessary.

10. Evidence Packaging Skills – Evaluates the trainee's ability to properly package, seal, mark, and label evidence that is collected. Rates the trainee's knowledge of what packaging material is appropriate for each type of evidence collected.

    Unacceptable: Uses inappropriate containers to package evidence. Does not label shoe and tire impression evidence so that the areas bearing the impressions will not be disturbed. Fails to adequately protect 3D casts to prevent breakage. Packages firearms in an unsafe manner or fails to separate the firearm from ammunition while packaging. Does not properly seal/initial evidence.

Acceptable: Uses appropriate packaging material for evidence and seals/initials evidence correctly. Properly packages wet evidence. Packages firearms and associated ammunition correctly.

Superior: Takes extra steps to protect evidence by marking packaging when appropriate as "fragile" or "biohazard". Marks evidence correctly and includes all relevant case information. Able to adapt on-scene and come up with solutions to secure items that are difficult to package.

11. Common Sense and Good Judgement – Evaluates the trainee's ability to deal with a variety of problems while performing assigned duties. The trainee must be able to recognize a problem, identify possible alternatives and take the appropriate action. The trainee's actions must be in compliance with applicable laws, current rules and regulations, and be consistent with the goals and objectives of the CSRT and what is taught in the CSRT training manual.

    Unacceptable: Does not recognize limits of authority such as processing scenes without search warrants or consent. Cannot identify alternative means of evidence collection or processing based on weather conditions or other adverse conditions.

    Acceptable: Appropriately uses discretion when in the presence of relatives or friends of a deceased victim. Has situational awareness of news media present at crime scenes. While performing assigned duties, is able to recognize the point at which alternative measures need to be implemented and gets authorization prior to performing any deviations from an approved method. Immediately reports damaged or lost equipment.

    Superior: Is able to implement alternative methods of processing or collection when confronted with a difficult scene. Uses innovative collection techniques when opportunities occur, that were not addressed in previous training.

RELATIONSHIPS

1. Interactions with citizens in general – Evaluates the trainee's ability to have positive contact with citizens from a wide range of educational, cultural, and ethnic backgrounds under a variety of circumstances. The trainee must treat all citizens with equal respect and courtesy. The same level and standard of service must be provided to all citizens in all regions of the state.

    Unacceptable: Is rude, uses ethnic slurs or profane language while representing the WSP either on-scene or when at a public restaurant on a meal break. Makes inappropriate comments or exhibits unprofessional demeanor at a crime scene where friends or relatives of the decedent are present.

    Acceptable: Uses common courtesy statements when speaking with citizens. Represents the agency in a professional manner when wearing the CSRT uniform and taking meal breaks in public restaurants.

Superior: Works to recognize personal biases and seeks out further opportunities to learn about diversity, equity and inclusion. Respectful to members of the public when representing the WSP.

2. Interactions with Co-Workers – Evaluates the trainee's ability to effectively communicate with other members of the CSRT. Trainees will be working closely with others while performing assigned duties. When the trainee relates well, the work environment is generally more positive, enjoyable and productive.

   Unacceptable: Makes derogatory comments or criticisms of other members. Is sullen and uncooperative. Refuses to communicate or fails to follow instructions or requests by co-workers while on-scene or in training exercises.

   Acceptable: Trainee positively interacts with other members and shares relevant information at crime scenes. Is receptive to feedback offered by co-workers and supervisors.

   Superior: Trainee is a team member and goes out of the way to assist other members even though it adds to their workload. Creates an atmosphere of professionalism and engenders trust with co-workers and supervisors.

3. Relationships with Allied Agencies – Evaluates the trainee's ability to effectively communicate and demonstrate professionalism with allied agencies requesting CSRT assistance.

   Unacceptable: Makes negative comments about the allied agency or criticizes the agency while on-scene. Does not communicate effectively with members of the requesting agency. Speaks for the primary without consulting the primary first, which may relay incorrect information to the agency. Shows little interest in learning the communication techniques needed between CSRT and allied agencies for a successful investigation.

   Acceptable: Trainee positively interacts with the allied agency members and shares relevant information while on scene. Is communicative with allied agencies and shares ideas between CSRT and the requesting agency when appropriate. Participates in conversations or notifications between agencies to learn how to effectively work together. Represents the WSP in a professional manner when interacting with allied agencies.

   Superior: Trainee is an excellent representative of the WSP and models successful behaviors with allied agencies. Creates and atmosphere of trust between CSRT and allied agencies by actively communicating providing competent, professional crime scene work while on scene.

STEP TWO EVALUATION GUIDELINES

As the trainee progresses through Step 2 of their training plan, it is expected that more complex tasks will be performed on-scene. Once a trainee is signed off to take limited independent casework, their progress on note taking and report writing will also be critiqued.

COMPLEX TECHNIQUES AND TASKS

1. Evidence Documentation and Examination - Trainees will be evaluated on their ability to perform increasingly complex techniques of evidence documentation and examination as they progress through the training plan. For each complex technique (bloodstain pattern analysis, shooting incident reconstruction etc.) they will be evaluated on their ability to translate their training into practical application on-scene. When evaluating these complex techniques, the trainer will specify which techniques are being evaluated so the trainee has clarification.

   Unacceptable: The trainee is not demonstrating that they learned the technique properly. The actions performed by the trainee on-scene are not in line with what was taught in the training module. When providing feedback to the trainee, the trainer will describe what they are and are not doing correctly.

   Acceptable: The trainee is learning the technique at an acceptable learning pace and/or they can complete complex tasks on scene with minimal coaching.

   Superior: The trainee quickly catches on how to perform the complex task and does so with no mistakes after completing the associated training module.

2. Casefile Management: Accuracy and Completeness of Reports – Evaluates the trainee's ability to prepare written reports that accurately reflect the crime scene and include all pertinent details.

   Unacceptable: Report is inaccurate and lacking in information. Evidence collected is not included in the report. Issues with consistency between scene/evidence descriptions within the notes and the final report. Details of scene/evidence description is minimal.

   Acceptable: Reports include all evidence and describes the details of the scene accurately.

   Superior: Details of report describe all evidence in professional terminology. Explains how evidence relates to the scene, allowing the reader to draw accurate conclusions.

3. Casefile Management: Organization/Details of Notes – Evaluates the trainee's ability to prepare reports that flow from the initial point of entry to collection of each piece of evidence. Reports should allow the reader to "walk through" the scene.

   Unacceptable: Unable to organize information and reduce it to written notes/sketches. Leaves out pertinent details in the notes. Crime scene details added that are not pertinent to assisting the investigation or are irrelevant.

   Acceptable: Completes cases so that they are organized and contain the necessary details that describe the crime scene and evidence that was collected.

   Superior: Notes are written in such a detailed and organized fashion that the crime scene can be visualized by the reader. Accurately describes and locates evidence that is observed/collected. Goes to extra lengths to provide accurate details of evidence, scene layout etc.

4. Casefile Management: Appropriate Time Used – Evaluates the trainee's ability to write casefiles in an efficient manner concerning the length of time needed to complete the report and put the case into technical review.

   Unacceptable: Requires an excessive amount of time to complete the casefile. Progress is slowed due to constant errors within the notes or report, requiring preventable revisions through secondary and technical review.

   Acceptable: Completes reports within a reasonable amount of time with minimal preventable errors.

   Superior: Completes work quickly and thoroughly. Completes casefile in the same amount of time as an experienced member of CSRT.

B. TRAINER CRITERIA

The trainer shall be assigned by the CSRT Manager and will direct the trainee to all appropriate training elements and ensure that all of the objectives have been met. The trainer will have the following qualifications:

- Possess the knowledge, skills, and abilities for the objectives to be achieved
- Be a Primary Responder on the CSRT
- Have been accepted in court as an expert in crime scene investigation (optional)_

INSTRUCTIONS FOR THE TRAINER

The intent of the training program is to ensure that each and every trainee is provided with certain basic principles and fundamentals necessary for the complete education of a Crime Scene Investigator. All of the listed topics must be incorporated into the program. However, education and prior experience of the trainee will be used as a guide to determine the amount of time devoted to each module. Some of the training elements will suggest an order of events and this ranking should be followed.

At times, someone other than the trainer will provide training to the trainee. These individuals will be assigned for specific modules by the CSRT Manager in order to provide instruction to the trainee from a discipline specific expert. The primary trainer and each individual assigned to be a trainer must read the Introduction section of this manual to familiarize themselves with the instructions and expectations.

A Training Checklist is located at the end of each module. The trainer, or the individual providing the training, will document the completion by the trainee of each required training module on the designated checklist.

Training received outside the FLSB must be documented with a certificate of completion or equivalent. The syllabus and training material from the course will be evaluated by the Technical Lead(s). Any topics not covered by the course will be completed prior to sign-off for the module. A completed checklist (with a note of the course taken) must still be completed for modules with training received from outside providers.

The completed Training Checklists will be retained by the trainee in the appropriate sections of his/her training binder. A copy of the completed Training Checklists will also be digitally stored on the CSRT SharePoint.

The trainee will be evaluated on his/her performance during the course of the program. There will be written evaluations by the Technical Lead(s) of the trainee's progress when all modules of each step are completed, recommending promotion to the next status (Secondary and Primary). Written evaluations should include:

- A summation of the progress made.
- An evaluation of the trainee's binder.
- An evaluation of the trainee's progress, based on feedback from the trainer.

Written evaluations should be in IOC format and addressed to the CSRT Manager. Each IOC will become a part of the training history of the trainee and will be used to document the trainee's progress toward qualification.

Should a trainee demonstrate a deficiency which may impact successful completion of the training program, the trainer will notify the CSRT Manager and the Technical Lead(s).

A review of the Training Checklists and the trainee's training binder by the trainer/Technical Lead(s) with the trainee throughout the training program will enhance the trainer's ability to assess the trainee's progress, and may also give the trainee a greater sense of accomplishment. Any comments by the trainee are to be included with the evaluation. The Technical Lead(s) are to discuss this evaluation with the trainee.

When the trainee has satisfactorily completed all training requirements in Step One and Step Two, a recommendation will be made by the Technical Lead(s) that he/she be qualified to perform the specified duties of a Primary Responder in the discipline. The CSRT Manager will then evaluate the recommendation and write an approval for specified duties. Final approval for crime scene response is given by the CLD Commander. If the trainee cannot meet the criteria expected of him/her during the period allowed for training in each of the areas, steps will be taken to effect the appropriate action.

C. ASSESSMENT OF EXPERIENCED PERSONNEL

The responsibility for assessing the degree of qualifications of newly hired full-time responders who have successfully completed a qualifying training program of instruction in Crime Scene Investigation shall lie with the Technical Lead(s). In order to substitute for the entirety of the training specified in this manual, the qualifying course(s) must have been formally structured, covered all appropriate facets of the stated objectives, and been administered by a reputable organization (or individual). Methods of verifying the completion or prior training may include reviewing the individual's job application, personal interview, review of transcripts or prior training records, checking references, consulting with previous trainers, administering a series of practical exams, and/or written and/or oral technical exams.

Newly hired personnel may be approved to complete a modified competency test and moot court at the discretion of the CSRT Manager. The modified competency test covers the modules which have been verified as having been completed. Upon successful completion of the competency test and moot court, an IOC from the Technical Lead(s) with a recommendation that the employee is qualified to respond as a Primary Responder for specific modules will be provided to the CSRT Manager. The employee will then work through the remaining training modules (as specified above for new CSRT employees) with his/her assigned trainer.

If newly hired personnel are determined to have completed a qualifying training program to substitute Modules 1.0-17.0 and 19.0-20.0 of the CSRT Training Manual they must successfully complete Module 21.0 Competency Test and a final moot trial prior to being released as a Primary Responder.

Once the employee's prior training has been evaluated, and the competency test and moot court have been completed, the CSRT Manager shall provide written approval (in IOC format) to the CLD Commander. A copy of the signed IOC shall be retained by the CSRT Manager, the employee, and on the CSRT SharePoint.

1.0 CRIME SCENE ORIENTATION AND FOUNDATION

1.1 OBJECTIVES

- To understand the history of the CSRT and its mandate.
- To understand the nature of CSRT requests.
- To understand proper protocol for arriving at crime scenes and interacting with requesting agencies.
- To understand the roles and responsibilities of the Crime Scene Manager, Technical Lead(s), Primary Responder, Secondary Responder, and Trainee.
- To understand the balance of responsibilities for part-time Crime Scene personnel.
- To understand the progression of training and employee responsibility as part of the CSRT.
- To clarify expectations of the trainer within the Training Plan.
- To understand the staffing and technical capabilities of various WSP Regional Laboratories from which Crime Scene personnel respond.
- To understand general regional assignments and areas or instances requiring overlapping coverage.
- To become familiar with the crime scene vehicles, including operation of the vehicle and storage locations.
- To become familiar with the operation and safety of various power tools used on scene.
- To understand the use and care of equipment utilized by Crime Scene personnel.
- To equip the trainee with proper uniforms.
- To understand the laboratory procedures for care and cleaning of uniforms.
- To review expectations for stand-by status and callout procedures currently in use.
- To understand the procedures for call back status and rest periods.

1.2 METHODS OF INSTRUCTION

1.2.1 LECTURE AND DISCUSSION

1.2.2 REQUIRED READINGS

- CLD QOM, review sections 1.0-7.0, 12.0-25.0
- CLD Safety Manual
- CLD CSRT Technical Procedures Manual, sections 1.0-3.0
- CLD CSRT Training Manual, Introduction section *[required reading for trainer as well]*
- Forensic Services Guide (FSG), Chapter 6.0

1.3 MODES OF EVALUATION

1.3.1 QUESTION AND ANSWER SESSION

The Trainee shall demonstrate an understanding of the objectives covered in this section through interview with the trainer and shall begin responding to crime scenes.

CASE CONSIDERATIONS

1.4 OBJECTIVES

To become familiar with evidence handling, accountability, and chain of custody policies

1.5 METHODS OF INSTRUCTION

1.5.1 LECTURE AND DISCUSSION

Discuss with the trainer: evidence handling, preservation of evidence, evidence packaging, evidence seals, labeling evidence packaging, chain of custody, and contamination concerns.

Introduction to LIMS.

1.5.2 REQUIRED READINGS

- CLD QOM, sections 8.0-9.0, 11.0
- FSG, Chapter 3.0
- LIMS Manual

1.5.3 PRACTICAL EXERCISE

Observe the following tasks in LIMS: logging in a new case, relating cases, adding activities.

1.6 MODES OF EVALUATION

1.6.1 QUESTION AND ANSWER SESSION

1.6.2 COMPETENCY TEST

Properly package the following three mock pieces of evidence- a knife in a knife box, a fired cartridge case in an envelope, and a plastic bottle in a paper bag. The packages must include proper labeling and evidence seals.

The Technical Lead(s) will evaluate the trainee's competencies and provide feedback.

LAW BASICS AND COURT TESTIMONY

Formal training offered by organization(s) outside the WSP is recommended and may substitute for some of the required training in this section. The content of the formal training shall be reviewed by the Technical Lead(s) to determine which objectives have been met.

1.7 OBJECTIVES

To have a basic understanding of terms, legal decisions, and relevant issues.

To have a basic understanding of the judicial process, how cases are tried in various courts of law, and the legal system and its participants.

To understand the importance of and how to prepare for court testimony, the demeanor and delivery of an expert witness testimony, and how to effectively employ visual displays to aid in testimony.

1.8 METHODS OF INSTRUCTION

1.8.1 LECTURE AND DISCUSSION

Discuss with the trainer: the legal system, participants in the court system, steps in a criminal procedure, and court decisions of forensic significance.

Discuss with the trainer: preparation for testimony, courtroom appearance and dress, courtroom demeanor, presenting testimony, handling evidence on the stand, direct and cross-examination, and use of visual/presentation aids.

1.8.2 SUGGESTED READINGS

Crime Lab Records Request Flowchart, latest revision (stored on SAS SharePoint)

Matson, JV. Jagannathan, SR. 2012. Effective Expert Witnessing, Practices for the 21st Century, 5th Ed. Routledge

Neubauer DW. Fradella HF. 2019. America's Courts and the Criminal Justice System. 13th Ed. Blemont (CA): Cengage Learning

The Uniform Rules of Evidence

1.8.3 PRACTICAL EXERCISES

Observe the expert witness testimony of two Forensic Scientists, at least one of which is a crime scene response team member. Take notes and complete an observation summary (for each observation) to be discussed with your trainer. *(as this is opportunity dependent, this exercise may be completed at any time during the training and will not preclude the trainee from being signed off for this module).*

Develop a Curriculum Vitae (CV).

1.9 MODES OF EVALUATION

1.9.1 QUESTION AND ANSWER SESSION

MODULE 1.0 CRIME SCENE ORIENTATION AND FOUNDATION CHECKLIST

ORIENTATION

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required readings have been completed:	Date	Trainee's Initials
CLD Quality Operations Manual	_____	_____
CLD Safety Manual	_____	_____
CSRT Technical Procedures Manual, sections 1.0-3.0	_____	_____
CSRT Training Manual, Introduction	_____	_____
Forensic Services Guide, Chapter 6.0	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____

_____

MODULE 1.0 CRIME SCENE ORIENTATION AND FOUNDATION CHECKLIST

CASE CONSIDERATIONS

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required readings have been completed:	Date	Trainee's Initials
CLD QOM, sections 8.0-9.0, 11.0	_____	_____
FSG, Chapter 3.0	_____	_____
LIMS Manual	_____	_____

The following exercise has been completed:	Date	Trainee's Initials
Log a case in to LIMS	_____	_____
The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____

COMPETENCY TEST

Evidence packaging	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead's Initials
	_____	_____

MODULE 1.0 CRIME SCENE ORIENTATION AND FOUNDATION CHECKLIST

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

LAW BASICS AND COURT TESTIMONY

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following exercises have been completed:	Date	Trainee's Initials
Observe testimony of 2 Forensic Scientists	_____	_____
Develop a Curriculum Vitae (CV)	_____	_____
The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____

2.0 COGNITIVE BIAS AND ETHICS

2.1 OBJECTIVES

To understand what cognitive bias is and its potential impact to the trainee's work and forensic science in general.

To understand the various tactics that can be used to minimize the influence of cognitive bias.

2.2 METHODS OF INSTRUCTION

2.2.1 LECTURE AND DISCUSSION

Cognitive bias can play a role in all aspects of investigations, from the evidence that is collected (or not collected) at the scene, what is submitted to the lab, what is chosen to be examined, how the exam is conducted, how the data is interpreted, what conclusions are reached, how they are reported, and how they are presented in a court of law. It is critical as scientists to: 1) remain as objective and unbiased as possible from start to finish; 2) not dilute the science with task-irrelevant information; and 3) remain free of influence from the adversarial nature of our court system. While it may be impossible to shield the scientist from all external influences, there are some ways to minimize cognitive bias. Training and understanding is the first step. Just as we take great effort to protect the evidence from physical contamination, so we must take effort to minimize cognitive contamination.

2.2.2 SUGGESTED READINGS

(Available on the FLSB SharePoint, under the Cognitive Bias section)

Are Forensic Experts Biased by the Side that Retained Them?. Murrie D, Boccaccini M, Guarnera L, Rufino K. 2013, Psychol. Sci. 24, 1889–1897. (doi:10.1177/0956797613481812)

Cognitive Bias, PowerPoint presentation

Cognitive Bias Effects Relevant to Forensic Science Examinations, Forensic Science Regulator Guidance, FSR-G-217, Issue 1 © Crown copyright 2015

Cognitive Forensics: Human Cognition, Contextual Information and Bias, Dror, I. and Stoel, R. 2014, in the Encyclopedia of Criminology and Criminal Justice, pp. 353-363, Springer

Confirmation Bias: A Ubiquitous Phenomenon in Many Guises, Nickerson, R., 1998, Review of General Psychology, 2:2, 175-220

Contextual Bias and Cross-Contamination in the Forensic Sciences: The Corrosive Implications for Investigations, Plea Bargains, Trials and Appeals, Edmond, G. et al., Law, Probability and Risk (2015) 14, 1–25

Contextual Bias: What Bloodstain Pattern Analysts Need to Know. Rachel Zajac, Niki Osborne, LeeAnn Singley and Michael Taylor, Journal of Bloodstain Pattern Analysis, Vol. 31 No. 2, September 2015

Forensic Science Error Management, various links to NIST website

National Commission on Forensic Science: Ensuring That Forensic Analysis is Based Upon Task-Relevant Information

Practical Solutions to Cognitive and Human Factor Challenges in Forensic Science. Itiel E. Dror, Forensic Science Policy and Management, 4(3-4):1-9, 2013

The Forensic Confirmation Bias: Problems, Perspectives, and Proposed Solutions. Saul M. Kassin, Itiel E. Dror, Jeff Kukucka, Journal of Applied Research in Memory and Cognition 2 (2013) 42-52

Unintentional Bias in Forensic Investigation, Sophie Stammers and Sarah Bunn, Houses of Parliament, Parliamentary Office of Science and Technology, POSTbrief No. 15, October 2015

2.3 MODES OF EVALUATION

2.3.1 QUESTION AND ANSWER SESSION

Describe how cognitive bias may affect crime scene investigation and possible ways it can be minimized in casework.

ETHICS

2.4 OBJECTIVES

To understand forensic ethics and standards of professional conduct.

2.5 METHODS OF INSTRUCTION

2.5.1 LECTURE AND DISCUSSION

Review and discuss with the trainer the “National Code of Ethics and Professional Responsibility for the Forensic Sciences” from the Department of Justice (stored on the CSRT SharePoint)

2.5.2 REQUIRED READINGS

ANAB Guiding Principles of Professional Responsibility for Forensic Service Providers and Forensic Personnel

“Ethics in Public Service”- RCW 45.52

Additional readings available on the FLSB SharePoint, under the Ethics section

2.6 MODES OF EVALUATION

2.6.1 QUESTION AND ANSWER SESSION

MODULE 2.0 COGNITIVE BIAS AND ETHICS CHECKLIST

COGNITIVE BIAS

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____
Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____

_____

MODULE 2.0 COGNITIVE BIAS AND ETHICS CHECKLIST

ETHICS

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required readings have been completed:	Date	Trainee's Initials
ANAB Guiding Principles	_____	_____
RCW 45.52	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____

_____

3.0 SEARCHING METHODS

3.1 OBJECTIVE

To become familiar with the search techniques that may be used during a crime scene

3.2 METHODS OF INSTRUCTION

3.2.1 LECTURE AND DISCUSSION

3.2.2 REQUIRED READINGS

Crime Scene Search Patterns – NFSTC. (This document is available on the CSRT SharePoint in Training Material)

CLD CSRT Technical Procedures Manual, section 5.0

Fisher, Barry A. J., Techniques of Crime Scene Investigation, 8th edition, CRC Press, 2012; 81-84

3.3 MODES OF EVALUATION

3.3.1 QUESTION AND ANSWER SESSION

MODULE 3.0 SEARCHING METHODS CHECKLIST

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required readings have been completed:	Date	Trainee's Initials
CSRT Technical Procedures Manual, section 5.0	_____	_____
Crime Scene Search Patterns	_____	_____
Techniques of Crime Scene Investigation	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____
_____

4.0 CRIME SCENE PHOTOGRAPHY

Training in crime scene photography is a priority in Step One of the training program. Many exercises in other modules involve photography. In addition to structured in-house and/or external training, mentorship will be provided to the trainee in the field by qualified analysts and through general discussions and practical exercises at the laboratory. This feedback and mentorship should continue through the first few scenes a trainee photographs following successful completion of this module.

In some cases, formal training offered by agencies and organizations outside the WSP may substitute for some of the required training. The content of the formal training shall be reviewed by the Technical Lead(s) to determine which objectives have been met.

4.1 OBJECTIVES

To learn:

- The functions of the crime scene camera and how adjusting the settings affects exposure and depth of field.
- To set up the camera on a tripod.
- The use of the top-mounted external flash and the ring flash.
- To evaluate a crime scene and determine what areas are of photographic importance.
- The importance of overall, evidence establishing, close-up, and examination quality photography and their correct composition.
- The special considerations required for the photography of night scenes, Luminol/Bluestar, laser trajectories, evidence on mirrors and windows, and taking exam quality photographs of latent prints and impressions.
- The proper handling of digital images and documentation of image processing. (*Image storage will be covered in Module 20.0*)

Note: Examination quality photography of impressions and latent prints will be discussed as part of this module, but these topics are also covered in the relevant later modules of this manual. These modules should be referred to during the photography training.

4.2 METHODS OF INSTRUCTION

4.2.1 LECTURE, DISCUSSION, AND DEMONSTRATION

In addition to structured in-house and/or external training, this will include shadowing a designated photographer at a number of crime scenes and continued mentorship with the trainer on all aspects of crime scene photography.

4.2.2 SUGGESTED READINGS/TUTORIAL VIDEOS

Adobe Lightroom PowerPoint presentation and tutorial video (located on CSRT Shared drive)

Scientific Working Group Imaging Technology (these documents can be accessed through the website www.swgit.org and are also located on the CSRT SharePoint under Training Material):

- Section 1 Overview of SWGIT and the Use of Imaging Technology in the Criminal Justice System
- Section 3 Field Photography Equipment and Supporting Infrastructure
- Section 6 Guidelines and Recommendations for Training in Imaging Technologies in the Criminal Justice System
- Section 8 General Guidelines for Capturing Latent Impressions Using a Digital Camera
- Section 9 General Guidelines for Photographing Footwear and Tire Impressions
- Section 19 Issues Relating to Digital Image Compression and File Formats

4.2.3 REQUIRED READINGS

Camera User's Manual (for CSRT camera make and model)

CLD CSRT Technical Procedures Manual, section 4.0

Robinson, Edward M., Crime Scene Photography 3rd edition. Academic Press, 2016

4.2.4 CASE REVIEW

Review photographs from at least ten crime scenes involving vehicles, buildings, and outdoors, with as much diversity of photography types as possible. Each case will be discussed (if possible) with the photographer and/or the trainer.

4.2.5 PRACTICAL EXERCISES

- Practice adjusting the camera settings to include focus, shutter speed, aperture, ISO, metering, white balance, and exposure compensation.
- Practice overall, evidence establishing, and close-up photography.
- Practice examination quality photography to include latent prints, impressions, and tool marks.
- Practice long exposure photography and painting with light.
- Photograph a Luminol or Bluestar enhanced bloodstain.
- Photograph a laser trajectory.
- Using the practice photographs, import images in to Adobe Lightroom and practice image editing.
- Photograph several mock crime scenes including, at a minimum, a vehicle, an indoor scene, and an outdoor scene. It is recommended to photograph mock scenes in varying weather and lighting conditions.

4.3 MODES OF EVALUATION

4.3.1 WRITTEN ASSIGNMENT

Questions will be provided to the trainee (stored on CSRT SharePoint) and must be completed without the use of notes or other resources. The assignment will be evaluated by the trainer and feedback given to the trainee.

4.3.2 COMPETENCY TESTS

- Photograph a vehicle mock crime scene with five items of evidence. Photo-document the evidence appropriately to include overall, evidence establishing, and close-up photographs (in-situ and removed from vehicle). The scene must include examination quality photography of two latent prints on two different surfaces.

- Photograph an indoor mock crime scene with ten items of evidence. Photo-document the items of evidence appropriately to include overall, evidence establishing, and close-up photographs (in-situ and removed from scene). The scene must include examination quality photography of one latent print.

- Photograph an exterior mock crime scene with ten items of evidence. Photo-document the items of evidence appropriately to include overall, evidence establishing, and close-up photographs (in-situ and removed from scene). The scene must include examination quality photography of one impression (outsole or tire).

- Repeat the exterior mock crime scene exercise at night/in low light conditions.

The Technical Lead(s) will evaluate the trainee's competencies and provide feedback.

MODULE 4.0 CRIME SCENE PHOTOGRAPHY CHECKLIST

Lecture, Discussion, and Demonstration	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required readings have been completed:	Date	Trainee's Initials
Camera User's Manual	_____	_____
Crime Scene Photography	_____	_____
CSRT Technical Procedures Manual, section 4.0	_____	_____

Photographs from ten crime scenes have been reviewed:

Case #1: _____

Case #2: _____

Case #3: _____

Case #4: _____

Case #5 _____

Case #6 _____

Case #7 _____

Case #8 _____

Case #9 _____	Date	Trainee's Initials
Case #10 _____	_____	_____

Photographs from crime scenes have been discussed with the photographer and/or trainer

	Date	Trainer's Initials
	_____	_____

MODULE 4.0 CRIME SCENE PHOTOGRAPHY CHECKLIST

The following exercises have been completed:	Date	Trainee's Initials
Practice adjusting camera settings	_____	_____
Practice overall, midrange, and close-up photography	_____	_____
Practice examination quality photography	_____	_____
Practice long exposure photography and painting with light	_____	_____
Photograph a Luminol or Bluestar enhanced bloodstain	_____	_____
Photograph a laser trajectory	_____	_____
Practice editing images in Lightroom	_____	_____
Photograph mock vehicle scene	_____	_____
Photograph mock indoor scene	_____	_____
Photograph mock outdoor scene	_____	_____

The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____

Written Assignment	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

COMPETENCY TESTS:

Vehicle	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____

MODULE 4.0 CRIME SCENE PHOTOGRAPHY CHECKLIST

Indoor Scene	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____
Outdoor Scene	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____
Outdoor Scene at Night/Low Light	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____

Additional Comments: _____

_____

_____

_____

_____

5.0 FIREARMS SAFETY

5.1 OBJECTIVES

To be able to safely unload a firearm and demonstrate that the firearm is safe for packaging.

To have a basic understanding of the different types of external safeties of a firearm.

To understand the different types of firearms.

5.2 METHODS OF INSTRUCTION

5.2.1 LECTURE AND DISCUSSION

Firearm Safety PowerPoint and/or attend a Firearms Safety course taught by the WSP CLD Firearms Unit. (Firearms/Toolmarks Training Material)

Working with an experienced Firearms examiner, discuss the main types of firearms and how they are to be rendered safe. Discuss the proper ways of securing the firearm to demonstrate that it is safe. It is also recommended the trainee have a basic understanding of the cycle-of-fire for the following firearms:

- Semiautomatic pistol/rifle
- Revolver
- Bolt-action rifle
- Pump-action shotgun/rifle
- Lever-action rifle
- Automatic firearms
- Electronic Control Devices (TASER)
- Pellet/BB guns
- Muzzleloaders

Working with an experienced Firearms examiner, discuss safety rules regarding the handling of firearms. Also discuss the ways in which a firearm could accidentally and unintentionally discharge.

Discuss with the trainer the types of evidence that might be associated with firearms.

5.2.2 SUGGESTED READINGS

Barnes, Frank C. Cartridges of the World, 12th Edition, Gun Digest Books, 1965.

Bussard, Michael. Ammo Encyclopedia, 5th Edition, Blue Book Publications, Inc., 2014.

Shideler, Dan. The Gun Digest Book of Exploded Gun Diagrams. Gun Digest Books, February 2011.

5.2.3 REQUIRED READINGS

Association of Firearms and Tool Mark Examiners (AFTE) Glossary, most current edition

CLD CSRT Technical Procedures Manual, section 10.0

5.2.3 PRACTICAL EXERCISES

Working with an experienced Firearms examiner, unload and secure at least five different loaded firearms as if found on scene. This should be done with minimal assistance from the Firearms examiner. Pertinent information should be communicated to the Firearms examiner regarding the firearm as it is made safe. It is recommended that the trainee also test fire each type of firearm to understand their function.

5.3 MODES OF EVALUATION

5.3.1 WRITTEN ASSIGNMENT

Complete Training Assignment 11, Firearms Training Manual (available on the CSRT SharePoint)

5.3.2 QUESTION AND ANSWER SESSION

MODULE 5.0 FIREARMS SAFETY CHECKLIST

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required readings have been completed:	Date	Trainee's Initials
AFTE Glossary	_____	_____
CSRT Technical Procedures Manual, section 10.0	_____	_____

The following exercise has been completed:	Date	Trainee's Initials
Unload and secure five loaded firearms	_____	_____
	Date	Trainer's Initials
	_____	_____

The assignment is complete and has been reviewed	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____

6.0 AMMUNITION

6.1 OBJECTIVES

To have a basic understanding of ammunition components.

To be able to recognize fired and unfired ammunition and its components.

6.2 METHODS OF INSTRUCTION

6.2.1 LECTURE AND DISCUSSION

Discuss with an experienced Firearms examiner the headstamp information on ammunition and how to properly document it.

Discuss with an experienced Firearms examiner the types of evidence that might be associated with ammunition components.

Discuss with an experienced Firearms examiner the TASER cartridge components.

6.2.2 SUGGESTED READINGS

Cartridges of the World, most current edition

Headstamp Guide, AFTE website

Manufacturer reference material

NRA Sourcebook

6.2.3 REQUIRED READINGS

Haag, Lucien C. and Michael G, “Shooting Incident Reconstruction”, 3rd Edition, Elsevier, New York 2020 (chapters 3 and 16)

Standard ammunition file in Firearms Unit

6.3 MODES OF EVALUATION

6.3.1 WRITTEN ASSIGNMENT

Review the Association of Firearm and Tool Mark Examiners Glossary. Complete a written vocabulary quiz (available on the CSRT SharePoint).

6.3.2 QUESTION AND ANSWER SESSION

MODULE 6.0 AMMUNITION CHECKLIST

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required readings have been completed:	Date	Trainee's Initials
Standard ammunition file	_____	_____
Shooting Incident Reconstruction (chapters 3, 16)	_____	_____

The written assignment is complete and has been reviewed:

	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____

_____

7.0 COLLECTION OF FIREARMS AND AMMUNITION

Successful completion of Module 5.0 is required before beginning this module

7.1 OBJECTIVES

To have an understanding of the proper documentation of firearms and ammunition.

To be able properly package firearms and ammunition.

7.2 METHODS OF INSTRUCTION

7.2.1 LECTURE AND DISCUSSION

Discuss with an experienced Firearms examiner the markings present on several firearms in the firearms reference collection.

Discuss with the trainer why photo documentation and notes are recommended for a firearm prior to moving and securing the firearm.

Discuss with an experienced Firearms examiner the documentation and packaging of ammunition loaded in a firearm and TASER.

7.2.2 REQUIRED READING

Haag, Lucien C. and Michael G., “Shooting Incident Reconstruction”, 3rd Edition, Elsevier, New York 2020 (chapter 12)

7.2.3 PRACTICAL EXERCISE

Demonstrate to an experienced Firearms examiner the securing and packaging of at least five loaded firearms and TASER.

7.3 MODES OF EVALUATION

7.3.1 QUESTION AND ANSWER SESSION

DEFECT ASSESSMENT

7.4 OBJECTIVES

To understand how to recognize a defect consistent with the impact or passage of a projectile in various target materials.

To understand how to test defects for the presence of copper and lead.

7.5 METHODS OF INSTRUCTION

7.5.1 LECTURE & DISCUSSION

Discuss with the trainer bullet impact marks and defects in various targets.

If possible, attend an autopsy with gunshot wounds present. If not possible, view case photos and discuss the topic with the trainer.

7.5.2 SUGGESTED READINGS

DiMaio, Vincent J. M., “Gunshot Wounds” Elsevier, New York 1985 (chapters 3-9).

Haag, Lucien C. and Michael G, “Shooting Incident Reconstruction”, 3rd Edition, Elsevier, New York 2020 (chapters 7-9).

Rawls, Donald D. and Ryan, John P., “Modified Feigl Test for Lead”, AFTE Journal, Vol. 38, No. 3, Summer 2006, pp. 213-222.

WSPCL Firearms/Tool Marks Technical Procedures Manual, section 3.0.

7.5.3 REQUIRED READINGS

Dillon, John H., “The Sodium Rhodizonate Test: A Chemically Specific Chromophoric Test for Lead in Gunshot Residues,” AFTE Journal, Vol. 22, No. 3, July 1990, pp. 251-256.

Haag, Lucien C. and Michael G., “Shooting Incident Reconstruction”, 3rd edition, Elsevier, New York 2020 (chapters 4-5).

Lekstrom, Julie A., and Koons, Robert D., “Copper and Nickel Detection on Gunshot Targets by Dithiooxamide Test,” Journal of Forensic Sciences, Vol. 31, No. 4, October 1986, pp. 1283-1291.

Shem, Robert J., “A Simplified Griess and Sodium Rhodizonate Test,” AFTE Journal, Vol. 33, No. 1, Winter 2001, pp. 37-39.

7.6 MODES OF EVALUATION

7.6.1 QUESTION AND ANSWER SESSION

7.6.2 COMPETENCY TEST

Obtain the sample targets which contain multiple defects. The targets are wood, drywall, and sheet metal which have been shot with different types of ammunition.

Test and correctly identify one defect from each substrate for copper and lead. Record by written and photographic documentation the defects tested. This should include the defect entrance and exit characteristics, type of defect, size, shape, and location. a

The results of the competency will be evaluated by the Technical Lead(s).

MODULE 7.0 COLLECTION OF FIREARMS AND AMMUNITION CHECKLIST

COLLECTION OF FIREARMS

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____
The following required reading has been completed:	Date	Trainee's Initials
Shooting Incident Reconstruction (CH 12)	_____	_____
The following exercise has been completed:	Date	Trainee's Initials
Packaging of five firearms and ammunition	_____	_____
	Date	Trainer's Initials
	_____	_____
Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____

MODULE 7.0 COLLECTION OF FIREARMS AND AMMUNITION CHECKLIST

DEFECT ASSESSMENT

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required readings have been completed:	Date	Trainee's Initials
Shooting Incident Reconstruction (CH 4-5)	_____	_____
"The Sodium Rhodizonate Test"	_____	_____
"Copper & Nickel Detection on Gunshot Targets…"	_____	_____
"A Simplified Griess & Sodium Rhodizonate Test"	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

DEFECT TESTING COMPETENCY	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead's Initials
	_____	_____

Additional Comments: _____
_____
_____

8.0 TOOL MARK EVIDENCE

8.1 OBJECTIVE

To become familiar with the recognition, documentation, and recovery of tool marks.

8.2 METHODS OF INSTRUCTION

8.2.1 LECTURE AND DISCUSSION

8.2.2 REQUIRED READINGS

CLD CSRT Technical Procedures Manual, section 11.0

Fisher, Barry A. J., Techniques of Crime Scene Investigation, 8th edition, CRC Press, 2012; 221-248

8.2.3 PRACTICAL EXERCISE

Photograph and cast three tool marks in three different substrates.

8.3 MODES OF EVALUATION

8.3.1 COMPETENCY TEST

Document (notes) and collect a tool mark impression.

The quality of the tool mark cast will be evaluated by a qualified Firearms Examiner. The notes will be reviewed by the Technical Lead(s).

Note: Examination quality photography is covered in Module 4.0 and is not required for this competency.

MODULE 8.0 TOOL MARK EVIDENCE CHECKLIST

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required readings have been completed:	Date	Trainee's Initials
CSRT Technical Procedures Manual, section 11.0	_____	_____
Techniques of Crime Scene Investigation	_____	_____

The following exercise has been completed:	Date	Trainee's Initials
Photograph and collect three tool marks in three different substrates	_____	_____
	Date	Trainer's Initials
	_____	_____

TOOL MARK COMPETENCY	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____
_____

9.0 SEROLOGY/DNA

ALTERNATE LIGHT SOURCE (ALS)

9.1 OBJECTIVES

To become familiar with the proper use of the ALS for examining evidence for the presence of biological material and its use to search for or examine other types of evidence (i.e. trace and latent prints).

To be able to operate the ALS safely to locate possible biological material.

9.2 METHODS OF INSTRUCTION

9.2.1 LECTURE AND DISCUSSION

- Safety and operation of the ALS
- Appropriate wavelengths and filters
- Procedure for examination of evidence
- Materials that may fluoresce
- Documentation of examination
- Interpretation and conclusions

9.2.2 SUGGESTED READINGS

- CLD Biochemical Analysis Procedures Manual, ALS Module
- CLD Material Analysis Technical Procedures Manual, Module 14
- User's Manual for ALS (unit specific)

9.2.3 PRACTICAL EXERCISES

Examine a variety of known and unknown materials from biological, chemical, and physical sources, to become familiar with the range of materials that may be encountered at a crime scene. These substances should be examined on various substrates.

9.3 MODES OF EVALUATION

9.3.1 QUESTION AND ANSWER SESSION

INFRARED (IR) LIGHT

9.4 OBJECTIVES

To become familiar with the proper use of the IR light for searching for bloodstains on dark surfaces.

To be able to operate the IR light safely.

9.5 METHODS OF INSTRUCTION

9.5.1 LECTURE AND DISCUSSION

- Safety and operation of the IR light
- Procedure for examination of evidence
- Documentation of examination
- Additional testing

9.5.2 SUGGESTED READINGS

- User's Manual for IR light (unit specific)

9.5.3 PRACTICAL EXERCISES

Examine a variety of bloodstains on various substrates.

9.6 MODES OF EVALUATION

9.6.1 QUESTION AND ANSWER SESSION

DETECTION OF BLOOD

9.7 OBJECTIVES

To become familiar and comfortable with searching for potential bloodstains.

To become familiar with:

- Accepted protocols for the presumptive and confirmatory testing for the presence of blood.
- Other presumptive testing methods
- The potential impact of presumptive blood tests on subsequent testing (e.g. DNA analysis)

To successfully:

- Test stains using proper procedures for Phenolphthalein (PHT), Leucocrystal Violet (LCV), Luminol, BlueStar® and HemaTrace® tests.

- Interpret test results and draw appropriate conclusions.
- Know the advantages/disadvantages of using a specific test and be able to appropriately pick a test for a specific situation.

To learn the components of blood and their functions.

9.8 METHODS OF INSTRUCTION

9.8.1 LECTURE, DISCUSSION, AND DEMONSTRATIONS

Instruction, demonstration, and practical training in techniques for searching for bloodstains on various substrates:

- Bright lights
- Oblique lighting
- Infrared
- Magnification
- General swabs
- Fresh, aged, and treated bloodstain appearance
- Bloodstains mixed with other fluids
- Discussion of serum separated bloodstains
- Apparent biological tissue blood testing results

Instruction, demonstration, and practical training for each test currently in use by the CSRT (Phenolphthalein, LCV, Luminol, BlueStar® , HemaTrace®):

- Safety
- Visual appearance
- Effects of degradation and aging
- Reagent Preparation
- Biochemical basis, procedure, and value of test
- Stock and working solutions
- Quality control testing of reagents and documentation (including appropriate reagent spreadsheet on CSRT SharePoint)
- Interpretation and conclusions
- False positives/negatives
- Sensitivity

9.8.2 SUGGESTED READINGS

CLD Biochemical Analysis Procedures Modules 3 and 4

Abacus HemaTrace® Technical Information Sheet, ABAcard, HemaTrace for the Forensic Identification of Human Blood. Abacus Diagnostics, Inc.; 2005

Blake and Dillon, "Microorganisms and the Presumptive Tests for Blood," Journal of Police Science Administration, Vol. 1, #4, Dec. 1973

BlueStar© Package Insert

Cox, M. "A Study of the Sensitivity and Specificity of Four Presumptive Tests for Blood", Journal of Forensic Sciences, Vol. 36, #5, September 1991, pp. 1503-1511

Cox, M., "Effect of Fabric Washing on the Presumptive Identification of Bloodstains", Journal of Forensic Sciences, Vol. 35, #6, November 1990, pp. 1335-1341

Gaensslen, R.E. 1983. Sourcebook in Forensic Serology, Immunology and Biochemistry. Washington, D.C. U.S. Department of Justice. 85-87, 101-116

Higaki RS & Philp WM. A Study of the Sensitivity, Stability and Specificity of Phenolphthalein as an Indicator for Blood. Canadian Society of Forensic Science Journal, 1971; 9(3):97-102.

Lee HC. Identification and Grouping of Bloodstains. In: Saferstein (ed.), Forensic Science Handbook. Englewood Cliffs: Prentice Hall; 1982; 272-279

9.8.3 REQUIRED READING

CLD CSRT Technical Procedures Manual, section 6.0

9.8.4 PRACTICAL EXERCISES

Practice testing known blood samples using the following: PHT, LCV, Luminol/Bluestar®, and HemaTrace®. Test known false positive samples (i.e. rust, plant materials).

9.9 MODES OF EVALUATION

9.9.1 QUESTION AND ANSWER SESSION

9.9.2 COMPETENCY TEST

Test and correctly identify twelve characterized stains using PHT. The stains will be either PHT positive or PHT negative. Observations and results will be documented. HemaTrace testing of two stains will be incorporated in the competency test.

The results of the competency will be evaluated by the Technical Lead(s).

DETECTION OF SEMEN

9.10 OBJECTIVES

To become familiar with the accepted protocols for the presumptive identification of semen

To describe the physical and chemical characteristics of semen

To test evidence items either directly or with a mapping technique to determine the location of possible semen stains by detecting acid phosphatase (AP)

9.11 METHODS OF INSTRUCTION

9.11.1 LECTURE, DISCUSSION, AND DEMONSTRATION

Instruction, demonstration, and practical training:

- Physical and chemical characteristics of semen
- Components of semen
- Persistence of semen

Acid Phosphatase:

- Reagent Preparation
- Quality Control testing of reagents and documentation
- Mapping
- Sample swabbing and/or evidence swab testing
- Biochemistry of reaction; time to color development
- Interpretation and conclusions
- False positives

9.11.2 SUGGESTED READINGS

CLD Biochemical Analysis Procedures Manual, Module 7

Baechtel F. The Identification and Individualization of Semen Stains. In: Saferstein (ed.), Forensic Science Handbook, vol. 2. Englewood Cliffs: Prentice Hall; 1988: 347-368.

Gaensslen, R.E. 1983. Sourcebook in Forensic Serology, Immunology and Biochemistry. Washington, D.C. U.S. Department of Justice. 155-169.

Joshi et. al., "Effect of Water Immersion on Seminal Stains on Cotton Cloth", Forensic Science International, Vol. 17, #1, January-February 1981, pp. 9-11.

Kafarowshi et. al., "The Retention and Transfer of Spermatozoa in Clothing by Washing Machine", Canadian Society of Forensic Science Journal, Vol. 29, #1, 1996, pp. 7-11.

9.11.3 PRACTICAL EXERCISES

Test a variety of substrates with a variety of stains (e.g., semen, urine, vaginal secretions, etc.) using a combination of ALS and acid phosphatase reagent (spot test and mapping), as appropriate. Use different dilutions and mixtures of body fluids in the above testing.

9.12 MODES OF EVALUATION

9.12.1 QUESTION AND ANSWER SESSION

9.12.2 COMPETENCY TEST

Test and correctly identify ten stains using the ALS and AP Spot test. The stains will either be AP positive or AP negative. Observations and results will be documented.

The results of the competency will be evaluated by the Technical Lead(s).

COLLECTION AND PRESERVATION OF DNA EVIDENCE

9.13 OBJECTIVES

To become familiar with the capabilities of the Crime Laboratory DNA section

To be able to successfully collect samples intended for DNA analysis using proper techniques

9.14 METHODS OF INSTRUCTION

9.14.1 LECTURE, DISCUSSION, & DEMONSTRATION

Instruction, demonstration, and practical training:

- Evidence packaging and storage conditions
- Cleanliness of instruments and contamination risks
- Documentation of examination
- Potential sources of DNA and concentration of DNA in each (biological fluid, cellular-touch/wearer, etc.)
- Sample collection techniques
- Degradation of DNA

9.14.2 SUGGESTED READINGS

CLD Biochemical Analysis Procedures Manual

FLSB Forensic Services Guide

9.14.3 PRACTICAL EXERCISES

Practice sample collection techniques as discussed in section 9.11.1 of visible and non-visible stains and cellular samples from five different substrates.

9.15 MODES OF EVALUATION

9.15.1 QUESTION AND ANSWER SESSION

MODULE 9.0 SEROLOGY/DNA CHECKLIST

ALTERNATIVE LIGHT SOURCE

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following exercise has been completed:	Date	Trainee's Initials
Examine variety of materials	_____	_____

The exercise is completed and has been reviewed:	Date	Trainer's Initials
	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

INFRARED (IR) LIGHT

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

MODULE 9.0 SEROLOGY/DNA CHECKLIST

The following exercise has been completed:	Date	Trainee's Initials
Examine variety of materials	_____	_____

The exercise is completed and has been reviewed:	Date	Trainer's Initials
	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

DETECTION OF BLOOD

Lecture, Discussion, and Demonstration	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required reading has been completed:	Date	Trainee's Initials
CSRT Technical Procedures Manual, section 6.0	_____	_____

The following exercises have been completed:	Date	Trainee's Initials
Practice testing known blood samples using PHT	_____	_____
Practice testing known blood samples using LCV	_____	_____

MODULE 9.0 SEROLOGY/DNA CHECKLIST

Practice testing known blood samples using Luminol/Bluestar	_____	_____
Practice testing known blood samples using Hematrace	_____	_____
The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____
Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

COMPETENCY TEST:

	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____

DETECTION OF SEMEN

Lecture, Discussion, and Demonstration	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

MODULE 9.0 SEROLOGY/DNA CHECKLIST

The following exercise has been completed:	Date	Trainee's Initials
Variety of substrates/stains tested with ALS/AP	_____	_____
The exercise is completed and has been reviewed:	Date	Trainer's Initials
	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

COMPETENCY TEST:

	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____

COLLECTION AND PRESERVATION OF DNA EVIDENCE

Lecture, Discussion, and Demonstration	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

MODULE 9.0 SEROLOGY/DNA CHECKLIST

The following exercise has been completed:	Date	Trainee's Initials
Collecting samples from various substrates	_____	_____
The exercise is complete and has been reviewed:	Date	Trainer's Initials
	_____	_____
Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____

10.0 LATENT PRINTS

10.1 OBJECTIVES

To understand latent print detection and processing: Surface evaluation, cyanoacrylate, powder processing

To understand latent print preservation and documentation methods: Photography and lifts

10.2 METHODS OF INSTRUCTION

10.2.1 LECTURE, DISCUSSION, AND DEMONSTRATIONS

Discuss and observe:

- The appropriate use of various fingerprint powders.
- The following chemical processing techniques and application to different types of evidence, including pros and cons: cyanoacrylate (Hot Shots), small particle reagent (SPR), and Amido Black.
- The appropriate use of lift tape and lift cards.
- The documentation requirements of observed, developed, and preserved latent prints. This should include appropriate notes and proper photos.

10.2.2 SUGGESTED READINGS

Champod, C., Lennard, C., Margot, P., and Stoilovic, M., Fingerprints and Other Ridge Skin Impressions, CRC Press, Boca Raton, FL, p. 217-226.

Home Office Scientific Development Branch, Manual of Fingerprint Development Techniques: A Guide to the Selection and Use of Processes for the Development of Latent Fingerprints, Sandridge, ENG.

Latent Prints Technical Manual, current version, chapters 5-6.

Lee, H. C., and Gaensslen, R. E., Advances in Fingerprint Technology, CRC Press, Boca Raton, FL, p. 105-159.

The Fingerprint Sourcebook. Washington, DC: U.S. Dept. of Justice, Office of Justice Programs, National Institute of Justice, 2011, chapters 7, 8, and 10.

10.2.3 REQUIRED READING

CLD CSRT Technical Procedures Manual, section 12.0

10.2.4 PRACTICAL EXERCISES

Demonstrate cyanoacrylate fuming methods.

Demonstrate the application of various fingerprint powders on a few selected items (including plastic, metal, and glass).

Document (notes), photograph, and lift developed impressions from the selected items.

10.3 MODES OF EVALUATION

10.3.1 QUESTION AND ANSWER SESSION

10.3.2 COMPETENCY TESTS

- Process the exterior of a vehicle for latent prints (dust and develop five areas of friction ridge detail). Document (written/dictated notes) and collect the developed impressions. Instructions for the set-up and the case scenario are on the CSRT Share Point. A case file must be prepared and a report must be written.

- Using Amido Black, document (written notes) and develop ten prints in blood on five different surfaces (i.e. tile, linoleum, painted drywall, metal, glass, plastic). Include reagent QC information and results.

The Technical Lead(s) will evaluate the trainee's competencies and provide feedback.

Note: Examination quality photography is covered in Module 4.0 and is not required for this competency.

MODULE 10.0 LATENT PRINT CHECKLIST

Lecture, Discussion, and Demonstration	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required reading has been completed:	Date	Trainee's Initials
CSRT Technical Procedures Manual, section 12.0	_____	_____

The following exercises have been completed:	Date	Trainee's Initials
Cyanoacrylate fuming methods	_____	_____
Application of various fingerprint powders	_____	_____
Document, photograph, & lift developed impressions	_____	_____

The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

MODULE 10.0 LATENT PRINT CHECKLIST

COMPETENCY TESTS:

Exterior Vehicle Processing	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____
Amido Black	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____

Additional Comments: _____
_____
_____
_____

_____

11.0 IMPRESSION EVIDENCE

11.1 OBJECTIVES

To become familiar with the recognition, documentation, and recovery of 2D and 3D impressions.

To become familiar with the collection of tire tread exemplars.

11.2 METHODS OF INSTRUCTION

11.2.1 LECTURE AND DISCUSSION

11.2.1.1 **Background Concepts**

- Difference between impression, tool mark, and physical match
- 2D versus 3D impressions
- Types of impressions (footwear, tire, fabric, other)
- Footwear – recognition of heel, toe, arch, and outsole information
- Tires – awareness of noise reduction, sidewalls, and weight of vehicle
- Transfer of materials in addition to the impression(s)
- Class characteristics
- Randomly Acquired Characteristics (RACs)
- Collection of impression in addition to photography

11.2.1.2 **Collection/Preservation**

- Collecting the entire object
    - Examples: car bumper, car brake pedal, T shirt
    - Packaging to prevent damage to impression

- Lifting
    - Lifting films (gel, static, adhesive)
    - Types of surfaces (smooth, textured, angled crevices)
    - Collection pros and cons of different lifter types (CSRT Responder perspective)
    - Analysis pros and cons of different lifter types (Impressions Analyst perspective)
    - Black or white gel lifts

- Casting
    - Casting material
    - Types of substrates (soil, mud, snow, etc.)
    - Using a casting frame

11.2.1.3 **Tire Exemplars**

- Choice of methods (rolling method, wet media)
- Collection pros and cons of different methods (CSRT Responder perspective)
- Analysis pros and cons of different methods (Impressions Analyst perspective)
- Adhesive lift exemplars of tire tread and sidewalls
- Photography

11.2.1.4 **Overview of different types of analyses that may be performed**

- Class vs. Individualizing characteristics
- Report wording for impressions comparisons
- Make and Manufacturer of Footwear
- Make and Manufacturer of Tires

11.2.2 SUGGESTED READINGS

ANSI/ASB Best Practice Recommendation 021, *Best Practices for the Preparation of Test Impressions from Footwear and Tires,* First Edition, 2019.

ANSI/ASB Best Practice Recommendation 049, *Best Practice Recommendation for Lifting of Footwear and Tire Impressions,* First Edition, 2020.

Bodziak, William J., Footwear Impression Evidence, 2nd Edition, CRC Press, 2000; 1-25 crime scene; 38-58 photos; 59-88 casting ; 104-112 ELD; 116-122 gel lifts

Bodziak, William J., Tire Tread and Tire Track Evidence**,** CRC Press, 2008;1-22 tire info; 23-43 track evidence; 45-91 recovering tire impression evidence; 110-118 exemplars

Fisher, Barry A. J., Techniques of Crime Scene Investigation, 8th edition, CRC Press, 2012; 221-248

Hilderbrand, Dwane S., Footwear, The Missed Evidence, Staggs Publishing, 1999; 31-52 crime scene & photography; 53-55 &58-62 lifting; 63-74 casting

Hilderbrand, Dwane S., Techniques in Preparing a Cast, EVI-PAQ ASB Technical Report 097, First Edition, 2019, Terminology Used for Forensic Footwear and Tire Evidence

Nause, Lawren, Forensic Tire Impression Identification, Canadian Police Research Centre, 2001; 3-22 processing scene; 23-56 photography & casting; 57-74 vehicle track measurements; 93-104 exemplars & suspect vehicle; 105-118 sidewalls; 119-136 terminology.

WSP FLSB Forensic Services Guide (FSG)- Materials Analysis (Impressions Evidence)

11.2.3 REQUIRED READING

CLD CSRT Technical Procedures Manual, section 9.0

11.2.4 PRACTICAL EXERCISES

11.2.4.1 **Blood Impressions**

- Take examination quality photographs of a footwear impression in blood on a T shirt.
- Properly package the T shirt with the footwear impression on it.

11.2.4.2 **Dust Impressions**

- Take examination quality photographs of a footwear impression in dust on a flat surface.

- Take examination quality photographs of a footwear impression on a multi-depth surface (e.g. car door).
- Lift appropriate footwear impressions with a gel, a static, and an adhesive lift.

11.2.4.3 **Soil and Mud Impressions**

- Take examination quality photographs of a footwear impression in soil or mud.
- Cast a footwear impression in soil or mud.
- Cast a footwear impression filled with water.
- Take examination quality photographs of a tire impression in soil or mud.
- Cast a tire impression in soil or mud.

11.2.4.4 **Snow**

- Take examination quality photographs of footwear or tire impression in snow.
- Cast a footwear or tire impression in snow.

11.2.4.5 **Tire Exemplars**

- Collect a set of front or rear tire exemplars using the rolling method.
- Collect a set of front and rear tire exemplars using the wet media method (if available).
- Collect a tire sidewall exemplar.
- Take examination quality photographs of a tire tread.

11.3 MODES OF EVALUATION

11.3.1 WRITTEN TEST

Written test will be provided to the trainee (stored on CSRT SharePoint) and must be completed without the use of notes or other resources. The test will be evaluated by an impressions examiner.

11.3.2 COMPETENCY TESTS

- Document (notes) and collect a tire impression in soil and a footwear impression in dust. Notes should include observations of what the impressions and substrates look like and also what was done to collect the impressions.
- Collect at least one tire exemplar and one sidewall exemplar.

The quality of the collected impressions and exemplars will be evaluated by a qualified Impressions examiner. The notes will be reviewed by the Technical Lead(s).

Note: Examination quality photography is covered in Module 4.0 and is not required for this competency.

MODULE 11.0 IMPRESSION EVIDENCE CHECKLIST

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required reading has been completed:	Date	Trainee's Initials
CSRT Technical Procedures Manual, section 9.0	_____	_____

The following exercises have been completed:	Date	Trainee's Initials
Photograph a bloody footwear impression	_____	_____
Properly package t-shirt with bloody impression	_____	_____
Photograph a footwear impression in dust on a flat surface and on a multi-depth surface	_____	_____
Lift a dust footwear impression with gel, static, and adhesive lifts	_____	_____
Photograph a footwear and tire impression in soil or mud	_____	_____
Cast a footwear and tire impression in soil or mud	_____	_____
Cast a footwear impression filled with water	_____	_____
Photograph a footwear or tire impression in snow	_____	_____
Cast a footwear or tire impression in snow	_____	_____
Collect a set of front or rear tire exemplars	_____	_____
Collect a tire sidewall exemplar	_____	_____
Photograph a tire tread	_____	_____

The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____

MODULE 11.0 IMPRESSION EVIDENCE CHECKLIST

The written test has been completed and reviewed:	Date	Trainer's Initials
	_____	_____

COMPETENCY TESTS:

Document and collect tire impression in soil	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____
Document and collect footwear impression in dust	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____
Collect tire and sidewall exemplars	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____

Additional Comments: _____
_____
_____
_____

_____

12.0 TRACE EVIDENCE

12.1 OBJECTIVES

To become familiar with different transfer mechanisms and persistence of trace evidence.

To become familiar with the recognition, documentation, collection, and packaging of trace materials.

To become aware of the potential for physical/fracture matches in evidence.

To become familiar with the types of questions that can be answered with trace evidence.

To understand the dynamics of glass breakage.

To demonstrate the ability to interpret the characteristics of different types of glass fractures.

12.2 METHODS OF INSTRUCTION

12.2.1 LECTURE AND DISCUSSION

12.2.1.1 **Background Concepts**

- Transference
  - Locard's Principle
  - Primary, secondary, tertiary, etc.
  - Mechanism (airborne, breakage, fusions)
  - Cross-transfers

- Persistence

- Types of Materials
  - "Manufactured" versus "Natural"
  - Major categories of study – hairs, fibers/textiles, glass, paint/polymers, tape
  - Soil – "natural" organic, "natural" inorganic, manufactured materials
  - Other categorizations – wood, paper, botanicals (plants/fungi), sealants, cements, vehicle lamps, foams, etc.

- Types of Questions
  - Classification/Identification of the material
  - Comparative Associations
  - Physical Match
    - Association of fragments from two or more locations
    - Identification of what the original object was (or to gain part # info)
    - Rigid, flexible, and rolled materials
  - Damage Analysis
    - Direction of force (glass breakage, plastic fusions)
    - Cut or torn (fabrics)
    - Order of impact with multiple materials

- Generation of an investigative lead
  - Make and model information
  - Type of material as an indication of use

- Types of Samples
  - Based on “Source”
    - Questioned, known, reference
  - Based on “Location”
    - On the ground, still attached to a structure
  - Based on “Use”
    - Ligatures/Bindings – rope, tape, cable ties
    - Body wrappings – plastic tarps & sheets, blankets & bedding, bags, tapes
  - Sample size (questioned versus known samples)

12.2.1.2 **Recognition and Documentation**

- Appearance of damaged areas (e.g. scuffs, abrasions, smudges)
- Identification of questioned & known samples (locations)
- Order of “unwrapping” bodies or unpacking “nested” containers

12.2.1.3 **Collection/Preservation**

- Preventing cross-contamination
  - Frequency of changing gloves
  - Cleaning tools versus disposable

- Methods
  - Collecting the entire object or dismantled object
    - Examples: car bumper, t-shirt
    - Packaging to prevent damage to transfer
  - Picking
    - Various hand tools (e.g. forceps, hand shovel, gloved hand)
    - Cleaning methods for tools
  - Lifting
    - Sticky notes (contrasting color)
    - Tape Lifts (clear tapes or cellulose acetate film)
  - Cutting
    - Manual (e.g. razor blade, scalpel, scissors)
    - Power (e.g. dual saw)

- Packaging
  - Material and package compatibility
  - Loss Prevention – secondary packaging
  - Preventing further breakage

- Method choice & packaging based on type of material
  - Botanicals
  - Fibers/Ropes/Textiles
  - Glass, Ceramics
  - Hairs

- Paints/Polymers
- Tapes/Adhesives
- Unknowns
- Vehicle Lamps
- Volatiles (e.g. pepper spray)

12.2.1.4 **Glass Breakage Mechanisms**

- Cutting
- Low Velocity Impact (Mechanical)
  - Tempered, Flat, Container
- High Velocity Impact (Bullets)
  - Tempered, Flat, Laminated
- Thermal

12.2.1.5 **Direction of Force**

- Hackle Marks
- 4R Rule
- Cratering

12.2.2 SUGGESTED READINGS

Fisher, Barry A. J., Techniques of Crime Scene Investigation, 8th edition, CRC Press, 2012; 151-192

Houck, M. Mute Witnesses: Trace Evidence Analysis, Academic Press (2001), xi-xxxi, 49-68, 87-115, 175-186

Houck, M., More Cases in Mute Witnesses: Trace Evidence Analysis, Elsevier (2004), 53-88, 90-104, 165-190, 191-210

Saferstein, R. Forensic Sciences Handbook, Prentice-Hall, Inc. 1982, 146-152 glass fracture

Scott, H. The persistence of fibers transferred during contact of automobile carpets and clothing fabrics, Can Soc For Sci 1985;18(4): 185-199

SWGMAT, “Glass Fractures”, Forensic Science Communications, January 2005, Volume 7, Number 1
WSP FLSB Forensic Services Guide - Materials Analysis (Trace Evidence and Glass Direction of Force)

12.2.3 REQUIRED READING

CLD CSRT Technical Procedures Manual, section 13.0

12.2.4 PRACTICAL EXERCISES

Packaging:

- Make two paper packets, each using a different method outlined in the WSP FLSB FSG.

- Collect, package, and label a loose hair using the picking method.
- Collect, package, and label loose paint chips.
- Collect, package, and label a clump of hairs and fibers using the lift method with a sticky note.
- Collect, package, and label a known sample of vehicle glass.
- Tape lift an upholstered item and properly label and package the tape lifts.
- Collect, package, and label a piece of tape (e.g. strip of duct tape).
- Collect, package, and label an automotive paint sample on a metal substrate with a damaged (Q) and clean (K) region using power tools.
- Collect, package, and label a paint sample from a metal substrate using a scalpel.
- Collect, package, and label a paint sample from a wood or plastic substrate using a scalpel.
- Remove and properly package the following types of ligatures from a dummy or volunteer: adhesive tape, knotted cord/rope, zip tie.
- Observe a fiber/plastic fusion and discuss with your trainer how to use dismantling or cutting methods for collection.
- Properly label and package a clothing item to preserve in situ trace evidence.

Observe plate, laminate, and tempered glass being subjected to multiple bullet impacts (in person or via photos and/or video). Discuss the following questions with your trainer:

- What are the differences between the types of glass?
- Can directionality of breakage be determined and how?
- Can the multiple shots be sequenced and how?
- How should a fractured window be preserved for analysis?
- When appropriate, what evidence and controls should be collected?

12.3 MODES OF EVALUATION

12.3.1 QUESTION AND ANSWER SESSION

MODULE 12.0 TRACE EVIDENCE CHECKLIST

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following required reading has been completed:	Date	Trainee's Initials
CSRT Technical Procedures Manual, section 13.0	_____	_____

The following exercises have been completed:	Date	Trainee's Initials
Make two paper packets	_____	_____
Collect, package, label loose hair using picking method	_____	_____
Collect, package, label loose paint chips	_____	_____
Collect, package, label clump of hairs/fibers w/ sticky note	_____	_____
Collect, package, label known sample of vehicle glass	_____	_____
Tape lift, label, and package an upholstered item	_____	_____
Collect, package, label a piece of tape	_____	_____
Collect, package, label Q and K automotive paint sample	_____	_____
Collect, package, label paint sample from metal using scalpel	_____	_____
Collect, package, label paint sample from wood/plastic	_____	_____
Remove and package ligatures (tape, knotted cord, zip tie)	_____	_____
Observe fiber/plastic fusion	_____	_____
Label and package clothing item w/ trace evidence	_____	_____
Observation of bullet defects in glass & discussion	_____	_____

MODULE 12.0 TRACE EVIDENCE CHECKLIST

The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____
Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____

_____
_____
_____
_____

13.0 DRUG RELATED EVIDENCE AND SAFETY

13.1 OBJECTIVES

To become familiar with common hiding locations, and to recognize drugs and related paraphernalia.

To recognize scene safety concerns related to the presence of seized drugs and clandestine laboratory materials.

13.2 METHODS OF INSTRUCTION

13.2.1 LECTURE & DISCUSSION

- Seized Drug Forms (e.g. pills, tablets, powders, liquids, vegetative materials)
- Seized Drug Paraphernalia (e.g. pipes, bongs, spoons, scales, dishes, pots)
- Fentanyl and Analogues
- Counterfeits
- Seized Drug Safety (e.g. buddy system, gloves, NARCAN)
- Packaging (e.g. powders, glass smoking devices, Fentanyl, syringe contents)
- Clandestine Laboratories (types of labs, evidence, WSP SWAT, CLAN Lab Analysis)

13.2.2 SUGGESTED READINGS

Amera-Chem, Inc. Drug Identification Bible

WSP FLSB Forensic Services Guide – Materials Analysis (Seized Drugs and Clandestine Lab Analysis)

13.2.3 PRACTICAL EXERCISES

Demonstrate packaging the following types of drug evidence: white powder found on a table top, liquid in a cup, fentanyl tablets

Understand how a field drug testing kit works and the limitations to its testing

13.3 MODES OF EVALUATION

13.3.1 WRITTEN ASSIGNMENT

Complete the study questions pertaining to seized drug evidence (stored on the CSRT SharePoint). The MA trainer will evaluate the answers and provide feedback.

13.3.2 WRITTEN QUIZ

Written quiz will be provided to the trainee (stored on the CSRT SharePoint) and must be completed without the use of notes or other resources. The quiz will be evaluated by the MA trainer.

MODULE 13.0 DRUG REALTED EVIDENCE AND SAFETY CHECKLIST

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following exercises have been completed:	Date	Trainee's Initials
Packaging of various types of drug evidence	_____	_____
Understand how a field drug testing kit works	_____	_____
The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____

Written Assignment	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Written Quiz	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____
_____

14.0 ARSON AND EXPLOSIVES EVIDENCE

14.1 OBJECTIVES

To recognize and preserve arson evidence

To recognize bomb-making materials

.

14.2 METHODS OF INSTRUCTION

14.2.1 LECTURE & DISCUSSION

- Fire Scene evidence
- Potential contamination (e.g. evidence containers stored improperly, cross-contamination during collection, fire suppression/investigation with gas or diesel powered equipment)
- Collection and Packaging of Volatiles
- Molotov Cocktails
- Bomb Components

14.2.2 SUGGESTED READINGS

Fisher, Barry A. J., Techniques of Crime Scene Investigation, 7th edition, CRC Press, 2004; pp. 287-310

Gardner, Ross M., Practical Crime Scene Processing and Investigation – Practical Aspects of Criminal & Forensic Investigations, Chapter 11-Special Scene Considerations.

WSP FLSB Forensic Services Guide – Materials Analysis (Fire Debris and Explosives)

14.2.3 CASE FILE REVIEW

Review a crime scene casefile that includes fire damaged evidence.

14.2.4 PRACTICAL EXERCISES

Package a fire debris sample using a metal can and mallet.

Package a fire debris sample using a volatiles nylon bag and heat sealer.

Package a fire debris sample using a volatiles nylon bag and packing tape.

14.3 MODES OF EVALUATION

14.3.1 WRITTEN ASSIGNMENT

Complete the study questions pertaining to fire debris/volatile evidence (provided by the MA trainer). The MA trainer will evaluate and provide feedback.

MODULE 14.0 ARSON AND EXPLOSIVES EVIDENCE CHECKLIST

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The following exercises have been completed:	Date	Trainee's Initials
Package a sample using a metal can and mallet	_____	_____
Package a sample using plastic bag & heat sealer	_____	_____
Package a sample using plastic bag & tape	_____	_____
The exercises have been reviewed and are complete:	Date	Trainer's Initials
	_____	_____

Review a casefile w/ fire damaged evidence

Case#_____	Date	Trainee's Initials
	_____	_____

Written Assignment	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____
_____

15.0 CRIME SCENE DOCUMENTATION

15.1 OBJECTIVE

To understand the concepts and basic requirements of crime scene note taking and diagramming/sketching.

15.2 METHODS OF INSTRUCTION

Methods of instruction that follow may be incorporated as part of other modules in this training manual.

15.2.1 REQUIRED READINGS

CLD CSRT Technical Procedures Manual, section 4.0, 16.0

CLD Records Retention Schedule

15.2.2 CASE FILE REVIEW

Review three completed case files from each of the following types of scenes:

- Residence, including exterior and interior
- Deceased individuals
- Vehicles

An effort should be made to review cases from a wide range of CSRT primary responders. Discussion and questions with the trainer and/or primary responder should accompany each of the reviewed case files.

15.2.3 PRACTICAL EXERCISES

15.2.3.1 **Residence Documentation**

Document the exterior and interior of a residence, including measurements and nearby landmarks (exterior) and an overall floor plan and a focus on one room (interior).

15.2.3.2 **Decedent Documentation**

Document a mock scene which includes a staged decedent. Some complex items should be included, such as blood flow on the body and/or indications of movement by the decedent.

15.2.3.3 **Evidence Documentation**

This section refers to the documentation of bloodstains, firearms, trajectories, trace, human remains, and latent prints. Refer to these respective modules for appropriate documentation. The trainer will verify that the trainee has met the documentation requirements for these types of evidence.

15.2.3.4 **Vehicle Documentation**

Document the exterior and interior of a vehicle, including items of evidence.

15.3 MODES OF EVALUATION

15.3.1 SUPPLEMENTAL NOTES

Shadow a primary responder on the following types of crime scenes, assisting with supplemental note taking and sketching (no more than one sketch per scene type) as deemed appropriate by the primary:

Scenes (3) involving residence or outdoor scenes
Scenes (3) involving deceased individuals
Scenes (3) involving vehicles
Scene (1) involving buried/scattered remains (if available)

The supplemental notes may be completed by viewing photos from scenes attended by the trainee, in circumstances when time on scene doesn't allow the notes to be completed in person. The extent of the notes should be determined by the primary responder.

The supplemental notes will be reviewed by the primary and/or trainer and discussed with the trainee.

MODULE 15.0 CRIME SCENE DOCUMENTATION CHECKLIST

The following required readings have been completed:	Date	Trainee's Initials
CSRT Technical Procedures Manual, section 4.0, 16.0	_____	_____
CLD Records Retention Schedule	_____	_____

The following case files were reviewed by the Trainee:

Three residence searches:	Three with deceased individuals:
Case# _____	Case# _____
Case# _____	Case# _____
Case# _____	Case# _____

Three vehicle searches:

Case# _____

Case# _____

Case# _____

Date_____ Trainee's Initials _____

The case files have been discussed with the primary responders and/or trainer

Date _____ Trainer's Initials _____

The following exercises have been completed:	Date	Trainee's Initials
Residence Documentation	_____	_____
Decedent Documentation	_____	_____
Evidence Documentation	_____	_____
Vehicle Documentation	_____	_____
The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____

MODULE 15.0 CRIME SCENE DOCUMENTATION CHECKLIST

The supplemental scene notes are completed and have been reviewed:

Residence/Outdoor: Scene date_____ Case#_____
Circle one: Primary/Trainer Initials _____

Scene date_____ Case#_____
Circle one: Primary/Trainer Initials _____

Scene date_____ Case#_____
Circle one: Primary/Trainer Initials _____

Deceased Individuals: Scene date_____ Case#_____
Circle one: Primary/Trainer Initials _____

Scene date_____ Case#_____
Circle one: Primary/Trainer Initials _____

Scene date_____ Case#_____
Circle one: Primary/Trainer Initials _____

Vehicle: Scene date_____ Case#_____
Circle one: Primary/Trainer Initials _____

Scene date_____ Case#_____
Circle one: Primary/Trainer Initials _____

Scene date_____ Case#_____
Circle one: Primary/Trainer Initials _____

Buried/Scattered Remains: Scene date_____ Case#_____
Circle one: Primary/Trainer Initials _____

Date	Trainee's Initials
_____	_____

Additional Comments: _____
_____
_____

16.0 BLOODSTAIN PATTERN ANALYSIS

Successful completion of an approved, external 40-hour bloodstain pattern course or an in-house 40-hour course provided by an experienced examiner (at least 10 years of experience; course material/outline must be approved by the Technical Lead(s)) is required for this module. A question and answer session will occur between the trainee and an experienced analyst after the completion of the 40-hour course. Any additional requirements, exercises, and/or assignments will be completed prior to the competency test.

HISTORY AND EVOLUTION OF BLOODSTAIN PATTERN ANALYSIS

16.1 OBJECTIVES

To understand:

- History and evolution of the Bloodstain Pattern Analysis discipline, including the work of Dr. Eduard Piotrowski, Paul L. Kirk, and Prof. Herbert MacDonell.
- Current status & developments within the discipline.
- Value of Bloodstain Pattern Analysis as it relates to criminal investigations.
- Role of the Organization of Scientific Area Committees (OSAC) for Forensic Science.
- How historical references can refute some of the criticisms posed by the 2009 NAS report.

16.2 METHODS OF INSTRUCTION

16.2.1 LECTURE AND DISCUSSION

16.2.2 SUGGESTED READINGS

Bevel, T. and Gardner, R. M., Bloodstain Pattern Analysis, 3rd edition, New York, CRC Press, 2008

Eckert, W.G. and James, S. H., Interpretation of Bloodstain Evidence at Crime Scenes, 2nd edition, New York, Elsevier, 1998

Executive Office of the President's Council of Advisors on Science and Technology. **Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods.** Pages 21-122, Washington, D.C.: National Academy Press; 2016

Gardner, Ross M.; Tom Griffin, Foundations for the Discipline of Bloodstain Pattern Analysis: A Response to the Report by the National Academy of Sciences. Journal of Forensic Identification Volume: 60 Issue: 4 Dated: July/August 2010 Pages: 477 to 494

James, S. H., Kish, P. E., Sutton, T. P., Principles of Bloodstain Pattern Analysis, New York, CRC Press, 2005

MacDonell, H. L., "Flight Characteristics and Stain Patterns of Human Blood" and "Bloodstain Pattern Interpretation", Washington, U. S. Department of Justice, LEAA, N.I.L.E.C.J., 1971

MacDonell, H. L., “Segments of History: The Literature of Bloodstain Pattern Interpretation Segment 00: Literature through the 1800’s”, IABPA Newsletter

MacDonell, H.L., “Segments of History in the Documentation of Bloodstain Pattern Interpretation Segment 01: 1901-1910”, IABPA Newsletter

MacDonell, H.L., “Segments of History: The Literature of Bloodstain Pattern Interpretation Segment 02: Literature from 1911 through 1920”, IABPA Newsletter

MacDonell, H.L., “Segments of History: The Literature of Bloodstain Pattern Interpretation Segment 03: Literature from 1921 through 1930”, IABPA Newsletter

Piotrowski, Eduard, Origin, Shape, Direction and Distribution of the Bloodstains following Head Wounds Caused by Blows, The Institute of Forensic Medicine of the k. k. University in Vienna, March 1895

16.2.3 REQUIRED READING

CLD CSRT Technical Procedures Manual, section 7.0

National Research Council Committee on Identifying the Needs of the Forensic Science Community. **Strengthening Forensic Science in the United States: A Path Forward.** Introduction, pages 1 to 53, and pages 177 to 179, Washington, D. C: National Academy Press; 2009

16.3 MODES OF EVALUATION

16.3.1 QUESTION AND ANSWER SESSION

BLOODSTAIN PATTERN ANALYSIS TERMINOLOGY & DEFINITIONS

16.4 OBJECTIVES

To understand and become familiar with the accepted terminology used in the Bloodstain Pattern Analysis field.

To understand how terminology applies to case situations and written reports.

16.5 METHODS OF INSTRUCTION

16.5.1 LECTURE AND DISCUSSION

16.6 MODES OF EVALUATION

16.6.1 WRITTEN ASSIGNMENT

Review the *ASB Technical Report 033, Terms and Definitions in Bloodstain Pattern Analysis* document (First Edition, 2017). Complete a written vocabulary quiz (located on the CSRT SharePoint).

16.6.2 QUESTION AND ANSWER SESSION

PHYSICAL PROPERTIES OF BLOOD

16.7 OBJECTIVES

To learn the components of blood as they relate to the study of Bloodstain Pattern Analysis.

To understand the principles of fluid dynamics and physics as they relate to the study of Bloodstain Pattern Analysis.

16.8 METHODS OF INSTRUCTION

16.8.1 LECTURE AND DISCUSSION

- Fluid Dynamics (cohesion, surface tension and viscosity)
- Drying time
- Clotting time
- Volume of blood drops
- Size of stain
- Surface effects
- Terminal velocity
- Effect of Blood Thinners
- Capillary action

16.8.2 SUGGESTED READINGS

Anderson, J. W., “Capillarity Distortion Analysis” IABPA 1993 Annual Training Conference

Epstein, B., Laber, T. L.., “Preliminary Results – Clotting Time Studies”, Minnesota Forensic Science Laboratory

Hurley, M. N., Pex, J. O. “Sequencing of Bloody Shoe Impressions by Blood Spatter and Blood Droplet Drying Times”, Oregon State Police Crime Laboratory

Laber, T. L. “Diameter of Bloodstain as a Function of Origin, Distance Fallen, and Volume of Drop”, Minnesota Forensic Science Laboratory

Pizzola, P. A., Roth, S. and Deforest, P. R., “Blood Droplet Dynamics – I and II” Journal of Forensic Sciences, JFSCA, Vol.31 No.1, Jan. 1986 pp. 36-49

Raymond, M. A., Smith, E. R., Liesegang, J., “The Physical Properties of Blood-Forensic Considerations”, Science & Justice, Journal of the Forensic Science Society 1996: 36(3) 153-160

White, B., “Bloodstain Patterns on Fabrics: The Effect of Drop Volume, Dropping Height and Impact Angle”, Can. Soc. Forensic Science J. Vol.19, No. 1 (1986)

Wonder, A.Y., Blood Dynamics, Academic Press, 2001

16.9 MODES OF EVALUATION

16.9.1 QUESTION AND ANSWER SESSION

SIZE, SHAPE, AND DISTRIBUTION

16.10 OBJECTIVES

To understand the distinguishing characteristics related to size, shape and distribution of bloodstain evidence.

To understand how the characteristics of size, shape and distribution assist in the analysis of bloodstain evidence.

16.11 METHODS OF INSTRUCTION

16.11.1 LECTURE AND DISCUSSION

16.11.2 SUGGESTED READINGS

Adair, Thomas W., “False Wave Cast-Off; Considering the Mechanisms of Stain Formation”, Arapahoe County Sheriff’s Office, Littleton, CO.

Christman, D.V., “Expirated Bloodstain Patterns”, Snohomish County Medical Examiner Medicolegal Death Investigator

Gardner, R. M., “Deformation Levels in Blood Droplets Created by Impact Events”, United States Army Criminal Investigation Command

Stephens, B. G., M.D. and Allen, T. B., M.D., “Back Spatter of Blood from Gunshot Wounds – Observations and Experimental Simulation” Journal of Forensic Sciences. JFSCA Vol.28 No.2 April 1983 pp 437-439

16.11.3 PRACTICAL EXERCISE

The trainer will demonstrate how to measure spatter bloodstains in Adobe Photoshop and how to use those measurements to calculate angle of impact. A discussion will take place regarding when spatter bloodstains should be measured and the angle of impact calculated (i.e. when determining if a bloodstain pattern is a cast-off pattern).

Images from previous proficiencies containing ten spatter bloodstains will be provided to the trainee (stored on the CSRT SharePoint). The width and length of each bloodstain will be measured using Adobe Photoshop software. The angle of impact will then be calculated for each bloodstain. The angles will be reviewed by the trainer, using the reported angles from the proficiency provider as an answer key.

16.12 MODES OF EVALUATION

16.12.1 QUESTION AND ANSWER SESSION

What other events may produce stain patterns with characteristics of impact?

What are the effects of porous/non-porous and smooth/textured target surfaces?

COMMON PATTERN TYPES

16.13 OBJECTIVES

To understand how the size, shape and distribution of stains at the scene allows stains to be placed in one of six categories:

- Blood dispersed through the air as a function of gravity (e.g., drip patterns, drip trails)
- Blood ejected in volume under pressure (projected patterns)
- Blood released over time from an object in motion (e.g., cast-off patterns)
- Blood dispersed from a point source by force (e.g., impact patterns, expirated)
- Blood that is deposited through transfer (e.g., swipes, wipes, pattern transfers)
- Blood that accumulates or flows on a surface (e.g., pools, flows)

16.14 METHODS OF INSTRUCTION

16.14.1 LECTURE & DISCUSSION

16.14.2 SUGGESTED READINGS

Barnes, D., “Intermittent Projected Bloodstains”, Crime Scene Unit, Ohio Bureau of Criminal Identification and Investigation, 1997

Bevel, T., “Geometric Bloodstain Interpretation” FBI Law Enforcement Bulletin, May 1983

LeRoy, H. A., “Bloodstain Pattern Interpretation”, Identification Newsletter, Canadian Identification Society, Vol.6 issue 1 January 1983

Sweet, M. J., “Velocity Measurements of Projected Bloodstains from a Medium Velocity Impact Source”, Canadian Society of Forensic Science Journal Vol. 26, No.3 (September 1993)

16.14.3 PRACTICAL EXERCISE

Examine a minimum of five past Collaborative Testing Services (CTS) BPA proficiencies. Describe and identify the bloodstain patterns that are present.

This exercise will be reviewed by the Technical Lead(s).

16.15 MODES OF EVALUATION

16.15.1 QUESTION AND ANSWER SESSION

BLOODSTAIN EVIDENCE PHOTOGRAPHY AND DOCUMENTATION

16.16 OBJECTIVES

To understand:

- Methodology of properly documenting bloodstain patterns using photography, sketching and notes.
- What types of conclusions can be reached in regards to bloodstain pattern analysis.

16.17 METHODS OF INSTRUCTION

16.17.1 LECTURE AND DISCUSSION

16.17.2 SUGGESTED READINGS

Bevel, T. and Gardner, R. M., Bloodstain Pattern Analysis, 3rd Edition, New York, CRL Press, 2008, pg 309-312

Raymond, M. A. and Hall, R. L., "An Interesting Application of Infra-Red Reflection Photography to Blood Splash Pattern Interpretation", Elsevier Forensic Science International, 31 (1986) 189-194

16.17.3 PRACTICAL EXERCISES

- Three BPA case files (with reports that include BPA conclusions) will be obtained by the trainee for examination. The trainee will be provided only with the background information and the relevant photographs. The bloodstains and patterns will be described and any conclusions will be reached. The documentation and conclusions should then be compared to the case file and discussed with the primary responder and/or trainer.

- Properly photograph and document a complex bloodstain pattern in a mock scene using the road-mapping technique. Discuss with the trainer any conclusions that might be reached.

16.18 MODES OF EVALUATION

16.18.1 QUESTION AND ANSWER SESSION

16.18.2 COMPETENCY TEST

Successfully document (including photographs and written/dictated notes) a mock crime scene that includes several bloodstain patterns. Instructions for the set-up and the case scenario are on the CSRT SharePoint. A case file must be prepared and a report with conclusions must be written.

The Technical Lead(s) will evaluate the trainee's competency and provide feedback.

MODULE 16.0 BLOODSTAIN PATTERN ANALYSIS CHECKLIST

A 40 hour basic bloodstain pattern course has been completed	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____
Question and Answer Session regarding course	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

HISTORY OF BLOODSTAIN PATTERN ANALYSIS

The following required readings have been completed:	Date	Trainee's Initials
CSRT Technical Procedures Manual, section 7.0	_____	_____
Strengthening Forensic Science in the United States	_____	_____

BLOODSTAIN PATTERN ANALYSIS TERMINOLOGY & DEFINITIONS

The written quiz has been completed and reviewed:	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

MODULE 16.0 BLOODSTAIN PATTERN ANALYSIS CHECKLIST

SIZE, SHAPE, AND DISTRIBUTION

The following exercise has been completed:	Date	Trainee's Initials
Angle of impact calculated for ten bloodstains:	_____	_____
This exercise is complete and has been reviewed:	Date	Trainer's Initials
	_____	_____

COMMON PATTERN TYPES

The following exercise has been completed:	Date	Trainee's Initials
Examine five CTS proficiencies	_____	_____
The exercise is complete and has been reviewed:	Date	Technical Lead Initials
	_____	_____

BLOODSTAIN EVIDENCE PHOTOGRAPHY AND DOCUMENTATION

The following exercises have been completed:	Date	Trainee's Initials
Three BPA case files have been analyzed	_____	_____
A complex mock bloodstain pattern has been documented	_____	_____
The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____

MODULE 16.0 BLOODSTAIN PATTERN ANALYSIS CHECKLIST

BLOODSTAIN PATTERN ANALYSIS COMPETENCY:

Date	Trainee's Initials
_____	_____
Date	Technical Lead Initials
_____	_____

Additional Comments:

_____
_____
_____
_____
_____

17.0 3D LASER SCANNING

Formal training offered by the WSP Criminal Investigation Division (CID) or agencies and organizations outside the WSP may substitute for the required training. The content of the formal training shall be reviewed by the Technical Lead(s) to determine which objectives have been met.

17.1 OBJECTIVES

- To become familiar with the operation of the Trimble X7 3D laser scanner
- To become familiar with the operation of Leica Cyclone and Trimble Forensics Reveal software

17.2 METHODS OF INSTRUCTION

17.2.1 LECTURE, DISCUSSION, AND DEMONSTRATION

17.2.1.1 **Benefits of laser scanning at crime scenes**

a. Large quantity of measurements in short time period
b. Quality, or accuracy, and precision of measurements
c. Non-intrusive remote capability avoids contamination/hazard issues
d. Objectively captures all measurement data in field of view
e. Application of Measurement Uncertainty for trajectory angle measurements

17.2.1.2 **Operation of Trimble X7 3D laser scanner**

a. Demonstrate how to set-up a scanner project in Trimble Capture and Perspective
b. Demonstrate how to generate Diagnostic and Field Calibration reports
c. Discuss different scan settings and appropriate use of settings
d. Demonstrate how to scan a scene
e. Demonstrate how to close a scan project and export the scan data

17.2.1.3 **Cyclone Software**

a. Review the demonstration tutorial videos
b. Import .e57 file and create a database
c. Open a ModelSpace view and demonstrate its functions, including taking measurements
d. Demonstrate how to create virtual trajectory rods/cones and measure azimuth/elevation angles
e. Demonstrate how to virtually square a vehicle to measure azimuth angles
f. Demonstrate how to print and create deliverables

17.2.1.4 **Realworks Software**

a. Review workflow presentation

17.2.1.5 **Reveal Software**

a. Review the demonstration tutorial video and work-product terminology
b. Import project in Reveal
c. Mark evidence
d. Demonstrate how to measure, place models (scale, compass, etc.)
e. Demonstrate how to print and create deliverables
f. Add view stations for use in ShowCase deliverable

g. Generate 2D and 3D scan diagrams

17.2.1.6 **Post-scene/software discussion**

a. Incorporating diagrams in reports and case notes
b. Distribution of scan data and deliverables
c. Required files to be stored in ADAMs

17.2.2 REQUIRED READINGS

CSRT Technical Procedures Manual, section 19.0

Greenwood SM, Paduch CD, Allen TT. An Evaluation of Measurement Uncertainty of Trajectory Angles using a 3D Laser Scanner. J Forensic Sci. 2023; 00: 1‑11

Trimble X7 datasheet and support note (CSRT SharePoint)

17.2.3 PRACTICAL EXERCISES

17.2.3.1 **X7 3D laser scanner**

1. Create new scene in Capture software
2. Launch Perspective software
3. Scan an indoor and outdoor mock scene with items of evidence with a minimum of four scans per scene. This should include a minimum of four items of evidence for each scene and a trajectory rod. The trajectory rod should be scanned with the seven minute scan setting.
4. Obtain at least 3 precision points for each scene
5. Export scene projects

17.2.3.2 **Cyclone Software**

1. Import vehicle and scene .e57 files from CSRT SharePoint
2. Create virtual trajectory rods
3. Measure azimuth angle and elevation angle

17.2.3.4 **Realworks Software**

1. Open .tdx file in Realworks
2. Export .e57 file

17.2.3.3 **Reveal Software**

1. Import the scene projects (.capture files) from the scanner operation practical exercises in to Reveal
2. Mark and annotate items of evidence
3. Perform measurements
4. Insert scale and compass
5. Create diagrams (2D and 3D)

17.3 MODES OF EVALUATION

17.3.1 QUESTION AND ANSWER SESSION

17.3.2 COMPETENCY TESTS

Note: The operation competency must be completed prior to the software competency Successful completion of the operation competency authorizes the trainee to operate the scanner on scene.

Scanner Operation:
Scan an indoor mock scene, consisting of four items of evidence and a trajectory, with a minimum of four scans. Four minute scans should be used, with the exception of a seven minute scan for the trajectory. The items of evidence must be marked with precision points. The Field Calibration and Diagnostic reports must be produced. The exported scanner project folder (to include the .capture file) will be provided for grading.

Scanner Software:
Import two Cyclone projects (scene and vehicle) from the CSRT SharePoint. For each project, measure the azimuth and elevation angles. Prepare snapshots of each.

Using the scan data from the mock scene scanner operation competency, create a Reveal project. Annotate items of evidence and prepare an overall top-down 2D snapshot of the scene as well as 3D snapshots of the evidence item locations. A ShowCase deliverable will also be produced.

The Technical Lead(s) will evaluate the trainee's competencies and provide feedback.

MODULE 17.0 3D LASER SCANNING CHECKLIST

Training class has been completed	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____
Lecture, Discussion, and Demonstration	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____
The required readings have been completed:	Date	Trainee's Initials
CSRT Technical Manual, section 19.0	_____	_____
Evaluation of Measurement Uncertainties	_____	_____
Trimble X7 datasheet and support note	_____	_____
The following exercises have been completed:	Date	Trainee's Initials
X7 Scanner Exercises	_____	_____
Cyclone Software Exercises	_____	_____
Realworks Software Exercise	_____	_____
Reveal Software Exercise	_____	_____
The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____

MODULE 17.0 3D LASER SCANNING CHECKLIST

COMPETENCY TESTS:

X7 Scanner Operation	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____
Cyclone Software (scene)	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____
Cyclone Software (vehicle)	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____
Reveal Software	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____

Additional Comments:

_____
_____
_____
_____

18.0 SHOOTING INCIDENT RECONSTRUCTION

Successful completion of Module 17.0 is required before completing this module.

Successful completion of an approved, external 40-hour shooting incident reconstruction course or an in-house 40-hour course provided by an experienced examiner (at least 10 years of experience; course material/outline must be approved by the Technical Lead(s)) is required for this module. A question and answer session will occur between the trainee and an experienced analyst after the completion of the 40-hour course. Any additional requirements, exercises, and/or assignments will be completed prior to the competency test.

DISTANCE DETERMINATION EVIDENCE

18.1 OBJECTIVES

To understand the evidential value of gunshot residue and distance determination.

To recognize and properly collect target material with gunshot residue.

18.2 METHODS OF INSTRUCTION

18.2.1 LECTURE & DISCUSSION

18.2.2 SUGGESTED READINGS

DiMaio, Vincent J. M., “Gunshot Wounds” Elsevier, New York 1985 (chapter 4)

Haag, Lucien C. and Michael G, “Shooting Incident Reconstruction”, 3rd Edition, Elsevier, New York, 2020 (chapter 6)

WSPCL Firearms Procedures Manual, section 3.0

18.2.3 PRACTICAL EXERCISES

Working with an experienced firearms examiner, shoot a cloth target from a range of distances to replicate contact/near contact, intermediate, and distant shots as defined in the WSP CLD Firearms/Tool marks Technical Procedures Manual for stippling proximity determination. Choose several different firearms to include a pistol and a rifle. A shotgun range determination will also be performed. Record by written and photographic documentation of the gunshot residues produced. Discuss with firearms examiner the results and packaging issues with these patterns.

Working with an experienced firearms examiner, wrap a revolver in cloth and fire the revolver. Examine the residue pattern left on the cloth. Test the distance away the cloth needs to be before the pattern is not transferred.

18.3 MODES OF EVALUATION

18.3.1 QUESTION AND ANSWER SESSION

TRAJECTORY MEASUREMENT

18.4 OBJECTIVES

To understand:

- How to accurately record and document defects for trajectory reconstruction.
- How to associate defects to establish trajectory assessment.
- The limitations of trajectory analysis.
- How to measure the vertical and horizontal angles of a trajectory with a trajectory rod.
- The calculations involved in determining possibly muzzle heights at certain distances from the bullet defect utilizing the vertical trajectory angle and defect height.

18.5 METHODS OF INSTRUCTION

18.5.1 LECTURE, DISCUSSION, & DEMONSTRATION

18.5.2 REQUIRED READING

Greenwood SM, Paduch CD, Allen TT. An Evaluation of Measurement Uncertainty of Trajectory Angles using a 3D Laser Scanner. J Forensic Sci. 2023; 00: 1‑11

Haag, Lucien C. and Michael G, “Shooting Incident Reconstruction”, 3rd Edition, Elsevier, New York, 2020 (chapter 10)

18.5.3 CASE FILE REVIEW

Review five complex trajectory crime scene cases. Discuss with the trainer and/or primary how the scene was processed, results obtained, and limitations of the scene.

18.5.4 PRACTICAL EXERCISES

- Using the scanner data from a mock wall containing defects (located on CSRT SharePoint), measure the locations of the defects and the azimuth and elevation angles. Calculate possible muzzle heights at increasing distance from at least one bullet defect using the elevation angle and defect height.

- String a defect in tempered glass to locate the point of impact.

18.6 MODES OF EVALUATION

18.6.1 QUESTION AND ANSWER SESSION

LONG RANGE – DISTANCE SHOOTING

18.7 OBJECTIVES

To understand the difference between long range vs. short range trajectories.

To understand external and terminal ballistics.

18.8 METHODS OF INSTRUCTION

18.8.1 LECTURE & DISCUSSION

18.8.2 SUGGESTED READINGS

Haag, Lucien C. and Michael G., "Shooting Incident Reconstruction", 3rd edition, Elsevier, New York, 2020 (chapter 13)

18.9 MODES OF EVALUATION

18.9.1 QUESTION AND ANSWER SESSION

DOCUMENTING SHOTS INTO VEHICLES

18.10 OBJECTIVE

To understand how to measure and document bullet defect locations into a vehicle using traditional methods such as baseline and squaring and advanced methods utilizing 3D scanning.

18.11 METHODS OF INSTRUCTION

18.11.1 LECTURE & DISCUSSION

18.11.2 REQUIRED READINGS

Chisum, Jerry W., and Turvey, Brent E., Crime Reconstruction, 2nd Edition, Elsevier Inc., 2011; pp. 424 – 426

Haag, Lucien C. and Michael G, "Shooting Incident Reconstruction", 3rd Edition, Elsevier, New York, 2020 (chapter 15)

18.11.3 PRACTICAL EXERCISES

Working with an experienced analyst practice locating and taking measurements of defects on the exterior and interior of a vehicle. Discuss utilizing the 3D scanner for documenting bullet defects on vehicles.

18.12 MODES OF EVALUATION

18.12.1 QUESTION AND ANSWER SESSION

18.12.2 COMPETENCY TEST

Successfully document (including photographs and notes) a mock crime scene that includes several defects and trajectories. Instructions for the set-up and the case scenario are on the CSRT SharePoint. A case file must be prepared and a report with conclusions must be written.

The Technical Lead(s) will evaluate the trainee's competencies and provide feedback.

MODULE 18.0 SHOOTING INCIDENT RECONSTRUCTION CHECKLIST

A 40 hour basic shooting incident course has been completed	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____
Question and Answer Session regarding course	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

DISTANCE DETERMINATION EVIDENCE

The following exercises have been completed:	Date	Trainee's Initials
Stippling proximity determinations	_____	_____
Shotgun range determination	_____	_____
Residue pattern on cloth	_____	_____
The exercises are completed and have been reviewed:	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____
_____

MODULE 18.0 SHOOTING INCIDENT RECONSTRUCTION CHECKLIST

TRAJECTORY MEASUREMENTS

The following required reading has been completed:	Date	Trainee's Initials
An Evaluation of Measurement Uncertainty…	_____	_____
Shooting Incident Reconstruction (CH 10)	_____	_____

Review five complex trajectory crime scene cases

Case #1: _____

Case #2: _____

Case #3: _____

Case #4: _____	Date	Trainee's Initials
Case #5: _____	_____	_____

The following exercises have been completed:	Date	Trainee's Initials
Calculating possible muzzle heights from scanner data	_____	_____
String a defect in tempered glass	_____	_____
The exercise is completed and has been reviewed:	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____

MODULE 18.0 SHOOTING INCIDENT RECONSTRUCTION CHECKLIST

DOCUMENTING SHOTS INTO VEHICLES

The following required readings have been completed:	Date	Trainee's Initials
Crime Reconstruction	_____	_____
Shooting Incident Reconstruction (CH 15)	_____	_____

The following exercise has been completed:	Date	Trainee's Initials
Locate/measure defects on the exterior & interior of a vehicle	_____	_____

The exercise is completed and has been reviewed:	Date	Trainer's Initials
	_____	_____

COMPETENCY TEST:

Mock Scene	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____
_____

19.0 RECOVERY AND PROCESSING OF HUMAN REMAINS

Successful completion of an approved, external buried body recovery course is required for this module. A question and answer session will occur between the trainee and an experienced analyst after the completion of the 40-hour course. The content of the formal training shall be reviewed by the Technical Lead(s) to determine which objectives have been met.

19.1 OBJECTIVES

Learn how to:

- Recognize a burial site
- Process, document, and recover buried remains
- Recognize the effect of environmental factors on buried remains
- Recognize Native American burial grounds.

19.2 METHODS OF INSTRUCTION

19.2.1 LECTURE AND DISCUSSION

19.2.2 REQUIRED READINGS

"Archaeological Sites and Resources" Revised Code of Washington (RCW) 27.53

CLD CSRT Technical Procedures Manual, sections 14.0-15.0, 18.0, and 20.0

"Department of Archaeology and Historic Preservation" RCW 43.334

Dupras, T.,Schultz, J.,Wheeler, S.,Williams, L., Forensic Recovery of Human Remains. 2nd edition, CRC Press, 2012

"Skeletal human remains- Duty to notify- Ground disturbing activities- Coroner determination- Definitions" RCW 68.50.645

19.2.3 SUGGESTED READINGS

Bass, WM. 1995. Human Osteology: A Laboratory and Field Manual. 5th Edition, Columbia, MO: Missouri Archaeological Society

White, Tim D., Pieter A. Folkens, The Human Bone Manual. 1st Edition, Academic Press, 2005.

19.2.4 CASEFILE REVIEW

Review a minimum of five buried body/scattered remains casefiles. Discuss the cases with the primary and/or trainer.

19.2.5 PRACTICAL EXERCISE

Process, document, and recover previously buried remains. Appropriately photograph, measure, document, and collect what you find. Collect appropriate soil, botanical, fauna, and entomological samples. Record appropriate environmental information.

19.3 MODES OF EVALUATION

19.3.1 QUESTION AND ANSWER SESSION

MODULE 19.0 RECOVERY AND PROCESSING OF HUMAN REMAINS CHECKLIST

A recovery of human remains course has been completed	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____
Question and Answer Session regarding course	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The required readings have been completed:	Date	Trainee's Initials
CSRT Technical Procedures Manual, sections 14-15, 18, 20	_____	_____
RCW 27.53	_____	_____
RCW 43.334	_____	_____
Forensic Recovery of Human Remains	_____	_____
RCW 68.50.645	_____	_____

Casefile review has been completed and discussed	Date	Trainee's Initials
	_____	_____

Case #1: _____

Case #2: _____

Case #3: _____

Case #4: _____

Case #5: _____

MODULE 19.0 RECOVERY AND PROCESSING OF HUMAN REMAINS CHECKLIST

The casefiles have been discussed:	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____
_____

20.0 CRIME SCENE REPORTS AND CASE FILE MANAGEMENT

20.1 OBJECTIVE

To compile crime scene casefiles and write crime scene reports

20.2 METHODS OF INSTRUCTION

20.2.1 LECTURE AND DISCUSSION

- Compiling casefiles and report format.
- Image handling and processing in Adobe Lightroom.
  - Watch the Adobe Lightroom tutorial video on the CSRT Shared drive.
- Archiving and using ADAMs (images and digital files).

20.2.2 REQUIRED READING

CLD QOM, section 10.0

CSRT Technical Procedures Manual, sections 21.0-22.0

20.2.3 PRACTICAL EXERCISES

- Review and discuss at least five different crime scene casefiles from different primary responders. For at least two of these casefiles, the report will be omitted and the trainee will write a report based on the casefile. The reports will be reviewed by the primary and/or trainer and feedback provided to the trainee.

- Using the supplemental notes taken as part of section 15.3.1 of this manual and the scene photos, put together a casefile and a crime scene report for each of the three types of scenes described in section 15.3.1. The casefiles and report will be reviewed by the primary and/or trainer and feedback provided to the trainee.

20.3 MODES OF EVALUATION

20.3.1 QUESTION AND ANSWER SESSION

MODULE 20.0 CRIME SCENE REPORTS AND CASE FILE MANAGEMENT CHECKLIST

Lecture and Discussion	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

The required reading has been completed:	Date	Trainee's Initials
CLD QOM, section 10.0	_____	_____
CSRT Technical Procedures Manual, sections 21-22	_____	_____

Case files from five different crime scenes have been reviewed:

Case #1 _____

Case #2 _____

Case #3 _____

Case #4 _____	Date	Trainee's Initials
Case #5 _____	_____	_____

Reports for two of the above crime scene cases have been written:

	Date	Trainee's Initials
	_____	_____

Casefiles and written reports have been discussed with the primary and/or trainer:

	Date	Trainer's Initials
	_____	_____

Mock casefiles and reports have been completed:	Date	Trainee's Initials
Residence/Outdoor scene	_____	_____
Deceased Individual	_____	_____
Vehicle	_____	_____

MODULE 20.0 CRIME SCENE REPORTS AND CASE FILE MANAGEMENT CHECKLIST

Casefiles and written reports have been discussed with the primary and/or trainer:

	Date	Trainer's Initials
	_____	_____

Question and Answer Session	Date	Trainee's Initials
	_____	_____
	Date	Trainer's Initials
	_____	_____

Additional Comments: _____
_____
_____
_____
_____

21.0 COMPETENCY TEST

21.1 OBJECTIVE

To be become a Primary Responder

21.2 METHODS OF INSTRUCTION

21.2.1 LECTURE AND DISCUSSION

21.3 MODES OF EVALUATION

21.3.1 COMPETENCY TEST

Document a mock crime scene to include, but not limited to, the following items for identification, documentation, and collection:

- Ten items of evidence, including firearms evidence and a latent print
- Bullet defect trajectory
- Bloodstain Pattern(s)
- A deceased individual

The mock crime scene will also be scanned (not by the trainee) and the scanner data will be provided to the trainee.

The trainee will compile a case file (including notes and photographs) and write up a crime scene report (with conclusions). Trajectory analysis in Cyclone software will be performed and Reveal diagrams should be included with the crime scene report.

The scenario and instructions for the mock crime scene are on the CSRT SharePoint. The Technical Lead(s) will evaluate the trainee's case file and report and provide feedback.

21.3.2 MOOT COURT

A discussion (i.e. mock pre-trial meeting) should take place between the trainee and trainer to discuss commonly asked court questions, especially regarding qualifying questions, prior to the moot court to help the trainee prepare. This may include providing the trainee with sample questions for the direct questioning portion of the moot court.

If trainee has testimony experience, this requirement may be substituted with a question and answer session.

MODULE 21.0 COMPETENCY CHECKLIST

	Date	Trainee's Initials
Lecture and Discussion	_____	_____
	Date	Trainer's Initials
	_____	_____
COMPETENCY TEST:	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____
A moot court/question and answer session was completed	Date	Trainee's Initials
	_____	_____
	Date	Technical Lead Initials
	_____	_____

Additional Comments: _____
_____
_____
_____
_____

22.0 TECHNICAL REVIEW

22.1 OBJECTIVE

To become eligible to independently technically review crime scene reports.

22.2 METHODS OF INSTRUCTION

22.2.1 LECTURE AND DISCUSSION

The responder will discuss with each assigned technical reviewer the process of technical review. The case record, casefile, and report requirements will be discussed for the given case. The CSRT Technical Review checklist will also be discussed.

Each technical reviewer may have a different approach for technical review so the responder will have an opportunity to learn different methods for completing technical reviews.

22.2.2 REQUIRED READING

CLD QOM, 10.6.3

22.3 MODES OF EVALUATION

22.3.1 PRACTICAL EXERCISE

The responder will be assigned (by the CSRT Manager or designee) five cases as a co-technical reviewer. The cases will begin as less complex and will gradually include more complex cases. The cases will be independently reviewed by the responder and the co-technical reviewer. All findings/observations and questions will be discussed together. At the completion of the co-technical review, the technical reviewer will compile the comments from both reviewers and present them to the analyst. Written feedback will be provided by the co-technical reviewer to the Technical Lead(s) following each review.

Following the successful completion of five co-technical reviews, written feedback in the form of an IOC will be provided by the Technical Lead(s) to the CSRT Manager recommending the responder for sign-off. If, after the completion of five co-technical reviews, the responder is not proficient in technical review, consideration should be given to additional training and additional co-technical reviews will be assigned.

MODULE 22.0 TECHNICAL REVIEW CHECKLIST

The required reading has been completed:	Date	Trainee's Initials
CLD QOM, 10.6.3	_____	_____

Five co-technical reviews have been completed:

Case Number	Date	Co-technical reviewer
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Date	Trainee's Initials
_____	_____

Technical reviewer feedback reviewed by Technical Lead(s):

Date	Technical Lead's Initials
_____	_____

Additional Comments: _____
_____
_____
_____
_____

23.0 ADMINISTRATIVE REVIEW

23.1 OBJECTIVE

To become eligible to independently perform administrative review of crime scene reports.

23.2 METHODS OF INSTRUCTION

23.2.1 LECTURE AND DISCUSSION

The responder will discuss with each assigned administrative reviewer the process of administrative review. The case record, casefile, and report requirements will be discussed for the given case. The CSRT Technical Review checklist will also be discussed.

Each reviewer may have a different approach for administrative review so the responder will have an opportunity to learn different methods for completing administrative reviews.

23.2.2 REQUIRED READING

CLD QOM, 10.6.5

23.3 MODES OF EVALUATION

23.3.1 PRACTICAL EXERCISE

The responder will be assigned (by the CSRT Manager or designee) five cases as a co-admin reviewer. The cases will begin as less complex and will gradually include more complex cases. The cases will be independently reviewed by the responder and the co-admin reviewer. All findings/observations and questions will be discussed together. At the completion of the co-admin review, the administrative reviewer will compile the comments from both reviewers and present them to the analyst. Written feedback will be provided by the co-admin reviewer to the Technical Lead(s) following each review.

Following the successful completion of five co-admin reviews, written feedback in the form of an IOC will be provided by the Technical Lead(s) to the CSRT Manager recommending the responder for sign-off. If, after the completion of five co-admin reviews, the responder is not proficient in administrative review, consideration should be given to additional training and additional co-admin reviews will be assigned.

MODULE 23.0 ADMINISTRATIVE REVIEW CHECKLIST

The required reading has been completed:	Date	Trainee's Initials
CLD QOM, 10.6.5	_____	_____

Five co-admin reviews have been completed:

Case Number	Date	Co-adminl reviewer
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Date	Trainee's Initials
_____	_____

Administrative reviewer feedback reviewed by Technical Lead(s):

Date	Technical Lead's Initials
_____	_____

Additional Comments: _____
_____
_____
_____
_____