

STATE OF NORTH CAROLINA
OFFICE OF STATE PERSONNEL

POSITION DESCRIPTION FORM (PD-102R-92)

Approved Classification:

Effective Date:

Analyst:

(This space for Personnel Department Use Only)

1. Present Classification Title of Position Forensic Impressions Analyst II	7. Present 15 Digit Position Number	Proposed 15 Digit Position Number
2. Usual Working Title of Position Same	8. Department, University, Commission, or Agency Department of Justice	
3. Requested Classification of Position No Change	9. Institution & Division SBI - Crime Laboratory Division	
4. Name of Immediate Supervisor	10. Section and Unit Latent Evidence Section	
5. Supervisor's Position Title & Position Number	11. Street Address, City and County 121 East Tryon Road, Raleigh; Wake	
6. Name of Employee	12. Location of Workplace, Bldg., and Room No. SBI Laboratory - 2nd Floor	

I. A. PRIMARY PURPOSE OF ORGANIZATIONAL UNIT:

The primary purpose of the SBI Latent Evidence Section is to provide forensic analysis of evidence to all law enforcement agencies within the State. The forensic services provided include in-lab analyses, technical field assistance, and expert witness testimony in the areas of latent print analysis, footwear analysis, tire track analysis, unknown deceased analysis, and other questioned impressions analysis.

B. PRIMARY PURPOSE OF POSITION:

The primary purpose of a Forensic Impressions Analyst II is to perform highly specialized and complex analytical work in the fields of latent print analysis, footwear analysis, tire track analysis, glove mark analysis, unknown deceased analysis, and other questioned impressions analysis. This work is conducted on a broad range of evidence in a broad range of criminal cases. After completing the work, the analyst must prepare and furnish reports of the analysis to all local, state, and federal agencies, both inside and outside of North Carolina, that are involved. As a result of the analysis, the analyst may be required to testify as an expert witness and present a competent and unbiased court presentation to explain and defend his or her findings.

The Forensic Impressions Analyst II works with a great deal of autonomy and is held accountable for the continuing smooth flow of assigned casework. In addition, the Analyst II assists in the training of new analysts in the section, verifies identifications made by other analysts in the section, assists in the utilization of specialized equipment needed to examine complex cases, and provides technical assistance both inside and outside of the section.

C. WORK SCHEDULE:

Regular work hours are from 8:00 AM to 5:00 PM; but after hours work is often necessary and is expected. This position is on call 24 hours a day, 7 days a week.

D. CHANGE IN RESPONSIBILITIES OR ORGANIZATIONAL RELATIONSHIP:

II. A. DESCRIPTION OF RESPONSIBILITIES AND DUTIES:

Method used (Check One): Order of Importance: [X]
 Sequential Order: []

Place an asterisk (*) next to each essential function. (See instructions for complete explanation.) Please note percentage of time for each function.

1. CASEWORK (80%)

LATENT PRINT ANALYSIS

The primary responsibility of this task is to analyze any evidence for the presence of latent impressions originating from fingers, palms, or feet. The analyst must be able to conduct these complex analyses using all methods approved by the section.

The evidence originates from a number of sources:

- A) Evidence collected from crime scenes and submitted directly to the analyst by local, state, and federal law enforcement agencies.
- B) Evidence needing this type of analysis that was previously analyzed in other areas of the crime laboratory.
- C) Evidence collected and preserved at a crime scene by the analyst himself/herself.

In each case, the analyst must first review the items of evidence in order to make an independent decision as to what type of analysis is required. The decision is based on the types of substrates that are present and the methods of analysis presently approved for use by the analyst. Failure to make the proper decision will result in the loss of valuable evidence.

In cases involving impressions of marginal quality, the analyst will utilize image processing techniques in an effort to bring the analysis to a successful conclusion.

Based on the analyst's extensive expertise, experience, condition of the evidence, and his/her knowledge of the reactions of the various methods, he/she must properly apply these methods in an attempt to obtain any/all latent impressions which may be present on an item of evidence.

The decision as to what methods to utilize is a completely independent decision made by the analyst.

As previously stated, failure to utilize properly the most appropriate method, or inadvertently using the wrong sequence of methods, can render the evidence useless. The responsibility for safeguarding against this loss lies solely with the analyst.

The analyst must be totally aware during all phases of the analysis of the potential to have the evidence examined in another discipline (i.e. serology, trace evidence, firearms, questioned documents, or drugs). The analyst has total responsibility for ensuring that his/her analysis will not adversely affect other attempts at analysis.

The analyst is responsible for making recommendations to requesting officers when a decision must be made regarding the potential loss of other forms of evidence in the search for latent impressions.

The task of analysis is further carried out by conducting very detailed examinations of the minutiae in the questioned latent impressions using magnification or optical comparators.

Questioned latent impressions originate from a variety of sources:

- A) Latent impressions recovered by the analyst from evidence in the laboratory;
- B) Collected from crime scenes by the analyst; and/or
- C) Submitted directly to the analyst by local, state, and federal law enforcement agencies.

The analyst must be capable of conducting both manual and automated examinations of known and questioned impressions in order to determine whether or not the prints could have had a common origin (i.e. were made by the same individual).

In each case, the analyst must conduct a very detailed macroscopic examination of each latent impression so he/she can make an independent decision regarding the comparison value of the impression. Failure to render the correct opinion at this stage will result in the loss of this evidence, which could have been used to successfully prosecute a criminal offender. Failure to evaluate the evidence with 100% accuracy could also delay the apprehension of a criminal offender, allowing other crimes to be committed. This is a strictly independent decision made by the analyst based on his/her extensive expertise.

In most cases, the analyst must conduct detailed manual examinations and comparisons to determine if the latent impression and any of the known standards of fingers, palms, or feet had a common origin. Known standards usually originate from the hard copy files located in this agency or outside agencies, and are submitted directly to the analyst. Occasionally, the analyst will be required to personally obtain known standards from the suspect or victim.

Failure to identify latent impressions with known standards will result in the problems previously discussed. More important, however, are the results of identifying latent impressions with known standards when in fact they are not of common origin (i.e. erroneous identification). This error may result in an innocent person being incarcerated, and perhaps prosecuted, for an offense that he/she did not commit.

For these reasons, 100% accuracy is required in all phases of the analyst's work.

In the event that the manual examination does not result in an identification, the analyst must be capable of conducting an automated search.

This requires an in-depth knowledge of the computer system because failure to properly interpret the minutiae data utilized by the computer will result in a missed identification.

As a result of the computerized search, the analyst is provided with a number of sets of known standards. These standards are in the form of known inked fingerprint impressions of criminal offenders.

The computerized system utilized in this process is the Automated Fingerprint Identification System (AFIS).

Following the computerized search, the analyst uses the set(s) of known standards to conduct a comparison with the questioned impressions. Each impression must be meticulously scrutinized to allow the analyst to make an independent decision as to whether or not the questioned impression and any of the known standards have a common origin.

The results of all analyses performed are incorporated into written reports which may form a basis for some legal proceedings. The results of the examination are reported to the investigator(s) and the District Attorney.

Peripheral casework includes the evidence custody requirement of marking, cataloging, and receipting items of evidence being examined, and maintaining very accurate records of analyses performed. Failure to do this could result in the evidence being ruled inadmissible in court, thus jeopardizing the entire case.

FOOTWEAR ANALYSIS

Other casework includes analyzing questioned footwear against known footwear standards. This is very specialized analytical work. These questioned impressions may be on glass, tile, paper, wooden flooring, in sand, in dirt or mud, snow, in rugs or carpeting as dust impressions, and many other surfaces.

The analyst must be aware of the different manufacturing processes of footwear, and must also be familiar with the hundreds of different sole designs. Factors such as wear characteristics, cuts, nicks, striations, and manufacturing characteristics must be taken into consideration when rendering an opinion.

In order to complete the analysis of footwear, the analyst must be proficient in the use of accurate measuring devices. In addition, specialized photographic equipment, laser instrumentation, and various other aids (e.g. casting mediums, powders) are utilized to detect and recover impressions or produce known footwear standards.

The analyst must be able to comprehend and utilize biological facts concerning the structure of the foot and its affect on footwear impressions. Also, the analyst must be able to comprehend and utilize facts concerning the manufacturing of footwear and its affect on footwear impressions.

Many of the chemical development methods, laser and light source methods, and image processing methods that are used in latent print analysis are also utilized in the examination of footwear impressions. The analyst must be aware of and proficient in all applications.

The analyst must be proficient in the use of the Shoeprint Image Capture and Retrieval (SICAR) computer system. This system is used to capture and code footwear impressions for storage in a reference database. Questioned footwear impressions can be searched through this reference database in an attempt to identify the brand of shoe which made the impression.

The results of all analyses performed are incorporated into written reports which may form a basis for some legal proceedings. The results of the examination are reported to the investigator(s) and the District Attorney.

Peripheral casework includes the evidence custody requirement of marking, cataloging, and receipting items of evidence being examined, and maintaining very accurate records of analyses performed. Failure to do this could result in the evidence being ruled inadmissible in court, thus jeopardizing the entire case.

TIRE TRACK ANALYSIS

Other casework includes analyzing questioned tire track impressions against known tire standards. This is also very specialized analytical work. These questioned impressions may be on glass, paper wooden surfaces, in sand, in dirt or mud, snow, on bodies, and many other surfaces.

The analyst must be aware of the different manufacturing processes of tires and must also be familiar with the hundreds of different tread designs. Factors such as wear characteristics caused by alignment problems in the vehicle (camber, toe in and toe out, etc.), cuts, nicks, and manufacturing characteristics must be taken into consideration when rendering an opinion.

In order to complete the analysis of tire track impressions, the analyst must be proficient in the use of accurate measuring devices. In addition, specialized photographic equipment, and various other aids (e.g. casting mediums, powders) are utilized to detect and recover impressions of produce known tire track standards.

The analyst must be able to comprehend and utilize facts concerning the alignment of the vehicle and its affects on the tire track impressions.

Many of the chemical development methods, laser and light source methods, and image processing methods that are used in latent print and footwear impression analysis are also utilized in the examination of tire track impressions. The analyst must be aware of the and proficient in all applications.

The analyst must be able to use the Tread Assistant computer database in order to search for and identify the manufacture and type of tire that could have made a particular impression at a crime scene. This database consists of images of virtually every tire manufacturer in the world.

The results of all analyses performed are incorporated into written reports which may form a basis for some legal proceedings. The results of the examination are reported to the investigator(s) and the District Attorney.

2. CALIBRATION AND MAINTENANCE OF SPECIALIZED EQUIPMENT (10%)

A) ARGON-ION LASER

Responsible for all calibration and maintenance of the section=s argon-ion laser. This includes most of the repairs on the instrument, the cleaning of all the optical lenses, the changing of all the filters, and the daily fine tuning of the laser beam. Also, must be able to troubleshoot any problems that arise with the laser, and be able to correct these problems in a timely manner so that the section=s case work flow will not be hampered.

B) CYANOACRYLATE VACUUM CHAMBER (CYVAC)

Responsible for the maintenance of the section=s CYVAC. This includes the periodic lubricating and cleaning of the instrument, and the re-building of the units vacuum pumps when necessary. Also, must be able to troubleshoot any problems that arise with the CYVAC, and be able to correct these problems in a timely manner so that the section=s case workflow will not be hampered.

3) SHOEPRIINT IMAGE CAPTURE AND RETRIEVAL (SICAR) SYSTEM

Responsible for the overall operation of the Shoeprint Image Capture and Retrieval (SICAR) system. This entails having a thorough knowledge of all aspects of the system, ensuring that the system is operating as designed, and troubleshooting any problems that may arise.

3. COURT TESTIMONY (3%)

As a result of any analyses performed, the analyst may be required to testify as an expert witness and present a competent and unbiased court presentation to explain and defend his or her findings. This involves:

- A) Being qualified each time as an expert witness based on knowledge, experience, and current proficiency;
- B) Providing direct testimony which, as an expert witness, means providing the courts with an opinion based on the individual=s proven forensic judgement;
- C) Securing the credibility of this testimony under cross examination, which may involve the use of opposing Aexperts@;
- D) Related travel, preparation of court exhibits, and the review of casework.

4. TECHNICAL FIELD ASSISTANCE (3%)

The analyst may be called upon to process major crime scenes for the presence of latent print impressions and footwear impressions. This will usually involve the utilization of chemicals and sophisticated instruments (e.g. alternate light sources) that are not widely available for use by other agencies. All evidence that cannot be analyzed at the scene is brought back to the laboratory, where it can be processed under controlled conditions utilizing techniques that are impossible to use or are prohibited at crime scenes. Following this analysis, a written report describing in detail what occurred at the crime scene must be submitted in addition to a report dealing with evidence analysis.

5. IDENTIFICATION OF UNKNOWN DECEASED (2%)

An additional part of the task of casework involves the identification of unknown deceased individuals through the use of friction ridge formations on the fingers, palms, or soles of the feet.

Evidence is usually received from the Office of the Chief Medical Examiner in the form of severed hands and feet. This evidence is received in varying degrees of decomposition.

The analyst produces questioned impressions of the hands or feet using various methods. Photography, casting, surgical removal of layers of skin, and recording the ridge detail with ink are some methods employed in this analysis.

The questioned impressions are most often of poor quality, and a meticulous comparison must be made with known standards (supplied by local, state

, and federal law enforcement agencies) to determine whether or not the prints could have had a common origin (i.e. were made by the same individual).

The results of all analyses performed are incorporated into written reports which may form a basis for some legal proceedings. The results of the examination are reported to the investigator(s) and the District Attorney.

Peripheral casework includes the evidence custody requirement of marking, cataloging, and receipting items of evidence being examined, and maintaining very accurate records of analyses performed. Failure to do this could result in the evidence being ruled inadmissible in court, thus jeopardizing the entire case.

6. OTHER (2%)

On occasion, the analyst will be required to perform analysis on

glove marks and other questioned impressions. These analyses are held to the same standards as latent print analyses and footwear analyses

Conferences with the section supervisor are a necessary part of this position. Often, the analyst is required to provide input into the budget preparation, instrument purchases, ordering of supplies, and instrument repair. Other related duties are performed as required.

III. A. OTHER POSITION CHARACTERISTICS:

1. ACCURACY REQUIRED IN WORK

The need for precision, accuracy, and exactness are 100% and can not be over-emphasized. Each case and each examination can determine the fate of an individual or the successful investigation of a serious crime.

2. CONSEQUENCE OF ERROR

An incorrect identification, missed identification or a judgment with too low a level of confidence can convict an innocent person or set a guilty suspect free. Failing to accurately identify a guilty suspect can lead to additional crimes and, in worst cases, to the loss of life of an additional victim(s).

3. INSTRUCTION PROVIDED TO EMPLOYEE

Employee functions with considerable autonomy, and receives no regular instructions for daily work performed. The Analyst II possess an advanced knowledge of the scientific principles/practices/ procedures related to the area of expertise.

4. GUIDES, REGULATIONS, POLICIES AND REFERENCES USED BY EMPLOYEE

Preparation and application guidelines for most technical procedures are outlined in lab manuals. Other guidelines may include instrument handbooks, agency policy, laws and regulations and other reference files. New developments may appear in technical reference materials and journals and can be utilized as a basis for bringing new methods of analysis to the attention of superiors.

5. SUPERVISION RECEIVED BY EMPLOYEE

Employee functions with a considerable degree of autonomy. Planning of daily and weekly work within the parameters established by agency and section policy is the responsibility of the Analyst II. Technical supervision is provided in only rare cases.

6. VARIETY AND PURPOSE OF PERSONAL CONTACT

The position is routinely in contact with persons both inside and outside of state government. Sources of contact include:

- a. Other SBI personnel
- b. Other state level law enforcement officers
- c. State court officials (including District Attorneys)
- d. State Medical Examiner's Office staff
- e. City and county law enforcement officers
- f. Federal court officials
- g. Professionals in academic and scientific organizations
- h. Defense attorneys/opposing experts
- i. Victims/Witnesses
- j. Business professionals (vendors, etc.)

7. PHYSICAL EFFORT

With the exception of crime scene activities, physical effort is generally minimal.

8. WORK ENVIRONMENT AND CONDITIONS

Working conditions are usually a laboratory or office setting but will include court rooms and crime scenes of all types.

The employee is subject to irritant and hazardous chemicals, eye strain, and occasionally exposure to biological hazards at crime scenes, when identifying deceased individuals and also when examining bloody evidence.

9. MACHINES, TOOLS, INSTRUMENTS, EQUIPMENT, AND MATERIALS USED

Laboratory Model Argon Ion Laser (Coherent)
Dye Laser (599-01)
Stat Camera
4x5 Cameras
35mm Cameras
Omniprint 1000, Spectrum 9000 and Crimescope (specialized light sources)
Spectroline UV (short wave light source)
Ardrox UV (long wave light source)
Xenon Arc Lamp
Forensic Macroscopic Comparator
Forensic Macroscopic Magnifier
CU5 and MP4 Polaroid Cameras
Vacuum Metal Deposition
Digital Image Processing System (Computer Enhancement)
Electrostatic Dust Print Lifter
Precision Calipers
Automated Fingerprint Identification System

Shoeprint Image Capture and Retrieval (SICAR) System
Tread Assistant tire track database
Personal Computer

10. VISUAL ATTENTION, MENTAL CONCENTRATION AND MANIPULATIVE SKILLS

When conducting analysis, 75 - 80% of the analyst's work each day requires close visual attention. Each examination may take from several minutes to several hours depending upon the quality of the evidence submitted.

Intense mental concentration is necessary when comparing the questioned evidence to the known standards. Periods of intense concentration occur daily for several hours.

11. SAFETY FOR OTHERS

Use of laser instrumentation, toxic/volatile chemicals, and known or suspected carcinogens must be closely controlled to safeguard against injury to self or others.

Care must be taken to appropriately re-package potentially contaminated evidence to keep from exposing others to disease causing factors.

12. DYNAMICS OF WORK

The analyst has no control over the amount of casework submitted and periods of heavy workload and mounting deadlines exist routinely. In addition, the methodology and technology related to the analysis of questioned impression evidence are changing constantly. The analyst must maintain a constant awareness of these changes.

When necessary, specialized instrumentation must be maintained and repairs effected or repair calls must be scheduled. This could occur at any time and require the analyst's immediate attention.

At times, special projects are assigned that may supersede the analyst's regular work assignments.

IV. KNOWLEDGE, SKILLS & ABILITIES AND TRAINING & EXPERIENCE REQUIREMENTS

A. KNOWLEDGE, SKILLS AND ABILITIES

1. A working knowledge of the methods, procedures and practices used in the investigation of criminal offenses, and of the principles of securing and identifying a variety of crime related evidence.

2. The ability to investigate a variety of criminal cases, to interpret and apply criminal laws of North Carolina in investigations, to make arrests, to prepare comprehensive and detailed reports pertaining to individual cases, to present effective court testimony, and to apply the principles, techniques and procedures of modern criminal investigation.
3. The ability to use firearms and tools and equipment involved in evidence collection and preservation effectively.
4. The agent must be in and maintain a physical condition which permits certification by the North Carolina Justice Standards Commission for law enforcement officers.
5. Extensive knowledge of the principles, concepts, theories, reference sources and laboratory practices involved with the forensic examination and analyses of friction ridge detail, shoe track impression evidence, tire track impression evidence, and other questioned impression evidence.
6. Working knowledge of scientific methodology and of laboratory safety practices.
7. Ability to conduct analyses in the more difficult and complex cases involving the comparison of very minute and detailed differences in impressions using various instrumentations.
8. Ability to assist in the administration of specialized technical training to other Forensic Analysts.
9. Ability to conduct routine chemical procedures, analyze results, interpret methodology and to solve theoretical problems.
10. The ability to work productively with laboratory personnel and other law enforcement personnel.
11. Ability to express technical information clearly, both orally and in writing. To perceive colors normally, make olfactory distinctions, and to establish and maintain effective working relationships.

B. 1. REQUIRED MINIMUM TRAINING

Graduation from a four-year college or university, preferably with a major in forensic science, forensic studies, biology or chemistry.

Four years of progressive laboratory experience directly related to the forensic analysis of questioned impression evidence.

2. ADDITIONAL TRAINING/EXPERIENCE

Satisfactory completion of the SBI Academy including state mandated BLEET - or equivalent to meet state certification standards.

3. EQUIVALENT TRAINING AND EXPERIENCE

May be considered.

C. LICENSE OR CERTIFICATION REQUIRED BY STATUTE OR REGULATION:

Each SBI Agent is a certified law enforcement officer and meets those standards set by the Justice Standards Commission.

V. CERTIFICATION: Signatures indicate agreement with all information provided, including designation of essential functions.

Supervisor's Certification: I certify that:

- a. I am the Immediate Supervisor of this position; that
- b. I have provided a complete and accurate description of responsibilities and duties; and
- c. I have verified (and reconciled as needed) its accuracy and completeness with the employee.

Signature:

Title:

Date:

Employee's Certification: I certify that I have reviewed this position description and that it is a complete and accurate description of my responsibilities and duties.

Signature:

Title:

Date:

Section or Division Manager's Certification: I certify that this position

description, completed by the above named immediate supervisor, is complete and accurate.

Signature:

Title:

Date:

Department Head or Authorized Representative's Certification: I certify that this is an authorized, official position description of the subject position.

Signature:

Title:

Date:
