STATE OF NORTH CAROLINA

OFFICE OF STATE PERSONNEL

POSITION DESCRIPTION FORM (PD-102R-92)

APPROVED

EFFECTIVE

ANALYST:

CLASSIFICATION:

DATE:

(This space for Personnel Department Use Only)

1. Present Classification Title of Position
Forensic Molecular Geneticist I

2. Usual Working Title of Position
Forensic Molecular Geneticist I

3. Requested Classification of Position

4. Name of Immediate Supervisor
Michael J. Budzynski

5. Supervisor's Position Title & Position Number
Mol. Gen. Supervisor 3613-0000-0002-100

6. Name of Employee

7. Pres. 15 Digit Pos. No. | Prop. 15 Digit Pos. No.

8. Department, University, Commission, or Agency
Department of Justice

9. Institution & Division
State Bureau of Investigation

10. Section and Unit
Molecular Genetics Section

11. Street Address, City and County
121 East Tryon, Raleigh Wake County

12. Location of Workplace, Bldg., and Room No.
Crime Lab Bldg, Room 2250 V-V

I. A. PRIMARY PURPOSE OF ORGANIZATIONAL UNIT:

The primary purpose of the Molecular Genetics Section is to accept, find, preserve and analyze evidence in criminal cases for the presence and source of body fluids and to report these findings to requesting Law Enforcement officers and to the courts.

B. PRIMARY PURPOSE OF POSITION:

The primary purposes of this position include:
- Analyzing evidence to determine the presence of blood and/or other body fluids.
- Maintaining chain of custody on evidence and preparing laboratory reports stating the results of analysis.
- Testifying to the laboratory and/or crime scene results in court.

C. WORK SCHEDULE:

171 hours/28 day cycle. The regular work hours are from 7:00 am to 4:00 pm. All agents are on call 24 hours a day, seven days a week to handle crime scenes or court testimony anywhere in the state. Most agents work over the 171 hours a pay cycle. Crime scene work may last several days with little opportunity to rest.

D. CHANGE IN RESPONSIBILITIES OR ORGANIZATIONAL RELATIONSHIP:

The nature of work performed by the Section has been transformed by the rapidly evolving field of DNA technology. No longer does the Section perform conventional serological or biochemical test methods, but now uses methods based on molecular genetics. The new methods employed are faster and results obtained are more specific; thereby enhancing the overall effectiveness of the work product produced by the Section. In order to perform these newly acquired forensic DNA tests, each member of the Section has had to accept new requirements for training and education (including graduate course work in Molecular Genetics) imposed by the Agency, our accrediting agency, and new national standards promulgated by the 1994 DNA Identification Act of the US Congress. In recognition of the changing nature of the work, new required training/skill levels, and to more productively mesh skill levels with tasks, the Section has been reorganized into three teams.

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.

Time	Description of duties
***a. 70%**	**- Analyzing evidence to determine the presence of blood and/ or other body fluids on Molecular Genetics cases with particular emphasis on the analysis of no-suspect rape kits. The Analyst will then compare DNA profiles obtained from these no-suspect rape kits to those contained on the CODIS database system**

The day-to-day lab work of a Forensic Molecular Geneticist involves the examination of articles of evidence for the presence of blood or other body fluids such as semen and saliva (often contaminated with sweat, urine, fecal material, or vaginal fluid), the identification of the body fluid and its species origin. This analysis involves screening large amounts of evidence from multiple sources for the presence of a body fluid and then determining its evidentiary value in the case.

Semen/Saliva Analysis

Semen identification starts with screening suspected stains by the acid phosphatase test. Confirmation consists of microscopic identification of spermatozoa using a differential stain procedure on an extracted sample of suspected stain on a microscope slide. This is then viewed at high magnification on a microscope. In the absence of spermatozoa, another confirmatory test, ABACard p30, is used to identify semen.

Saliva testing involves testing for elevated levels of amylase, which is an indication of, but not specific for saliva. This is performed with commercial test kits on a stain extract and compared to a visual table of known positives or read at 620 nm on a spectrophotometer.

The analysis of rape kits will be a major part of the work load for this position. “No-suspect” rape kits will be submitted to the SBI Laboratory to be analyzed and any resulting DNA profiles from possible suspects will be checked against the database of convicted offenders maintained by the SBI. Any DNA profile matches obtained will involve followup by the analyst for confirmation and probable cause for arrest.

Forensic DNA analysis

Forensic DNA analysis using the PCR STR method involves basically a five-step process. The first step in this process is the isolation and purification of DNA from evidentiary samples as well as known standards. Because of the extreme sensitivity of this DNA technology, great care must be exercised to ensure that there is no cross contamination between any forensic samples. For this reason, the DNA extraction procedure for the evidentiary samples is separated by time and/or space from the known standards. Also, each piece of evidence is placed into its own separate test tube and the entire procedure is performed using strict aseptic techniques. To the perform the DNA extraction, chemicals are added to the samples which break open the cells releasing the DNA into solution. The DNA for each sample is concentrated using a membrane filtration system.

Quantitation of extracted DNA is required using a slot-blot apparatus. Chemiluminescent technology is utilized to effectively determine the amount of human DNA present. This process involves taking extracted DNA from known and question samples and fixing them to a membrane through a slot-blot apparatus. The apparatus uses a vacuum to pull the sample through a well and onto a membrane. Once the DNA is on the membrane, it is probed with a human specific probe and treated with a luminescent chemical. After the luminescent chemical is modified, it will release energy in the form of light and be detected on x-ray film. The x-ray film is developed in a large film processing machine. The relative signal strength of the image compared to known

standards allows the quantitation of DNA to be performed.

Small sequences of the DNA are then copied utilizing the polymerase chain reaction process. Polymerase change reaction (PCR) is a laboratory processes where small regions of DNA are copied millions of times. The regions that are copied are called Short Tandem Repeats (STRs). To perform PCR, the DNA samples are mixed with specific primer sequences of DNA that are flourescently tagged, enzyme, and buffer, and amplified using thermocyclers. The thermocycler acts as a molecular Xerox machine for the DNA. The thermocycler must be programed for different temperatures and times in order to accomplish the copying process. Essentially, the DNA is "unzipped' and the primers attach to the DNA. The enzyme in the reaction mixture then allows a copy of the DNA to occur. The result is millions of copies of the DNA that is specific to the primers.

Following PCR, the amplified DNA is separated by size through a process known as electrophoresis. Electrophoresis is the separation of charged particles in an electric field. A polyacrylamide gel is prepared with wells formed in one end into which the forensic samples are injected. When placed into an electric field, the DNA fragments present in these wells separate by size forming banding patterns. Also, this step may be performed using high throughput instrumentation which should be validated and on-line by January 2003.

The generation of data for interpretation of the DNA samples requires the use of laser imaging equipment and extensive computer programs to evaluate the profile and compute statistical calculations. First, the DNA in the gel is then analyzed on a FMBIO gel scanner (this step may also be performed using the high throughput instrumentation). The polyacrylamide gel containing the flourescently-labeled DNA fragments is placed in the scanner and the laser driven fluorescent imaging equipment scans the gel and produces an image of the DNA banding patterns in the gel. The image may be further analyzed using advanced Hitachi software. The computer compiles the data and assigns allelic values to the DNA banding patterns as well a determines the relative intensity of each band. This computer analysis aids the analyst in determining stutter (a PCR artifact), band intensity differences that aids in the determination of mixtures, and allelic values of microvarients and off-ladder varients. After computer analysis, the allelic designation for each STR locus is determined for each sample by the analyst, independent of the computer. From the results of the analysis, a match/non-match determination is made. If a match of a forensic sample to a known individual is made, the allelic designation are entered into complex computer programs that enable the analyst to estimate the frequency of the particular DNA profile in the population and enter the DNA profile into the Combined DNA Indexing System (CODIS) for comparison with DNA profiles from other cases and from convicted offenders within the State and across the United States. If there is a non-match between a forensic sample and a known sample, then the CODIS system is used to perform a search for a matching profile in the SBI DNA Database.

Blood analysis

Blood analysis involves several steps:

Visual examination of articles of evidence such as clothing, weapons, vehicles, and household objects reveal blood as stains or crusts. Various lighting conditions or microscopy may be used.

Preliminary testing is done with the phenolphthalin test on a rubbing of a suspected area. The analyst must also have a knowledge of other current and historical tests serving a similar purpose, including the benzidine, ortho-tolidine, chloromazine, leuco malachite green, tetramethyl-benzidine, and peroxide tests.

Stains testing positive with the preliminary test is confirmed as human blood with the ABACard HemaTrace test which involves reacting a small eluate of sample with a commercially prepared substrate involving an antigen antibody reaction. Blood can be confirmed using a microcrystalline test known as the Takayama test, which involves reacting a small amount of material on a microscope slide with freshly made reagent to obtain hemochromogen crystals, viewed under a microscope. Species origin can be determined by reacting an extract of the sample with commercially prepared antisera in the Ring Precipitin or Ouchterlony tests. The analyst must be knowledgeable of other tests such as cross-over electrophoresis and radio-immuno assay. Testing for animal blood is routinely done on wildlife protection cases and hit-and run cases.

If the stain is of human origin, the analyst then determines if the evidence meets the DNA case acceptance policy or is sent back to the investigating agency.

Additional Information

The analyst must be knowledgeable of over 2000 scientific papers regarding the analysis and typing of blood and body fluids, both to have a thorough background and to withstand cross-examination in court. She must also be aware of assorted legal decisions and requirements on both analysis and chain of custody. Her expert status must be recognized by each court in order to testify; based on her background and training. She must conduct her analysis essentially independently, subject only to review of her notes and reports, but not of the actual work involved.

The analyst's report and findings are used routinely for police investigations, and for court by both prosecution and defense. 100% accuracy is required or justice is compromised, letting a guilty suspect go free to the detriment of public safety or sending an innocent one to jail. Often the analyst's work is the one and only determining factor in an investigation or trial.

*** b. 14% -Maintaining documentation of chain of custody, quality control and reports stating the results of analysis.**

Chain of Custody

The Forensic Molecular Geneticist must maintain the chain of custody by careful and accurate documentation to ensure the admissibility of the evidence in a court of law.

Chain of custody is a legal term which applies to the accounting of all the successive steps involved in the handling of a specimen from the time of collection to the time of trial. This process includes four major steps (1) the initial possession of the specimen or object; (2) transport to the laboratory; (3) the method of storage at the laboratory prior to analysis; and (4) possession of the unused portion of the specimen or object after analysis and up to the time of trial.

Maintenance of the chain of custody includes the following duties which the Forensic Molecular Geneticist must be able to perform.

A. Note taking, sketching and/or photographing of the location of blood spatters, luminol reactions, visible blood and various articles of evidence at the crime scene.
B. Proper packaging and identification of any evidence collected from the crime scene.
C. Signing the Request for Examination form and providing the submitting officer a copy as a receipt if evidence is delivered to the lab.
D. Noting the condition (sealed or unsealed) and how the evidence is received at the lab if not hand delivered (FCM, Certified, UPS).
E. Identification of the evidence submitted by marking the case number, item number, date received, analyst's initials or other marks of identification on the packaging and/or container as well as the item.
F. Providing proper storage (refrigeration for blood) and security for evidence while in the lab.
G. Recording the transfer of evidence within the lab by computer records.
H. Ensuring the correct lab report and evidence are returned to the submitting officer in a sealed and secure manner.

Laboratory records

The Forensic Molecular Geneticist must maintain records in the lab which provide information about the evidence submitted to the laboratory, procedures and methods used in analysis of the evidence and quality control of these procedures and methods.

A. Note taking - Forensic Molecular Geneticist must maintain detailed notes describing the physical characteristics of the evidence submitted (color, size), the location of various stains and the general condition of the evidence submitted (contamination and deterioration). The Molecular Geneticist must denote which stains are to be tested (location and number) and also the control areas on the article of evidence. The specific test performed, number of areas

tested and results of the test must be recorded. All tests performed must be done in accordance with the methods and procedures as outlined in the Molecular Genetics Section Procedure Manual. The Molecular Geneticist uses the notes she has prepared to refresh her memory in preparation for court testimony. The Molecular Geneticist's notes are subject to being taken and reviewed by court officials and may be entered into evidence.

B. Quality Control - Records must be maintained which document that the tests were performed under the appropriate conditions (pH, time, voltage), that the reagents used in the performance of these tests worked correctly and that the control samples gave the correct results. Temperature charts on incubators, refrigerators and other equipment are also maintained.

Report Writing

The Forensic Molecular Geneticist is responsible for writing laboratory reports and crime scene investigation reports which can be drawn from the analyses.

A. Crime Scene Investigation Reports - The Forensic Molecular Geneticist prepares a report describing certain observations made at the scene of a crime. These observations may include blood spatter interpretations, luminol reaction interpretations, or usual observations of the placement of certain blood stains. Crime scene reports oftentimes include sketches and photographs in addition to narration which provide useful information that the investigating officers may use in attempting to reconstruct what occurred at the scene of the crime. These reports also make note of any evidence which is collected by the Molecular Geneticist to be later analyzed in the laboratory. Copies of these reports are sent to the investigating officers and district attorneys and serve as an official document which may be introduced as evidence in court proceedings.

B. Laboratory reports - Laboratory reports serve as official documents which state what evidence was submitted to the lab, what type of analysis was requested, the results of the analysis, and the disposition of the evidence. Copies of these reports are sent to submitting officers and district attorneys. The Molecular Geneticist uses this report during oral testimony in a court trial.

***c. 7% -Communicating with public officials.**

Public contact

Public contact requirements are an important part of this position. The analyst must project a professional image in dealing with the public, law enforcement officers and attorneys by telephone, written communications, and in person. This analyst is often times required to contact officers to gain and or clarify pertinent information for analysis purposes. She meets with officers at crime scenes and when accepting evidence; she advises court officials on the science, results, and importance of her work; she represents the Bureau at public speaking engagements such as civic clubs, professional organizations, and scientific meetings. She must be courteous and aware of the legal consequences and Bureau policy when dealing with defense attorneys. Even when not on official business, her conduct and demeanor must be tempered to reflect positive on the Bureau and her profession. She is never "off duty "; she is never just a private citizen; she must at all times be ready to act as an officer and present the proper image of the State Bureau of Investigation.

*** d. 5% -Testifying to the results in court.**

Court

Oral testimony in these actions is considered to be one of the most important responsibilities. Opinion testimony is given to the court as to the examiner's findings from analysis of evidence submitted to the laboratory and/or of evidence located, collected and preserved from crime scenes (See section IV). Approximately 5% of the Molecular Geneticist's time is used to fulfill the obligations associated with the preparation, organization, and presentation of testimony in a trial. An examiner's participation in these proceedings may average from 12 to 36 times yearly and may require an examiner to be in court from one half of a day up to one week before being released from a subpoena.
An examiner is subpoenaed almost daily to appear or to be placed on standby for court throughout the State of North Carolina.

This often requires the examiner to respond on short notice to appear in court several hundred miles from the Raleigh headquarters. Occasionally, an examiner must drive to two different locations in one day to give testimony in separate trials. The examiner must possess the ability to present scientific data accurately and possess the ability to withstand intense cross examination during these proceedings. Testimony must be presented in a professional, believable, and understandable manner.

Assistance is rendered to court officials by providing information and opinions in pretrial conferences which may occur either by telephone or in person. The information supplied during these pretrial conferences is used by the prosecutor or defense attorney to prepare his case for court. Visual aids are frequently made by an examiner to illustrate crime scene diagrams or to list results of laboratory analyses for presentation to the jury. This position also requires knowledge of the rules of evidence as it applies to testimony, court proceedings and in grand jury testimony. As an expert witness, the examiner is also called upon to assist the prosecutor in formulating questions to be used in the cross examination of witnesses on the stand.

The court must qualify an individual as an expert in the field of forensic molecular genetics before expert testimony may be given. An examiner testifies in criminal cases ranging from a simple breaking and entering case to serious felony cases involving rape and murder. To that end, the testimony given by an examiner can directly corroborate or impeach statements of suspects or victims, thus impacting the administration of justice by the North Carolina court systems. The misrepresentation of testimony can deprive an innocent person of their liberty, or can cause a guilty party to go free.

As expected, court regularly interferes with the completion of casework, attendance of scheduled professional schools and meetings, as well as with personal and family arrangements (scheduled vacation or other plans). This particular aspect of this position requires an individual to be highly flexible with any outside commitments and/or family.

***f. 3% -Maintaining professional standards through training.**

Training :

Every Molecular Geneticist must complete an extensive, in-house training program conducted in the lab. This involves lecture material, demonstrations, practice runs, supervised runs, reading the literature, written tests, and proficiency tests. The tests must be passed with 100% accuracy. After being trained in the various sections of molecular genetics, the trainee then works select cases under close supervision. At a level I position, the Molecular Geneticist works non-homicide cases and at a level II position, they work the most complex cases and all homicides.

Each Molecular Geneticist is a Special Agent in the SBI and therefore, must complete the same training that is required of the field agents. They must attend a 16-22 week advanced SBI Academy, at Salemburg, N.C.. They are instructed in law, firearms, self defense, physical fitness, laboratory analysis, field investigations, and undercover work. They must live in a dormitory in Salemburg during the week and be available for assignments 24 hours a day. Following the SBI Academy, 6 weeks are spent training in one of the districts as a Field Agent. This involves interviewing victims/witnesses, interrogating suspects, marijuana eradication, surveillance, arson investigation, crime scene investigation and other related duties.

It is important to keep current in both legal and scientific literature since both are constantly changing. Every year there is in-service training for all agents. Also, everyone must qualify with their handgun once a year and is given the opportunity to shoot two times a year.

Every Molecular Geneticist attends at least one professional meeting a year. Someone always attends the Southern Association of Forensic Scientists meeting and the Mid- Atlantic Association of Forensic Scientists meetings which keep this laboratory in touch with other state labs. Workshops and conferences are also attended in order to keep the section current with the changing technology.

Since the technology used within in the Molecular Genetics Unit is changing to DNA typing, each Molecular Geneticist is required to have the following courses at NCSU or an equivalent to maintain their employment:

Genetics
Biochemistry

Graduate Level Biochemistry and Molecular Genetics (Gen. 501 and 502)
Graduate Level Molecular Biology (Gen 560 or 561)
These requirements are in addition to having a bachelors degree in a biological science.

***g. 1% -Assisting in crime scenes.**

Crime Scene Investigation

As an "on-call" law enforcement officer, the Forensic Molecular Geneticist must be prepared to travel state-wide, on very short notice, in order to offer laboratory assistance in the field at a crime scene to any requesting law enforcement agency. The assistance requested may require on site collection of visible blood, interpretation of blood spatters present, chemically searching with luminol for invisible traces of blood, searching for and collecting seminal or blood stains, and collecting standards from suspects. The Molecular Geneticist must take good field notes and have the ability to draw sketches and take photographs in order to produce an accurate final written report of the crime scene investigation. Knowledge of the laws concerning search and seizure are necessary when the Molecular Geneticist is requested to either assist in writing a search warrant application prior to a crime scene search or actually collect articles of evidence from the scene or the suspect's person.

Collecting of body fluids:

A visual examination of the crime scene may reveal stains which appear to be blood or seminal fluid. On site preliminary field tests may be conducted, and if these results are positive , then the stain may be collected by cutting the material, absorbing the stain onto sterile swabs with distilled water, or seizing the entire article as evidence. Notes must be taken to identify the relative location from which the evidence was taken, the date and time, and the initials of the individual who collected the evidence. The evidence must be air dried, then properly packaged, sealed, identified, and secured for transport to the laboratory for further analyses by the Molecular Geneticist.

Blood Spatter Interpretation :

Request to examine the pattern(s) of visible blood stains at the crime scene are sometimes asked of the Molecular Geneticist in order to reconstruct the scenario which occurred for the officers. Valuable information concerning the direction and velocity of travel of the blood and the height and shape of the spatters may aid in corroborating statements by witnesses.

Search and Seizure :

Prior to conducting a crime scene search for evidence, legal jurisdiction and documentation must be established. Primarily, these steps are attended to by the requesting officer. The Molecular Geneticist, however, may be asked to assist in writing the search warrant application for the specific evidence to be obtained.

Likewise, prior to the collection of items or known samples being taken from the victim or suspect, legal jurisdiction and documentation must be obtained. Often, the Molecular Geneticist is consulted as to the specific methods to document and/or collect samples. The Molecular Geneticist must maintain current knowledge of the fast changing laws concerning the search and seizure of evidence so as not to jeopardize the admissibility of the evidence in court.

A portion of the visual search of the crime scene may include an extensive examination in more than one location for articles of clothing, cleaning cloths, weapons, stains on car seats or in trunks, etc. which field test positive for body fluids relative to the case and can be collected as evidence. Once the evidence is secured, the Molecular Geneticist shares the legal burden with other officers in preparing an Inventory List of the evidence seized.

Luminol testing:
The most frequently requested field test conducted by the Forensic Molecular Geneticist is the luminol test for the presence of blood which is not readily visible to the unaided eye. Luminol is a chemical mixture which is sprayed over an area in the dark and reacts with blood by producing a very low level of light. Distinct patterns made from blood such as body outlines, wipe patterns,

shoe track impressions, hand print impressions, and smears, may be detected with luminol. The interpretation of luminol reactions is difficult and time consuming to master since luminol reactions are not specifically confined to blood in origin. Consequently, further field testing also must be performed to identify presumptive blood stains. The indication of the presence of blood and the particular patterns which can be revealed with the luminol test often serve as important investigative leads, and directly or indirectly may lead to the discovery of other evidence.

II. B. OTHER POSITION CHARACTERISTICS:

1. ACCURACY REQUIRED IN WORK

One hundred percent (100%) accuracy is required in all results. Determinations must be conclusive and unequivocal since an error can cost an innocent individual his liberty and allow a guilty offender to possibly commit his crime again. Also, the reputation of the analyst, her job and the credibility of the lab is in jeopardy when one is not exact in her work. Constant proficiency testing is undergone to assure that each analyst produces accurate results and interpretations.

2. CONSEQUENCE OF ERROR

As noted above, the greatest error is to report an erroneous result which would assist in the conviction of a falsely-accused individual. This could deny the person of several years of freedom and could also result in a lawsuit for the State.

3. INSTRUCTION PROVIDED TO EMPLOYEE

The procedures used by the employee are well-characterized in a detailed, written format.

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

The policies, guidelines and procedures used by the employee include the N. C. General Statutes, the SBI Policy and Procedures Manual, the SBI Crime Laboratory Policy Manual, the DOJ Safety and Health Manual, N. C. Department of Justice Policy and Procedures Manual, ASCLD-LAB Certifica

tion Standards, TWGDAM Quality Assurance guideline, CALEA Accreditation guidelines and state laws governing search, seizure and arrest.

5. SUPERVISION RECEIVED BY EMPLOYEE

The work of the employee is formally reviewed by the Molecular Genetics Section Supervisor twice a year. However, informal review by the Molecular Genetics Body Fluid Section Team Leader is conducted on a daily basis by observing the employee conducting her analysis and reviewing data on all samples completed. All lab reports undergo a technical review by an analyst and an administrative review by the team leader.

6. VARIETY AND PURPOSE OF PERSONAL CONTACT

The employee is in daily contact with members of the law enforcement community, members from the general scientific community, and members of the forensic molecular genetics community from across the U.S. The purpose of these contacts are to establish leads, give advice, and direct law enforcement officers on procedures to be followed for the collection, preservation, and submission of evidence, or to refine a particular technique with the assistance of a contact in another state.

7. PHYSICAL EFFORT

The employee may be required to perform light to medium work at times.

8. WORK ENVIRONMENT AND CONDITIONS

A large percent of the analyst's time involves working with blood and body fluids from individuals who may be carrying HIV, herpes, VD, hepatitis, TB, etc. In addition, contact is also made with several carcinogens and embryo toxins on a routine basis.

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

Sig Sauer Model P230 40 cal. handgun, state-owned automobile, Stinger light, copy machines, sophisticated computers and software, Crimescope, Ultraviolet/visible spectrophotometer, electrophoresis tanks and power supples, Ultraviolet

illuminator, Nikon SLR camera, carousel slide projector, hot plates/stirrers, heat blocks, vortex, rotators, balances, centrifuges, pipettors, pH meter, pouch sealer, microscopes and biological safety cabinet.

10. VISUAL ATTENTION, MENTAL CONCENTRATION AND MANIPULATIVE SKILLS

In performing casework, the visual senses are used predominately and require close attention. This is primarily the case when examining evidence and test results. This position requires that the individual be attentive and mentally alert at all times for a mistake can be dreadfully consequential. Once must continually check the work being performed to make sure each task is correct and can be accountable before superiors and courts of law.

11. SAFETY OF OTHER

Extreme care must be taken to prevent the spread of biological agents (viruses) and proper disposal of hazardous materials.

12. DYNAMICS OF WORK

The forensic analysis of evidence using DNA typing techniques is currently in a state of change and most likely will remain so for several years to come.

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

A. KNOWLEDGE, SKILLS AND ABILITIES

1. Additional knowledge, skills, and abilities to perform as an SBI agent are as follows: A working knowledge of the methods, procedures and practices used in the investigation of criminal offenses, and principles of securing and identifying a variety of crime related evidence.
2. The ability to investigate criminal cases, to interpret and apply criminal law of North Carolina in investigations, to make arrests, to prepare comprehensive and detailed reports pertaining to individual cases, to present efficient court testimony, to apply the principles, techniques, and procedures of modern criminal investigation, and the use of evidence in criminal case investigations.
3. The ability to use firearms and also to use tools and equipment involved in evidence collection and preservation effectively.
4. The ability to establish and maintain favorable working relationships with other law enforcement agencies and officers.
5. The Agent must be in and maintain a physical condition which permits certification by the North Carolina Justice Standards Commission for law enforcement officers.
6. A minimum educational requirement of a Bachelor's Degree in a Biological Science for a background to understand the specialized area of forensic molecular genetics and other related tests as well as the completion of the SBI Academy.
7. Laboratory skills demonstrating the manual dexterity and ability required to conduct forensic tests.
8. Excellent physical and mental health sufficient to pass the SBI Academy and to withstand the stress and physical demand of long hours at the laboratory and at crime scenes.
9. A knowledge of the laws and regulations regarding the analytical and enforcement work performed.
10. Skill in organizing work and time to maintain production during periods of work overload.
11. Ability to use computer hardware/software to manipulate and integrate data generated.
12. A working knowledge of the field of Forensic Molecular Genetics and marijuana analysis.
13. Ability to organize, analyze, and present data with scientific accuracy and serve as an expert witness in court hearings and trials.

B. 1. REQUIRED MINIMUM TRAINING

Bureau Agents are required to complete the SBI Academy. A minimum educational requirement would be a Bachelor's Degree in a Biological Science. Agents in this position will have completed additional hours of in-house training in their specialty area.

2. ADDITIONAL TRAINING/EXPERIENCE

Formal education does not fully prepare an individual for entry into this position. This formal education is a minimum level for a trainee. In order to become a fully trained analyst, an individual with a college degree must undergo an in-house training program and complete course work in genetics, biochemistry, and graduate molecular genetics and additional in-house training program for marijuana. In addition, Agents will receive additional in-service law enforcement training each year.

3. EQUIVALENT TRAINING AND EXPERIENCE

No training and/or experience can substitute for this educational requirement, especially the SBI Academy and in-house training in the area of specialization. It is the critical building blocks necessary for subsequent training and experience.

C. LICENSE OR CERTIFICATION REQUIRED BY STATUTE OR REGULATION

Bureau Agents must be certified law enforcement officers. No license or certificate is required to perform these duties, however, the examiner must satisfy the trial judge in each case of his expertise before being allowed to testify. This is called being court qualified.

IV. 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: Asst. Director of Crime Laboratory Services 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: