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 **Chemist III**	7. Present 15 Digit Position Number **3613-0000-0002-255**	Proposed 15 Digit Position Number
2.	Usual Working Title of Position **Chemist III**	8.	Department, University, Commission, or Agency **Department of Justice**
3.	Requested Classification of Position **Chemist III**	9.	Institution & Division **SBI - Crime Laboratory Division**
4.	Name of Immediate Supervisor **Deena J. Koontz**	10.	Section and Unit **Drug Chemistry Section**
5.	Supervisor's Position Title & Position Number **Drug Chemistry Supervisor Position #2105**	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 Crime Laboratory, Drug Chemistry Section**

I. A. PRIMARY PURPOSE OF ORGANIZATIONAL UNIT:

The primary purpose of the Drug Chemistry Section is to provide the North Carolina Criminal Justice System with trained and experienced forensic chemists who analyze evidence seized in the course of criminal investigations. The forensic services provided include laboratory analyzes, technical field assistance and expert witness testimony in the areas of controlled substances, blood alcohol, blood drug, drug dilution, drug tampering, poisons and clandestine drug laboratories.

B. PRIMARY PURPOSE OF POSITION:

This position is responsible for performing an equitable share of the analyzes performed by the Section, preparing written reports of the results of the analyses, and providing expert testimony in the criminal courts on the results of the analyses.

C. WORK SCHEDULE:

Work is generally performed Monday through Friday on an eight-hour flex schedule day. The position holder is required to be on call 24 hours a day, seven days a week, and work overtime as required for court travel and completion of work.

D. CHANGE IN RESPONSIBILITIES OR ORGANIZATIONAL RELATIONSHIP:

N/A

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. GENERAL CASE WORK and REPORT WRITING (40%)

Drug evidence seized by law enforcement officers in the course of criminal investigations must be analyzed to identify unknown material or either to confirm or verify what the officers believe the evidence to contain. The chemist is assigned a geographic area of the state from which he/she receives drug evidence.

The analysis of controlled substances (drugs) involves the chemist first having to determine which general class of drug the unknown sample (evidence) belongs. The chemist first conducts a series of color tests on the sample using various chemical reagents and also ultraviolet spectrophotometry to help classify the drug as to a general type. Once the drug has been classified, the chemist must then utilize his knowledge of the drug type, depending on the chemical properties of that drug type, to isolate, purify and identify the drug or mixtures of drugs in the unknown sample. Chemical extractions, solvent solubilities and chromatography (gas, liquid, and thin-layer) are used to isolate and purify the drug. Microcrystalline tests that utilize a microscope and various chemical reagents and infrared spectroscopy are other analytical procedures used by the chemist to identify drugs. Occasionally, new drugs (Adesigner@) are encountered that have been manufactured in clandestine laboratories and known standards of the drug do not exist. In these cases, the chemist must be able to derive the structure of the drug from data that has been obtained, including ultraviolet, infrared and mass spectrometry spectral data.

Once the drug has been identified, the chemist may then determine the purity of the drug in the sample. Depending upon what type of drug is present, the chemist utilizes either gas chromatography, infrared spectrophotometry or ultraviolet spectrophotometry to determine the purity of the drug and subsequently the total amount of the drug present in the sample.

Because of the large number and variety of drugs and other substances encountered in the SBI laboratory, the chemist must possess knowledge of organic chemistry and analytical chemistry techniques to be able to classify, isolate, purify, and identify unknown substances and drugs. Because of the large number of cases submitted to the SBI Laboratory and because no two cases can be assumed to be alike, the chemist must be a Aproblem solver,@ utilizing his/her knowledge of chemistry with either a minimum amount or no instruction, to identify these unknown substances.

The chemist must also be very familiar with the North Carolina General Statutes, especially the Controlled Substances Act (Drug Law). The chemist not only must identify controlled drugs, but must be able to classify the drugs under the drug law - Schedules I through VI. Some drugs are included in several schedules under the law and the analysis of a particular drug may result in a defendant being charged with a misdemeanor, a felony or a major trafficking offense, depending on the amount of the drug, purity of the drug and the presence of other drugs in the unknown sample.

The chemical analysis must be documented by the chemist. This documentation is kept in the laboratory case file and includes the chemist=s notes, charts, graphs, instrumental data, sketches, photographs and other data that the chemist generates during the analysis. This documentation must conform to the criteria set forth in the Crime Laboratory=s quality assurance manuals.

The chemist must also issue a written laboratory report. Laboratory reports are used by police officers in their investigations, district attorneys in their determination of what, if any, criminal charges will be filed against a defendant, and the courts and juries in determining a defendant=s guilt. The laboratory report must therefore be written in a clear and concise manner, detailing the results of the analysis in such a way that police officers,

lawyers, judges, and juries can understand the report and its application. The chemist=s work is checked by a technical and administrative review of the laboratory case file, which includes all of the documentation and the laboratory report produced by the chemist during an analysis.

There is no room for error in the chemist=s analysis. The results of the analysis could mean the difference in a defendant going to jail, receiving probation, or having criminal charges dismissed.
The chemist must stay current in the field of forensic chemistry to keep up with new drugs and substances being encountered, new technical and analysis procedures, and changes in the drug laws that would apply directly to his/her analysis of controlled substances. To stay current, the chemist must review scientific and forensic literature, journals, and publications and the chemist must attend scientific and forensic seminars and schools.

2. SPECIAL CASE ASSIGNMENTS (10%)

The Chemist III positions are assigned the most difficult cases (on a rotation basis) that are submitted to the Drug Chemistry Section from law enforcement officers across the state. These cases include:

Drug Dilution/Drug Tampering - cases where drugs are removed from pharmaceutical vials, bottles, syringes, I.V. solutions, etc. and replaced with other substances to cover-up the shortage (hospitals, emergency treatment facilities, nursing homes, etc.).

Steroids - cases involving anabolic steroids, a class of drugs that are very difficult to isolate, purify and identify.

Poisons - cases involving the poisoning or attempt to poison individuals with a variety of toxic substances - drugs, pesticides, chemicals, etc.

Clandestine Drug Laboratories - Clandestine drug laboratories are illegal drug labs where drugs are manufactured, processed or refined. These labs utilize an array of different chemicals - solvents, reagents and precursors depending upon which drug is being manufactured and which specific reaction is being utilized to manufacture that particular drug. Because of the dangers associated with these laboratories (explosive, flammable, toxic, hazardous waste, etc.) and the technical nature of the investigations, SBI policy requires that one of the forensic chemists who are trained and certified in clandestine laboratory investigations, be present at the search and seizure of the clandestine lab.

Because of his/her technical knowledge and safety training, the forensic chemist must take an active role in the investigation, search and seizure of a clandestine drug laboratory.

The forensic chemist helps conduct surveillance on the clandestine laboratory site in order to obtain probable cause for a search warrant and also to help plan the search on the laboratory.

During the planning stage of clandestine lab search, the forensic chemist coordinates with local law enforcement, fire and emergency personnel and hazardous waste management. At the time of the search, the forensic chemist must make initial entry into the lab in appropriate safety equipment (Class B suit required by SBI policy), help secure the lab site from suspects/witnesses, assess the explosive/toxic levels in the lab and take appropriate action to render the laboratory safe. This also includes deactivating and/or neutralizing any on-going chemical reactions.

The chemist then coordinates the crime scene search of the laboratory, collects evidence for analysis and coordinates with hazardous waste personnel in the disposing of laboratory chemicals, equipment, and waste products.

The forensic chemist must analyze the chemicals, immediate precursors, by-products, and Afinished-product@ (drug) from the clandestine laboratory and show the synthesis reactions used or Aintended to be used@ in the case where no Afinished product@ is found. This requires that the forensic chemist be familiar with the drug synthesis reactions used in clandestine drug laboratories.

The forensic chemist must maintain his/her certification in the use of the safety equipment utilized in clandestine laboratory investigations.

The forensic chemist must train law enforcement officers, fire and emergency personnel, and hazardous waste management personnel in clandestine laboratory investigations and the dangers and safety requirements of these investigations.

3. ADMINISTRATIVE AND MANAGEMENT (20%)

The Chemist III must review and approve the laboratory reports and casework for the Chemist I and II positions. The Chemist III monitors and evaluates the court testimony of other laboratory chemists and analysts. The Chemist III conducts inspections of the other chemist=s equipment and drug standards. The Chemist III rotates an Aon-call@ assignment duty with the other
Chemist IIIs. While Aon-call@, the Chemist III has assigned management duties, including being in charge of the Section during the Supervisor=s absence.

4. COURT TESTIMONY and CONSULTATIONS (10%)

The chemist must testify in state and federal courts as to his/her analysis of the evidence. The chemist must first, through his/her education, training and experience, qualify himself/herself to the court as an Aexpert in the field of forensic chemistry@ before being allowed to testify about the analysis. As an expert witness, the chemist must explain and defend in detail his/her analysis, including the procedures and techniques used; the results of the analysis; and how the results of the analysis apply in the given case.

The chemist has regular contact with criminal justice officials and consults with the officials in reference to investigations and how the results of the laboratory analysis will affect the specific charges that are made in an investigation.

5. SPECIAL DUTY ASSIGNMENTS (10%)

This Chemist III position is coordinator for the ultraviolet spectrophotometers in the Section. The Chemist III oversees the operation, maintenance and repair of the ultraviolet spectrophotometers and also maintains a file on each instrument. This Chemist III is responsible for assuring that each of these instruments is properly calibrated and a monthly calibration spectrum is filed for each instrument.

This Chemist III position is designated a primary operator of one of the Section=s GC/MS instruments and is responsible for operating and maintaining this instrument. This Chemist III
position utilizes this instrument for the analysis of case work, training Chemist I and II positions
on the operation of this instrument, and overseeing their operation of this instrument.

This Chemist III position is designated as the Coordinator for the Clandestine Laboratory Response Team. This Chemist III is responsible for overseeing the overall operations of the Clandestine Laboratory Investigating Team. This duty includes assuring that the clandestine laboratory response kit is properly maintained, team members are kept up to date with any pertinent information related to clandestine laboratory investigations, ensure consistency in writing and reviewing of reports and coordinates the review of each clandestine laboratory with the members of the section.

6. GENERAL LABORATORY and ADMINISTRATIVE DUTIES (5%)

The chemist must maintain the laboratory equipment and instrumentation and also perform repairs and upkeep. The chemist must also prepare fresh chemical reagents and solvents and constantly check these reagents and solvents for purity and contamination. The chemist must maintain an inventory of drug

standards which are used in drug analysis. The drug standards are acquired from known sources or by the chemist manufacturing the drug by chemical synthesis.

The chemist must constantly develop and test new methods and techniques for analysis of new drugs and substances which are being encountered in the SBI laboratory on a regular basis.

7. GENERAL LAW ENFORCEMENT DUTIES (5%)

The chemist must complete Basic Law Enforcement Training and the SBI Academy to obtain sworn law enforcement officer status (SBI Agent). The chemist must maintain their law enforcement officer status through in-service training, which consists of: review of policy and procedure, updates on new legal rulings, physical screening and training, and firearms training. The chemist also participates in crime scene investigations and dignitary security assignments as required.

I. B. OTHER POSITION CHARACTERISTICS:

1. ACCURACY REQUIRED IN WORK

The chemical analysis of evidence must follow established Section procedures and substances that are identified must be supported by valid scientific data generated by the chemist.

2. CONSEQUENCE OF ERROR

Errors in an analysis could cause a miscarriage of justice, resulting in a defendant being wrongly charged and convicted or either absolving the charges against a guilty defendant. An error in an analysis would also damage the credibility of the chemist and the SBI Crime Laboratory. An error in an analysis could result in the chemist being disciplined, including termination from employment or removal from casework.

3. INSTRUCTION PROVIDED TO EMPLOYEE

Chemists usually operate under no direct technical supervision. Chemists are expected to follow established Section and Laboratory procedures and guidelines.

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

Journal articles, textbooks, and standard laboratory reference materials are used daily for analysis casework. Also North Carolina and Federal Controlled Substance laws.

5. SUPERVISION RECEIVED BY EMPLOYEE

Minimum daily supervision, chemists have the freedom to plan daily work and in making technical decisions in analysis of casework. The chemist=s case work is reviewed and approved by another senior chemist prior to a laboratory report being issued.

6. VARIETY AND PURPOSE OF PERSONAL CONTACT

Contact with police officers, secretaries, court reporters, district attorneys, judges, and lawyers. Personal contact with persons from other state agencies, professional organizations, and private industry is also necessary.

7. PHYSICAL EFFORT

Physical work involves moving containers of chemicals and compressed gas cylinders.

8. WORK ENVIRONMENT AND CONDITIONS

Work environment exposes the chemist to numerous chemical hazards. These include carcinogenic, caustic, and otherwise irritating chemicals - usually on a small scale. More irritating on a daily basis are the dusty, moldy conditions of some evidence, particularly vegetable material. The chemist also has exposure to bio-hazards that have potential to be life threatening from cuts or punctures from contaminated evidence.

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

Light microscope
Polarizing microscope
Infrared spectrophotometer
Ultraviolet spectrophotometer
Mass spectrometer
Electronic balance
Gas chromatograph
High performance liquid chromatography
Personal computer

10. VISUAL ATTENTION, MENTAL CONCENTRATION AND MANIPULATIVE SKILLS

All phases of analytical procedures require close observation, precision and good manipulative skills. Expertise in these areas can mean success or failure in chemical analysis.

11. SAFETY FOR OTHERS

Concern must be shown for the safety of others in the handling of organic/inorganic chemicals and solvents. Also, concern must be shown in the handling of evidence that contains bio-hazardous material.

12. DYNAMICS OF WORK

Generally the dynamics of work does not change in terms of daily or weekly work assignments. Any change is usually due to the nature of the work itself and is related to what needs to be done with a particular case or item(s) of evidence.

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

A. KNOWLEDGE, SKILLS AND ABILITIES

Thorough knowledge of the principles, concepts, theories, reference materials, and laboratory applications of chemistry and other related sciences.

Considerable knowledge of qualitative and quantitative analysis procedures, including the instrumentation used in chemical analysis. Considerable knowledge of chemical laboratory safety procedures. Ability to independently perform and record complex standardized and non-standardized laboratory procedures and to develop technical procedures and methods of analysis. Ability to solve very complex theoretical problems, and to provide work direction and instruction to lower level chemists.

Ability to express technical information clearly, both orally and in writing, when reporting results of analysis, testifying as an expert witness in criminal courts, or explaining procedures to others.

Ability to perform advanced mathematics and statistical analysis, to understand and follow complex oral and written instructions, to perceive colors normally and to make olfactory distinctions.

Considerable knowledge of the criminal laws of both North Carolina and the United States.
Considerable knowledge of the policies and procedures of the State of North Carolina, Department of Justice, State Bureau of Investigation, Crime Laboratory, and the Drug Chemistry Section.

Considerable knowledge of the methods, procedures, and practices used in the investigation of criminal offenses, and of the principles, techniques, and procedures of modern criminal investigation.

Ability to establish and maintain favorable working relationships with law enforcement agencies and the Criminal Justice System. Ability to maintain sworn law enforcement officer status.

B. 1. REQUIRED MINIMUM TRAINING

Graduation from a four-year college with a Bachelors Degree in chemistry and a minimum of six years of progressive chemistry laboratory experience; or an equivalent combination of training and directly related experience.

2. ADDITIONAL TRAINING/EXPERIENCE

Chemists are required to complete Basic Law Enforcement Training and the SBI Academy and to maintain sworn law enforcement officer status by annual training, approximately 40 hours of additional law enforcement training per year.

3. EQUIVALENT TRAINING AND EXPERIENCE

There is no substitution of training or experience for formal education and there is no substitution of experience for additional training.

C. LICENSE OR CERTIFICATION REQUIRED BY STATUTE OR REGULATION:

Each SBI chemist is a certified law enforcement officer and meets those standards set by the Justice Standards Commission. Chemists assigned to clandestine laboratory investigations must receive annual re-certification in use of the safety equipment.

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:

Special Agent in Charge

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:

Chemist III

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:

Assistant Director

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

Signature: Title: Date: