CHEMICAL LABORATORY TECHNICIAN
(Time-Based)

APPENDIX A

O*NET CODE 19-4031.00

This training outline is a minimum standard for Work Processes and Related Instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom training.

Approximate Hours

A. Safe Work Practices **300**

1. Developing awareness of work environment and potential physical plant hazards.
2. Developing awareness of environmental hazards, such as: solids, liquids, gases.
3. Implementing emergency response protocol(s) if necessary.
4. Properly donning and doffing appropriate Personal Protective Equipment (PPE).
5. Developing awareness and demonstrating compliance with/ addressing safety and health concerns particular to industry, e.g., nuclear, biological, food, pharmaceutical.
6. Handling and storing equipment safely.

B. Sample Collection **2800**

1. Collecting liquids, using appropriate containers/collection methods.
2. Collecting solids, using appropriate containers/collection methods.
3. Collecting gases, using appropriate containers/collection methods.
4. Using hand tools to aid in sample collection, including but not limited to: wrenches, screwdrivers, cordless drills.
5. Maintaining and replacing fittings used when drawing samples.

C. Sample Analysis and Laboratory Work **4000**

1. Using various types of laboratory equipment, such as:
   a. potentiometer

b. millipore filter
c. chromatograph
d. spectroscope
e. particle analyzer
f. dew point analyzer
g. proportional counters
h. liquid scintillation counter
i. test kits
j. Marinelli beakers (if applicable).

2. Analyzing all types of samples, obtaining data such as:
   a. total organic carbon
   b. alpha/beta radiation (if applicable)
   c. dew point
   d. conductivity
   e. potentiometry (pH analysis)
   f. anion/cation
   g. atmospheric air sample composition
   h. tritium
   i. gamma radiation (if applicable)
   j. particulate concentration in breathing air and instrument air (if applicable)
   k. soluble/insoluble isotopes
   l. helium leak detection (if applicable)
   m. pollutant presence/concentration in discharge (if applicable)
   n. turbidity
   o. post-UV sampling (if applicable).
3. Preparing and standardizing analytical solutions and samples (if applicable).

D. Data Recording, Reporting, Cleanup and Housekeeping **500**

1. Collecting data from various pieces of testing equipment.

2. Comparing data to standards.
3. Reporting results per employer protocol(s).
4. Preparing chain of custody documents for samples taken for analysis (if applicable).
5. Using a Laboratory Information Management System (LIMS).
6. Identifying need for maintenance and calibration and performing when required.
7. Cleaning up work area.
8. Maintaining inventory and ordering spare parts (if applicable).

E. Other (optional*) **400**

1. Participating in: Quality Analysis/Quality Control Program, Chemical Control Program, and Environmental Monitoring Program.
2. Training in ethics and compliance.

Approximate Total Hours **8000**

***If optional work process is not selected, the hours should be devoted to further mastery of the other required work processes.**

Grateful acknowledgement is made to the American Chemical Society, 1155 16TH ST NW, Washington DC 20036, in particular its Committee on Technician Affairs and its Education Division, for commenting on the Outline's content.

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to https://dol.ny.gov/public-work-and-prevailing-wage

CHEMICAL LABORATORY TECHNICIAN

APPENDIX B

RELATED INSTRUCTION

Safety/Health/Environment

1. General Workplace Safety
2. Occupational Safety and Health Administration (OSHA) required trainings (if applicable)
3. Nuclear Regulatory Commission (NRC) training(s) (if applicable)
4. First Aid & CPR (minimum 6.5 hours every 3 years)
5. Sexual Harassment Prevention Training – must comply with Section 201-g of the Labor Law
6. Right-to-Know/Material Safety Data Sheets (MSDS)
7. Proper use of all trade-related Personal Protective Equipment (PPE)
8. Bloodborne Pathogens

Workplace Skills

1. Fundamentals of Technical Drawings
2. Procedures particular to laboratory environment
3. Corrective Action Program (if applicable)
4. Fundamentals of Mathematics, including Weights, Measures, Ratios, Mixtures
5. Algebra-Applying formulas and equations

Trade Science

1. Physics
2. Principles of Electricity
3. Material Science
4. Basic Atomic and Nuclear Physics (if applicable)
5. Heat Transfer and Fluid Flow
6. Core Protection (if applicable)
7. Basic Chemistry
8. Water Treatment and Purification (if applicable)

9. Corrosion

Trade Practice

1. Laboratory Equipment
2. Basic Chemical Analysis
3. Potentiometry
4. Radiation & Radioactive Decay (if applicable)
5. Spectrophotometry
6. Liquid Scintillation
7. Gamma Spectroscopy
8. Sampling Techniques
9. Counting Statistics
10. Statistical Process Control
11. Chromatography
12. Dew Point Analyzer
13. Particle Analyzer

Other Chemical Industry Sector-Specific Courses As Needed

A Minimum of 144 Hours of Related Instruction is Required for Each Apprentice for Each Year.

Appendix B topics are approved by New York State Education Department.