

Florida Department of Education
CLUSTER CURRICULUM FRAMEWORK

Cluster Title: ENVIRONMENTAL STUDIES
Cluster Type: Job Preparatory
Occupational Area: Public Service
Components: Core, Three Programs with Four Occupational Completion Points

Secondary

Grade Level 9-12, 30, 31
 Facility Code 263
 CTSO FPSA
 Co-op Method Yes
 Apprenticeship Yes

- I. **MAJOR CONCEPTS/CONTENT:** The purpose of this cluster is to prepare students for employment or advanced training in the environmental industry. The cluster focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the environmental industry; planning, management, finance, technical and production skills, underlying principles of technology, labor issues, community issues and health, safety and environmental issues.

Completers of these programs will be prepared to enter advanced training and education in specialized fields of environmental science or environmental business. They may also be employed as trainees or beginning workers in various environmental science or environmental technology related positions in certain businesses and industries.

The content includes, but is not limited to, knowledge of federal, state, and local regulations; ecosystem awareness; problem recognition; water quality issues; solid and liquid waste management issues; air quality issues; managing hazardous materials; managing forests, wetlands, fisheries, and wildlife; planning and administering land use; protecting resources; conducting site assessments; sampling procedures; safety procedures; compliance monitoring and quality assurance procedures; and instruction in environmental technology.

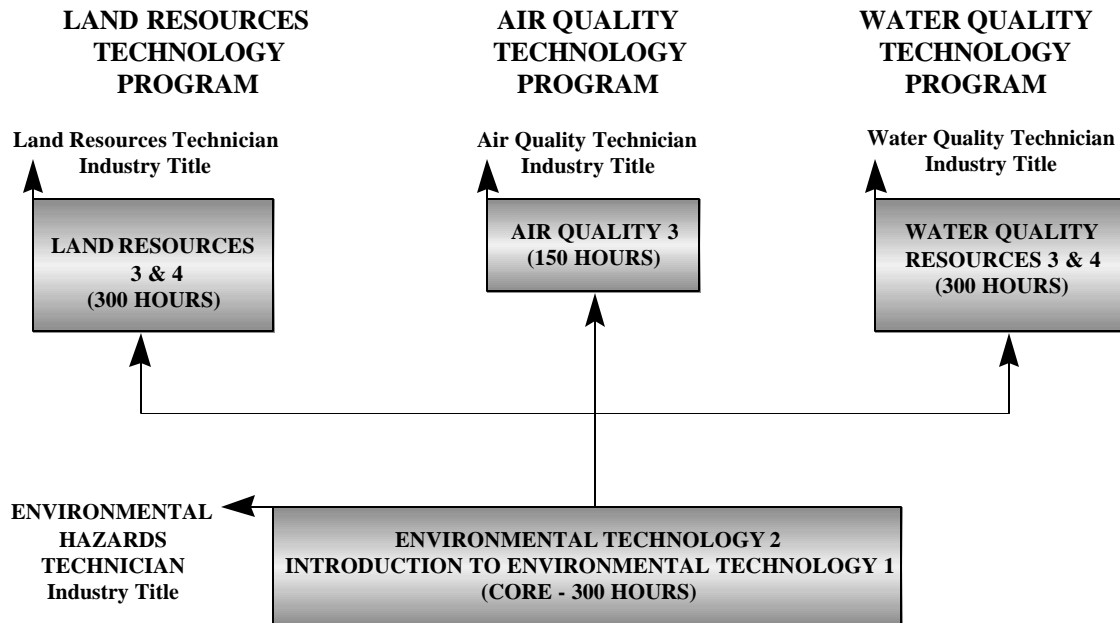
Reinforcement of basic skills in English, mathematics, and science appropriate for the job preparatory programs is provided through vocational classroom instruction and applied laboratory procedures or practice. This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the public service industry; planning, management, finance, technical and production skills, underlying principles of technology, labor issues, community issues and health, safety and environmental issues.

II. CLUSTER STRUCTURE: This cluster is a planned sequence of instruction consisting of a core, three programs, and four occupational completion points. When the recommended sequence is followed, the structure will allow students to complete specified portions of the program for employment or remain for advanced training. A student who completes the applicable competencies at any occupational completion point may either continue with the training program or become an occupational completer.

Students must complete the core, or demonstrate the mastery of skills standards contained in the core, before advancing in any of the programs: Land Resources Technology, Air Quality Technology, or Water Resources Technology.

The following diagram illustrates the **CLUSTER STRUCTURE:**

ENVIRONMENTAL STUDIES CLUSTER



When offered at the secondary level, the programs in this cluster consist of the following courses that include the core:

Land Resources Technology

Core

- 8913010 - Introduction to Environmental Technology - 1 secondary credit
- 8913020 - Environmental Technology 2 - 1 secondary credit
- 8913030 - Land Resources 3 - 1 secondary credit

8913040 - Land Resources 4 - 1 secondary credit

Air Quality Technology

Core

8913010 - Introduction to Environmental Technology - 1
secondary credit

8913020 - Environmental Technology 2 - 1 secondary credit

8914010 - Air Quality 3 - 1 secondary credit

Water Resources Technology

Core

8913010 - Introduction to Environmental Technology - 1
secondary credit

8913020 - Environmental Technology 2 - 1 secondary credit

8916010 - Water Quality Resources 3 - 1 secondary credit

8916020 - Water Quality Resources 4 - 1 secondary credit

III. LABORATORY ACTIVITIES: Environmental technology activities (shops, wet labs, land labs, and greenhouses) are an integral part of these programs, which include the safe use and application of high technology equipment, such as computers and computer software, telecommunications equipment, and scientific testing and observation equipment, as well as mechanics' tools, field tools, drafting tools, various hand tools, power sprayers, chemical applicators, various types of meters and pumps, maps, gauges, and fire-control hand equipment.

IV. SPECIAL NOTES: The FPSA is the appropriate career and technical student organization (CTSO) for providing leadership training and reinforcing specific vocational skills. CTSOs, when provided, shall be an integral part of the vocational instructional program, and the activities of such organizations are defined as part of the curriculum in accordance with Rule 6A-6.065, Florida Administrative Code.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student project, (3) placement for experience, and (4) cooperative education.

Cooperative training - OJT is appropriate for this program. Whenever cooperative training - OJT is offered, the following are required for each student: a training plan, signed by the student, teacher, and employer, which includes instructional objectives and a list of on-the-job and in-school learning experiences; a workstation that reflects equipment, skills, and tasks that are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

When a secondary student with a disability is enrolled in a vocational class with modifications to the curriculum framework,

the particular outcomes and student performance standards that the student must master to earn credit must be specified on an individual basis. The job or jobs for which the student is being trained should be reflected in the student's desired postschool outcome statement on the Transitional Individual Educational Plan (Transition IEP).

SCANS Competencies: To accomplish the Secretary's Commission on Achieving Necessary Skills (SCANS) competencies, instructional strategies for these programs must include methods that require students to identify, organize, and use resources appropriately; to work with each other cooperatively and productively; to acquire and use information; to understand social, organizational, and technological systems; and to work with a variety of tools and equipment. Instructional strategies must also incorporate methods to improve students' personal qualities and higher-order thinking skills.

Equipment List: A generic equipment list is available for the programs in this cluster.

Florida Department of Education
INTENDED OUTCOMES

Program Title: Land Resources Technology

Secondary

Program Number 8913000
 CIP Number 0715.059902
 Grade Level 9-12, 30, 31
 Standard Length 600 hours
 Certification WSP OPER @7 G AGRI @4
 TEC CHEM @7 G AGRICULTUR 1 @2
 VOC AGRI @4 BIOLOGY 1

V. **INTENDED OUTCOMES:** After successfully completing appropriate course(s) for each occupational completion point of this program, the student will be able to:

OCCUPATIONAL COMPLETION POINT - DATA CODE A

ENVIRONMENTAL HAZARDS TECHNICIAN - Industry Title

- 01.0 Describe the hydrological cycle.
- 02.0 Describe sources of water.
- 03.0 Sampling procedures.
- 04.0 Practice safety procedures.
- 05.0 Describe related geology.
- 06.0 Conduct site assessment.
- 07.0 Manage wetlands.
- 08.0 Describe water treatment techniques.
- 09.0 Describe stormwater systems.
- 10.0 Discuss related standards and regulations.
- 11.0 Manage data and physical resources.
- 12.0 Identify career opportunities and organizational dynamics.
- 13.0 Control incidents.
- 14.0 Manage hazardous materials.
- 15.0 Prepare preplanning.
- 16.0 Perform remediation.
- 17.0 Collect and dispose of solid waste.
- 18.0 Obtain continuing education.
- 19.0 Manage wildlife.
- 20.0 Manage forests.
- 21.0 Use GIS system.

OCCUPATIONAL COMPLETION POINT - DATA CODE B

LAND RESOURCES TECHNICIAN - Industry Title

- 07.0 Manage wetlands.
- 17.0 Collect and dispose of solid waste.
- 19.0 Manage wildlife.
- 20.0 Manage forests.
- 22.0 Manage fisheries.
- 23.0 Manage fires.

- 24.0 Manage pests.
- 25.0 Manage ecosystems.
- 26.0 Plan use of land.
- 27.0 Administer land use.
- 28.0 Protect resources.
- 29.0 Discuss restoration ecology.
- 30.0 Educate the public.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Program Title: Land Resources Technology
Secondary Number: 8913000

OCCUPATIONAL COMPLETION POINT - DATA CODE A

ENVIRONMENTAL HAZARDS TECHNICIAN - Industry Title

- 01.0 DESCRIBE THE HYDROLOGICAL CYCLE--The student will be able to:
- 01.01 Describe precipitation, percolation, evaporation, runoff, and infiltration. AT.1.1.4, AT.2.2.4, AT.7.1.4, AT.8.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, MA.B.1.4, MA.B.2.4, SC.A.1.4, SC.B.2.4, SC.D.1.4, SC.D.2.4, SC.G.1.4, SC.G.2.4, SC.H.2.4, SS.B.1.4
- 02.0 DESCRIBE SOURCES OF WATER--The student will be able to:
- 02.01 Identify surface water systems. AT.7.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.D.1.4, SC.D.1.4, SC.G.2.4, SS.B.1.4
 - 02.02 Identify ground water systems. AT.7.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.D.1.4, SC.D.1.4, SC.G.2.4, SS.B.1.4
- 03.0 SAMPLING PROCEDURES--The student will be able to:
- 03.01 Define sampling objectives and protocol. AT.1.1.4, AT.4.1.4, AT.5.1.4, AT.5.2.4, AT.8.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, SC.D.2.4, SC.G.2.4, SC.H.1.4, SC.H.2.4, SC.H.3.4
 - 03.02 Calibrate and maintain sampling equipment, site, and meters. AT.4.1.4, AT.5.2.4, AT.8.1.4, LA.A.1.4, LA.A.2.4, MA.B.2.4, SC.H.3.4
 - 03.03 Operate sampling equipment. AT.4.1.4, AT.5.2.4, AT.8.1.4, MA.B.4.4, SC.H.3.4
 - 03.04 Operate boats and trailers.
 - 03.05 Perform field measurements: Temperature, conductivity, pH, D.O., chlorine, coliform bacteria, color, turbidity, hardness, iron, chloride, fluoride, hydrogen sulfide, corrosion inhibitors, nutrients, chlorophyll, etc. AT.4.1.4, AT.8.1.4, LA.B.2.4, MA.B.2.4, MA.B.3.4, MA.E.1.4, MA.E.3.4, SC.D.2.4, SC.H.3.4, SC.G.2.4
 - 03.06 Document/follow quality assurance practices. AT.4.1.4, AT.8.1.4, AT.5.2.4, LA.B.1.4, LA.B.2.4, MA.B.3.4, MA.E.1.4, MA.E.3.4, SC.H.3.4
 - 03.07 Preserve samples. AT.4.1.4, AT.5.2.4, AT.8.1.4, SC.H.3.4
 - 03.08 Maintain and document chain of custody. AT.8.1.4, LA.B.1.4, LA.B.2.4, MA.B.4.4, MA.E.3.4
 - 03.09 Describe proper waste disposal methods. AT.8.1.4, MA.B.3.4, MA.C.2.4, SC.G.2.4
 - 03.10 Describe pumps and equipment. MA.B.2.4, MA.B.3.4

- 03.11 Be aware of cross-contamination. AT.4.1.4, AT.5.2.4, AT.8.1.4, SC.H.3.4
- 03.12 Define risks associated with sampling. AT.8.1.4, SC.G.2.4
- 03.13 Perform soil, drum, personal, air, water and unidentified sampling. AT.4.1.4, AT.5.2.4, MA.A.3.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.B.4.4, SC.H.3.4

04.0 PRACTICE SAFETY PROCEDURES--The student will be able to:

- 04.01 Identify safety procedures for: Wells, pumps, heavy equipment, electrical equipment, motor vehicles, buildings, and equipment. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.02 Become certified in first aid/CPR. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.03 Comprehend weather hazards. AT.8.1.4, SC.D.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.04 Handle compressed gasses, solids, and liquids safely. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.05 Comprehend Right of Access. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.06 Comprehend OSHA, EPA, and DEP safety requirements. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.07 Determine and review applicable regulations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.08 Describe and comply with specific requirements. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.09 Use personal protective equipment (donning, doffing, limitations). AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.10 Demonstrate personal hygiene. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.11 Demonstrate Material Safety Data Sheets (MSDS). AT.8.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.12 Identify HAZCOM. AT.8.1.4, LA.A.1.4, LA.B.1.4, LA.C.1.4, LA.C.2.4, LA.C.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.13 Identify Confined Space Regulations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.14 Identify First Responder Protocol. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.15 Identify Competent Person Regulations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.16 Be aware of Zero Tolerance. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.17 Keep safety records. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.D.1.4, MA.E.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.18 Identify fire/explosive hazards. AT.8.1.4, LA.A.1.4, MA.D.1.4, MA.E.2.4, MA.E.3.4, SC.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.19 Describe hazards and risks of jobs. AT.8.1.4, LA.A.1.4, MA.D.1.4, MA.E.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.20 Identify employee limitations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4

- 04.21 Identify lead and asbestos safety precautions. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.22 Identify safe work practices. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.23 Identify decontamination procedures. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.24 Identify DOT All handbook. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.25 Become familiar with principles of toxicology. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.26 Identify OSHA 29CFR and OMMP. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.27 Identify ladder safety and fall protection. AT.8.1.4, LA.A.1.4, MA.C.1.4, MA.E.1.4, MA.E.2.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.28 Identify basic nutrition. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.29 Identify routes of exposure. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.30 Identify respirator safety procedures. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.31 Identify heat stress protocol. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.32 Be aware of radiation hazards. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.33 Be aware of physical, chemical, biological, and zoological hazards. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.34 Identify history of hazardous materials and hazardous categories. AT.8.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, SS.A.4.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.35 Identify common chemical compatibility. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.36 Perform lifting activities safely. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4

05.0 DESCRIBE RELATED GEOLOGY--The student will be able to:

- 05.01 Know geological history of Florida. AT.4.1.4, LA.A.1.4, SC.D.1.4, SS.B.1.4
- 05.02 Discuss mapping and surveying. AT.4.1.4, LA.A.1.4, MA.C.3.4, MA.D.2.4, SC.D.1.4, SS.B.1.4
- 05.03 Discuss basic hydrological terms. AT.4.1.4, LA.B.2.4, SC.D.1.4

06.0 CONDUCT SITE ASSESSMENT--The student will be able to:

- 06.01 Describe required documentation. AT.1.1.4, LA.B.2.4, MA.A.1.4, MA.A.3.4, MA.A.4.4, MA.C.1.4, MA.C.3.4
- 06.02 Identify the different phases of site assessment. AT.1.1.4, LA.A.1.4
- 06.03 Identify the purposes of site assessment. AT.1.1.4, LA.A.1.4

- 06.04 Identify type of mechanical systems. AT.1.1.4, LA.A.1.4
- 06.05 determine operational criteria. AT.1.1.4
- 06.06 Verify blueprint accuracy. AT.1.1.4, MA.A.1.4, MA.A.2.4, MA.C.1.4, MA.C.2.4
- 06.07 Conduct manual survey. AT.1.1.4
- 06.08 Obtain background design information. AT.1.1.4
- 06.09 Obtain physical and performance measurements. AT.1.1.4, MA.A.1.4, MA.A.2.4, MA.C.1.4, MA.C.2.4, MA.C.3.4
- 06.10 Determine system safety impacts. AT.1.1.4
- 06.11 Determine nature and extent of exposure. AT.1.1.4, SC.G.2.4
- 06.12 Assess equipment and processes. AT.1.1.4
- 06.13 Develop sampling strategy. AT.1.1.4
- 06.14 Collect air samples. AT.4.1.4, MA.A.1.4, MA.A.2.4, MA.B.2.4, MA.B.3.4, SC.G.2.4, SC.H.3.4
- 06.15 Conduct opening conference. AT.4.1.4, LA.C.3.4
- 06.16 Submit samples for analysis. AT.4.1.4, SC.H.3.4
- 06.17 Recommend corrective action. AT.4.1.4, LA.B.2.4, LA.C.3.4, SC.G.2.4
- 06.18 Perform periodic follow-up sampling. AT.4.1.4, MA.A.1.4, MA.A.2.4, MA.B.2.4, MA.B.3.4, SC.H.3.4

- 07.0 MANAGE WETLANDS--The student will be able to:
 - 07.01 Identify ecosystems. LA.A.1.4, SC.G.1.4
 - 07.02 Discuss the structure and function of wetlands. LA.C.3.4, MA.A.1.4, MA.B.2.4, MA.B.3.4, MA.C.1.4, SC.G.1.4, SC.G.2.4
 - 07.03 Define limits of wetlands. AT.2.1.4, AT.8.1.4, LA.C.3.4, SC.G.1.4, SC.G.2.4
 - 07.04 Discuss habitat value. LA.C.3.4, SC.G.1.4, SC.G.2.4
 - 07.05 Identify fauna and flora. SC.G.1.4
 - 07.06 Determine desirable vs. nuisance plant species. AT.8.1.4, SC.G.1.4, SC.G.2.4

- 08.0 DESCRIBE WATER TREATMENT TECHNIQUES--The student will be able to:
 - 08.01 Understand pretreatment, primary, secondary, and tertiary treatment processes of wastewater. AT.4.1.4, AT.8.1.4, LA.A.1.4, SC.G.2.4
 - 08.02 Know disposal options. AT.4.1.4, AT.8.1.4, SC.G.2.4
 - 08.03 Be familiar with septic tanks. AT.4.1.4, AT.8.1.4, SC.G.2.4

- 09.0 DESCRIBE STORMWATER SYSTEMS--The student will be able to:
 - 09.01 Understand current construction trends and methods. AT.4.1.4, AT.8.1.4, SC.D.1.4, SC.G.2.4
 - 09.02 Be familiar with topography. AT.4.1.4, AT.8.1.4, MA.A.1.4, MA.B.2.4, MA.B.3.4, MA.B.4.4, SC.D.1.4, SC.G.2.4, SS.B.1.4

- 10.0 DISCUSS RELATED STANDARDS AND REGULATIONS--The student will be able to:
 - 10.01 Identify Florida Administrative Code (F.A.C.). AT.8.1.4, SC.G.2.4
 - 10.02 Recognize agencies and hierarchies. AT.8.1.4

- 10.03 Describe goals of environmental protection. AT.8.1.4
 - 10.04 Describe permitting procedures including SWFMD procedures. AT.8.1.4
 - 10.05 Become familiar with use of regulation resources. AT.8.1.4, LA.A.1.4, SS.B.2.4
 - 10.06 Describe various licensing procedures. AT.8.1.4, LA.A.1.4, SS.B.2.4
 - 10.07 Describe the Clean Water Act. AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4
 - 10.08 Identify the Regulatory File System. AT.8.1.4, LA.A.1.4, SS.B.2.4
 - 10.09 Describe a well-head protection plan. AT.8.1.4, SC.G.2.4
 - 10.10 Identify CERCLA, RCRA, TSCA, SWDA, CWA, CAA, AHERA, SARA, HM181, NFPA-704, DOT AND Code of Federal Regulations (CFR). AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4, HE.A.1.4
 - 10.11 Describe how rules are made and mandated. AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4, HE.A.1.4
 - 10.12 Describe how endangered species get listed. AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4, HE.A.1.4
- 11.0 MANAGE DATA AND PHYSICAL RESOURCES--The student will be able to:
- 11.01 Be familiar with data entry. AT.4.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.B.1.4, MA.B.2.4, SS.B.1.4
 - 11.02 Be familiar with Windows, word processing, databases, computer graphics, statistics programs, spreadsheets, Internet, GIS, and security. AT.4.1.4, LA.B.2.4, SS.B.1.4
 - 11.03 Identify equipment and materials needed. AT.1.1.4
 - 11.04 Identify funding sources. AT.3.1.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.B.1.4
 - 11.05 Prepare budgets and purchase orders. AT.3.1.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.B.1.4, MA.B.2.4, MA.C.3.4
 - 11.06 Prepare a time management plan. AT.1.1.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.B.1.4, MA.B.2.4, MA.C.3.4
 - 11.07 Be aware of information databases. AT.4.1.4, SS.B.1.4
 - 11.08 Become familiar with printed reference materials. AT.1.1.4, SS.B.1.4
 - 11.09 Describe network opportunities. AT.2.2.4, LA.C.1.4, SS.B.1.4
 - 11.10 Keep records. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
 - 11.11 Identify OSHA 100 and 200 record keeping requirements. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
 - 11.12 Identify DOT record keeping procedures. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
 - 11.13 Identify EPA record keeping requirements. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4

- 11.14 Keep inventory, time sheets, and equipment maintenance log.
AT.2.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.3.4,
MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
 - 11.15 Identify suppliers and technical resources. AT.1.1.4,
LA.A.1.4, LA.B.2.4, SS.B.1.4
 - 11.16 Identify outside responders. AT.1.1.4, LA.C.1.4
- 12.0 IDENTIFY CAREER OPPORTUNITIES AND ORGANIZATIONAL DYNAMICS--The student will be able to:
- 12.01 Be aware of careers in the following fields:
Surface/stormwater, drinking water, wastewater, groundwater,
land resources, air quality, solid waste, and HAZMAT.
AT.4.1.4, LA.A.1.4, LA.C.1.4
 - 12.02 Identify supervisory responsibilities. AT.2.1.4, LA.A.1.4,
LA.C.1.4
 - 12.03 Identify organizational structure. AT.6.1.4, LA.A.1.4,
LA.C.1.4
 - 12.04 Identify administrative responsibilities. AT.6.1.4,
LA.A.1.4, LA.C.1.4
 - 12.05 Identify team building communication skills. AT.9.1.4,
LA.A.1.4, LA.C.1.4
 - 12.06 Identify problem-solving techniques. AT.1.1.4, LA.A.1.4,
LA.C.1.4, MA.A.3.4, MA.A.4.4
 - 12.07 Identify employee responsibility/benefits. AT.6.1.4,
LA.A.1.4, LA.C.1.4
 - 12.08 Identify legal aspects of personnel relations. AT.9.1.4,
LA.A.1.4, LA.C.1.4
 - 12.09 Write proposals. AT.1.1.4, LA.B.1.4, LA.B.2.4, MA.A.1.4,
MA.A.2.4, MA.A.3.4, MA.A.4.4, MA.A.5.4, MA.B.1.4, MA.B.2.4,
MA.B.3.4, MA.B.4.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.D.1.4,
MA.D.2.4, MA.C.1.4, MA.E.2.4, MA.E.3.4
 - 12.10 Design and conduct presentations. AT.4.1.4, LA.C.3.4
- 13.0 CONTROL INCIDENTS--The student will be able to:
- 13.01 Identify reasons for controlling incidents. AT.1.1.4,
LA.A.1.4
 - 13.02 Describe levels of response. LA.A.1.4
 - 13.03 Determine methods of control. LA.A.1.4
 - 13.04 Restrict site access.
 - 13.05 Notify appropriate authorities. LA.C.1.4
 - 13.06 Place equipment appropriately. MA.A.1.4, MA.A.2.4, MA.C.1.4
 - 13.07 Orient zones.
 - 13.08 Be aware of geographic hazards. SC.D.1.4, SS.B.1.4
 - 13.09 Practice site safety. AT.8.1.4, HE.A.1.4, HE.A.2.4
 - 13.10 Identify media protocol. LA.C.1.4
 - 13.11 Identify protocol for communicating with the public.
AT.7.1.4, LA.C.3.4
 - 13.12 Determine and use proper chain of command.
- 14.0 MANAGE HAZARDOUS MATERIALS--The student will be able to:
- 14.01 Describe flow of materials. AT.8.1.4, LA.A.1.4

- 14.02 Describe life cycles of materials. AT.8.1.4, LA.A.1.4, SC.A.1.4
- 14.03 Identify proper chemical handling and storage guidelines. AT.8.1.4, LA.A.1.4, MA.A.1.4, MA.B.2.4
- 14.04 Describe material management procedures for OSHA, EPA, DOT. AT.8.1.4, HE.A.1.4
- 14.05 Identify alternatives to disposal. AT.8.1.4, SC.G.2.4
- 14.06 Identify waste minimization and pollution prevention. AT.8.1.4, SC.G.2.4, HE.A.1.4, HE.A.2.4
- 14.07 Describe waste determination procedures. AT.8.1.4, HE.A.1.4, HE.A.2.4
- 14.08 Describe storage tank procedures. AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.1.4, HE.A.1.4, HE.A.2.4
- 14.09 Identify biochemical/medical waste. AT.8.1.4, HE.A.1.4, HE.A.2.4
- 14.10 Describe shipping and transportation procedures. AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.3.4, MA.E.3.4
- 14.11 Identify phase I and II audits. AT.8.1.4, LA.B.2.4
- 14.12 Identify closure reports. AT.8.1.4, LA.B.2.4
- 14.13 Write contamination assessment reports. AT.8.1.4, LA.B.2.4, MA.A.1.4, MA.E.3.4

15.0 PREPARE PRE-PLANNING--The student will be able to:

- 15.01 Describe the need for pre-planning. AT.1.1.4, AT.8.1.4, LA.A.1.4, LA.B.2.4
- 15.02 Identify type of pre-planning needed. AT.1.1.4, AT.8.1.4, LA.A.1.4, LA.B.2.4
- 15.03 Recognize agency involvement. AT.1.1.4, AT.8.1.4, LA.A.1.4, LA.B.2.4
- 15.04 Identify contamination zones. AT.1.1.4, AT.8.1.4
- 15.05 Pre-plan for hurricane, tornadoes, floods, fires, and nuclear accidents. AT.1.1.4, AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.3.4, MA.D.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
- 15.06 Identify SARA III regulations. AT.1.1.4, AT.8.1.4, HE.A.1.4
- 15.07 Describe pre-planned deployment. AT.1.1.4, AT.8.1.4, HE.A.1.4
- 15.08 Write a contingency plan. AT.1.1.4, AT.8.1.4, LA.B.2.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.3.4, MA.D.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
- 15.09 Conduct mock disaster activities. AT.1.1.4, AT.8.1.4

16.0 PERFORM REMEDIATION--The student will be able to:

- 16.01 Select cleaning method. AT.8.1.4
- 16.02 Select needed materials and equipment. AT.8.1.4
- 16.03 Conduct site preparation. AT.8.1.4, MA.A.1.4, MA.A.3.4, MA.A.4.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.1.4, MA.C.2.4
- 16.04 Conduct entry and closure methods. AT.8.1.4
- 16.05 Remove contaminant source. AT.8.1.4
- 16.06 Verify site/system cleanliness. AT.8.1.4
- 16.07 Perform tear down and demobilization. AT.8.1.4

- 17.0 COLLECT AND DISPOSE OF SOLID WASTE--The student will be able to:
- 17.01 Describe history of solid waste disposal. AT.8.1.4, MA.A.1.4, MA.B.4.4., MA.E.3.4, SS.B.2.4
 - 17.02 Identify different types of waste. AT.8.1.4, LA.A.1.4, MA.A.1.4, MA.B.4.4, MA.E.3.4, SC.G.2.4
 - 17.03 Discuss solid waste disposal options: Landfill, incineration, and composting. AT.8.1.4, MA.A.1.4, MA.B.4.4, MA.E.3.4, SC.G.2.4
- 18.0 OBTAIN CONTINUING EDUCATION--The student will be able to:
- 18.01 Determine continuing education needs/goals. AT.9.1.4, LA.A.1.4
 - 18.02 Identify available educational resources. AT.9.1.4
 - 18.03 Select appropriate resources. AT.9.1.4
 - 18.04 Participate in appropriate association meetings. AT.9.1.4
 - 18.05 Read and review trade journals. AT.9.1.4, LA.A.1.4, LA.B.2.4
 - 18.06 Network with other professionals. AT.9.1.4, LA.A.1.4, LA.B.2.4
- 19.0 MANAGE WILDLIFE--The student will be able to:
- 19.01 Identify listed species. LA.A.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4
 - 19.02 Identify and describe life histories of game species. LA.A.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
 - 19.03 Identify and describe life histories of non-game species. LA.A.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
 - 19.04 Discuss urban wildlife management. AT.8.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.2.4, HE.A.1.4
 - 19.05 Be aware of community ecology. AT.8.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4, SC.G.2.4
 - 19.06 Learn wildlife techniques and principles. MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4, SC.G.2.4
 - 19.07 Discuss population dynamics. MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4, SC.G.2.4, SS.B.1.4
- 20.0 MANAGE FORESTS--The student will be able to:
- 20.01 Describe dendrology. LA.A.1.4
 - 20.02 Describe silvaculture. LA.A.1.4, SC.G.2.4
 - 20.03 Discuss forest pathogens and diseases. LA.A.1.4, SC.G.1.4
 - 20.04 Discuss replanting techniques. MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.C.1.4, MA.C.2.4, MA.E.2.4, MA.E.3.4
 - 20.05 Discuss harvesting techniques. AT.7.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.C.1.4, MA.C.2.4, MA.E.2.4, MA.E.3.4
 - 20.06 Identify timber stand improvement. SC.G.1.4

20.07 Discuss timber and forest products. SC.G.2.4

21.0 USE GIS SYSTEM--The student will be able to:

- 21.01 Define GIS and its function. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.02 Explore GIS as a resource tool. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.03 Learn GIS software. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.04 Learn GIS applications. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.05 Identify the use of a database. AT.4.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.06 Learn to input data. AT.4.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.07 Develop a model. AT.4.1.4, AT.5.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.08 Define GPS and its function. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.09 Collect GPS data and load on GIS. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.10 Be familiar with other remote sensing tools. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.11 Download LANDSTAT into GIS. AT.4.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4

OCCUPATIONAL COMPLETION POINT - DATA CODE B

LAND RESOURCES TECHNICIAN - Industry Title

07.0 MANAGE WETLANDS--The student will be able to:

- 07.07 Discuss control treatment for undesirable plants. AT.8.1.4, LA.B.2.4, LA.C.1.4, MA.A.1.4, MA.B.1.4, MA.B.4.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.2.4
- 07.08 Describe mitigation techniques. AT.8.1.4, LA.B.2.4, LA.C.1.4, SC.G.2.4
- 07.09 Determine impacts on wetlands. AT.8.1.4, SC.G.2.4, SS.B.1.4

17.0 COLLECT AND DISPOSE OF SOLID WASTE--The student will be able to:

- 17.04 Construct artificial reefs. AT.8.1.4
- 17.05 Dispose of hazardous and biomedical waste. AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
- 17.06 Sort recyclables at curb. AT.8.1.4, MA.A.1.4, MA.B.1.4

- 17.07 Receive, handle, sort and weigh materials at MRF. AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
- 19.0 MANAGE WILDLIFE--The student will be able to:
- 19.08 Discuss basic mammalogy. LA.C.1.4, SC.F.1.4
- 19.09 Discuss basic ornithology. LA.C.1.4, SC.F.1.4
- 19.10 Discuss basic herpetology. LA.C.1.4, SC.F.1.4
- 19.11 Use a dichotomous key.
- 19.12 Conduct experimental design and statistical analysis. AT.8.1.4, MA.A.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.1.4
- 19.13 Conduct biological data collection. AT.8.1.4, MA.A.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.1.4
- 19.14 Interpret data. SC.H.1.4
- 19.15 Investigate system evolution. SC.H.2.4
- 19.16 Identify basic wildlife diseases and parasites. LA.A.1.4, SC.G.1.4
- 20.0 MANAGE FORESTS--The student will be able to:
- 20.08 Identify surveying techniques. LA.A.1.4
- 20.09 Discuss timber cruising.
- 20.10 Discuss Forestry Best Management Practices (BMP). LA.C.1.4, SC.G.2.4
- 20.11 Identify forestry/nursery production. MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.C.1.4, MA.C.2.4, MA.E.1.4, MA.E.2.4
- 20.12 Discuss marketability of forests. AT.2.2.4, LA.C.1.4
- 20.13 Identify timber marketing. AT.2.2.4, LA.A.1.4
- 20.14 Discuss secondary products.
- 20.15 Identify related equipment.
- 22.0 MANAGE FISHERIES--The student will be able to:
- 22.01 Discuss Ichthyology. SC.F.1.4
- 22.02 Be familiar with the biology of fish and other commercially exploited species. SC.F.1.4
- 22.03 Use dichotomous keys. LA.A.1.4, LA.C.1.4
- 22.04 Identify limnology systems. LA.A.1.4, LA.C.1.4, SC.G.1.4
- 22.05 Identify water quality and chemistry. LA.A.1.4, LA.C.1.4, MA.A.1.4, MA.B.2.4, SC.G.2.4
- 22.06 Describe water-sampling techniques. LA.A.1.4, LA.C.1.4, MA.B.2.4
- 22.07 Describe organism-sampling techniques. LA.A.1.4, LA.C.1.4
- 22.08 Discuss harvesting techniques. LA.A.1.4, LA.C.1.4
- 22.09 Discuss habitat improvement for aquatic animals. LA.A.1.4, LA.C.1.4, SC.G.2.4
- 22.10 Identify hatchery management. LA.A.1.4, LA.C.1.4, MA.A.1.4, MA.C.1.4, MA.C.2.4
- 22.11 Identify aquaculture and mariculture techniques. LA.A.1.4, LA.C.1.4
- 22.12 Describe population dynamics. LA.A.1.4, LA.C.1.4, MA.A.1.4, MA.B.1.4
- 22.13 Conduct experimental design. AT.4.1.4, SC.H.1.4
- 22.14 Identify monitoring techniques. SC.H.1.4

- 22.15 Conduct statistical analysis. MA.A.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.1.4
 - 22.16 Interpret data. SC.H.1.4
 - 22.17 Discuss disease and parasites related to fish, etc.
- 23.0 MANAGE FIRES--The student will be able to:
- 23.01 Discuss burn techniques.
 - 23.02 Discuss safety equipment. AT.8.1.4
 - 23.03 Evaluate site for prescribed burn.
 - 23.04 Discuss fire weather behavior. LA.A.1.4, LA.C.1.4, SC.D.1.4
 - 23.05 Discuss basic meteorology. LA.A.1.4, LA.C.1.4, SC.D.1.4
 - 23.06 Discuss seasonal ecological affects of burning. LA.A.1.4, LA.C.1.4, SC.D.1.4
 - 23.07 Discuss the effects of fires on communities in Florida. LA.A.1.4, LA.C.1.4, MA.A.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.D.1.4
 - 23.08 Describe the natural history of fires in the communities of Florida. LA.A.1.4, LA.C.1.4
 - 23.09 Write a prescription for a controlled burn. AT.1.1.4
 - 23.10 Conduct burn.
 - 23.11 Evaluate post burn.
 - 23.12 Discuss related equipment.
 - 23.13 Discuss wildfire suppression techniques. MA.A.1.4, MA.B.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
- 24.0 MANAGE PESTS--The student will be able to:
- 24.01 Discuss integrated pest management. LA.A.1.4, LA.B.2.4
 - 24.02 Discuss basic entomology. LA.A.1.4, LA.B.2.4, SC.F.1.4
 - 24.03 Use a dichotomous key.
 - 24.04 Discuss urban entomology.
 - 24.05 Be aware of lawn and ornamental insects.
 - 24.06 Discuss basic botany. LA.A.1.4, LA.B.2.4, SC.F.1.4
 - 24.07 Identify lawn and ornamental weeds. LA.A.1.4, LA.B.2.4
 - 24.08 Identify aquatic weeds. LA.A.1.4, LA.B.2.4
 - 24.09 Discuss woody species exotic pests. LA.A.1.4, LA.B.2.4
 - 24.10 Control exotic species. LA.A.1.4, LA.B.2.4
 - 24.11 Identify and control vertebrate pests. LA.A.1.4, LA.B.2.4
 - 24.12 Conduct population studies. LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, MA.D.2.4, SC.H.1.4
 - 24.13 Assess environmental impact of pests. LA.A.1.4, LA.B.2.4, SC.G.2.4
 - 24.14 Discuss pesticide safety/regulations. AT.8.1.4, LA.A.1.4, LA.B.2.4, SC.G.2.4, HE.A.1.4
 - 24.15 Identify chemicals used in pest management. LA.A.1.4, LA.B.2.4, SC.G.2.4, HE.A.1.4
 - 24.16 Discuss basic toxicology. LA.A.1.4, LA.B.2.4
 - 24.17 Collect biological data. AT.1.1.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, MA.D.2.4, SC.H.1.4
- 25.0 MANAGE ECOSYSTEMS--The student will be able to:
- 25.01 Discuss plant taxonomy. LA.A.1.4

- 25.02 Use dichotomous keys.
 - 25.03 Identify different habitat types of Florida. LA.A.1.4, LA.C.1.4, SC.G.1.4
 - 25.04 Describe specific species associations for habitats. LA.A.1.4, LA.C.1.4, SC.G.1.4
 - 25.05 Describe how communities interrelate. LA.A.1.4, LA.C.1.4, SC.G.2.4, SS.C.1.4
 - 25.06 Be aware of listed species. LA.A.1.4, LA.C.1.4
 - 25.07 Describe the effects of manipulation of species composition. LA.A.1.4, LA.C.1.4, SC.G.2.4
 - 25.08 Be aware of population dynamics. LA.A.1.4, LA.C.1.4, SC.G.2.4
 - 25.09 Discuss the effects of genetic isolation. LA.A.1.4, LA.C.1.4, SC.F.2.4, SC.G.2.4
 - 25.10 Discuss the issue of bio-diversity. LA.A.1.4, LA.C.1.4, SC.F.2.4, SC.G.2.4
 - 25.11 Evaluate how external factors affect communities. LA.A.1.4, LA.C.1.4, SC.G.2.4
 - 25.12 Be aware of public use. LA.A.1.4, LA.C.1.4, SC.H.3.4, SS.C.1.4
 - 25.13 Identify archeological and historical perspectives of ecosystems. LA.A.1.4, LA.C.1.4
 - 25.14 Identify remote sensing techniques. AT.4.1.4, LA.A.1.4, LA.C.1.4
 - 25.15 Be aware of management techniques. LA.A.1.4, LA.C.1.4
 - 25.16 Identify vegetation analysis. LA.A.1.4, LA.C.1.4
 - 25.17 Perform sampling, management, and analysis of data. AT.4.1.4
 - 25.18 Identify vegetative monitoring techniques. AT.4.1.4
 - 25.19 Be aware of political, biological, economical, and sociological impacts on managing ecosystems. SC.H.3.4, SS.C.1.4
 - 25.20 Practice ecological ethics. AT.8.1.4, SC.H.3.4
- 26.0 PLAN USE OF LAND--The student will be able to:
- 26.01 Discuss the geography of the area. LA.A.1.4, LA.B.1.4, SS.B.1.4
 - 26.02 Forecast demographic patterns. AT.1.1.4, AT.7.1.4, LA.A.1.4, LA.B.1.4, SS.B.1.4
 - 26.03 Conduct population studies. AT.1.1.4, LA.A.1.4, LA.B.1.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, MA.D.2.4, SC.H.1.4, SS.B.1.4
 - 26.04 Use GIS. AT.4.1.4
 - 26.05 Discuss population dynamics. AT.7.1.4, LA.A.1.4, LA.B.1.4, MA.A.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SS.B.1.4
 - 26.06 Conduct an environmental assessment for a specific site. LA.A.1.4, LA.B.1.4, SS.B.1.4
 - 26.07 Conduct a property title search. LA.A.1.4, LA.B.1.4, MA.A.1.4, SS.B.1.4
 - 26.08 Review section, township, and range maps. LA.A.1.4, LA.B.1.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, SS.B.1.4
 - 26.09 Review aerial maps. LA.A.1.4, LA.B.1.4, SS.B.1.4

- 26.10 Review historical information of the area. LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.11 Interpret topographical and flood plain maps. LA.A.1.4, LA.B.1.4, SS.B.1.4, MA.A.1.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
- 26.12 Be aware of different kinds of acquisitions. LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.13 Discuss growth management. LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.14 Discuss concurrency management system. AT.2.1.4, LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.15 Discuss level of service comprehensive plans. LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.16 Audit conservation as a means to protect and restore. LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.17 Discuss coastal management issues. LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.18 Discuss hurricane preparedness. AT.1.1.4, LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.19 Analyze sanitary sewer, water supply, and sewer needs. AT.7.1.4, LA.A.1.4, LA.B.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SS.B.1.4
- 26.20 Discuss the effects of drainage on resources. AT.7.1.4, LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.21 Discuss inter-group coordination activities. LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.22 Write a capital improvement plan. AT.3.1.4, LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.23 Discuss unique environmental features. LA.A.1.4, LA.B.1.4, SS.B.1.4
- 26.24 Prepare and write a conservation plan for a specific parcel of land. MA.A.1.4, MA.D.1.4, MA.E.3.4
- 26.25 Conduct a compatibility analysis.
- 26.26 Project maintenance management costs. AT.3.1.4, MA.A.1.4, MA.A.2.4

27.0 ADMINISTER LAND USE--The student will be able to:

- 27.01 Describe how to balance uses of land. AT.1.1.4, LA.A.1.4, LA.B.1.4, SC.G.2.4
- 27.02 Describe special protection zones. LA.A.1.4, LA.B.1.4, MA.C.1.4, SC.G.2.4
- 27.03 Discuss consumptive and non-consumptive uses. AT.7.1.4, LA.A.1.4, LA.B.1.4, SC.G.2.4
- 27.04 Discuss access use of land. AT.7.1.4, LA.A.1.4, LA.B.1.4, MA.A.1.4, SC.G.2.4
- 27.05 Discuss recreational uses of land. AT.7.1.4, LA.A.1.4, LA.B.1.4, MA.A.1.4, MA.C.2.4, MA.E.3.4, SC.G.2.4
- 27.06 Discuss public uses of land. AT.7.1.4, LA.A.1.4, LA.B.1.4, MA.A.1.4, MA.C.2.4, MA.E.3.4, SC.G.2.4
- 27.07 Be aware of passive agricultural practices. AT.7.1.4, LA.A.1.4, LA.B.1.4, SC.G.2.4
- 27.08 Discuss cattle grazing. AT.7.1.4, LA.A.1.4, LA.B.1.4, MA.A.1.4, SC.G.2.4

- 27.09 Discuss hunting and fishing use of land. AT.7.1.4,
LA.A.1.4, LA.B.1.4, MA.A.1.4, MA.C.2.4, MA.C.3.4, SC.G.2.4
- 28.0 PROTECT RESOURCES--The student will be able to:
- 28.01 Identify related law enforcement. AT.8.1.4, SS.B.1.4,
SS.C.1.4
- 28.02 Describe Endangered Species Act. AT.8.1.4, SC.G.2.4,
SS.B.1.4, SS.C.1.4
- 28.03 Describe protection of wildlife resources. AT.8.1.4,
SC.G.2.4
- 28.04 Identify marine resources. AT.8.1.4, LA.A.1.4, LA.B.1.4,
MA.A.1.4, MA.B.1.4, MA.C.2.4, MA.E.3.4
- 28.05 Describe fisheries resources. AT.8.1.4, LA.A.1.4, LA.B.1.4,
MA.A.1.4, MA.B.1.4, MA.C.2.4, MA.E.3.4
- 28.06 Identify wetland protection. AT.8.1.4, LA.A.1.4, LA.B.1.4,
MA.A.1.4, MA.B.1.4, MA.C.2.4, MA.E.3.4, SC.G.2.4
- 28.07 Identify and discuss archeological sites. AT.8.1.4,
LA.A.1.4, LA.B.1.4, MA.A.1.4, MA.B.1.4, MA.C.2.4, MA.E.3.4
- 28.08 Identify soil protection. AT.8.1.4, LA.A.1.4, LA.B.1.4,
MA.A.1.4, MA.B.1.4, MA.C.2.4, MA.E.3.4, SC.G.2.4
- 28.09 Be aware of jurisdictional rights. AT.8.1.4, SS.C.1.4
- 29.0 DISCUSS RESTORATION ECOLOGY--The student will be able to:
- 29.01 Discuss geology, pedology, and hydrology. LA.A.1.4,
LA.B.1.4, SC.D.1.4
- 29.02 Be aware of vegetation dynamics. LA.A.1.4, LA.B.1.4
- 29.03 Learn propagating and planting techniques. AT.8.1.4,
LA.A.1.4, LA.B.1.4
- 29.04 Discuss edges and corridors. AT.8.1.4, LA.A.1.4, LA.B.1.4,
MA.C.1.4, MA.C.2.4
- 29.05 Describe restoration techniques. AT.8.1.4, LA.A.1.4,
LA.B.1.4
- 29.06 Discuss wetlands reclamation. AT.8.1.4, LA.A.1.4, LA.B.1.4,
SC.G.2.4
- 29.07 Discuss uplands restoration. AT.8.1.4, LA.A.1.4, LA.B.1.4,
SC.G.2.4
- 29.08 Diagnose restoration from a systems approach. AT.8.1.4,
LA.A.1.4, LA.B.1.4, SC.G.2.4
- 29.09 Discuss mine reclamation. AT.8.1.4, LA.A.1.4, LA.B.1.4,
SC.G.2.4
- 29.10 Describe dune/beach restoration. AT.8.1.4, LA.A.1.4,
LA.B.1.4, MA.C.1.4, MA.C.2.4, SC.G.2.4
- 29.11 Identify related equipment. LA.A.1.4, LA.B.1.4
- 29.12 Learn monitoring techniques. AT.4.1.4, LA.A.1.4, LA.B.1.4,
SC.H.3.4
- 30.0 EDUCATE THE PUBLIC--The student will be able to:
- 30.01 Develop persuasive skills. AT.9.1.4, LA.B.1.4, LA.B.2.4,
SC.H.3.4
- 30.02 Discuss media relations. AT.9.1.4, LA.B.1.4, LA.B.2.4,
SC.H.3.4

- 30.03 Practice audience appropriate communications. AT.9.1.4, SC.H.3.4
- 30.04 Write a communication plan. AT.9.1.4, LA.B.1.4, LA.B.2.4, SC.H.3.4
- 30.05 Conduct tours. AT.9.1.4, LA.B.1.4, LA.B.2.4, SC.H.3.4
- 30.06 Perform public awareness activities. AT.9.1.4, LA.B.1.4, LA.B.2.4, SC.H.3.4
- 30.07 Design educational materials. AT.9.1.4, LA.B.1.4, LA.B.2.4, SC.H.3.4
- 30.08 Construct signs. AT.9.1.4, LA.B.1.4, LA.B.2.4, SC.H.3.4

**Florida Department of Education
INTENDED OUTCOMES**

Program Title: Air Quality Technology

Secondary

Program Number	8914000		
CIP Number	0715.059903		
Grade Level	9-12, 30, 31		
Standard Length	450 hours		
Certification	WSP OPER @7 G	AGRI @4	
	TEC CHEM @7 G	AGRICULTUR 1 @2	
	VOC AGRI @4	BIOLOGY 1	

- V. **INTENDED OUTCOMES:** After successfully completing appropriate course(s) for each occupational completion point of this program, the student will be able to:

OCCUPATIONAL COMPLETION POINT - DATA CODE A

ENVIRONMENTAL HAZARDS TECHNICIAN - Industry Title

- 01.0 Describe the hydrological cycle.
- 02.0 Describe sources of water.
- 03.0 Sampling procedures.
- 04.0 Practice safety procedures.
- 05.0 Describe related geology.
- 06.0 Conduct site assessment.
- 07.0 Manage wetlands.
- 08.0 Describe water treatment techniques.
- 09.0 Describe storm water systems.
- 10.0 Discuss related standards and regulations.
- 11.0 Manage data and physical resources.
- 12.0 Identify career opportunities and organizational dynamics.
- 13.0 Control incidents.
- 14.0 Manage hazardous materials.
- 15.0 Prepare preplanning.
- 16.0 Perform remediation.
- 17.0 Collect and dispose of solid waste.
- 18.0 Obtain continuing education.
- 19.0 Manage wildlife.
- 20.0 Manage forests.
- 21.0 Use GIS system.

OCCUPATIONAL COMPLETION POINT - DATA CODE B

AIR QUALITY TECHNICIAN - Industry Title

- 03.0 Sampling procedures.
- 31.0 Describe the health effects of atmospheric pollution.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Program Title: Air Quality Technology
Secondary Number: 8914000

OCCUPATIONAL COMPLETION POINT - DATA CODE A

ENVIRONMENTAL HAZARDS TECHNICIAN - Industry Title

01.0 DESCRIBE THE HYDROLOGICAL CYCLE--The student will be able to:

01.01 Describe precipitation, percolation, evaporation, runoff, and infiltration. AT.1.1.4, AT.2.2.4, AT.7.1.4, AT.8.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, MA.B.1.4, MA.B.2.4, SC.A.1.4, SC.B.2.4, SC.D.1.4, SC.D.2.4, SC.G.1.4, SC.G.2.4, SC.H.2.4, SS.B.1.4

02.0 DESCRIBE SOURCES OF WATER--The student will be able to:

02.01 Identify surface water systems. AT.7.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.D.1.4, SC.D.1.4, SC.G.2.4, SS.B.1.4
02.02 Identify ground water systems. AT.7.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.D.1.4, SC.D.1.4, SC.G.2.4, SS.B.1.4

03.0 SAMPLING PROCEDURES--The student will be able to:

03.01 Define sampling objectives and protocol. AT.1.1.4, AT.4.1.4, AT.5.1.4, AT.5.2.4, AT.8.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, SC.D.2.4, SC.G.2.4, SC.H.1.4, SC.H.2.4, SC.H.3.4
03.02 Calibrate and maintain sampling equipment, site, and meters. AT.4.1.4, AT.5.2.4, AT.8.1.4, LA.A.1.4, LA.A.2.4, MA.B.2.4, SC.H.3.4
03.03 Operate sampling equipment. AT.4.1.4, AT.5.2.4, AT.8.1.4, MA.B.4.4, SC.H.3.4
03.04 Operate boats and trailers.
03.05 Perform field measurements: Temperature, conductivity, pH, D.O., chlorine, coliform bacteria, color, turbidity, hardness, iron, chloride, fluoride, hydrogen sulfide, corrosion inhibitors, nutrients, chlorophyll, etc. AT.4.1.4, AT.8.1.4, LA.B.2.4, MA.B.2.4, MA.B.3.4, MA.E.1.4, MA.E.3.4, SC.D.2.4, SC.H.3.4, SC.G.2.4
03.06 Document/follow quality assurance practices. AT.4.1.4, AT.8.1.4, AT.5.2.4, LA.B.1.4, LA.B.2.4, MA.B.3.4, MA.E.1.4, MA.E.3.4, SC.H.3.4
03.07 Preserve samples. AT.4.1.4, AT.5.2.4, AT.8.1.4, SC.H.3.4
03.08 Maintain and document chain of custody. AT.8.1.4, LA.B.1.4, LA.B.2.4, MA.B.4.4, MA.E.3.4
03.09 Describe proper waste disposal methods. AT.8.1.4, MA.B.3.4, MA.C.2.4, SC.G.2.4
03.10 Describe pumps and equipment. MA.B.2.4, MA.B.3.4

- 03.11 Be aware of cross-contamination. AT.4.1.4, AT.5.2.4, AT.8.1.4, SC.H.3.4
- 03.12 Define risks associated with sampling. AT.8.1.4, SC.G.2.4
- 03.13 Perform soil, drum, personal, air, water and unidentified sampling. AT.4.1.4, AT.5.2.4, MA.A.3.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.B.4.4, SC.H.3.4

04.0 PRACTICE SAFETY PROCEDURES--The student will be able to:

- 04.01 Identify safety procedures for: Wells, pumps, heavy equipment, electrical equipment, motor vehicles, buildings, and equipment. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.02 Become certified in first aid/CPR. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.03 Comprehend weather hazards. AT.8.1.4, SC.D.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.04 Handle compressed gasses, solids, and liquids safely. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.05 Comprehend Right of Access. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.06 Comprehend OSHA, EPA, and DEP safety requirements. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.07 Determine and review applicable regulations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.08 Describe and comply with specific requirements. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.09 Use personal protective equipment (donning, doffing, limitations). AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.10 Demonstrate personal hygiene. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.11 Demonstrate Material Safety Data Sheets (MSDS). AT.8.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.12 Identify HAZCOM. AT.8.1.4, LA.A.1.4, LA.B.1.4, LA.C.1.4, LA.C.2.4, LA.C.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.13 Identify Confined Space Regulations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.14 Identify First Responder Protocol. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.15 Identify Competent Person Regulations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.16 Be aware of Zero Tolerance. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.17 Keep safety records. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.D.1.4, MA.E.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.18 Identify fire/explosive hazards. AT.8.1.4, LA.A.1.4, MA.D.1.4, MA.E.2.4, MA.E.3.4, SC.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.19 Describe hazards and risks of jobs. AT.8.1.4, LA.A.1.4, MA.D.1.4, MA.E.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.20 Identify employee limitations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4

- 04.21 Identify lead and asbestos safety precautions. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.22 Identify safe work practices. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.23 Identify decontamination procedures. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.24 Identify DOT All handbook. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.25 Become familiar with principles of toxicology. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.26 Identify OSHA 29CFR and OMMP. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.27 Identify ladder safety and fall protection. AT.8.1.4, LA.A.1.4, MA.C.1.4, MA.E.1.4, MA.E.2.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.28 Identify basic nutrition. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.29 Identify routes of exposure. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.30 Identify respirator safety procedures. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.31 Identify heat stress protocol. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.32 Be aware of radiation hazards. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.33 Be aware of physical, chemical, biological, and zoological hazards. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.34 Identify history of hazardous materials and hazardous categories. AT.8.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, SS.A.4.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.35 Identify common chemical compatibility. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.36 Perform lifting activities safely. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4

05.0 DESCRIBE RELATED GEOLOGY--The student will be able to:

- 05.01 Know geological history of Florida. AT.4.1.4, LA.A.1.4, SC.D.1.4, SS.B.1.4
- 05.02 Discuss mapping and surveying. AT.4.1.4, LA.A.1.4, MA.C.3.4, MA.D.2.4, SC.D.1.4, SS.B.1.4
- 05.03 Discuss basic hydrological terms. AT.4.1.4, LA.B.2.4, SC.D.1.4

06.0 CONDUCT SITE ASSESSMENT--The student will be able to:

- 06.01 Describe required documentation. AT.1.1.4, LA.B.2.4, MA.A.1.4, MA.A.3.4, MA.A.4.4, MA.C.1.4, MA.C.3.4
- 06.02 Identify the different phases of site assessment. AT.1.1.4, LA.A.1.4
- 06.03 Identify the purposes of site assessment. AT.1.1.4, LA.A.1.4

- 06.04 Identify type of mechanical systems. AT.1.1.4, LA.A.1.4
- 06.05 determine operational criteria. AT.1.1.4
- 06.06 Verify blueprint accuracy. AT.1.1.4, MA.A.1.4, MA.A.2.4, MA.C.1.4, MA.C.2.4
- 06.07 Conduct manual survey. AT.1.1.4
- 06.08 Obtain background design information. AT.1.1.4
- 06.09 Obtain physical and performance measurements. AT.1.1.4, MA.A.1.4, MA.A.2.4, MA.C.1.4, MA.C.2.4, MA.C.3.4
- 06.10 Determine system safety impacts. AT.1.1.4
- 06.11 Determine nature and extent of exposure. AT.1.1.4, SC.G.2.4
- 06.12 Assess equipment and processes. AT.1.1.4
- 06.13 Develop sampling strategy. AT.1.1.4
- 06.14 Collect air samples. AT.4.1.4, MA.A.1.4, MA.A.2.4, MA.B.2.4, MA.B.3.4, SC.G.2.4, SC.H.3.4
- 06.15 Conduct opening conference. AT.4.1.4, LA.C.3.4
- 06.16 Submit samples for analysis. AT.4.1.4, SC.H.3.4
- 06.17 Recommend corrective action. AT.4.1.4, LA.B.2.4, LA.C.3.4, SC.G.2.4
- 06.18 Perform periodic follow-up sampling. AT.4.1.4, MA.A.1.4, MA.A.2.4, MA.B.2.4, MA.B.3.4, SC.H.3.4

- 07.0 MANAGE WETLANDS--The student will be able to:
 - 07.01 Identify ecosystems. LA.A.1.4, SC.G.1.4
 - 07.02 Discuss the structure and function of wetlands. LA.C.3.4, MA.A.1.4, MA.B.2.4, MA.B.3.4, MA.C.1.4, SC.G.1.4, SC.G.2.4
 - 07.03 Define limits of wetlands. AT.2.1.4, AT.8.1.4, LA.C.3.4, SC.G.1.4, SC.G.2.4
 - 07.04 Discuss habitat value. LA.C.3.4, SC.G.1.4, SC.G.2.4
 - 07.05 Identify fauna and flora. SC.G.1.4
 - 07.06 Determine desirable vs. nuisance plant species. AT.8.1.4, SC.G.1.4, SC.G.2.4

- 08.0 DESCRIBE WATER TREATMENT TECHNIQUES--The student will be able to:
 - 08.01 Understand pretreatment, primary, secondary, and tertiary treatment processes of wastewater. AT.4.1.4, AT.8.1.4, LA.A.1.4, SC.G.2.4
 - 08.02 Know disposal options. AT.4.1.4, AT.8.1.4, SC.G.2.4
 - 08.03 Be familiar with septic tanks. AT.4.1.4, AT.8.1.4, SC.G.2.4

- 09.0 DESCRIBE STORMWATER SYSTEMS--The student will be able to:
 - 09.01 Understand current construction trends and methods. AT.4.1.4, AT.8.1.4, SC.D.1.4, SC.G.2.4
 - 09.02 Be familiar with topography. AT.4.1.4, AT.8.1.4, MA.A.1.4, MA.B.2.4, MA.B.3.4, MA.B.4.4, SC.D.1.4, SC.G.2.4, SS.B.1.4

- 10.0 DISCUSS RELATED STANDARDS AND REGULATIONS--The student will be able to:
 - 10.01 Identify Florida Administrative Code (F.A.C.). AT.8.1.4, SC.G.2.4
 - 10.02 Recognize agencies and hierarchies. AT.8.1.4

- 10.03 Describe goals of environmental protection. AT.8.1.4
- 10.04 Describe permitting procedures including SWFMD procedures. AT.8.1.4
- 10.05 Become familiar with use of regulation resources. AT.8.1.4, LA.A.1.4, SS.B.2.4
- 10.06 Describe various licensing procedures. AT.8.1.4, LA.A.1.4, SS.B.2.4
- 10.07 Describe the Clean Water Act. AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4
- 10.08 Identify the Regulatory File System. AT.8.1.4, LA.A.1.4, SS.B.2.4
- 10.09 Describe a well-head protection plan. AT.8.1.4, SC.G.2.4
- 10.10 Identify CERCLA, RCRA, TSCA, SWDA, CWA, CAA, AHERA, SARA, HM181, NFPA-704, DOT AND Code of Federal Regulations (CFR). AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4, HE.A.1.4
- 10.11 Describe how rules are made and mandated. AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4, HE.A.1.4
- 10.12 Describe how endangered species get listed. AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4, HE.A.1.4

11.0 MANAGE DATA AND PHYSICAL RESOURCES--The student will be able to:

- 11.01 Be familiar with data entry. AT.4.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.B.1.4, MA.B.2.4, SS.B.1.4
- 11.02 Be familiar with Windows, word processing, databases, computer graphics, statistics programs, spreadsheets, Internet, GIS, and security. AT.4.1.4, LA.B.2.4, SS.B.1.4
- 11.03 Identify equipment and materials needed. AT.1.1.4
- 11.04 Identify funding sources. AT.3.1.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.B.1.4
- 11.05 Prepare budgets and purchase orders. AT.3.1.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.B.1.4, MA.B.2.4, MA.C.3.4
- 11.06 Prepare a time management plan. AT.1.1.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.B.1.4, MA.B.2.4, MA.C.3.4
- 11.07 Be aware of information databases. AT.4.1.4, SS.B.1.4
- 11.08 Become familiar with printed reference materials. AT.1.1.4, SS.B.1.4
- 11.09 Describe network opportunities. AT.2.2.4, LA.C.1.4, SS.B.1.4
- 11.10 Keep records. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
- 11.11 Identify OSHA 100 and 200 record keeping requirements. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
- 11.12 Identify DOT record keeping procedures. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
- 11.13 Identify EPA record keeping requirements. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4

- 11.14 Keep inventory, time sheets, and equipment maintenance log.
AT.2.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4,
MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
 - 11.15 Identify suppliers and technical resources. AT.1.1.4,
LA.A.1.4, LA.B.2.4, SS.B.1.4
 - 11.16 Identify outside responders. AT.1.1.4, LA.C.1.4
- 12.0 IDENTIFY CAREER OPPORTUNITIES AND ORGANIZATIONAL DYNAMICS--The student will be able to:
- 12.01 Be aware of careers in the following fields:
Surface/stormwater, drinking water, wastewater, groundwater,
land resources, air quality, solid waste, and HAZMAT.
AT.4.1.4, LA.A.1.4, LA.C.1.4
 - 12.02 Identify supervisory responsibilities. AT.2.1.4, LA.A.1.4,
LA.C.1.4
 - 12.03 Identify organizational structure. AT.6.1.4, LA.A.1.4,
LA.C.1.4
 - 12.04 Identify administrative responsibilities. AT.6.1.4,
LA.A.1.4, LA.C.1.4
 - 12.05 Identify team building communication skills. AT.9.1.4,
LA.A.1.4, LA.C.1.4
 - 12.06 Identify problem-solving techniques. AT.1.1.4, LA.A.1.4,
LA.C.1.4, MA.A.3.4, MA.A.4.4
 - 12.07 Identify employee responsibility/benefits. AT.6.1.4,
LA.A.1.4, LA.C.1.4
 - 12.08 Identify legal aspects of personnel relations. AT.9.1.4,
LA.A.1.4, LA.C.1.4
 - 12.09 Write proposals. AT.1.1.4, LA.B.1.4, LA.B.2.4, MA.A.1.4,
MA.A.2.4, MA.A.3.4, MA.A.4.4, MA.A.5.4, MA.B.1.4, MA.B.2.4,
MA.B.3.4, MA.B.4.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.D.1.4,
MA.D.2.4, MA.C.1.4, MA.E.2.4, MA.E.3.4
 - 12.10 Design and conduct presentations. AT.4.1.4, LA.C.3.4
- 13.0 CONTROL INCIDENTS--The student will be able to:
- 13.01 Identify reasons for controlling incidents. AT.1.1.4,
LA.A.1.4
 - 13.02 Describe levels of response. LA.A.1.4
 - 13.03 Determine methods of control. LA.A.1.4
 - 13.04 Restrict site access.
 - 13.05 Notify appropriate authorities. LA.C.1.4
 - 13.06 Place equipment appropriately. MA.A.1.4, MA.A.2.4, MA.C.1.4
 - 13.07 Orient zones.
 - 13.08 Be aware of geographic hazards. SC.D.1.4, SS.B.1.4
 - 13.09 Practice site safety. AT.8.1.4, HE.A.1.4, HE.A.2.4
 - 13.10 Identify media protocol. LA.C.1.4
 - 13.11 Identify protocol for communicating with the public.
AT.7.1.4, LA.C.3.4
 - 13.12 Determine and use proper chain of command.
- 14.0 MANAGE HAZARDOUS MATERIALS--The student will be able to:
- 14.01 Describe flow of materials. AT.8.1.4, LA.A.1.4

- 14.02 Describe life cycles of materials. AT.8.1.4, LA.A.1.4, SC.A.1.4
- 14.03 Identify proper chemical handling and storage guidelines. AT.8.1.4, LA.A.1.4, MA.A.1.4, MA.B.2.4
- 14.04 Describe material management procedures for OSHA, EPA, DOT. AT.8.1.4, HE.A.1.4
- 14.05 Identify alternatives to disposal. AT.8.1.4, SC.G.2.4
- 14.06 Identify waste minimization and pollution prevention. AT.8.1.4, SC.G.2.4, HE.A.1.4, HE.A.2.4
- 14.07 Describe waste determination procedures. AT.8.1.4, HE.A.1.4, HE.A.2.4
- 14.08 Describe storage tank procedures. AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.1.4, HE.A.1.4, HE.A.2.4
- 14.09 Identify biochemical/medical waste. AT.8.1.4, HE.A.1.4, HE.A.2.4
- 14.10 Describe shipping and transportation procedures. AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.3.4, MA.E.3.4
- 14.11 Identify phase I and II audits. AT.8.1.4, LA.B.2.4
- 14.12 Identify closure reports. AT.8.1.4, LA.B.2.4
- 14.13 Write contamination assessment reports. AT.8.1.4, LA.B.2.4, MA.A.1.4, MA.E.3.4

15.0 PREPARE PRE-PLANNING--The student will be able to:

- 15.01 Describe the need for pre-planning. AT.1.1.4, AT.8.1.4, LA.A.1.4, LA.B.2.4
- 15.02 Identify type of pre-planning needed. AT.1.1.4, AT.8.1.4, LA.A.1.4, LA.B.2.4
- 15.03 Recognize agency involvement. AT.1.1.4, AT.8.1.4, LA.A.1.4, LA.B.2.4
- 15.04 Identify contamination zones. AT.1.1.4, AT.8.1.4
- 15.05 Pre-plan for hurricane, tornadoes, floods, fires, and nuclear accidents. AT.1.1.4, AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.3.4, MA.D.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
- 15.06 Identify SARA III regulations. AT.1.1.4, AT.8.1.4, HE.A.1.4
- 15.07 Describe pre-planned deployment. AT.1.1.4, AT.8.1.4, HE.A.1.4
- 15.08 Write a contingency plan. AT.1.1.4, AT.8.1.4, LA.B.2.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.3.4, MA.D.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
- 15.09 Conduct mock disaster activities. AT.1.1.4, AT.8.1.4

16.0 PERFORM REMEDIATION--The student will be able to:

- 16.01 Select cleaning method. AT.8.1.4
- 16.02 Select needed materials and equipment. AT.8.1.4
- 16.03 Conduct site preparation. AT.8.1.4, MA.A.1.4, MA.A.3.4, MA.A.4.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.1.4, MA.C.2.4
- 16.04 Conduct entry and closure methods. AT.8.1.4
- 16.05 Remove contaminant source. AT.8.1.4
- 16.06 Verify site/system cleanliness. AT.8.1.4
- 16.07 Perform tear down and demobilization. AT.8.1.4

- 17.0 COLLECT AND DISPOSE OF SOLID WASTE--The student will be able to:
- 17.01 Describe history of solid waste disposal. AT.8.1.4, MA.A.1.4, MA.B.4.4., MA.E.3.4, SS.B.2.4
 - 17.02 Identify different types of waste. AT.8.1.4, LA.A.1.4, MA.A.1.4, MA.B.4.4, MA.E.3.4, SC.G.2.4
 - 17.03 Discuss solid waste disposal options: Landfill, incineration, and composting. AT.8.1.4, MA.A.1.4, MA.B.4.4, MA.E.3.4, SC.G.2.4
- 18.0 OBTAIN CONTINUING EDUCATION--The student will be able to:
- 18.01 Determine continuing education needs/goals. AT.9.1.4, LA.A.1.4
 - 18.02 Identify available educational resources. AT.9.1.4
 - 18.03 Select appropriate resources. AT.9.1.4
 - 18.04 Participate in appropriate association meetings. AT.9.1.4
 - 18.05 Read and review trade journals. AT.9.1.4, LA.A.1.4, LA.B.2.4
 - 18.06 Network with other professionals. AT.9.1.4, LA.A.1.4, LA.B.2.4
- 19.0 MANAGE WILDLIFE--The student will be able to:
- 19.01 Identify listed species. LA.A.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4
 - 19.02 Identify and describe life histories of game species. LA.A.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
 - 19.03 Identify and describe life histories of non-game species. LA.A.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
 - 19.04 Discuss urban wildlife management. AT.8.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.2.4, HE.A.1.4
 - 19.05 Be aware of community ecology. AT.8.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4, SC.G.2.4
 - 19.06 Learn wildlife techniques and principles. MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4, SC.G.2.4
 - 19.07 Discuss population dynamics. MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4, SC.G.2.4, SS.B.1.4
- 20.0 MANAGE FORESTS--The student will be able to:
- 20.01 Describe dendrology. LA.A.1.4
 - 20.02 Describe silvaculture. LA.A.1.4, SC.G.2.4
 - 20.03 Discuss forest pathogens and diseases. LA.A.1.4, SC.G.1.4
 - 20.04 Discuss replanting techniques. MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.C.1.4, MA.C.2.4, MA.E.2.4, MA.E.3.4
 - 20.05 Discuss harvesting techniques. AT.7.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.C.1.4, MA.C.2.4, MA.E.2.4, MA.E.3.4
 - 20.06 Identify timber stand improvement. SC.G.1.4

20.07 Discuss timber and forest products. SC.G.2.4

21.0 USE GIS SYSTEM--The student will be able to:

- 21.01 Define GIS and its function. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.02 Explore GIS as a resource tool. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.03 Learn GIS software. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.04 Learn GIS applications. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.05 Identify the use of a database. AT.4.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.06 Learn to input data. AT.4.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.07 Develop a model. AT.4.1.4, AT.5.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.08 Define GPS and its function. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.09 Collect GPS data and load on GIS. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.10 Be familiar with other remote sensing tools. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.11 Download LANDSTAT into GIS. AT.4.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4

OCCUPATIONAL COMPLETION POINT - DATA CODE B

AIR QUALITY TECHNICIAN - Industry Title

03.0 SAMPLING PROCEDURES--The student will be able to:

- 03.14 Collect samples: Grab and otherwise. AT.4.1.4, AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.E.3.4, SC.H.1.4
- 03.15 Analyze samples. AT.4.1.4, SC.H.1.4
- 03.16 Record data into database program. AT.4.1.4, LA.B.2.4, SC.H.3.4
- 03.17 Evaluate data. LA.B.2.4, SC.H.3.4
- 03.18 Identify Testing Plan.
- 03.19 Perform HAZCAT and OVD tests. AT.4.1.4, MA.A.1.4, MA.E.3.4
- 03.20 Discuss criteria in choosing a Lab. LA.A.1.4
- 03.21 Interpret Lab results. LA.A.1.4, SC.H.1.4
- 03.22 Conduct fume sampling. AT.4.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.E.3.4, SC.H.1.4

- 03.23 Conduct bacteriological and microbiological sampling.
AT.4.1.4, AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4,
MA.E.3.4, SC.H.1.4
- 03.24 Conduct dust sampling. AT.4.1.4, AT.8.1.4, MA.A.1.4,
MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.E.3.4, SC.H.1.4
- 03.25 Conduct noise sampling. AT.4.1.4, AT.8.1.4, MA.A.1.4,
MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.E.3.4, SC.H.1.4
- 03.26 Conduct organic and inorganic vapor sampling. MA.A.1.4,
MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.E.3.4, SC.H.1.4

31.0 DESCRIBE THE ATMOSPHERIC EFFECTS OF AIR POLLUTION--The student will be able to:

- 31.01 Define meteorologic effects on dispersion of air pollutants.
LA.A.1.4, LA.C.1.4, SC.D.1.4
- 31.02 Describe the significance of long distance transport on the global impact of air pollutants. LA.A.1.4, LA.C.1.4,
SC.D.2.4
- 31.03 Demonstrate an understanding of the qualitative and quantitative differences in pollutants produced by stationary sources as compared to mobile sources. LA.A.1.4,
LA.C.1.4, MA.B.1.4, SC.D.2.4
- 31.04 Describe sources and sinks for naturally occurring pollutants. LA.A.1.4, LA.C.1.4, SC.G.2.4
- 31.05 Discuss the significance of photochemical reactions in air pollution. LA.A.1.4, LA.C.1.4, MA.B.1.4, MA.E.1.4,
MA.E.2.4, MA.E.3.4
- 31.06 Describe ways in which these reactions contribute to the environmental and health effects of air pollutants.
LA.A.1.4, LA.C.1.4, SC.G.2.4, HE.A.1.4
- 31.07 Discuss the importance of particle size on distribution and deposition in regard to health effects. LA.A.1.4, LA.C.1.4,
MA.B.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.2.4, HE.A.1.4
- 31.08 Discuss the health significance of pollutants formed or found in the home environment. LA.A.1.4, LA.C.1.4,
SC.G.2.4, HE.A.1.4
- 31.09 Become familiar with U.S. and Florida laws and regulations that are related to air pollution control programs and health effects of air pollution. AT.8.1.4, LA.A.1.4,
LA.C.1.4, HE.A.1.4
- 31.10 Discuss the basic concept of derivation and application of Air Quality Standards. AT.8.1.4, LA.A.1.4, LA.C.1.4,
- 31.11 Describe the basic principles of air pollution monitoring to assess the magnitude of air pollution problems. LA.A.1.4,
LA.C.1.4, MA.B.1.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4,
SC.H.3.4
- 31.12 Describe control measures for particulate and gaseous pollutants. LA.A.1.4, LA.C.1.4
- 31.13 Discuss the basic principles of air pollution control technology. AT.4.1.4, LA.A.1.4, LA.C.1.4, SC.G.2.4

Florida Department of Education
INTENDED OUTCOMES

Program Title: Water Resources Technology

Secondary

Program Number 8916000
 CIP Number 0715.059904
 Grade Level 9-12, 30, 31
 Standard Length 600 hours
 Certification WSP OPER @7 G AGRI @4
 TEC CHEM @7 G VOC AGRI @4
 AGRICULTUR 1 @2 BIOLOGY 1

V. **INTENDED OUTCOMES:** After successfully completing appropriate course(s) for each occupational completion point of this program, the student will be able to:

OCCUPATIONAL COMPLETION POINT - DATA CODE A

ENVIRONMENTAL HAZARDS TECHNICIAN - Industry Title

- 01.0 Describe the hydrological cycle.
- 02.0 Describe sources of water.
- 03.0 Sampling procedures.
- 04.0 Practice safety procedures.
- 05.0 Describe related geology.
- 06.0 Conduct site assessment.
- 07.0 Manage wetlands.
- 08.0 Describe water treatment techniques.
- 09.0 Describe storm water systems.
- 10.0 Discuss related standards and regulations.
- 11.0 Manage data and physical resources.
- 12.0 Identify career opportunities and organizational dynamics.
- 13.0 Control incidents.
- 14.0 Manage hazardous materials.
- 15.0 Prepare preplanning.
- 16.0 Perform remediation.
- 17.0 Collect and dispose of solid waste.
- 18.0 Obtain continuing education.
- 19.0 Manage wildlife.
- 20.0 Manage forests.
- 21.0 Use GIS system.

OCCUPATIONAL COMPLETION POINT - DATA CODE B

WATER QUALITY TECHNICIAN - Industry Title

- 01.0 Describe the hydrological cycle.
- 02.0 Describe sources of water.
- 03.0 Sampling procedures.
- 05.0 Describe related geology.
- 08.0 Describe water treatment techniques.
- 09.0 Describe stormwater systems.

- 22.0 Describe substances in water.
- 23.0 Maintain water treatment equipment and facilities.
- 24.0 Inspect and maintain drainage systems.
- 25.0 Describe water distribution.
- 26.0 Compliance monitoring/inspection.
- 27.0 Discuss comprehensive quality assurance plan.

**Florida Department of Education
STUDENT PERFORMANCE STANDARDS**

Program Title: Water Resources Technology
Secondary Number: 8916000

OCCUPATIONAL COMPLETION POINT - DATA CODE A

ENVIRONMENTAL HAZARDS TECHNICIAN - Industry Title

- 01.0 DESCRIBE THE HYDROLOGICAL CYCLE--The student will be able to:
- 01.01 Describe precipitation, percolation, evaporation, runoff, and infiltration. AT.1.1.4, AT.2.2.4, AT.7.1.4, AT.8.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, MA.B.1.4, MA.B.2.4, SC.A.1.4, SC.B.2.4, SC.D.1.4, SC.D.2.4, SC.G.1.4, SC.G.2.4, SC.H.2.4, SS.B.1.4
- 02.0 DESCRIBE SOURCES OF WATER--The student will be able to:
- 02.01 Identify surface water systems. AT.7.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.D.1.4, SC.D.1.4, SC.G.2.4, SS.B.1.4
- 02.02 Identify ground water systems. AT.7.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.D.1.4, SC.D.1.4, SC.G.2.4, SS.B.1.4
- 03.0 SAMPLING PROCEDURES--The student will be able to:
- 03.01 Define sampling objectives and protocol. AT.1.1.4, AT.4.1.4, AT.5.1.4, AT.5.2.4, AT.8.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, SC.D.2.4, SC.G.2.4, SC.H.1.4, SC.H.2.4, SC.H.3.4
- 03.02 Calibrate and maintain sampling equipment, site, and meters. AT.4.1.4, AT.5.2.4, AT.8.1.4, LA.A.1.4, LA.A.2.4, MA.B.2.4, SC.H.3.4
- 03.03 Operate sampling equipment. AT.4.1.4, AT.5.2.4, AT.8.1.4, MA.B.4.4, SC.H.3.4
- 03.04 Operate boats and trailers.
- 03.05 Perform field measurements: Temperature, conductivity, pH, D.O., chlorine, coliform bacteria, color, turbidity, hardness, iron, chloride, fluoride, hydrogen sulfide, corrosion inhibitors, nutrients, chlorophyll, etc. AT.4.1.4, AT.8.1.4, LA.B.2.4, MA.B.2.4, MA.B.3.4, MA.E.1.4, MA.E.3.4, SC.D.2.4, SC.H.3.4, SC.G.2.4
- 03.06 Document/follow quality assurance practices. AT.4.1.4, AT.8.1.4, AT.5.2.4, LA.B.1.4, LA.B.2.4, MA.B.3.4, MA.E.1.4, MA.E.3.4, SC.H.3.4
- 03.07 Preserve samples. AT.4.1.4, AT.5.2.4, AT.8.1.4, SC.H.3.4
- 03.08 Maintain and document chain of custody. AT.8.1.4, LA.B.1.4, LA.B.2.4, MA.B.4.4, MA.E.3.4
- 03.09 Describe proper waste disposal methods. AT.8.1.4, MA.B.3.4, MA.C.2.4, SC.G.2.4
- 03.10 Describe pumps and equipment. MA.B.2.4, MA.B.3.4

- 03.11 Be aware of cross-contamination. AT.4.1.4, AT.5.2.4, AT.8.1.4, SC.H.3.4
- 03.12 Define risks associated with sampling. AT.8.1.4, SC.G.2.4
- 03.13 Perform soil, drum, personal, air, water and unidentified sampling. AT.4.1.4, AT.5.2.4, MA.A.3.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.B.4.4, SC.H.3.4

04.0 PRACTICE SAFETY PROCEDURES--The student will be able to:

- 04.01 Identify safety procedures for: Wells, pumps, heavy equipment, electrical equipment, motor vehicles, buildings, and equipment. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.02 Become certified in first aid/CPR. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.03 Comprehend weather hazards. AT.8.1.4, SC.D.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.04 Handle compressed gasses, solids, and liquids safely. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.05 Comprehend Right of Access. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.06 Comprehend OSHA, EPA, and DEP safety requirements. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.07 Determine and review applicable regulations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.08 Describe and comply with specific requirements. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.09 Use personal protective equipment (donning, doffing, limitations). AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.10 Demonstrate personal hygiene. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.11 Demonstrate Material Safety Data Sheets (MSDS). AT.8.1.4, LA.A.1.4, LA.A.2.4, LA.B.1.4, LA.B.2.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.12 Identify HAZCOM. AT.8.1.4, LA.A.1.4, LA.B.1.4, LA.C.1.4, LA.C.2.4, LA.C.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.13 Identify Confined Space Regulations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.14 Identify First Responder Protocol. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.15 Identify Competent Person Regulations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.16 Be aware of Zero Tolerance. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.17 Keep safety records. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.D.1.4, MA.E.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.18 Identify fire/explosive hazards. AT.8.1.4, LA.A.1.4, MA.D.1.4, MA.E.2.4, MA.E.3.4, SC.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.19 Describe hazards and risks of jobs. AT.8.1.4, LA.A.1.4, MA.D.1.4, MA.E.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.20 Identify employee limitations. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4

- 04.21 Identify lead and asbestos safety precautions. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.22 Identify safe work practices. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.23 Identify decontamination procedures. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.24 Identify DOT All handbook. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.25 Become familiar with principles of toxicology. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.26 Identify OSHA 29CFR and OMMP. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.27 Identify ladder safety and fall protection. AT.8.1.4, LA.A.1.4, MA.C.1.4, MA.E.1.4, MA.E.2.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.28 Identify basic nutrition. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.29 Identify routes of exposure. AT.8.1.4, LA.A.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.30 Identify respirator safety procedures. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.31 Identify heat stress protocol. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.32 Be aware of radiation hazards. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.33 Be aware of physical, chemical, biological, and zoological hazards. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.34 Identify history of hazardous materials and hazardous categories. AT.8.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, SS.A.4.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.35 Identify common chemical compatibility. AT.8.1.4, LA.A.1.4, MA.E.1.4, MA.C.2.4, MA.E.3.4, HE.A.1.4, HE.A.2.4, HE.B.1.4
- 04.36 Perform lifting activities safely. AT.8.1.4, HE.A.1.4, HE.A.2.4, HE.B.1.4

05.0 DESCRIBE RELATED GEOLOGY--The student will be able to:

- 05.01 Know geological history of Florida. AT.4.1.4, LA.A.1.4, SC.D.1.4, SS.B.1.4
- 05.02 Discuss mapping and surveying. AT.4.1.4, LA.A.1.4, MA.C.3.4, MA.D.2.4, SC.D.1.4, SS.B.1.4
- 05.03 Discuss basic hydrological terms. AT.4.1.4, LA.B.2.4, SC.D.1.4

06.0 CONDUCT SITE ASSESSMENT--The student will be able to:

- 06.01 Describe required documentation. AT.1.1.4, LA.B.2.4, MA.A.1.4, MA.A.3.4, MA.A.4.4, MA.C.1.4, MA.C.3.4
- 06.02 Identify the different phases of site assessment. AT.1.1.4, LA.A.1.4
- 06.03 Identify the purposes of site assessment. AT.1.1.4, LA.A.1.4

- 06.04 Identify type of mechanical systems. AT.1.1.4, LA.A.1.4
- 06.05 determine operational criteria. AT.1.1.4
- 06.06 Verify blueprint accuracy. AT.1.1.4, MA.A.1.4, MA.A.2.4, MA.C.1.4, MA.C.2.4
- 06.07 Conduct manual survey. AT.1.1.4
- 06.08 Obtain background design information. AT.1.1.4
- 06.09 Obtain physical and performance measurements. AT.1.1.4, MA.A.1.4, MA.A.2.4, MA.C.1.4, MA.C.2.4, MA.C.3.4
- 06.10 Determine system safety impacts. AT.1.1.4
- 06.11 Determine nature and extent of exposure. AT.1.1.4, SC.G.2.4
- 06.12 Assess equipment and processes. AT.1.1.4
- 06.13 Develop sampling strategy. AT.1.1.4
- 06.14 Collect air samples. AT.4.1.4, MA.A.1.4, MA.A.2.4, MA.B.2.4, MA.B.3.4, SC.G.2.4, SC.H.3.4
- 06.15 Conduct opening conference. AT.4.1.4, LA.C.3.4
- 06.16 Submit samples for analysis. AT.4.1.4, SC.H.3.4
- 06.17 Recommend corrective action. AT.4.1.4, LA.B.2.4, LA.C.3.4, SC.G.2.4
- 06.18 Perform periodic follow-up sampling. AT.4.1.4, MA.A.1.4, MA.A.2.4, MA.B.2.4, MA.B.3.4, SC.H.3.4

- 07.0 MANAGE WETLANDS--The student will be able to:
 - 07.01 Identify ecosystems. LA.A.1.4, SC.G.1.4
 - 07.02 Discuss the structure and function of wetlands. LA.C.3.4, MA.A.1.4, MA.B.2.4, MA.B.3.4, MA.C.1.4, SC.G.1.4, SC.G.2.4
 - 07.03 Define limits of wetlands. AT.2.1.4, AT.8.1.4, LA.C.3.4, SC.G.1.4, SC.G.2.4
 - 07.04 Discuss habitat value. LA.C.3.4, SC.G.1.4, SC.G.2.4
 - 07.05 Identify fauna and flora. SC.G.1.4
 - 07.06 Determine desirable vs. nuisance plant species. AT.8.1.4, SC.G.1.4, SC.G.2.4

- 08.0 DESCRIBE WATER TREATMENT TECHNIQUES--The student will be able to:
 - 08.01 Understand pretreatment, primary, secondary, and tertiary treatment processes of wastewater. AT.4.1.4, AT.8.1.4, LA.A.1.4, SC.G.2.4
 - 08.02 Know disposal options. AT.4.1.4, AT.8.1.4, SC.G.2.4
 - 08.03 Be familiar with septic tanks. AT.4.1.4, AT.8.1.4, SC.G.2.4

- 09.0 DESCRIBE STORMWATER SYSTEMS--The student will be able to:
 - 09.01 Understand current construction trends and methods. AT.4.1.4, AT.8.1.4, SC.D.1.4, SC.G.2.4
 - 09.02 Be familiar with topography. AT.4.1.4, AT.8.1.4, MA.A.1.4, MA.B.2.4, MA.B.3.4, MA.B.4.4, SC.D.1.4, SC.G.2.4, SS.B.1.4

- 10.0 DISCUSS RELATED STANDARDS AND REGULATIONS--The student will be able to:
 - 10.01 Identify Florida Administrative Code (F.A.C.). AT.8.1.4, SC.G.2.4
 - 10.02 Recognize agencies and hierarchies. AT.8.1.4

- 10.03 Describe goals of environmental protection. AT.8.1.4
- 10.04 Describe permitting procedures including SWFMD procedures. AT.8.1.4
- 10.05 Become familiar with use of regulation resources. AT.8.1.4, LA.A.1.4, SS.B.2.4
- 10.06 Describe various licensing procedures. AT.8.1.4, LA.A.1.4, SS.B.2.4
- 10.07 Describe the Clean Water Act. AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4
- 10.08 Identify the Regulatory File System. AT.8.1.4, LA.A.1.4, SS.B.2.4
- 10.09 Describe a well-head protection plan. AT.8.1.4, SC.G.2.4
- 10.10 Identify CERCLA, RCRA, TSCA, SWDA, CWA, CAA, AHERA, SARA, HM181, NFPA-704, DOT AND Code of Federal Regulations (CFR). AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4, HE.A.1.4
- 10.11 Describe how rules are made and mandated. AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4, HE.A.1.4
- 10.12 Describe how endangered species get listed. AT.8.1.4, LA.A.1.4, SC.G.2.4, SS.B.2.4, HE.A.1.4

11.0 MANAGE DATA AND PHYSICAL RESOURCES--The student will be able to:

- 11.01 Be familiar with data entry. AT.4.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.B.1.4, MA.B.2.4, SS.B.1.4
- 11.02 Be familiar with Windows, word processing, databases, computer graphics, statistics programs, spreadsheets, Internet, GIS, and security. AT.4.1.4, LA.B.2.4, SS.B.1.4
- 11.03 Identify equipment and materials needed. AT.1.1.4
- 11.04 Identify funding sources. AT.3.1.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.B.1.4
- 11.05 Prepare budgets and purchase orders. AT.3.1.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.B.1.4, MA.B.2.4, MA.C.3.4
- 11.06 Prepare a time management plan. AT.1.1.4, LA.B.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.B.1.4, MA.B.2.4, MA.C.3.4
- 11.07 Be aware of information databases. AT.4.1.4, SS.B.1.4
- 11.08 Become familiar with printed reference materials. AT.1.1.4, SS.B.1.4
- 11.09 Describe network opportunities. AT.2.2.4, LA.C.1.4, SS.B.1.4
- 11.10 Keep records. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
- 11.11 Identify OSHA 100 and 200 record keeping requirements. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
- 11.12 Identify DOT record keeping procedures. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
- 11.13 Identify EPA record keeping requirements. AT.8.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4, MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4

- 11.14 Keep inventory, time sheets, and equipment maintenance log.
AT.2.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.A.2.4, MA.A.3.4,
MA.C.2.4, MA.C.3.4, MA.D.1.4, SS.B.1.4
 - 11.15 Identify suppliers and technical resources. AT.1.1.4,
LA.A.1.4, LA.B.2.4, SS.B.1.4
 - 11.16 Identify outside responders. AT.1.1.4, LA.C.1.4
- 12.0 IDENTIFY CAREER OPPORTUNITIES AND ORGANIZATIONAL DYNAMICS--The student will be able to:
- 12.01 Be aware of careers in the following fields:
Surface/stormwater, drinking water, wastewater, groundwater,
land resources, air quality, solid waste, and HAZMAT.
AT.4.1.4, LA.A.1.4, LA.C.1.4
 - 12.02 Identify supervisory responsibilities. AT.2.1.4, LA.A.1.4,
LA.C.1.4
 - 12.03 Identify organizational structure. AT.6.1.4, LA.A.1.4,
LA.C.1.4
 - 12.04 Identify administrative responsibilities. AT.6.1.4,
LA.A.1.4, LA.C.1.4
 - 12.05 Identify team building communication skills. AT.9.1.4,
LA.A.1.4, LA.C.1.4
 - 12.06 Identify problem-solving techniques. AT.1.1.4, LA.A.1.4,
LA.C.1.4, MA.A.3.4, MA.A.4.4
 - 12.07 Identify employee responsibility/benefits. AT.6.1.4,
LA.A.1.4, LA.C.1.4
 - 12.08 Identify legal aspects of personnel relations. AT.9.1.4,
LA.A.1.4, LA.C.1.4
 - 12.09 Write proposals. AT.1.1.4, LA.B.1.4, LA.B.2.4, MA.A.1.4,
MA.A.2.4, MA.A.3.4, MA.A.4.4, MA.A.5.4, MA.B.1.4, MA.B.2.4,
MA.B.3.4, MA.B.4.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.D.1.4,
MA.D.2.4, MA.C.1.4, MA.E.2.4, MA.E.3.4
 - 12.10 Design and conduct presentations. AT.4.1.4, LA.C.3.4
- 13.0 CONTROL INCIDENTS--The student will be able to:
- 13.01 Identify reasons for controlling incidents. AT.1.1.4,
LA.A.1.4
 - 13.02 Describe levels of response. LA.A.1.4
 - 13.03 Determine methods of control. LA.A.1.4
 - 13.04 Restrict site access.
 - 13.05 Notify appropriate authorities. LA.C.1.4
 - 13.06 Place equipment appropriately. MA.A.1.4, MA.A.2.4, MA.C.1.4
 - 13.07 Orient zones.
 - 13.08 Be aware of geographic hazards. SC.D.1.4, SS.B.1.4
 - 13.09 Practice site safety. AT.8.1.4, HE.A.1.4, HE.A.2.4
 - 13.10 Identify media protocol. LA.C.1.4
 - 13.11 Identify protocol for communicating with the public.
AT.7.1.4, LA.C.3.4
 - 13.12 Determine and use proper chain of command.
- 14.0 MANAGE HAZARDOUS MATERIALS--The student will be able to:
- 14.01 Describe flow of materials. AT.8.1.4, LA.A.1.4

- 14.02 Describe life cycles of materials. AT.8.1.4, LA.A.1.4, SC.A.1.4
 - 14.03 Identify proper chemical handling and storage guidelines. AT.8.1.4, LA.A.1.4, MA.A.1.4, MA.B.2.4
 - 14.04 Describe material management procedures for OSHA, EPA, DOT. AT.8.1.4, HE.A.1.4
 - 14.05 Identify alternatives to disposal. AT.8.1.4, SC.G.2.4
 - 14.06 Identify waste minimization and pollution prevention. AT.8.1.4, SC.G.2.4, HE.A.1.4, HE.A.2.4
 - 14.07 Describe waste determination procedures. AT.8.1.4, HE.A.1.4, HE.A.2.4
 - 14.08 Describe storage tank procedures. AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.1.4, HE.A.1.4, HE.A.2.4
 - 14.09 Identify biochemical/medical waste. AT.8.1.4, HE.A.1.4, HE.A.2.4
 - 14.10 Describe shipping and transportation procedures. AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.3.4, MA.E.3.4
 - 14.11 Identify phase I and II audits. AT.8.1.4, LA.B.2.4
 - 14.12 Identify closure reports. AT.8.1.4, LA.B.2.4
 - 14.13 Write contamination assessment reports. AT.8.1.4, LA.B.2.4, MA.A.1.4, MA.E.3.4
- 15.0 PREPARE PRE-PLANNING--The student will be able to:
- 15.01 Describe the need for pre-planning. AT.1.1.4, AT.8.1.4, LA.A.1.4, LA.B.2.4
 - 15.02 Identify type of pre-planning needed. AT.1.1.4, AT.8.1.4, LA.A.1.4, LA.B.2.4
 - 15.03 Recognize agency involvement. AT.1.1.4, AT.8.1.4, LA.A.1.4, LA.B.2.4
 - 15.04 Identify contamination zones. AT.1.1.4, AT.8.1.4
 - 15.05 Pre-plan for hurricane, tornadoes, floods, fires, and nuclear accidents. AT.1.1.4, AT.8.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.3.4, MA.D.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
 - 15.06 Identify SARA III regulations. AT.1.1.4, AT.8.1.4, HE.A.1.4
 - 15.07 Describe pre-planned deployment. AT.1.1.4, AT.8.1.4, HE.A.1.4
 - 15.08 Write a contingency plan. AT.1.1.4, AT.8.1.4, LA.B.2.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.3.4, MA.D.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
 - 15.09 Conduct mock disaster activities. AT.1.1.4, AT.8.1.4
- 16.0 PERFORM REMEDIATION--The student will be able to:
- 16.01 Select cleaning method. AT.8.1.4
 - 16.02 Select needed materials and equipment. AT.8.1.4
 - 16.03 Conduct site preparation. AT.8.1.4, MA.A.1.4, MA.A.3.4, MA.A.4.4, MA.B.1.4, MA.B.2.4, MA.B.3.4, MA.C.1.4, MA.C.2.4
 - 16.04 Conduct entry and closure methods. AT.8.1.4
 - 16.05 Remove contaminant source. AT.8.1.4
 - 16.06 Verify site/system cleanliness. AT.8.1.4
 - 16.07 Perform tear down and demobilization. AT.8.1.4

- 17.0 COLLECT AND DISPOSE OF SOLID WASTE--The student will be able to:
- 17.01 Describe history of solid waste disposal. AT.8.1.4, MA.A.1.4, MA.B.4.4., MA.E.3.4, SS.B.2.4
 - 17.02 Identify different types of waste. AT.8.1.4, LA.A.1.4, MA.A.1.4, MA.B.4.4, MA.E.3.4, SC.G.2.4
 - 17.03 Discuss solid waste disposal options: Landfill, incineration, and composting. AT.8.1.4, MA.A.1.4, MA.B.4.4, MA.E.3.4, SC.G.2.4
- 18.0 OBTAIN CONTINUING EDUCATION--The student will be able to:
- 18.01 Determine continuing education needs/goals. AT.9.1.4, LA.A.1.4
 - 18.02 Identify available educational resources. AT.9.1.4
 - 18.03 Select appropriate resources. AT.9.1.4
 - 18.04 Participate in appropriate association meetings. AT.9.1.4
 - 18.05 Read and review trade journals. AT.9.1.4, LA.A.1.4, LA.B.2.4
 - 18.06 Network with other professionals. AT.9.1.4, LA.A.1.4, LA.B.2.4
- 19.0 MANAGE WILDLIFE--The student will be able to:
- 19.01 Identify listed species. LA.A.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4
 - 19.02 Identify and describe life histories of game species. LA.A.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
 - 19.03 Identify and describe life histories of non-game species. LA.A.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
 - 19.04 Discuss urban wildlife management. AT.8.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.2.4, HE.A.1.4
 - 19.05 Be aware of community ecology. AT.8.1.4, MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4, SC.G.2.4
 - 19.06 Learn wildlife techniques and principles. MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4, SC.G.2.4
 - 19.07 Discuss population dynamics. MA.A.1.4, MA.A.3.4, MA.B.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.G.1.4, SC.G.2.4, SS.B.1.4
- 20.0 MANAGE FORESTS--The student will be able to:
- 20.01 Describe dendrology. LA.A.1.4
 - 20.02 Describe silvaculture. LA.A.1.4, SC.G.2.4
 - 20.03 Discuss forest pathogens and diseases. LA.A.1.4, SC.G.1.4
 - 20.04 Discuss replanting techniques. MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.C.1.4, MA.C.2.4, MA.E.2.4, MA.E.3.4
 - 20.05 Discuss harvesting techniques. AT.7.1.4, MA.A.1.4, MA.B.1.4, MA.B.2.4, MA.C.1.4, MA.C.2.4, MA.E.2.4, MA.E.3.4
 - 20.06 Identify timber stand improvement. SC.G.1.4

20.07 Discuss timber and forest products. SC.G.2.4

21.0 USE GIS SYSTEM--The student will be able to:

- 21.01 Define GIS and its function. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.02 Explore GIS as a resource tool. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.03 Learn GIS software. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.04 Learn GIS applications. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.05 Identify the use of a database. AT.4.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.06 Learn to input data. AT.4.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.07 Develop a model. AT.4.1.4, AT.5.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.08 Define GPS and its function. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.09 Collect GPS data and load on GIS. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.10 Be familiar with other remote sensing tools. AT.4.1.4, LA.A.1.4, LA.B.2.4, MA.A.1.4, MA.C.1.4, MA.C.2.4, MA.C.3.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.3.4, SS.B.1.4, SS.B.2.4
- 21.11 Download LANDSTAT into GIS. AT.4.1.4, LA.A.1.4, LA.B.2.4, SC.H.3.4, SS.B.1.4, SS.B.2.4

OCCUPATIONAL COMPLETION POINT - DATA CODE B

WATER QUALITY TECHNICIAN - Industry Title

01.0 DESCRIBE THE HYDROLOGICAL CYCLE--The student will be able to:

- 01.02 Identify soil conditions. LA.A.1.4, LA.B.1.4, SC.D.1.4
- 01.03 Explain saltwater intrusion. LA.A.1.4, LA.B.1.4, MA.B.1.4, MA.B.2.4, MA.E.2.4, MA.E.3.4, SC.D.1.4

02.0 DESCRIBE SOURCES OF WATER--The student will be able to:

- 02.03 Identify alternative sources of water. LA.A.1.4, SC.D.1.4

03.0 SAMPLING PROCEDURES--The student will be able to:

- 03.14 Collect samples: grab and otherwise. AT.4.1.4, AT.8.1.4, SC.H.1.4
- 03.15 Analyze samples. AT.4.1.4, LA.B.2.4, SC.H.1.4

- 03.16 Record data into database program. AT.4.1.4, LA.B.2.4, MA.A.1.4, SC.H.3.4
- 03.17 Evaluate data. AT.4.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4, SC.H.1.4
- 03.20 Discuss criteria in choosing a lab. AT.4.1.4
- 03.21 Interpret lab results. AT.4.1.4, MA.E.2.4, MA.E.3.4, SC.H.1.4
- 03.27 Measure well volumes. AT.4.1.4, MA.B.1.4

- 05.0 DESCRIBE RELATED GEOLOGY--The student will be able to:
 - 05.04 Describe local mineral resources. LA.B.2.4, SC.D.1.4
 - 05.05 Describe lithological descriptions of local units/formations. LA.B.2.4, SC.D.1.4
 - 05.06 Describe local aquifers. LA.B.2.4, SC.D.1.4
 - 05.07 Discuss basic groundwater chemistry. LA.B.2.4, SC.D.1.4
 - 05.08 Describe basic geographic techniques. LA.B.2.4, SC.D.1.4
 - 05.09 Discuss aquifer performance tests. LA.B.2.4, SC.D.1.4
 - 05.10 Describe local geology related problems. LA.B.2.4, SC.D.1.4

- 08.0 DESCRIBE WATER TREATMENT TECHNIQUES--The student will be able to:
 - 08.04 Describe drinking water treatments: Aeration, coagulation, flocculation, sedimentation, fluoridation, disinfection, filtration, reverse osmosis, softening, electrodialysis, and corrosion control. AT.8.1.4, LA.B.2.4, SC.H.3.4

- 09.0 DESCRIBE STORMWATER SYSTEMS--The student will be able to:
 - 09.03 Read maps. SS.B.1.4
 - 09.04 Be aware of GIS. SS.B.1.4
 - 09.05 Be familiar with land use types. SS.B.1.4
 - 09.06 Describe the impact of hydrological cycle on design. SC.D.1.4, SS.B.1.4
 - 09.07 Describe general hydraulics. LA.B.2.4, SC.D.1.4, SS.B.1.4
 - 09.08 Describe soil dynamics. LA.B.2.4, SC.D.1.4, SS.B.1.4
 - 09.09 Determine boundaries of watersheds. LA.B.2.4, SS.B.1.4
 - 09.10 Be familiar with runoff coefficients. LA.B.2.4, MA.A.1.4, MA.A.2.4, SS.B.1.4
 - 09.11 Identify related construction materials. LA.B.2.4, SS.B.1.4
 - 09.12 Conduct a land survey. LA.B.2.4, MA.C.2.4, MA.C.3.4, SS.B.1.4
 - 09.13 Be familiar with standard computer modeling programs. LA.B.2.4, SC.H.3.4, SS.B.1.4
 - 09.14 Determine level of service. LA.B.2.4, SS.B.1.4
 - 09.15 Comply with rules and regulations. LA.B.2.4, SS.B.1.4
 - 09.16 Coordinate with local municipalities. LA.B.2.4, SS.B.1.4
 - 09.17 Determine feasibility of design. LA.B.2.4, SS.B.1.4
 - 09.18 Convey plan to public. LA.B.2.4, SS.B.1.4
 - 09.19 Identify licensure requirements. LA.B.2.4, SS.B.1.4

- 22.0 DESCRIBE SUBSTANCES IN WATER--The student will be able to:

- 22.01 Determine quality of groundwater and surface water.
AT.4.1.4, SC.G.2.4
- 22.02 Identify settleable solids. AT.4.1.4
- 22.03 Identify dissolved solids. AT.4.1.4, LA.B.2.4
- 22.04 Identify primary and secondary contaminants. AT.4.1.4,
LA.B.2.4
- 22.05 Identify unregulated organic compounds. AT.4.1.4, LA.B.2.4

- 23.0 MAINTAIN WATER TREATMENT EQUIPMENT AND FACILITIES--The student will be able to:
 - 23.01 Monitor and adjust equipment as needed. AT.4.1.4
 - 23.02 Monitor flow rates and tank levels. AT.4.1.4, MA.B.1.4,
MA.B.2.4, MA.B.3.4
 - 23.03 Check for: leaks, unusual smells and sounds, foam,
temperatures, flow fluctuations, weather conditions.
AT.4.1.4
 - 23.04 Maintain filters, pipes, generators, meters, motors, valves,
instruments, injectors, storage basins etc. AT.4.1.4

- 24.0 INSPECT AND MAINTAIN DRAINAGE SYSTEMS--The student will be able to:
 - 24.01 Be familiar with Best Management Procedures. AT.4.1.4,
AT.8.1.4
 - 24.02 Inspect treatment systems. AT.4.1.4, AT.8.1.4
 - 24.03 Perform ditch, pond, culvert, and manhole inspections.
AT.4.1.4, AT.8.1.4
 - 24.04 Identify deficiencies and plan corrections. AT.4.1.4,
AT.8.1.4
 - 24.05 Develop routine cleanup and prevention plan. AT.4.1.4,
AT.8.1.4
 - 24.06 Develop storm cleanup and prevention plan. AT.4.1.4,
AT.8.1.4
 - 24.07 Recognize pollutants, illegal dumping and discharge.
AT.4.1.4, AT.8.1.4
 - 24.08 Clean outfall structures, inlets, and treatment systems.
AT.4.1.4, AT.8.1.4
 - 24.09 Clean and televise pipes. AT.4.1.4, AT.8.1.4
 - 24.10 Mow ditch banks and right of ways. AT.4.1.4, AT.8.1.4
 - 24.11 Replace pipe sections. AT.4.1.4, AT.8.1.4
 - 24.12 Remove and dispose of pollutants. AT.4.1.4, AT.8.1.4

- 25.0 DESCRIBE WATER DISTRIBUTION--The student will be able to:
 - 25.01 Maintain backflow testing and repair equipment. AT.4.1.4,
AT.8.1.4
 - 25.02 Maintain and read meters. AT.4.1.4, AT.8.1.4, MA.A.1.4,
MA.A.2.4, MA.A.3.4
 - 25.03 Maintain fire hydrants, pipes, valves. AT.4.1.4, AT.8.1.4,
MA.A.1.4, MA.A.2.4, MA.A.3.4
 - 25.04 Perform flow testing. AT.4.1.4, AT.8.1.4, MA.A.1.4,
MA.A.2.4, MA.A.3.4
 - 25.05 Read blueprints. AT.4.1.4, AT.8.1.4

- 25.06 Trace and clean lines. AT.4.1.4, AT.8.1.4
- 25.07 Operate/maintain lift stations. AT.4.1.4, AT.8.1.4

- 26.0 COMPLIANCE MONITORING/INSPECTION--The student will be able to:
 - 26.01 Trace lines. AT.4.1.4, AT.8.1.4
 - 26.02 Survey business and industry. AT.4.1.4, AT.8.1.4, LA.B.2.4
 - 26.03 Conduct pretreatment sampling. AT.4.1.4, AT.8.1.4, SC.H.1.4
 - 26.04 Analyze data and document reports. AT.4.1.4, AT.8.1.4, MA.E.1.4, MA.E.2.4, MA.E.3.4
 - 26.05 Design monitoring plan. AT.4.1.4, AT.8.1.4, SC.H.1.4
 - 26.06 Monitor sites. AT.4.1.4, AT.8.1.4, SC.H.1.4

- 27.0 DISCUSS COMPREHENSIVE QUALITY ASSURANCE PLAN--The student will be able to:
 - 27.01 Discuss quality assurance rules. AT.4.1.4, AT.8.1.4, LA.B.2.4, LA.C.2.4
 - 27.02 Write of follow standard operating procedures. AT.4.1.4, AT.8.1.4, LA.B.2.4, LA.C.2.4
 - 27.03 Describe preventative maintenance techniques. AT.4.1.4, AT.8.1.4, LA.B.2.4, LA.C.2.4
 - 27.04 Describe cleaning/decontamination techniques. AT.4.1.4, AT.8.1.4, LA.B.2.4, LA.C.2.4
 - 27.05 Determine accuracy and precision of sampling techniques. AT.4.1.4, AT.8.1.4, LA.B.2.4, LA.C.2.4
 - 27.06 Discuss need for corrective action. AT.4.1.4, AT.8.1.4, LA.B.2.4, LA.C.2.4
 - 27.07 Document Quality Assurance. AT.4.1.4, AT.8.1.4, LA.B.2.4, LA.C.2.4
 - 27.08 Conduct auditing procedures. AT.4.1.4, AT.8.1.4, LA.B.2.4, LA.C.2.4, MA.E.1.4, MA.E.2.4, MA.E.3.4