

B O N N E V I L L E P O W E R A D M I N I S T R A T I O N



POWER SYSTEM CONTROL
CRAFTSMAN I & II
SKILL STANDARDS

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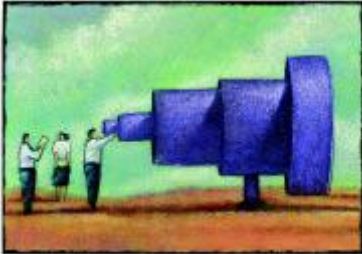
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Introduction



Skill Standards for BPA Occupations: Project Summary

- A National Context for Skill Standards
- What Are Skill Standards?
- Why Are Skill Standards Important?
- The Benefits and Uses of Skill Standards

Skill Standards to Curriculum: A Continuous Development Process

Pyramid of Competencies

Skill Standards for BPA Occupations: Project Summary

This document contains background information and a complete set of industry-defined skill standards for a specific occupation at the Bonneville Power Administration (BPA). BPA sponsored the development of occupation-specific skill standards through this project for two key reasons: First, skill standards provide the specific information that BPA leadership needs to respond effectively to current knowledge and skill requirements of employees in specific occupations related to power generation. Second, skill standards will also enable BPA to better prepare for future skill gaps that may occur due to employee retirements, promotions and ongoing technological changes in the energy industry.

A National Context for Skill Standards

The National Skill Standards Board was established by Congress in 1994 to encourage the creation and adoption of a national system of voluntary skill standards that would enhance the ability of the U.S. to compete effectively in a global economy. Since then, several national voluntary skill standards projects were developed by various industries in full partnership with education, labor and community-based organizations. The intent was to have voluntary skill standards that were flexible, portable, and could be continuously updated and improved.

Voluntary, industry based skill standards should be:

- Responsive to changing work organizations, technologies and market structure.
- Benchmarked to world-class levels of industry performance and free from gender, racial, or other forms of bias.
- Tied to measurable, competency-based outcomes that can be readily assessed.
- Inclusive of basic reading, writing, and critical thinking skills.
- Useful for qualifying new hires and continuously upgrading employees' skills.
- Applicable to a wide variety of education and training providers, both work and school-based.
- Based on a relatively simple structure to make the system user-friendly.
- A cooperative effort among all stakeholders.
- Developed independently of any single training/education provider or type of education/training provider.

National Alliance of Business

What Are Skill Standards?

Skill standards are performance specifications that identify the knowledge, skills and abilities an individual needs to succeed in the workplace. They are critical to improving workforce skills, raising living standards, and improving the competitiveness of the U.S. economy. To be effective, skill standards must reflect the consensus of power generation professionals.

Skill standards provide measurable benchmarks of skill and performance achievement. They answer two critical questions: What do workers need to know and be able to do to succeed in today's workplace? And, how do we know when workers are performing well? Without this fundamental information, employers do not know whom to hire or where to focus their limited training dollars; employees and new entrants to the workforce do not know what they need to do

to improve their performance; educators do not know how to prepare students for the challenge of the workplace.

Why Are Skill Standards Important?

In today's workplaces, the only constant is change. Jobs that once were relatively simple now require high performance work processes and enhanced skills. Because skill standards reflect changing workplace realities, they are a tool that can be used by applicants and employees to access greater career opportunities.

Updating skills and knowledge is now a lifelong endeavor, causing many employers and employees to spend more effort, time, and money on education and training. Skill standards provide benchmarks for making education and training decisions, shaping curricula, and directing funds toward highest value education and training investments.

The Benefits and Uses of Skill Standards

Skill standards benefit all the stakeholders—business, labor, educators, government, and the community. The success of a skill standards development project and its usefulness to the community is dependent on the full participation and commitment of all stakeholders. These benefits can be used as a benchmark for evaluating the effectiveness of collaborative efforts.

How Skill Standards Benefit Employers

Employers can use skill standards to establish personnel qualification requirements. Interviews, performance reviews, and productivity can be evaluated and assessed to a higher degree of accuracy and efficacy. Employers are also able to identify core competencies and workers' abilities to demonstrate competencies. By matching competencies to critical work functions and key activities, employers can significantly improve efficiencies and productivity. Performance-based skill standards also provide a vehicle for varying degrees of job certainty and the structure for establishing competency-based pay scales. In addition, employers use skill standards to:

- Align personnel qualification requirements with nationally adopted certificates of competence.
- Modify employee training.
- Simplify measurement of employee training effectiveness.
- Assess employee skill levels based on industry standards.
- Match employee skills to the work needed.
- More easily document employee skills, training needs, and performance criteria.
- Improve consumer satisfaction and confidence through better developed evaluation skills for customer contact personnel.
- Improve employee satisfaction and morale by clarifying expectations.
- Improve quality, productivity, time-to-market and competitiveness.
- Achieve business goals.
- Partner with education and labor in developing school-to-work initiatives.

How Skill Standards Benefit Workers

Skill standards assist students in making career choices by providing industry expectations for success in the workplace. In addition, standards-based curriculum and assessments provide students with credentials that certify work-readiness. Work-ready students can anticipate being hired at higher rates of pay and can experience faster advancement in their chosen fields. Workers can accurately assess their skills against those required for career advancement and plan effectively for their career pathways. They can determine the skills and abilities needed for advancement or transfer within industries, and determine the continuous learning and training they need to upgrade their skills. In addition, students and workers can use skill standards to:

- Achieve clarity regarding what they are expected to learn and how to prepare for work.
- Enter and reenter the workforce with better control of their choices of high paying jobs requiring high skills.
- Accurately assess business expectations of the skills needed for positions and careers of their choice.
- Improve mobility and portability of their credentials.
- Obtain certification of competence of the skills they gain through experience, school, training, or self-study.
- Enhance their performance and achievement by self-evaluation against known standards.
- Be active contributors to the activities that make their organizations successful.

How Skill Standards Benefit Labor Unions

Labor unions can use skill standards to gain support for company-sponsored worker training programs and to identify career paths for workers within companies and industries. Unions can provide this information to union members and develop strategies to improve career mobility and stability. Skill standards help unions to:

- Improve member value to the company.
- Provide a greater worker voice in the company.
- Link skill standards to increased training and upward career mobility for union members.
- Assist employers to match employee skills to the work needed.
- Develop skills-based training and certification initiatives that complement union apprenticeship programs.
- Communicate effectively with employers about worker training and retraining needs.
- Cooperate with education and industry in developing school-to-work initiatives.

How Skill Standards Benefit Educators

Educators can identify core competencies and assessments based on the skill standards and implement them in their curricula. Students can then be required to demonstrate competency throughout their coursework. Academia and industry can build a cohesive relationship through a like-minded expectation of student competencies and work readiness. This enhances an instructor's ability to teach information consistent with industry's entry level expectations and needs. In addition, educators use skill standards to:

- Partner with business and labor in developing school-to-work initiatives.

- Provide effective, targeted instruction.
- Develop benchmarks for certificates of competence earned by students.
- Communicate what companies expect of employees.
- Develop new and evaluate existing curriculum and programs based on industry needs.
- Develop assessments to evaluate skills, knowledge, and abilities in classrooms and internships.
- Develop a common language on workforce preparation with business and labor.
- Improve relationships with local businesses, labor unions, other educators and agencies.
- Provide students with relevant career education and counseling.

How Skill Standards Benefit Government

Government can provide information that will ensure a better skill match between workers and employers and initiate education reform to better educate future members of the workforce. Skill standards better enable agencies to provide options for career and job mobility and link learning to the needs of the workplace. In addition, government can use skill standards to:

- Assist in the development of a highly skilled, high-quality, and competitive workforce and industry base.
- Evaluate the effectiveness of publicly funded education and training.
- Increase opportunities for under-represented populations by making public the information that defines the skills required for success, and by facilitating the national adoption of those definitions and their use.
- Support the creation of high performance organizations where they improve living standards for all members of the population.
- Facilitate collaboration between educators and industry.
- Communicate the need and basis for education reform to business, education, labor, and the community-at-large on both local and national levels.

Skill Standards to Curriculum: A Continuous Development Process

The skill standards generated in this project are designed to be used by participating education partners to develop or modify curriculum at the high school and community college level. By providing the necessary input from industry, this skill standards document is a first step in curriculum development to serve the power generation industry in particular, and to demonstrate what can be done across industries.

In order to keep current with a rapidly changing workplace, standards need to be reevaluated and updated on a regular basis, with full partner participation at each step. New technological developments impact the ways that workers organize and apply their skills, including time management and interpersonal relationships. Increased technological complexity may simplify some of the job tasks but make others more intricate. Today's successful power generation workers are challenged to acquire a broader range of decision making and customer service skills as well as keep current with emerging technologies. Ongoing changes like these must be reflected in curriculum in order to meet the needs of industry, where expectations for workers are evolving.

A model of continuous improvement for economic development: Using Skill Standards

Step 1: Skill Standards Identification

- Compile and research existing standards in related jobs and careers.
- Conduct focus groups to identify critical work functions and key activities, define key activity performance indicators, and identify technical knowledge, foundation skills, and personal qualities.
- Conduct a survey of current workers to determine level of SCANS skills required for each job.
- Develop work-related scenarios to place the skill standards in the context of the work environment.
- Verify the data gathered from focus groups.
- Disseminate skill standards information to involved parties from industry, education, and labor for their review and editing.

Step 2: Curriculum Development

- Identify necessary competencies based on the skill standards information and assessments.
- Develop program outcomes for specific academic and training programs, including Tech Prep, 2-year, and apprenticeship programs.
- Perform gap analysis to determine changes or additions to be made to curriculum.
- Revise existing curriculum to better meet the current and future needs of the industry.
- Develop new curriculum and establish new programs based on these competencies.

Step 3: Articulation

- Develop models to support the articulation of program outcomes and competencies between academic and training systems.
- Establish articulation agreements between existing programs to ensure portability of skills.
- Connect competencies and Certificates of Competence with benchmark documentation to ensure the portability of competencies across industry.

A Continuous Updating Process

A continuous exercise is necessary: all partners must revise and verify skill standards on a regular basis. Curriculum and current training methods must be updated to meet workplace standards.

Individual workers must have access to clearly stated competency goals and direct access to skill development assistance. With cooperative effort on local and national levels, we can begin to resolve the workforce shortages in the power generation industry that face us today.

Pyramid of Competencies

The Pyramid of Competencies is a depiction of skill standards in three broad skill categories.

Tier I

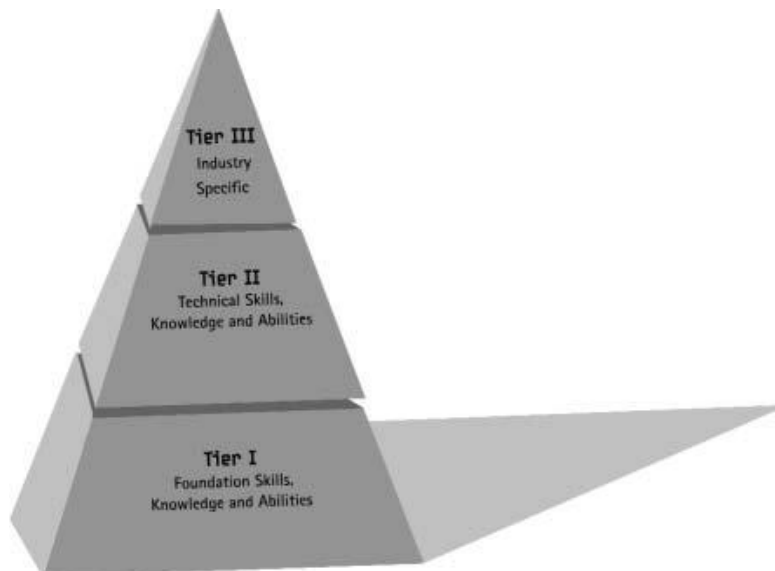
Tier I represents the broadest level of competencies, and is the set of employability (SCANS) skills, knowledge, abilities, and personal qualities required of all workers to be successful in today's workplace. These are the universal skills that are needed to apply technical knowledge and tools effectively.

Tier II

Tier II represents technical skills, knowledge, and abilities common to a cluster of jobs across all an industry. For workers at BPA, for example, knowledge of safe work practices would apply across all jobs.

Tier III

Tier III represents industry-specific technical skills, knowledge, and abilities that are unique to individual jobs and are the most prone to rapid change. For example, many workers need to upgrade their skills based on new technology.



BPA Skill Standards Project



Project Goals, Guidelines and Methodology

Employability Skills: SCANS Profile

Definition of Terms

BPA Skill Standards Project Goals, Guiding Principles, and Methodology

Goals

- Identify voluntary skill standards for specific jobs at BPA.
- Disseminate the results and support the use of skill standards for the purposes of professional development.

Guiding Principles

- Experienced workers are the experts in their career field and are best able to identify the work performed and the skills, knowledge, and abilities required to be successful.
- Business, labor, and education must work as partners to ensure the creation of a link between the work expectations and the curriculum.
- The standards must be consistent with existing civil rights laws and practices.
- Standards must be flexible, portable, and should be updated continuously.
- Skill standards describe the major functions and key activities, as well as the performance indicators, technical knowledge and skills, employability skills, and personal attributes needed to succeed in the workplace.
- Integrated skill standards define work duties and the skills required to perform them in the context of work settings.

The experience of the partners involved in this project holds that the success of any skill standards project is critically linked to the full participation and commitment of all partners.

Identification of Skill Standards: Research Methodology

Background

These BPA-defined skill standards were developed using specific research-based processes. The project followed the process required by the Washington State Board for Community and Technical Colleges (SBCTC) as described in *Skill Standards Guidebook I*, Washington State Board for Community and Technical Colleges, 1996 and the process developed by the National Skill Standards Board (NSSB). In particular, the protocols used for the ICT (Information Communications Technology) skill standards were applied to this project.

Focus Groups

Focus groups of BPA subject matter experts were conducted. The panelists were selected for their expertise in their field, and every effort was made to include a variety of geographical areas. Panelists had a minimum of three years experience in the job, although most had 12 or more years experience.

A structured process was used to guide the panel through the development of the critical work functions and key activities. In each focus group, the process included the following elements:

- Panelists were facilitated by a professional skill standards focus group leader.
- Panelists received an orientation to skill standards. Examples were provided.
- Panelists arrived at consensus regarding the components of the skill standards.
- Panelists clarified the organization and structure of the critical work functions and key activities, filled in gaps, and confirmed the accuracy of the critical work functions and key activities.
- Panelists identified performance indicators for each key activity.
- Panelists identified occupational technical knowledge and skills for each key activity.
- Panelists brainstormed the topics that need to be covered in training and education programs to prepare people to enter the work.
- Panelists completed a survey to level SCANS skills (see below) and determined the top 5 to 7 SCANS skills for each key activity.

After a thorough orientation to skill standards, panelists were asked to brainstorm critical work functions for the job. After composing their own critical work functions, they were then provided with the draft critical work functions identified through research. Panelists were asked to compare the research-identified critical work functions with those they brainstormed as a group, and to consider the following criteria:

- Is the function a broad responsibility?
- Does it take a significant amount of time to achieve?
- Are there groupings of Key Activities associated with it?

Participants were asked to review the key activities for each critical work function, and to posit appropriate changes wherever necessary. The criteria used for this purpose were:

- Does the activity describe what you have to do to achieve this function?
- Is it a major area of task responsibility?
- Is it concrete and specific?
- Does it have relatively equal importance to the other Key Activities?
- Does each Key Activity require distinct, definable skills?

Once the critical work functions and key activities were finalized, performance indicators were developed for each key activity. Panelists were asked how they know when a task is performed well, and what elements need to be in place so they would be ensured that this key activity is performed competently. The following criteria were provided regarding performance indicators:

Performance Indicators should...

- Describe competent performance.
- Be directly observable, concrete and measurable.
- Capture the essential aspects of performance.
- Be as precise and explicit as possible but still apply to the job throughout the BPA.
- Reflect what the individual can control.

Panelists brainstormed performance indicators, and then arrived at consensus with respect to the final list. The group was assisted in putting the content into appropriate language format.

Panelists next moved to identify the occupational technical knowledge and skills for each key activity. They brainstormed occupational technical knowledge and skills, and then arrived at the final list through consensus. Panelists were asked what a person needs to know and be able to do to accomplish the key activity at the level defined by the performance indicators.

In each focus group an informal discussion was held to identify the subjects and topics most important for new entrants to the industry.

Surveys

A survey was conducted to level SCANS skills and personal qualities for the job. SCANS (Secretary's Commission on Achieving Necessary skills) are foundation abilities required of workers in all occupations at varying levels specific to their jobs, ranging from basic academic skills to problem solving, working in teams, and the use of technology. Surveys were distributed to panelists in the focus groups and to workers across BPA. The SCANS survey results are in the Academic and Employability Knowledge and Skills column of the skill standards template.

Employability Skills: SCANS Profile

During the data-gathering process of this project, employability skills for BPA jobs were leveled. Employability, or workplace skills, are basic academic and foundation skills needed to build more advanced competencies. The foundation skills are based on broad workplace categories, known as SCANS (Secretary’s Commission on Achieving Necessary Skills, U.S. Department of Labor). This federal report issued in 1991 identifies 37 foundation and workplace competencies required for work readiness.

SCANS are comprised of a three-part foundation of skills and personal qualities and five workplace competencies needed for successful job performance in today’s workforce. Professionals currently working in the field were asked to identify the level of difficulty for each of the 37 SCANS skills most required for successful workplace performance in each job. The information in the charts on the following pages was compiled by taking a weighted average of the responses from workers in the specific job. This information provides the foundation for the employability skills within the skill standards.

Basic Skills

- Reading
- Writing
- Arithmetic
- Mathematics
- Listening
- Speaking

Personal Qualities

- Responsibility
- Self-worth
- Sociability
- Self-management
- Integrity/Honesty

Thinking Skills

- Creative Thinking
- Decision Making
- Problem Solving
- Visualization
- Knows/Learns
- Reasoning

Workplace Competencies

- Utilizing Resources
- Interpersonal Skills
- Utilizing Information
- Using Systems
- Using Technology

The *ADVANCE™ Workplace Standards Skill Inventory* from Advance Educational Spectrums, Inc. was used to capture industry views on foundation skills for power generation workers. Industry professionals ranked the SCANS skill levels required.¹

Applies creative thinking	Level I • Makes connections between old and new • Recognizes patterns/relationships	Level II • Recognizes/understands comprehensive existing ideas • Identifies transferring techniques	Level III • Develops creative solutions • Applies creative solutions to new situations	Level IV • Generates unique solutions • Formulates new approaches • Organizes new processes/procedures	Level V • Judges/validates creativity
Applies decision making strategies	Level I • Understands decision making process • Recalls basic rules/principles • Identifies goals and constraints	Level II • Applies rules/principles to situations • Gathers information	Level III • Analyzes situations/interactions • Considers risks/implications • Completes multiple steps/tasks	Level IV • Generates alternative solutions • Evaluates alternative solutions • Formulates plan of action	Level V • Judges consistency/feasibility • Justifies justification/rationale • Sets decision making parameters
Recognizes and solves problems	Level I • Identifies the problem	Level II • Understands the complexity/dynamics • Appropriately refers/completes/involves others	Level III • Locates information/data • Analyzes possible causes/strategies • Recommends action plan	Level IV • Generates/validates solutions • Develops/creates plan of action	Level V • Produces/validates plan of action • Judges effectiveness/efficiency of solution

Sample survey questions from the Advance Workplace Standards Skill Inventory

¹ The *Workplace Standards Skill Inventory* was used with permission from Centralia College through the State Board for Community and Technical Colleges, which holds a license agreement with Advance Educational Spectrums, Inc.

Definition of Terms

Each chart in the following skill standards templates contains the following components:

Academic and Employability Skills

Employability skills are basic academic and personal skills that are needed to build more advanced competencies. They are competencies required by all workers in order to obtain meaningful work and participate in the modern workforce.

Critical Work Functions

Critical work functions represent the general areas of responsibility for the front-line worker in power generation. The functions tell us what must be done to achieve the key purpose of an occupation or job.

Key Activities

Key activities are the tasks performed by workers and related to the functional area of the job. They are made up of work activities which are measurable and observable, and which result in a decision, product or service.

Performance Indicators

Performance indicators are specific behavioral evidence of a worker's achievement of skills, knowledge, and task completion. The question answered is: "How do we know when this key activity is performed well?" Performance indicators provide the standard of performance required to produce the necessary outcomes of key activities.

Technical Skills, Knowledge, Abilities and Tools

Technical skills, knowledge, and abilities are those areas of expertise which workers must have in order to perform a given occupational task with excellence. A collection of skills, knowledge, abilities, and tools make up competencies.

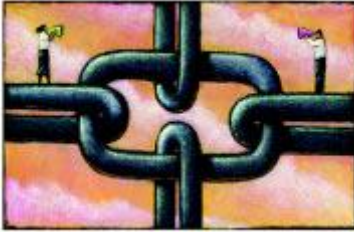
Skills refer to proficiency in an applied activity. This activity could be physical, mental, or interpersonal in nature.

Knowledge is a particular set of information.

Abilities are broad human characteristics that result from natural talent, training, or experience.

Tools are materials, equipment, and implements a worker must be able to use competently to meet the requirements of the job.

Skill Standards for PSC Craftsman I & II



Summary of Critical Work Functions
and Key Activities

Skill Standards

Bonneville Power Administration
Power System Control Craftsman I & II

Critical Work Functions	Key Activities					
A. Maintain and Repair Equipment	A1 <i>Perform preventive maintenance</i>	A2 <i>Perform troubleshooting</i>	A3 <i>Perform repairs</i>	A4 <i>Document equipment maintenance</i>	A5 <i>Perform diagnostic testing</i>	
B. Install, Modify and Upgrade Equipment	B1 <i>Install equipment</i>	B2 <i>Modify and upgrade equipment</i>	B3 <i>Document installation or modification</i>	B4 <i>Fabricate parts and components</i>	B5 <i>Perform diagnostic testing</i>	
C. Perform Technical and Administrative Duties	C1 <i>Maintain records and reports</i>	C2 <i>Assist in training other employees</i>	C3 <i>Perform housekeeping</i>	C4 <i>Maintain and obtain proficiency in current and new technologies</i>	C5 <i>Respond to requests from customers</i>	
D. Communicate with Co-Workers to Promote Safety and Productivity	D1 <i>Participate in meetings and problem solving groups</i>	D2 <i>Communicate safety and job-specific needs</i>	D3 <i>Report observations of abnormalities</i>	D4 <i>Identify and report accidents and unsafe conditions and take corrective actions</i>	D5 <i>Communicate and coordinate with BPA management and co-workers</i>	
E. Perform Job Planning and Scheduling	E1 <i>Schedule equipment outages</i>	E2 <i>Gather materials, tools, software, documents and equipment</i>	E3 <i>Verify materials and parts and order parts not on hand</i>	E4 <i>Establish priorities</i>		
F. Maintain Tools, Equipment and Supplies	F1 <i>Maintain test equipment, hardware and supplies</i>	F2 <i>Maintain working stock</i>	F3 <i>Maintain databases and software</i>			

Job: Power System Control Craftsman I & II

PSC Craftsmen work with a wide variety of equipment, and operate various types of test equipment in their work. Below is a summary of the major categories of that equipment.

Equipment: Microwave digital and analog radios, SCADA systems, SONET systems, digital and analog multiplex, VHF/UHF mobile and base radios, digital and key phone telephone systems, telemetry, Engine generators, batteries and chargers, fiber optics, line protection (gen drop, line loss logic, transfer trip), Alarm systems, networks (servers, routers, Ethernet), IDF racks, and audio and baseband equipment

Test Equipment: Dynamic signal analyzer, spectrum analyzers, optical time domain reflectometer, volt meters, oscillators, selective level meters, oscilloscope, T-1 test equipment, power meter, optical and RF generators, frequency counters, sniffers, bit error rate testers, protocol analyzers, TIMS (transmission impairment measurement system), and instrument controllers (PC).

Job: Power System Control Craftsman I & II
Critical Work Function: A. Maintain and Repair Equipment

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>A1 Perform preventive maintenance</p>	<ul style="list-style-type: none"> • Safety procedures are discussed and followed and proper personal protective equipment is worn or used. • Preventive maintenance requirements are met. • When they exist, preventive maintenance standards and guides are completely followed. • Maintenance job is documented according to agency policies and procedures. • Documentation is turned in to the correct parties for processing and findings are communicated to appropriate personnel effectively and in a timely manner. • Revisions to maintenance plan are made or maintenance plans are developed as necessary. • Equipment outage during preventive maintenance is requested in accordance with agency policy. • Equipment is tested to ensure it works properly upon completion of preventive maintenance. • Preventive maintenance is completed with no adverse impact on the power, communication and control systems. 	<ul style="list-style-type: none"> • Basic understanding of the power system and its components. • Knowledge of how the communication system and equipment interact with other systems. • Knowledge of the communication systems. • Knowledge of equipment (see list on page 1 of this document). • Ability to read and interpret manufacturer's specifications and recommendations. • Knowledge of preventive maintenance requirements. • Knowledge of <i>Standards and Guides</i>. • Ability to operate test equipment (see list on page 1 of this document). • Ability to use hand tools and specialized tools and equipment such as SMA (Sub-Miniature version A) torque wrenches. • Knowledge of AC and DC theory. • Knowledge of electronics including analog, digital and logic theory. • Knowledge of procedures to request equipment outage. • Ability to perform preventive maintenance with no adverse impact on the power, communication and control systems. • Knowledge of testing procedures. 	<ul style="list-style-type: none"> • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards. • Efficiently manages time, prioritizes daily tasks, prepares schedule and monitors and adjusts task sequence. • Identifies relevant details, facts, specifications, follows set of instructions and qualifies/analyzes information. • Manipulates technology for desired result; analyzes technology output; examines task/technology relationship. • Prepares basic summaries and integrates information.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>A2 <i>Perform troubleshooting</i></p>	<ul style="list-style-type: none"> • Safety procedures are discussed and followed and proper personal protective equipment is worn or used. • Schematics, wiring diagrams and equipment experts are consulted as necessary. • Information about the nature and possible causes of failure is systematically gathered through sensory inspection, past experience, observation of equipment during normal operations and feedback from field personnel and control center. • The diagnostic tests are performed systematically as necessary to determine the correct nature of the problem. • Manufacturer's instruction manuals and equipment histories are used when evaluating equipment performance. • Procedures for isolating problems are initiated correctly and followed through completely. • System conditions are known and understood prior to initiating troubleshooting. • Work permits are obtained and released in accordance with agency operating bulletin. • Troubleshooting is completed with no adverse impact on the power, communication and control systems. • All required parts not on hand are ordered in preparation for any required repair. • Measurements are taken during troubleshooting. • Measurement data is analyzed and compared against manufacturer's specifications, maintenance history and previous measurements. 	<ul style="list-style-type: none"> • Knowledge of the power system and communication/control system and how they impact other systems. • Knowledge of characteristics of equipment operating within and outside of normal parameters. • Knowledge of and ability to perform diagnostic tests and use test equipment (see list on page 1 of this document). • Knowledge of equipment (see list on page 1 of this document). • Knowledge of safety procedures and personal protective equipment. • Knowledge of basic troubleshooting processes and procedures including signal substitution and signal tracing. • Knowledge of station prints and symbols and ability to locate them. • Ability to read and correct schematics and electrical diagrams. • Knowledge of multiple trades and crafts and their functional boundaries and nomenclature. • Knowledge of information requirements of various departments and personnel. • Ability to write and document trouble reports and history briefs. • Knowledge of BPA terminology and acronyms. • Knowledge of electronics including analog, digital and logic theory. • Knowledge of procedures to obtain and release work permits. • Ability to perform troubleshooting with no adverse impact on the power, communication and control systems. • Knowledge of parts ordering procedures. • Knowledge of manufacturer's specifications, equipment logs, maintenance history, original configuration files and previous measurements. • Knowledge of metallurgy and mechanics. 	<ul style="list-style-type: none"> • Communicates appropriate verbal/non-verbal messages, actively participates in discussion and presents complex ideas and information. • Understands technological requirements and results; analyzes task/technology relationship; proposes simple technological solutions. • Prepares basic summaries and integrates information. • Interprets information and applies processes to new information. • Uses logic to draw conclusions, analyzes rules and principles and examines information for relevance and accuracy. • Analyzes situations and information, considers risks and implications, and compiles multiple viewpoints. • Analyzes possible causes of problems, generates and evaluates solutions and generates and evaluates solutions. • Troubleshoots and corrects malfunctions and failures; evaluates performance of technology; analyzes failures. • Demonstrates willingness and ability to travel and work in adverse weather.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>A3 Perform repairs</p>	<ul style="list-style-type: none"> • Safety procedures are discussed and followed and proper personal protective equipment is worn or used. • Work is performed in accordance with <i>Standards and Guides</i> when they exist. • The necessary co-workers are informed regarding the repair process. • Equipment is correctly repaired or replaced as necessary. • During repair process, equipment is thoroughly inspected to identify other repair needs. • Where appropriate, repair plan and job safety/hazard analysis are effectively communicated to appropriate personnel in a timely manner. • Replaced parts are properly disposed of or refurbished and returned to service. • Post maintenance testing is performed to ensure equipment is in proper working order. • Equipment trouble reports and/or history briefs are accurately completed and submitted as required. • All required parts not on hand are ordered prior to beginning repair. • Work order is generated prior to obtaining parts required for repair. • Troubleshooting is completed with impact on the power, communication and control systems. 	<ul style="list-style-type: none"> • Knowledge of <i>Standards and Guides</i>, safety procedures and personal protective equipment. • Ability to disassemble and reassemble equipment. • Knowledge of equipment (see list on page 1 of this document). • Knowledge of technical requirements for specifications of parts to be repaired and manufactures recommended procedures. • Knowledge of equipment function and purpose within the system. • Knowledge of the power system and communication/control system and how they impact other systems. • Ability to identify the root cause and possible adverse effects of malfunction. • Ability to properly test and validate successful repair. • Knowledge of proper disposal and refurbishing procedures for parts and repairs. • Ability to interact with internal and external customers (other departments or vendors). • Knowledge of the contents of trouble reports and history briefs, how to locate them, and their proper distribution. • Knowledge of internal and external individuals who are impacted by repair work. • Ability to operate test equipment (see list on page 1 of this document). • Ability to perform circuit board repair. • Ability to use hand tools and specialized tools and equipment such as SMA (Sub-Miniature version A) torque wrenches. • Knowledge of parts ordering procedures. • Knowledge of procedures for generating work orders. • Knowledge of electronics including analog, digital and logic theory. • Knowledge of procedures to request equipment outage. • Ability to perform repairs with no adverse impact on the power, communication and control systems. 	<ul style="list-style-type: none"> • Orders and maintains inventory and monitors safe and efficient utilization of materials. • Analyzes possible causes of problems, generates and evaluates solutions and generates and evaluates solutions. • Analyzes situations and information, considers risks and implications, and compiles multiple viewpoints. • Uses logic to draw conclusions, analyzes rules and principles and examines information for relevance and accuracy. • Understands technological requirements and results; analyzes task/technology relationship; proposes simple technological solutions. • Troubleshoots and corrects malfunctions and failures; evaluates performance of technology; analyzes failures. • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards. • Manipulates technology for desired result; and analyzes technology output. • Demonstrates willingness and ability to travel and work in adverse weather.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>A4 <i>Document equipment maintenance</i></p>	<ul style="list-style-type: none"> • Documentation is performed according to agency and district policies and procedures. • Documents and appropriate files are input into database, filed, or distributed to correct parties. • Preventive maintenance schedule is accurately updated to reflect work completed. • Documentation is accurate, legible and complete and is completed in a timely manner. • Documentation is understandable and succinct. • Test results are accurately recorded and documents are properly filed. 	<ul style="list-style-type: none"> • Ability to document equipment maintenance to meet reader's needs. • Knowledge of procedures to update wiring diagrams and schematics and communicate updates to the Design Department. • Knowledge of documentation policies and procedures. • Ability to input relevant and accurate data into the electronic system. • Knowledge of how documentation is used by other BPA departments and employees. • Ability to report findings and make recommendations based on documented history and findings. • Knowledge of test result documentation procedures. 	<ul style="list-style-type: none"> • Records information accurately, creates original documents and summarizes information. • Utilizes integrated software, utilizes networks and manipulates, modifies and edits information. • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Prepares basic summaries and integrates information. • Interprets information and applies processes to new information.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>A5 <i>Perform diagnostic testing</i></p>	<ul style="list-style-type: none"> • All required test equipment is identified and located. • Test equipment is used correctly. • Testing procedures from SPIFs (Standard Procedure, Information, and Instruction Procedures) or technical manuals are gathered. • Research is performed as required to achieve required familiarity with the equipment being tested. • Test results are compared with baseline operating data of the equipment and anomalies are corrected or referred to appropriate personnel or departments. • Test results are properly documented and filed. 	<ul style="list-style-type: none"> • Knowledge of the equipment and location of information about equipment. • Knowledge of location and proper operation of test equipment (see list on page 1 of this document). • Knowledge of equipment (see list on page 1 of this document). • Knowledge of functions of test equipment. • Knowledge of baseline operating data of the equipment. • Knowledge of test result documentation procedures. • Knowledge of electronics including analog, digital and logic theory. • Knowledge of communication system physics. • Knowledge of the power system and communication/control system and how they impact other systems. • Ability to perform diagnostic testing with no adverse impact on the power, communication and control systems. • Knowledge of tests that endanger the system. • Knowledge of when to make corrections and when to refer problems to other individuals or departments. 	<ul style="list-style-type: none"> • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Interprets information and applies processes to new information. • Prepares basic summaries and integrates information. • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards. • Suggests system modifications/improvements and determines system components to be improved. • Utilizes previous training and experience to predict outcomes; visually analyzes relationship between parts/whole and process/procedure and interprets charts, graphs and symbols. • Monitors system performance, analyzes system operation, distinguishes trends in performance and diagnoses performance deviations. • Manipulates technology for desired result; analyzes technology output; examines task/technology relationship.

Job: Power System Control Craftsman I & II
Critical Work Function: B. Install and Modify and Upgrade Equipment

KEY ACTIVITY	<i>Performance Indicators</i> How do we know when the task is performed well?	<i>Technical Knowledge</i> Skills, Abilities, Tools	<i>Employability Skills</i> SCANS Skills and Foundational Abilities
<p><i>B1</i> <i>Install equipment</i></p>	<ul style="list-style-type: none"> • Installation and removal of equipment is performed safely and in accordance with design plans. • Plan of action is developed and correctly implemented. • Installation and removal of equipment and software is completed to specifications and in a timely manner. • Security and network protocols are followed when installing and uninstalling software, and passwords and user names are obtained from contractors. • Input is given to modify the plan of action as required during installation, customization or upgrade. • Communications with the Design Department, IT Department, contractors and all other crafts involved in the project is maintained in a continuous manner. • New equipment and systems are interfaced with old equipment and systems with no adverse impact on the power, communication and control systems. • Internal and external equipment experts are appropriately involved. • Tests are completed to ensure proper function during and after installation, modification or upgrade. • Energization tests are properly performed on new installations. • Installations are completed with no adverse impact on the power, communication and control systems. 	<ul style="list-style-type: none"> • Knowledge of safety standards and guides regarding equipment and BPA APM (Accident Prevention Manual). • Ability to develop, modify and implement a plan of action. • Ability to understand and follow vendors' equipment specifications and recommendations. • Knowledge of equipment and software installation, modification and upgrade procedures. • Knowledge of security and network protocols, usernames and passwords. • Knowledge of vendor, equipment and system terminology. • Knowledge of information required by the Design Department, IT Department, contractors and all other crafts and departments. • Ability to interface new and old equipment and systems with no adverse impact on the power, communication and control systems. • Knowledge of appropriate use of internal and external equipment experts and how to contact and engage them in equipment installation, modification or upgrade. • Ability to follow and update schematics, design standards and wiring diagrams. • Knowledge of functionality and energization testing procedures and equipment. • Ability to locate and research necessary information. • Knowledge of electronics including analog, digital and logic theory. • Knowledge of the communication systems. • Ability to operate test equipment (see list on page 1 of this document). • Knowledge of equipment (see list on page 1 of this document). • Knowledge of how the communication system and equipment interact with other systems. 	<ul style="list-style-type: none"> • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Interprets information and applies processes to new information. • Demonstrates creative thinking process while problem solving; develops creative solutions and applies them to new situations. • Analyzes situations and information, considers risks and implications, and compiles multiple viewpoints. • Utilizes previous training and experience to predict outcomes; visually analyzes relationship between parts/whole and process/procedure and interprets charts, graphs and symbols. • Utilizes integrated software, utilizes networks and manipulates, modifies and edits information. • Understands technological requirements and results; analyzes task/technology relationship; proposes simple technological solutions.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>B2 <i>Modify and upgrade equipment</i></p>	<ul style="list-style-type: none"> • Modification and upgrade of equipment and software is performed safely and in accordance with <i>Standards and Guides</i>. • Directives and Alerts are accurately followed in a timely manner. • Internal and external equipment experts are appropriately involved. • Security and network protocols are followed when installing and uninstalling software and passwords and user names are obtained from contractors. • Plan of action is developed and correctly implemented. • Modification and upgrades are completed with no adverse impact on the power, communication and control systems. • Tests are completed to ensure proper function of equipment and software during and after installation, modification or upgrade. 	<ul style="list-style-type: none"> • Knowledge of safety standards and guides regarding equipment and software. • Ability to understand and follow Directives and Alerts. • Knowledge of equipment modification procedures. • Knowledge of vendor, equipment and system terminology. • Knowledge of appropriate use of internal and external equipment experts and how to contact and engage them in modification. • Ability to develop, modify and implement a plan of action. • Knowledge of characteristics of equipment operating within and outside of normal parameters. • Knowledge of functionality tests required for installation of equipment and software. • Knowledge of security and network protocols, usernames and passwords. • Ability to follow and update schematics, design standards and wiring diagrams. • Ability to modify and upgrade equipment with no adverse impact on the power, communication and control systems. • Knowledge of electronics including analog, digital and logic theory. • Knowledge of the communication systems. • Knowledge of test equipment (see list on page 1 of this document). • Knowledge of equipment (see list on page 1 of this document). • Knowledge of how the communication system and equipment interact with other systems. 	<ul style="list-style-type: none"> • Orders and maintains inventory and monitors safe and efficient utilization of materials. • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Analyzes situations and information, considers risks and implications, and compiles multiple viewpoints. • Interprets information and applies processes to new information. • Prepares basic summaries and integrates information. • Suggests system modifications/improvements and determines system components to be improved. • Manipulates technology for desired result; analyzes technology output; examines task/technology relationship.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p><i>B3</i> <i>Document installation, upgrade or modification</i></p>	<ul style="list-style-type: none"> • Wiring diagrams and schematics are properly updated to reflect the installation, modification or upgrade. • Documentation is performed according to agency and district policies and procedures. • Documents and appropriate files are input into database, filed or distributed as required. • All configuration files and software are backed up as necessary. • Documentation is accurate, legible and complete and is completed in a timely manner. • Test results are accurately recorded and documents are properly filed. 	<ul style="list-style-type: none"> • Knowledge of documentation policies and procedures. • Ability to input relevant and accurate data into manual and electronic system. • Knowledge of procedures to back up configuration files and software. • Knowledge of how documentation is used by other BPA departments and employees. • Ability to report findings and make recommendations based on documented history and findings. • Ability to update schematics, design standards and wiring diagrams. 	<ul style="list-style-type: none"> • Records information accurately, creates original documents and summarizes information. • Utilizes integrated software, utilizes networks and manipulates, modifies and edits information. • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Interprets information and applies processes to new information. • Prepares basic summaries and integrates information. • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>B4 <i>Fabricate parts and components</i></p>	<ul style="list-style-type: none"> • Soldering, machining and other fabrication are performed to work specifications and design standards. • Work is performed safely, and personal protective equipment is work in accordance with agency and district policies and procedures. • Fabricated parts and components are functional and aesthetically acceptable where possible. • Proper tools and materials are used correctly. • Where applicable, specifications are written in accordance with industry standards. • Measurements and quantity estimates are accurate. • Documentation is completed accurately and submitted according to procedure, as required and, where applicable, existing schematics and diagrams are updated. • Fabricated parts and components are tested to ensure they are functional and conform to specification and design. • Fabricated parts and components are properly designed. 	<ul style="list-style-type: none"> • Ability to identify and use hand tools and power tools. • Knowledge of soldering processes and associated equipment. • Knowledge of fabricating interface component circuitry. • Knowledge of cabling and cable termination. • Ability to design and fit fabricated parts and components to existing or new equipment. • Knowledge of layout techniques and procedures. • Ability to read blueprints and schematics. • Knowledge of safety standards and personal protective equipment and how to use it. • Ability to measure accurately. • Ability to estimate quantities and write specifications. • Knowledge of documentation requirements and procedures. • Knowledge of precision layout techniques and procedures. • Knowledge of materials such as hardware, lubricants, cutting fluids and fasteners. • Knowledge of fabrication process. • Knowledge of functionality testing procedures and equipment. 	<ul style="list-style-type: none"> • Summarizes and translates mathematical data and manipulates formulas. • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Demonstrates creative thinking process while problem solving; develops creative solutions and applies them to new situations. • Analyzes possible causes of problems, generates and evaluates solutions and generates and evaluates solutions. • Prepares basic summaries and integrates information. • Orders and maintains inventory and monitors safe and efficient utilization of materials.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>B5 <i>Perform diagnostic testing</i></p>	<ul style="list-style-type: none"> • All required test equipment is correctly identified and located. • Testing procedures are correctly located from SPIFs (Standard Procedure, Information, and Instruction Procedures) or technical manuals. • Research is performed to familiarize self with the equipment being worked on. • Tests are performed to establish baseline operating data for the equipment. • Test data is analyzed and compared against manufacturer's and BPA specifications. • Test results are properly documented and filed. 	<ul style="list-style-type: none"> • Knowledge of the equipment and location of information about equipment • Knowledge of location and proper operation of test equipment (see list on page 1 of this document). • Knowledge of uses of test equipment. • Knowledge of manufacturer's and BPA specifications of the equipment. • Knowledge of test result documentation procedures. • Knowledge of electronics including analog, digital and logic theory. • Knowledge of communication system physics. • Knowledge of the power system and communication/control system and how they impact other systems. • Ability to perform diagnostic testing with no adverse impact on the power, communication and control systems. • Knowledge of tests that endanger the system. • Knowledge of when to make corrections and when to refer. • Knowledge of equipment (see list on page 1 of this document). • Knowledge of baseline operating data of the equipment. 	<ul style="list-style-type: none"> • Interprets and converts numerical data and predicts arithmetic results. • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Interprets information and applies processes to new information. • Prepares basic summaries and integrates information. • Monitors system performance, analyzes system operation, distinguishes trends in performance and diagnoses performance deviations. • Suggests system modifications/improvements and determines system components to be improved.

Job: Power System Control Craftsman I & II

Critical Work Function: C. Perform Technical and Administrative Duties

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p><i>C1</i> Maintain records and reports</p>	<ul style="list-style-type: none"> • Records and reports are accurate and up to date and are filed in proper locations. • Records and reports are submitted in a timely manner to appropriate personnel and departments. • Records and reports are maintained in accordance with policies. • Security and retention protocols are accurately followed. • BES (Business Enterprise System) is reviewed and updated in a timely manner on a regular basis. 	<ul style="list-style-type: none"> • Knowledge of reporting requirements. • Knowledge of policies regarding records and reports. • Knowledge of security and retention protocols. • Knowledge of BES system and ability to use BES system as needed. 	<ul style="list-style-type: none"> • Utilizes integrated software, utilizes networks and manipulates, modifies and edits information. • Records information accurately, creates original documents and summarizes information. • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Utilizes previous training and experience to predict outcomes; visually analyzes relationship between parts/whole and process/procedure and interprets charts, graphs and symbols. • Interprets information and applies processes to new information. • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>C2 <i>Assist in training other employees</i></p>	<ul style="list-style-type: none"> • Mentoring / training provided is accurate, relevant and timely. • Questions are answered in a courteous and respectful manner. • Communication is appropriate and proper terminology is used. • Receptivity and support are provided to all trainees to help them advance. • Proficiency in subject matter is maintained. • Appropriate OJT (on-the-job) opportunities are identified and communicated to fellow employees and trainees. • Training has defined objectives which are based on job tasks. • The effectiveness of training is measured by improved performance and demonstration of skills. • Agency goals are supported through effective mentorship. • All training materials are accessible. 	<ul style="list-style-type: none"> • Knowledge of BPA terminology. • Ability to create OJT training opportunities. • Ability to identify trainee's needs. • Knowledge of subject matter (power system control equipment, electronic communication theory, etc.). • Ability to demonstrate proper BPA PSC practices. 	<ul style="list-style-type: none"> • Conducts task-specific training, coaches others to apply related concepts and provides constructive feedback/reinforcement. • Understands the legal aspects of discrimination and respects the rights of others. • Recognizes job tasks, and distributes and analyzes work assignments. • Responds appropriately to others, takes active interest in and willingly helps others and modifies behavior to environment. • Defends own viewpoints, accepts responsibility for own behavior, understands own impact on others and demonstrates self confidence, self reliance, and self discipline. • Interprets and applies new knowledge and experience and analyzes application of learning tools. • Maintains self control, accepts constructive criticism, sets well defined/realistic goals and demonstrates commitment to self improvement. • Adheres to standards, demonstrates commitment to excellence and leads by example.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>C3 <i>Perform housekeeping</i></p>	<ul style="list-style-type: none"> • Materials are kept in a safe manner. • Unsafe conditions are identified and reported promptly. • Work area is clean and clear of safety hazards. • All appropriate safety equipment is present, up-to-date and in proper working order. • Tools and equipment are cleaned, returned to proper location, and tagged if broken. • All materials procedures are followed with respect to handling and disposal in accordance with <i>Standards and Guides</i>. • Shared tools are stored in designated location. 	<ul style="list-style-type: none"> • Knowledge of BPA APM (Accident Prevention Manual) and work standards related to hazardous materials. • Knowledge and ability to identify and correct for unsafe conditions. • Knowledge of safety equipment and its proper working order. • Knowledge of proper cleaning and storage procedures. • Ability to perform inspection of tools and materials (restock, recycle or repair) • Ability to identify nonfunctional tools for repair and knowledge of communications and tagging requirements for nonfunctioning tools. • Knowledge of designated storage areas for shared test equipment. 	<ul style="list-style-type: none"> • Orders and maintains inventory and monitors safe and efficient utilization of materials. • Efficiently manages time, prioritizes daily tasks, prepares schedule and monitors and adjusts task sequence. • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>C4 <i>Maintain proficiency in current and new technologies</i></p>	<ul style="list-style-type: none"> • Technical trainings are attended with full participation. • Initiative is demonstrated to participate in continuous learning opportunities. • Equipment instruction manuals are reviewed as required to perform repair, maintenance and installation. • Training needs are communicated to the supervisor. • Knowledge of all categories of equipment in the district and/or location of information on equipment are maintained and kept current. • Knowledge of the power system is maintained and kept current. 	<ul style="list-style-type: none"> • Ability to access training provided by the organization. • Knowledge of location of equipment instruction manuals and how to use them. • Knowledge of location of materials and information on all categories of equipment in the district. • Knowledge of location of materials and information on the power system. • Ability to job-shadow individuals in T & E (Testing and Energization). 	<ul style="list-style-type: none"> • Interprets and applies new knowledge and experience and analyzes application of learning tools. • Understands negotiations process, identifies conflicts and moderates discussion. • Troubleshoots and corrects malfunctions and failures; evaluates performance of technology; analyzes failures. • Defends own viewpoints, accepts responsibility for own behavior, understands own impact on others and demonstrates self confidence, self reliance, and self discipline. • Utilizes integrated software, utilizes networks and manipulates, modifies and edits information. • Identifies relevant details, facts, specifications, follows set of instructions and qualifies/analyzes information. • Confirms information and interprets, clarifies and influences communication.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p>C5 <i>Respond to requests from customers</i></p>	<ul style="list-style-type: none"> • Customer needs are recognized and acknowledged. • Customer requests are responded to in a timely manner including feedback and communication. • Information about requests and actions taken are communicated to appropriate personnel effectively and in a timely manner. • Communications with customers comply with standards of conduct and sensitive communications policies. 	<ul style="list-style-type: none"> • Knowledge of customer rules and protocols when working inside their facilities. • Knowledge of the power system and equipment. • Knowledge of the information needs of BPA departments and personnel regarding requests from customers. • Knowledge of standards of conduct and sensitive communications policies. • Knowledge of the power system and communication/control system and how they impact other systems. 	<ul style="list-style-type: none"> • Communicates appropriate verbal/non-verbal messages, actively participates in discussion and presents complex ideas and information. • Demonstrates sensitivity to customer concerns and responds to and analyzes customer needs. • Understands the system organization and hierarchy, follows processes and procedures, and responds to system demand. • Responds appropriately to others, takes active interest in and willingly helps others and modifies behavior to environment. • Confirms information and interprets, clarifies and influences communication. • Demonstrates honesty and trustworthiness, accepts responsibility for own behavior and analyzes implications of decisions. • Maintains self control, accepts constructive criticism, sets well defined/realistic goals and demonstrates commitment to self improvement.

Job: Power System Control Craftsman I & II

Critical Work Function: D. Communicate with C-workers to Promote Safety and Productivity

KEY ACTIVITY	<i>Performance Indicators</i> How do we know when the task is performed well?	<i>Technical Knowledge</i> Skills, Abilities, Tools	<i>Employability Skills</i> SCANS Skills and Foundational Abilities
<p><i>D1</i> <i>Participate in meetings and problem solving groups</i></p>	<ul style="list-style-type: none"> • Meetings are attended with active participation and advance preparation. • Information is accurately given and received. • Issues are accurately and thoroughly discussed and solutions are defined. • Communication is respectfully performed without discrimination. • Communication is clear and relevant. • Action items are carried out in a timely manner. • Agenda items are turned in and received in advance. 	<ul style="list-style-type: none"> • Knowledge of BPA and other crafts' terminology. • Knowledge of the power system and communication/control system and how they impact other systems. • Knowledge of equipment (see page 1 of this document). • Knowledge of the roles and responsibilities of agency personnel, work groups and departments. • Knowledge of the CPTC (Columbia Power Trades Council) /BPA agreement and craft boundaries. • Knowledge of PSC processes and procedures. • Knowledge of APM (Accident Prevention Manual). • Knowledge of BPA ethics and diversity policies. 	<ul style="list-style-type: none"> • Analyzes possible causes of problems, generates and evaluates solutions and generates and evaluates solutions. • Confirms information and interprets, clarifies and influences communication. • Responds appropriately to others, takes active interest in and willingly helps others and modifies behavior to environment. • Assists and encourages team members, actively participates, works to improve team skills and demonstrates commitment. • Communicates appropriate verbal/non-verbal messages, actively participates in discussion and presents complex ideas and information. • Maintains self control, accepts constructive criticism, sets well defined/realistic goals and demonstrates commitment to self improvement. • Prepares basic summaries and integrates information. • Demonstrates honesty and trustworthiness, accepts responsibility for own behavior and analyzes implications of decisions.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p><i>D2</i></p> <p><i>Communicate safety and job-specific needs</i></p>	<ul style="list-style-type: none"> • Communication is in accordance with BPA APM (Accident Prevention Manual) and work standards. • The high priority nature of safety is communicated including participating in and conducting job briefings. • Job-related and system operations issues and concerns are discussed and quickly resolved. • Communication demonstrates knowledge of customer and business needs. • Communication is clear and relevant to the situation. • Communication is made in a timely and accurate manner to the correct parties. • Communications regarding applicable barriers including lock-out tag-out are made in accordance with OSHA (Occupational Safety and Health Administration) and BPA standards. 	<ul style="list-style-type: none"> • Knowledge of the criticality of safety in the workplace. • Knowledge of BPA and other crafts' terminology. • Knowledge of customer and business needs. • Knowledge of the roles and responsibilities of company personnel and departments. • Knowledge of APM and work standards. • Knowledge of OSHA and BPA safety and health standards. 	<ul style="list-style-type: none"> • Communicates appropriate verbal/non-verbal messages, actively participates in discussion and presents complex ideas and information. • Defends own viewpoints, accepts responsibility for own behavior, understands own impact on others and demonstrates self confidence, self reliance, and self discipline. • Assists and encourages team members, actively participates, works to improve team skills and demonstrates commitment. • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p><i>D3</i> <i>Report observations of abnormalities</i></p>	<ul style="list-style-type: none"> • Ongoing preventive maintenance problems and safety concerns are communicated to appropriate people in a timely manner. • Communication is clear and relevant to the situation. 	<ul style="list-style-type: none"> • Knowledge of maintenance procedures and ongoing preventive maintenance problems. • Knowledge of characteristics of equipment operating within and outside of normal parameters. • Ability to locate, prepare and use equipment histories and trouble report. 	<ul style="list-style-type: none"> • Adheres to standards, demonstrates commitment to excellence and leads by example. • Communicates appropriate verbal/non-verbal messages, actively participates in discussion and presents complex ideas and information. • Records information accurately, creates original documents and summarizes information. • Understands the system organization and hierarchy, follows processes and procedures, and responds to system demand. • Demonstrates honesty and trustworthiness, accepts responsibility for own behavior and analyzes implications of decisions. • Monitors system performance, analyzes system operation, distinguishes trends in performance and diagnoses performance deviations. • Suggests system modifications/improvements and determines system components to be improved.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p><i>D4.</i> <i>Identify and report accidents and unsafe conditions and take corrective actions</i></p>	<ul style="list-style-type: none"> • Accident and injury reports are completed accurately and in a timely manner. • Conditions that present a threat to health and safety are identified and promptly reported. • Corrective actions are identified communicated to appropriate personnel effectively and in a timely manner. • Corrective actions are taken promptly (including work stoppage) according to agency and district procedures. • APM (Accident Prevention Manual) rules and work standards are followed. 	<ul style="list-style-type: none"> • Ability to identify and take action on an unsafe condition. • Knowledge of corrective actions. • Knowledge of reporting procedures for accidents, injuries and unsafe conditions. • Thorough knowledge of APM rules and work standards. 	<ul style="list-style-type: none"> • Communicates appropriate verbal/non-verbal messages, actively participates in discussion and presents complex ideas and information. • Records information accurately, creates original documents and summarizes information. • Demonstrates honesty and trustworthiness, accepts responsibility for own behavior and analyzes implications of decisions. • Uses logic to draw conclusions, analyzes rules and principles and examines information for relevance and accuracy. • Defends own viewpoints, accepts responsibility for own behavior, understands own impact on others and demonstrates self confidence, self reliance, and self discipline.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p><i>D5.</i> <i>Communicate and coordinate with BPA management and coworkers</i></p>	<ul style="list-style-type: none"> • Supervisor and co-workers are kept informed of events and requests in the district. • BPA policies, goals and targets are clearly communicated and supported. 	<ul style="list-style-type: none"> • Knowledge of BPA policies, goals and targets. • Ability to determine when and how to consult with supervisor and co-workers. 	<ul style="list-style-type: none"> • Responds appropriately to others, takes active interest in and willingly helps others and modifies behavior to environment. • Confirms information and interprets, clarifies and influences communication. • Records information accurately, creates original documents and summarizes information. • Adheres to standards, demonstrates commitment to excellence and leads by example. • Assists and encourages team members, actively participates, works to improve team skills and demonstrates commitment. • Understands negotiations process, identifies conflicts and moderates discussion. • Recognizes job tasks, and distributes and analyzes work assignments.

Job: Power System Control Craftsman I & II

Critical Work Function: E. Perform Job Planning and Scheduling

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p><i>E1</i> Schedule equipment outages</p>	<ul style="list-style-type: none"> • Equipment work permit, clearance or outage is requested in accordance with BPA policies and procedures. • Outages are coordinated with other crafts, utilities and customers. 	<ul style="list-style-type: none"> • Knowledge of equipment work permit, clearance and outage request policies and procedures and APM (Accident Prevention Manual). • Ability to coordinate with other crafts, utilities and customers. • Ability to understand BPA schedules (such as construction, maintenance, work plans) and estimate amount of time to complete work. • Ability to read CCL (communications circuit listings) and current Digsys. 	<ul style="list-style-type: none"> • Understands negotiations process, identifies conflicts and moderates discussion. • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Analyzes situations and information, considers risks and implications, and compiles multiple viewpoints. • Utilizes integrated software, utilizes networks and manipulates, modifies and edits information. • Interprets and converts numerical data and predicts arithmetic results. • Monitors system performance, analyzes system operation, distinguishes trends in performance and diagnoses performance deviations. • Efficiently manages time, prioritizes daily tasks, prepares schedule and monitors and adjusts task sequence.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p><i>E2</i> <i>Gather materials, tools, software, documents and equipment</i></p>	<ul style="list-style-type: none"> • Required materials, tools, software and documents are accurately identified, and are gathered in adequate quantities to perform work. • Tools and equipment are in proper working order and calibrated as required. • Software is the appropriate version for the equipment being worked on. • Proper documents or reference materials are present. 	<ul style="list-style-type: none"> • Knowledge of the materials, tools, software and documents required for a job. • Knowledge of proper functioning of tools. • Knowledge of required calibration for tools and devices. 	<ul style="list-style-type: none"> • Orders and maintains inventory and monitors safe and efficient utilization of materials. • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards. • Utilizes integrated software, utilizes networks and manipulates, modifies and edits information. • Understands technological requirements and results; analyzes task/technology relationship; proposes simple technological solutions.
<p><i>E3</i> <i>Verify materials and parts and order parts not on hand</i></p>	<ul style="list-style-type: none"> • Materials needed are accurately identified. • The proper work order is used to create a material request. • Items are requisitioned through BES (Business Enterprise System), PSC Spare Parts or the local parts vendor. 	<ul style="list-style-type: none"> • Knowledge of the materials and parts required for a job. • Knowledge of procedures for work orders and material requests. • Knowledge of how to use BES, procedures for PSC Spare Parts and local vendors. • Knowledge of personnel contacts to expedite parts. 	<ul style="list-style-type: none"> • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards. • Interprets and converts numerical data and predicts arithmetic results. • Orders and maintains inventory and monitors safe and efficient utilization of materials. • Prepares basic summaries and integrates information. • Understands technological requirements and results; analyzes task/technology relationship; proposes simple technological solutions.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<i>E4</i> <i>Establish priorities</i>	<ul style="list-style-type: none"> • Agency goals are incorporated into scheduling priorities. • Knowledge of construction schedules and maintenance schedule reports and how to use them. • Input on priorities is obtained from supervisor and other employees. • Maintenance work is scheduled to comply with published agency maintenance priorities. • Priorities are adjusted as required to meet changing situations. 	<ul style="list-style-type: none"> • Knowledge of construction schedules and maintenance schedule reports. • Ability to locate and understand agency maintenance priorities. • Ability to estimate amount of time required to complete work. • Ability to change work schedule without notice. • Knowledge of the current condition of the power system/communication system and how it impacts priorities. 	<ul style="list-style-type: none"> • Understands the system organization and hierarchy, follows processes and procedures, and responds to system demand. • Adheres to standards, demonstrates commitment to excellence and leads by example. • Maintains self control, accepts constructive criticism, sets well defined/realistic goals and demonstrates commitment to self improvement. • Analyzes situations and information, considers risks and implications, and compiles multiple viewpoints. • Uses logic to draw conclusions, analyzes rules and principles and examines information for relevance and accuracy. • Defends own viewpoints, accepts responsibility for own behavior, understands own impact on others and demonstrates self confidence, self reliance, and self discipline. • Interprets information and applies processes to new information.

Job: Power System Control Craftsman I & II
Critical Work Function: F. Maintain Tools, Equipment and Supplies

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p><i>F1</i> Maintain test equipment, hardware and supplies</p>	<ul style="list-style-type: none"> • Calibration tags are checked to verify if calibration is needed. • Firmware is updated on test equipment. • Test equipment manuals are consulted to identify test equipment operation and specifications. • Cables and adaptors are stocked and maintained. • Test equipment is ready for use. 	<ul style="list-style-type: none"> • Ability to operate test equipment (see list on page 1 of this document). • Knowledge of proper operation of test equipment. • Ability to update firmware. • Ability to locate, use and understand test equipment manuals and specifications. • Ability to check hand tools to ensure they are in working order. • Ability to stock and maintain cables and adaptors. 	<ul style="list-style-type: none"> • Troubleshoots and corrects malfunctions and failures; evaluates performance of technology; analyzes failures. • Orders and maintains inventory and monitors safe and efficient utilization of materials. • Analyzes situations and information, considers risks and implications, and compiles multiple viewpoints. • Efficiently manages time, prioritizes daily tasks, prepares schedule and monitors and adjusts task sequence.
<p><i>F2</i> Maintain working stock</p>	<ul style="list-style-type: none"> • Vehicles are kept in good working order and scheduled maintenance is consistently performed. • Vehicle safety equipment is available and up-to-date. • Adequate tools, equipment and materials are present for everyday use or scheduled work. • Adequate spare parts are maintained and stocked. 	<ul style="list-style-type: none"> • Knowledge of characteristics of a vehicle in good working order or in need of repair. • Knowledge of scheduled maintenance for vehicles and how to obtain it. • Knowledge of vehicle safety equipment and ability to determine if safety equipment is up-to-date. • Knowledge of tools equipment and materials required for everyday use or a scheduled job. • Knowledge of procedures for stocking spare parts. • Knowledge of spare parts required for PSC work. 	<ul style="list-style-type: none"> • Orders and maintains inventory and monitors safe and efficient utilization of materials. • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards. • Analyzes situations and information, considers risks and implications, and compiles multiple viewpoints.

KEY ACTIVITY	Performance Indicators How do we know when the task is performed well?	Technical Knowledge Skills, Abilities, Tools	Employability Skills SCANS Skills and Foundational Abilities
<p><i>F3</i></p> <p><i>Maintain databases and software</i></p>	<ul style="list-style-type: none"> • Instrument controllers (PC's—personal computers) are updated with latest specialized software on a routine basis to support power system control equipment. • Data files are correctly backed up to server or district archive location. • Software is reloaded as needed. • Instrument controllers are used in a secure and prudent manner in accordance with <i>Standards and Guides</i>. 	<ul style="list-style-type: none"> • Knowledge of instrument controllers. • Ability to update instrument controllers and install specialized software to support PSC equipment. • Knowledge of data backup procedures and locations. • Knowledge of agency policies regarding maintenance of databases. • Knowledge of standards and guides with respect to security and use of instrument controllers. 	<ul style="list-style-type: none"> • Utilizes integrated software, utilizes networks and manipulates, modifies and edits information. • Troubleshoots and corrects malfunctions and failures; evaluates performance of technology; analyzes failures. • Orders and maintains inventory and monitors safe and efficient utilization of materials. • Works with minimal supervision, pays attention to details, demonstrates initiative, and monitors performance standards. • Selects data relevant to the task, predicts outcomes, analyzes data and integrates multiple items of data. • Interprets information and applies processes to new information. • Suggests system modifications/improvements and determines system components to be improved.