

MAINTENANCE TECHNICAL SUPPORT CENTER
HEADQUARTERS MAINTENANCE OPERATIONS
UNITED STATES POSTAL SERVICE



Maintenance Management Order

SUBJECT: Welding Training

DATE: December 10, 2012

TO: All Maintenance Managers

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This Maintenance Management Order (MMO) provides a framework for maintenance capable sites to locally acquire, if needed, welding training services for selected maintenance employees. It allows maintenance capable sites to outsource welding training to institutions within 50 miles radius from the USPS site location. Attachment 1, USPS Training Guide for Level I Entry Welders, should be used to solicit bids from welding training institutions located within a 50 miles radius. This bulletin applies to Acronym ADMIN and Class Code AA.

The USPS Training Guide for Level I - Entry Welders follows the intent of the American Welding Society (AWS), "Guide for the Training of Welding Personnel: Level I - Entry Welder," AWS EG2.0:2006. According to the AWS (2006), "Level I - Entry Welder needs to enter the workforce possessing a prerequisite amount of knowledge, attitude, skills and habits required to perform routine, predictable, repetitive, and procedural tasks involving motor skills, and limited theoretical knowledge while working under close supervision (p. vii)."

USPS employees who have successfully completed welding training will be qualified to perform selected welding activities as determined by their managers. The length of Level I - Entry Welder training is limited to approximately 104 hours.

The Level I - Entry Welder training is a combination of classroom and hands-on welding instructions, delivered either on-site or at the training organization's facility. Each site providing Level I - Entry Welder training should use the [AWS School Locator](#) or other available welding schools information to find local welding training institutions within a 50 miles radius from their location. Once welding training institutions are located, the site should use Attachment 1 to develop a request for bids (RFB). The training cost per Level I Entry Welder trainee should not to exceed \$2,000.00.

The AWS School Locator is convenient, particularly for narrowing the 50 miles travel restriction. For instance, entering Anchorage in the "City Field" and Alaska in the "State Field" and 50 miles in the "Search Radius Field" returns three welding training institutions within a 13 miles radius.

Each training institution course of study should reflect the objectives and key indicators of USPS' Training Guide for Level I - Entry Welders as documented in Modular Competency Based Program Outline and detailed in Learning Modules (Attachment 1). The teaching sequence for each training organization's course of study should be that

which the instructor, the organization, or the state educational authority specifies or has found to be most suited to the capabilities of the trainees and meets the needs of the USPS.

Maintenance Manager

The Maintenance Manager for maintenance capable sites should identify individual(s) responsible for supervising and conducting local welding training, such as the Training Coordinator. The local individual responsible for overseeing maintenance training uses the [AWS School Locator](http://www.aws.org/w/sense/) (<http://www.aws.org/w/sense/>) to locate training institutions within the 50 miles travel radius and uses the USPS Training Guide for Level - I Entry Welders to solicit bids from welding training institutions. Additionally, sites should inquire for the availability of local business consortiums that provide welding training. Consortiums often provide training at the zero cost.

Training should be recorded in the employee's file at the site in LMS as after-the-fact training, and in eMARS.

Background

The previous mode of introductory welding training at the USPS was centralized. The National Center for Employee Development (NCED) facilitated welding training using the Hobart AWS training materials at the Norman, OK training facility. NCED representatives served as the primary training managers, trainers or facilitators.

Decentralized Training

As a result of this MMO, welding training will be "Decentralized". Decentralized training is training initiated, planned, and executed at the local site level, based on requirements or guidance from this MMO. Under decentralized training, Maintenance Managers are responsible for planning, preparing, and executing the welding training of employees in their units.

The welding training in this MMO is a hybrid training model based on American Welding Society (AWS), "Guide for the Training of Welding Personnel: Level I - Entry Welder," AWS EG2.0:2006. Thus, it captures the strengths of both decentralized and centralized training modes.

Procedures for locating welding training institutions and issuing bids

Attachment 1 is USPS' Training Guide for Level I - Entry Welder and it must be used when issuing bids for Level I-Entry Welder training. USPS will allocate approximately 104 training hours per welder trainee and training can occur on-site or off-site. However, off-site training is restricted to a 50 miles radius from the site requesting training.

For questions or comments concerning this bulletin contact the MTSC HelpDesk, either online at **MTSC>HELPDESK>Create/Update Tickets** or call (800) 366-4123.



Robert E. Albert
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HQ Maintenance Operations

- Attachments:
1. USPS Training Guide for Level 1 Entry Welders
 2. Reference
 3. Definitions

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ATTACHMENT 1**USPS TRAINING GUIDE FOR LEVEL 1 ENTRY WELDERS****Table of Contents**

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1. GENERAL PROVISIONS

1.1. INTRODUCTION

The United State Postal Service (USPS) Training Guide for Level I Entry Welders follows the intent of the American Welding Society (AWS), "[Guide for the Training of Welding Personnel: Level I - Entry Welder](#)," AWS EG2.0:2006. According to AWS, "Level I - Entry Welder needs to enter the workforce possessing a prerequisite amount of knowledge, attitude, skills and habits required to perform routine, predictable, repetitive, and procedural tasks involving motor skills, and limited theoretical knowledge while working under close supervision (p. vii)."

1.2. SCOPE

AWS EG2.0:2006 *Guide for the Training of Welding Personnel: Level I—Entry Welder*, establishes a skill standard by defining the recommended minimum welder training requirements for a Level I—Entry Welder in accordance with AWS QC10: *Specification for Qualification and Certification of Level I—Entry Welder*.

1.3. OBJECTIVES

Provide maintenance capable sites with an overall framework for outsourcing welding training; with an industrial awareness of the occupational description, conditions, task listing, and profile; and with a list of *Key Indicators Objectives*, and *Modular Instructional Activities* necessary to accomplish Level I—Entry Welder.

1.4. IMPLEMENTATION

Each training site's course of study should reflect the objectives and key indicators of this guide as outlined in *Modular Competency Based Program Outline* and detailed in *Learning Modules*. The teaching sequence for each training organization's course of study should be that which the instructor, the organization, or the state educational authority specifies or has found to be most suited to the capabilities of the trainees and meets the needs of the USPS.

2. OVERVIEW

The USPS Level I Entry Welder Training Guide does not reflect the entire AWS Guide for the Training of Welding Personnel: Level I - Entry Welder AWS EG2.0: 2006. However, AWS EG2.0:2006 should be used as a guide for USPS welding training. AWS QC10 and EG2.0 are based on the results of a national survey to identify requisite entry welder skills and knowledge. Survey participants included individuals from a wide range of business, industrial and educational areas.

AWS EG2.0:2006 represents the AWS Education Grant Committee's consensus on the minimum requirements for a Level I—Entry Welder as specified by industry, and establishes the guidelines necessary to standardize the training and qualification of Level I—Entry Welder on a national basis.

The AWS (2006) defines Level I Entry Welder as “An individual employed in this position is considered to possess a prerequisite amount of knowledge, attitude, skills and habits required to perform routine, predictable, repetitive, and procedural tasks involving motor skills, and limited theoretical knowledge while working under close supervision (p. 2).”

2.1. SAFETY AND HEALTH OF WELDERS

A Level I Entry Welder should be able to follow detailed verbal or written instruction to set up and carry out specific job assignments. She or he should wear their personal protective equipment (PPE) while conducting welding and cutting tasks or are in the vicinity of these tasks. He or she shall follow procedures established using the concepts and requirements from USPS, NFPA and OSHA for “Hot Zone” management to ensure safety of the work area, unqualified USPS personnel or the general public. Additionally, this individual must be aware of Material Safety Data Sheets (MSDS) for all materials they are working with that require a MSDS. The Level I Entry Welder should be able to interpret drawing and welding symbols, prepare bill of materials (BOM), convert from inches to metric measurements; prepare parts from simple sketches and to weld joints and perform welding operations using welding symbols information.

2.2. PERFORMANCE EXPECTATIONS

The Entry Welder should be able to perform minor external repairs to equipment, accessories, and set ups using Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Oxy-Acetylene Welding (OAW) in all five basic joints (butt, corner, edge, lap and tee) in all four welding positions (flat, horizontal, overhead and vertical), as well as set up and perform Oxy-Acetylene and Plasma Arc cutting. Finally, the Entry Welder **should** be able to demonstrate limited understanding of non-destructive testing and basic metallurgy required in industry, as well as the ability to visually inspect all work for discontinuities and defects.

2.3. OCCUPATIONAL HAZARDS

According to AWS, the potential for bodily harm and hazardous situations is always present in welding and cutting operations. Therefore, welders shall take safety precautions and be safety conscious at all times. Welding and cutting equipment use high electrical currents and voltages to operate. Often welders use machinery for shearing, forming, and punching various materials. Additionally, they use flammable or other compressed gases during flame cutting and welding operations. The welder may be in direct contact with heavy sections during lifting or positioning operations and may work in tight spaces, enclosed, restricted spaces, at high elevations, and in awkward positions. Work performed in confined, enclosed, and restricted spaces must be accomplished in accordance with MI-EL-810-2010-1 and MMO-007-10. Excessive and prolonged noise levels are sometimes generated during production.

2.4. LEVEL I - ENTRY WELDER PROFILE

The AWS notes that this position involves concentration, hand-eye coordination, limited decision-making, and physical tasks. Additionally, potential welders shall possess the

following capabilities and character traits:

2.4.1. PHYSICAL REQUIREMENTS

The Level I—Entry Welder shall meet the basic physical requirements, such as strength to perform average lifting up to 70 pounds and occasionally over 70 pounds; back and leg coordination involved in activities such as stooping, kneeling, crouching, and crawling; arm, hand and finger dexterity with at least one hand involved in activities such as reaching, handling, and feeling; and good eyesight.

2.4.2. EMPLOYABILITY

The Level I—Entry Welder should exhibit accurate communication skills, basic problem solving skills, and decision-making skills. This individual should show sound judgment, be dependable, and interact well with others.

2.4.3. EDUCATION

Employers, such as USPS, use secondary, postsecondary, vocational-technical schools, junior colleges, universities, apprenticeship and employer based welder training programs to accomplish the Level I—Entry Welder training competencies. AWS notes that to complete prerequisite welding related knowledge and skills training, potential welding trainees require sufficient foundation skills such as reading, writing, math, science, communication, and employability.

2.5. GUIDELINES IMPLEMENTATION

The Level I—Entry Welder USPS guidelines do not include all the AWS welding and cutting techniques. However, similar to AWS, there are two ways to implement it:

1. As a comprehensive program covering SMAW, GMAW, and OAW welding, including OA and Plasma cutting, along with occupational orientation, safety, drawing and welding symbol interpretation, cutting processes, and welding inspection, or
2. As modular program covering selected welding and cutting processes (SMAW, GMAW, or OAW, and OA or Plasma cutting) along with occupational orientation, safety, drawing and welding symbol interpretation, cutting processes, and welding inspection.

Additionally, either implementation could be continuous or discrete.

3. MODULAR COMPETENCY-BASED OUTLINE

The AWS Guide for the Training of Welding Personnel: Level I - Entry Welder," AWS EG2.0:2006 recommends modular competency-based outlines, a subset are described below.

Recommended Modular Competency-Based Outline—Based on Program Structure QC10, Table 1

3.1. LEVEL I—ENTRY WELDER TRAINING

3.1.1. MODULE 1: OCCUPATIONAL ORIENTATION

KEY INDICATORS

1. Prepares time or job cards, reports, or records.
2. Performs housekeeping duties.
3. Follows instructions to complete work assignments.

3.1.2. MODULE 2: SAFETY AND HEALTH OF WELDERS

KEY INDICATORS

1. Demonstrates proper use and inspection of personal protection equipment (PPE).
2. Demonstrates proper safe operation practices in the work area.
3. Demonstrates proper use and inspection of ventilation equipment.
4. Demonstrates proper Hot Zone operation.
5. Demonstrates proper work actions for working in confined spaces (Note: Work occurring in Confined Space must be accomplished in accordance with MI-EL-810-2010-1 and MMO-007-10).
6. Demonstrates proper use of precautionary labeling and MSDS information.
7. Demonstrates proper inspection and operation of equipment used for each welding and thermal cutting process. (This is best done as part of the process module/unit for each of the required welding and thermal cutting processes.)

3.1.3. MODULE 3: DRAWING AND WELDING SYMBOL INTERPRETATION

KEY INDICATORS

1. Interprets basic elements of a drawing or sketch.
2. Interprets welding symbol information.
3. Fabricates parts from a drawing or sketch.

3.1.4. MODULE 4: SHIELDED METAL ARC WELDING (SMAW)**KEY INDICATORS**

1. Performs safety inspections of SMAW equipment and accessories.
2. Makes minor, external repairs to SMAW equipment and accessories.
3. Sets up for SMAW operations on carbon steel.
4. Operates SMAW equipment on carbon steel.
5. Makes fillet welds in all positions on carbon steel.
6. Makes groove welds in all positions on carbon steel.
7. Passes SMAW welder performance qualification test (2G and 3G, uphill, limited thickness test plates) on carbon steel.

3.1.5. MODULE 5: GAS METAL ARC WELDING (GMAW-S)**KEY INDICATORS**

1. Performs safety inspections of GMAW equipment and accessories.
2. Makes minor, external repairs to GMAW equipment and accessories.

Short Circuiting Transfer

3. Sets up for GMAW-S operations on carbon steel.
4. Operates GMAW-S equipment on carbon steel.
5. Makes fillet welds in all positions on carbon steel.
6. Makes groove welds in all positions on carbon steel.
7. Passes GMAW-S welder performance qualification test on carbon steel.

3.1.6. MODULE 6: OXY-ACETYLENE WELDING (OAW)**KEY INDICATORS**

1. Performs safety inspections of OAW equipment and accessories.
2. Makes minor, external repairs to OAW equipment and accessories.
3. Sets up for OAW operations on carbon steel.
4. Operates OAW equipment on carbon steel.
5. Makes fillet welds in all positions on carbon steel.
6. Makes groove welds in all positions on carbon steel.
7. Passes OAW welder performance qualification test on carbon steel.

3.1.7. MODULE 7: THERMAL CUTTING PROCESSES**3.1.7.1 UNIT 1: MANUAL OXYFUEL GAS CUTTING (OFC)****KEY INDICATORS**

1. Performs safety inspections of manual OFC equipment and accessories.
2. Makes minor external, repairs to manual OFC equipment and accessories.
3. Sets up for manual OFC operations on carbon steel.
4. Operates manual OFC equipment on carbon steel.
5. Performs straight, square edge cutting operations, in the flat position, on carbon steel.
6. Performs shape, square edge cutting operations in the flat position on carbon steel.
7. Performs straight, bevel edge cutting operations in the flat position on carbon steel.
8. Performs scarfing and gouging operations to remove base and weld metal in the flat and horizontal positions on carbon steel.

3.1.7.2 UNIT 2: MECHANIZED OXYFUEL GAS CUTTING (OFC) [e.g., TRACK BURNER]**KEY INDICATORS**

1. Performs safety inspections of mechanized OFC equipment and accessories.
2. Makes minor external, repairs to mechanized OFC equipment and accessories.
3. Sets up for mechanized OFC operations on carbon steel.
4. Operates mechanized OFC equipment on carbon steel.
5. Performs straight, square edge cutting operations in the flat position on carbon steel.
6. Performs straight, bevel edge cutting operations in the flat position on carbon steel.

3.1.7.3 UNIT 3: MANUAL PLASMA ARC CUTTING (PAC)**KEY INDICATORS**

1. Performs safety inspections of manual PAC equipment and accessories.
2. Makes minor external, repairs to manual PAC equipment and accessories.
3. Sets up for manual PAC operations on carbon steel, austenitic stainless steel, and aluminum.
4. Operates manual PAC equipment on carbon steel, austenitic stainless steel, and aluminum.
5. Performs straight, square edge cutting operations in the flat position on carbon steel, austenitic stainless steel, and aluminum.
6. Performs shape, square edge cutting operations in the flat position on carbon steel, austenitic stainless steel and aluminum.

3.1.8. MODULE 8: WELDING INSPECTION AND TESTING

KEY INDICATORS

1. Examines cut surfaces and edges of prepared base metal parts.
2. Examines tacks, root passes, intermediate layers, and completed welds.

Additional Modules

AWS EG2.0:2006 also addresses other modules, such as Occupation and Orientation, Safety and Health of the Welders, Drawing and Welding Symbols Interpretation, and so on.

3.1.9. MODULE 9: OCCUPATION ORIENTATION

Deals with job cards, reports or records preparation, as well as housekeeping activities and following instructions to complete work assignments. The Safety Module is described below:

3.1.10. MODULE 10: SAFETY AND HEALTH OF WELDERS

KEY INDICATOR 1: Demonstrates proper use and inspection of personal protection equipment (PPE).

OBJECTIVE: Provided with a period of instruction, orientation, and demonstration about general welding safety, and given the necessary personal protective clothing and equipment, the trainee demonstrates proper use and inspection of personal protective equipment (PPE).

EVALUATION CRITERIA: The trainee inspects and wears proper personal protective clothing and equipment while conducting welding and cutting tasks or in the vicinity of these tasks; follows established procedures to ensure the safety of the work area from unqualified USPS personnel or the general public; and achieves a score of 90% on the written safety test for Module 2: Safety and Health of Welders, based on ANSI Z49.1.

RECOMMENDED INSTRUCTIONAL ACTIVITIES:

1. Provide an orientation to Personal Protective Equipment (PPE) required for welding.
2. Provide demonstrations related to ANSI Z49.1, Section 4, *Protection of Personnel and the General Area*.
3. Document and keep records reflecting successful completion of safe practice training.
4. Observe each trainee's ability to carry out training exercises.

NOTES:

1. A safety test based on ANSI Z49.1 shall be administered prior to skill training. Trainees shall achieve a minimum score of 90% on the safety test before proceeding with skill training.
2. Proper safety procedures should be reinforced and observed in all modules and units.

KEY INDICATOR 2: Demonstrates proper safe operation practices in the work area.

OBJECTIVE: Provided with a period of instruction, orientation and demonstration about general welding safety, and given the necessary personal protective clothing and equipment, the trainee demonstrates safe practices in the work area.

EVALUATION CRITERIA: The trainee: wears proper personal protective clothing and equipment while conducting welding and cutting tasks or in the vicinity of these tasks; follows established procedures to ensure the safety of the work area from unqualified USPS personnel or the general public; and achieves a score of 90% on the written safety test for Module 2: Safety and Health of Welders, based on ANSI Z49.1.

RECOMMENDED INSTRUCTIONAL ACTIVITIES:

1. Provide safety tour and orientation of the institution's welding work area.
2. Provide demonstrations related to ANSI Z49.1, Section 4, *Protection of Personnel and the General Area*.
3. Provide demonstrations related to ANSI Z49.1, Part I—*General Aspects*.
4. Document and keep records reflecting successful completion of safe practice training.
5. Observe each trainee's ability to carry out training exercises.

NOTES:

1. A safety test based on ANSI Z49.1 shall be administered prior to skill training. Trainees shall achieve a minimum score of 90% on the safety test before proceeding with skill training.
2. Proper safety procedures should be reinforced and observed in all modules and units.

KEY INDICATOR 3: Demonstrates proper use and inspection of ventilation equipment.

OBJECTIVE: Provided with a period of instruction, orientation and demonstration about the operation, inspection and positioning of ventilation equipment, the trainee demonstrates the proper use and inspection of ventilation equipment.

EVALUATION CRITERIA: The trainee: conducts a proper inspection of ventilation equipment; uses the best possible means of ventilation available for the capture of welding and brazing fumes as close to the source as possible in accordance with Occupational Safety and Health Administration (OSHA) requirements; and achieves a score of 90% on the written safety test for Module 2: Safety and Health of Welders, based on ANSI Z49.1.

RECOMMENDED INSTRUCTIONAL ACTIVITIES:

1. Provide demonstrations related to ANSI Z49.1, Section 5, Ventilation.
2. Document and keep records reflecting successful completion of safe practice training.
3. Observe each trainee's ability to carry out training exercises.

NOTES:

1. A safety test based on ANSI Z49.1 shall be administered prior to skill training. Trainees shall achieve a minimum score of 90% on the safety test before proceeding with skill training.
2. Proper safety procedures should be reinforced and observed in all modules and units.

KEY INDICATOR 4: Demonstrates proper Hot Zone operation.

OBJECTIVE: Provided with a period of instruction, orientation and demonstration about safety in the Hot Zone, the trainee demonstrates safe practices in the Hot Zone.

EVALUATION CRITERIA: The trainee: follows established procedures to ensure the safety of the work area from unqualified USPS personnel or the general public; follows established procedures and policies regarding emergency action plans and for the use of safety equipment; performs fire safety inspections of the work area; demonstrates proper safety procedures in the Hot Zone; and achieves a score of 90% on the written safety test for Module 2: Safety and Health of Welders, based on ANSI Z49.1.

RECOMMENDED INSTRUCTIONAL ACTIVITIES:

1. Provide safety tour and orientation of the institution's Hot Zone areas.
2. Explain the concepts and use of Hot Zone permits.
3. Provide demonstrations related to ANSI Z49.1, Section 4, *Protection of Personnel and the General Area*.
4. Provide demonstrations related to ANSI Z49.1, Section 6, *Fire Prevention and Protection*.
5. Document and keep records reflecting successful completion of safe practice training.
6. Observe each trainee's ability to carry out training exercises.

NOTES:

1. A safety test based on ANSI Z49.1 shall be administered prior to skill training. Trainees shall achieve a minimum score of 90% on the safety test before proceeding with skill training.
2. Proper safety procedures should be reinforced and observed in all modules and units.

KEY INDICATOR 5: Demonstrates proper work actions for working in confined spaces. (Note: Work occurring in Confined Space must be accomplished in accordance with MI-EL-810-2010-1 and MMO-007-10).

OBJECTIVE: Provided with a period of instruction, orientation and demonstration about safety precautions for working in confined spaces, the trainee demonstrates safe practices related to working in confined spaces. (Note: Work occurring in Confined Space must be accomplished in accordance with MI-EL-810-2010-1 and MMO-007-10).

EVALUATION CRITERIA: The trainee: follows established procedures to ensure the safety of the work area; uses the best possible means of ventilation available for the capture of welding and brazing fumes as close to the source as possible in accordance with OSHA requirements; follows established procedures and policies regarding emergency action plans for working in confined spaces; performs fire safety inspections of the work area; follows established procedures and policies for working in confined areas; and achieves a score of 90% on the written safety test for Module 2: Safety and Health of Welders, based on ANSI Z49.1.

RECOMMENDED INSTRUCTIONAL ACTIVITIES:

1. Provide demonstrations related to ANSI Z49.1, Section 7, *Confined Spaces*. (Note: Work occurring in Confined Space must be accomplished in accordance with MI-EL-810-2010-1 and MMO-007-10)
2. Provide demonstrations related to ANSI Z49.1, Section 5, *Ventilation*.
3. Provide demonstrations related to ANSI Z49.1, Section 6, *Fire Prevention and Protection*.
4. Provide demonstrations related to ANSI Z49.1, Section 9, *Precautionary Information*.
5. Document and keep records reflecting successful completion of safe practice training.
6. Observe each trainee's ability to carry out training exercises.

NOTES:

1. A safety test based on ANSI Z49.1 shall be administered prior to skill training. Trainees shall achieve a minimum score of 90% on the safety test before proceeding with skill training.
2. Proper safety procedures should be reinforced and observed in all modules and units.

KEY INDICATOR 6: Demonstrates proper use of precautionary labeling and MSDS information.

OBJECTIVE: Provided with a period of instruction, orientation and demonstration about the purpose and design of material labels and Material Safety Data Sheets (MSDS), and other written materials used in support of welding and cutting activities, the trainee can demonstrate the proper use of label and MSDS information to identify proper safety procedures for work related materials and solvents.

EVALUATION CRITERIA: The trainee: wears proper personal protective clothing and equipment while conducting welding and cutting tasks or in the vicinity of these tasks; follows established procedures to ensure the safety of the work area from unqualified USPS personnel or the general public; identifies proper safety procedures for work related materials and solvents based on label and MSDS information; follows written instructions and precautions (including Material Safety Data Sheets) for materials used in support of welding and cutting activities; and achieves a score of 90% on the written safety test for Module 2: Safety and Health of Welders, based on ANSI Z49.1.

KEY INDICATOR 7: Demonstrates proper inspection and operation of equipment used for each welding and thermal cutting process.

OBJECTIVE: Provided with a period of instruction, orientation, and demonstration about the safe inspection and use of welding and thermal cutting equipment, and given the necessary personal protective clothing and equipment, the trainee demonstrates proper inspection and operation of equipment for each welding and thermal cutting process used.

EVALUATION CRITERIA: The trainee: follows correct procedures for the inspection of welding and cutting equipment; uses the best possible means of ventilation available for the capture of welding and brazing fumes as close to the source as possible in accordance with OSHA requirements; follows correct procedures for the operation of welding and cutting equipment; and achieves a score of 90% on the written safety test for Module 2: Safety and Health of Welders, based on ANSI Z49.1.

RECOMMENDED INSTRUCTIONAL ACTIVITIES:

1. Provide demonstrations related to ANSI Z49.1, Section 11, *Arc Welding and Cutting Equipment Safety*.
2. Provide demonstrations related to ANSI Z49.1, Section 10, *Oxyfuel Gas Welding and Cutting Safety*.
3. Provide demonstrations related to ANSI Z49.1, Section 4, *Ventilation*.
4. Document and keep records reflecting successful completion of safe practice training.
5. Observe each trainee's ability to carry out training exercises.

NOTES:

1. A safety test based on ANSI Z49.1 shall be administered prior to skill training. Trainees shall achieve a minimum score of 90% on the safety test before proceeding with skill training.
2. Proper safety procedures should be reinforced and observed in all modules and units.

Comments and suggestions for the improvement of this standard are welcome. They should be sent to: Byron Ellis, email: byron.a.ellis@usps.gov.

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ATTACHMENT 2

REFERENCE

American Welding Society. (2008). Guide for the Training of Welding Personnel: Level I - Entry Welder, AWS EG2.0:2006. Miami, FL. American Welding Society.

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ATTACHMENT 3

DEFINITIONS

“Outsource welding training” is the act of USPS contracting with a welding training institution to train selected USPS’ employees on welding techniques.

“Maintenance capable sites” are USPS sites with maintenance personnel.

“Key indicator” is a singularly important sign that something will happen.

“Consortiums” means a cooperative arrangement among groups or institutions.