Agricultural Welding IV - 18414

Name: _____ SS#_____ / _____ / _____

School: _____ Instructor: _____

(M): Math Competency	(CD): Career Development
(C): English & Communications	(E): Experienced Based
(S): Science Competency	(L): Leadership
(G): Social Studies	(LK): Life Knowlege

DIRECTIONS: Evaluate the student by checking the appropriate number to indicate the degree of Competency reached. Rate each task to reflect employability readiness.

Enrollment	Completion	Hours
Date: ___ / ___ / _____	Date: ___ / ___ / _____	Completed: _____

I certify that the student received training in the areas indicated.

Student Signature: _____ Date: ___ / ___ / _____

Instructor Signature: _____ Date: ___ / ___ / _____

Administrator Signature: _____ Date: ___ / ___ / _____

Rating Scale: **3:** Mastery of subject matter **2:** Limited mastery of subject matter **1:** Non-mastery of subject matter **0:** No exposure to subject matter

Revision: 09-28-2008 (305)

SAFETY and HEALTH of WELDERS [review]

3 2 1 0 1 Identify common hazards in welding. E
3 2 1 0 2 Identify common causes of job-site accidents. E
3 2 1 0 3 Explain and identify proper personal protection used in welding. S
3 2 1 0 4 Demonstrates proper use and inspection of ventilation equipment. S
3 2 1 0 5 Demonstrates proper work actions for working in confined spaces. E
3 2 1 0 6 Demonstrates knowledge of the fire triangle and its importance in controlling a fire. S
3 2 1 0 7 React effectively in case of fire, or other emergency. S
3 2 1 0 8 Interpret safety color codes and importance to personal safety. C
3 2 1 0 9 Demonstrates proper Hot Zone operation. E
3 2 1 0 10 Demonstrates safety techniques for storing and handling cylinders. E
3 2 1 0 11 Utilizes proper hand tool safety procedures. E
3 2 1 0 12 Utilizes proper portable power tool safety procedures. E
3 2 1 0 13 Utilizes proper stationary power tool safety procedures. E
3 2 1 0 14 Explains how to avoid electrical shock when welding. S
3 2 1 0 15 Understands proper use of precautionary labeling and MSDS information. S
3 2 1 0 16 Demonstrates proper material handling methods. E
3 2 1 0 17 Complete a personal information sheet. C
3 2 1 0 18 Complete a Shop Safety Contract / Release form. C
3 2 1 0 19 Demonstrate knowledge of basic shop safety by satisfactorily completing Safety Orientation Exam. C
3 2 1 0 20 Demonstrates proper inspection and operation of equipment for each welding or thermal cutting process used. E

BASE METAL PREPARATION (review)

3 2 1 0 1 Identify the types of metal contamination. S
3 2 1 0 2 Identify defects caused by metal contamination. S
3 2 1 0 3 Identify equipment used for cleaning base metal. S
3 2 1 0 4 Clean base metal utilizing the proper equipment and procedures. S
3 2 1 0 5 Identify and explain joint design. M
3 2 1 0 6 Explain joint design considerations. M
3 2 1 0 7 Select and demonstrate the methods of joint preparation. M
3 2 1 0 8 Identify metals using nondestructive methods. S
3 2 1 0 9 Identify structural steel as to shape and size. M
3 2 1 0 10 Utilize measurement instruments to measure steel length, width, depth, and weight. M
3 2 1 0 11 Familiarized with English and Metric measurement and conversion techniques. M

WELDING SYMBOLS (review)

3 2 1 0 1 Identify and explain the various parts of a welding symbol. C
3 2 1 0 2 Identify and explain fillet and groove weld symbols. C
3 2 1 0 3 Read welding symbols on drawings, specifications, and welding procedure specifications. C
3 2 1 0 4 Interpret welding symbols from a print. C
3 2 1 0 5 Draw welding symbols based on the observation of actual welds. C

READING DETAIL DRAWINGS (review)

3 2 1 0 1 Identify and explain a welding detail drawing. C
3 2 1 0 2 Identify and explain lines, material fills, and sections. M
3 2 1 0 3 Identify and explain object views. C
3 2 1 0 4 Identify and explain dimensioning. M
3 2 1 0 5 Identify and explain notes and bill of materials. M
3 2 1 0 6 Interpret basic elements of a welding detail drawing. C
3 2 1 0 7 Develop basic welding drawings. C

WELD QUALITY (review)

3 2 1 0 1 Identify and explain codes governing welding. C
3 2 1 0 2 Explain the basic elements of welding codes. C
3 2 1 0 3 Identify and explain weld imperfections and their causes. S
3 2 1 0 4 Identify and explain nondestructive weld examination practices. S
3 2 1 0 5 Identify and explain destructive weld testing practices. S
3 2 1 0 6 Identify and explain welder qualification tests. C
3 2 1 0 7 Explain the importance of quality workmanship. CD

JOINT FIT-UP and ALIGNMENT (review)

3 2 1 0 1 Identify and explain job-code requirements. C
3 2 1 0 2 Check joint for proper fit and alignment using gauges and measuring tools. M
3 2 1 0 3 Identify and utilize plate and pipe fit-up tools for proper joint alignment. M
3 2 1 0 4 Identify and explain distortion and how it is controlled. S
3 2 1 0 5 Check for joint misalignment and poor fit-up before and after welding. M

GTAW EQUIPMENT AND FILLER METALS

3 2 1 0 1 Explain gas tungsten arc welding (GTAW) safety. C
3 2 1 0 2 Identify and explain the use of GTAW equipment. S
3 2 1 0 3 Identify and explain the use of GTAW filler metals. S
3 2 1 0 4 Identify and explain the use of GTAW shielding gases. S
3 2 1 0 5 Set up GTAW equipment. E

GTAW – PLATE

3 2 1 0 1 Build a pad in the flat position with stringer beads using GTAW and carbon steel filler metal. E
3 2 1 0 2 Make multiple-pass open-root V-groove welds on carbon steel plate in the 1G (flat) position using GTAW and carbon steel filler metal. E
3 2 1 0 3 Make multiple-pass open-root V-groove welds on carbon steel plate in the 2G (horizontal) position using GTAW and carbon steel filler metal. E
3 2 1 0 4 Make multiple-pass open-root V-groove welds on carbon steel plate in the 3G (vertical) position using GTAW and carbon steel filler metal. E
3 2 1 0 5 Make multiple-pass open-root V-groove welds on carbon steel plate in the 4G (overhead) position using GTAW and carbon steel filler metal. E

GTAW – CARBON STEEL PIPE

3 2 1 0 1 Set up GTAW equipment. C
3 2 1 0 2 Identify and explain open-root V-groove pipe weld techniques. S
3 Perform open-root V-groove pipe welds using GTAW in the following positions: E
3 2 1 0 a. 1G-ROTATED

3 2 1 0 b. 2G
3 2 1 0 c. 5G
3 2 1 0 d. 6G

GTAW – ALUMINUM PLATE

3 2 1 0 1 Identify and explain aluminum metallurgy. S
3 2 1 0 2 Explain and identify characteristics of aluminum S
3 2 1 0 3 Explain GTAW and set up equipment to weld aluminum plate. C
3 2 1 0 4 Explain and practice GTAW techniques for plate, including padding in the flat position with stringer beads, using aluminum filler metal. C
5 Make fillet welds on aluminum plate in the following positions E
3 2 1 0 a. 1F (flat)
3 2 1 0 b. 2F (horizontal)
3 2 1 0 c. 3F (vertical)
3 2 1 0 d. 4F (overhead)
6 Make multiple-pass V-groove welds with backing on aluminum plate in the following positions: E
3 2 1 0 a. 1G (flat)
3 2 1 0 b. 2G (horizontal)
3 2 1 0 c. 3G (vertical)
3 2 1 0 d. 4G (overhead)

GTAW – LOW-ALLOY AND STAINLESS STEEL PIPE

3 2 1 0 1 Set up GTAW equipment to perform stainless and/or low-alloy steel pipe welding. C
3 2 1 0 2 Identify and explain open-root V-groove pipe weld techniques. C
3 Perform open-root V-groove pipe welds using GTAW in the following positions: E
3 2 1 0 a. 1G-ROTATED
3 2 1 0 b. 2G
3 2 1 0 c. 5G
3 2 1 0 d. 6G

GTAW – ALUMINUM PIPE

3 2 1 0 1 Set up GTAW equipment to perform aluminum pipe welding. C
3 2 1 0 2 Identify and explain V-groove and modified U-groove pipe weld techniques. C
3 Perform V-groove or modified U-groove pipe welds using GTAW in the following positions: E
3 2 1 0 a. 2G (horizontal)
3 2 1 0 b. 5G (multiple)
3 2 1 0 c. 6G (inclined multiple)

FFA and LEADERSHIP

3 2 1 0 1 Use interviewing techniques to gather information C
3 2 1 0 2 Prepare and deliver a presentation appropriate to audience and subject. C
3 2 1 0 3 Participate in group communication activities, demonstrating parliamentary procedure and interpersonal skills. L
3 2 1 0 4 Restate or paraphrase a conversation to confirm what was said. C
3 2 1 0 5 Review methods of learning and determine dominate learning style. CD
3 2 1 0 6 Define qualities of leadership L
3 2 1 0 7 Demonstrate and develop personal leadership qualities.
3 2 1 0 8 Participate in FFA activities at the local, district and state levels. L
3 2 1 0 9 Participate in team tasks, including:
3 2 1 0 a. establishing team goals. L
3 2 1 0 b. establishing team standards. L
3 2 1 0 c. receiving and giving information. L
3 2 1 0 d. processing information. L
3 2 1 0 e. planning for group action. L
3 2 1 0 f. completing team task on time. L

SUPERVISED OCCUPATIONAL EXPERIENCE

3 2 1 0 1 Compile and maintain financial records, experience records, logs, etc., of S.O.E.P. C
2 Complete a personal inventory of skills. CD
3 2 1 0 a. Keep a record of personal receipts and expenses.
3 2 1 0 b. Complete a personal cash-flow statement. CD
3 2 1 0 c. Complete a personal net worth statement. CD
3 2 1 0 d. Develop a personal financial expectation. CD
3 Identify influences on time:
3 2 1 0 a. set priorities involving time management. CD
3 2 1 0 b. identify "time wasters". CD
3 2 1 0 c. estimate time requirement for accomplishing a specific task. CD
3 2 1 0 d. demonstrate daily time plan for work, family, school, social, etc. CD
3 2 1 0 4 Apply employee rules, regulations, and policies to a given job situation. CD

OCCUPATIONAL ORIENTATION

3 2 1 0 1 Prepares time or job cords, reports of records. CD
3 2 1 0 2 Performs housekeeping duties. E
3 2 1 0 3 Follows verbal instructions to complete work assignments. C
3 2 1 0 4 Follows written instructions to complete work assignments. C
5 Interpret workplace policies related to:
3 2 1 0 a. personal hygiene LK
3 2 1 0 b. absences and personal leave. LK
3 2 1 0 c. substance abuse and/or drug testing. LK
3 2 1 0 d. employee theft LK
3 2 1 0 e. sexual harassment. LK
3 2 1 0 f. punctuality and dependability LK
3 2 1 0 g. responsibility for position. LK
3 2 1 0 h. accuracy. LK
6 Demonstrate interpersonal skills:
3 2 1 0 a. tact and diplomacy. LK
3 2 1 0 b. respect for others and yourself. LK
3 2 1 0 c. respect for diversity. LK
3 2 1 0 d. recognition of other' strengths. LK
3 2 1 0 e. positive assertiveness. LK
3 2 1 0 f. positive attitude. LK
3 2 1 0 g. positive leadership. LK
3 2 1 0 7 Completed personal interests survey using Kansas Career Pipeline.CD
3 2 1 0 8 Completed personal skills survey using Kansas Career Pipeline. CD
3 2 1 0 9 Select 2 , or more, career occupations involving metal processes and collect the following:
3 2 1 0 a. qualifications needed. CD
3 2 1 0 b. advancement potential. CD
3 2 1 0 c. salary. CD
3 2 1 0 d. future outlook and placement. CD