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### RECORD OF REVISIONS

Rev	Date	Description	POC	OIC
0	8/16/04	Original Issue	Kelly Bingham, <i>FWO-DECS</i>	Gurinder Grewal, <i>FWO-DO</i>
1	5/18/05	Para. 5.0 Added course development and training staff requirements.	Kelly Bingham, <i>ENG-DECS</i>	Gurinder Grewal, <i>ENG-CE</i>
2	5/17/06	Delete redundant Roles & Responsibilities (4.1.E) Added Para 6.5.G Welding Safety Training Added Attachment 2: Matrix for Welding Safety Training	Kelly Bingham, <i>ENG-DECS</i>	Mitch Harris, <i>ENG-DO</i>
3	10/27/06	Administrative changes only. Organization updates from LANS transition. IMP and ISD number changes based on new Conduct of Engineering IMP 341. Other administrative changes.	Kelly Bingham, <i>FM&amp;E-DES</i>	Kirk Christensen, <i>CENG</i>
4	06/06/08	Modified 6.1.E and 6.5.G. Attachment 2 was guidance	Kelly Bingham <i>ES-DE</i>	Kirk Christensen, <i>CENG</i>

**Contact the Welding Standards POC for upkeep, interpretation, and variance issues.**

<b>GWS 1-10</b>	<a href="#"><u>Welding POC/Committee</u></a>
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## GWS 1-10 TRAINING

### 1.0 PURPOSE AND SCOPE

- A. The purpose of this procedure is to provide for development, implementation and administrative control for personnel training in support of the LANL Welding Program.
- B. The scope of this procedure covers the requirements and curricula of welding and technical training provided for welders and other personnel (employee or subcontractors) working on LANL property within the scope of the Welding Program as defined in GWS 1-02.

**NOTE:** This procedure shall be applied in conjunction with GWS 1-05, Welder Performance Qualification and Certification (Reference 1) for welder qualification and certification

### 2.0 REFERENCES

- 1. GWS 1-05, Welder Performance Qualification & Certification.
- 2. LIR 300-00-04.3 Laboratory Training: Essential Requirements
- 3. [AM 127](#), Testing

### 3.0 ACRONYMS AND DEFINITIONS

Acronym / Term	Description
GWS	General Welding Standards
LANL	Los Alamos National Laboratory
SSS	Site Services Subcontractor
WPA	Welding Program Administrator

### 4.0 GENERAL

#### 4.1 Responsibilities

- A. Welding training curricula will be regularly reviewed to incorporate latest industry practices as reflected in national codes and standards and to maintain current with job requirements. Welding safety shall be an integral part of all training.
- B. The training resources and facilities of the **Site Services Subcontractor (SSS)** may be utilized in support of this procedure and the LANL Welding Program.
- C. The **LANL WPA** is responsible for establishment of welding training program requirements in support of the LANL Welding Program.
- D. The WPA may delegate to the **Site Services Subcontractor (SSS)** development of the welding training program, course outline, and lesson plans, and for instruction of courses in support of the LANL Welding Program. This includes developing schedules, coordinating personnel, providing class rosters, advertising classes, and issuing certificates.

## **5.0 REQUIREMENTS FOR COURSE DEVELOPMENT AND TRAINING STAFF**

### **5.1 Course Development**

Training courses used for the LANL Welding Program will be developed to meet the requirements of [LIR 300-00-04, Laboratory Training: Essential Requirements](#), and be consistent with DOE Order 5480.20A.

A. Required steps in course development include:

- i. Analysis
- ii. Design
- iii. Development
- iv. Implementation
- v. Evaluation

B. Testing will meet the requirements of [AM 127, Testing](#)

### **5.2 Training Staff**

Training Staff who develop training or qualification programs, instruct, or provide training records management for qualification and certification programs will complete Training Plans for the specific activities they perform as required by the Training Staff Qualification Program (TSQP).

## **6.0 PROCEDURE**

### **6.1 Training Categories**

The following general categories (A through D) of welding training shall be made available to LANL SSS craft personnel, and other non-manual personnel working at LANL.

- A. Welding Skills Training: Designed to instruct basic skills or to upgrade existing skills for welding personnel with the objective of producing certified welders in accordance with applicable codes and standards.
- B. Technical Training: Designed to instruct the theory and technology of welding and related subjects through short courses for designers, inspectors, qualified welders, craft supervision, and selected non-manual personnel. Technical training includes material selection, material control, process selection, in-process welding control, qualification, and verification of quality.
- C. Field Training: Designed to instruct welders and supervision in special techniques, equipment, procedures, material control, etc.
  - Training Plan – 9780- is required for Welders
  - Training Plan – 9781- is required for Rod Warehouse & Issue personnel
  - Both are required to be an approved LANL Welding Inspector

- D. Specialized Training: Designed to instruct qualified welders in specific techniques, such as utilizing automated or semi-automated equipment, the application of special welding procedures for exotic, reactive materials, or precision materials, or fabrication techniques for vacuum technology.
- E. Safety for Welding and Cutting: Welders must complete Training Plan # 2310 & # 2302 when welding requires the use of compressed gases.
- F. LANL welding safety training requirements are based on the following:
- OSHA Chemical Hazard Communication Introduction (included in GET Training Course # 25418)
  - Training to meet OSHA 29 CFR 1910.252 - 254, 1910.332, 1910.1200 and 29CFR 1926.350 - 354
    - Welding Safety Training – Course # 9519 Required for all welders on site
      - Welding PPE for cutting, grinding, sparks, UV flash etc.
      - Basic safety for Compressed Gases
      - Welding Fumes & Ventilation
      - Electrical Hazards for Welding
  - Welding & Fire Safety to meet 29 CFR 1910.252 - 254 and 29 CFR 1926.350 - 354
    - Spark & Flame Producing Permit Process –reference <http://enterprise.lanl.gov/forms/1563.pdf>
    - Fire Extinguisher Training – Course # 13088
    - Fire Extinguisher Designated Worker – Course # 15672
    - Fire Extinguisher Hand-On Training – Course # 9893
  - Compressed Gas Safety – to meet 29CFR 1910.253 (a)(4) and 29 CFR 1926 350
    - Gas Cylinder Safety - Course # 9518
    - Pressure safety Orientation – Course # 769

***Welding Training Requirements** : Attachment 2 is a requirements matrix to identify required welder training for each welding process in which certifications are issued.*

## **6.2 Training Schedules/Attendance**

- A. The LANL WPA shall ensure regularly scheduled welding classes (typically conducted by the SSS) are posted on the LANL intranet and are available for online registration.
- B. Participation in welding training shall be at the recommendation and/or acceptance of the responsible Supervisor.

### **6.3 Skills Development**

- A. The training curriculum presented in Attachment 1, *Typical Welding Skills Training Curriculum*, shall be used as a basis in developing and promoting welder skills and qualifications.

### **6.4 Training Personnel Qualification for Skills Training**

- A. The LANL Welding Program Administrator (WPA) shall assure that each instructor performing welding training at LANL is qualified in the positions and processes for which they will teach.

## **7.0 ATTACHMENTS**

Attachment 1: Typical Welding Skill Training Curriculum & Typical Technical Training

Attachment 2: Welder Training Requirements as related to Welder Certification