

Welding Standards Glossary of Terms, Definitions, and Acronyms

| Acronym / Term | Description/Definition |
|---|---|
| AHJ | authority having jurisdiction [ref IMP 342, Design Authority] |
| aka | also known as |
| AWS | American Welding Society |
| brazing | A group of joining processes that produces coalescence of material by heating them to the brazing temperature in the presence of a filler metal having a liquidus above 840° F and below the solidus of the base metal. The filler metal is distributed between the fitted faying surfaces of the joint by capillary action. |
| Brazing Operator | one who operates automatic or mechanized brazing equipment |
| Brazer | one who performs manual or semiautomatic brazing |
| Certificate of Compliance (C of C) | A signed and dated document that attests to the specifications, characteristics, or attributes of an item or service, or the source material or feedstock for the item, and is provided as an affirmation that the described requirements as specified in the contract or purchase order have been satisfied. [LIR 308-00-04.2] If the filler material manufacture has the capability to label the filler material containers with a Certificate of Compliance, in accordance with ASME SFA or AWS requirements, a separate document is not required. |
| Certified Material Test Report (CMTR) or Certificate of Analysis (C of A) | A certificate issued by the original fabricator of the material, part, or equipment which is traceable to the shipment through a unique identification number and which indicates measured chemical and physical properties as specified in the procurement contract and that the test(s) were performed to applicable nationally recognized standards. [LIR 308-00-04.2] |
| Codes and standards | National consensus standards, adopted as a regulation, ordinance, or statutory requirements of a governmental unit relating to building construction and occupancy, and administered for the protection of public health, safety, and welfare. As used herein, codes include, for example, ASME, AWS, API, and AWWA standards. |
| Craft Designation | A determination will be made by the test supervisor and data entered in to the Welder Qualification Database as to the welders work category. Boilermaker - BM Pipefitter - PF / Millwright - MW Ironworker - IW / Electrician - EL Sheetmetal Worker - SM / Mechanic - ME Non-manual/Staff - NM / Technician - TC |
| CWI | Certified Welding Inspector |
| electrical characteristics | AC - Alternating Current, DCRP - Direct Current Reverse Polarity (Electrode Positive), DCSP - Direct Current Straight Polarity (Electrode Negative), DCSP/P- Direct Current Pulsed (square wave) current (Electrode - negative) |
| Employer Designation | The welder's employer will be recorded and entered in to the Welder Qualification Database when they pass a qualification test. |
| ESM | [LANL] Engineering Standards Manual, ISD 341-2 |

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| Facility | Normally at LANL, facility is a synonym for Real Property and Installed Equipment. RP&IE is the land, improvements on the land such as buildings, roads, fences, bridges, and utility systems and the equipment installed as part of the basic building construction that is essential to normal functioning of a building space, such as plumbing, electrical and mechanical systems. This property/equipment is also referred to as institutional or plant and was formerly known as Class A. [from DOE Order 4330.4B]. In the context of this chapter's nuclear-applicable sections, facility refers to the definition of nuclear facility in 10 CFR 830 and includes process (programmatic) systems and activities. |
| FM&E | LANL Facility Maintenance & Engineering Division |
| GWS | General Welding Standards (Volume 1 of this Chapter) |
| hazard category | The DOE-STD-1027 category as defined by LIR 300-00-05, Facility Hazard Classification. http://policy.lanl.gov/pods/policies.nsf/MainFrameset?ReadForm&DocNum=LIR300-00-05&FileName=lir3000005.pdf Guidance: Nuclear facilities will be Cat 1, 2, 3, or Radiological; non-nuclear facilities are Category High, Medium, and Low. |
| IQMG | [LANL QA-IQ Group] Institutional Quality Management Group |
| IMP | [LANL] Implementing Procedure |
| IST | [LANL] Institutional Support Document (supports IMP) |
| LANL | Los Alamos National Laboratory |
| LIR | Laboratory implementation requirements (being replaced by IMPs) |
| ML | Management level, defined in ISD 341-1 , Engineering Processes Manual |
| Non-Code Welding | Welding that does not require compliance to a national consensus code, where based on the service and usage, failure of the weld or joint would not result in serious consequences or result in a safety hazard. The WPA in conjunction with the engineer-of-record for Programs and Projects is responsible for specifying non-code welds and has the option to specify the appropriate level of weld inspection. |
| Nondestructive Examination (NDE) Methods | Non-destructive examinations: An examination process conducted to detect internal or surface defects in materials using techniques that do not damage or destroy the item being tested. The most common types of NDE are eddy current (ET), radiography (RT), ultrasonic (UT), magnetic particle (MT), and liquid penetrant (PT) methods. Depending on the applicable code, visual examination (VT) may also require control as an NDE process. |
| POC | Point of contact. For the ESM discipline POCs see http://engstandards.lanl.gov/engrman/HTML/poc_techcom1.htm |
| Post Weld Heat Treatment (PWHT) | The process of removing or reducing residual stresses in welds using heat applied in accordance with an approved procedure. |
| PQT | Welding Procedure Qualification Traveler |
| Pre-qualified Welding Procedures | A written welding procedure with the ranges taken from a set of pre-qualified variables as defined in the AWS codes. These procedures shall be written by the LANL WPA and can be authorized for use without further procedure qualification testing. |

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| Procedure Qualification Records (PQR) | A record of welding variables used to produce an acceptable test weldment and the results of the tests conducted on the weldment to qualify a welding procedure specification. |
| Programmatic/PP&PE | A synonym for Personal Property and Programmatic Equipment. PP&PE is equipment used purely for programmatic purposes, such as reactors, accelerator machinery, chemical processing lines, lasers, computers, machine tools, etc., and the support equipment dedicated to the programmatic purpose. This property/equipment is also referred to as organizational, research, production, operating or process and was formerly known as Class B. [DOE Order 4330.4B] |
| Safety Class (SC) SSC | <i>Safety class structures, systems, and components</i> means the structures, systems, or components, including portions of process systems, whose preventive or mitigative function is necessary to limit radioactive hazardous material exposure to the public, as determined from safety analyses. [10 CFR 830: § 830.3 Definitions.] |
| SFA | AWS A5.XX series Filler Material Specification that has been officially adopted by ASME B&PV Code |
| SSC | structures, systems, and components [DOE-STD-1073] |
| SSS | Support Services Subcontractor (e.g., KSL, previously JCNNM) |
| Standard Welding Procedure Specifications (SWPS) | A welding procedure prepared as an industry standard, such as AWS, and adopted for use by a manufacturer or contractor as permitted by the applicable fabrication or construction code. |
| Subcontractor | A legal entity that assumes by contract, obligations for delivery of a specified scope of work (product or service). As used herein, the term includes vendor, equipment vendor, fabricator, or constructor, and their sub-tier suppliers. |
| Thermal Fusion Welding (TFW) | TFW - Plastic Pipe Thermal Fusion Welding |
| Welder | One who performs manual or semiautomatic welding. Within the LANL Welding Program, the term Welder also applies to welding operator, brazer, and brazing operator, as appropriate to the context of use. |
| Welder Certification (also Certified Welder) | Written Certification that a welder has produced welds meeting a prescribed standard of welder performance. (see also Welder qualification) |
| Welder Identification Symbol | Welders will use their Z Number as a unique identifier and welder identification symbol |
| Welding Consumables | Materials required by a Welding Procedure Specification (WPS), Welding Fabrication Procedure (WFP), or Welding Technique Sheet (WTS) to produce a welded or brazed joint. These materials include, but are not necessarily limited to: coated electrodes, bare filler rods and wire, flux-cored spooled wire, metal core electrodes, fluxes, gasses, and pre-placed consumable inserts, etc. |

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| Welding Fabrication Procedures (WFP) | Process procedures prepared and certified by LANL that contain the requirements for welding to the rules of a fabrication standard. LANL welding procedures including welding procedure documents prepared by predecessor or contractor organizations. |
| Welding Operator | One who operates adaptive control, automatic, mechanized, or robotic welding equipment |
| Welding Procedure Specifications (WPS) | A written document that provides the required welding variables for a specific application to assure repeatability by a properly trained welders and welding operators, and provides direction to the welder or welding operator for making production welds in accordance with Code requirements. |
| Welding Processes | Common processes: flux-core arc welding (FCAW aka Flux-Core), gas metal arc welding (GMAC aka MIG), gas tungsten arc welding (GTAW aka TIG), oxygen fuel welding and brazing (OFW), plasma arc welding (PAW), stud welding-resistance and captive discharge (SW), submerged arc welding (SAW aka Sub-arc welding), shield metal arc welding (SMAW aka Stick), torch brazing (TB), and Thermite Welding. |
| Welder Qualification (also Welder Performance Qualification) | The demonstration of a welder's or welding operator's ability to produce welds meeting prescribed standards. (normally by hands on test) |
| Welding Qualification Test (WQT) | Welder Qualification Test – A set of standard tests designed and used for welder qualification (see GWS 1-05, Welder Performance Qualification/Certification) |
| Welding Qualification Technique Sheet (WQTS) | Contain the specific test requirements which will provide standardization for testing and are designed to provide best ranges for limits of qualifications. |
| Welding Technique Sheet (WTS) | Contain the specific requirements for welding various thicknesses of materials utilizing various welding processes. These WTS requirements apply to a limited number of specific welding operation or welding conditions (e. g, critical, costly) and are used in conjunction with the requirements of the WPS, WFP, and GWS. |
| WMR | Weld Material Requisition |
| WPA | [LANL FM&E Division's] Welding Program Administrator |