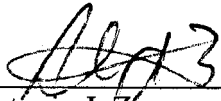


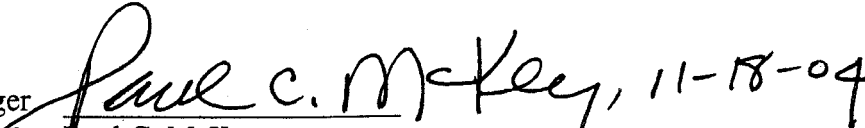
Quality Assurance Supplement
to
Sandia Contracts and Purchase Orders

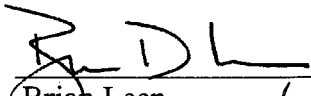
Subject: Sandia National Laboratories Supplier Quality Requirements for Build to Print Hardware Purchases

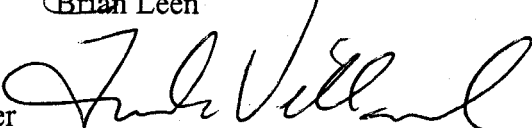
First Release: SNL-5-2002, Issue A, 05/16/02

Revised this 18th day of November, 2004 as F-42(QP-28)04*

Revised By:  11/18/04
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Brian Leen

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Frank A. Villareal

** The revision of the document in effect at the time of award of Purchase Order of Subcontract unless otherwise noted on the Procurement Document.*

1.0 Scope:

The scope of this document is designed to establish a level of quality for purchases and hardware procured in the form of built to print items, procured either through a Contract or a Purchase Order from qualified suppliers outside Sandia National Laboratories or through a Service Order for In House fabrication.

2.0 Purpose:

The purpose of this document is to describe the minimum level of quality required for individual purchases from outside suppliers or In House fabrication to meet internal quality engineering demands on any Sandia design to fabrication components (hardware) up to an including QC-1 Rev. 10 documentation.

2.0 Description:

Quality Criteria is described in the form of notes found in this document numbered from 100 to 145. There are “four” levels of quality for Mechanical hardware and one level for Electronic hardware to establish the level of traceability rigor and documentation required. Each note in the Quality Notes menu describes the minimum quality requirements for a particular job as posted on the RFQ and the Purchase Order. For interpretation of the notes if needed, a Sandia Contract Representative (SCR) shall be available. Proof of conformance to quality level notes shall be provided to Sandia National Laboratories upon delivery of the product in the form of Certificate of Conformance and/or Certification for drawing specifications as required. All Specifications mentioned in this document are to be interpreted to the latest version.

3.0 Supplier Expectation

Sandia National Laboratories expects qualified suppliers to meet or exceed our Quality Requirements for hardware purchased, provide traceability documentation, and meet schedule and performance criteria mandated by Department of Energy (DOE)/National Nuclear Security Administration (NNSA).

Contract Clause “Quality Assurance notes- 105-QAN (05-02 and associated notes are applicable when ever referenced.

Notes location:

Quality notes are posted on the Request for Quote (RFQ) and Purchase order (PO). This document can be found at the following URL:
<http://www.sandia.gov/supplier/docindex.htm>.

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Quality Notes-Menu

Level 1: (Basic/Engineering Quality)

Note 100: Per Drawing, Sketch, or other communication

Note 101: General Product Requirements

The supplier shall comply with the requirements of the latest revision* of 9900000 General Requirements.

Note 102: Calibration Requirements

All measuring equipment used at supplier's facility must be calibrated using measurement standards that are traceable to International Measurement Standards, or to national recommendations of the General Conference on Weights and Measures (CGPM). The supplier shall maintain documented evidence that each calibration in the chain of trace ability has been carried out.

Note 103: Certification of Compliance (C of C)

The supplier shall submit a C of C signed by an authorized representative with each shipment, which states that the product supplied is in full conformance with the Purchase Order and/or applicable specification. A Purchase Order Number shall be referenced on all certification documents.

Note 104: Raw Material Certification

The supplier shall submit a manufacturer or mill inspection/test report that states the material type and shows the physical and chemical properties by reference to melt, cast, heat, etc., and signed by its authorized representative (or by the agency performing the tests) with each shipment. Non-metallic material shall only require a chemical properties inspection/test report.

Note 105: Changes

The supplier shall inform the Buyer in writing of all proposed changes in design, materials, processes or fabrication methods involving parts furnished to this specification and shall obtain Buyer's written approval before effecting such changes on deliverables against this Purchase Order. Notification to the Buyer is required if the location of the manufacturing facility is to change (current work) or has been changed.

Note 106: Surveillance of Supplier and Supplier's Sub-Tier Vendors

Authorized Quality Assurance representatives of the Buyer and/or the Buyer's Customer shall have the right to survey, audit, and review Quality Assurance system employed by the supplier. Accordingly, the supplier is expected to grant the designated representative(s) access to his facility at all reasonable times and access to areas where the production of the item(s) covered by this Purchase Order or Sub-contract is taking place.

The Buyer and/or Buyer's Customer may conduct periodic audits of the Suppliers and Supplier's Sub-tier vendors Quality Assurance system and methods for controlling quality; witness and/or conduct inspections and tests and other records that reflect on hardware quality.

Note 107: Supplier Inspection Records

The suppliers shall be responsible to perform all inspections and/or tests as necessary to ensure the quality of products delivered.

Records shall be maintained of all inspections/tests and be available upon request from Buyer. A copy of the inspection reports shall be furnished to Sandia National Laboratories along with the delivery of the product.

** The revision of the document in effect at the time of award of Purchase Order of Subcontract unless otherwise noted on the Procurement Document.*

Level 2: (Quality System in place/High Reliability needed, may include notes from Level 1)

Note 108: Seller Quality Certification

The Supplier shall have demonstrated compliance to strict quality standards (e.g. ISO 9000) acceptable to the Procuring Facility which show the Supplier has a quality program in place and capable of meeting the intent of the Procuring Facility's program-related quality documentation. Certification shall be the Procuring Facility's survey approval. Quality of the product will be demonstrable by source inspection, receiving inspection, and subsequent acceptable performance.

Note 109: Special Processes Certification

The supplier shall furnish a certification of compliance which states the product conforms to applicable specifications required by PO, drawing or specification signed by an authorized representative of the agency performing the special process (plating, welding, plating, heat treating, anodizing, painting, non-destructive testing, etc.) with each shipment. When applicable batch, lot, heat number, x-ray, heat treat chart, etc. for the special processes performed shall accompany shipment.

Note 110: Control by Lot

The Buyer shall assign a common lot control number to all items in a particular lot manufactured or defined for this purpose as a quantity that has been manufactured during an uninterrupted period of time, following a standard process and using the same equipment/facility. Trace ability shall be the same as that specified in NOTE 120 (Level 3), but on a lot number rather than on an individual serial number basis.

Note 111: Customer Source Inspection

The product furnished under this Purchase Order or Subcontract is subject to Customer Source Inspection. On receipt of the Procurement Document, the suppliers shall contact the Sandia Delegated Representative (SDR) so that appropriated planning for Customer Inspection can be accomplished. Evidence of Customer Source Inspection must be shown on all shipping documents for product to be accepted at the Buyer's facility. All related documents shall be available for review.

Note 112: Customer Right of Inspection

The customer or his agent has the right to inspect any or all of the work included in this order at the Supplier's plant, or the Supplier's sub-tier vendor's plants.

Note 113: Buyer's Cognizance

The Supplier shall not ship any material, parts, or assemblies which do not conform to all drawings, specifications, and purchase order to the Buyer's facility or their designated receiver, without prior approval from the SDR.

Items having physical or functional deviations from drawing or specifications may be submitted for material review provided the deviations couldn't be corrected to the drawing or specifications. Items with non-conforming characteristics will not be accepted unless approved by Buyer and verified by written communication. Under no circumstance are repairs to be undertaken without prior written approval from the Buyer.

Note 114: Supplier's Cognizance

If the item covered by this Purchase Order or Sub-contract is proprietary with the Supplier under his design cognizance, or of a specialized nature which would allow a more expeditious analysis and disposition of the non-conforming item than at the Buyer's facility, the Supplier is granted preliminary materials review authority over the item and may ship without prior Buyer written communication, provided that the deviation is of a minor nature which does not compromise fit, form, function or interchangeability; and the deviation cannot be corrected to drawing or specification. Full information relative to the materials review shall be submitted to the SDR at the time of shipment on the Supplier's report form or on a Buyer Non-Conformance Report (NCR) form, which is available upon request. Final approval of the non-conformance will remain with the Buyer to assess the submitted shipment and the Supplier materials review report and disposition.

Note 115: Purchase Order Deviation

During supplier performance, any deviations or proposed changes in design from the Procuring Facility's supplied drawings or specifications must be reported to our Buyer immediately. No deviation will be considered approved without written confirmation of that fact from the Buyer. Under no circumstances are repairs to be undertaken without prior written approval from the Buyer.

Note 116: Lot Rejection

Material, parts, or assemblies, which do not conform to all drawings, specifications, and purchase order will not be accepted and will result in lot rejection.

Level 3: (Quality System Registered, may include notes from Level 1 and Level 2)**Note 117: ISO 9002**

The supplier shall comply with the requirements of the latest revision* of ISO 9002, "Model for Quality Assurance in Production and Installation" and/or comply with requirement of latest revision* of QC-1.

Note 118: QC-1 Certification

The supplier must be certified by Sandia National Laboratories and registered as a QC-1 supplier.

Note 119: ANSI/NSCL Z540-1-1994

The supplier shall comply with the requirements of the latest revision* of the ANSI/NSCL Z540, "Calibration Laboratories and Measuring and Test Equipment-General Requirements".

Note 120: Control by Item Serial Numbers

The Buyer shall assign permanent, individual serial numbers to all items shipped under the Purchase Order or Sub-contract. If the Buyer elects to delegate this responsibility to the Supplier, it will be stated in the Procurement Document. The manner of affixing the serial numbers will also be specified in the noted of a Buyer furnished drawing. The supplier shall maintain trace ability of each serialized item to the raw material employed in its fabrication. Material certification analysis, test bars, samples, etc. and all pertinent documentation to provide trace ability for each parts and assembly serialized.

Other Quality Notes: (as needed for any Level)**Note 121: ISO 10012-1**

The supplier shall comply with the requirements of the latest revision* of ISO 10021-1, "Quality Assurance Requirements for Measuring Equipment".

Note 122: Seller Quality Certification

The Supplier shall have demonstrated compliance to strict quality standards (e.g. ISO 9000) acceptable to the Procuring Facility, which show the Supplier has a quality program in place and capable of meeting the intent of the Procuring Facility's program-related quality documentation. Certification shall be the Procuring Facility's survey approval. Quality of the product will be demonstrable by source inspection, receiving inspection, and subsequent acceptable performance.

Note 123: Magnetic Particle Inspection

The supplier shall perform magnetic particle inspection on all designated items in each shipment in accordance with the requirements of the latest revision* of MIL-STD-1949 "Inspection Processes, Magnetic Particle," and transmit a copy of the inspection report with the shipment.

Note 124: Dye Penetrate Inspection

The supplier shall perform dye penetrate inspection on all designated items in each shipment in accordance with the latest requirements of the latest revision* of ASTM-E1417, "Penetrate Method of Inspection", and transmit a copy of the inspection report with the shipment.

Note 125: Ultrasound Inspection

The supplier shall perform ultrasound inspection on all designated items in each shipment in accordance with the latest requirements of the latest revision* of NAVSEA TECH PUB T9074-AS-GIB-010/271 "Non-Destructive Testing Requirements for Metals", and transmit a copy of the inspection report with shipment.

** The revision of the document in effect at the time of award of Purchase Order of Subcontract unless otherwise noted on the Procurement Document.*

Note 126: Radiographic Inspection Report

The supplier shall perform radiographic inspection on all designated items in each shipment in accordance with the latest requirements of the latest revision* of ASTM-E1742, "Radiographic Inspection", and transmit both radiographs and a copy of the inspection report with the shipment.

Note 127: First Article Conformance

First article physical configuration and/or functional test conformance approval is required by the Sandia Delegated Representative (SDR) before Supplier may proceed with the balance of the order.

Note 128: Test Specimens

The supplier shall submit with this order test specimens or samples in the form of printed wiring board coupons, glass test sample or weldment samples, etc. representative of the items shipped, and in accordance with referenced specifications. Specimens shall be traceable by batch, melt, serial number or other unique identification to each specified item.

Note 129 Functional Test Report

The supplier shall submit a report with each shipment which delineates the functional test results of each item in the shipment. The functional test will verify conformance with all functional specifications called out on drawing or test specifications. The data sheets should list the test parameter specified vs. the actual test results. The test data shall indicate the approval of the supplier's Quality Assurance Department.

Note 130: Retention of Inspection Records

Records shall be retained and available for review for a period of five (5) years after the date of final payment. At the end of the retention period, the Supplier shall advise the Buyer before disposal for disposition of records.

Note 131: 100% Inspection

The Supplier is required to perform 100% inspection of all drawing requirements or referenced specifications for all parts. A record of "as measured" dimensions will be supplied via the Buyer supplier "Vendor Inspection Report" or Supplier's equivalent form and shall list the parameter specified vs. the actual measurement. The "as measured" record shall consist of actual data recording of all dimensions with a total tolerance of 0.010 inch or less with an accuracy of one tenth the total tolerance, a check mark or stamp for all other dimensions and notes other than "reference dimensions."

Note 132: Sampling Inspection

Sampling inspection must be in accordance with the latest revision* of ANSI/ASQCZ1.4 1993, "Sampling Procedures and Tables for Inspection by Attributes," which corresponds directly to MIL-STD-1916 or ASQC-Z 1.9 and may be used only when specifically authorized by the Purchase Order. Supplier may develop his own sampling technique similar to those prescribed in the above documents, but it must be approved for use by the Buyer and authorized by the Purchase Order.

Note 133: Tooling and Equipment

All Buyer or Customer furnished tooling or equipment must be controlled, properly stored, maintained and returned to Sandia as requested.

Electronics**Note 134: Electrical/Electronic Assemblies ANSI/IPC-A-610**

The supplier shall comply with the requirements of the latest revision* (and all cumulative change notices) of ANSI/IPC-A-610, "Acceptability of Electronic Assemblies."

Note 135: ANSI/J-STD-001

The supplier shall comply with the requirements of the latest revision* (and all cumulative change notices) of ANSI/J-STD-001, "Requirements for Soldered Electrical and Electronic Assemblies".

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Note 136: Cable Fabrication SPEFG (Martin Marietta Document) 173126 (Sandia National Laboratories)

The supplier shall comply with the requirements for cable fabrication listed on the accompanying print(s). If no requirements are listed on the print 173126, or SPEFG will be the fabrication requirements. "Standard Practice & Equipment Fabrication Guide". "General Specification for Acceptance Equipment".

Note 137: ANSI/IPC-6011

The supplier shall comply with the requirements of the latest revision* (and all cumulative change notices) of ANSI/IPC-6011, "Generic Performance Specification for Printed Boards".

Note 138: ANSI/IPC/-6012A

The supplier shall comply with the requirements of the latest revision* (and all cumulative change notices) of ANSI/IPC-6012, "Qualification and Performance Specification for Rigid Printed Boards and Amend 1".

Note 139: ANSI/IPC-6013

The supplier shall comply with the requirements of the latest revision* (and all cumulative change notices) of ANSI/IPC-6013, "Qualification for Flexible Printed Boards".

Note 140: ANSI/IPC-6015

The supplier shall comply with the requirements of the latest revision* (and all cumulative change notices) of ANSI/IPC-6015, "Qualification and Performance Specification for Organic Multichip Module (MCM-L) Mounting and Interconnecting Structures".

Note 141: ANSI/IPC-6016

The supplier shall comply with the requirements of the latest revision* (and all cumulative change notices) of ANSI/IPC-6016, "Qualification and Performance Specification for High Density Interconnect (HDI) Layers or Boards".

Note 142: ANSI/IPC-6018

The supplier shall comply with the requirements of the latest revision* (and all cumulative change notices) of ANSI/IPC-6018, "Microwave PB Inspection/Test".

Note 143: MIL-STD-2000-2A

The supplier shall comply with military specification MIL-S-45743, Soldering Manual Type. High Reliability Electrical and Electronic Equipment.

Note 144: NHB 5300.4 (3A) NASA-Requirements for Soldered Electrical Connections

The supplier shall comply with the latest revision* of NASA specification NHB 5300.4 (3A-1), Requirements for Soldered Electrical Connections.

Note 145: Printed Wiring Boards (PWB)

The supplier shall ensure that all printed wiring boards are preservation packaged per MIL-P-55110F Level B, sub-method IC-1 of MIL-P-116 or as specified on the Purchase Order, drawing or specification.

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