## Appendix D: Procurement-Only, Non-CSI Spec Format Template[[1]](#footnote-1)

As an alternative to CSI format[[2]](#footnote-2) or this format, the project may issue a procedure on format if only to help ensure key topics (headings) aren’t missed and for consistency to aid staff that review multiple specs.

A description of the contents has been provided below to illustrate expectations in regards to the content for a given heading; however, there may be variations based on the scope of a particular specification.

The following are general considerations for developing a specification:

1. Extract the applicable Project-specific design bases requirements from safety analyses, design criteria documents, the facility description document (FDD), system design descriptions (SDDs), and technical reports, and other sources.
2. Identify elements verified during the design review. These should be considered when developing the specification.
3. Provide sufficient details to support further facility design, construction, and operation.
4. Methods materials, parts, and equipment that are essential to the function of the items are selected and reviewed for suitability of application.
5. Where appropriate, generic specifications (e.g., seismic) may be developed as stand-alone specifications or included as attachments and referenced in the specification.

Include the specification cover sheet and revision history, a contents section and the numbered headings listed below. Specifications as data sheets only are not required to include the numbered sections, but should include specific details to describe the items. Each page shall include the following:

1. unique identifier assigned by document control,
2. title of the specification, and
3. page number.

The contents are in italics and are included as appropriate based on the scope of the specification. If a section is not applicable, identify it as such.

1. **Scope**
   1. **Project Description and Location**

*Provide a brief description of the project and the location.*

* 1. **Equipment, Material and Services Required**

*Identify the scope of the specification, including the equipment, materials, and services to be provided. Include a general description or summary of the deliverables such as required meetings, plans, procedures, schedules, warrantees, and other documentation.*

* 1. **Work by Others**

*Describe related work excluded or not covered in the specification. For example, identify equipment to be supplied by LANL.*

* 1. **Definitions**

*Include a listing of definitions of uncommon terms used in the specifications as needed to provide an understanding of the requirements.*

* 1. **Acronyms/Abbreviations**

*Provide a listing of acronyms and abbreviations as needed to provide an understanding of the requirements.*

* 1. **Safety Classifications/Management Levels**

*Identify the safety classification(s) of the equipment, material, and/or services. Items classified safety class or safety significant are identified in design documents (e.g., FDD, SDD).*

***Caution****: If a Nuclear Facility specification is prepared prior to or in parallel with an FDD and/or SDD update, the safety classification should be confirmed against the (P)DSA.*

* 1. **Safety Functions**

*Safety Class and Safety Significant: Identify the safety functions, functional requirements, and the associated performance criteria as stated in the SDD and/or FDD.*

*Important to Safety: Identify other safety functions for items important to safety such as security, environmental, or mission.*

* 1. **Commercial Grade Dedication/Critical Characteristics**

*For commercial grade items or services (see AP-341-703, Commercial Grade Dedication), identify the critical characteristics (i.e., those that provide reasonable assurance that the item will perform its intended safety function) to be verified for acceptance and acceptance criteria. In some situations the supplier may be better able to define the critical characteristics required to ensure the safety functions of the item. For these cases, include a requirement for the supplier to provide the documentation of the critical characteristics and acceptance criteria (and LANL TSME concurrence with these).*

1. **Applicable Documents**

**2.1 Codes/Standards/Regulations**

*Identify the applicable codes standards, standards, and regulations. Specifications shall implement the applicable codes, standards and regulations identified in the Engineering Standards Manual, the design criteria, the FDD, and the SDD. References to codes, standards, and regulations shall be clear and specific and shall identify the version or indicate latest. References shall be sufficiently detailed to define requirements for fabrication, erection, and assembly, including its service, type, and category along with inspection and testing acceptance criteria. The versions should be consistent with that defined in the FDD and/or SDD.*

***Caution****: If the specification is prepared prior to or in parallel with an FDD and/ or SDD update, the version information should be confirmed against the code of record.*

*The version of ASME NQA-1 shall be consistent with the code of record for the project.*

***Caution:***

*This section should* ***not*** *reference codes, standards or regulations which are not discussed in the text of the specification.*

*References to Codes, Standards, and Regulations within the text of the specification:*

*References to codes, standards and regulations should be specific and identify which portions are applicable. The codes and standards referenced or invoked within the primary code or standard should be reviewed for applicability and to ensure that it is appropriate to invoke these. If a daughter code or standard is not appropriate, exceptions or clarifications should be noted.*

***Caution:***

*Do not include statements such as “in accordance with UL Standards,” “in accordance with ASTM standards,” or “in accordance with the ASME Code.” Identify the specific codes or standards that apply.*

**2.2 Other Reference Documents/Drawings**

*Provide a reference to other documents (e.g., drawings, specifications) cited in the specification.*

***Cautions:***

1. *Revision information for drawings and specifications is typically* ***not*** *included if this information is specified in the procurement document.*
2. *References should be reviewed to confirm that there are no conflicts.*
3. *Care should be taken* ***not*** *to repeat information that is controlled by referenced specifications.*
4. **Design Requirements**

*As applicable to the scope of the specification, provide a discussion of basic functions, performance, design conditions, design life, failure modes and failure modes effects analysis requirements, environmental conditions, mechanical requirements, loadings, electrical requirements, instrument and controls requirements, environmental qualification, and accessibility and maintenance.*

***Additional Considerations for safety class and safety significant items****:*

1. *Design Verification per NQA-1*

*Include requirements for verifying the safety functions. When qualification testing is required, identify or reference standard specifications for the most adverse conditions (e.g., operating modes, environmental, seismic) related to the safety function. Consider operating modes and environmental conditions in determining the most adverse conditions. When qualification testing is intended to only verify specific design features, include provisions for verification of other features by other means (e.g., calculations). Include a requirement for submittal to LANL a verification plan to identify the method(s) of verification. Include a requirement for submittal of a design verification report including test results and any supporting calculations.*

*Model or Mockup Testing*

*When tests are being performed on models or mockups, include requirements for scaling laws to be established and verified. For model test work, include provisions for performance of error analysis, where applicable, prior to use in the final design.*

1. *Software*

*Include applicable software quality program requirements. Include requirements for software documentation to be submitted for review, including the following:*

*• software quality assurance procedures*

*• a listing of all software (name and version) that is part of the item(s) or service including embedded software (e.g., Programmable Logic Controllers) and supporting software required to run the software -- and installation directions*

*• identification of the software baseline documentation*

*• identification of software that performs active safety functions and the requirements for the functions that the software performs*

*• software verification and validation documentation including identification of the capabilities and limitations for intended use as critical characteristics*

*• test plans and test cases for each defined requirements used as the method of acceptance to demonstrate the capabilities within the limitations*

*• instructions for use of the software (e.g., user manual) within the limits of the software capabilities*

*• software error reports including the method for obtaining the error reports.*

*For safety significant and safety class items, include a requirement for software to be controlled in accordance with DOE Order O 414. 1D, Attachment 4, Safety Software Quality Assurance Requirements for Nuclear Facilities and ASME NQA-1, Part I, Requirements 3 and 11 and Part II, Subpart 2.7, Quality Assurance (most stringent of the two).*

1. **Materials**

*Specify the materials of construction for the item(s) in the scope of the specification, prohibited materials, and any special requirements for materials.*

1. **Fabrication and Installation**

*Identify requirements for fabrication processes, such as welding, heat treatment, material control and painting. As appropriate to the scope of the specification, include the following:*

1. *installation requirements or request installation instructions from the supplier*
2. *requirements for hangers and spans*
3. *material requirements and restrictions (e.g., dissimilar materials) to ensure compatibility for the environment such as loads and applied stresses*
4. *torque values, sequencing, and patterns for bolted connections.*

***Additional Considerations for Safety Class and Safety Significant Items:***

*Include requirements for submittal of fabrication procedures to LANL. Include requirements for submittal of qualification records for special processes to LANL. Include requirements for submittal to LANL of qualification records for personnel performing special processes.*

1. **Test and Inspection**

*Identify test and inspection requirements for the shop and the field. Include or reference (e.g., code or standard) the acceptance criteria for tests and inspections. Identify requirements for submittal to LANL of test procedures unless testing is performed using standard methods (e.g., ASTM). Include requirements for submittal of test and inspection result to LANL.*

***Caution:*** *Include or reference an upper bound, lower bound or range of values for tests and inspection performed for the purpose of acceptance. When testing is performed for data collection purposes only, this should be clearly stated.*

***Additional Considerations for Safety Class and Safety Significant Items:***

*Identify requirements for qualification of testing and inspection personnel (e.g., ASNT SNT-TC-1A is used for qualification of nondestructive testing personnel). Include a requirement for the submittal to LANL of the inspection and/or test personnel qualification procedure and personnel qualification records.*

1. **Preparation for Shipment**

*Include cleanliness, tagging, documentation, packaging, handling, shipping, and storage (including shelf life) instructions (ref LANL P840-1 Procurement Quality).* *Hazardous and radioactive materials should be packaged, labeled, stored, and shipped according to applicable DOE and Department of Transportation (DOT) regulations.*

***Additional Requirements for Safety Class, Safety Significant, and ML-3 IDID (other equipment that perform an active important to defense- in-depth function as determined by the facility management) items:***

*Include a requirement for items to be packaged, shipped, handled and stored in accordance with ASME NQA-1, Part II, Subpart 2.2, Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants. Identify the levels (A, B, C, D) of the equipment and materials in accordance with this standard. For Level A items, identify the specific criteria as applicable.*

1. **Quality Assurance**

*Include a reference to Exhibit H of the Subcontract.*

***Caution****: Do not include administrative details in the specification if these are included in or conflict with Exhibit H of the Subcontract.*

*Include provisions for the following, based on the scope of the specification:*

1. *requirement for a quality assurance program based on the importance and and/or complexity of the item.*
2. *requirement for the supplier/subcontractor to incorporate appropriate quality assurance program requirements and other requirements of the specification in sub-tier procurement documents.*
3. *identification of any LANL or project-specific instructions, plans, or procedures that apply to the supplier/subcontractor. Version information may be specified in the procurement document.*
4. *requirement for deviations from the specification to be reported using the Subcontractor Deviation Disposition Request Form 2178(optional, in pro forma boilerplate already)*
5. *methodology for initiating a request for information.*
6. *access to supplier/subcontractor facilities and records, at all tiers for surveillance, inspections or audit by LANL (including designated representatives), and/or DOE/NNSA representatives.*
7. *Specific controls for Suspect/Counterfeit Items Prevention based the type of item. See DOE Order 414. 1D, Attachment 3, Suspect/Counterfeit Item Prevention* and *P330-9, Suspect/Counterfeit Items (S/CI).[[3]](#footnote-3)*

***Grading of non-safety items (ML-3 and ML-4):***

*Include a requirement for the supplier/subcontractor to develop and maintain a quality assurance program that ensures compliance with 10 CFR 830, Subpart A (applies to nuclear and radiological facilities) and DOE Order 414. 1D.*

*Additional quality standards (e.g., ANSI/ASQ Q9001) may be applicable if incorporated by reference in the technical standard or if required by a local quality assurance plan.*

*Additional requirements may be applied based on the relative importance (e.g., safety, mission, security, worker safety, environmental, etc.)as documented per AP-341-502, Management Level Determination and Identification of Quality Assurance and Maintenance Requirements*

***Safety Class and Safety Significant Items and Select ML-3 items:***

*Include a requirement for the supplier/subcontractor to develop and maintain a quality assurance program consistent with the applicable portions of the following documents:*

1. *10 CFR Part 830, Subpart A, Quality Assurance[[4]](#footnote-4)(applies to nuclear and radiological facilities),*
2. *DOE Order O 414. 1D, Quality Assurance,*
3. *ASME NQA-1, Quality Assurance Requirements for Nuclear Facility Applications, Part I –for limited scope specifications, the applicable Requirements should be identified, [Use a graded approach for ML-3 items].*
4. *ASME NQA-1, Quality Assurance Requirements for Nuclear Facility Applications, Part II –identify the specific subparts that are applicable. [Use a graded approach for ML-3 items].*

***Caution:*** *The subparts within Part II of ASME NQA-1 invoke technical codes and standards. Confirm that these daughter codes and standards are appropriate before invoking an entire Subpart within Part II.*

*Include a requirement for the supplier/subcontractor to submit to LANL the quality assurance program for review prior to the commencement of work. Include a requirement for the plan to include documents and procedures to implement the work and include a matrix of essential Quality Assurance elements cross referenced with the documents/procedures.*

1. **Configuration Management**

*Identify or reference requirements for uniquely identifying equipment. See ESM Ch 1 Section 200.*

1. **Documentation and Submittals**

*Include a summary of the documentation and the submittals. Use the organization’s Records Retention Plan for determining which documents are considered records. As a minimum, extract and include requirements for submittal of documentation considered to be lifetime Quality Assurance Records as defined in the records management plan.*

*The timing of the submittal should be provided generically (e.g., prior to fabrication). If the supplier/subcontractor is required to maintain specific records, identify the retention times and disposition requirements. Identify any requirements for reviews or approvals of documents if not specified elsewhere. Examples of submittals are listed below:*

1. *drawings*
2. *warranties*
3. *Subcontractor proposal data*
4. *quality Assurance Program documents*
5. *procedures*
6. *operating and maintenance manuals*
7. *material traceability documentation*
8. *qualification documentation procedures, certification, testing*
9. *software quality assurance verification and validation documentation*
10. *inspection and test plans*
11. *inspection and test reports*
12. *analyses and calculations*
13. *manuals*
14. *product data*
15. *certificates of conformance*
16. *spare and replacement parts lists and related documentation for ordering these*
17. *certified material test reports*
18. *calibration certificates.*

**Attachment A Hold and Witness Points (Include only if applicable)**

*Include a summary of the hold and witness points and requirements for advance notification.*

**Attachments B-Z (Other Attachments as needed)**

*Include other information needed to support the specification, e.g., data sheets, figures, etc.*

1. Adaptation of CMRR-AP-ENG-0316 draft [↑](#footnote-ref-1)
2. Refer to Procurement topic in Article 2.0 of this Attachment F for related discussion [↑](#footnote-ref-2)
3. There is a standard clause in Exhibit H; however, for certain items one may want to provide some specifics to check. [↑](#footnote-ref-3)
4. ASME NQA-1 has recognized that implementation of ASME NQA-1 quality assurance program is not sufficient to meet the requirements in 10 CFR 830 Subpart A and DOE O 414.1D. For details refer to ASME NQA-1-2008, Part IV, Subpart 4.5, *Application Guide on the Use of NQA-1–2000 for Compliance With Department of Energy Quality Assurance Requirements 10 CFR 830 Subpart A and DOE O 414.1*. Other CFRs that define quality assurance requirements (e.g., 10CFR Part 50, Appendix B; 10CFR Part 71, Subpart H; etc.) may be applicable based on the scope of work. SD330, *LANL Quality Assurance Program*, defines the applicable requirements and version of ASME NQA-1for LANL nuclear and radiological facilities. Local quality assurance plans or technical standards may require the use of other versions of ASME NQA-1 or the use of other quality standards for non-nuclear work. [↑](#footnote-ref-4)