

Second Target Station (STS) Project General Policy on Engineering Practices



August 2025



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Second Target Station (STS) Project

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Approvals

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	Signature / Date					
	Rev. 00	Date	Rev. 01	Date	Rev. 02	Date
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Revision	Description
00	Initial Release
01	Updated Table 1 to include CM procedure. Added section 4 Graded Approach (Tables 2 and 3) and section 5 Super Approval. Corrected typo (replaced NTD with STS in section 2). Corrected formatting to match ORNL standard.
02	Corrected "CCA" to CCM" in Section 1, paragraph 3. Added STS Interface Control Procedure, Systems Engineering Management Plan and Quality Level Determination Procedure to Table 1. Replaced NScD Design Change Procedure citations to STS Design Development Procedure and Change Control Procedures in Table 1. Added Guidelines for shielding gap offsets at the SNS to Table 1. Added Section 5 to clarify Project policy on metric units.
03	Corrected document number for <i>Drawing and Document Numbering Schemes</i> . Added <i>S01020500-PCD10002 Second Target Station AutoCAD Drawing Preparation Procedure</i> and <i>S01020500-PCD10003 Second Target Station Project Engineering Change Control Procedure</i> . Updated cover page to latest template.

Approvals for Revision 3 obtained through EDRM online approval process

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1. SCOPE

This document lists all engineering procedures, policies and standards for the Second Target Station (STS) Project. Procedures/policies/standards not included in this list are not recognized by STS, and as such may not impose requirements upon STS personnel. Exceptions to this statement exist only at higher levels of authority than exist in STS such as ORNL SBMS, DOE rules and regulations and State and Federal Law.

For the purposes of this document, the terms “policy”, “procedure” and “standard” may be used interchangeably.

The roles of Configuration Authority (CA), Configuration Control Manager (CCM), and Designated Design Authority (DDA) are fully defined in *S01020000-PR0001 Configuration Management Procedure for the Second Target Station Project*, but in general, the CA is the highest level of engineering authority for the STS, the CCM is the second highest level of authority and the DDA’s authority is granted by the appropriate CCM.

2. RECOGNIZED POLICIES

Table 1 includes an explicit list of all procedures, policies and standard recognized by STS.

Table 1. List of Engineering Policies, Procedures and Standards Recognized by STS.

Document Name	Document Number
Second Target Station Project Design Development Procedure	S01020500-PCD10001
Second Target Station Project Change Control Procedure	S01020000-PR0003
STS Quality Assurance and Verification Plan	S01030000-QA0001
Quality Level Determination Procedure	S01030200-PR0002
Policy on Drawing Preparation	S01020000-PC0002
Policy on Nonconformances and Deviations	S01020000-PC0003
Policy on Design and Analysis Calculation Preparation	S01020000-PC0004
Policy on As-Built and Redline Drawings	S01020000-PC0005
Requirements For Lifting Devices	S01020000-PC0006
Design and Fabrication of Pressure and Vacuum Systems	S01020000-PC0007
Drawing and Document Numbering Schemes	S01020600-PIN10000
Configuration Management Procedure for the Second Target Station Project	S01020000-PR0001
STS Interface Control Procedure	S01020000-PR0002
STS Systems Engineering Management Plan	S01020500-PN0001
STS Design Authority Identification Document	S01020000-PI0003
Guidelines for shielding gap offsets at the SNS	106100200-TR0149
Second Target Station AutoCAD Drawing Preparation Procedure	S01020500-PCD10002
Second Target Station Project Engineering Change Control Procedure	S01020500-PCD10003

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3. GRADED APPROACH

The STS Project uses a universal Graded Approach to ensure consistency in application of analysis, control and actions. The Graded Approach is used for all structures, systems and components (SSCs) for the STS and is shown in Table 2. A 4th level of Graded Approach, applicable to “non-installable” SSCs is shown in Table 3. Table 3 also allows an exception for emergency work, but the documentation and approval guidance from Table 2 for installed SSCs must be applied after the fact.

Table 2. Graded Approach Matrix for the STS.

Grade	Guidance	Design Reviews Required	Drawing Approvals Required
Level 1 – Serious	Configuration Managed Structures, Systems and Components (CM SSCs)	Design Requirements Review, Conceptual Design Review, Preliminary Design Review, Final Design Review	Configuration Authority
Level 2 – Important	Configuration Items (CIs)	Formal Final Design Review, informal Conceptual Design Review, informal Preliminary Design Review	Configuration Control Manager
Level 3 - Routine	Any structure, system, component or software installed or deployed in an STS Accelerator System, Target System, Instrument System, Conventional Facilities System or Integrated Controls System	Informal Final Design Review. Optional Conceptual and Preliminary Design Reviews	Designated Design Authority
Level 4 – special	See table 3	See table 3	See table 3

Table 3. Special Grades.

Special Grade Level	Guidance	Design Reviews Required	Drawing Approvals Required
4a – Expedited	Urgently required action requires expedited approval. Documentation may follow work	None – informal review may be appropriate depending on complexity or risk. Postmortem review may be relevant to capture lessons learned.	Per table 2.
4b – Documentation	“Documentation only”, such as vendor submittals or test reports – no new hardware permitted for this category.	none	Responsible engineer
4c – Test Hardware	Test/development hardware never to be installed on an accelerator, target, instrument, conventional facilities or integrated control system. Components with safety implications are not appropriate for this category. This grade level should be used only rarely.	none	Designated Design Authority

4. SUPER APPROVAL

Any level of authority for work performed for the Second Target Station may be superseded by authority at a higher level. For example, the Configuration Authority may approve on behalf of a Configuration Control Manager, a Configuration Control Manager can approve on behalf of a Designated Design Authority etc.

5. UNITS

The Second Target Station is a metric facility. All permissible exceptions to this rule are indicated in Table 4. These items *may* be specified in English units, but are not *required* to be in English units, with the exception of operational displays of process systems, which *must* be shown in English units. Lengths, machined or cut dimensions, (etc.) of piping and structural shapes shall be specified in metric units. In cases when assemblies or components re-use or modify equipment or designs from the First Target Station, drawings should not be redrawn to show metric units but should instead remain in English units. When marking weight on components, units (kg) must be indicated.

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Table 4 Allowable Exceptions to Metric Rule

category	unit
radiation / dose	rem, rad
equipment racks	19-inch racks, height in rack U (1U = 1.75 inch)
wire and connectors	AWG
vacuum	torr
pipe, tubing and connections, process systems	inch
structural shapes	inch
conventional facilities	various
legacy equipment and modifications to same	inch
process systems readouts	various
calculation and specification for process systems	various
accelerator magnets	inch