GENERAL

This software data sheet, and the documents referenced herein, provide the *software-specific* information necessary to implement the requirements of Chapter 21, *Software*. For definitions, general requirements, and processes, see SOFT-GEN.

LANL personnel: Endeavor to use Chapter forms as-is and report issues and improvement ideas to the Chapter 21 POC. POC may authorize other methods equivalent to chapter forms in writing.

LANL subcontractors must use Chapter forms to satisfy Chapter requirements for SSC software. For Non-SSC software, subs may either use their own forms or integrate, adapt, and reformat the forms; either approach is acceptable so long as key functions, data, and approvals are retained.

HEADER

Field	Entry Information
Software Name	Enter the name of the software in the upper right hand corner of the header.
SWDS No.	The numbering scheme of this form follows that of the SRLM's document control/records management system. For software used in the operation of existing or new LANL facilities, use numbering scheme and process specified in AP-341-402, *Engineering Document Management in Operating Facilities*.
Rev.	Enter the SWDS revision number. Initial issue is 0.

1.0 GENERAL INFORMATION

Field	Entry Information
1.1	Enter the name of the software.
1.2	Enter the technical area(s) where the software is used. If the software is used site wide, including packaging and transportation, enter "site wide".
1.3	Enter the facility number(s) where the software is used. If the software is used site wide enter "site wide".
1.4	Enter the facility (building) name(s) where the software is used. If the software is used site wide enter "site wide".
1.5	For all ES and SB-Div software (Non-SSC and SSC), enter the software identification number (SWID). *The SWID should be the same SWID as on the Form 2033. SWIDs are obtained in accordance with AP-341-402, Engineering Document Management in Operating Facilities.* Ensure the SWID is part of the SWDS and subsequent software documentation.
1.6	For SSC software, enter the equipment identification number associated with the software per ESM Chapter 1, Section 200 (e.g., 03-0216-HVAC-BAS-1). For Non-SSC software, enter NA.
1.7	Provide (a) what the software does and (b) why it is needed (justification).
1.8	Indicate whether the software is SSC Software or non-SSC software by checking the appropriate box. Check only one box.
1.9	Indicate the highest management level (ML) associated with the software. Reference AP-341-502. (ML-1 is the highest ML indication/has the greatest associated consequence).

Field	Entry Information
	If the software associated with multiple MLs, check the highest ML box. Check only one box.
1.10	Indicate whether the software is safety software or non-safety software by checking the appropriate box. Reference Form 2033. If the software is used for both, check the Safety software box. Check only one box.

2.0 ROLES AND DATA SHEET APPROVALS

Field	Entry Information
2.1	Enter the name of the person(s) fulfilling the software role(s). For assistance in determining the SO and SRLM, see SOFT-GEN Appendix C: *SO and SRLM Decision Diagram for FAC-COE.* One person i.e., one software user (SU) etc., is a sufficient representative sample for approving the SWDS.
2.2	Enter the Z number (if available). Enter NA if not available.
2.3	Enter the date and either initials or signature that the software data sheet was reviewed and approved. Electronic signatures are acceptable. Signatures are required by the following and optional for others: SRLM, SU RLM, SU, SO, and FDAR or DA.
2.4	Enter an "x" for each role that the person is fulfilling. Note that one person may serve in multiple roles. If the person is assigned to review and approve, enter an "xs".
2.5	Enter clarifying text as necessary to clarify roles and responsibilities. See Chapter 21 for roles and responsibilities for the DA, FDAR, SD, SD RLM, SO, SRLM, SU, and SU RLM. If roles are added that are in addition to the standard roles in Chapter 21, specify the roles and responsibilities in this section. If no clarifications are necessary, enter "NA".

3.0 SOFTWARE PROJECT MANAGEMENT

Field	Entry Information
3.1	To support software-specific project management, enter the estimated Rough Order of magnitude (ROM) software costs for the following project management/risk management activities for the next five years. Attach supporting detail as required. See SWDS example. **Work Breakdown Structure (WBS) 01 - Design/Acquire Software.** The cost of designing and/or acquiring the software (including upgrades). Include planning, planning documentation (for hardware and software), and software quality assurance costs. Include labor, equipment and materials. **WBS 02 – Acquire Hardware.** The cost of the associated hardware. Include computer servers, computer workstations, peripherals, etc. Include labor, equipment and materials. **WBS 03 – Install/Verification and Validation (V&V).** The cost of installation and the associated V&V. Include labor and if required, equipment and materials. **WBS 04 – Maintain**. The cost of maintaining the integrated software/hardware system. Include problem reporting, corrective action, configuration management, etc. *Note:* Cost and schedule information are planning level estimated provided to help management allocate sufficient resources to successfully manage the software throughout its lifecycle. Detailed cost estimating is not required.

4.0 REQUIREMENTS

Field	Entry Information
4.1	Enter the requirements documents in the order of precedence. (I.e., Document 1 takes precedence over document 2.) Include the document number and name and revision. For simple software applications such as that for some Off-the-Shelf (OTS) design/analysis software, the requirements may also be entered directly into this section rather than in separate requirements documents. For example, enter the required version of ASME B31.3.
4.2	Enter high-level key planning assumptions/constraints. Planning assumptions/constraints are those that may affect the overall design/acquisition approach, scope, schedule or cost.

5.0 DELIVERABLES

Field	Entry Information
5.1	Enter the deliverable for the software required throughout the software life cycle. See SOFT-GEN section, Attachment B for a summary of Chapter 21 deliverables.

6.0 ACQUISITION/DESIGN STRATEGY

Field	Entry Information
6.1	Describe the approach to acquiring/designing the software, support software and associated hardware. Indicate if the software is existing or new. If the software is safety software (ML-1, ML-2 or ML-3) indicate whether the software will be acquired from an NQA-1 qualified supplier or whether it will acquired from a Non NQA-1 qualified supplier using commercial grade dedication (CGD). See acquisition factors such as cost, supplier availability in SOFT-ACQUIRE. Provide a summary level description of what work will be performed by LANL personnel and what work will be performed by supplier(s). Indicate whether the location and whether the software will be for a server-based use (generally preferred) or standalone computer use. Describe licenses, registrations and/or services contracts that must be maintained.

7.0 USE AND MAINTENANCE

Field	Entry Information
7.1	Describe the person(s) and process for authorizing software users/administrators. See P781-1, *Conduct of Training*.
7.2	Enter the minimum training related requirements that a person must fulfill to be an authorized user of the software (required reading, supplier training courses, certifications, etc.). The authorized user level is as described in the software user documentation for one to use the software for its intended purpose. It does not include the authority to make changes to the computer program code or perform software maintenance activities that may be described in software maintenance manuals. See P781-1.
7.3	Enter the website location of the current (active) list of authorized users (i.e., ES-DO website), otherwise, enter the names and if available, Z#s of authorized users. If authorized

Field	Entry Information
	users are listed in Section 2 of the SWDS, it is acceptable to enter "See SWDS Section 2".
7.4	Enter the minimum training related requirements that a person must fulfill to be an authorized administrator of the software (required reading, supplier training courses, certifications, etc.). The authorized administrator level is as described in the software user documentation for one to use the software for its intended purpose plus it includes the authority to make changes to the computer program code or perform software maintenance activities that may be described in software maintenance manuals.
7.5	Enter the website location of the current (active) list, otherwise, reference or enter the names and if available, Z#s of authorized administrators.
7.6	Indicate whether a risk list is required by checking either the yes or no box. (A risk list is required for ML-1 and ML-2 software). If required, asses and control risks based on industry accepted methods such as those described in DOE SQAS21.01.00-1999, *Software Risk Management a Practical Guide,* DOE G 413.3-7, *Risk Management Guide and/or* DOE G 414.1-4, *Safety Software Guide for Use with 10 CFR 830 Subpart A, Quality Assurance Requirements, and DOE O 414.1C, Quality Assurance.* Attach the risk list.
7.7	Indicate the minimum frequency that the risk list must be reviewed and as required, revised to ensure accuracy of the list.
7.8	Indicate whether a software quality assessment is required by checking either the yes or no box.
7.9	Indicate the minimum frequency that a software quality assessment must be performed, and the planned assessment methods. Multiple assessment methods are acceptable (e.g., P330-3, *Quality Audits* per PD328, *LANL Assessment Program,* AP-341-901, *Performing Vital Safety System Assessments* per P341, *Facility Engineering Processes Manual*). Software quality may be assessed as part of broader assessments.
7.10	Indicate whether in-use testing is required by checking either the yes or no box. (In-use testing is required for ML-1 and ML-2 software and recommended for ML-3 software).
7.11	Indicate the minimum frequency that in-use tests must be performed, and the acceptable test method(s). Note that in-use software tests may be an element of broader tests as long as they satisfy the software in-use test requirements.
7.12	As required, provide any other needed software-specific protocols required to promote proper software use, maintenance and retirement in this section (e.g., operational event documentation review and retention protocols, application log protocols, etc.). See SOFT-MAIN for additional information. Enter NA if not applicable or none.

8.0 ATTACHMENT LIST

Field	Entry Information
8.1	List attachments as appropriate. Enter the attachment number.
8.2	Enter the attachment date.
8.3	Enter the attachment title, including revision as appropriate.

9.0 REVISIONS

Field	Entry Information
9.1	Enter the revision number here and update the revision number in the form header.
9.2	Enter the date of the revision.
9.3	Enter a summary description of what was changed and the reason for the change.

10.0 ATTACHMENTS

Provide attachments here.

1.0 GENERAL INFORMATION

1.1 Software Name:		Combustible Material Tracker (CBT) Software			
1.2 TA Number(s):	03	1.3 Facility Number(s):	2333	1.4 Facility Name(s):	Nonproliferation Security Facility (NSF)
1.5 SWID	03-2333-045		1.6 Equipment ID:		NA

1.7 Software Summary Description/Need:	The software is used as a tool to track combustible material. It is needed because tracking combustible material manually (without software) is less efficient and error-prone.
1.8 SSC Software/Non-SSC Software:	SSC ☐ Non-SSC ☒
1.9 Highest ML Associated With the Software	ML-1 ☐ ML-2 ☐ ML-3 ☒ ML-4 ☐
1.10 Software Type	Safety Software ☐ Non-Safety Software ☒

2.0 ROLES AND DATA SHEET APPROVALS

2.1 Name (Last, First):	2.2. Z Number:	2.3 Data Sheet Approval and Approval Date	2.4 Role:											
			S0*	SRLM*	SD*	SD RLM*	SU*	SU RLM*	FDAR*	DA*	ISSO Rep.	Other	Other	Other
Trujillo, Robert	124268		xs											
Lopez, Pete	121987			xs				xs						
Vigil, Mary	115970				X									
Thompson, Tom	143987					xs								
Bradley, Mike	114987						xs							
Heitkamp, Heidi	121987										xs			
Walker, Johnny	123495									X				
Not Used	NA													

2.5 Role Comments/Clarifications:	1. Roles marked with a "*"are as stated in ESM Chapter 21. 2. The ISSO Representative (Rep.) is responsible for (a) ensuring applicable PD210 and SD210 cybersecurity/security requirements are identified and reported to the SRLM and (b) supporting implementation of such requirements. 3. Roles marked with "XS" must review, approve, date, and either initial or sign in Block 2.3. Roles marked with an "X" do not require review, approval date or signature. The X is provided to show who is filling the role.

3.0 SOFTWARE PROJECT MANAGEMENT

SWDS No.:	SWDS-16-03-2333-0089	Rev.:	0

3.1 Estimated Rough Order of Magnitude (ROM) Software Project Management Cost, K$

Fiscal Year (FY):					Total, K$ (FY16 -20):
2016	2017	2018	2019	2020	
540	215	200	230	655	1,840

4.0 REQUIREMENTS

4.1 Software Requirements and Hierarchy:	1. ESM Chapter 21, Software 2. SRS-15-03-NSF-0002 CBT Software Requirements Specification
4.2 Key Planning Assumptions/Constraints:	1. FY16 upgrade must be completed by July 1, 2015. If not completed by that date, Los Alamos Field Office authorization is required to operate with existing software.

5. DELIVERABLES

5.1 Deliverables:	1. Form 2033 and revisions. 2. Documents (e.g., user manual) and computer programs as per SBL-15-03-2333-0234 (and subsequent revisions), Software Baseline for CBT with software replacement (including operating system) frequency estimated every 4 years. 3. Hardware as listed in SD-15-03-NSF-0006, CBT Software Design Document; Programmable Logic Controllers and associated devices (e.g., firewalls) replacement frequency estimated every 4 years. 4. Approval for use documentation (Section SOFT-V&V, Att. B, as required) 5. Non-SSC Software Change Packages (Section SOFT-GEN, Att. E, as required) 6. Problem reporting & corrective action documentation (as required) 7. Institutional-Level safety software inventory and ES-DO inventory updates as required. 8. Software quality assessment reports, bi-annual or as required. 9. Software risk register updates, as required. 10. Software data sheet (this document) revisions, as required. 11. Operational event documentation

6. ACQUISITION/DESIGN STRATEGY

6.1 Acquisition/Design Strategy:	▪ **Primary Software:** The primary software is an existing C++ code. This code will undergo re-design by qualified LANL programmers and include software code/deliverables as required by ESM Chapter 21 for ML-3 software. ▪ **Support Software:** Support software is off-the-shelf software (e.g., MS 2003 and MS Windows XP) that will be acquired as ML-4 software from LANL Electronic Software Distribution (ESD).

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	• **Hardware:** Hardware is conventional PLC related hardware and peripherals that will be procured as ML-4 hardware.

7. USE AND MAINTENANCE

7.1 Software User/Administrator Authorization Process:	• The SRLM will identify, evaluate and authorize software users and administrators based on need and the knowledge, skills and abilities required as indicated in this document. Authorized personnel are indicated in this document.			
7.2 Authorized Software User Requirements:	• Online Utrain Course No. 45458, UM-15-03-NSF-001, *CBT User Manual, and* • Online Utrain Course No. 52346, AP-15-03-NSF-0007, *CBT Administrative Procedure.*			
7.3 Authorized Software Users:	• As listed on ES-DO website.			
7.4 Authorized Administrator Requirements:	• Authorized Software User Requirements, plus • Online Utrain Course No. 12341, MM-15-03-NSF-0009, CBT Maintenance Manual, and • Minimum of five (5) years of experience in C++ programming			
7.5 Authorized Administrators:	• SO, SD (see Section 2 for names and Z#s)			
7.6. Risk List Required?	Yes ☐	No ☒	7.7 Risk List Minimum Review/Revision Frequency:	Not Applicable
7.8 Software Quality Assessment Required?	Yes ☒	No ☐	7.9 Minimum Assessment Frequency & Method(s):	Bi-annual; P330-3, *Quality Audits*
7.10 In-Use Testing Required?	Yes ☒	No ☐	7.11 Minimum In-Use Test Frequency & Method(s):	Annual; SWTP-15-03-NSF-0008, *CBT Software Test Plan*
7.12 Other	1. The CBT software produces various operational event documentation, including self-diagnostic test results, as described in the O&M documents. As part of the planned assessments review the documentation for issues or issue precursors and take actions as required. The operational event documentation file should be retained for a minimum or four years within the computer program and backed up to the DCS02 server at least annually. The documentation is not a quality record.			

8.0 ATTACHMENT LIST

8.1 Attachment No.	8.2 Attachment Date	8.3 Attachment Title
A1	06/17/2016	CBT Software Cost Estimate Supporting Detail, Rev. 0

9.0 REVISIONS

SWDS No.:	SWDS-16-03-2333-0089	Rev.:	0

9.1 Revision	9.2 Date	9.3 Change Description and Reason for Change
0	09/17/2016	Original Issue

10.0 ATTACHMENTS

Attachment A1: 06/17/2016, CBT Cost Estimate Supporting Detail, Rev. 0

Item No:	Item Name:	Estimated Rough Order Of magnitude (ROM) Cost, K$:					Total, K$ (FY16 – FY20):
		Fiscal Year (FY):					
		2016	2017	2018	2019	2020	
1	Design/Acquire Software	200	0	0	0	235	435
2	Acquire Hardware	0	0	0	0	25	25
3	Install/V&V	150	0	0	0	175	325
4	Maintain	190	215	200	230	220	1,055
Total		**540**	**215**	**200**	**230**	**655**	**1,840**

Key Cost & Schedule Reporting Clarifications:

1. Costs are fully burdened at 25% of direct costs and escalated at 4% per year.
2. Design/Acquire Software costs include documentation update costs.
3. Software upgrade costs includes cost to upgrade existing version of Combustible CBT server and workstation support software (e.g., Windows Server 2016 and MS Office Outlook) to newer versions.
4. Maintenance cost includes 0.5 FTE SO Level of Effort (LOE) at $180 /hour (burdened); and a bi-annual software quality assessment at an average $20k per assessment. Maintenance costs do not include annual supplier service contract maintenance, notifications knowledge base updates.
5. Hardware costs include costs for servers, workstations, field scanners, firewall, and router see hardware listing in SWDD-15-03-NSF-0006.
6. All work is planned to begin in 1st quarter of shown FY and end in third-quarter of same FY to allow for a three month schedule contingency within each FY.
7. The SO will report issues of concern/deviations in scope, schedule or cost that adversely affect the software plan to the SRLM as part of the reporting processes associated with use of the software (e.g., issues with software scope, schedule or cost for software used in the facility design/analysis of facilities is reported as part of the project/modification that requires the design/analysis.
8. FY16 hardware costs covered by ES Division Office as part of ES Server 0294 software FY16 upgrade.