



Title: **Source Tracker Software Requirements Specification**

Number: **NEN1-ST-SRS**

Revision: 3.2

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Shows concepts; not reviewed for Ch 21 compliance

## History of Revisions

Revision Number	Approval Date	Change Description
Revision 1.0	6/10/04	Original Issue
Revision 1.0.1	11/30/04	Revised to include original functionality of the <b>Source Tracker</b> software
Revision 1.0.2	12/20/04	Comments from Matt Hykel, N1 Source Custodian
Revision 1.1	3/15/05	Add requirements for NISC implementation of ST
Revision 1.11	4/12/05	Deleted requirement Re-Create Declaration File – unused option
Revision 2.0	11/27/07	Put into new template, made requirement wording more concise, added additional requirements
Revision 2.1	1/11/08	Added SR 2.3, added SR 3.7, changed wording of SR 19.1, and changed wording of Section 3.7.
Revision 2.2	1/29/08	Final – changed wording on SR 1, 15.4, & 18, added SR 1.6, and deleted SR 18.2, 18.3, and 25; document formatting; modified CAT IV definition and added DOE M 470.4-7; modified sections 2.2 & 2.4
Revision 2.3	2/28/08	Added SR 1.7 & 7.7. Modified 15.4. Updated references to Timbuktu and changed them to Timbuktu / Windows Active Desktop.
Revision 2.4	3/4/08	N changed to STOFOD; reference DAR; standard history of revisions table
Revision 3.0	9/10/2015	Revised for new requirements of <b>Source Tracker</b> for major software rewrite.
Revision 3.1	11/16/2015	Final minor revisions and change to signature page. Document renamed to reflect software ownership change. STOFOD changed to NEN1.
Revision 3.2	2/16/2016	Changed signing authority for FDAR, updated target OS, corrected numbering of last requirement (was missing).

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## 1 Overview of Software Requirements Specification Document

This Software Requirements Specification (SRS) defines the functions and requirements of the **Source Tracker** software as well as the upgrades that have been requested to be added to the software developed in the Safeguards Security and Technology Group of the Nuclear Nonproliferation Division (NEN-1). The **Source Tracker** software provides an accurate inventory of radioactive sources maintained in the NEN1 group. There are remote stations which connect to the master database server at TA-35 buildings 2, 27, 188 and at TA-66 building 1. The **Source Tracker** system is also installed in the TA-3-2322, Nonproliferation and International Security Center (NISC) building for use by the Advanced Nuclear Technology group (NEN-2) as well as a standalone system to be installed at TA-16. For a current listing of all **Source Tracker** workstations, see the **Source Tracker** SharePoint Document site (<https://adtir.lanl.gov/programs/sourcetracker/SitePages/Home.aspx>).

**Source Tracker** maintains an accurate inventory by providing a **Source Tracker** station next to each of the safes where sources are stored so that when a user removes a source or returns a source, the recording station is readily accessible. This system is to be used as the official program for performing Material at Risk (MAR) functions as well as criticality calculations in order to comply with safety regulations. This system also provides an accounting of each source, including the home and current location, the person who has it checked out, the last leak test date, the last inventory date, and the certification of source repackaging (where applicable).

**Source Tracker** was determined to be safety software category Safety Management and Administrative Controls (SMACS), Software Risk Level (SRL) 3.

### 1.1 Scope of the SRS

The Software Requirements Specification represents the second phase of the software development life cycle. The **Source Tracker** program was written in 1999 and was modified in 2008. This document identifies the original requirements for the **Source Tracker** software as well as additional requirements requested by users of the system since the last software release.

Requirements are noted with a priority grading of 1-3 (red numbers beside each requirement title), 1 being the highest priority requirements and 3 being the least high priority requirements. This grading was performed by source custodians responsible for doing inventory, leak tests and other administrative functions for MAR calculations and material accountancy. This will allow the project team to schedule tasks in such a way that the highest priority requirements are implemented first.

### 1.2 Definitions and Acronyms

Definitions and acronyms are found in the *Source Tracker Definitions, Acronyms, and References* document (NEN1-ST-DAR).

### 1.3 References

References are found in the *Source Tracker Definitions, Acronyms, and References* document (NEN1-ST-DAR).

## 2 Operational Environment

### 2.1 System Interfaces

#### 2.1.1 Hardware Interfaces

Refer to Figure 1 for a diagram describing the hardware interfaces. **Source Tracker** users interface with a touch screen system where they can select menu options by touching the option on the screen. The user also inputs their user ID using a bar code scanner to read the Z-Number off their LANL badge holder. Bar code scanners are only used to scan users (via badge holder bar codes) and sources (via source bar codes affixed to sources). Note that all user entry is through touch screen or bar code scanner.

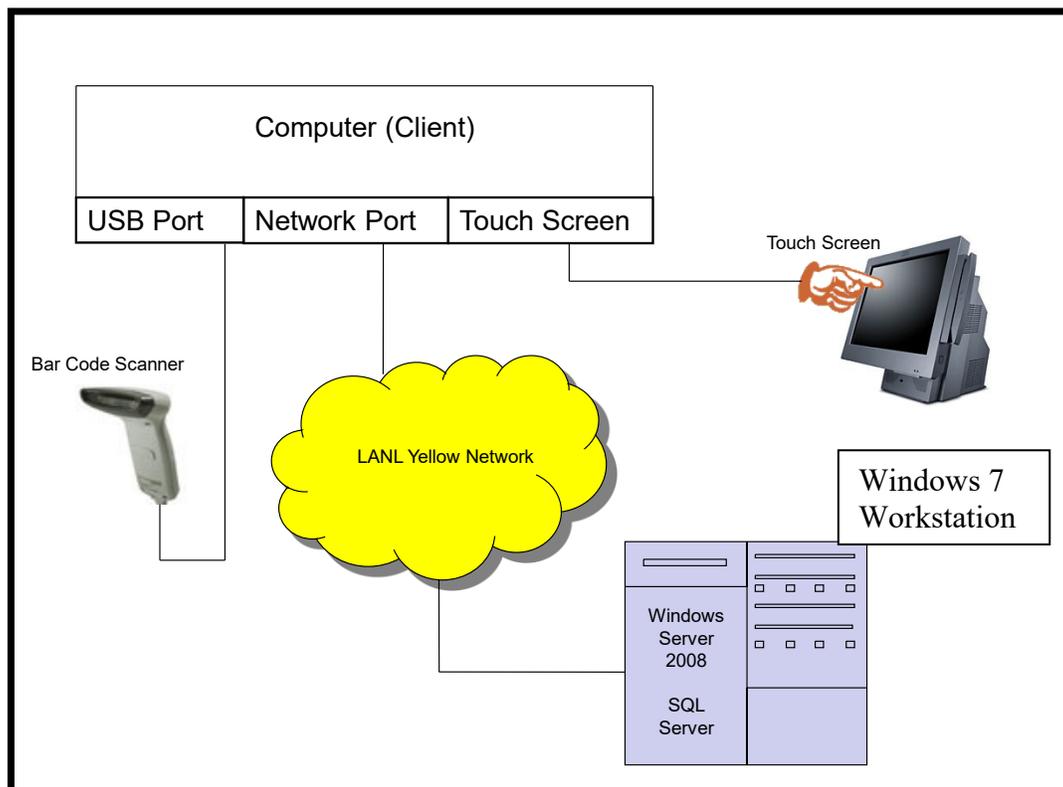


FIGURE 1: Hardware Interfaces

### 2.1.2 Software Interfaces

**Source Tracker** is an executable (compiled) program that uses the following COTS support software (see Figure 2):

- Microsoft® Windows™ 7 Professional operating system on the client computers.
- Microsoft® Windows™ Server 2008 R2 SP1 operating system on the server computer.
- SQL Server 2014 databases are used to read and write information.

In addition to the specialized **Source Tracker** software module, a small SMTP mail program will be developed to email alerts and reports to source custodians. Source handlers will access the workstation using the touchscreen and bar code reader only.

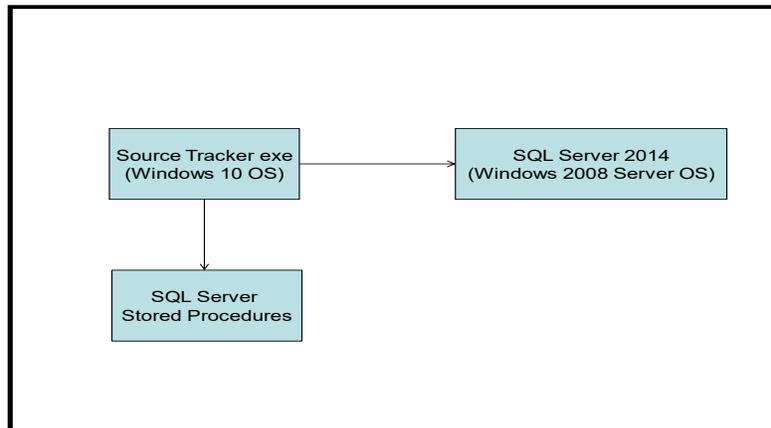


FIGURE 2: Software Products Used in Source Tracker System

### 2.1.3 Communications Interfaces

The **Source Tracker** software on each client computer communicates with the server computer and also communicates with a bar code scanner and a touch screen (see diagram in Section 2.1.1). The SQL Server generates and sends email alerts via the yellow network.

## 2.2 User Characteristics

There are three roles for users: Source Handlers, Nuclear Material Custodians (NMC) and System Administrators. Source Handlers are trained to the general **Source Tracker** functionality, while NMCs are trained to all of the system's capabilities. A Source Handler is trained to check in, check out, and relocate nuclear sources via the **Source Tracker** software. The NMC is trained to perform check in, check out,

relocation of sources plus inventory, adding sources to the database, updating source leak test data, entering new sources, removing sources from the database that are no longer kept in the monitored area and entering repackaging certifications for sources (when applicable). System Administrators may be capable of performing any of the functions of a Source Handler or a Nuclear Material Custodian plus functionality related to database maintenance and backup or other system troubleshooting or maintenance functions.

### 2.3 Human Factors

The touch screen buttons should be large enough that users don't mistakenly touch the wrong button. All functions of the **Source Tracker** software shall be made available through the touch screen interface. At no point should any user be required to manually modify the database to accomplish a task.

### 2.4 Constraints

No design constraints have been identified for this upgrade. The current rewrite of **Source Tracker** is being targeted to the Windows 7 Professional operating system.

### 2.5 Assumptions and Dependencies

The upgrade to the **Source Tracker** user interface will use Microsoft® Visual Studio 2013 in the C# programming language. The operating system will be ported from Microsoft® Windows™ XP to Microsoft® Windows™ 7 Professional for the client computers and to Microsoft® Windows™ Server 2008 R2 for the server computer.

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### 3 Requirements

#### 3.1 Goals

The goals of this upgrade are:

- add criticality regulation checks
- provide additional system flexibility
- maintain current functionality
- modify data entry protocol for NMC's, allowing data entry with touchscreen and scanner instead of manual entry into a database table
- Upgrade all software to new operating system and industry standard relational database requirements
- Add a simple interface to issue email alerts and reports to NMC's

#### 3.2 Functional Requirements

##### **SR1 - Verify MAR, Physical Security, Fuel Rod and Criticality Limits (1)**

Before a transfer is made of a source from one location to another, a calculation must be performed to verify that the transfer will not cause the new location to exceed MAR (CAT 3), physical security, fuel rod or criticality limits, based on government regulation-defined limits found in DOE-STD-1027-92, LA-12981-MS, DOE M 470.4-6 [NEN1-ST-DAR], and facility specific criticality limits.

SR1.1 - A window must be displayed showing the MAR, physical security, fuel rod, and criticality values for the new location before the transfer and for the new location after the transfer.

SR1.2 – Sources within ANSI certified containers (exempt sources) must not contribute to MAR values.

SR1.3 – If the transfer would cause the new location to exceed MAR, physical security, fuel rod, or criticality limits based on government regulation-defined limits found in DOE M 470.4-6., the transfer must not be allowed and a message must be displayed.

SR1.4 – MAR physical security, fuel rod, and criticality limits must be verified every time a source is transferred to a different location, including when it is removed from its home repository, when it is returned to its home repository, or when it is re-assigned to a different location or a different owner, or is permanently transferred to another home repository.

SR1.5 – Upon startup of the **Source Tracker** a program window must be displayed showing that the MAR, physical security, fuel rod, and criticality values are being calculated.

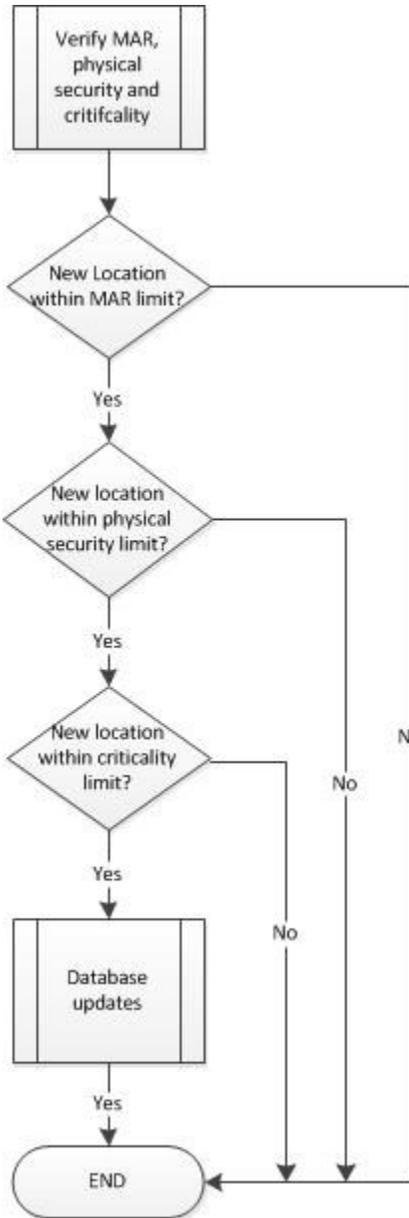


FIGURE 3: Program sequence for verification of source MAR, physical and criticality limits

**SR2 - Transferring Accountable MASS or RSSDMS sources (1)**

A MASS source must be allowed to be transferred only to another approved MASS location. RSSDMS sources may be moved to any location. Note: the user

should be provided with a list of buildings and rooms that the source can be transferred to (approved MASS locations) for MASS transactions.

SR2.1 – When a MASS or RSSDMS source is being transferred within the same MBA, the NMC must be sent an email message about this transfer. Note: the user should also receive a message indicating that this notification must be done.

SR2.2 - When a MASS or RSSDMS source is being transferred to a different MBA, a MASS authorized user must also enter his/her Z number (in addition to the user entry of the source bar code and user Z number) and the NMC must be sent an email message about this transfer

SR2.3 – When a MASS source is transferred to a different MASS location, a message must be displayed that the MASS system must also be manually updated in the appropriate external accountancy system, and an email sent to the NMC's.

### **SR3 - Remove source from home repository (1)**

A capability must be provided for a user to remove a source from its home repository.

SR3.1 - The user must enter the bar code of the source and his/her Z number via the barcode scanner and must be an authorized user.

SR3.2 – If the source is currently not located in its home repository, the user may still remove it but a warning message must be displayed instructing them to return it to the home repository when they have finished with it.

SR3.3 - A display must be presented indicating the source description and the transfer details.

SR3.4 - The user must be given the opportunity to complete the transfer, cancel the transfer, or complete the transfer and continue with additional transfers.

SR3.5 – If the transfer transaction completes successfully, the database must be updated with the new location and source owner.

SR3.6 – If the user cancels the operation, no database update will be made.

SR3.7 – If a source has an expired leak test date, it must not be allowed to be removed from the repository unless it is within the configured grace period. Note: an error message should be displayed and an email message should be sent to the Custodian.

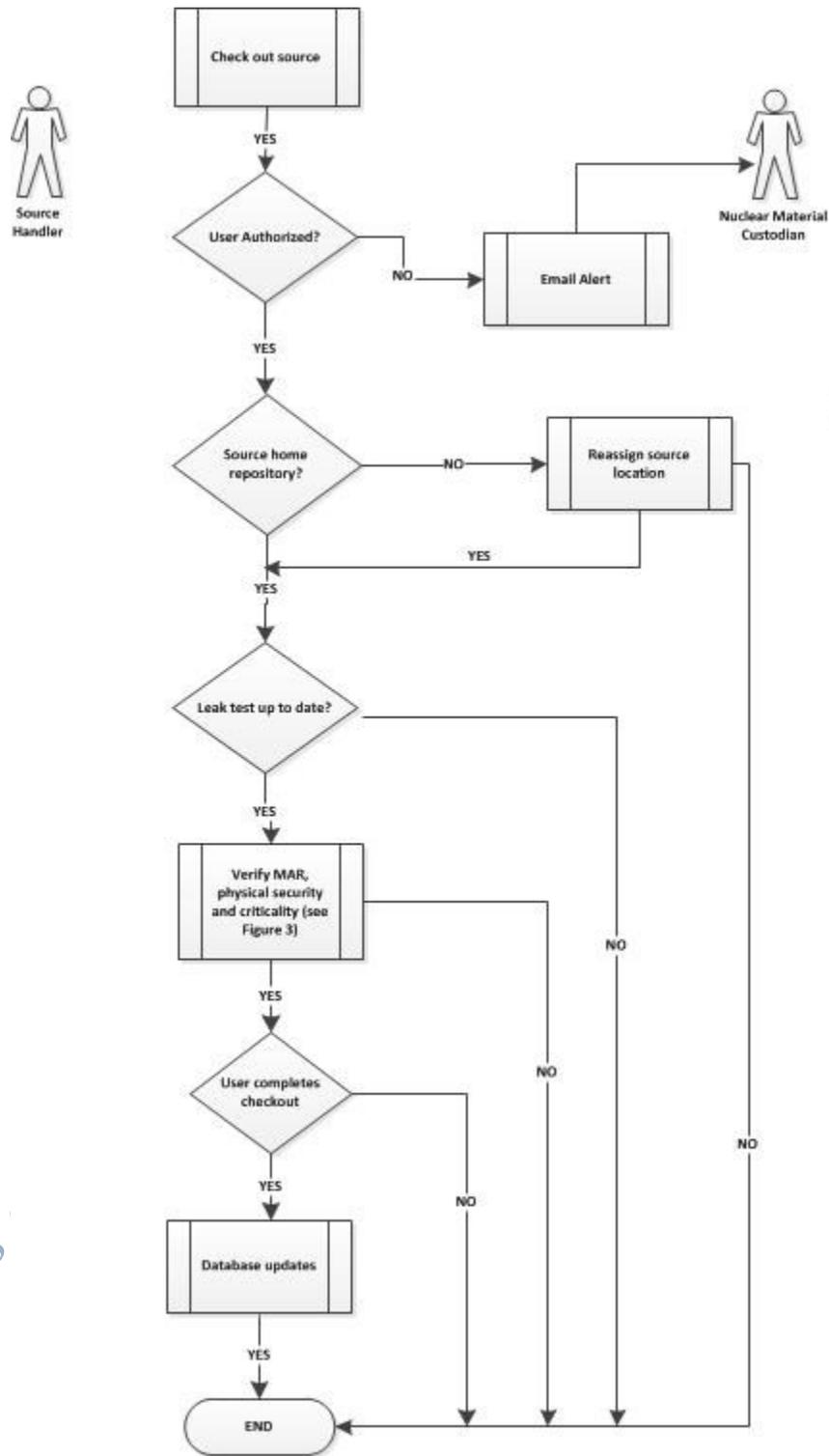


FIGURE 4: Program sequence for source check out

**SR4 - Return Source to Home Repository (1)**

A capability must be provided to return a source that has been removed from its home repository back to its home repository.

SR4.1 - The user must enter the bar code of the source being returned using the barcode scanner.

SR4.2 – It must be verified that the source is currently removed from its home repository.

SR4.3 – A return must be performed at the home repository.

SR4.4 – The database must update the source location to its home repository.

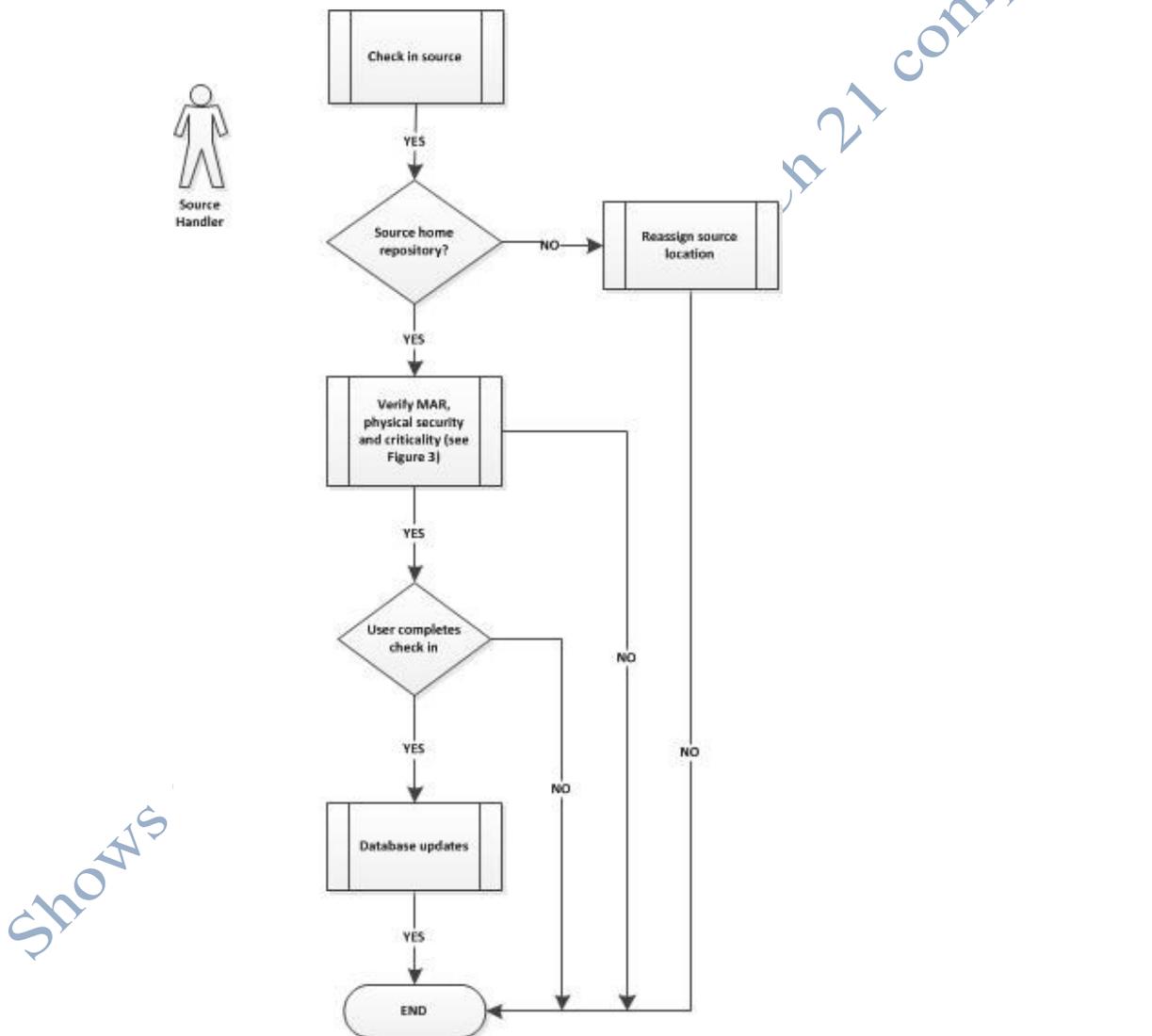


FIGURE 5: Program sequence for source check in

### **SR5 - Re-Assign Source's Current Location and/or Owner (1)**

A capability must be provided to any user to transfer a source from a location other than its home repository to another location that is also not its home repository.

SR5.1 - The user that wants to be the new owner of the source must enter the bar code of the source and his/her Z number using the barcode scanner, and must be an authorized user. Note: the new owner is allowed to be the current owner also.

SR5.2 - The user must select the new location. Note: the new location is allowed to be the current location also.

SR5.3 - A display must be presented indicating the source description and the transfer details.

SR5.4 - The user must be given the opportunity to complete the transfer, cancel the transfer, or complete the transfer and continue with additional transfers.

SR5.5 – If the transfer transaction completes successfully, the database must be updated with the new location and new source owner. Note: it is possible that only the location or only the owner will actually change.

SR5.6 - If the user cancels the operation, no database update will be made.

The reassignment sequence is nearly identical to the checkout process, except that the user being assigned the source could either be the current owner or another source handler.

### **SR6 - Transaction Log new (3)**

A log of transactions must be kept in the database for a minimum of one year.

SR6.1 – Every source transaction in **Source Tracker** will be logged with a time/date, user, source information and transaction detail.

SR6.2 – NMC's may access a report of all transactions in a date range (start date/time, end date/time). This report may be emailed.

### **SR7 - Browse Sources (1)**

A capability must be provided to display a list of all sources in the database.

SR7.1 – The user must enter his/her Z number using the barcode scanner and must be an authorized user.

SR7.2 – The information displayed for each source must include the bar code number, source ID, isotope type, activity level, current owner, location, photograph of the source and photograph of the source packaging certification (if it exists) and mass value.

SR7.3 – The user must be allowed to sort the displayed sources by bar code number, source ID, activity value, or mass value. Note: sources should be sorted in ascending order by the chosen characteristic.

SR7.4 – The user must be allowed to select which sources are displayed based on search criteria. Note: any combination of search criteria should be allowed.

SR7.4.1 – The user must be allowed to display only sources of a specified source type or all possible source types.

SR7.4.2 – The user must be allowed to display only sources containing a specified isotope or all possible isotopes. The user must be able to select any particular isotope found in the database.

SR7.4.3 – The user must be allowed to display only sources currently located in specific locations or select all possible locations. The user must be able to select a particular room or building.

SR7.4.4 – The user must be allowed to display only sources currently owned by a specific authorized user, all sources not currently owned (in a repository), all sources with an owner (not in a repository), or select all possible owners (in a repository or not). Note: a quick way for a user to search for sources he/she owns should be provided.

SR7.4.5 – The user must be allowed to display only MAR (non-exempt) sources or all sources (CAT 3 or not). The user must be able to select MAR sources by building. When the user selects to display only MAR sources, the information displayed for each source must also include the MAR contribution (fraction) of each isotope.

SR7.5 – The user must be able to view additional details about a source. Note: additional details may include last inventory date, last leak test date, when checked out (if it is checked out), source description, MAR building limit contribution, whether it is an exempt source, source packaging certification (when it exists) and whether it is a MASS source.

SR7.6 – The user must be able to view a picture of each source if one is available.

SR7.7 -- The user must be able to view a list of his/her sources that they currently have checked out.

**SR8 - Display Category 3 MAR Status for each of the Radiation Facilities (1)**

A capability must be provided to display Category 3 MAR status for each building.

SR8.1 – The user must enter his/her Z number using the barcode scanner and must be an authorized user.

SR8.2 – The MAR levels for each building must be calculated and displayed as percentages of allowable limits. For each building, the checked-out RAD can totals, and the total of those values will be displayed. Note: A quick way for a user to display all MAR sources for a building should be provided.

**SR9 - Display Category IV Physical Security Status for each of the MBAs (1)**

A capability must be provided to display Category IV Physical Security status for each MBA.

SR9.1 – The user must enter his/her Z number using the barcode scanner and must be an authorized user.

SR9.2 – The CAT IV attractiveness levels for each MBA must be calculated and displayed. For each MBA, the B, C, D, and E attractiveness totals for both Plutonium and Uranium must be displayed.

**SR10 - Display Criticality and Fuel Rod Status for each of the Radiation Facilities (1)**

A capability must be provided to display criticality status for each building.

SR10.1 – The user must enter his/her Z number using the barcode scanner and must be an authorized user.

SR10.2 – The total grams of material contributing to the criticality limit for each building must be calculated and displayed along with the building's criticality limit. For each building, the number of fuel rods currently at the building must also be displayed (if applicable) along with the limit for the number of fuel rods allowed at that building.

**SR11 – Sample Source Transaction (2)**

SR11.1 – A capability must be added to perform a test source transaction to determine whether the transaction would exceed MAR, physical security, fuel rod or criticality limits.

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**NOTE: The following are NMC functions that are not accessible to a general user.**

**SR12 - Confirm inventory (1)**

A capability must be provided to confirm source inventory. Note: An inventory of all registered sources is required by the Department of Energy (DOE) every six months.

SR12.1 – The Custodian must enter his/her Z number using the barcode scanner and must be an authorized Nuclear Material Custodian.

SR12.2 – The Custodian must select which sources to inventory. The Custodian must have the option to choose all sources, only checked-out sources, or only checked-in sources. The sources chosen must be displayed. Note: The information displayed for each source may include source bar code number, source ID, current owner, and current location. A quick way for the Custodian to browse sources without affecting the inventory process should be provided.

SR12.3 – A running total must be displayed of sources that need to be confirmed, sources already confirmed, and sources that are unexpected (found at a location other than the current location in the database).

SR12.4 – The Custodian must enter the bar code of the source being inventoried using the barcode scanner. The inventory date for that source must be updated in the database.

SR12.5 – If the leak test for a source being inventoried has expired, a message must be displayed stating that, along with the last leak test date. Note: the leak testing being out of date should not stop the source from being confirmed for inventory purposes.

SR12.6 – If the source is in an unexpected location, a message must be displayed stating the expected location (the current location logged in the database).

SR12.7 – If the Custodian quits confirming sources before the chosen sources are all confirmed, a message must be displayed warning the Custodian that the inventory is incomplete.

SR12.8 – When the Custodian has finished inventorying sources, a summarized list of sources just confirmed must be sent to the Custodian in an email message. If a source is found in an unexpected location, it must be included in the summarized list. If the Custodian cancels the inventory process, the summarized list of sources confirmed must be displayed. Notes: The summary information is displayed upon cancellation because the email message may not be sent for an

incomplete inventory. The database is updated for all inventoried sources regardless of an email notification being sent or not.

**SR13 - Transfer a source permanently from one location to another (2)**

A capability must be provided to change the home repository of a source.

SR13.1 – The Custodian must enter his/her Z number and be an authorized Custodian.

SR13.2 – The Custodian must enter the bar code of the source to transfer.

SR13.3 – The MAR and criticality limits for the destination location are checked to verify that no limits will be exceeded by the transfer.

SR13.4 – The Custodian must select the new home repository location. The source must be allowed to be transferred only to locations approved for permanent storage of a radioactive sealed source. Note: the Custodian should be provided with a list of buildings and rooms that the source can be transferred to (approved home repository locations).

SR13.5 - A display must be presented indicating the source description and the transfer details.

SR13.6 - The user must be given the opportunity to complete the transfer or cancel the transfer.

SR13.7 – If the transfer transaction completes successfully, the database must be updated with the new location.

SR13.8 - If the user cancels the operation, no database update will be made.

SR13.9 – If the source being permanently transferred is a MASS source, a message must be displayed that the MASS system must also be updated manually. **Source Tracker** does not currently interface with the MASS system.

**SR14 - Create a summary csv file of all sources (3)**

A capability must be provided to write summary information about all sources in the database into a formatted file and saved in a user-defined directory, or emailed.

SR14.1 – The Custodian must enter his/her Z number using the barcode scanner and must be an authorized Nuclear Material Custodian.

SR14.2 – The information for each source must include bar code number, source ID, isotope, initial activity date, initial mass value, initial activity, activity from mass, difference between initial and current activity (as a percentage), current activity, home repository (storage location), current location, current owner, last

leak test (last swipe) (date and time), last inventory (date and time), and MAR contribution (as a percentage).

SR14.3 – The csv file must be emailed to the Custodian and a message must be displayed confirming that the file was sent to the Custodian.

#### **SR15- Edit program parameters (1)**

A capability must be provided to edit program parameters.

SR15.1 – The Custodian must enter his/her Z number using the barcode scanner and must be an authorized Nuclear Material Custodian.

SR15.2 – The Custodian must be allowed to set the current location of a client computer. Note: this parameter is needed so that any client computer can be set up at any defined home repository location.

SR15.3 – The Custodian must be allowed to set leak test parameters, which specify intervals allowed between leak tests. The parameters include days permitted for non-MASS sources, extra days permitted and days permitted for accountable MASS sources. Note: leak test requirements are specified in ISD 121-1.1.

SR15.4 – The Custodian must be allowed to force the system to operate in test mode. Test mode allows operation of **Source Tracker** to an alternate database in order to test software components prior to release.

SR15.5 – The Custodian must be allowed to set the main database connection string.

#### **SR16– Record Leak Testing (1)**

A capability must be provided to record that a source was leak tested. Note: sources must be leak tested periodically as defined in ISD 121-1.1.

SR16.1 – The Custodian must enter his/her Z number using the barcode scanner and must be an authorized Nuclear Material Custodian.

SR16.2 – The Custodian must select which sources to leak test. The Custodian must have the option to choose all sources, only checked-out sources, or only checked-in sources. The sources chosen must be displayed. Notes: The information displayed for each source may include source bar code number, source ID, current owner, and current location, depending on whether it is currently checked out or not. A quick way for the Custodian to browse sources without affecting the leak test recording process should be provided.

SR16.3 – A running total must be displayed on the screen of sources that need to be leak tested, sources already leak tested, and sources that are unexpected (found at a location other than the current location logged in the database).

SR16.4 – The Custodian must enter the bar code of the source being updated using the barcode scanner. The leak test date for that source should be entered by the Custodian and the leak test date information must be updated in the database.

SR16.5 – The Custodian must have the option to also confirm the inventory of a source when the leak testing is recorded. If the Custodian chooses to confirm the inventory at the same time, the inventory date for that source must be also be updated as leak testing is recorded.

SR16.6 – If the source is found in an unexpected location, a message must be displayed stating the expected location (the current location logged in the database).

SR16.7 – If the Custodian quits recording sources before the chosen sources are all recorded, a message must be displayed warning the Custodian that the leak testing is not complete.

SR16.8 – When the Custodian has finished recording sources, a summarized list of sources just recorded must be sent to the Custodian in an email message. If a source is found in an unexpected location, it must be included in the summarized list. If there are any selected sources still needing leak testing, they must also be included in the summarized list. If the Custodian cancels the leak test recording process, the summarized list of sources must be displayed. Notes: The summary information is displayed upon cancellation because the email message may not be sent. The database is updated for all leak tested sources regardless of an email notification being sent or not.

### **SR17 – Verify leak testing (1)**

Before a transfer is made of a source from one location to another, the leak testing status of that source must be checked to see if the leak testing is out of date or not. Note: leak test parameters are specified in ISD 121-1.1.

SR17.1 – If leak testing is past due, there must be a warning message displayed indicating that the leak testing is out of date. The source may still be transferred if the leak testing is out of date.

**SR 18 - Automatic Database Backups (1)**

An automatic backup must be made of the central database every day.

SR18.1 – The backup file names must include the date. Note: this is needed so that it is obvious when the backup was made.

SR18.2 – If a system outage or error prevents a backup from being performed at its regularly scheduled interval, an email regarding backup failure should be mailed to the System Administrator.

**SR 19 – Manually input MAR (CAT 3) contribution value for a source (1)**

A capability must be provided for the Custodian to manually enter a MAR (CAT 3) contribution override value used when verifying MAR limits. Note: If no override value is entered for a source, **Source Tracker** calculates the MAR contribution value.

**SR20 – Time-out timers (2)**

A time-out timer must be provided for each transaction such that if the user does not complete a transaction within a time limit, the transaction is cancelled and the screen returns to the main menu. Note: this is needed so that a user or Custodian doesn't accidentally enter their Z number and leave the computer open for anyone (unauthorized people) to make changes.

**SR21 – Add/Delete/Modify Source Information (1)**

A capability must be provided to add, delete, and edit source parameters.

SR21.1 – The Custodian must enter his/her Z number using the barcode scanner and must be an authorized Nuclear Material Custodian.

SR21.2 – The Custodian must be given the option to add, edit or delete a source.

SR21.3 – The Custodian must enter the data using the touchscreen and barcode scanner. This includes bar code, source ID, isotope (must be able to have multiple isotopes), enrichment, activity (with units in a pull-down menu), mass (with units in a pull-down menu), RSSDMS number, MASS source, exempt source, dose rate, description, U attractiveness level, Pu attractiveness level.

SR21.4 – The software shall allow photos of the source and certificates of repackaging to be entered into the database. When source information is displayed, the option to display these photos will be available.

**SR22 – Add/Modify User Information (1)**

A capability must be provided to add, or edit authorized users.

SR22.1 – The Custodian must enter his/her Z number using the barcode scanner and must be an authorized Nuclear Material Custodian.

SR22.2 – The Custodian must be given the option to add or edit a user record.

SR22.3 – The Custodian must enter the data using the touchscreen and barcode scanner. This includes bar code, name, email, group and user roles.

### 3.3 Performance Requirements

#### **SR 23 – Procedure in case of network outage (1)**

SR 23.1 If the yellow network is down, the case must be handled when the central source database is not available. The **Source Tracker** software will disallow all source transactions during a network outage. Manual procedures may override **Source Tracker** control if outage is longer, see Custodian Manual.

### 3.4 System and Communication Requirements

#### **SR24 –Email notification Requirements**

**Source Tracker** must send emails as required by the software. Reports, alerts and inventory information must be sent by the program. The program must allow custodians' and system administrators' email addresses to be accessed for the following alerts:

SR 24.1 -- Notification for MASS transactions.

SR 24.2 -- Notification if MAR > 80%.

SR 24.3 -- Reports that are emailed shall be in comma separated variable format for easy import to Microsoft Excel.

SR 24.4 – When adding sources to the database, notifications and approvals shall go to all custodians other than the initiating custodian.

SR 24.5 -- Alerts for unauthorized actions (e.g. unauthorized user tries to log in).

SR 24.6 -- Scheduled check to verify that sources are placed in permanent storage locations at close of business.

### 3.5 System Security Requirements

The software system runs on the yellow network and all data stored in the databases are unclassified. Sources are held in rooms with restricted access, so physical security of the system is managed through user authorization to enter source locations.

#### **SR25 – Limit Operations and Disallow User from Exiting Source Tracker**

SR 25.1 -- **Source Tracker** runs on the yellow network and is also accessed by foreign nationals. In order to comply with cyber security requirements, users should not be allowed to access any computer operations except through the **Source Tracker** interface.

SR 25.2 – Custodians should be able to shut down the **Source Tracker** executable through the Custodian menu.

### 3.6 Back-up and Recovery Requirements

Every six months, coinciding with required inventories, the most recent database backup will be stored in the source code repository. Also, for disaster recovery purposes, an official copy of everything needed to build a **Source Tracker** software system from scratch will be stored in the source code repository.

### 3.7 Support Considerations

A system administrator must be appointed to handle any system or software failures of the **Source Tracker** software. This support staff must assign a backup staff member in cases where they are on travel or vacation.

### 3.8 Hardware Requirements

Refer to Figure 1 in Section 2.1.1 for a hardware diagram. **Source Tracker** requires client computer systems capable of running the Microsoft® Windows 7™ operating system and requires the server computer system capable of running the Microsoft® Windows Server 2008 operating system. The computer systems must be Pentium-4 or newer PCs with 20 Gb disks (at a minimum). Other required client hardware includes a touch screen monitor (of at least 1280 X 1040 screen resolution) and a bar code scanner. The server computer system requires a keyboard and mouse.

Shows concepts; not reviewed for 21 compliance