Los Alamos NATIONAL LABORATORY

Nuclear Nonproliferation (N) Division

Title: **Software Test Plan for Source Tracker Software**

Number: **N-ST-TP**	Revision: 3.1	Page 1 of 136

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HISTORY OF REVISIONS

Revision Number	Approval Date	Change Description
Revision 1.0	5/10/05	Original Issue
Revision 1.1	2/10/05	Modifications to plan after testing in May 2005
Revision 2.0	10/25/06	Updated to include additional program enhancements and bug fixes for Source Tracker Rev. 11.14.06.
Revision 3.0	12/11/07	Updated to conform to LANS Software Quality Assurance Standards. Addition of Support Program testing. Enhancement of MAR and CAT-IV.
Revision 3.1	1/29/08	Final editing and format changes. Additional scope added to meet SRS items.

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1. Overview

This document is the test plan referenced in the Source Tracker Software Project Plan (N-ST-SPP). Testing documented here-in meet the requirements specified in the Source Tracker Software Requirements Specification (N-ST-SRS). The *Source Tracker Requirements Traceability Matrix*, N-ST-RTM, maps requirements in the SRS to test cases in this document. The main purpose of this plan is to verify by testing all of the functional tasks performed by Source Tracker, ensuring that calculations concerning MAR and CAT IV are correct and ensuring that the necessary support programs work as intended. Purpose of Test

The primary tests performed in this plan will verify:

- Removal, return, and reassigning of sources
- Custodian operations to perform inventory checks
- Edit program parameters
- Leak Test Checks
- Calculating Thresholds
- Browse Items
- Input MAR Manually
- SNM Item Check
- Automatic and manual Backups of the database
- Physical Security (CAT IV) verification
- MAR (CAT 3) verification

It is expected that testers will be personnel familiar with Source Tracker. It is anticipated that the tests will be conducted at Los Alamos by the Source Tracker custodian prior to the installation of the software on the existing Source Tracker systems.

1.1. References

[DOE-STD-1027-92]	Hazard Categorization and Accidental Analysis Techniques for Compliance with DOE O 5480.23, Nuclear Safety Analysis Reports, Change Notice No.1, September 1997
[LA-12981-MS]	Table of DOE-STD-1027-92 Hazard Category 3 Threshold Quantities for the ICRP-30 List of 757 Radionuclides, Rev 1, 10/16/02.
[DOE M 470.4-6]	Nuclear Material Control and Accountability, Change 1 08/14/06.
[DOE M 470.4-7]	Safeguards and Security Program References, Change 1 08/26/07.
[ISD 121-1.0]	LANL Implementation Support Document Radiation Protection, 10/24/06.
[N-ST-SRS]	Source Tracker Software Requirements Specification, found in the "Source Tracker" SourceForge project.
[N-ST-SD]	Source Tracker Software Design, found in the "Source Tracker" SourceForge project.
[N-ST-SP]	Source Tracker Safety Plan, found in the "Source Tracker" SourceForge project.

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[N-ST-UM]	Source Tracker User's Manual, found in the "Source Tracker" SourceForge project.
[N-ST-CM]	Source Tracker Custodian's Manual, found in the "Source Tracker" SourceForge project.
[N-ST-QP]	Source Tracker Qualification Plan, found in the "Source Tracker" SourceForge project.
[N-ST-RL]	Source Tracker Risk List, found in the "Source Tracker" SourceForge project.
[N-ST-ML]	Source Tracker Materials List, found in the "Source Tracker" SourceForge project.
[N-ST-RTM]	Source Tracker Requirements Traceability Matrix, found in the "Source Tracker" SourceForge project.
[CIO-ST-TIVOLI]	Dale H. Leschnitzer, Margery Miller, Testing Document for Backup and Recovery of AIX/Oracle Environments Using Tivoli Storage Manager, 3/30/2004, LANL Office of the CIO, BC/DR.
[CIO-ST-REMOVABLE MEDIA]	Dale H. Leschnitzer, Margery Miller, *Testing Document for Backup and Recovery of Windows/Citrix Environment Using Removable Media*, 9/20/2004, LANL Office of the CIO, BC/DR.

1.2. Definitions and Acronyms

CAT 3	Category 3 – based on hazard safety. A facility is classified as either Hazard Category 1, 2, or 3 depending only on the quantities of radioactive Material at Risk (MAR) in the facility. Only facilities which fall below the Category 3 threshold are exempt from the requirements of DOE Order 5480.23. MAR limits are defined in DOE-STD-1027-92 and the supplement table LA-12981-MS.
CAT IV	Category IV – based on security. Nuclear material is designated as Category I, II, III, or IV, as determined by quantity and attractiveness level of the material. Category and attractiveness levels are defined in DOE M 470.4-6 and DOE M 470.4-7, respectively.
COTS	Commercial off The Shelf – software purchased from an outside vendor
CTN	Computing, Telecommunications, and Network (Division)
Custodian	A person who is assigned by the Group Leader and authorized to use the Source Tracker to perform administrative tasks and to meet regulatory compliance requirements. Also known as Source Custodian.
CVS	Concurrent Versions System – a configuration management system
Exempt	A source that is within an ANSI certified container. An exempt source does not count against MAR totals and thus has a MAR value of 0.
Home Repository	The resident location of a source when it has not been checked out and moved by a user. Also known as storage location.
MAR	Material at Risk – MAR sources are radioactive materials used in terms of hazard safety (e.g. CAT3) reasons.
MASS	Material Accountability Safeguards System – System used for tracking nuclear materials based on security (e.g. CAT IV).
MASS Location (ML)	Nuclear materials held only in defined, identified, and approved locations that appear on MASS and that are considered valid locations for nuclear

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	materials.
MBA	Material Balance Area – each MBA is authorized to contain a category level of nuclear material based on the quantity of nuclear material needed for operations and the implementation of requisite security systems and procedures as defined by DOE orders and vulnerability analysis.
NISC	Nonproliferation and International Security Center
Non-Accountable RSS	An RSS whose current isotopic activity is less than the corresponding value listed in Appendix 16A, ISD 121-1.0 or whose radioactive half-life is less than 30 days.
POC	Point Of Contact
Pu	Plutonium
RSS	Radioactive Sealed Source
SPP	Software Project Plan
SQA	Software Quality Assurance
SRS	Software Requirements Specification
TP	Test Plan
User	A person who is authorized to use the Source Tracker program in order to perform work tasks involving the use of sealed sources.

2. Test Methodology

The tests, including regression testing, described in this Test Plan will be performed according to the processes described in the Software Project Plan.

2.1. Regression Testing

Maintenance – In the future, software change requests (new functionality, enhancement) and software problem reports will be the subject of documented requests. After completion of the modification, regression tests will be performed to be sure that the modification made on one part of the software does not corrupt any other parts of the software. Section 6.7 of the Source Tracker Software Project Plan, N-ST-SPP, describes the change request process. The tests chosen for regression testing should include all sections possibly affected by the change request. In addition, a few of the MAR Verification steps should be performed.

2.2. Acceptance Testing

Software testing results are provided within this Test Plan. Ideally the software will meet all the criteria identified. If a test step fails to meet test requirements, the failure will be noted and the test procedure continued to completion, if possible. The test failure will be evaluated for resolution. If the failure is determined to be a failure of the test procedure (not a software failure), the test will be revised and testing will continue. Should critical portions of the test fail to meet acceptance specifications; the Developer will be tasked to reconfigure the software before testing resumes, after which appropriate regression testing will be performed. This iterative cycle will continue until the test results meet all the criteria within this Test Plan. Thus, the Test Plan also serves as the testing document of record whose results are reviewed and signed by responsible authority. A Sign off Sheet has been provided as Appendix A.

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3. Test Environment

A user with custodian privileges is required to run many of the tests described below.

3.1. Equipment Required to Execute the Test

Computer hardware with these minimum capabilities (more or faster is better):

- Pentium-4 or higher PC running Windows 2000 or Windows XP with a 20 Gb Mb disk.
- Color monitor with 1280 x 1040 resolution
- Bar code reader for user input when not in Test Mode. A mouse when in Test Mode.
- Keyboard or touch screen for user input
- Source Tracker Installation software as described in detail in Sections 6 and 7.

3.2. Software Test Procedures Required to Execute the Test

Tester will need:

- Source Tracker Version 2.0 software
- Microsoft Access 2000 database
- Microsoft Windows XP or Windows 2000 operating system

Test procedures are presented with a purpose, test goals, and process steps. The steps that require verification are numbered in the text so that the tester can check either PASS or FAIL at the end of the test.

3.3. Database

Source Tracker uses an Access database. When testing upgrades to software, careful attention must be made so that inadvertent warnings via email and changes to the existing database do not occur. In addition, it may be necessary to add factious "test" sources to the database in order to check out Source Tracker's functionality completely. The following items should be considered prior to testing Source Tracker on a computer that is connected to a network.

- From the Authorized Users Table: All users listed should be set to deactivated except for the specific user's necessary for the test. Their permissions should be set as appropriate.
- From the Warnings Table: deselect all types of warnings specified. Apply warning values to specific users involved in the test.

4. Source Tracker Startup

Upon execution of the Source Tracker software, the program performs a backup of the database, and tallies the Category 3 and Category IV sums.

4.1. Startup

4.1.1. Purpose

Verify that the program performs an automatic backup upon startup if the flag is set for automatic backups. Verify that the sums for the Category 3 and Category IV contributions are performed.

Example

4.1.2. Input

The database flag is set to true on startup. This is a checkbox in the *Custodian Operations Edit Parameters option* of the Source Tracker software. To set this flag requires custodian privileges

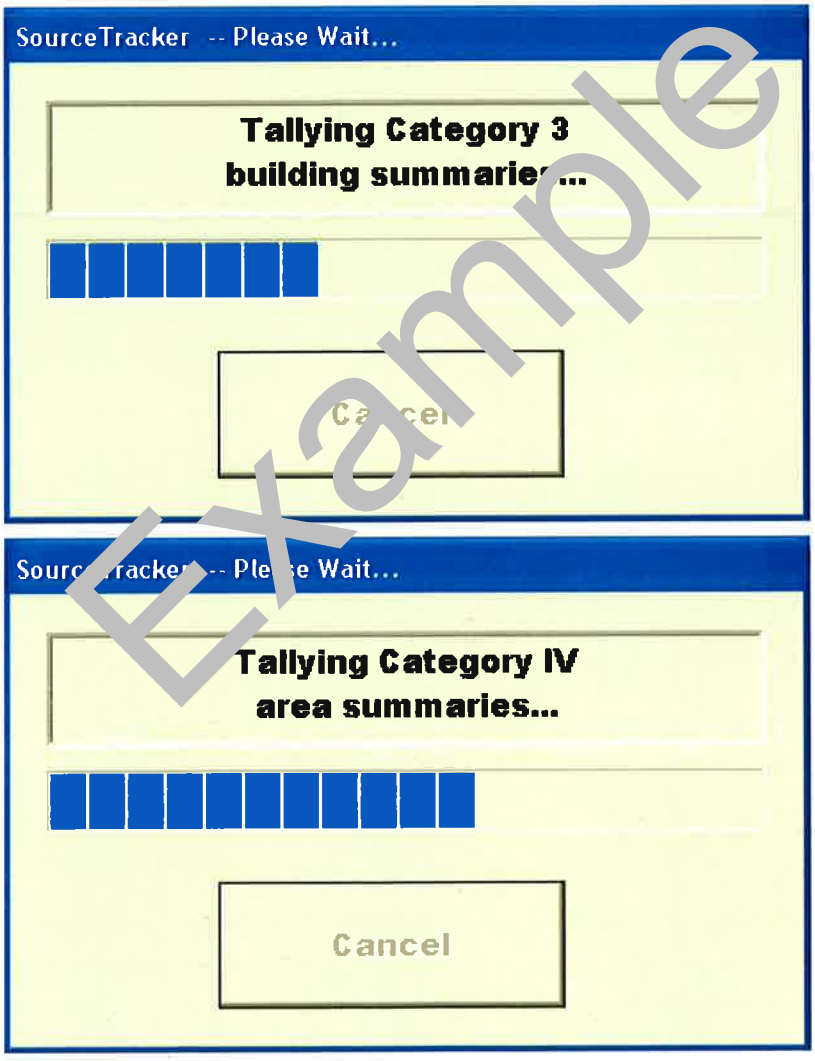
4.1.3. Output

The database is copied to a backup database defined in the *Edit Parameters* option of the Source Tracker software.

4.1.4. Process Steps

- Click on the Source Tracker icon to begin execution.

___1. Verify that the Category 3 and Category IV tallying messages are displayed.



Example

Table 4.1 Tests for Source Tracker Startup

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
1	Message: Tallying Category 3 and Category IV	Pass ☐ Fail ☐
Comments		

Example

5. Functional Requirements

5.1. Determine Test Sources and Confirm Default Settings

5.1.1. Purpose

To determine which sources can be used for the various tests and to also make sure the computers are set with the proper defaults.

5.1.2. Input

None

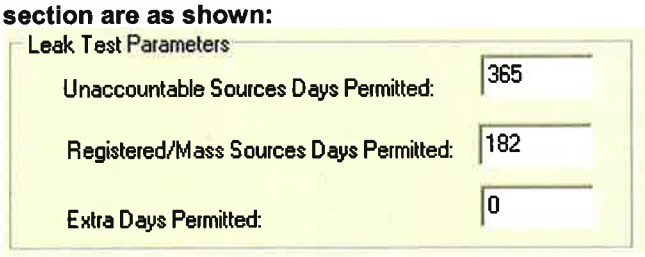
5.1.3. Output

None

5.1.4. Process Steps

- Open the Database using Microsoft Access
- Open the Authorized Users Table
- Pick a Custodian account and a non-Custodian account and make note of their ZNumbers. Note if these accounts will receive emails and thus, they should be notified prior to testing.
- Close the Authorized Users Table and open the Sources Table.
- Pick 4 sources. Source #1 will be an Exempt MASS Source, Source #2 will be a Non MASS source, Source #3 will have a CAT IV PU Attractiveness of C, and Source #4 will be a non-exempt MASS Source. Make sure the storage location of the sources is the same as the PC you will be testing. Check to see if the sources are checked in. If not, check them in to their home location.
- Close the Access Database
- Click on Custodian Operations in Source Tracker
- Enter a Custodian's ZNumber
- Click on Edit Program Parameters
- Take note of "This Computer's MASS Location." Also take note of a location that is in a different MASS location for use in some tests. This information can be found in the database fields "Location" and "MASS Locations."

___2. Verify that the following numbers in the Leak Test Parameters section are as shown:



- Click OK

Example

- Click Return to Main Menu

Example

Table 5.1 Tests for Determine Test Sources and Confirm Default Settings

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
2	Verify the following numbers in the Leak Test Parameters	Pass ☐ Fail ☐
Comments		

Example

5.2. Remove Source from Home Repository

5.2.1. Purpose

Verify that the user can move a source from one MBA to another MBA. Verify that if the source is a MASS source a message is displayed requiring a MASS authorized user is present for the transfer.

5.2.2. Input

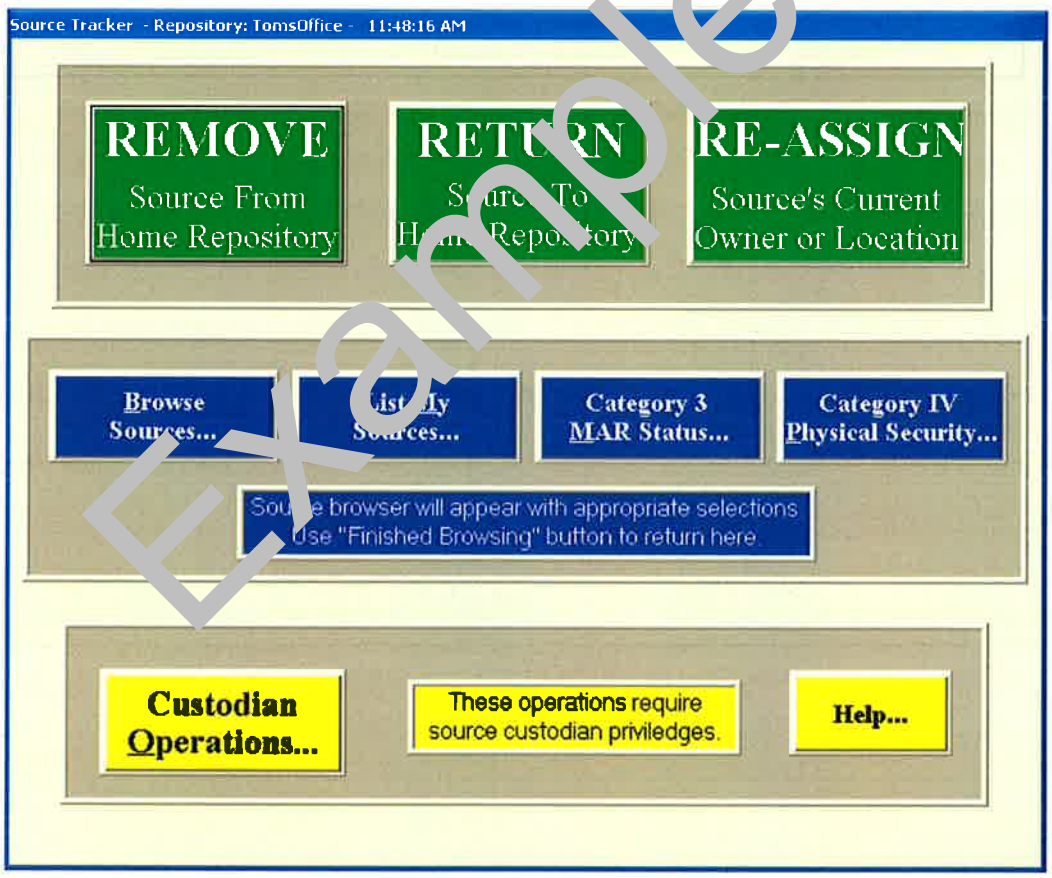
The user Z number and source id are required input.

5.2.3. Output

The database is updated to show the transfer data.

5.2.4. Process Steps

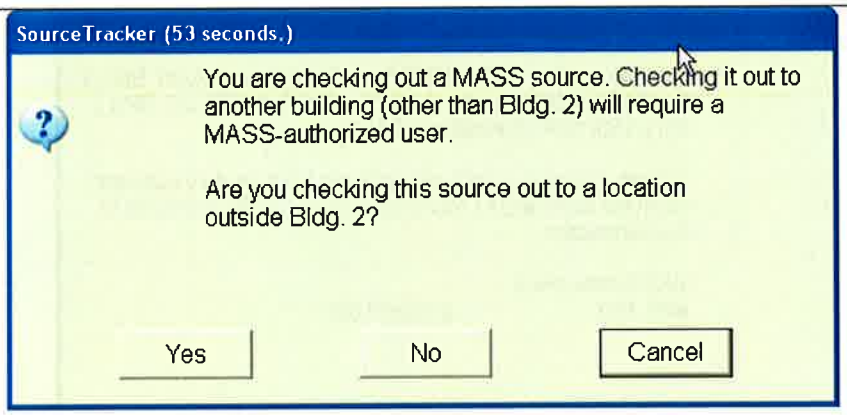
- Select "REMOVE Source From Home Repository"



Example

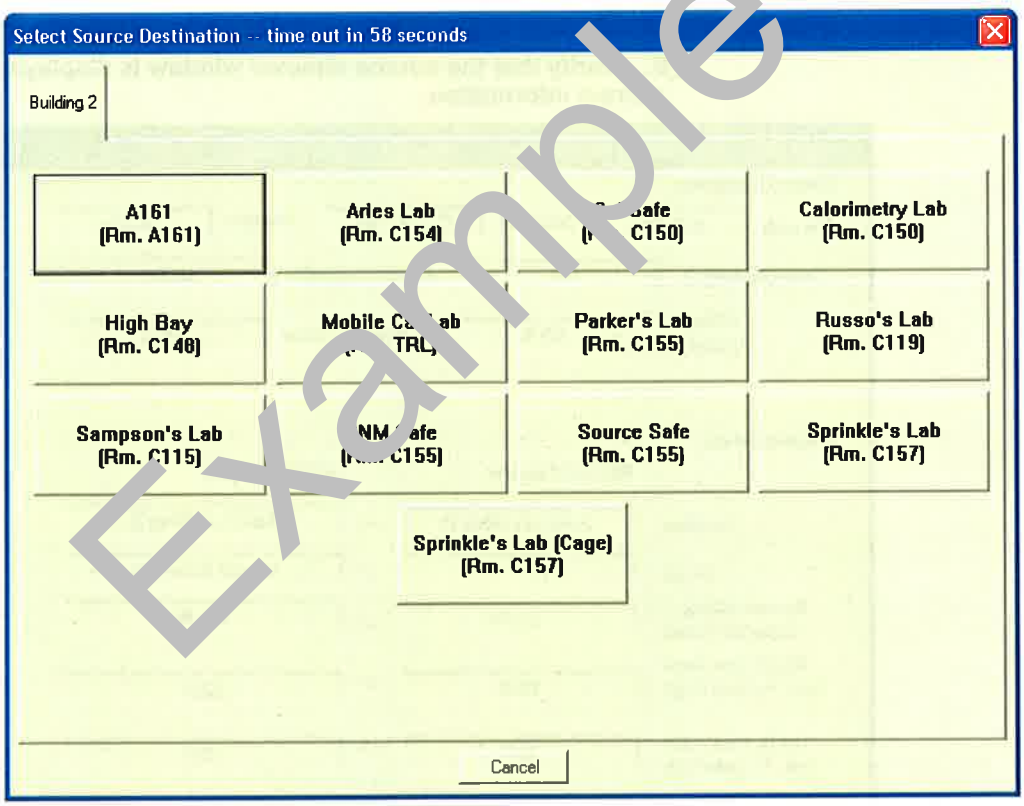
- Enter Source #1 barcode and user Z# by scanning the barcode on the source and user badge.

___3. Verify that checking out a source message is displayed after entering the source barcode.



- Select **No**.

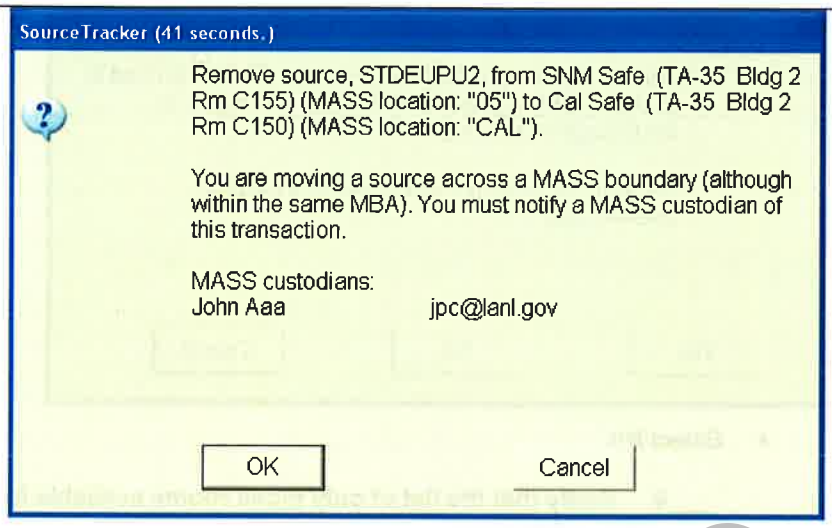
___4. Verify that the list of only those rooms available in the same MBA is displayed.



Example

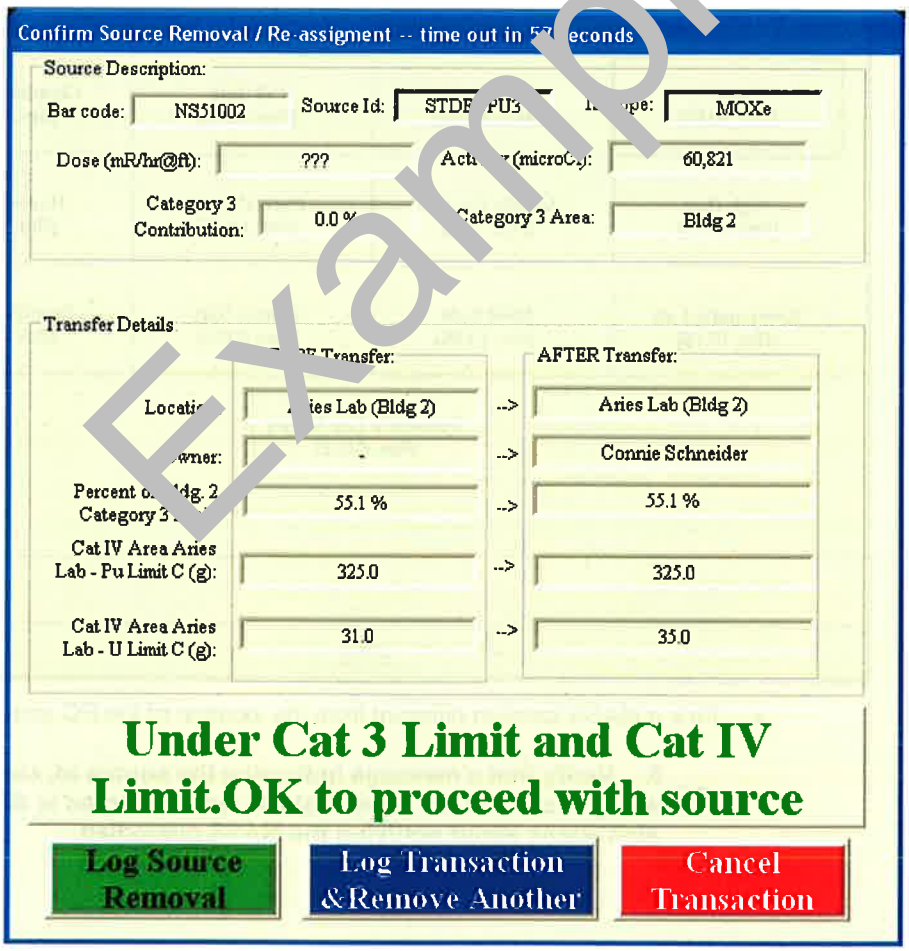
- Pick a MASS location different from the location of the PC you are testing.

___5. Verify that a message indicating the source id, current room assignment and the room that has been selected is displayed and also warns about notifying the MASS custodian.



- Click on OK.

___6. Verify that the source removal window is displayed with the correct information.



- Click on the **Cancel Transaction** button.

___7. Verify that the program returns to the main window.

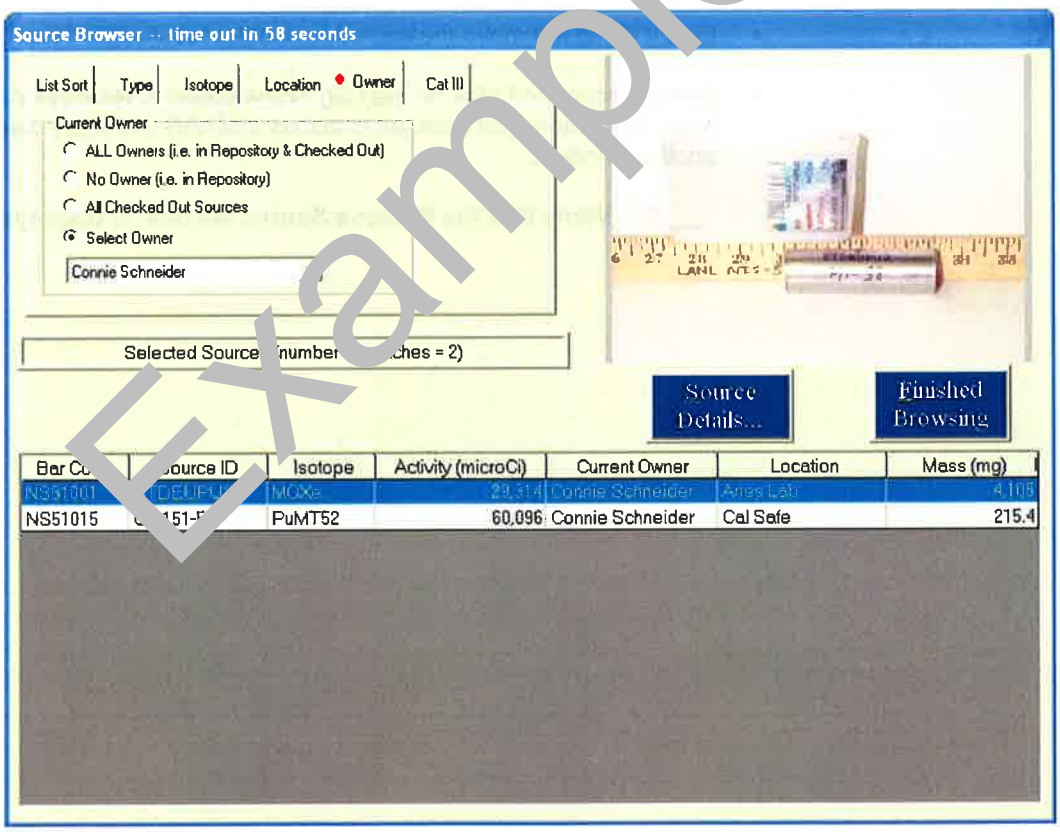
Example

- Select "REMOVE Source From Home Repository".
- Enter Source #1 and the same user id as above.
- Select No at the checking out a source message.
- Select the same room as above.
- Select OK at the source removal window

___8. Verify that the source is still registered to the previous owner and has not been transferred.

- Select Log Source Removal button.
- Select the **List My Sources** button.
- Enter the user Z number entered above.

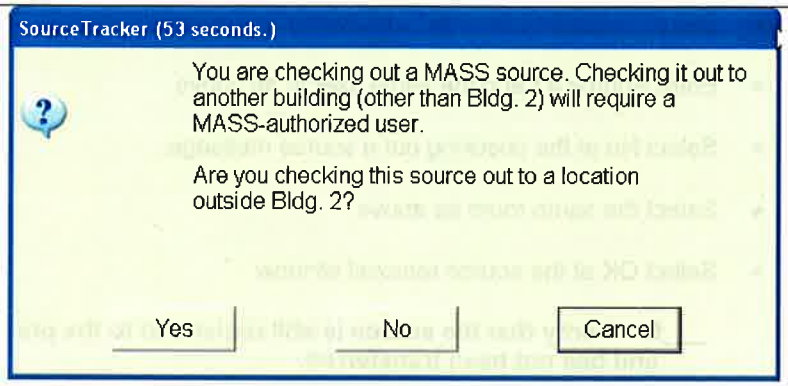
___9. Verify that the source transferred above is listed in the list of sources.



- Select the **Finished Browsing** button.
- Select "REMOVE Source From Home Repository".
- Select Source #3 and user number.

___10. Verify that the following message is displayed.

Example



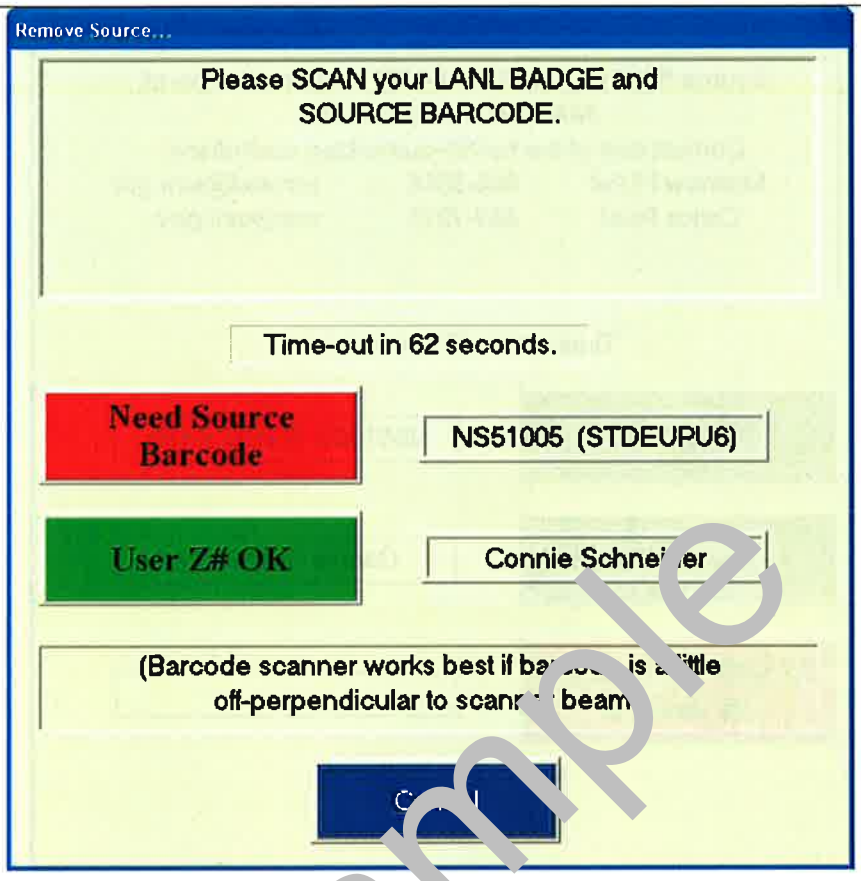
- Select the **Cancel** button.

___11. Verify that the program returns to the main Source Tracker window.

- Select "REMOVE Source from Home Repository".
- Select Source #3 and user number.
- Select **No** to not move the source to another location.
- Select a room and click on the **Log Transaction & Remove Another** button. Note: if the room you selected is across a MASS boundary then you may get another window.

___12. Verify that the Remove Source window is displayed.

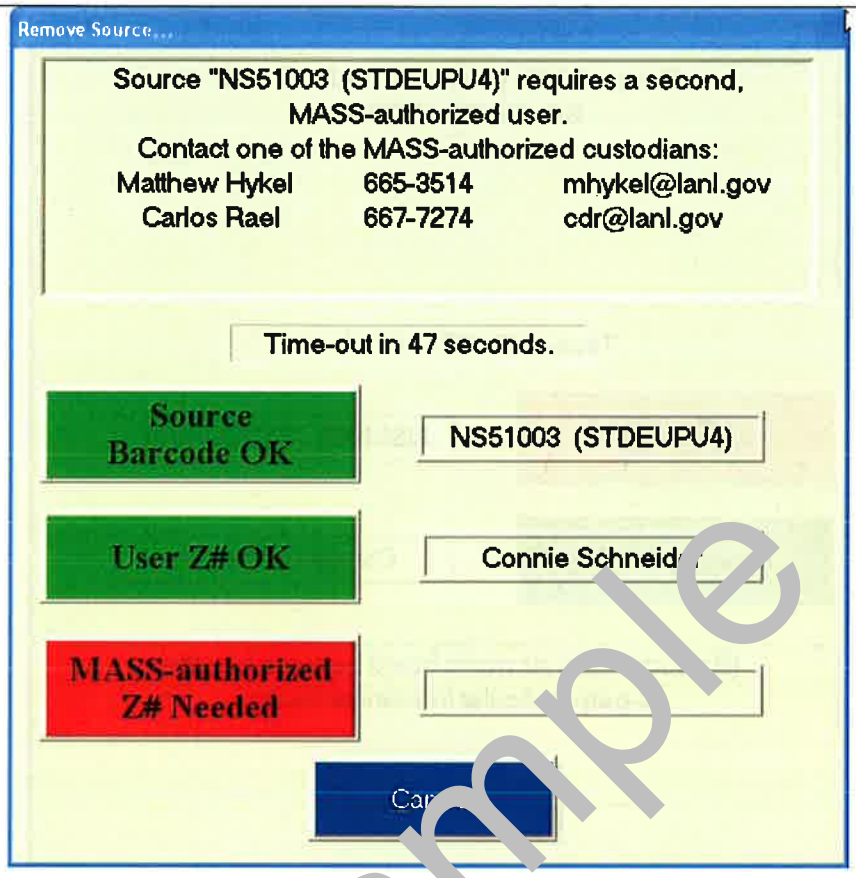
Example



- Select Source #4.
- Select Yes on the message asking if it is being transferred to another MBA

___13. ___ that a MASS Custodian id is required.

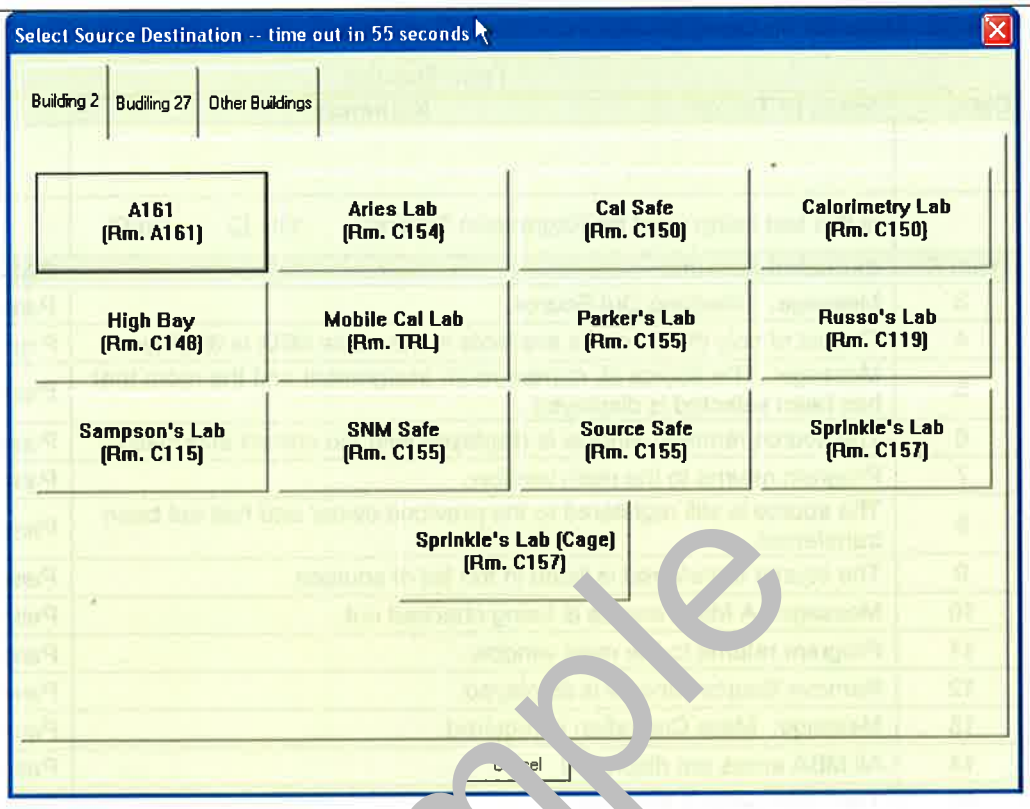
Example



- Enter a MASS custodian id

___14. Verify that all MBA areas are listed. Note: some areas will be greyed out because they are not defined MASS locations.

Example



- Select a building and room that is in another MBA area.
- Click on the Cancel Transaction button.

___15. Verify that the Main Menu is displayed.

- Select Browse Sources…
- Enter a user Z#
- Locate the source id in the list.

___16. Verify that Source #4 has not been transferred.

Example

Table 5.2 Tests for Remove Source from Home Repository

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
3	Message: Checking Out Source.	Pass ☐ Fail ☐
4	The list of only those rooms available in the same MBA is displayed.	Pass ☐ Fail ☐
5	Message: The source id, current room assignment and the room that has been selected is displayed.	Pass ☐ Fail ☐
6	The source removal window is displayed with the correct information.	Pass ☐ Fail ☐
7	Program returns to the main window.	Pass ☐ Fail ☐
8	The source is still registered to the previous owner and has not been transferred.	Pass ☐ Fail ☐
9	The source transferred is listed in the list of sources.	Pass ☐ Fail ☐
10	Message: A Mass source is being checked out.	Pass ☐ Fail ☐
11	Program returns to the main window.	Pass ☐ Fail ☐
12	Remove Source window is displayed.	Pass ☐ Fail ☐
13	Message: Mass Custodian is required.	Pass ☐ Fail ☐
14	All MBA areas are displayed.	Pass ☐ Fail ☐
15	The main menu is displayed	Pass ☐ Fail ☐
16	The source has not been transferre	Pass ☐ Fail ☐
Co ments		

Example

5.3. Return Source to Home Repository

5.3.1. Purpose

Verify that a source that has been removed from its designated "home" location is returned to this location. The source needs to be returned to the location designated as its home location. The computer system where the source's home location is must be used to return it. If the user tries to return a source to its home location from another computer system, an error will occur.

5.3.2. Input

The source id of the source to be returned is required.

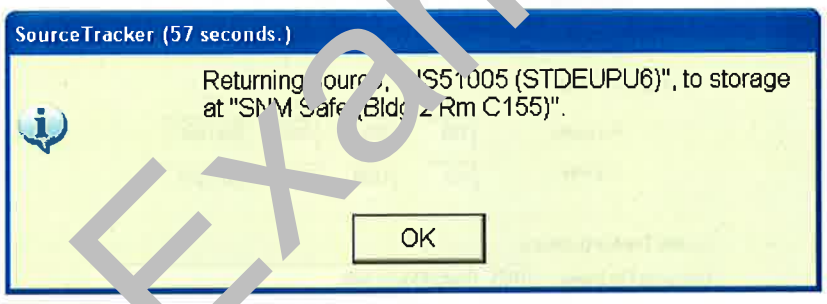
5.3.3. Output

The database table is updated indicating the location of the source.

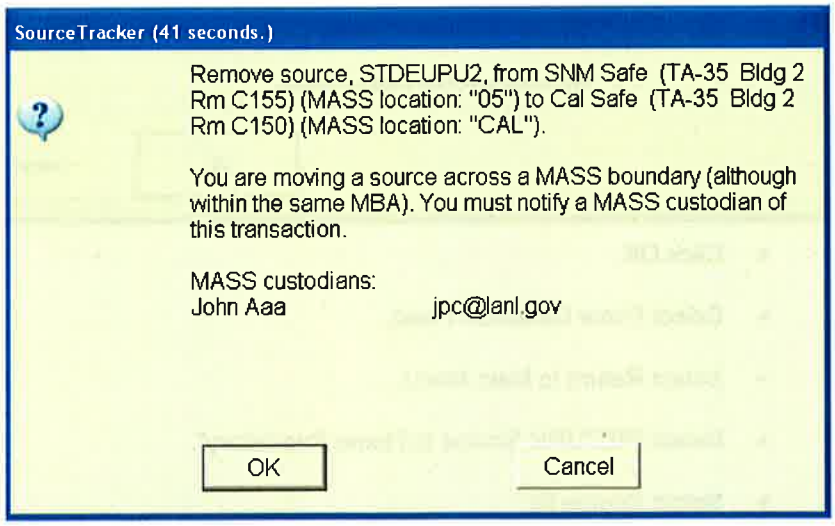
5.3.4. Process Steps

- Select "RETURN Source to Home Repository"
- Select Source #1.

___17. Verify that a message with the source id and location is displayed.



- Click OK.

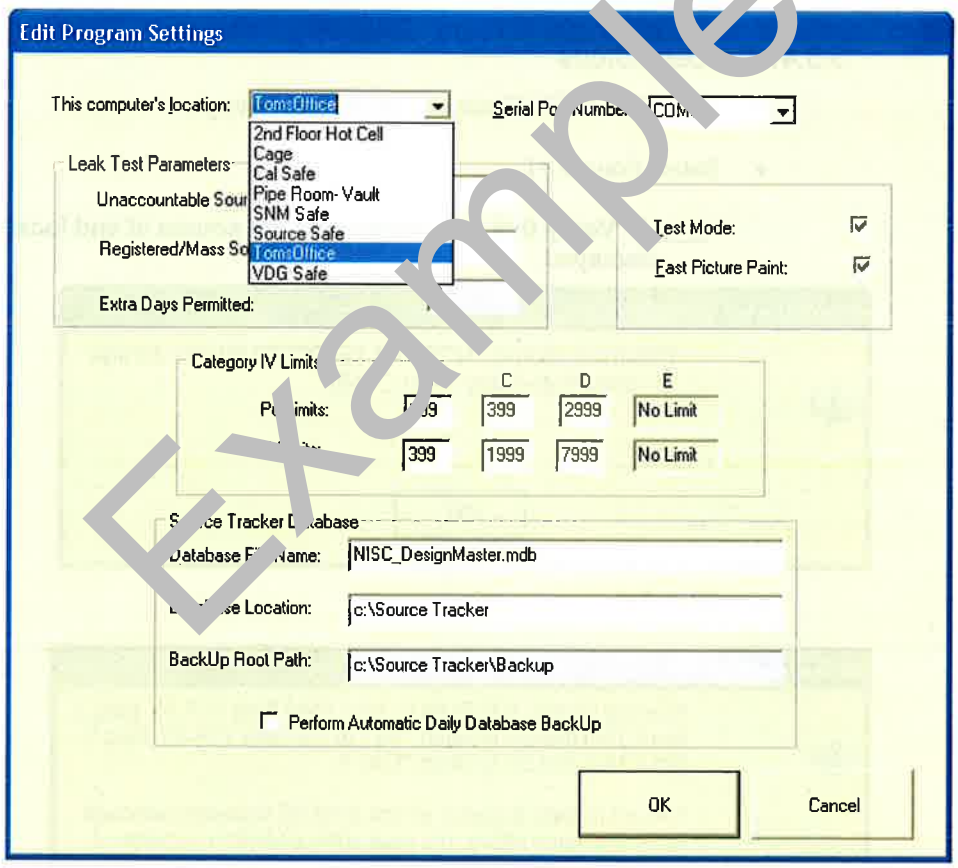


Example

- Select Cancel.
- Select the **Browse Sources** button.
- Enter the user Z number.

___18. Verify that Source #1 has not been returned to its home repository.

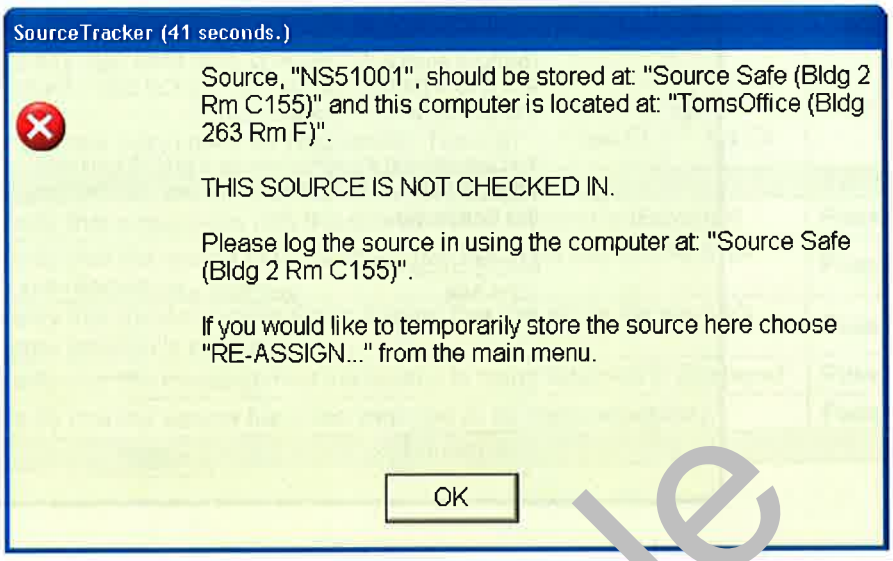
- Select Finished Browsing.
- Select the Custodian Operations option.
- Enter a Custodian Z#.
- Select the Edit Program Parameters option
- Reset the location of this computer's location to a different area.



Example

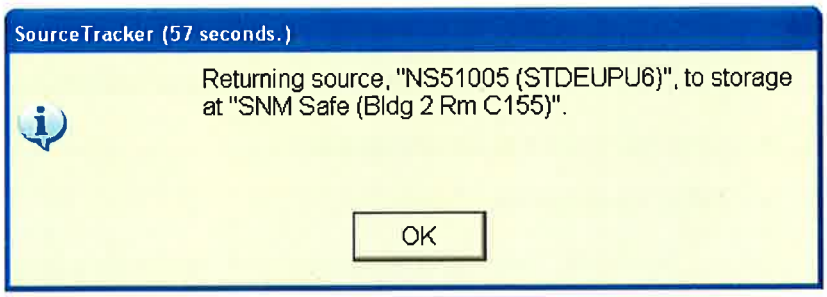
- Click OK.
- Select Force Database Read.
- Select Return to Main Menu.
- Select "RETURN Source to Home Repository".
- Select Source #1.

___19. **Verify that the error message indicating that this is not the source's home location is displayed.**



- Click on the **OK** button on the "che... sou...e" message.
- Select the Custodian Operations ...tion.
- Select a Custodian Z#.
- Select the Edit Prog...m Para...eters option
- Reset the loc...ion ...this ...urce to its home location.
- Click OK
- Select Fo...e D...abase Read.
- ...elect "RE...URN Source to Home Repository".
- Sel...t Source #1.

___20. **Verify that the message that the source is being returned is displayed.**



Example

5.4. Re-Assign Source's Current Owner or Location

5.4.1. Purpose

Verify that a source can be stored in a temporary location other than its "home" location. Verify that the source can be assigned to another user without being checked back in.

5.4.2. Input

The user Z number and source barcode are required. Additionally if the source is a MASS source, the source custodian Z number will be required.

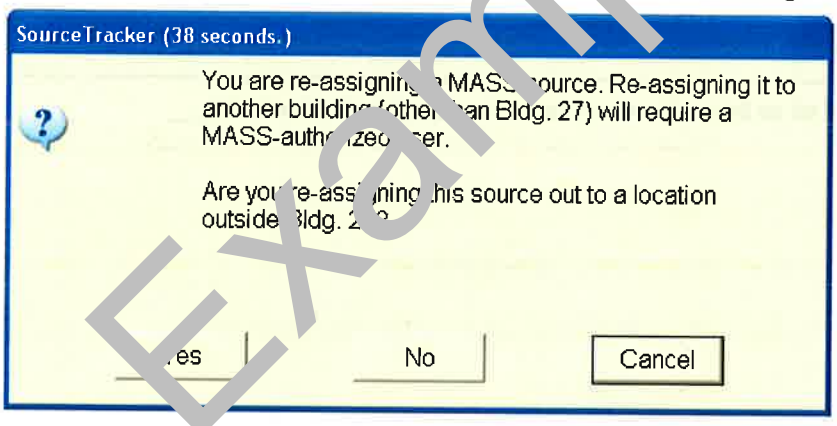
5.4.3. Output

The database table will be updated.

5.4.4. Process Steps

- Select the RE-ASSIGN Source's Current Owner or Location button.
- Enter the user Z number and source #1.

___22. Verify that the re-assigning source message is displayed.



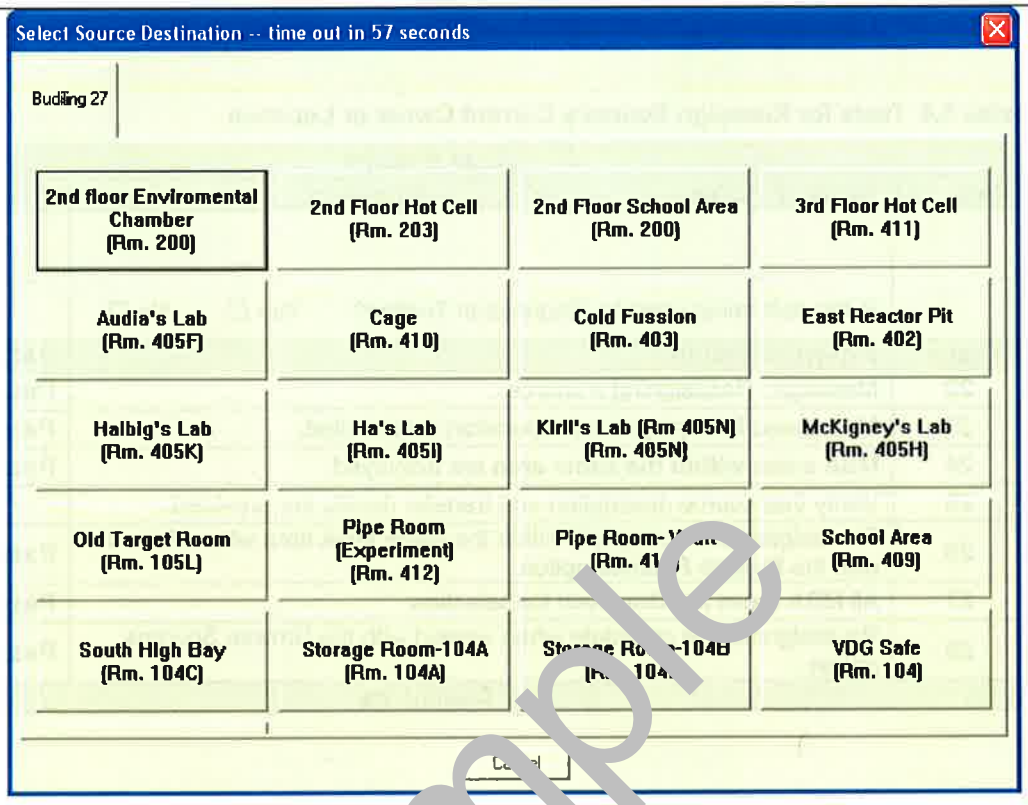
- Select the **Cancel** button.

___23. Verify that the main menu is displayed and the operation is cancelled.

- Select the RE-ASSIGN Source's Current Owner or Location button.
- Enter the user Z number and source #1.
- Select the **No** button.

___24. Verify that only MBA areas within the same area are displayed. The tab should read the same building as the location listed in the previous message.

Example



- Select one of the areas displayed.
- The source transfer window is displayed.

___25. Verify that source description and transfer details are provided and are accurate..

- Select Log Source Removal.

___26. Verify that the re-assignment is complete by selecting the Browse Sources button, selecting user Z #, and find the source.

- Select the RE-ASSIGN Source's Current Owner or Location button.
- Enter the user Z# and source #1.
- Select the **Yes** button on the "reassign message".
- Select a MASS Authorized user Z#

___27. Verify that all MBA areas are displayed.

- Select an area to reassign the source to.
- Select Log Source Removal.

___28. Verify that the re-assignment is complete by selecting the Browse Sources button.

Example

Table 5.4 Tests for Reassign Source's Current Owner or Location

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
22	Message: Reassigning a source.	Pass ☐ Fail ☐
23	Main menu is displayed and operation is cancelled.	Pass ☐ Fail ☐
24	MBA areas **within the same area** are displayed.	Pass ☐ Fail ☐
25	Verify that source description and transfer details are provided.	
26	Re-assignment is complete within the same MBA area when viewed with the Browse Sources option.	Pass ☐ Fail ☐
27	All MBA areas are displayed for selection.	Pass ☐ Fail ☐
28	Re-assignment is complete when viewed with the Browse Sources option.	Pass ☐ Fail ☐
Comments		

Example

5.5. Display List of Sources

5.5.1. Purpose

Verify that the list of sources is displayed with the source bar code, id, isotope, activity, the current owner, location, and mass value. Verify that the list can be manipulated by bar code, source type, isotopes, locations, owners and category 3 sources.

5.5.2. Input

The user Z number is required.

5.5.3. Output

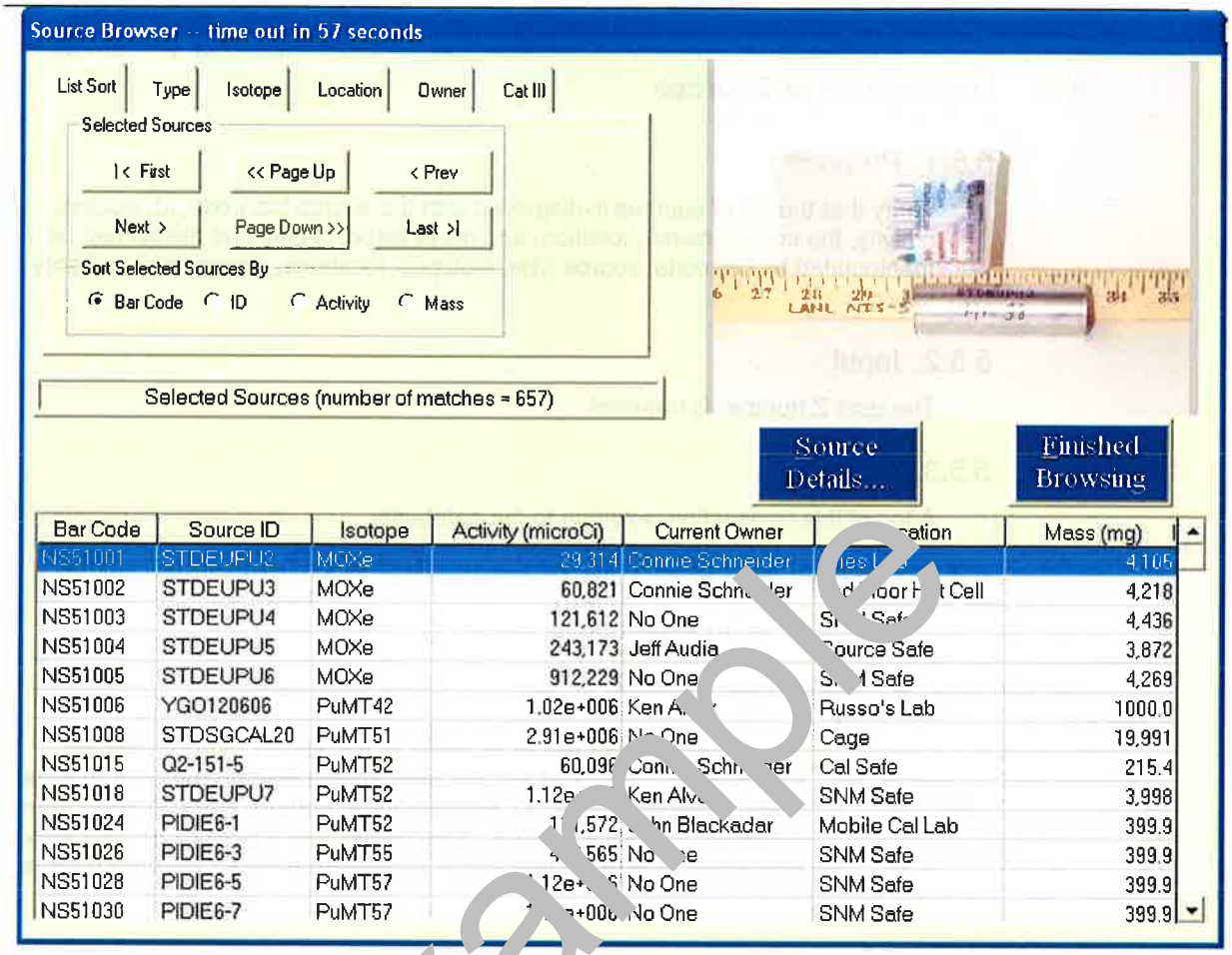
A log of this transaction is written to the database.

5.5.4. Process Steps

- Select the **Browse Sources** button.
- Enter a user Z number.

___29. Verify that the list of sources is displayed. Verify that the information displayed for the highlighted source includes the bar code number, source ID, isotope type, activity level, current owner, location, and mass value. Also verify that a picture of the source is displayed (if that source has a picture embedded into the database).

Example



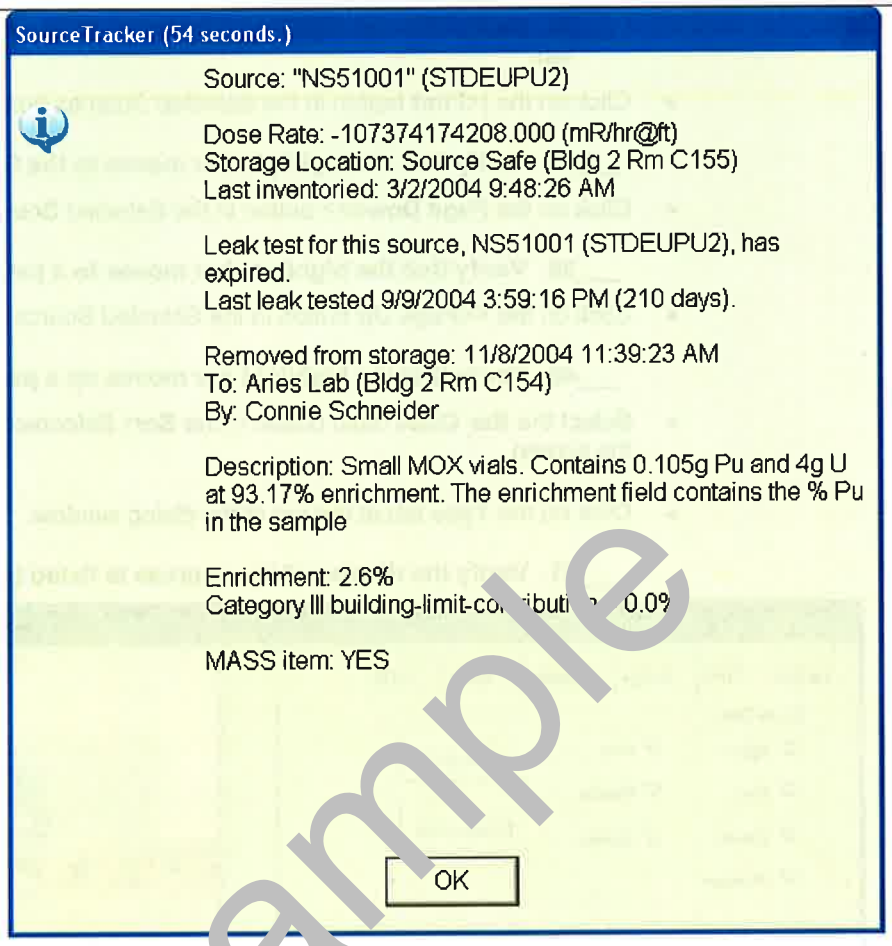
- Let the window time out.

___30. Verify that the program returns to the main menu.

- Select the **Browse Sources** button.
- Enter a Z number.
- Select the **Source Details...** button.

___31. Verify that the details for the source highlighted are displayed.

Example



- Click Ok
- Select the radio button in the ***Sort Selected Sources by*** section of the screen.

___32. Verify that the list of sources is sorted by the Source ID.

- Select the **Activity** radio button in the ***Sort Selected Sources by*** section of the screen.

___33. Verify that the list of sources is sorted by the Source Activity.

- Select the **Mass** radio button in the ***Sort Selected Sources by*** section of the screen.

___34. Verify that the list of sources is sorted by the Mass.

- Click on the **Next >** button in the Selected Sources box.

___35. Verify that the highlight bar moves to the next source in the list.

- Click on the **Last >|** button in the Selected Sources box.

___36. Verify that the highlight bar moves to the end of the list.

- Click on the **<Prev** button in the Selected Sources box.

Example

___37. Verify that the highlight bar moves to the previous source in the list.

- Click on the **|<First** button in the Selected Sources box.

___38. Verify that the highlight bar moves to the first source in the list.

- Click on the **Page Down>>** button in the Selected Sources box.

___39. Verify that the highlight bar moves to a page down in the list.

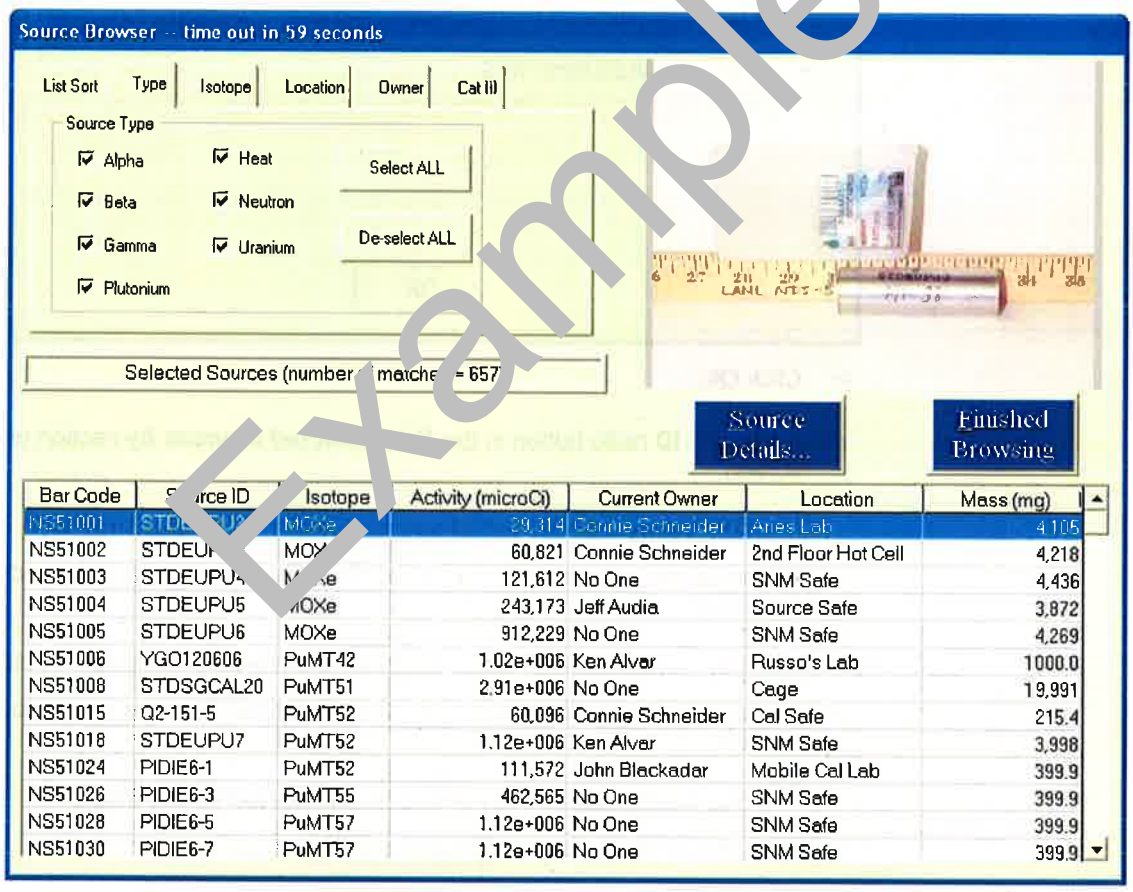
- Click on the **<<Page Up** button in the Selected Sources box.

___40. Verify that the highlight bar moves up a page in the list.

- Select the **Bar Code** radio button in the ***Sort Selected Sources by*** section of the screen.

- Click on the **Type** tab at the top of the dialog window.

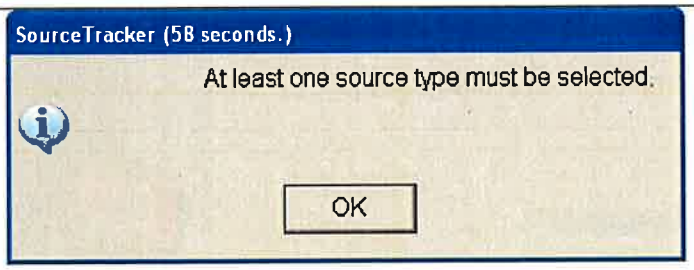
___41. Verify the display of the sources is listed by type.



- Click on the **De-select ALL** button.

___42. Verify that the following message is displayed.

Example



- Click OK.

___43. Verify that no sources are listed.

- Click on the **Select ALL** button.

___44. Verify all of the Source Types are selected and displayed.

- Deselect all of the Source Types except one.

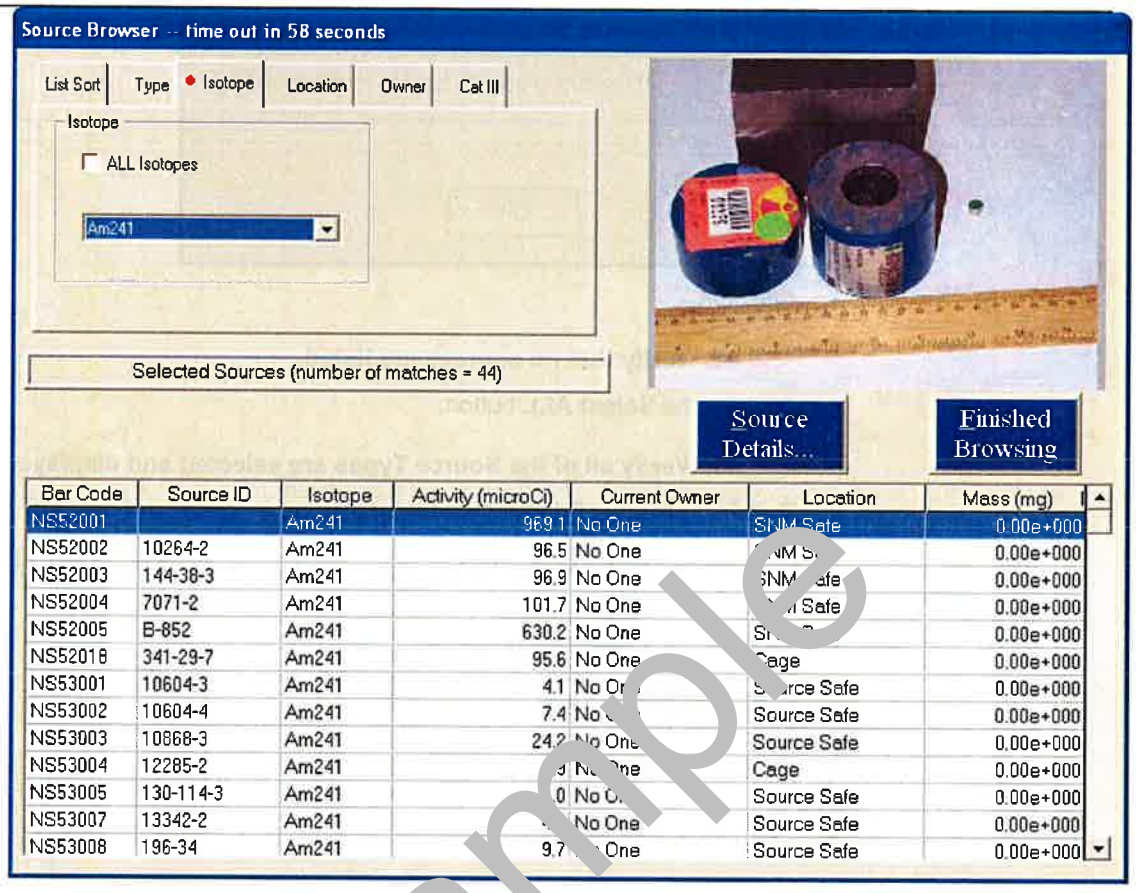
___45. Verify that only those sources of the Source Type selected are displayed.

- Click on the Select ALL Button.
- Select the **Isotope** tab.
- Click on the **ALL Isotopes** check box to deselect it
- Select one **isotope** from the list.

___46. Verify that only those sources of the isotope selected are displayed.

- Click on the ALL Isotopes check box to select it

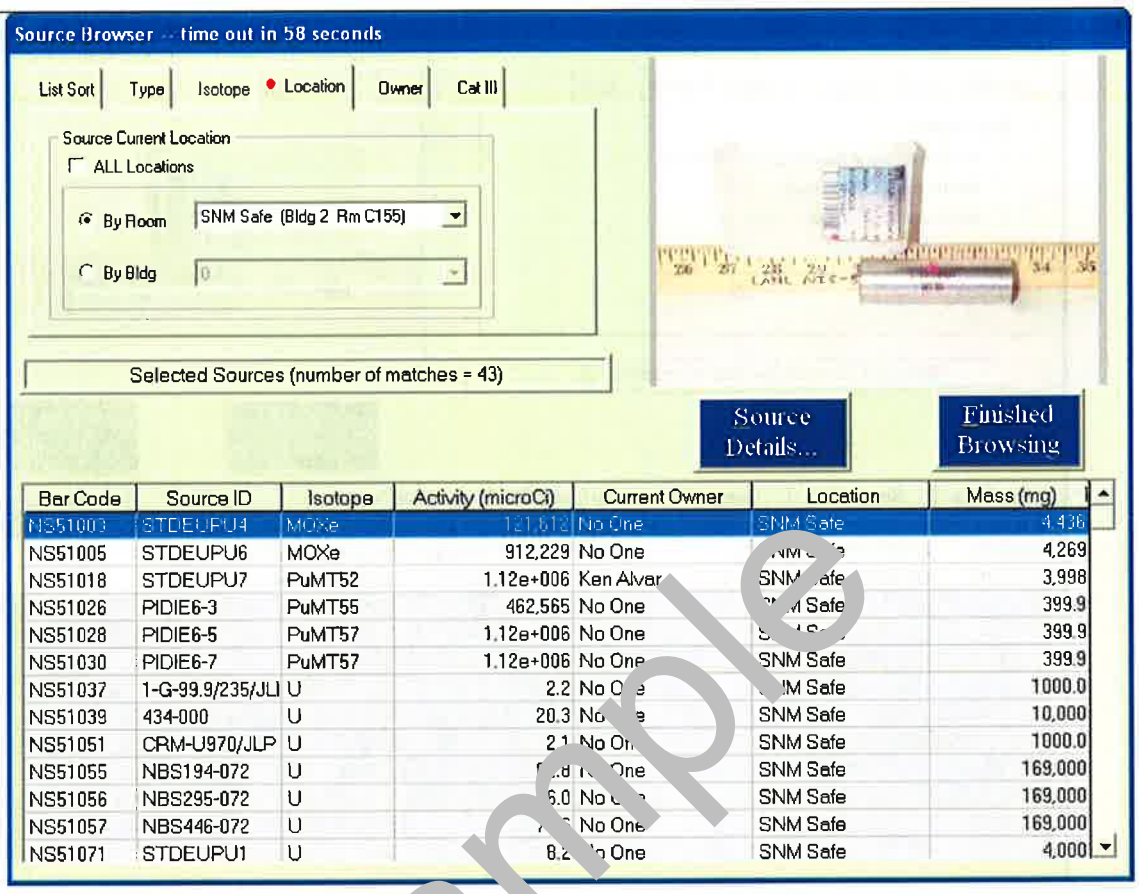
Example



- Select the **Location** tab.
- Click on the **All Locations** box to deselect it.
- Select a location **Dry Room** from the pull down list.

_47. Verify that sources from that location selected are displayed.

Example



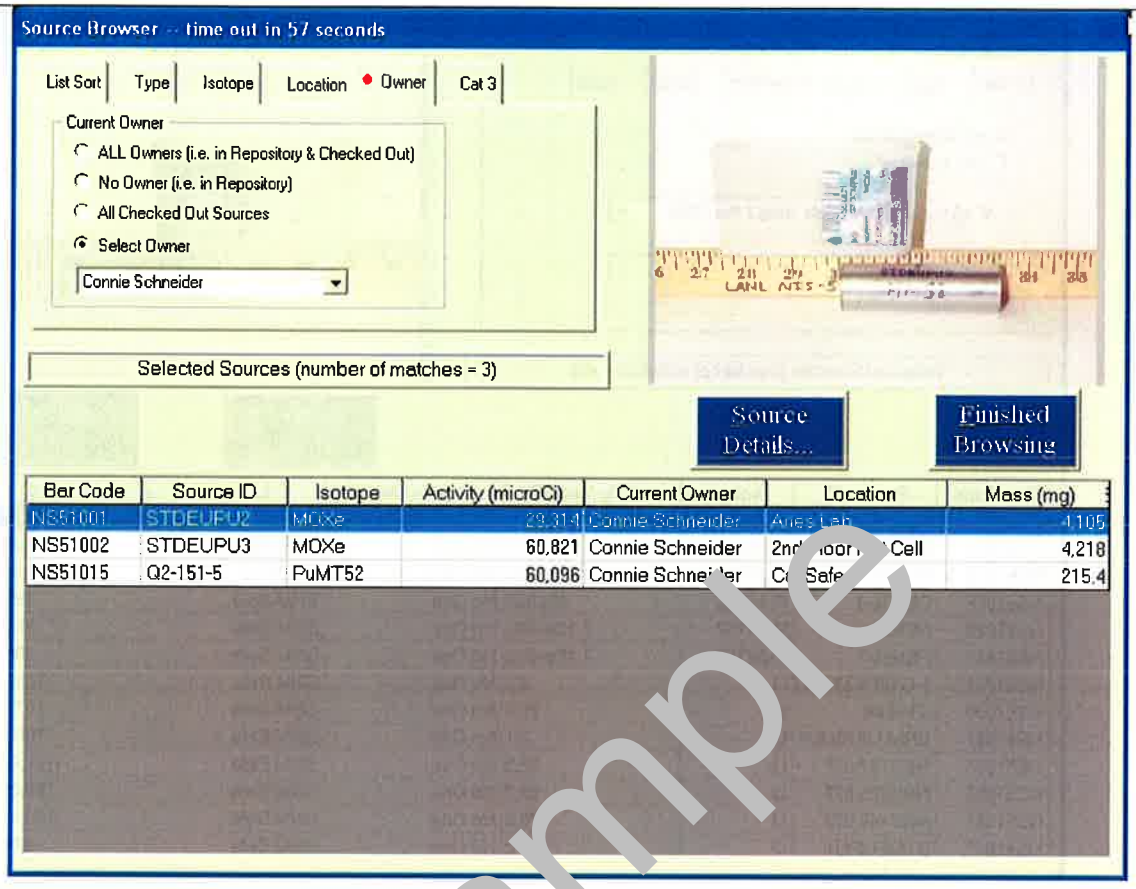
- Select a location **By Bldg** from the pull down list.

___48. Verify that sources from that location selected are displayed.

- Click on the **ALL Locations** check box to select it.
- Click on the **Owner** tab.
- Select the **Select Owner** button.
- Select an **owner** the list.

___49. Verify that the list for that owner is displayed.

Example



Example

- Select the **No Owner** button.

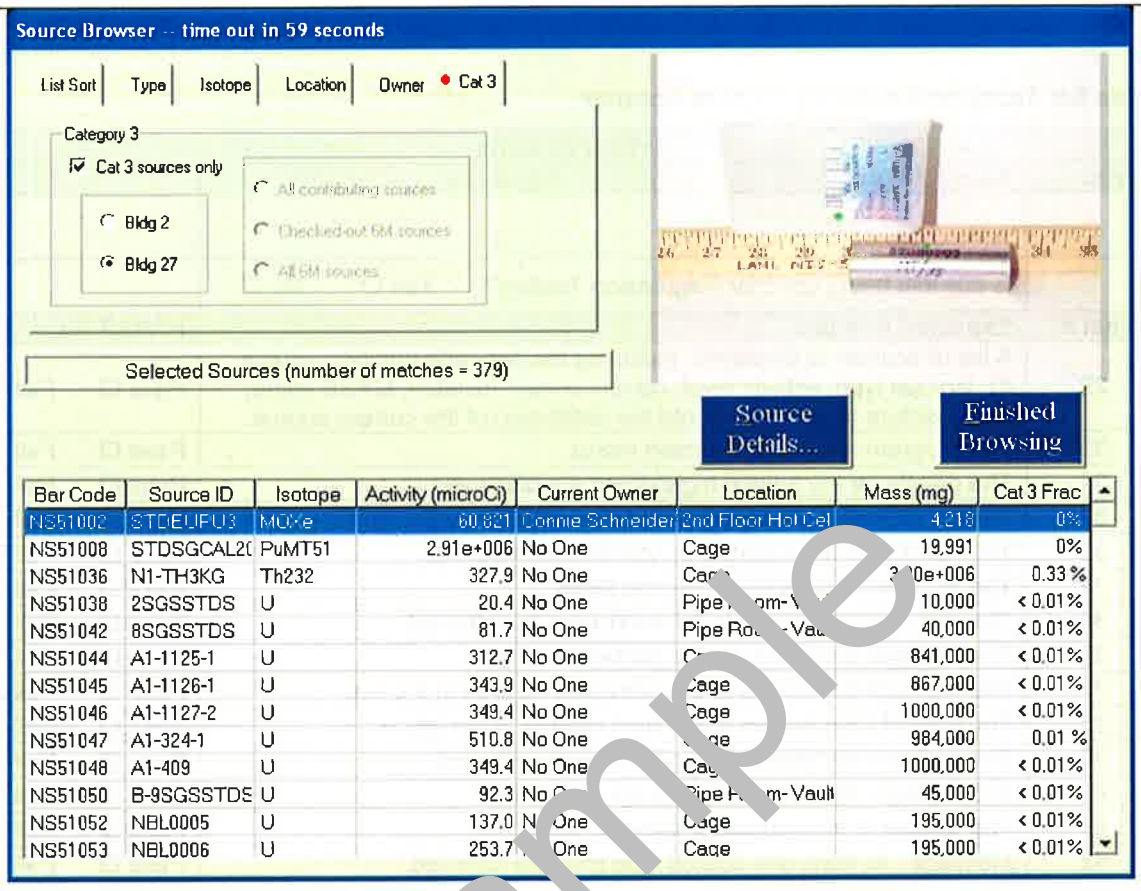
___50. Verify that the list contains the Current Owner as "No One".

- Select the All Checked Out Sources button.

___51. Verify that the list contains only the sources that have been checked out.

- Select the **ALL Owners** button.
- Select the **Cat 3** tab.
- Ensure that the **Cat 3 Sources Only** check box is selected.
- Select the **Bldg 27** button.

___52. Verify that the list contains only those sources identified as Category 3 sources in the MBAs of Bldg. 27.



- Select the **Bldg 2** button.

___53. Verify that the list contains only those sources identified as Category 3 sources in the MBAs of Bldg. 2.

Select the **Cat 3 Sources only** checkbox to deselect it.

Click on the **Finished Browsing** button.

___54. Verify that the program returns to the main menu.

Example

Table 5.5 Tests for Displaying a List of Sources

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
29	A list of sources is displayed, including the bar code number, source ID, isotope type, activity level, current owner, location, MASS value, and a picture (if embedded into the database) of the current source.	Pass ☐ Fail ☐
30	The program returns to the main menu.	Pass ☐ Fail ☐
31	The details for the source highlighted are displayed.	Pass ☐ Fail ☐
32	The list of sources is sorted by the **Source ID.**	Pass ☐ Fail ☐
33	The list of sources is sorted by the **Source Activity.**	Pass ☐ Fail ☐
34	The list of sources is sorted by the **Mass.**	Pass ☐ Fail ☐
35	The highlight bar moves to the **next source** in the list.	Pass ☐ Fail ☐
36	The highlight bar moves to the **end of the list**.	Pass ☐ Fail ☐
37	The highlight bar moves to the **previous source** in the list.	Pass ☐ Fail ☐
38	The highlight bar moves to the **first source** in the list.	Pass ☐ Fail ☐
39	The highlight bar moves to a **page down** in the list.	Pass ☐ Fail ☐
40	The highlight bar **moves up a page** in the list.	Pass ☐ Fail ☐
41	The display of the sources is listed by **type.**	Pass ☐ Fail ☐
42	Message: At least one source type must be selected.	Pass ☐ Fail ☐
43	No sources are listed.	Pass ☐ Fail ☐
44	All of the source types are selected and displayed.	Pass ☐ Fail ☐
45	Only those sources of the Source Type selected are displayed.	Pass ☐ Fail ☐
46	Only those sources of the isotope selected are displayed.	Pass ☐ Fail ☐
47	Sources from the location selected are displayed.	Pass ☐ Fail ☐
48	The sources from the building selected are displayed.	Pass ☐ Fail ☐
49	The list for the owner selected is displayed.	Pass ☐ Fail ☐
50	The list contains the Current Owner as **"No One"**	Pass ☐ Fail ☐
51	The list contains only the sources that have been checked out.	Pass ☐ Fail ☐
52	The list contains only those sources identified as Category 3 sources in the MBAs of Building 27.	Pass ☐ Fail ☐
53	The list contains only those sources identified as Category 3 sources in the MBAs of Building 2.	Pass ☐ Fail ☐
54	The program returns to the main menu.	Pass ☐ Fail ☐
Comments		

Example

5.6. List Sources for User

5.6.1. Purpose

Verify that the program provides the capability to list of sources assigned to a specific user.

5.6.2. Input

The user Z number is required for this option.

5.6.3. Output

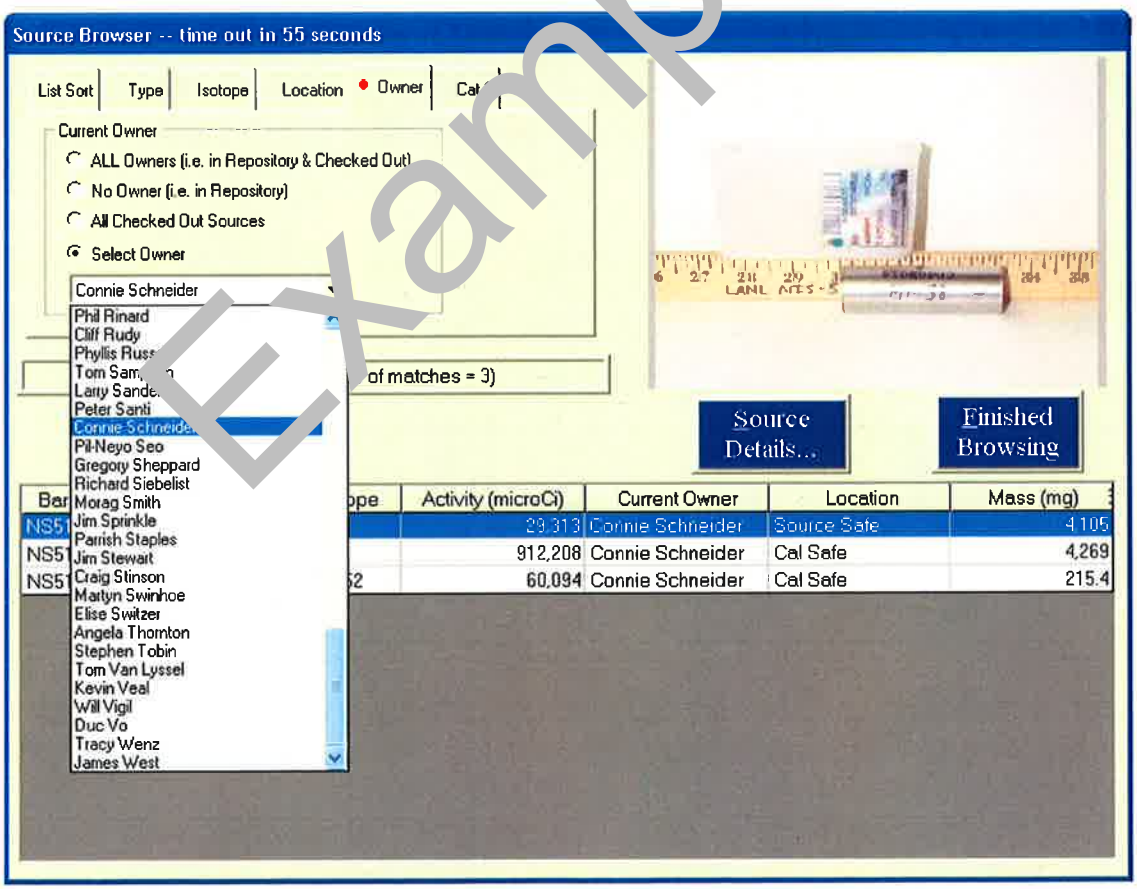
A log of the transaction is written to the database.

5.6.4. Process Steps

- Select the **List My Sources…** button.
- Enter the user Z number.

___55. Verify that the list of sources [illegible] the [illegible]r entered is displayed.

- Select another user from the **Sele[illegible]t Ow[illegible]r** lis



___56. Verify that the list of sources for the owner changes.

- Select the **Finished Browsing** button.

Example

___57. Verify that the program returns to the main menu.

Example

Table 5.6 Tests for List Sources for User

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
55	The list of sources for the user entered is displayed.	Pass ☐ Fail ☐
56	The list of sources for the owner changes	Pass ☐ Fail ☐
57	The program returns to the main menu.	Pass ☐ Fail ☐
Comments		

Example

5.7. Display Category 3 Status for each of the Radiation Facilities

5.7.1. Purpose

Verify that the Category 3 values for each of the Radiation Areas is calculated and displayed.

5.7.2. Input

The user Z number is required for this option.

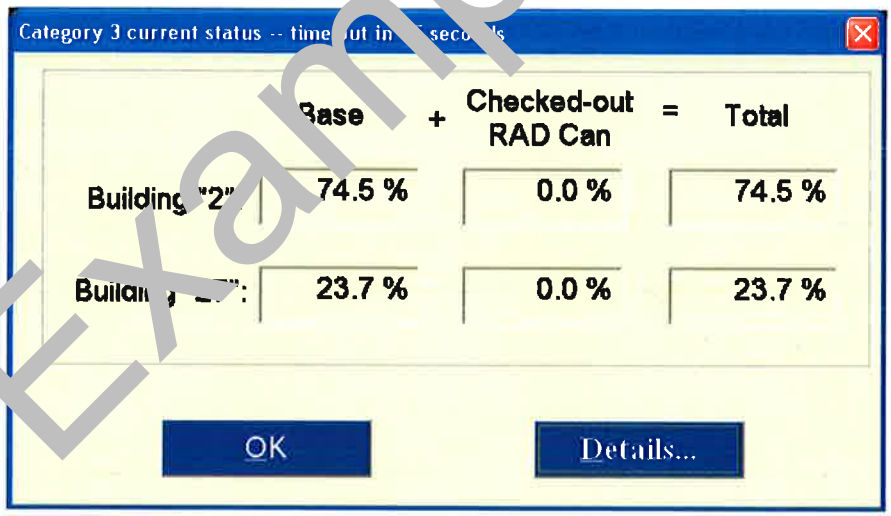
5.7.3. Output

A log of the transaction is written to the database.

5.7.4. Process Steps

- Select the Category 3 MAR Status… button.
- Enter a User Z#.

___58. Verify that the Category 3 status is displayed for the Buildings defined. Note: the numbers shown could be different.



- Select OK to return to the main menu.

Example

Table 5.7 Tests for Display of Category 3 Status

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
58	Category 3 status is displayed for the Buildings.	Pass ☐ Fail ☐
Comments		

Example

5.8. Display Category IV Status

5.8.1. Purpose

Verify that the Category IV values for each Radiation Area are displayed for each of the Attractiveness Levels.

5.8.2. Input

The user Z number is required.

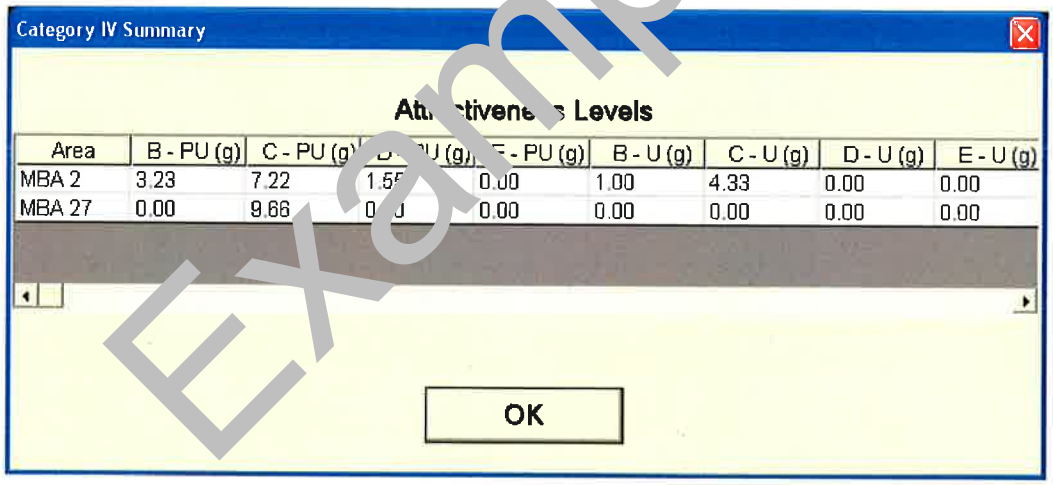
5.8.3. Output

The display of the Category IV values is the output

5.8.4. Process Steps

- Select the **Category IV Physical Security...** button on the main menu.
- Enter the user Z number.

___59. Verify that the Category IV Attractiveness Levels for each defined MBA are displayed. Note: The numbers could be different.



Example

Table 5.8 Tests for Display of Category IV Status

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
59	The Category IV Attractiveness Levels for each MBA is displayed.	Pass ☐ Fail ☐
Comments		

Example

5.9. Confirm Inventory

5.9.1. Purpose

Verify that the source locations identified in the database are the actual location of the source and that the designated owner is valid. Verify that the inventory is completed with the six month period required by the Department of Energy.

5.9.2. Input

The custodian Z number is required as input to this option.

5.9.3. Output

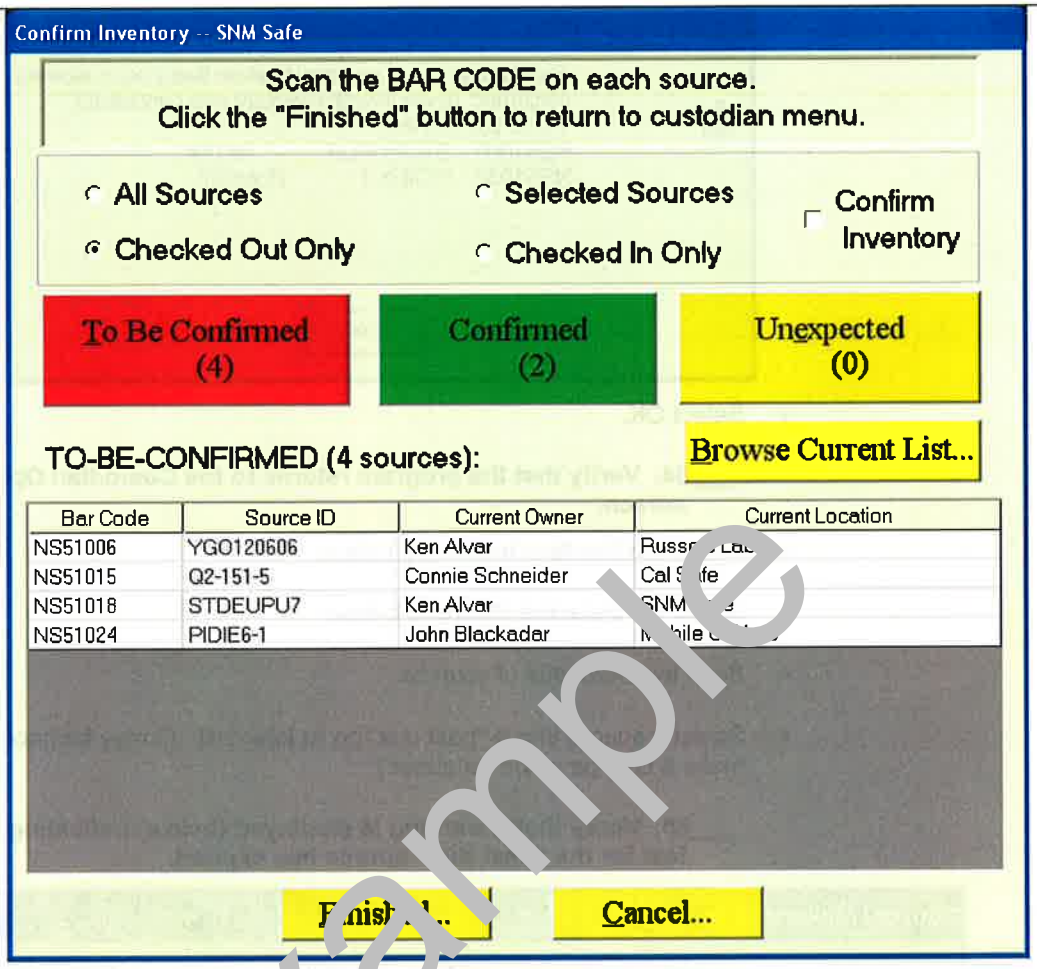
A summary list of the sources that have been confirmed will be emailed to the custodian. A flag in the database table, "Sources" is set for each source that has been confirmed.

5.9.4. Process Steps

- Select the **Custodian Operations** option from the main menu.
- Enter the Custodian Z number.
- Select Confirm Inventory option.
- Select the **Checked Out Only** radio button.
- Scan the bar code label of the sources listed.

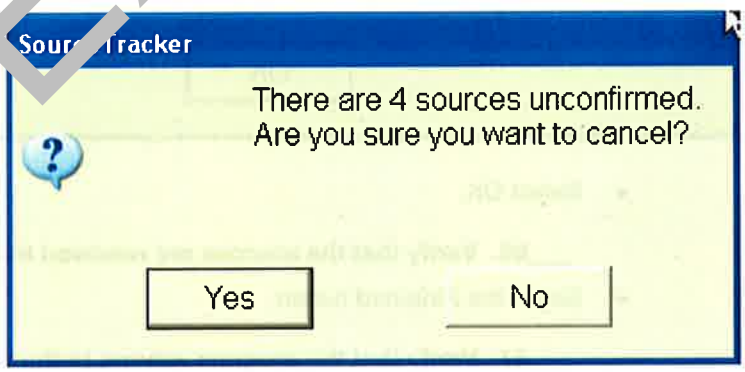
___60. Verify that the sources that have been scanned for confirmation are removed from the list that is displayed and that the number to be confirmed is reduced.

Example



- Select the **Cancel** button.

___61. Verify that the following message occurs. The number shown could be different.



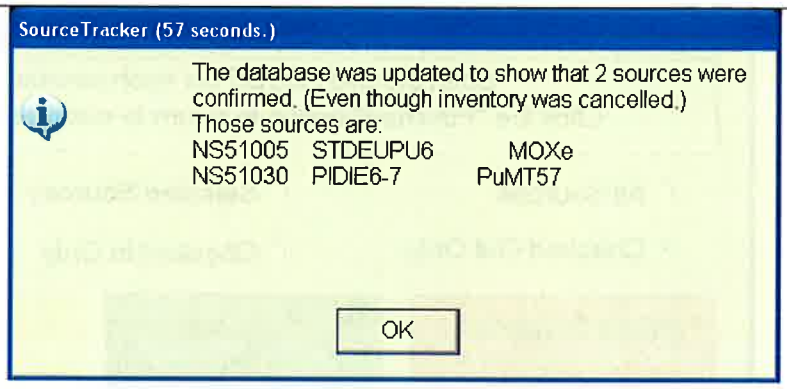
- Select the **No** button.

___62. Verify that the Confirm Inventory screen remains displayed.

- Select the **Cancel** button again.
- Select the **Yes** button.

___63. Verify that a notification message is displayed.

Example

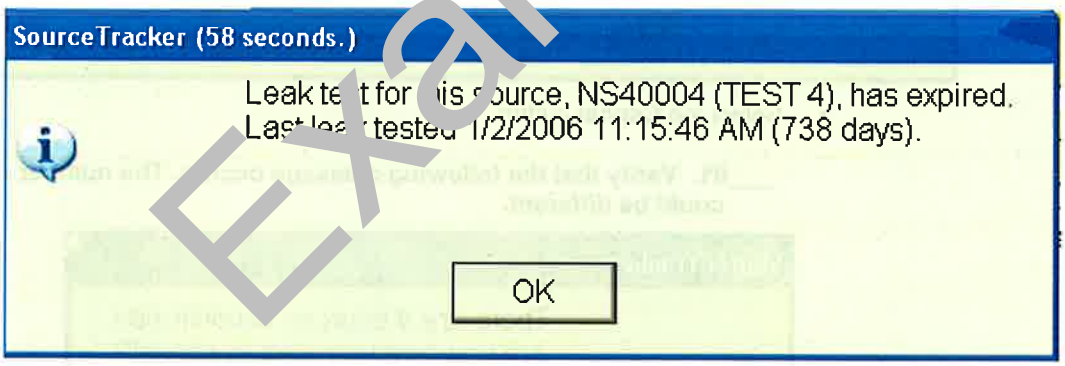


- Select OK.

___64. Verify that the program returns to the Custodian Operations screen.

- Select the **Confirm Inventory** button.
- Select the **Selected Sources** button.
- Scan two barcodes of sources.
- Select a source that is "past due" on its leak test. (it may be necessary to make a change in the database).

___65. Verify that a warning is displayed (below) indicating that the leak test for the "past due" source has expired.



- Select OK.

___66. Verify that the sources are removed from the displayed list.

- Select the **Finished** button.

___67. Verify that the program returns to the Custodian Operations screen.

- Select the **Confirm Inventory** button.
- Select the Browse Current List… button.

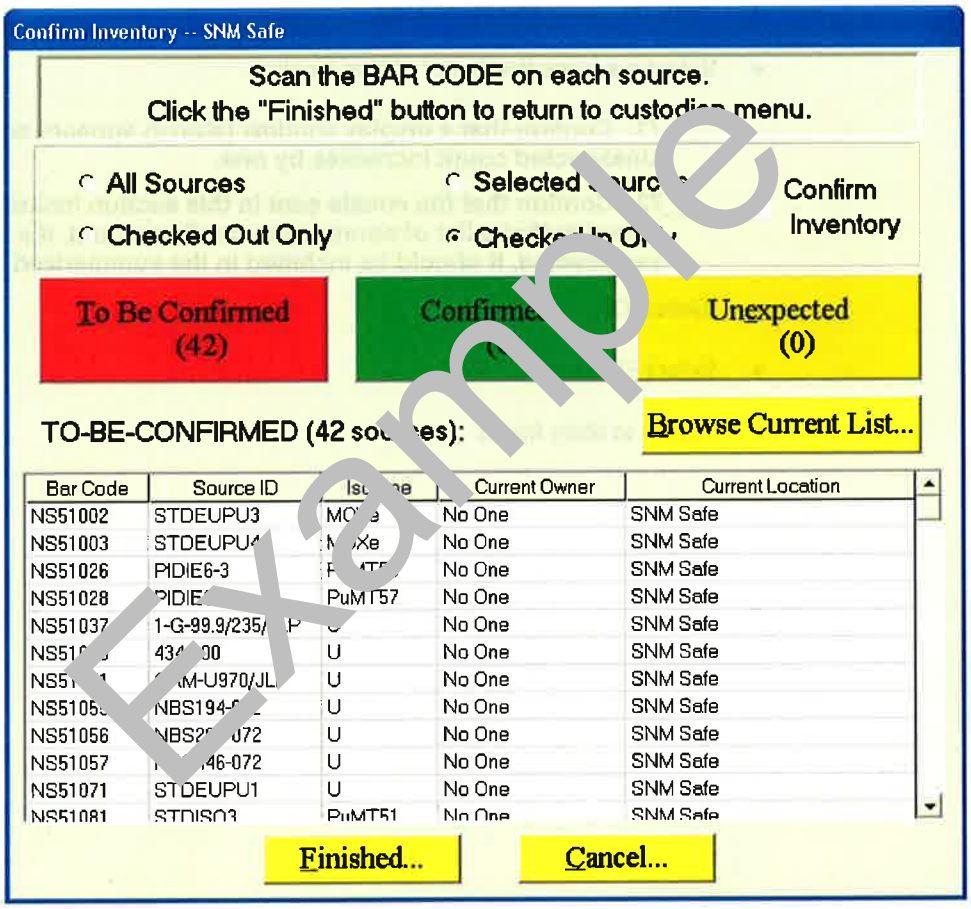
___68. Verify that the detailed list for each of the sources is displayed.

- Select the **Finished Browsing** button.

Example

- Select the **Finished…** button.
- Verify that a notification window is displayed.
- Select Yes.
- Select the **Confirm Inventory** button.
- Select the **Checked In Only** button.
- Scan two barcodes of sources.

___69. Verify that the display lists as Current Owner "No One"

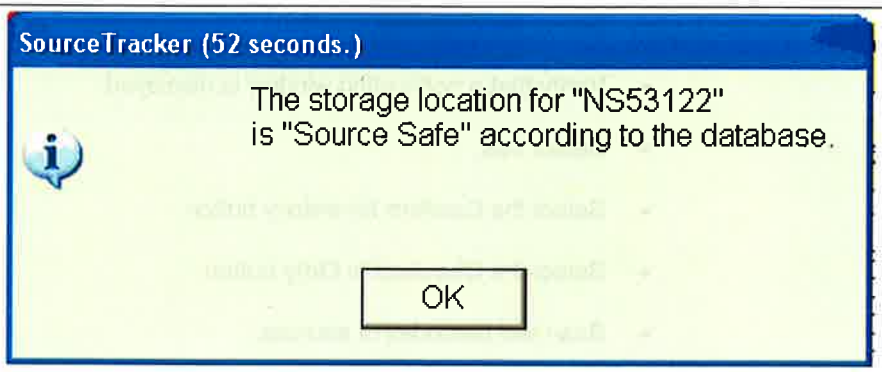


- Select the **Finished…** button
- Select Yes.
- Browse an inventoried source and view details.

___70. Confirm that the source inventory date is updated.

- Select Finished Browsing.

Example



- Scan two barcodes of sources.
- Select a source that is not at that location.

___71. Confirm that a display window (above) appears and that the Unexpected count increases by one.

___72. Confirm that the emails sent in this section include information showing that a list of sources are confirmed and, if a source is unexpected, it should be included in the summarized list.

- .Select OK.
- Select Finished.
- Return to Main Menu.

Example

Table 5.9 Tests for Confirm Inventory

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
60	Sources that have been scanned for confirmation are removed from the list and the number to be confirmed is reduced.	Pass ☐ Fail ☐
61	Message: Sources unconfirmed	Pass ☐ Fail ☐
62	Confirm inventory remains displayed.	Pass ☐ Fail ☐
63	Notification message is displayed.	Pass ☐ Fail ☐
64	Program returns to the Custodian Operations screen.	Pass ☐ Fail ☐
65	Verify that a warning is displayed indicating that the leak test for a "past due" source has expired.	Pass ☐ Fail ☐
66	Sources are removed from the displayed list.	Pass ☐ Fail ☐
67	Program returns to the Custodian Operations screen	Pass ☐ Fail ☐
68	The detailed list for each of the sources is displayed.	Pass ☐ Fail ☐
69	The display lists as Current Owner "No One"	Pass ☐ Fail ☐
70	Confirm that the Source inventory data has been updated	Pass ☐ Fail ☐
71	Confirm that a warning display is given for an unexpected source and that the Unexpected source count is increased by one.	Pass ☐ Fail ☐
72	Confirm that the emails sent in this section include information showing that a list of sources are confirmed and, if a source is unexpected, it should be included in the summarized list.	Pass ☐ Fail ☐
Comments		

Example

5.10. Transfer a Source Permanently from one Location to Another

5.10.1. Purpose

Verify that the custodian can permanently transfer a source to another location.

5.10.2. Input

The custodian Z number and the source id are entered .

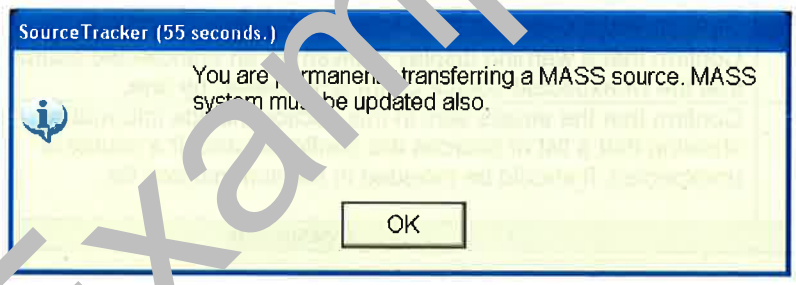
5.10.3. Output

If the transfer is completed, the new location of the source is entered into the database.

5.10.4. Process Steps

- Select the Custodian Operations… button.
- Enter the custodian Z number.
- Select the Permanently Transfer Source… option.
- Select Source #1.

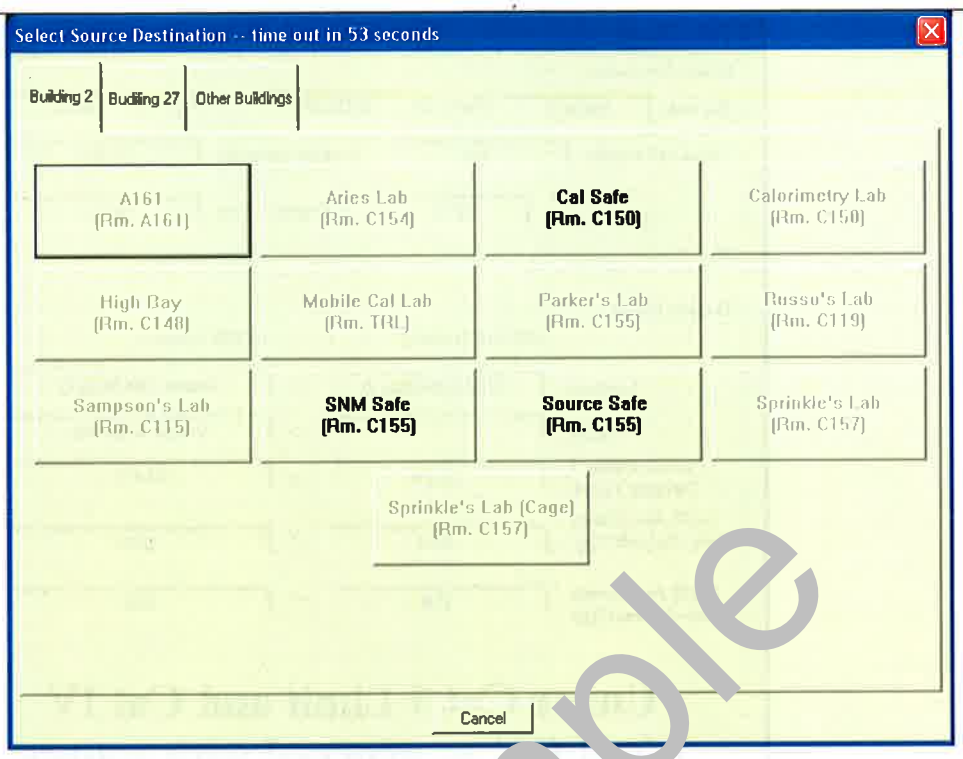
___73. Verify that a MASS [illegible] is displayed.



- Click **OK.**

__74. Verify that the allowable rooms are displayed.

Example



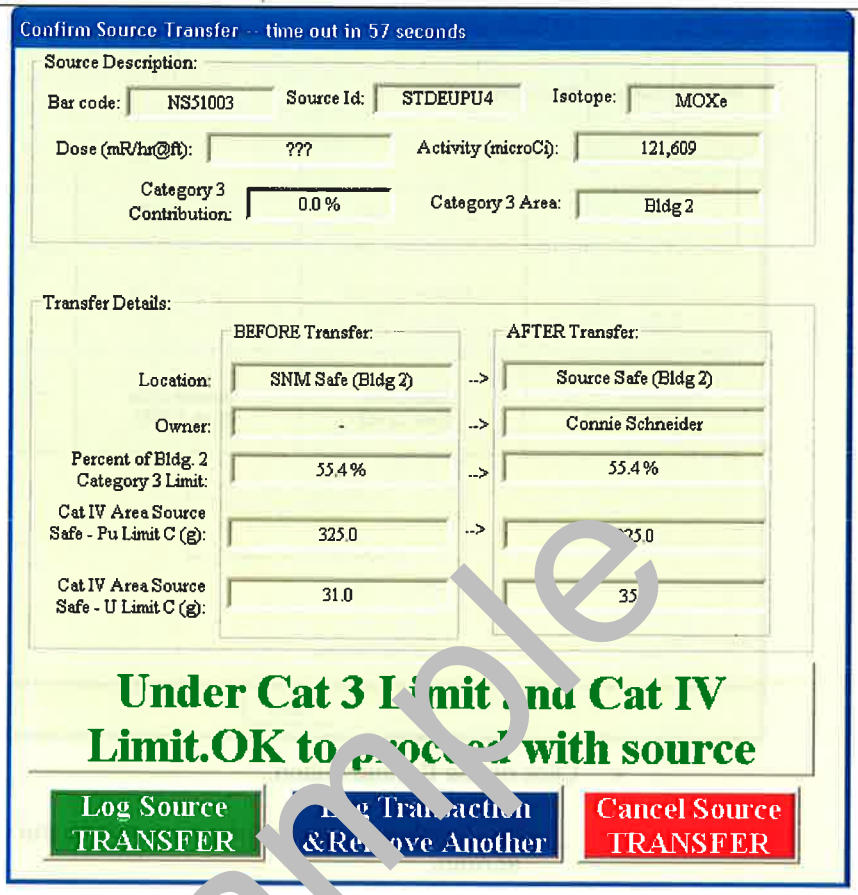
- Click on the **Cancel** button.

___75. Verify that the program returns to the Custodian Operations screen.

- Select the Permanently Transfer Source… option.
- Select Source #.
- Select OK.
- Select a room from those displayed.

___76. Verify that the Confirm Source Transfer window is displayed and the new location for the source is identified in the window.

Example



- Select Cancel Source TRANSFER.
- Select the **Return Main Menu** button.
- Select the **Browse Sources…** button.
- Enter a user's Z#
- **Verify that the source is not transferred. The location in the list will be the same before the Permanently Transfer action was selected.**
- Click on Finished Browsing
- Click on Custodian Operations
- Enter a custodian's Z#
- Select the Permanently Transfer Source… option.
- Select Source #1.
- Select OK.
- Select a room to transfer the source to.
- Select the Log Source Transfer button.

Example

- Select the **Return Main Menu** button.
- Select the **Browse Sources…** button.
- Enter a user's Z#

___**78. Verify that the source has been transferred. The location in the list will be the one selected for the transfer.**

Example

Table 5.10 Tests for Transfer of a Source Permanently

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
73	The MASS notice message is displayed.	Pass ☐ Fail ☐
74	The rooms permitted for the transfer are displayed.	Pass ☐ Fail ☐
75	Program returns to the Custodian Operations screen.	Pass ☐ Fail ☐
76	The Confirm Source Transfer window is displayed and the new location for the source is identified in the window.	Pass ☐ Fail ☐
77	The source is not transferred. The location has not been mo[illegible]ied in the Browse Sources display.	Pass ☐ Fail ☐
78	The source has been transferred. The location has be[illegible] mo[illegible]ed in the Browse Sources display.	Pass ☐ Fail ☐
Comments		

Example

5.11. Create Summary Tables and Files of the Sources

5.11.1. Purpose

Verify that a file and database entry are created of source information.

5.11.2. Input

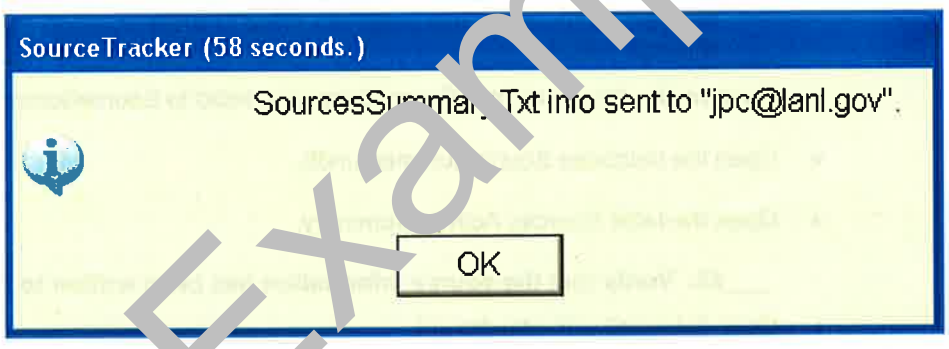
A custodian Z number is required.

5.11.3. Output

The text file, "*SourcesSummary.txt*" is created. The database table ***Sources Activity Summary*** is written to "***SourceSummary.md***"

5.11.4. Process Steps

- Select the Custodian Operations… button.
- Enter the custodian Z number.
- Select Create Sources Summary FILE…



___79. Verify that the message SourcesSummary.txt sent to [email address].

- .Select OK.
- Open the file using a text editor program.
- An email is sent to the custodian with an attachment.
- Open the folder c:\Source Tracker.

___80. Verify that the file SourcesSummary.txt has been created.

- Open the file using a text editor program.

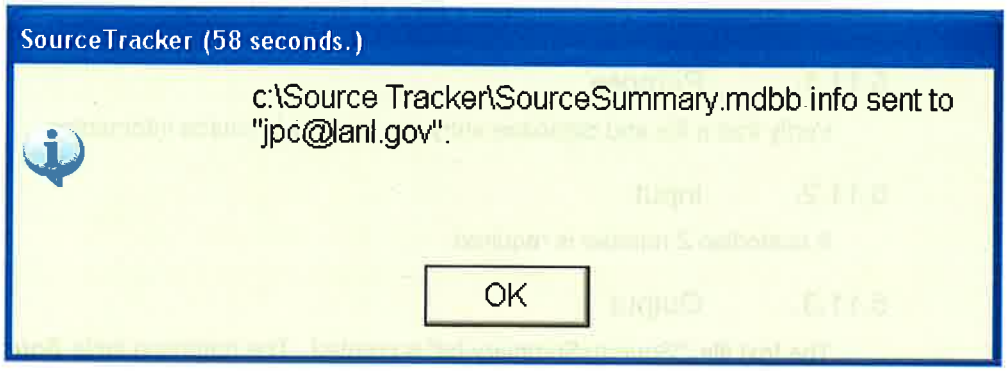
___81. Verify that the source information has been written to the file.

- Open the email with attachment.

___82. Verify that the source information has been written in the email attachment.

Example

- Select Create Sources Summary TABLE…



___83. Verify that the message SourceSummary.mdbb sent to [email address].

- Select OK.
- An email is sent to the custodian with an attachment
- Open the folder c:\Source Tracker

___84. Verify that the database file SourceSummary.mdbb has been created. (*this name has been modified in order to send the file through email*)

- Rename the database from SourceSummary.mdbb to SourceSummary.mdb.
- Open the database SourceSummary.mdb.
- Open the table Sources Activity Summary.

___85. Verify that the source information has been written to the table.

Open the email with attachment.

___86. Verify that the source information has been written in the email attachment.

Example

Table 5.11 Tests for Create Summary Tables and Files of the sources

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
79	Verify that the message SourcesSummary.txt sent to [email address]	Pass ☐ Fail ☐
80	The file, "**SourcesSummary.txt"** has been created.	Pass ☐ Fail ☐
81	Source information has been written to the file.	Pass ☐ Fail ☐
82	Verify that the source information has been written in the email attachment.	Pass ☐ Fail ☐
83	Verify that the message SourceSummary.mdbb sent to [email address].	Pass ☐ Fail ☐
84	The database file, "**SourceSummary.mdbb**" has been created.	Pass ☐ Fail ☐
85	The source information has been written to the database table.	Pass ☐ Fail ☐
86	Verify that the source information has been written in the email attachment.	Pass ☐ Fail ☐
Comments		

Example

5.12. Force Database Read

5.12.1. Purpose

Verify that the database is re-read when the option is executed by the custodian. This option will provide synchronization of data to the Source Tracker clients when one of the clients modifies a data element.

5.12.2. Input

The custodian Z number is required to access this option. Knowledge of the Source Tracker database is necessary in order to modify an entry in the database.

5.12.3. Output

The action is noted in the System Log of the Source Tracker database.

5.12.4. Process Steps

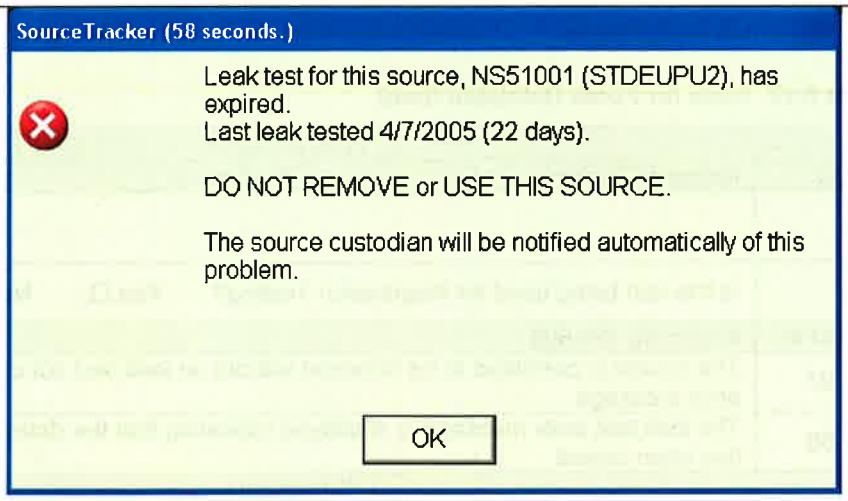
- Open the Source Tracker database named in the *Custodian Operations Edit Parameters* option.
- Select the *Sources* table.
- Change Source #1's "*Last Leak Test*" date to a date over a year from the current date.
- Save the database.
- Close the database.
- Select the Remove Source From Home Repository option.
- Select Source #1.

___87. Verify that the source is permitted to be removed without a leak test out of date error message.

- Press Cancel
- Select the Custodian Operations... button.
- Enter the custodian Z number.
- Select the Force Database Read option.
- Select Return to Main Menu
- Select the Remove Source From Home Repository option.
- Select the Source #1.

___88. Verify that the leak test error message is displayed indicating that the database has been reread.

Example



- Select OK.
- Select Cancel.
- Open the Source Tracker database
- Open the *Sources* table and reset the leak test date on the source id to its original value
- Close the database.
- Select the Custodian Operations... button.
- Enter the custodian ID number.
- Select the **Force Database Read** option to reread the database with the correct value

Example

Table 5.12 Tests for Force Database Read

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
87	The source is permitted to be removed without an leak test out of date error message	Pass ☐ Fail ☐
88	The leak test error message is displayed indicating that the database has been reread	Pass ☐ Fail ☐
Comments		

Example

5.13. Edit Program Parameters

5.13.1. Purpose

Verify that when values are entered into the dialog window that they are recorded in the registry in order to be used in the program. Test the Bar Code Scanner to ensure that it works as required.

5.13.2. Input

The custodian Z number is required for this option. Bar Code Scanner input.

5.13.3. Output

The registry of the system is updated with the values entered as verified by actions in Source Tracker. It should be noted that the PC reads serial ports differently than Source Tracker. The PC will assign serial ports starting with 0, while Source Tracker Starts with 1. Thus, a match in values would be Source Tracker Com 1 = Registry value 0.

5.13.4. Process Steps

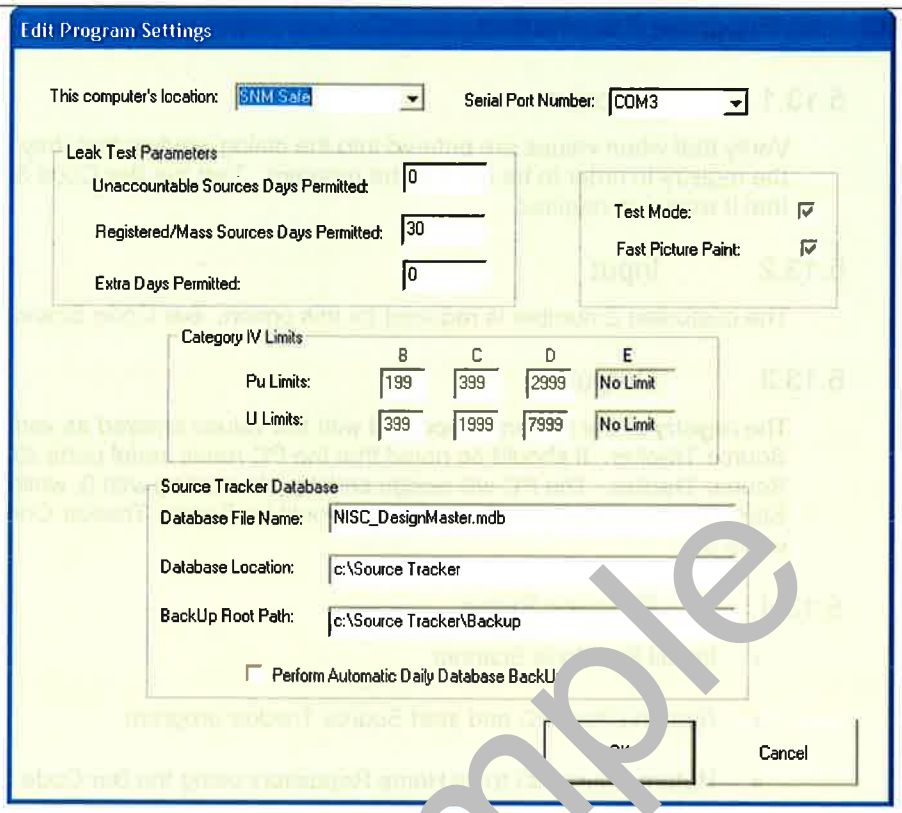
- Install Bar Code Scanner
- Restart Client PC and start Source Tracker program
- Return Source #3 to its Home Repository using the Bar Code Scanner.

___89. Verify that the Bar Code Scanner inputted the correct Authorized User and the correct source.

- Select the Custodian Operations… button.
- Enter the custodian Z number.

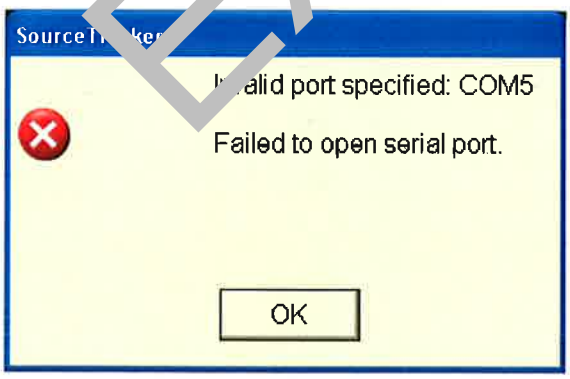
Select Edit Program Parameters…

Example



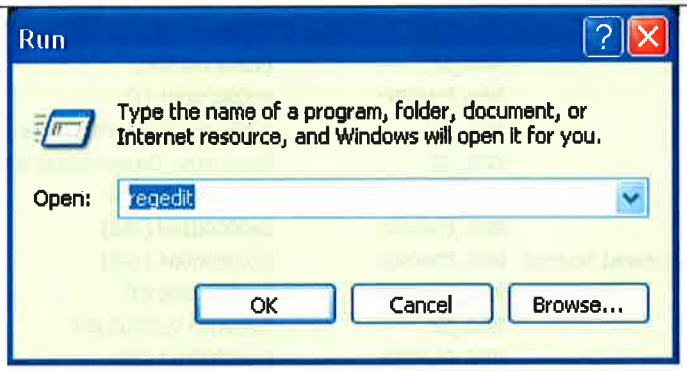
- Select a different **Serial Port Number** than the one that is currently selected.
- Ensure that the Test Mode checkbox is deselected.
- Click on OK.

___90. Verify that the program receives a message indicating that the serial port opening failed.

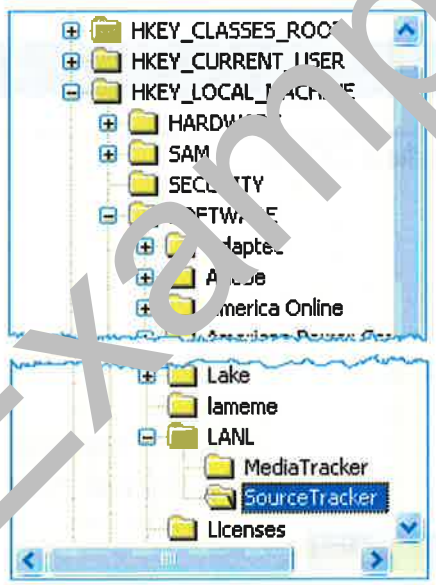


- Select OK
- Exit the Source Tracker program.
- Run regedit (displayed below).from the Windows START menu.

Example



- Select the HKEY_LOCAL_MACHINE folder in the registry (displayed below).
- Select the SOFTWARE folder.
- Select the LANL folder.
- Select the SOURCE TRACKER folder.



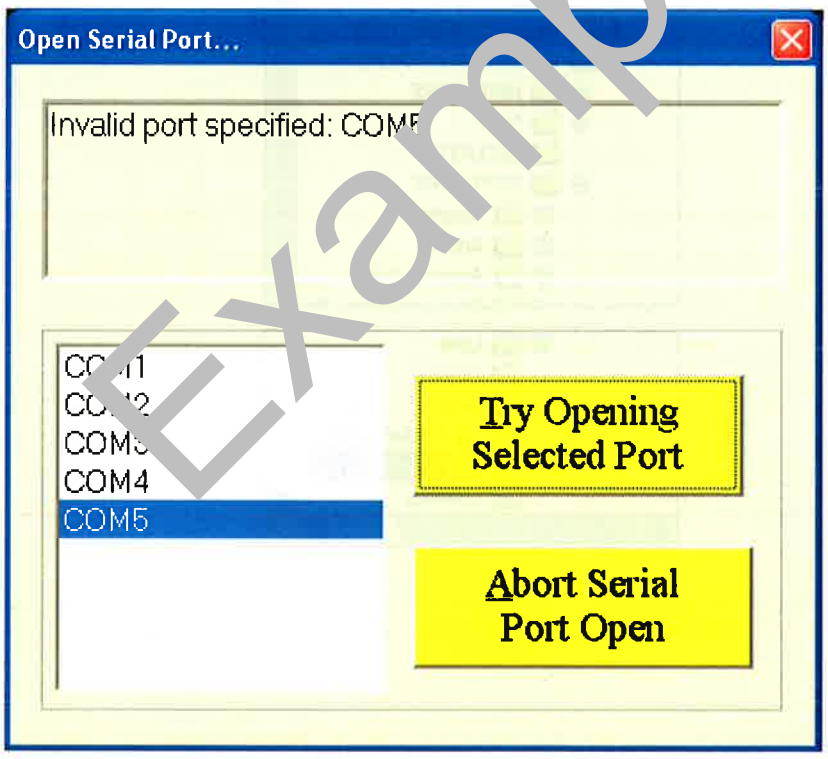
Example

Name	Type	Data
(Default)	REG_SZ	(value not set)
Automatic Daily Backup	REG_DWORD	0x00000001 (1)
Backup Root Path	REG_SZ	C:\Source Tracker\Database Backup
Database File Name	REG_SZ	Recovered_DesignMaster.mdb
Database Location	REG_SZ	C:\Source Tracker
Days between leak tests	REG_DWORD	0x0000016d (365)
Days between leak tests for Registered Sources	REG_DWORD	0x000000b4 (180)
Fast Picture Paint	REG_DWORD	0x00000000 (0)
Last Automatic Backup	REG_SZ	5/9/2005 9:20:02 AM
Leak test grace period	REG_DWORD	0x00000014 (20)
Serial Port Number	REG_DWORD	0x00000001 (1)
Test Mode	REG_DWORD	0x00000001 (1)
This Location	REG_SZ	SNM Safe

- The Window on the right displays Source Tracker Registry values.

___91. Verify that the Serial Port Number Value Registry has changed to the value selected above.

- Start the program.



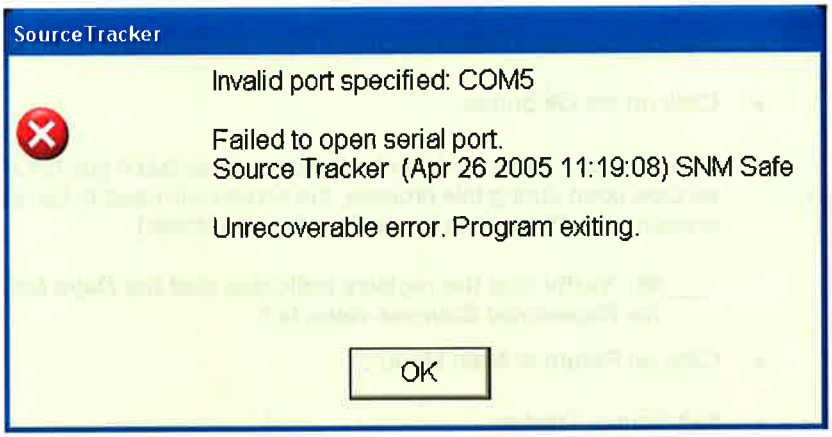
___92. Verify that the Open Serial Port message is displayed.

- Click on the Abort Serial Port Open button.
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).

___93. Verify that the Serial Port value has not changed.

Example

___94. Verify that the following message is displayed.

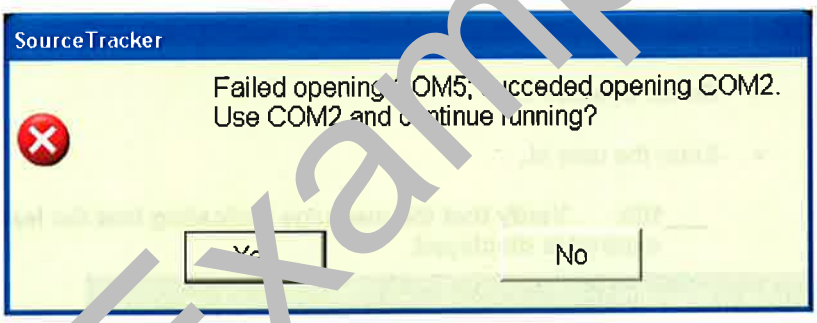


- Click **OK.**

___95. Verify that the program exits.

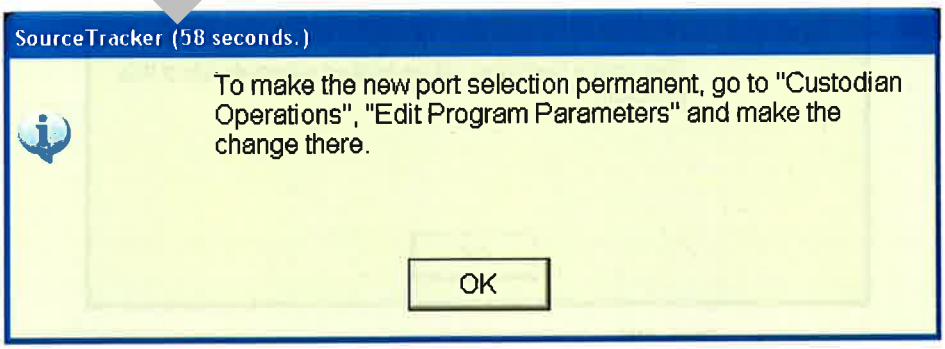
- Start the Source Tracker program.
- Select another serial port and click on t **Try Opening Selected Port** button.

___96. Verify that the following mess ge is displayed.



- lick on **YES.**

97. Verify that the following message is displayed.



- Use the Bar Code Scanner to select the **Custodian Operations…** option and to enter the custodian Z number.
- Select the Edit Program Parameters… option.
- Set the Serial Port Number to the valid Com port.

Example

- Select the Test Mode Checkbox so that it is selected.
- Set the Registered/Mass Sources Days Permitted to 1.
- Click on the **Ok** button.
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).

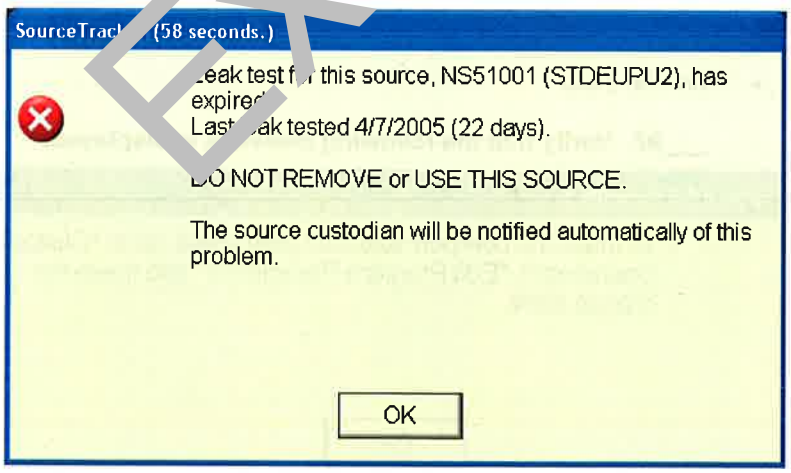
___98. Verify that the registry indicates that the *Days between leak tests for Registered Sources* value is 1.

- Click on Return to Main Menu.
- Exit Source Tracker
- Start Source Tracker
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).

___99. Verify that the *Days between leak tests for Registered Sources* value is still 1 (has not changed).

- Select REMOVE Source From Home Repository.
- Select Source #1.
- Enter the user id.

___100. Verify that the message indicating that the leak test has expired is displayed.

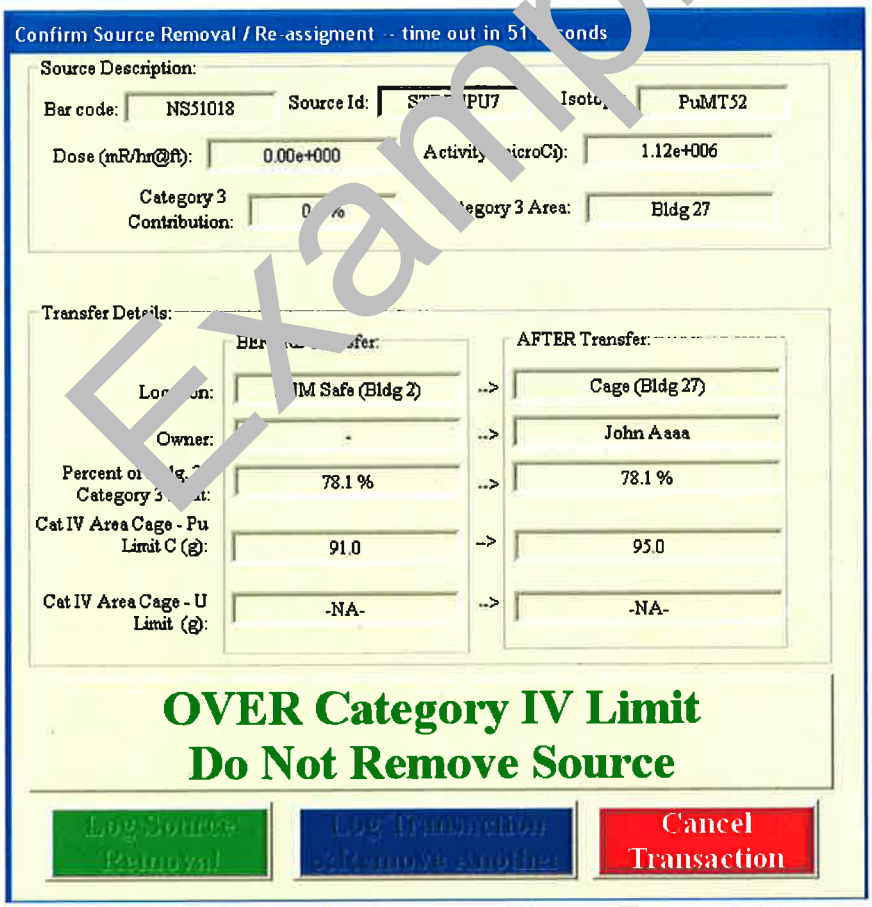


- Click **OK.**
- Click Cancel.
- Select the Custodian Operations... option.
- Enter a Custodian Z#.

Example

- Select the Edit Program Parameters… option.
- Reset the Registered/Mass Sources Days Permitted to 182 and Extra Days Permitted values to 1.
- Set the Category IV Limits C Pu Limit to 1.
- Select OK
- Select Return to Main Menu.
- Select REMOVE Source From Home Repository.
- Select Source #3
- Enter the user id.
- Select to move the source to a different MBA
- Enter Mass Authorized id.

___101. Verify that the Over Category IV Limit message is displayed.



- Select the Cancel Transaction button.
- Select the **Browse Sources…** button.

Example

___102. Verify that the source location is the same as before the transaction.

- Select the Custodian Operations… Command Button and the Edit Program Parameters… Command Button.
- Reset the Registered/Mass Sources Days Permitted, Extra Days Permitted and the "C" Pu Limit back to their original values.

Example

Table 5.13 Tests for Edit Program Parameters

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
89	Verify that the Bar Code Scanner inputted the correct Authorized User and the correct source.	Pass ☐ Fail ☐
90	Message: Serial port opening failed.	Pass ☐ Fail ☐
91	Serial Port Number in the registry has changed to the value selected above.	Pass ☐ Fail ☐
92	Verify that the Open Serial Port message is displayed.	Pass ☐ Fail ☐
93	The Serial Port Number has not changed.	Pass ☐ Fail ☐
94	Message: Invalid port specified	Pass ☐ Fail ☐
95	Program exits	Pass ☐ Fail ☐
96	Message: Failed opening COM; succeeded ope[illegible]COM	Pass ☐ Fail ☐
97	Message: To make the new port selection pe[illegible]anent..	Pass ☐ Fail ☐
98	*Days between leak tests for Registered So[illegible]rces* [illegible]alue i[illegible] the registry is 1	Pass ☐ Fail ☐
99	*Days between leak tests for Registe[illegible]ources* [illegible]alue [illegible] the registry is still 1 and has not changed.	Pass ☐ Fail ☐
100	Message: Leak test has expired.	Pass ☐ Fail ☐
101	Message: Over Category I[illegible]imi[illegible]	Pass ☐ Fail ☐
102	The source location is the s[illegible]am[illegible] as [illegible]ore the transaction.	Pass ☐ Fail ☐
[illegible]omments		

Example

5.14. Back Up Database

5.14.1. Purpose

Verify that the database can be manually backed up using this option and that the backup will be written to the directory selected by the user.

5.14.2. Input

This option is to executed by a custodian and the custodian id is required.

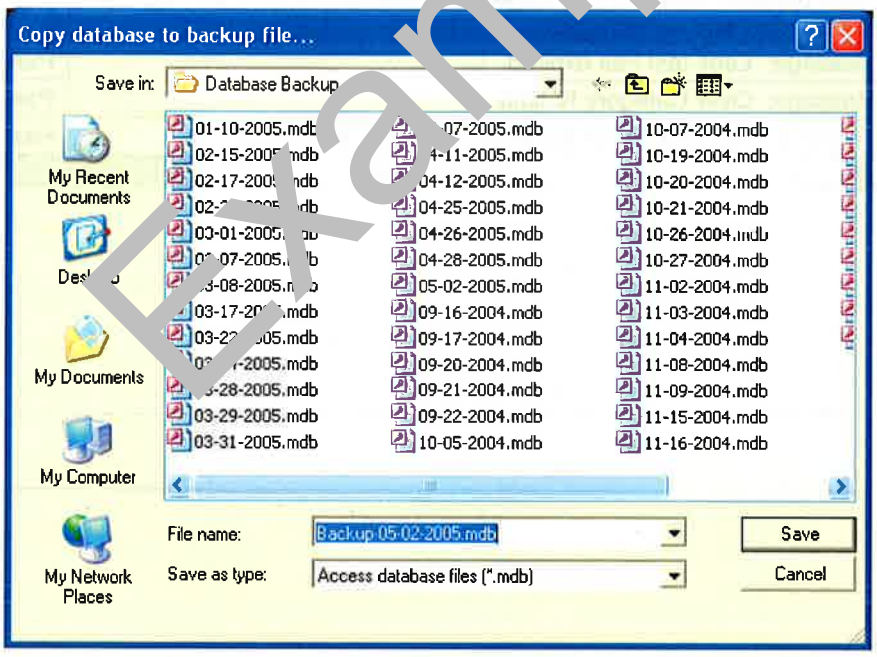
5.14.3. Output

The database will be written to the directory that has been selected.

5.14.4. Process Steps

- Select the Custodian Operations… option.
- Enter the Custodian Z number.
- Select the **Backup Database…** option.

___103. Verify that the program provides the window to select a directory to write the database to.



- Select a directory to write the database to.
- Click on the **Cancel** button.

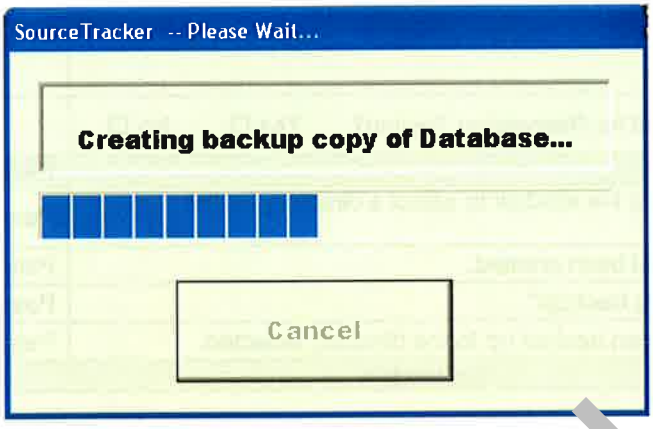
___104. Verify that a backup of the database has not been created by viewing the directory.

- Select the **Backup Database…** option.

Example

- Select a directory to write the database to.
- Click on the **Save** button.

___105. Verify that the "Creating backup message" is displayed.



___106. Verify that the database has been backed up to the selected directory by viewing the directory.

Example

Table 5.14 Tests for Back Up Database

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
103	The program provides the window to select a directory for the database.	Pass ☐ Fail ☐
104	The database has not been created.	Pass ☐ Fail ☐
105	Message: **"Creating backup"**	Pass ☐ Fail ☐
106	The database has been backed up to the directory selected.	Pass ☐ Fail ☐
Comments		

Example

5.15. Leak Test Selected Sources

5.15.1. Purpose

Verify that the user is able to perform leak testing on a few selected sources and that an email message of only those sources leak tested and/or selected will be sent to the custodian.

5.15.2. Input

This option requires a user with custodian privileges to perform the task.

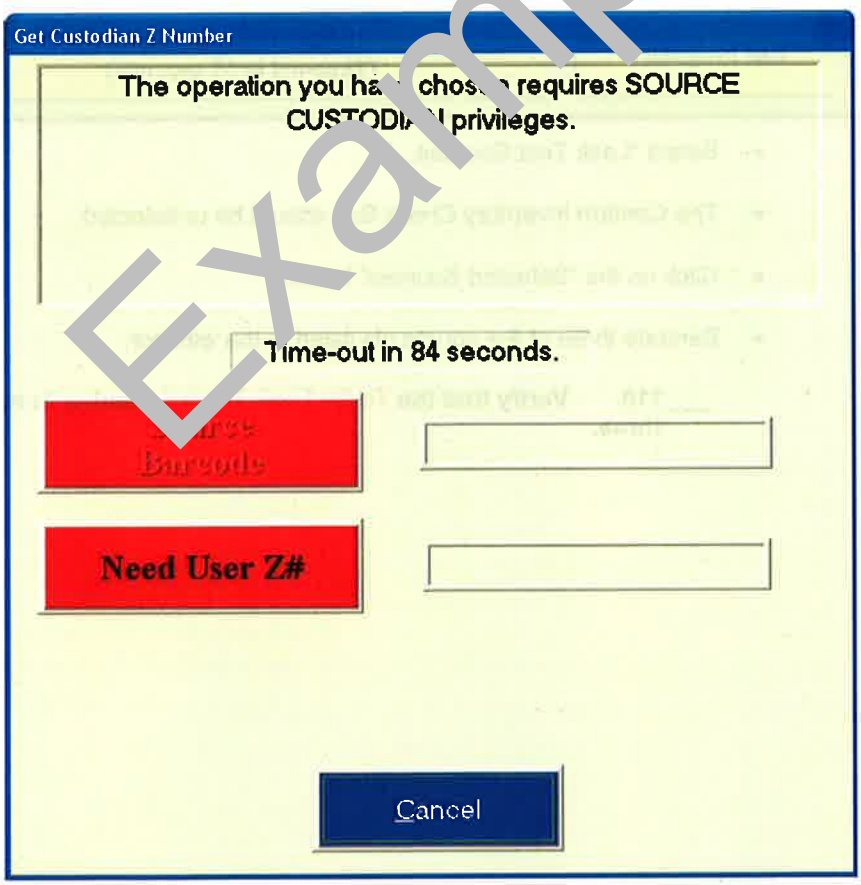
5.15.3. Output

The Source Tracker database is updated. An email is sent to the custodian indicating which sources need to be leak tested.

5.15.4. Process Steps

- Select "Custodian Operations"
- Let the time elapse.

___107. Verify that the user is prompted for the Custodian z number.



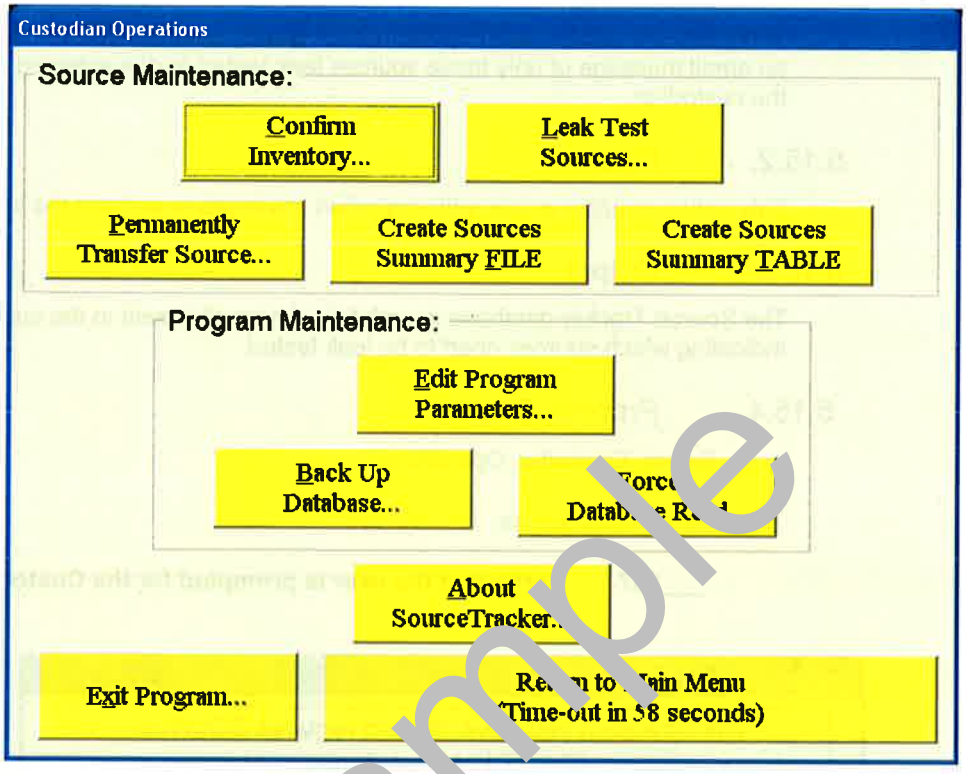
- Let the time elapse.

___108. Verify that the program returns to the main screen.

Example

- Select the "Custodian Operations…" button again.

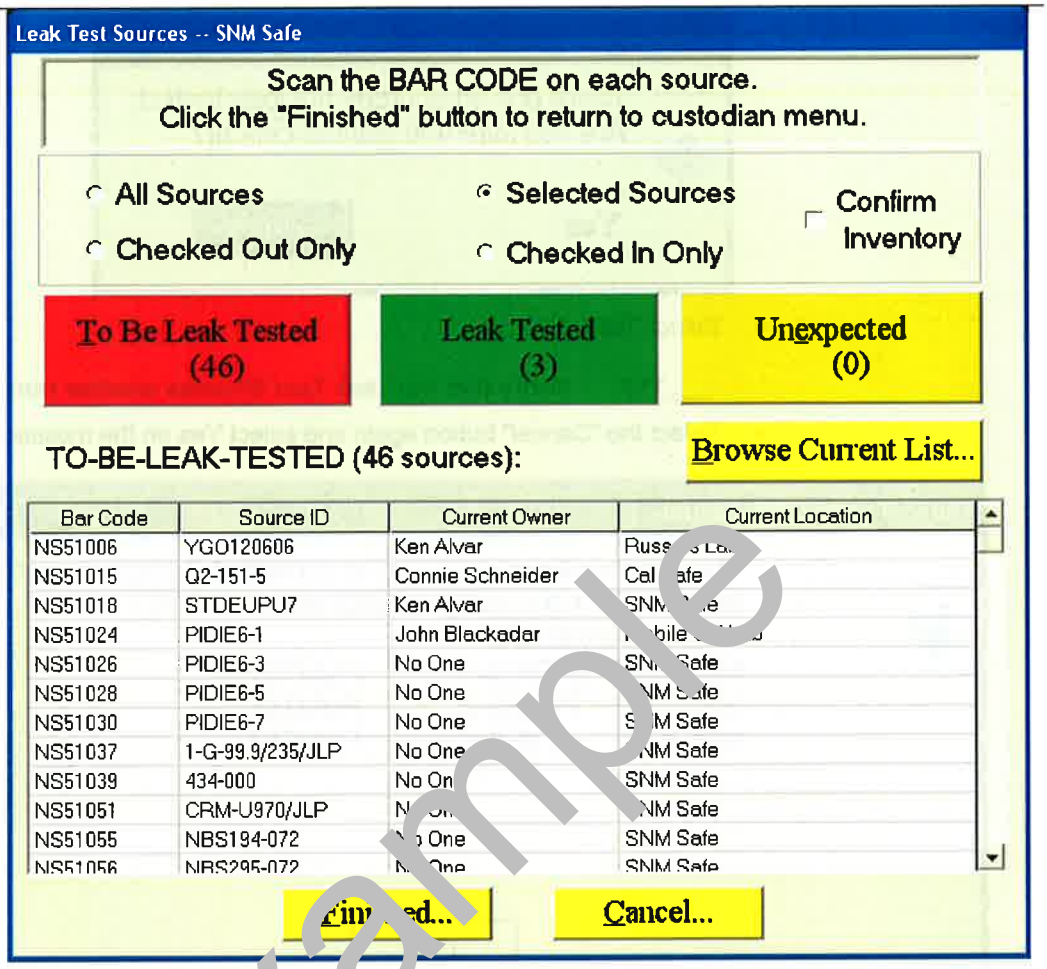
___109. **Verify that Custodian Operations window is displayed.**



- Select "Leak Test Sources..."
- The Confirm Inventory Check Box should be unselected
- Click on the "Selected Sources" button.
- Barcode three of the source ids listed in the window.

___110. **Verify that the To Be Leak Tested number is reduced by three.**

Example



- Click on the Fini... button.

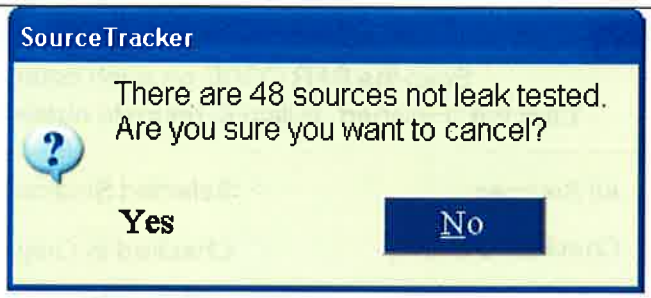
___111. Verify that the custodian is sent an email listing the sources that were tested.

___11. Open the database and verify that the source leak test has been updated (View Sources Table : Last Leak Test Column).

- Enter the Custodian Operations options again and select the Leak Test Sources option.
- The Confirm Inventory Check Box should be unselected
- Select "Selected Sources" and scan three new sources to be leak tested.
- Click on the "Cancel…" button.

___113. Verify that the following message occurs.

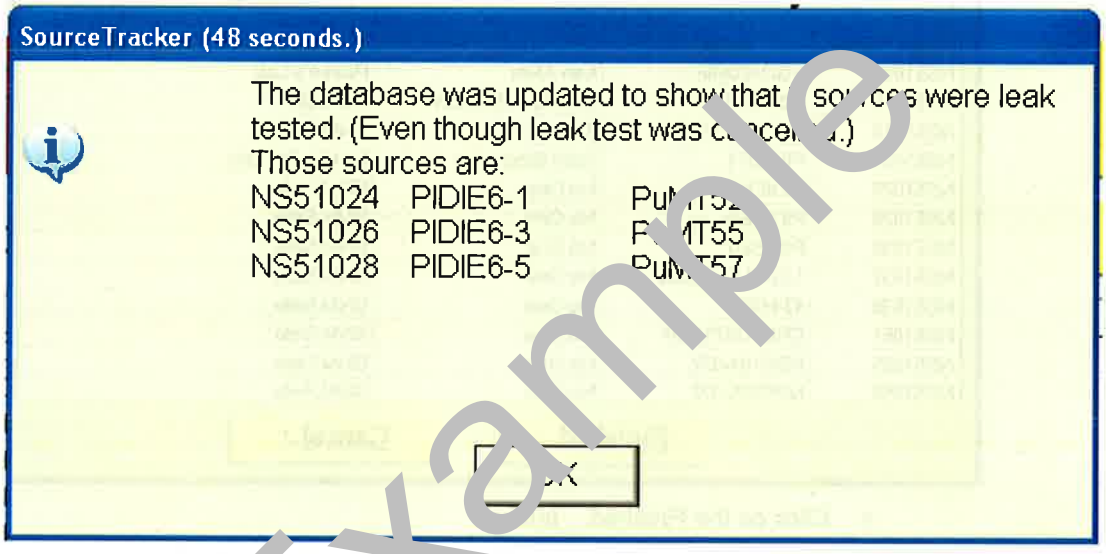
Example



- Select "No".

___114. **Verify that the Leak Test Sources window remains.**

- Select the "Cancel" button again and select Yes on the message window.



___115. **Verify that the custodian does not receive a message and the figure above appears.**

- Select the "Leak Test Sources…" option again.
- The **Confirm Inventory** check box should be selected.
- Click on the "Selected Sources" radio button.
- Select two sources for leak test and confirmation.
- Select Finished
- Select OK.

___116. **Verify that the sources are also marked as inventoried by viewing the database (Sources table/ "Last Inventory" column) and in the contents of the email.**

- Select Return to Main Menu

Example

Table 5.15 Tests for Leak Test Selected Sources

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
107	The user is prompted to enter the Custodian Z number.	Pass ☐ Fail ☐
108	The program returns to the main menu.	Pass ☐ Fail ☐
109	The Custodian Operations window is displayed.	Pass ☐ Fail ☐
110	The **To Be Leak Tested** number is reduced.	Pass ☐ Fail ☐
111	The Custodian is sent an email listing the sources that need to be tested.	Pass ☐ Fail ☐
112	Open the database and verify that the source leak test has been updated (View Sources Table : Last Leak Test Column).	
113	Message: Sources not leak tested…	Pass ☐ Fail ☐
114	Leak Test Sources window remains.	Pass ☐ Fail ☐
115	Custodian does not receive a message.	Pass ☐ Fail ☐
116	The sources are also marked as inventoried in the "Last Inventory" column of the Sources table in the database.	Pass ☐ Fail ☐
Comments		

Example

5.16. Calculate Thresholds

5.16.1. Purpose

Sources can be permanently transferred from one location to another. When this is done there is no verification that this occurred or that the transfer is within the limits required for the facility. This option will provide a message for the source custodian indicating that the source is going to be within the limits for the location it is being moved to. The threshold limits for the location where the source is removed from and the new location are displayed.

5.16.2. Input

This option requires a user with custodian privileges. The source id to be transferred is required.

5.16.3. Output

The database is updated with the new location of the source.

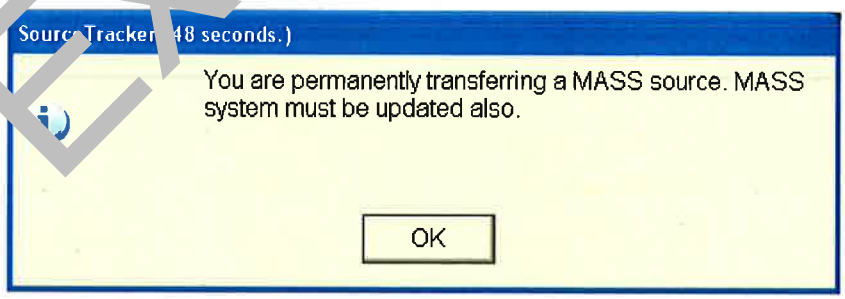
5.16.4. Process Steps

- Select the **Custodian Operations** option from the main window.

___117. Verify that the user is prompted for the Custodian z number.

- Scan the custodian badge
- Select the Permanently Transfer Source… option.
- Select Source #1.

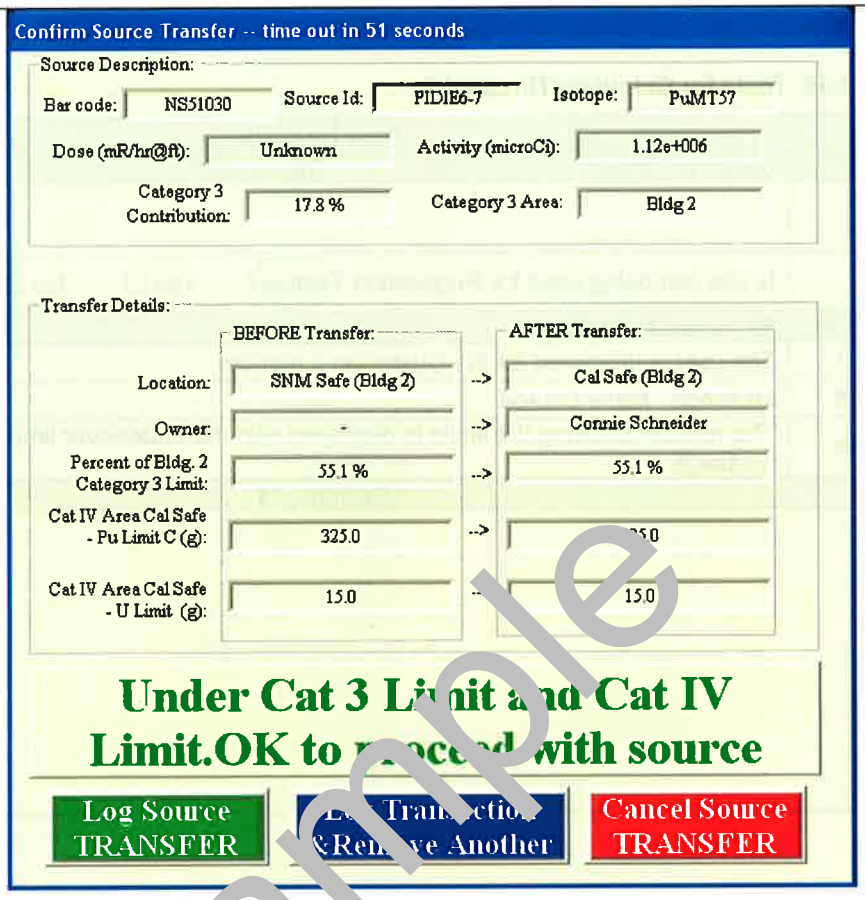
___118. Verify that this message is displayed.



- Click OK.
- Select a location from the window displayed.

___119. Verify that the window showing the limits is displayed with the under/over limit message.

Example



- Select Cancel Source Transfer.
- Select Return to Main Menu.

Example

Table 5.16 Tests for Calculate Thresholds

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
117	The user is prompted for the Custodian z number	Pass ☐ Fail ☐
118	Message: Mass Source	Pass ☐ Fail ☐
119	The window showing the limits is displayed with the under/over limit message	Pass ☐ Fail ☐
Comments		

Example

5.17. Input MAR Manually

5.17.1. Purpose

Verify that the source custodian is able to modify the MAR value for a source. This option is executed only by the custodian in the Source Tracker database.

5.17.2. Input

The modified MAR value.

5.17.3. Output

The modified MAR value will be used in the calculations performed by Source Tracker.

5.17.4. Process Steps

- Open the Source Tracker database.
- Modify the **MAR % Override** value in the ***Sources*** table of the database to a large value for Source #4. Save and Close the database.
- Perform a Force Database read from the Custodian Menu.
- Click on the **Browse Sources** option.
- Select the **Cat 3** tab.
- Select the **Cat 3 Sources only** check box.

___120. **Verify that the MAR % Override value entered in the database is displayed in the Cat 3 Frac column**

- Delete the value in the ***Sources*** table for the source. Save and Close the database.
- Perform a Force Database read from the Custodian Menu.
- Select Finished Browsing. Make sure the Access Database is closed.

Example

Table 5.17 Tests for Manual Input of MAR

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
120	The **MAR % Override** value entered in the database is displayed in the **Cat 3 Frac** column	Pass ☐ Fail ☐
Comments		

Example

5.18. SNM Item Check

5.18.1. Purpose

Verify that the custodian is notified when a MASS source is moved to a different Mass Location within the same MBA.

5.18.2. Input

The user id and source id are required.

5.18.3. Output

The custodian is notified by the user who is removing the source.

5.18.4. Process Steps

- Select the option REMOVE Source from its Home Repository.
- Enter the user id and Source #1
- Select a room that is within the same MBA but a different Mass Location.
- Select OK.

___**121. Verify that the custodian receives an email containing the source id, the name of the user who moved the source, and the new source location.**

- Select Cancel.

Example

Table 5.18 Tests for SNM Item Check

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
121	The custodian received an email containing the source id, the name of the user who moved the source, and the new source location	Pass ☐ Fail ☐
Comments		

Example

5.19. Automatic Backups

5.19.1. Purpose

Verify that the database is automatically backed up daily when the switch is set in the Edit Program Parameters window and that the value is changed in the Registry.

5.19.2. Input

The "Perform automatic daily database backup" check box in the Edit Program parameters option needs to be set to true.

5.19.3. Output

The database is backed up to the specified directory. Value viewed in Registry.

5.19.4. Process Steps

- Open the Start Menu in Windows.
- Select Run…
- Type in regedit.
- Hit the OK button.
- Click on HKEY_LOCAL_MACHINE
- Click on Software.
- Click on LANL.
- Click on Source Tracker.
- Double-Click on Last Automatic Backup.
- Change the date to 3 days ago.
- Hit OK.
- Close the Registry Editor.
- Select the Custodian Operations… option.
- Select the Edit Program Parameters option.
- Set the Perform Automatic Daily Database Backup checkbox.
- Exit the program
- Delete the latest database backup in the folder **C:\Source Tracker\backup**. The backup will be named with the date and time.
- Start the Source Tracker program.

___122. Verify that the message "Creating database backup" is displayed on startup.

Example

___123. Verify that the database has been backed up to the folder by examining the folder.

- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).

___124. Verify that the value in the registry for *Automatic Daily Backup* is 1.

___125. Verify that the value in the registry for *Backup Root Path* is C:\Source Tracker/backup

___126. Verify that the value in the registry for *Last Automatic Backup* is approximately at the date/ time the Source Tracker program was started.

- Select the Custodian Operations… option.
- Select the Edit Program Parameters option.
- Uncheck the Perform Automatic Daily Database Backup checkbox.
- Select ok.
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).

___127. Verify that the value in the registry for *Automatic Daily Backup* is 0

- Exit the program
- Delete the latest database backup in the folder **C:\Source Tracker\Database Backup**. The backup will be named with the date and time.

Start the Source Tracker program.

___128. Verify that the "Creating backup database" message is not displayed at startup.

___129. Verify that there is not a backup of the database in the folder by examining the folder.

___130. Verify that the value in the registry for *Automatic Daily Backup* is still 0.

- Open Windows explorer and go to C:\Source Tracker
- Add a new folder named backuptest
- Close Windows Explorer.
- Select the Custodian Operations… option.
- Select the Edit Program Parameters option.
- Reset the Perform Automatic Daily Database Backup checkbox to true in the Edit Program Parameters option.

Example

- Change the Database Location to C:\Source Tracker\backuptest
- Select ok.
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).

___131. Verify that the value in the registry for *Backup Root Path* changed to C:\Source Tracker\backuptest.

- Exit the program.
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).
- Double-Click on Last Automatic Backup.
- Change the date to 3 days ago.
- Hit OK.
- Start Source Tracker program.

___132. Verify that the "Creating backup database" message is displayed at start.

___133. Verify that there is a backup of the database is in the C:\Source Tracker\backuptest folder by examining the folder.

___134. Verify that the value in the registry for *Backup Root Path* is still C:\Source Tracker\backuptest.

- Open Windows Explorer and go to C:\Source Tracker
- Select the Custodian Operations… option.
- Select the Edit Program Parameters option.
- Change the Database Location back to C:\Source Tracker\backup
- Exit to Main Menu.

Example

Table 5.19 Tests for Automatic Backups

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
122	Message: "Creating database backup" is displayed on startup	Pass ☐ Fail ☐
123	Backup database exists in the designated folder.	Pass ☐ Fail ☐
124	Verify that the value in the registry for Automatic Daily Backup is 1.	Pass ☐ Fail ☐
125	Verify that the value in the registry for Backup Root Path is C:\Source Tracker/backup	Pass ☐ Fail ☐
126	Verify that the value in the registry for Last Automatic Backup is approximately at the date/ time the Source Tracker program was started.	Pass ☐ Fail ☐
127	Verify that the value in the registry for Automatic Daily Backup is 0.	Pass ☐ Fail ☐
128	Verify that the "Creating backup database" message is not displayed at startup.	Pass ☐ Fail ☐
129	Verify that there is not a backup of the database in the folder by examining the folder.	Pass ☐ Fail ☐
130	Verify that the value in the registry for Automatic Daily Backup is still 0.	Pass ☐ Fail ☐
131	Verify that the value in the registry for Backup Root Path changed to C:\Source Tracker\backuptest	Pass ☐ Fail ☐
132	Verify that the "Creating backup database" message is displayed at startup.	Pass ☐ Fail ☐
133	Verify that there is a backup of the database is in the C:\Source Tracker\backuptest folder by examining the folder.	Pass ☐ Fail ☐
134	Verify that the value in the registry for Backup Root Path is still C:\Source Tracker\backuptest.	Pass ☐ Fail ☐
Comments		

Example

5.20. MAR Acceptance Approval

5.20.1. Purpose

Verify that the calculations for MAR are correct.

5.20.2. Input

The user id and source id are required.

5.20.3. Output

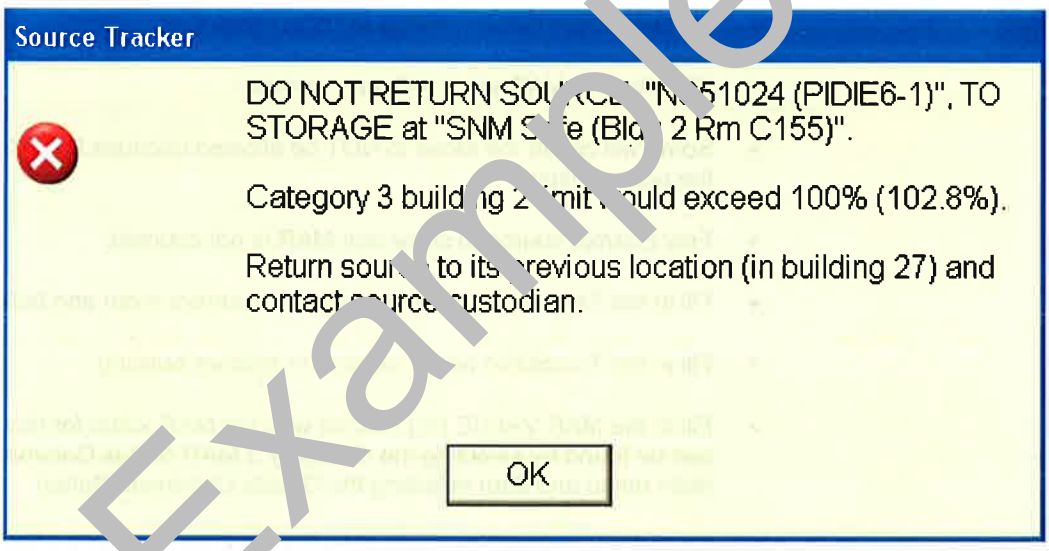
MAR value displayed when determining Category 3 status.

5.20.4. Process Steps

- Fill in the table provided in Appendix B.
- Fill the Source Column with a set of sources that
- Will alter the MAR value with each
- Some will cause the Move to NOT be allowed because the MAR value is over the allowed limit.
- Few Exempt source to show that MAR is not counted.
- Fill in the From column with the source's current room and building.
- Fill in the To column with a location in another building.
- Fill in the MAR VALUE (%) column with the MAR value for that source. This can be found by selecting the Category 3 MAR Status Command Button on the main menu and then selecting the Details Command Button.
- Fill in the yellow shaded cells with the initial MAR value for Building 2 and 27. This can be found by selecting the Category 3 MAR Status Command Button on the main menu.
- Remove the first source on the predetermined list to the location specified in column To (refer Section 5.2).
- If the move was allowed, fill in the two Source Tracker Value Columns by selecting the Category 3 MAR Status Command Button on the main menu. Put a "Y" in the Move allowed? Column.
- If the move was not allowed fill in the cell from the value determined in the *Confirm Source Removal / Reassignment* Window. Note that in this case only one MAR value can be verified. Put a "N" in the Move allowed? Column.
- Return the first source on the predetermined list back to its original location (refer Section 5.3).
- Select the Category 3 MAR Status Command Button on the main menu. Put in a "Y" in the RETURN Value and condition correct? column if the MAR values are the same as before.

Example

- Fill in the Hand Calc Verified Value column with the correct hand calculated value.
- Initial the Source Tracker meets criteria column if the values in the Source Tracker Value Columns are equal to or within + 1% error.
- Repeat the process steps in this section until the table is filled out. Note that the last few moves of the table test a special case.
- SPECIAL CASE:
- Move a large MAR source (Source A) from one building to another such that the percent MAR in near 95% to 99%.
- Move a MAR source (Source B) from one building the other building such that during a Return of Source A, the MAR limit is exceeded.
- The following message should appear:



Example

- Select ok.
- Return Source B
- Return Source A

___135. All of the rows in the Source Tracker meets criteria Column are initialed..

___136. SPECIAL CASE: Did the over-limit warning appear on the Return of Source A.

Table 5.20 MAR Acceptance Approval

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
135	All of the rows in the Source Tracker meets criteria Column are initialed.	Pass ☐ Fail ☐
136	SPECIAL CASE: Did the over-limit warning appear on the Return of Source A.	Pass ☐ Fail ☐
Comments		

Example

5.21. CAT IV Acceptance Approval

5.21.1. Purpose

Verify that the calculations for CAT IV are correct.

5.21.2. Input

The user id and source id are required.

5.21.3. Output

CAT IV value displayed when determining CAT IV status.

5.21.4. Process Steps

- Fill in the tables provided in Appendix C. Note that the column titles in these tables are highlighted in bold face for this section.
- Unless otherwise specified, all references are to the CAT IV TEST table in Appendix C.
- Fill the **Source** Column with a set of sources that meet the following criteria:
- Will alter the CAT IV value with each move.
- Each attractiveness level (B,C, D) for Pu and U should be tested at least twice.
- Sources will be selected/created to test PU B, C and D as well as U B, C and D for over mit checks and PU E and U E for calculation.
- Some sources may have to be created (Refer to N-ST-CM for guidance on how to add a source to the database) in order to check all test criteria. Some of these Test sources may need to be removed or set to 0 during this portion of the test.
- Fill the **From** column with the source's MBA, ML and Room.
- Fill in the **To** column with a location in another MBA, ML and Room.
- Put in Pu, U or both (PU/U) in the **SNM** column.
- Put the Attractiveness level value for Pu, U or both in the **Attractiveness level** column.
- Put the value in grams in **SOURCE Mass in grams** column.
- Fill in the **Initial CAT IV Values with Test Values Set** Table from Appendix C by selecting the Category IV Physical Security Command Button from the Main Menu.
- If some, or all, of the Test sources need to be set to 0, fill in the **Initial CAT IV Values with Test Values Set to 0** Table from Appendix C with the appropriate values by selecting the Category IV Physical Security Command Button from the Main Menu.

Example

- Remove the first source on the predetermined list (refer Section 5.2).
- If the move was allowed, fill in the two Source Tracker Value Columns **"BEFORE"** and **"AFTER"** allowed fill in the cell from the value determined in the *Confirm Source Removal / Reassignment* Window. Put a "Y" in the Move allowed? Column.
- If the move was not allowed fill in the cell from the value determined in the *Confirm Source Removal / Reassignment* Window. Put a "N" in the **Move allowed? Y/N** Column.
- Fill in the **Hand Calc Verified Total Value AFTER move** column with the correct hand calculated value.
- Check all PU and U Attractiveness level values by selecting the Category IV Physical Security Command Button from the Main Menu. Answer Yes or No in the **All other values the same? Y / N** column if all of the untested values remain the same or not, respectively.
- Return the first source on the predetermined list back to its original location (refer Section 5.3).
- Initial the Source Tracker meets criteria column if the values in the Source Tracker Value Columns are equal to or within + 1% error.
- Check all PU and U Attractiveness level values by selecting the Category IV Physical Security Command Button from the Main Menu. Answer Yes or No in the **Initial values the same after item RETURNed? Y / N** column if ALL of the values remain the same or not, respectively.
- Repeat the process steps in this section until the table is filled out.

___137. **All of the rows in the Source Tracker meets criteria in the CAT I TEST Table in Appendix C.**

___138. **When appropriate, the over limit warning displayed and did not allow a transfer over 100%.**

Example

Table 5.21 CAT IV Acceptance Approval

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
137	All of the rows in the Source Tracker meets criteria in the CAT IV TEST Table in Appendix C.	Pass ☐ Fail ☐
138	When appropriate, the over limit warning displayed and did not allow a transfer over 100%.	Pass ☐ Fail ☐
Comments		

Example

5.22. Transaction Log

5.22.1. Purpose

Verify that a transaction log is recorded in the databased.

5.22.2. Input

The custodian id required and knowledge of the database.

5.22.3. Output

none.

5.22.4. Process Steps

- Open the Source Tracker database.
- Open the Transaction Log

___139. Verify that the transactions of source have been recorded.

Example

Table 5.22 Tests for Transaction Log

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
139	Verify that the transactions of sources have been recorded.	Pass ☐ Fail ☐
Comments		

Example

5.23. Registry

5.23.1. Purpose

Verify that when values are entered into the dialog window in Source Tracker are reflected in the registry and that these values do not change when the program is restarted.

5.23.2. Input

The custodian Z number is required for this option.

5.23.3. Output

The registry of the system is updated with the values entered as verified by viewing the registry.

5.23.4. Process Steps

- Note that the Test Mode Registry is tested in Section 5.24.
- Note that the Windows Registry values *Serial Port Number* and the *Days between leak tests for Registered Sources* are tested in Section 5.13. The Windows Registry values *Automatic Daily Backup*, *Backup Root Path*, and the *Last Automatic Backup* are tested in Section 5.19. Thus, these values will not be tested in this section.
- Note that the Windows Registry value for *Fast Picture Paint* is not tested because it is a legacy item that no longer has an impact on the program.
- Note that the Windows Registry value for *Leak test grace period* is not tested because the value is set to 0 and never used by the Custodian.
- Note that Unaccountable Sources days Permitted in the Edit Program Parameters Window is referred to as *Days between leak tests* in the Registry.
- Select the Custodian Operations… button.
- Enter the custodian Z number.
- Select Edit Program Parameters…
- Change the computer's location to Source Safe.
- Change the Unaccountable Sources days Permitted to From 365 to 2.
- Select OK
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).

___140. Verify that the Registry value for *This Location* has changed to Source Safe.

___141. Verify that the Registry value for *Days between leak tests* has changed to 2.

- Exit program.

Example

- Start program.
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).

___142. Verify that the Registry value for *This Location* is still Source Safe.

___143. Verify that the Registry value for *Days between leak tests* is still 2.

- Select Source Details …

___144. Verify that the Title Bar on the Main Menu indicates status as Source Safe.

- Select the Custodian Operations… button.
- Enter the custodian Z number.
- Select Edit Program Parameters…
- Change the *computer's location* to SNM Safe.
- Change the Unaccountable Sources Days Permitted back to 365.
- Change Database File Name to a database name that is not located in the C:\Source Tracker directory; i.e. test.mdb. Use Windows Explorer to confirm that there is no test.mdb in that folder
- Select ok.

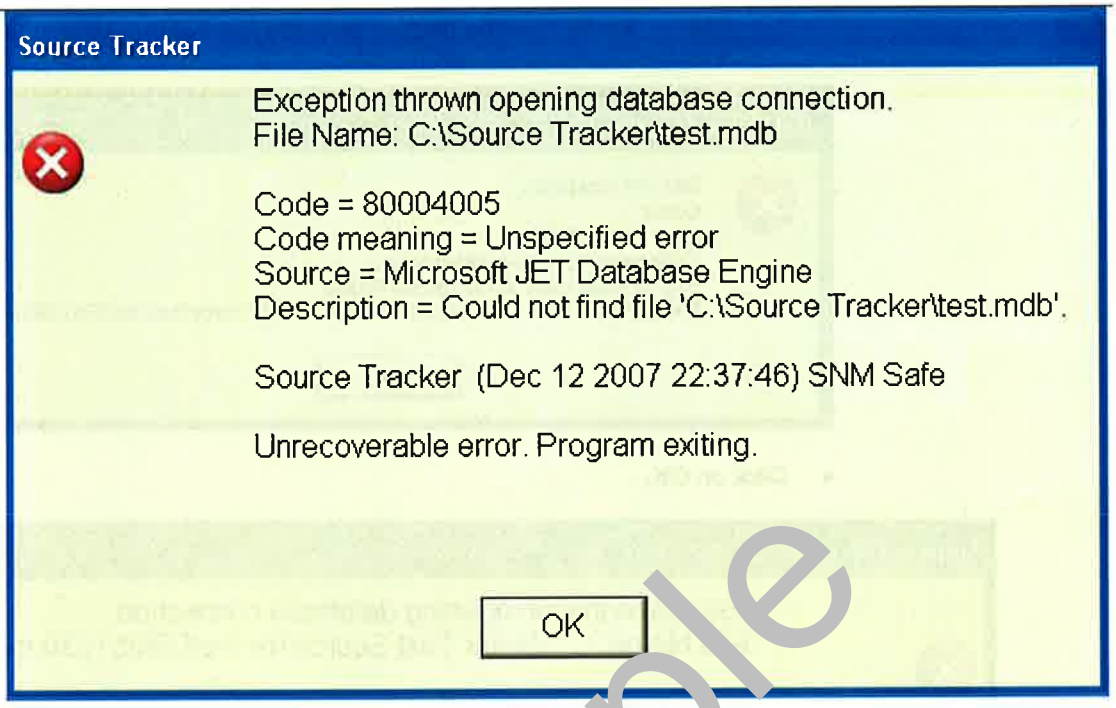
___145. Verify that the Database File Name has changed to the value indicated.

- Exit program.
- Start Program.

___146. Verify that the display (see the two figures below) indicates that the data base is not found.

- Select OK

Example



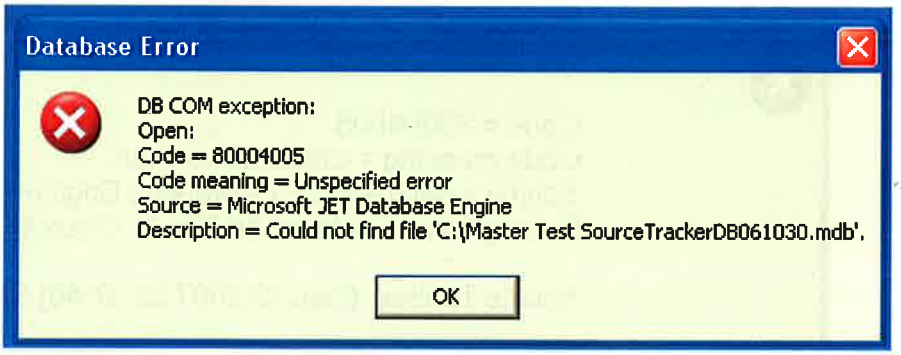
- Select OK
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).
- Double click on the Database File Name and change back to the original database name
- Select
- Start Program.
- Select the Custodian Operations… button.
- Enter the custodian Z number.
- Select Edit Program Parameters…
- Change the Database Location to C:\. Use Windows Explorer to confirm that there is no SourceTrackerDB061030.Mdb in that folder.
- Select OK.
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).

___147. Verify that the value for Database Location is C:\.

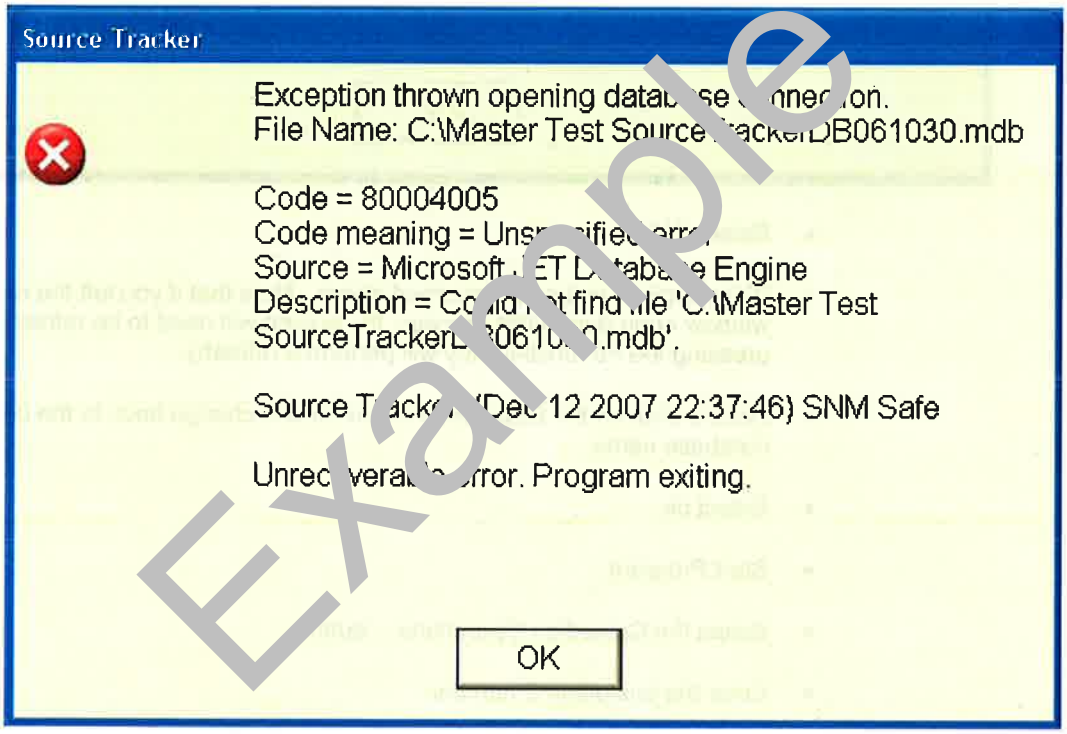
- Exit program.
- Start program

Example

___148. Verify that the display (see the two figures below) indicates that the data base is not found.



- Click on OK.



Example

- Click on OK.
- View Registry value as described above. Note that if you left the registry window open during this process, the screen will need to be refreshed (usually pressing the F5 function Key will perform a refresh).
- Double click on the Database Location and change back to Source Tracker.

Table 5.23 Tests for Registry settings

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
140	Verify that the Registry value for This Location has changed to Source Safe.	Pass ☐ Fail ☐
141	Verify that the Registry value for Days between leak tests has changed to 2.	Pass ☐ Fail ☐
142	Verify that the Registry value for This Location is still Source Safe.	Pass ☐ Fail ☐
143	Verify that the Registry value for Days between leak tests is still 2.	Pass ☐ Fail ☐
144	Verify that the display indicates that the source is due for a leak test.	Pass ☐ Fail ☐
145	Verify that the Database File Name has changed to the value inputted.	Pass ☐ Fail ☐
146	Verify that the display (see the two figures below) indicates that the data base is not found	Pass ☐ Fail ☐
147	Verify that the value for Database Location is C:\.	Pass ☐ Fail ☐
148	Verify that the display (see the two figures below) indicates that the data base is not found.	Pass ☐ Fail ☐
Comments		

Example

5.24. Database Storage Information

5.24.1. Purpose

Verify that the database contains specific information.

5.24.2. Input

none

5.24.3. Output

View Source Tracker's database.

5.24.4. Process Steps

- Open Source Tracker's database and view the window displaying the Tables of the database.

___149. Verify the database has an Authorized Users Table.
___150. Verify the database has a CAT 3 Log Table.
___151. Verify the database has a CAT IV Areas Table.
___152. Verify the database has a CAT IV Limits Table.
___153. Verify the database has a Change History Table.
___154. Verify the database has a Locations Table.
___155. Verify the database has a MASS Locations Table.
___156. Verify the database has a Nuclear Data Table.
___157. Verify the database has a Removed/Disposed Sources Table.
___158. Verify the database has a Source Types Table.
___159. Verify the database has a Sources Table.
___160. Verify the database has a System Log Table.
___161. Verify the database has a Transaction Log Table.
___162. Verify the database has a Warning Table.

- Exit the database.

Example

Table 5.24 Tests Database Information

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
149	Verify the database has an Authorized Users Table.	Pass ☐ Fail ☐
150	Verify the database has an CAT 3 Log	Pass ☐ Fail ☐
151	Verify the database has a CAT IV Areas Table.	Pass ☐ Fail ☐
152	Verify the database has a CAT IV Limits Table.	Pass ☐ Fail ☐
153	Verify the database has a Change History Table.	Pass ☐ Fail ☐
154	Verify the database has a Locations Table.	Pass ☐ Fail ☐
155	Verify the database has a MASS Locations Table.	Pass ☐ Fail ☐
156	Verify the database has a Nuclear Data Table.	Pass ☐ Fail ☐
157	Verify the database has a Removed/Disposed Sour[illegible] Ta[illegible]	Pass ☐ Fail ☐
158	Verify the database has a Source Types Table.	Pass ☐ Fail ☐
159	Verify the database has a Sources Table.	Pass ☐ Fail ☐
160	Verify the database has a System Log Table.	Pass ☐ Fail ☐
161	Verify the database has a Transaction Lo[illegible]ble.	Pass ☐ Fail ☐
162	Verify the database has a Warning Tabl[illegible]	Pass ☐ Fail ☐
C[illegible]mm[illegible]ts		

Example

6. Test Environment

6.1. Summary

This section addresses testing for the COTS support software that Source Tracker uses in order to carry out its designed tasks. For new system installations, the testing in this section and Section 7 should be completed in detail. For systems that are currently in operation, credit can be taken for Section 6.3 and Section 7. These systems typically have multiple client stations and sometimes are located in more than one building. In addition to their long operating history, the risk is extremely minimal that a full system recovery would be necessary. To document credit for Section 6.3 and Section 7, the tester would enter N/A for each test with a comment in each applicable summary table.

6.1.1. Equipment Required to Execute the Test

A first client PC machine, comprising a touch-screen equipped Source Tracker client station, following the requirements in § 3 *Test Environment* of N-ST-TP.

A second PC client machine, used for receipt of emails emitted by Source Tracker, and also for remote management of the Replication Manager, said machine satisfying standard desktop or laptop PC equipped with a Microsoft operating system, as used for email and word-processing tasks, said second machine equipped with Ethernet network capability.

A third PC Server machine, for operating the Replication Manager and hosting the Design Master Source Tracker database, with sufficient hardware capacity to support running the Microsoft Windows Server 2003 operating system, said third machine equipped with Ethernet network capability.

6.1.2. Software Required to Execute the Test

A first client machine, a touch-screen equipped Source Tracker client station, following the requirements in N-ST-TP, § 3 *Test Environment*:

- Source Tracker Version 2.0 software
- Microsoft Access 2000
- Microsoft Windows XP or Windows 2000 operating system
- Eudora (Qualcomm), email client software

A second client machine, used for receipt of emails emitted by Source Tracker, and also for remote management of the Replication Manager, requires:

- Microsoft Windows XP or Windows 2000 operating system
- Timbuktu (Motorola) remote control software
- Eudora (Qualcomm), email client software

A third server machine, for operating the Replication Manager and hosting the Design Master Source Tracker database, requires:

- Microsoft Access 2000
- Microsoft Windows Server 2003 operating system
- Microsoft Replication Manager

Example

- Timbuktu (Motorola) remote control software

Each machine must be networked on the same Windows domain, using Microsoft WINS. The first machine's file system containing the Source Tracker access database must be fully accessible from the third Server machine over the network using direct network paths. The second machine must have sufficient network connectivity to the third Server machine to support remote connection from the second machine to the third Server machine using Timbuktu software.

The Microsoft WINS network domain software must be configured to network the three machines together on the same Windows network domain, wherein at least two domain accounts are present, one for a Source Tracker custodian, and one for a Source Tracker user. WINS may run on the third Server machine or another unspecified PC supporting the WINS network functionality for the three test machines.

Example

6.2. ImagN, Pegasus Imaging Corporation

6.2.1. Purpose

Verify that the ImagN imaging software component is properly installed and functioning. Source properties descriptions, created and viewed from within Source Tracker, display an image of the source.

6.2.2. Test

Use the N-ST-TP, § 5.5 *Display List of Sources* test case. In step 5.5.4, test #1, ". . . verify that a picture of the source is displayed (if that source has a picture embedded into the database)". Make sure at least on source in the list has an associated image available for display.

___163. A picture (embedded into the database) of at least one source in the display list is shown. See N-ST-TP, § 5.5.4, test #29.

Example

Table 6.1 ImagN Test

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
163	See N-ST-TP, § 5.5.4, test #29. A picture (embedded into the database) of at least one source in the display list is shown.	Pass ☐ Fail ☐
Comments		

Example

6.3. Microsoft Windows XP SP2, Windows Server 2003, WINS

6.3.1. Purpose

Verify the underlying networked PCs supporting distributed management of multiple Source Tracker installations through the use of the Replication Manager interoperate correctly.

6.3.2. Process Steps

- Note: the following steps may already have been performed as part of the essential network configuration tasks for installing a distributed Source Tracker system.
- Set up a first machine, a touch-screen equipped Source Tracker client station, following the requirements in § 3 *Test Environment* of N-ST-TP.
- Set up a second PC, running Windows Server 2003.
- Install and configure the WINS domain software on the second PC, or another PC on the same network.
- Connect the first and second (and the optional third WINS domain) machine on a shared Ethernet network.
- Configure the first and second (and optional third) machines to coexist on the same WINS domain.
- Install Source Tracker on the first client machine, see § 3.2 *Source Tracker Installation Script* in N-ST-CM.

___164. Create one network domain user account with administrative privilege.

___165. Log on to the second machine using the domain user account from step 1.

___166. Share the database location on the first machine, typically c:\Source Tracker, such that the second server machine has read and write access to the shared folder over the network.

___167. Log on to the second machine using the domain user account from step 1.

___168. Using the Windows Explorer, navigate to the shared network location on the first machine, and then verify the database folder content is visible from the second machine.

Example

Table 6.2 Tests for Operating System and Networking Functionality

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
164	Domain user account with admin privilege created?	Pass ☐ Fail ☐
165	Domain user account allows log on to client machine?	Pass ☐ Fail ☐
166	The selected folder successfully shared for read/write access over the network?	Pass ☐ Fail ☐
167	Domain user account permits log on to server machine?	Pass ☐ Fail ☐
168	Shared client folder is visible, readable and writeable from server machine?	Pass ☐ Fail ☐
Comments		

Example

6.4. Microsoft Access 2000

6.4.1. Purpose

Verify the correctness of Source Tracker's use of Microsoft Access database components and technology.

6.4.2. Tests

Every test in N-ST-TP exercises some aspect of Microsoft Access 2000. Select two such tests, and if the two tests execute correctly, then this test passes.

___169. See N-ST-TP, §§ 5.1-22. Select and execute two tests. If both tests pass, select Pass, otherwise select Fail.

Example

Table 6.3 Tests for Microsoft Access 2000

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
169	See N-ST-TP, §§ 5.1-22. Select and execute two tests. If both tests pass, select Pass, otherwise select Fail.	Pass ☐ Fail ☐
Comments		

Example

6.5. Microsoft Replication Manager

6.5.1. Purpose

Verify the Replication Manager software product is properly installed and functioning. Manually synchronizing at least on client database with the Design Master, or verifying an automatic synchronization successfully completed, satisfies this test.

6.5.2. Input

A Source Tracker Custodian creates a database replica and places it under Replication Manager control; manually synchronizes using the Replication Manager; observes the progress and results of Replication Manager synchronization while it occurs; and reviews Replication Manager log files for evidence of correct Replication Manager operation.

6.5.3. Output

The Replication Manager logs all of its operation in the Windows Server 2003 machine. These log contents provide evaluable results.

6.5.4. Process Steps

- Verify the installation of the Replication Manager, as described in N-ST-CM, § 3.4 *Replication Manager*.

___170. Configure the Replication Manager with at least one client database replica, as described in N-ST-CM, § 7.4 *Add a client in Replication Manager*. Observe successful addition of client database.

___171. Manually synchronize the replica database. Observe synchronization occurs.

___172. Examine and retain the Replication Manager log file content showing replica addition and synchronization success.

___173. Verify that Replication Manger performs synchronizations between the master database and the client computers at least once per 15 minute intervals.

Example

Table 6.4 Tests for Force Database Read

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
170	The replica is created and listed in the list of replicated databases in the Replication Manager user interface display.	Pass ☐ Fail ☐
171	Status in the Replication Manager user interface display shows synchronization is in progress.	Pass ☐ Fail ☐
172	The Replication Manager logs show correct processing corresponding to steps 1 and 2.	Pass ☐ Fail ☐
173	Verify that Replication Manger performs synchronization between the master database and the client computers at least once per 15 minute intervals	Pass ☐ Fail ☐
Comments		

Example

6.6. Qualcomm Eudora

6.6.1. Purpose

Verify that Eudora sends emails from relevant transactions performed by Source Tracker clients. Verify the custodian receives these same emails on an administrative PC machine, preferably using Eudora as the receiving client.

6.6.2. Input

See N-ST-TP, § 5.11.2 *Create Summary Tables and Files of the Sources.* Input.

6.6.3. Output

See N-ST-TP, § 5.11.3, *Create Summary Tables and Files of the Sources.* Output.

All email(s) and attachments (SourceSummary.txt) created by Source Tracker.exe for test 5.11 and sent to the custodian email account.

6.6.4. Process Steps

- Verify Eudora is installed on the first machine, the Source Tracker client, as described in N-ST-CM, § 3.6 *Eudora.*
- On a third machine (a custodian's PC for tasks other than dedicated Source Tracker use), verify the email account used in § 3.6 can be accessed on the PC using Eudora or other email client.

___174. Run N-ST-TP, § 5.11 Create Summary Tables and Files of the Sources.

___175. According to N-ST-CM § 6.1.4, *Create Sources Summary FILE*, the generated output file SourceSummary.txt created in 5.11 is sent as an attachment to the custodian's email address.

___176. Log on to the custodian's PC, and read email, thereby receiving any and all emails generated by the 5.11 test.

Example

Table 6.5 Tests for Eudora

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
174	Run N-ST-TP, § 5.11 *Create Summary Tables and Files of the Sources.*	Pass ☐ Fail ☐
175	Eudora successfully sends an email with a file attachment to the custodian's email address.	Pass ☐ Fail ☐
176	The custodian email account is used to retrieve the email created in test step 2.	Pass ☐ Fail ☐
Comments		

Example

6.7. Motorola Timbuktu

6.7.1. Purpose

Verify that the Timbuktu remote access software is installed and functioning. Verify Timbuktu correctly controls the Replication Manager on the Windows Server 2003 Server machine.

6.7.2. Input

The custodian operates Timbuktu to connect remotely to the Server machine.

The custodian operates the Replication Manager, via Timbuktu.

6.7.3. Output

Replication Manager logs.

6.7.4. Process Steps

- Verify Timbuktu is installed on the server machine, the Server, as described in N-ST-CM, § 3.5 *Timbuktu*.
- Verify Timbuktu is installed on a third machine (a custodian's PC for tasks other than dedicated Source Tracker use), as described in N-ST-CM, § 3.5 *Timbuktu*.

  ___ **177. Verify remote connectivity from the third machine to the Server using Timbuktu by connecting to the Server using the custodian's account.**

  ___ **178. While remotely connected to the Server, run test § 6.5 *Microsoft Replication Manager*, described above.**

- Disconnect from the Server, and close Timbuktu.

Example

Table 6.6 Tests for Force Database Read

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
177	Custodian successfully connects to the Server using Timbuktu, from the administrative PC.	Pass ☐ Fail ☐
178	The *Microsoft Replication Manager* test, executed remotely via Timbuktu, passes.	Pass ☐ Fail ☐
Comments		

Example

7. Source Tracker Disaster Recovery Test

This section addresses testing for Source Tracker, its associative hardware and the COTS support software that Source Tracker uses in order to carry out its designed tasks. For new system installations, the testing in this section and Section 6.3 should be completed in detail.

For systems that are currently in operation, credit can be taken for Section 6.3 and this Section. These systems typically have multiple client stations and sometimes are located in more than one building. In addition to their long operating history, the risk is extremely minimal that a full system recovery would be necessary. To document credit for Section 6.3 and Section 7, the tester would enter N/A for each test with a comment in each applicable summary table

7.1. Discussion

7.1.1. Disaster recovery

After a disaster, LANL must recover the status of all sources tracked by Source Tracker. Disasters include human error, unexpected hardware failure, a natural or man-made physical event, or intentional hacking and modification of software and data.

A recovered Source Tracker system contains the most recently available data state, where complete physical inventory restores knowledge from data gaps, coupled with a running Source Tracker software and hardware system. In other words, a recovered Source Tracker system contains data representing the current physical status of all tracked sources, and operates as intended.

The steps to recovery of a working Source Tracker system with the most recent source status comprise

1. performing a complete physical inventory of all sources in affected area;
2. acquiring from the best available backup archive the essential Source Tracker software, support software and most recent source database;
3. acquiring sufficient hardware resources to install and deploy Source Tracker;
4. installing and deploying a working Source Tracker software and hardware system using the results of steps 2 and 3;
5. comparing and reconciling the most recent available validated Source Tracker database backup from step 2, with the inventory of step 1; and
6. modifying the deployed Source Tracker database content such that the database content for each source is in agreement with the reconciliation of step 5.

7.1.2. System components required for complete system reconstruction

- Per N-ST-SPP § 6.2, *Configuration Methodology*, all software configuration items, including the Source Tracker installation package, support (COTS) software installation packages, Source Tracker software source code, all source-code related assets used to construct the Source Tracker software, and all supporting documentation for Source Tracker, are stored in the LANL "yellow" network SourceForge configuration management system.

The contents of SF are available at any time. CTN personnel independently back up the SF content off-site.

Example

7.1.3. Source data retention and recovery

A custodian may make ad-hoc manual database backups at any time using the Source Tracker software command *Back Up Database*….

See N-ST-CM § 6.4 *Back Up Database* for details.

- A local database backup occurs on each client system when Source Tracker software starts up. N-ST-SRS § 3.2, SR 19, *Automatic Database Backups*.

See N-ST-CM § 4.2 *Database Backup* and § 6.2.1.8 *Perform Automatic Daily Database Backup Checkbox* for configuration instructions.

- Synchronized copies of the Source Tracker database exist on each client and the Server machine. Minimum interval between synchronizations is 15 minutes.

Central to data recovery is the use of the Replication Manager for maintaining multiple up-to-date copies of a fully synchronized Source Tracker database. N-ST-CM, § 3.4, 7.4. Multiple copies of the Source Tracker database provide redundancy for the latest snapshot of source status for the complete set of sources tracked by Source Tracker. The Replication Manager software, running on the Server machine, synchronizes each client database with the Design Master database. Each client database, also known as a replicated database, is identical in content with all other client databases within the synchronization interval, normally less than 15 minutes.

- LANL system backups accrue independently for each Source Tracker client and server machine.

The Source Tracker client and the Server machines operate on LANL's "yellow" network. LANL's lab-wide Tivoli Storage Manager (TSM) system backs up machines on the "yellow" network nightly. The TSM backup resides off-site from TA-35 and the NISC. Material moves first to disk in the TSM system, then to permanent tape-based storage.

LANL's Office of the CIO tested TSM backups for assurance. See [CIO-ST-TIVOLI] and [CIO-ST-REMOVABLE MEDIA].

7.2. Disaster Recovery Test

7.2.1. Purpose

Verify complete recovery from total loss of the Source Tracker software and hardware system and associated source data.

A completely recovered Source Tracker system contains the most recently available data state, where complete physical inventory restores knowledge from data gaps, coupled with operative Source Tracker hardware and software.

Example

7.2.2. Input

Archived Source Tracker software system material, used for installation.

Archived Source Tracker database(s).

7.2.3. Output

A current Source Tracker database on all restored client and server machines.

Source Tracker summary reports and Replication Manager logs. These reports and logs verify correct recovery of data, and show continuing successful Source Tracker system operation.

7.2.4. Process Steps

Note: The test process may start with step 1 or 2 depending on the depth of the recovery procedure under test.

7.2.4.1. *Software System Recovery*

___179. From LANL Tivoli Storage Manager (TSM): Use TSM to recover the most recent complete Source Tracker SourceForge project content: the Source Tracker source code and related content, and the pre-built Source Tracker application and final installation script and related content. Prepare an updated SourceForge project with this most recent content.

___180. From LANL SourceForge: Obtain access to the Source Tracker SourceForge project (LANL/CVN) containing the Source Tracker source code and related content, and the pre-built Source Tracker application and final installation script and related content.

___181. If rebuilding the Source Tracker application and installation script, follow the build instructions accompanying the Source Tracker source code and development tools.

7.2.4.2. *Hardware and Support Software System Recovery*

___182. Acquire and prepare hardware following N-ST-SRS § 3.9, *Hardware Requirements.*

___183. Acquire and prepare third-party support software not obtained from TSM, SourceForge or a Custodian (steps 1, 2 or 3). These products are listed in N-ST-BL, and also shown in N-ST-SRS § 2.1.2.

___184. Install Source Tracker, using the installation script content copied directly from the pre-built material retrieved in steps 1, 2, or 3, or newly built in step 4, by following N-ST-CM § 3.2 *Source Tracker Installation Script.*

___185. Configure the Replication Manager on the Server machine following the instructions in N-ST-CM § 7.4.

7.2.4.3. *Recovering the most recent Source Tracker database.*

Note: database recovery procedure details will vary in scope depending upon the data gap interval length, (minutes, days or weeks), the number of systems affected by the disaster (one, some, all?), and the dates of the most recent trusted database backups obtainable from TSM, SourceForge or a Custodian. Although the following procedure has been described in some detail for purposes of clarity of understanding, it will be apparent that certain changes and modifications may be practiced within the scope of the procedure's goals. It

Example

should be noted that there are alternative ways of implementing both the process steps and starting point of the database recovery procedure.

___186. **Perform a complete physical inventory of the sources assigned to the affected Source Tracker systems.**
___187. **Acquire the most recent database backups of each affected Source Tracker system from TSM.**
___188. **Obtain the most recent database backup preserved by a Custodian, if any.**
___189. **Install the most recent database for each Source Tracker system.**
___190. **Install the most recent Design Master database and replica on the Server.**
___191. **Use the Replication Manager to synchronize all the databases, manually resolving and reconciling any conflicts. See the Replication Manager software manual for information on using the Replication Manager to resolve conflicts between synchronized databases.**
___192. **Manually reconcile the differences between the complete physical inventory results from step 7, and the updated Source Tracker database from step 12.**
___193. **Manually update the replica database on the Server with all changes identified in the reconciliation analysis of step 12.**
___194. **Synchronize the changes on the Server to the distributed replica databases on each Source Tracker system.**

Example

Table 7.1 Tests for Disaster Recovery

Test Results		
Date:	**Name of Tester:** **Signature:**	
	Is this test being used for Regression Testing? Yes ☐ No ☐	
Test #:	**Expected Results:**	**PASS/FAIL**
179	TSM backup of SourceForge content is successfully restored.	Pass ☐ Fail ☐
180	SourceForge project content is successfully accessed and retrieved for use.	Pass ☐ Fail ☐
181	Application and installation material built from recovered content.	Pass ☐ Fail ☐
182	Hardware constructed and operable.	Pass ☐ Fail ☐
183	Support software installed on hardware and operable.	Pass ☐ Fail ☐
184	Source Tracker installed on client systems.	Pass ☐ Fail ☐
185	Client and Server database replication configured and operable.	Pass ☐ Fail ☐
186	Physical inventory results available for use.	Pass ☐ Fail ☐
187	Database backups from TSM identified and acquired.	Pass ☐ Fail ☐
188	Database backups acquired from a Custodian.	Pass ☐ Fail ☐
189	Most recent databases installed on Source Tracker systems	Pass ☐ Fail ☐
190	Most recent Server database Design Master and replica installed on Server.	Pass ☐ Fail ☐
191	Client and server databases synchronized.	Pass ☐ Fail ☐
192	Reconciliation of synchronized databases and physical inventory.	Pass ☐ Fail ☐
193	Server database updated with any modifications identified in 15.	Pass ☐ Fail ☐
194	Client and server databases synchronized with updated database changes.	Pass ☐ Fail ☐
Comments		

Example

APPENDIX A

Source Tracker Test Acceptance

Authority	Name	Title/Org	Signature	Z#	Date

Example

APPENDIX B

MAR Verification

Example

Source	From		To		MAR VALUE (%)					Move allowed? Y / N	RETURN Value and conditions correct? Y / N	Source Tracker meets criteria (-001% to +1% error) **Initial**
	Room	Blg	Room	Blg								
					exempt							
					exempt							
>>>>>>>>>>>>>>>>>>>>>>>>>> SPECIAL CASE <<<<<<<<<<<<<<<<<<<<<<<<<<												
											NO RETURN	
											NO RETURN	

APPENDIX C

CAT IV Verification

Initial CAT IV Values with Test Values Set

MBA	B – PU (g)	C – PU (g)	D – PU (g)	B – U (g)	C – U (g)	D – U (g)
425						
424						

Initial CAT IV Values with Test Values Set to 0

MBA	B – PU (g)	C – PU (g)	D – PU (g)	B – U (g)	C – U (g)	D – U (g)
425						
424						
LIMITS	199	399	2999	399	1999	7999

Example

CAT IV Test

SOURCE	From			To			SNM	Attractiveness Level	SOURCE Mass in grams	Source Tracker Total Value BEFORE move	Source Tracker Total Value AFTER move	Hand Calc Verified Total Value AFTER move	All other values the same? Y / N	Move allowed? Y / N	Source Tracker meets criteria (0% to +1% error) Initial	Initial values the same after item RETURNed? Y/N
	MBA	ML	Room	MBA	ML	Room										
>>>>>>>>>>>>>>>>>>>>>>>> SET VALUES to 0 <<<<<<<<<<<<<<<<<<<<<<<<																

Example