

Quickscore User's Guide

Version 3.2

Environmental Protection Agency

*Office of Superfund Remediation
and Technology Innovation*

Disclaimer

Please note that the data and resulting scores rely on your understanding and adherence to the rules of the Hazard Ranking System (HRS). Use of this product does not guarantee that an HRS package that you submit for National Priorities List (NPL) consideration is either qualified or compliant with the guidance and rules of the HRS. All packages and scores are subject to EPA Headquarters inspection and qualification.

Table of Contents

1.0	Getting Started	1
1.1	What is HRS Quickscore?	1
1.2	Who should use HRS Quickscore?	1
1.3	What type of equipment do I need to run HRS Quickscore?	1
1.4	How do I install HRS Quickscore?	1
1.5	Do I need to register the software before I can begin?	6
1.6	How do I start HRS Quickscore?	6
1.7	Who should I contact if I need help using HRS Quickscore?	6
2.0	Getting Around	6
2.1	How is HRS Quickscore organized?	6
2.2	What are the screen components?	7
2.2.1	How do I use the maximize, minimize and exit buttons?	7
2.2.2	How do I use the Quickscore Home and Quickscore Help buttons?	8
2.2.3	How do I use the Left-side navigation menu (Create New Site, Create New Scenario, View/Edit Existing files)	9
2.2.3.1	<i>How do I create a new site?</i>	9
2.2.3.2	<i>How do I create a new scenario?</i>	9
2.2.3.3	<i>How do I view and/or edit existing files?</i>	10
2.2.4	How do I use the Action Toolbar (Save As, Import, Export, Undo, Redo, Print, and Calculator)?	10
2.2.4.1	<i>How do I use the "Save As" option?</i>	10
2.2.4.2	<i>How do I use the "Export" option?</i>	11
2.2.4.3	<i>How do I use the "Import" option?</i>	11
2.2.4.4	<i>How do I use the "Undo" option?</i>	12
2.2.4.5	<i>How do I use the "Redo" option?</i>	12
2.2.4.6	<i>What are my printing options within HRS Quickscore?</i>	12
2.2.4.7	<i>How do I use the Calculator function?</i>	13
2.2.5	How do I enter notes, references or other comments?	13
2.2.6	What do the "Source Information" and "Pathway Scoresheets" tabs do?	14
2.2.7	How do I delete information?	14
2.2.8	How do I save information?	14
2.2.9	What does the summary window at the bottom of the screen do?	15
2.3	How do I update SCDM values?	15
3.0	Scoring a Site	17
3.1	How do I calculate a score using HRS Quickscore?	17
3.2	How do I enter Site Characteristics (site/scenario) information?	18
3.3	How do I enter source information?	19

3.3.1 How do I use the “Associate Substances” button? 20

3.4 How do I use the pathway scoresheets? 22

3.4.1 How do I use the Scenario Summary? 23

3.4.2 How do I use the GW Scoresheet? 23

 3.4.2.1 *How do I calculate a Ground Water Pathway score?* 23

 3.4.2.2 *How do I add or delete aquifers?*..... 25

3.4.3 How do I use the SW Scoresheet? 25

 3.4.3.1 *How do I enter the Overland Flow component?*..... 26

 3.4.3.2 *How do I enter the Ground Water to Surface Water component?*..... 31

 3.4.3.3 *How do I add or delete Watersheds?* 38

3.4.4 How do I use the SESsI Scoresheet?..... 38

 3.4.4.1 *How do I enter Areas of Contamination for the Soil Exposure Component?* 39

 3.4.4.2 *How do I calculate a Soil Exposure Component score?*..... 40

 3.4.4.3 *How do I delete a SE Scoresheet?*..... 40

 3.4.4.4 *How do I enter Areas of Observed Exposure for the Subsurface Intrusion Component?*..... 41

 3.4.4.5 *How do I enter an Area of Subsurface Contamination for the Subsurface Intrusion Component?..*42

 3.4.4.6 *How do I calculate a Subsurface Intrusion Component score?*..... 43

 3.4.4.7 *How do I delete a SsI Scoresheet?* 44

3.4.5 How do I use the Air Scoresheet? 44

 3.4.5.1 *Air mobility* 45

 3.4.5.2 *How do I delete an Air Scoresheet?* 45

Appendix A Printout of Blank HRS Scoresheets 46

1.0 Getting Started

1.1 What is HRS Quickscore?

HRS Quickscore was created by the Office of Superfund Remediation and Technology Innovation (OSRTI) of the U.S. Environmental Protection Agency (EPA) to assist in scoring sites using EPA's Hazard Ranking System (HRS) (<https://www.epa.gov/superfund/introduction-hazard-ranking-system-hrs>)

HRS Quickscore is an electronic data entry system that executes real time site score calculations. It was designed to assist in developing a conceptual site model for conducting site assessments under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

1.2 Who should use HRS Quickscore?

This product is intended for use by those individuals who plan and implement Preliminary Assessments (PAs), Site Inspections (SIs), and other data collection efforts according to the HRS rules, as well as those individuals that write and review HRS documentation records. You should have a basic knowledge of the HRS and the HRS factor values.

1.3 What type of equipment do I need to run HRS Quickscore?

HRS Quickscore is designed for a computer running Windows 7 or later versions. Your computer must also have at least 60 MB of RAM and 201 MB of free space on the hard drive. Installation process may require 280MB of free hard drive space.

1.4 How do I install HRS Quickscore?

Step 1: If downloading from a network or internet, identify the drive and directory where HRS Quickscore is located.

Step 2: Locate the HRSQuickscoreV32Installer.exe file in the directory where you downloaded HRS Quickscore.

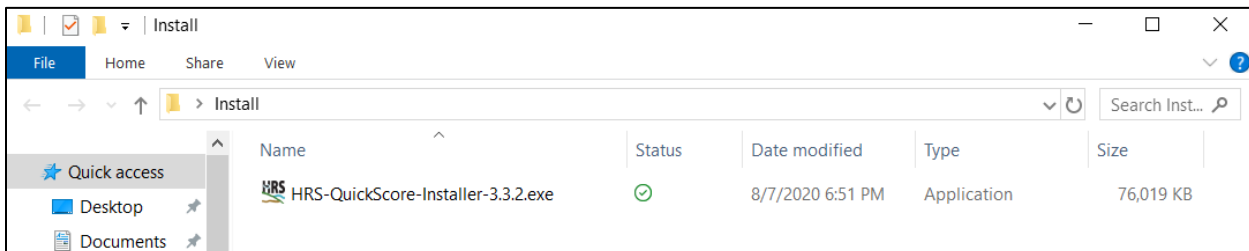


Figure 1-1: Location of Quickscore Installation File

Step 3: Double-click on the HRSQuickscoreV32Installer.exe file.

Step 4: If the users system does not have .NET Framework 2.0 then License Agreement for the framework will be show up. Please accept the License Agreement.

Step 5: Follow the prompts in the installation process. The screens of the installation process are as follows:

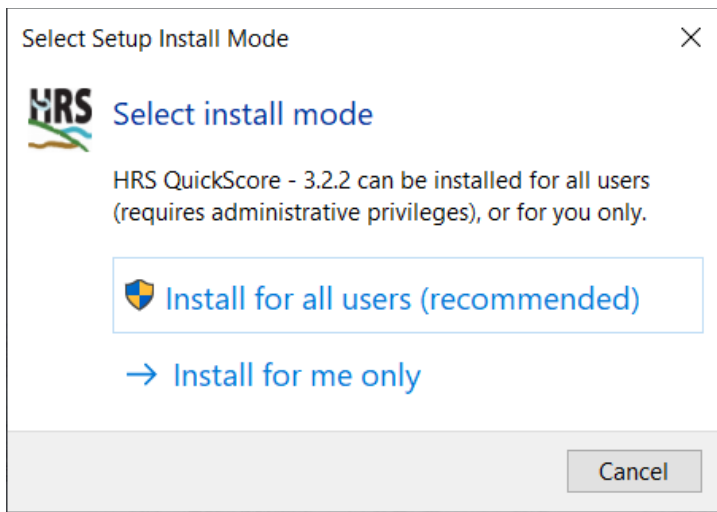


Figure 1-2: Select Setup Install Mode

Select the type of install, install for all users is recommended.

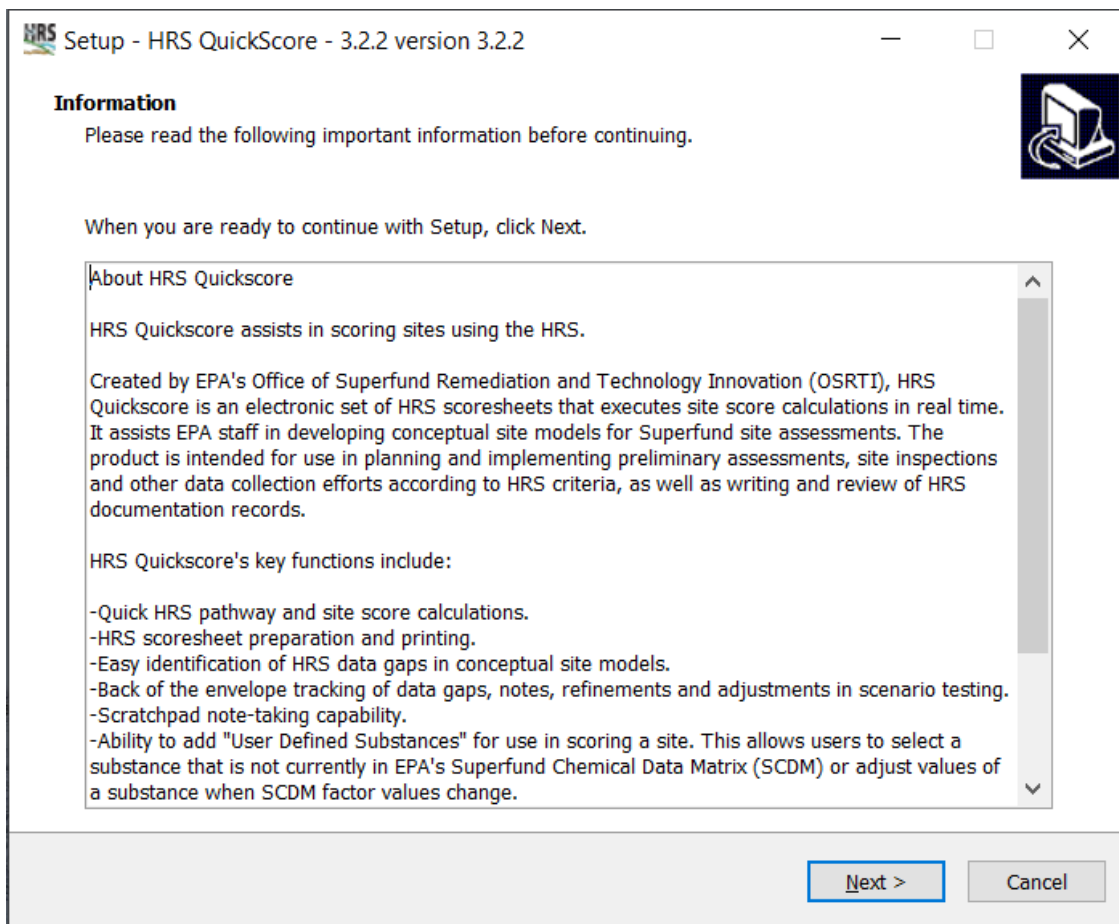


Figure 1-3: Quickscore Information Screen

This screen (Figure 1-3) provides information about Quickscore. Click “Next” to proceed.

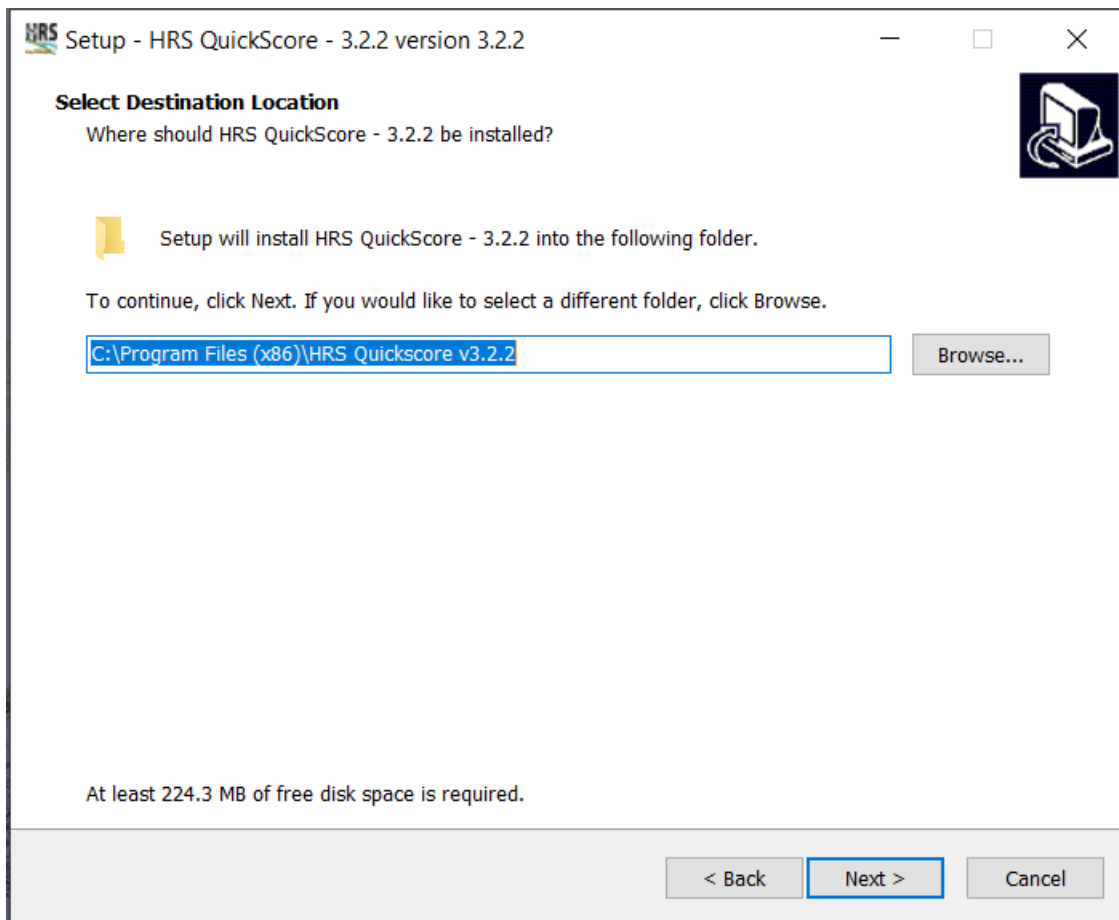


Figure 1-4: Select Installation Folder

This screen (Figure 1-4) allows you to change the installation directory from the default of “C:\Program Files(x86)\HRS Quickscore v3\” to whatever you prefer. Select “**Browse...**” to change the installation directory. Once all information is set, click “**Next**”.

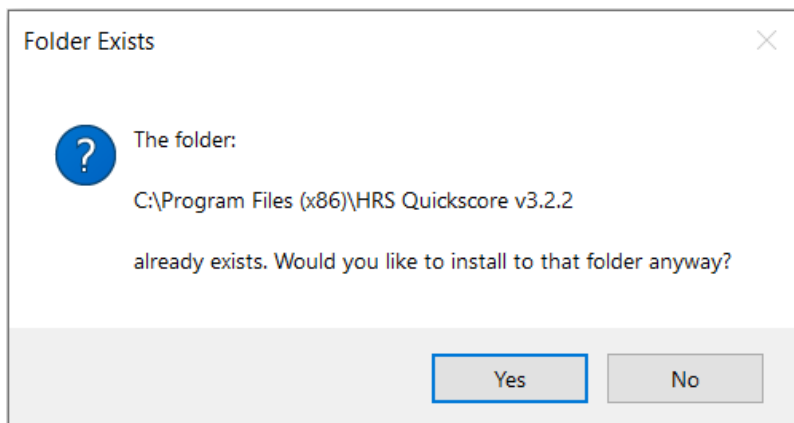


Figure 1-5: Folder Exists

This screen, shown in Figure 1-5, only appears if you have a previous version of Quickscore installed. You should have uninstalled any previous versions of Quickscore before beginning to install; however these folders remain to preserve your site and scenario information. Select “**Yes**” to proceed with installation.

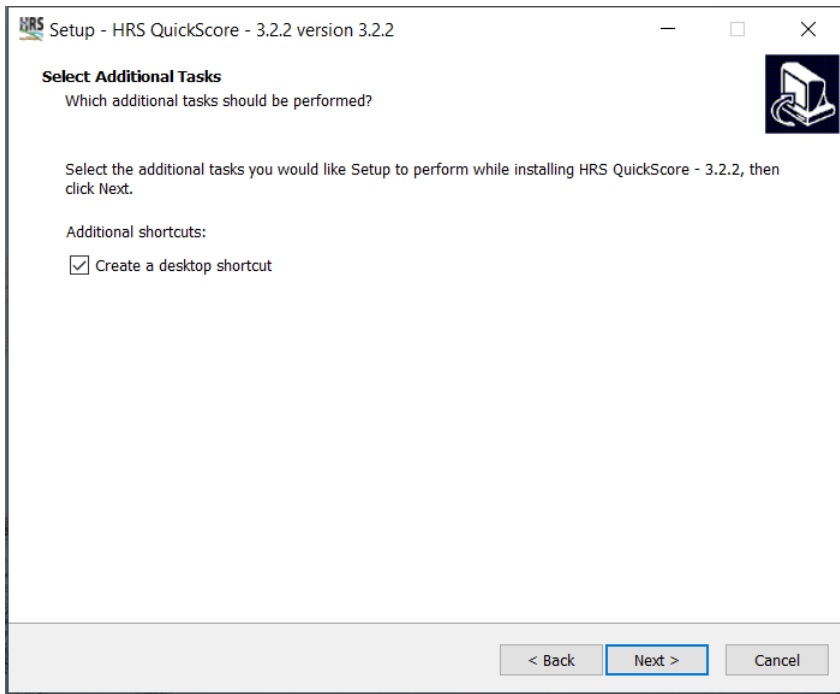


Figure 1-6: Creating a Desktop Shortcut

The screen shown in Figure 1-6, allows the user to create a shortcut for Quickscore on the desktop. Check the box to create a shortcut, if desired and then click “**Next**” to continue.

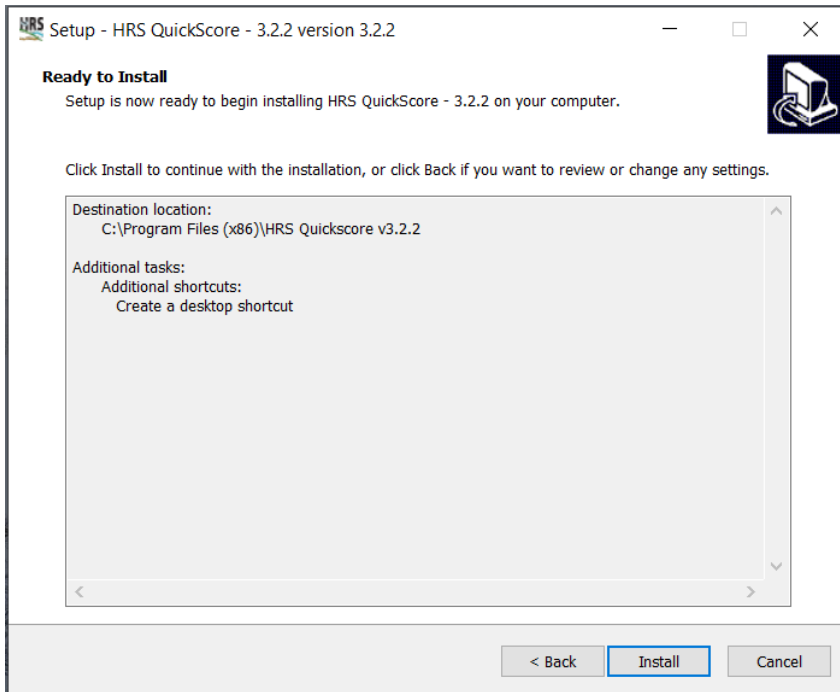


Figure 1-7: Ready to Install

This screen, shown in Figure 1-7, gives you the opportunity to review your selections. Select “**Back**” if you want to change any of your selections. Otherwise select “**Install**” to continue.

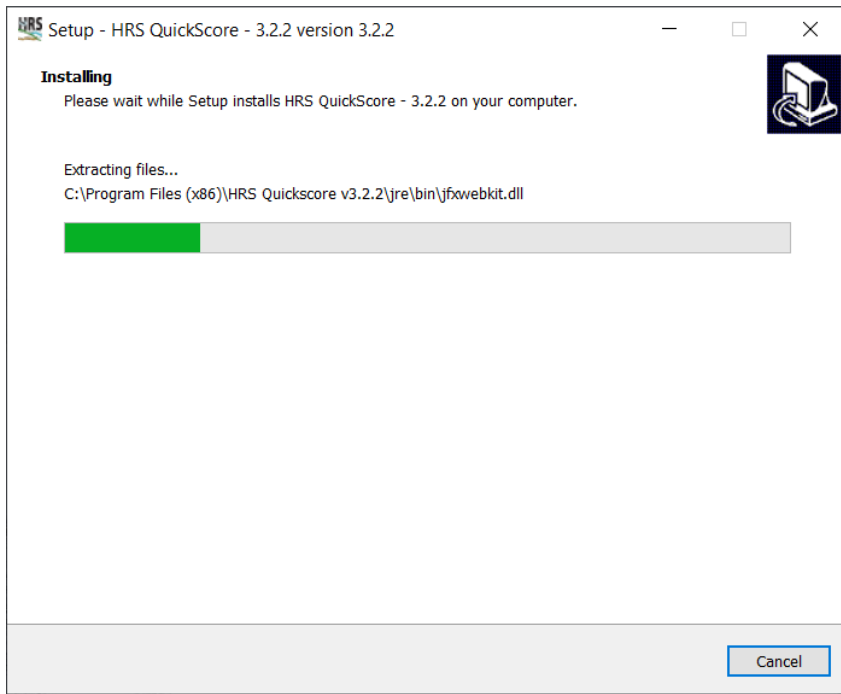


Figure 1-8: Installing

HRS Quickscore will start to load, the progress of which is indicated as shown in Figure 1-8.

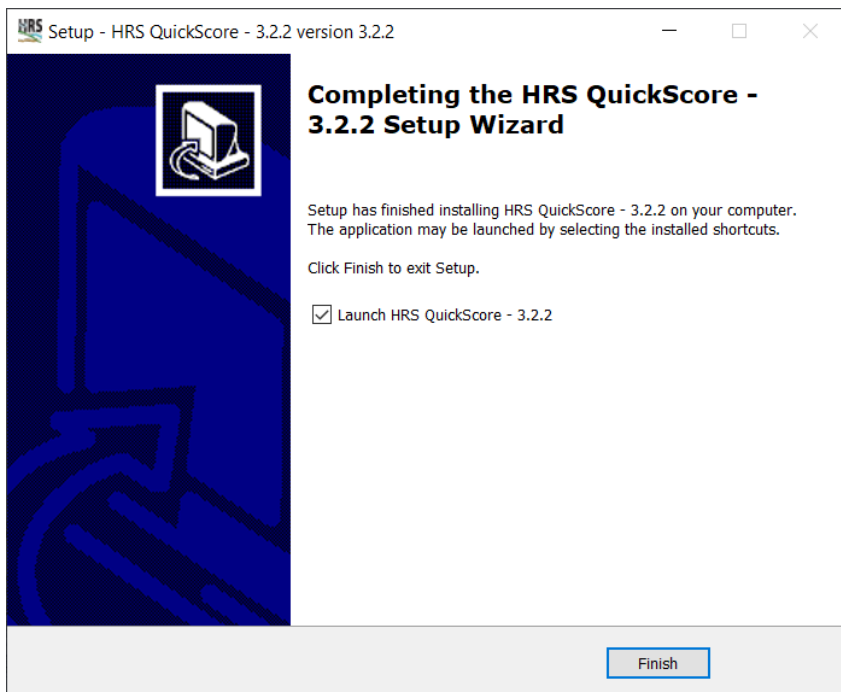


Figure 1-9: Installation Complete

To complete the installation, it is recommended that you restart your computer. You may choose to do so immediately after the installation is complete or opt to restart your computer at a later time. Shortcuts will be created on your desktop and in the start/All Program menu. You will be able to use either of the shortcuts to start HRS Quickscore.



Figure 1-10: HRS Quickscore Icon

1.5 Do I need to register the software before I can begin?

No licensing or registration is required to use the Quickscore software. If the user does not already have the Microsoft .Net Framework 2.0 installed, then licensing is required for that software.

1.6 How do I start HRS Quickscore?

You can start HRS Quickscore by:

Select Start from Windows, then click All Programs, and then click HRS Quickscore (or whatever name you selected during installation), OR

Double-click on the shortcut icon that you created on your desktop, OR

Open Windows Explorer; navigate to the directory with the installed program, and double-click on the HRS Quickscore.exe file.

1.7 Who should I contact if I need help using HRS Quickscore?

For technical Quickscore support, contact:

Quickscore Helpline
Available weekdays, 9:00 - 5:30 EST
Phone: 703-284-6600
Email: Quickscore Technical Support (quickscore@gdit.com)

The **Quickscore User Guide** and other helpful information is available on the HRS Quickscore Version 3.2 Web page (<https://www.epa.gov/superfund/superfund-hazard-ranking-system-hrs-quickscore#resources>)

2.0 Getting Around

2.1 How is HRS Quickscore organized?

HRS Quickscore organizes information that you enter by site and, then, by scenario. It does not create electronic files for each site or each scenario. Instead, each scenario is maintained in XML flat files which are organized by site and scenario names. The current scenario is the one which is presently open on your computer. To edit or delete a scenario, you must first open that scenario.

The HRS Quickscore screens were designed to follow the flow of the HRS. The concept is to enter data into HRS Quickscore as you would when calculating the HRS score by hand using HRS scoresheets.

There are separate screens for:

- Site information;
- Source information;
- Each pathway, component, and/or threat; and
- One summary screen for the site score.

These screens will be discussed in more depth later in this user's guide.

2.2 What are the screen components?

This section describes each of the key features that appear on the HRS Quickscore screens. The first screen in HRS Quickscore, the Quickscore Welcome Screen, is seen in Figure 2-1. On this screen, you will find maximize, minimize, exit, Quickscore Home, and Quickscore Help buttons; the action tool bar; and the left-side navigation menu.

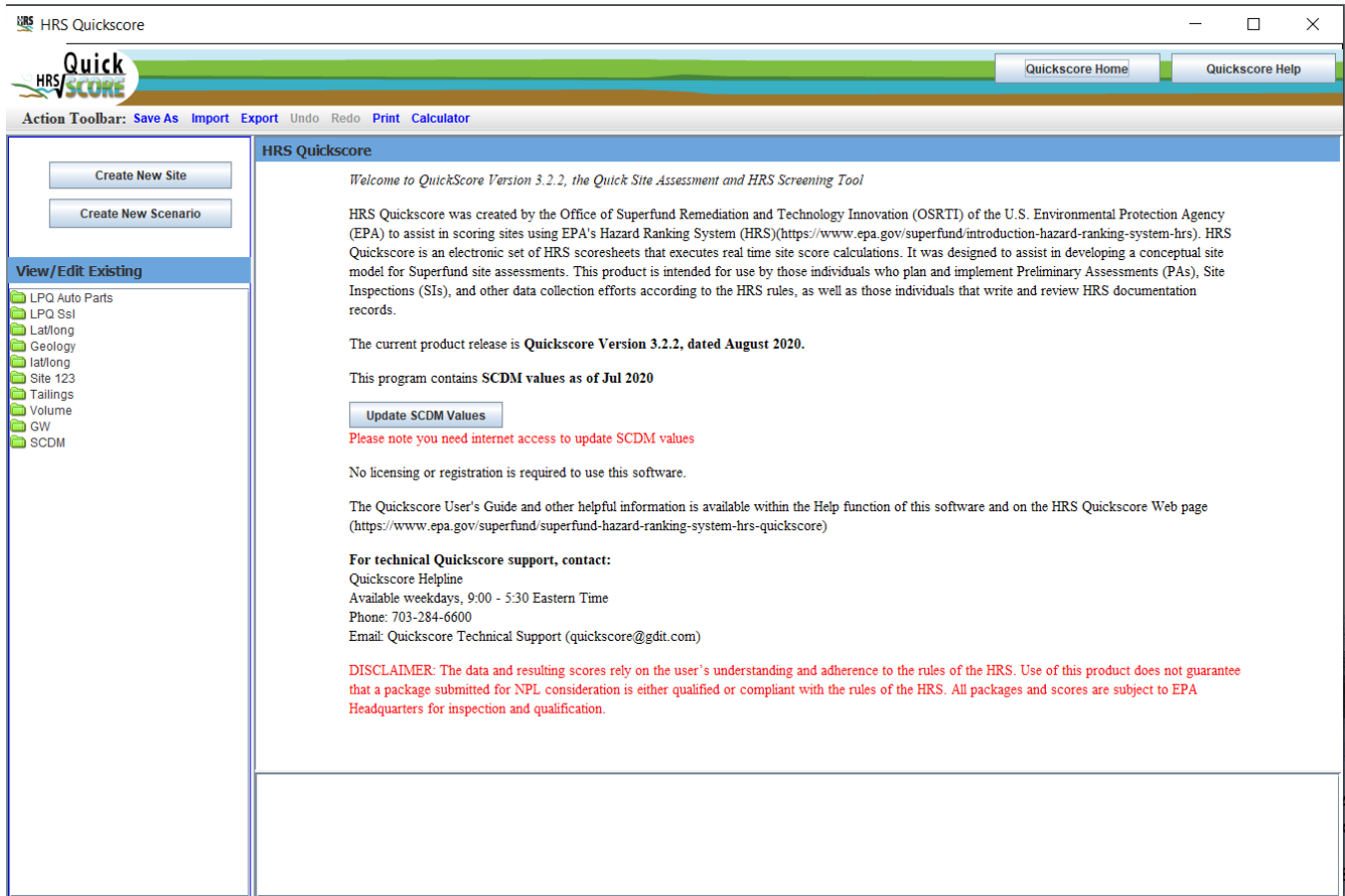





Figure 2-1: Quickscore Welcome screen

2.2.1 How do I use the maximize, minimize and exit buttons?

Figure 2-2 shows the maximize, minimize and exit buttons. The maximize button , located in the upper right-hand side of the screen, adjusts the screen to fit the entire area on your monitor. Once enlarged, a restore down button  will appear in the upper right-hand corner of your screen. Selecting the restore down button will reduce the area of the HRS Quickscore screen on your desktop. The minimize button , located to the left of the maximize and restore down button, will minimize or reduce Quickscore to the task bar.

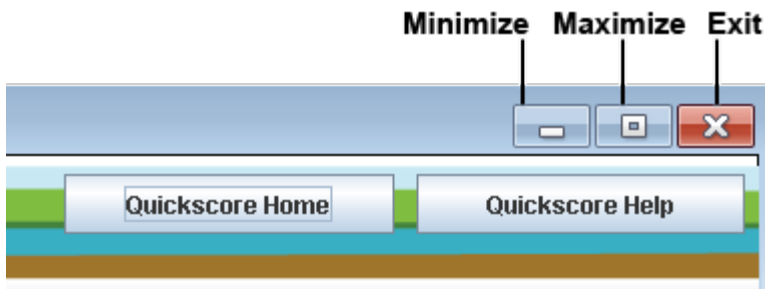

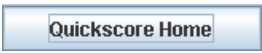


Figure 2-2: Maximize, Minimize and Exit Buttons

If you would like to exit the program completely you may click on the exit button , also located in the upper right-hand side of the screen.

2.2.2 How do I use the Quickscore Home and Quickscore Help buttons?

At any time in which you would like to return to the HRS Quickscore Welcome Screen during the use of the program, all you need to do is select the Quickscore Home button  located on each page at the top right hand corner (see Figure 2-3).

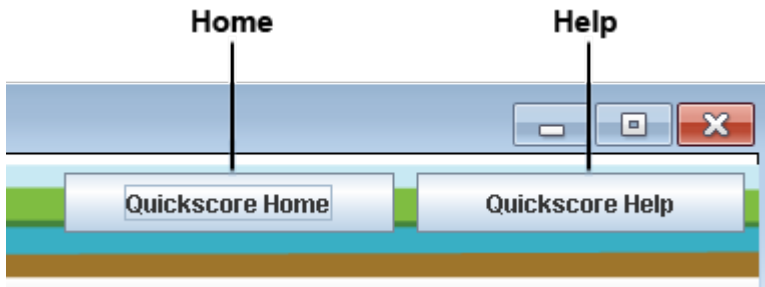



Figure 2-3: Quickscore Home and Help Buttons

Selecting Quickscore Help  from the HRS Quickscore menu in the upper right corner of each page will display an electronic version of the HRS Quickscore User's Guide. An index is located on the left side of the screen. Also included on the top left is navigation to the HRS Rule and SCDM (see Figure 2-4).

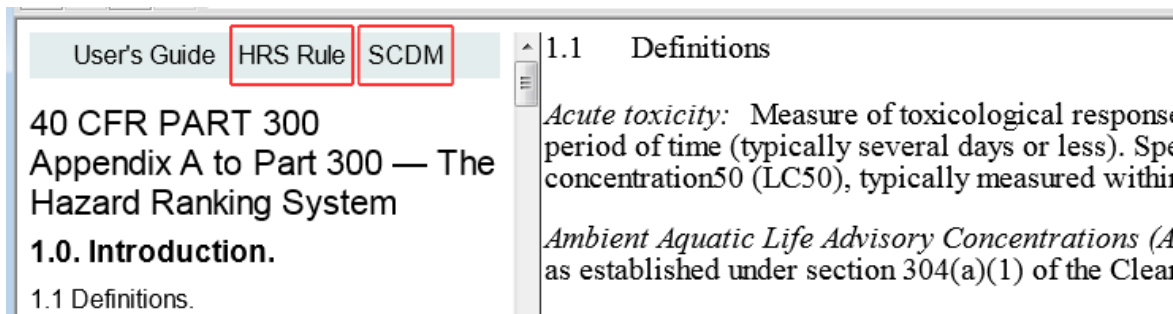



Figure 2-4: Quickscore Help Window

While viewing the HRS Rule an index is located on the left side of the screen. When viewing the pathway or summary scoresheet screens, links are available to direct the user to the applicable section of the HRS Rule.

2.2.3 How do I use the Left-side navigation menu (Create New Site, Create New Scenario, View/Edit Existing files)

The below sections describe how to use the functions of the navigation system menu.

2.2.3.1 How do I create a new site?

In order to create a new site, click the  button on the system menu. You will be navigated to the Site/Scenario Information Page See Figure 2-5. You must enter the following required fields: Site Name and Scenario Name. You may then enter any/all of the existing site information (Scenario Description, EPA ID, State ID, City/County, State, Congressional District, Lat/Long, Score Purpose, Evaluator Name, Evaluator Organization, and Date). The record is automatically saved as data is entered.

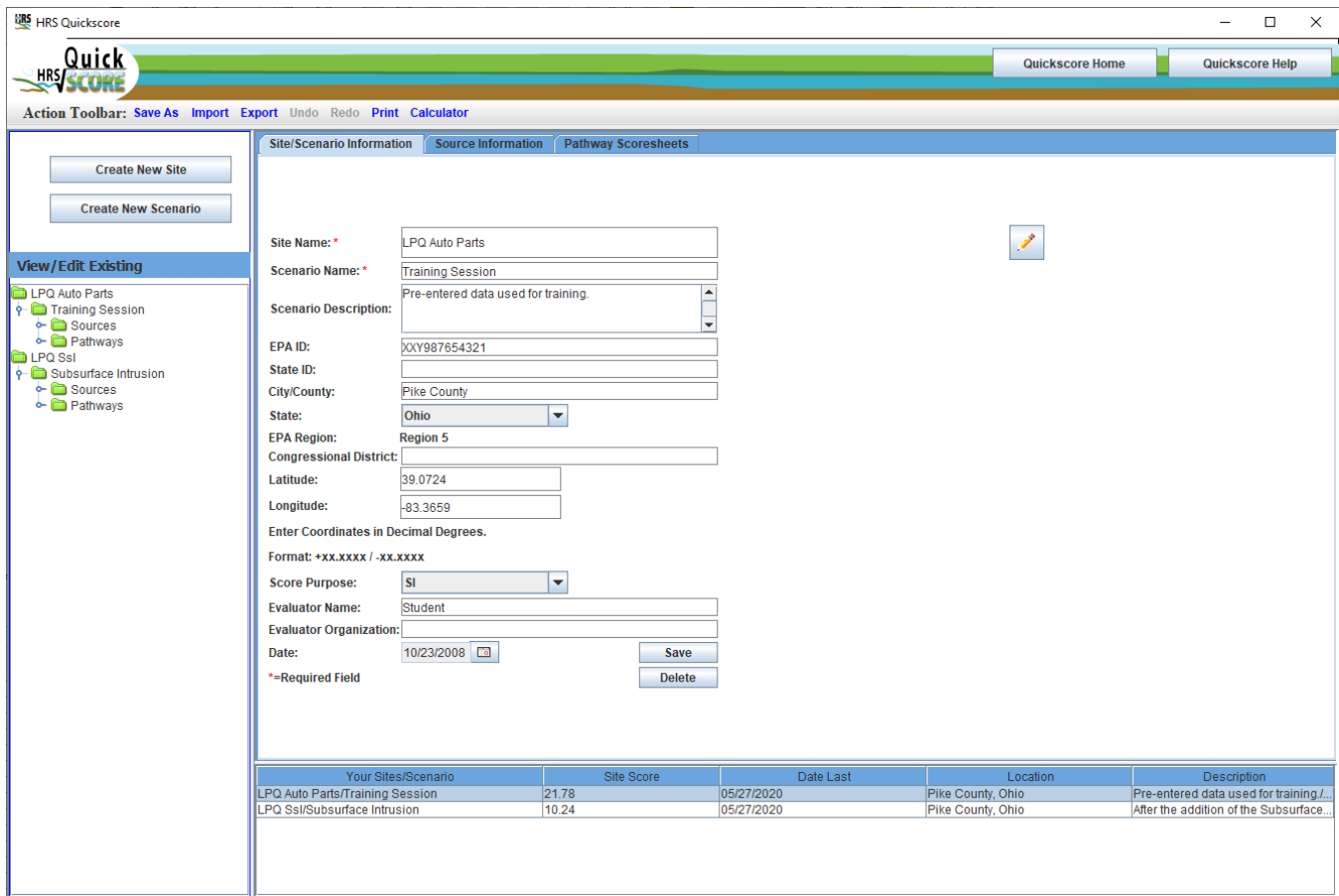



Figure 2-5: Entering a new site

Once a Site Name and a Scenario Name have been entered, a new site folder will appear within the left-side navigation menu, and the site information will be added to the list at the bottom of the screen.

2.2.3.2. How do I create a new scenario?

In order to create a new scenario, click the  button on the left-side navigation menu. A dropdown box will appear that contains all existing site names. Once you have selected your desired site, click the “OK” button. If you make a mistake, click the “Cancel” button, and it will return you to the previous screen without saving, and you can re-select your site from the dropdown menu.

Once the site is officially selected, you will navigate to the Site/Scenario Information Page. You must enter the following required fields: Scenario Name. The Site Name field will be pre-populated with the site that you selected. You may then enter any/all of the existing site information (Scenario Description, EPA ID, State ID, City/County, State, Congressional District, Lat/Long, Score Purpose, Evaluator Name, Evaluator Organization, and Date).

Once you enter a Scenario Name, a new scenario folder will display under the site folder for that site, and the scenario information will be added to the list at the bottom of the screen.

2.2.3.3. *How do I view and/or edit existing files?*

If you want to immediately navigate to a specific existing Site, Scenario, Source, or Pathway, you can use the file manager window within the left-side navigation menu. Double click on the appropriate folder and the appropriate information will be displayed on the right hand side of the screen. You may then edit information as needed.

2.2.4 How do I use the Action Toolbar (Save As, Import, Export, Undo, Redo, Print, and Calculator)?

Figure 2-6 shows the Action Toolbar the below sections describe the functions of each item on the toolbar.

Action Toolbar: **Save As** **Import** **Export** **Undo** **Redo** **Print** **Calculator**

Figure 2-6: Action Toolbar

2.2.4.1 *How do I use the “Save As” option?*

If you are working within a site or scenario, and would like to save the data with a new name, click “Save As” on the action tool bar. Depending on what you would like to create, you may choose either “Site” or “Scenario” from under the “Save As” drop-down menu.

A Save As pop-up window will appear, prompting you to choose which site or scenario you would like to re-save.

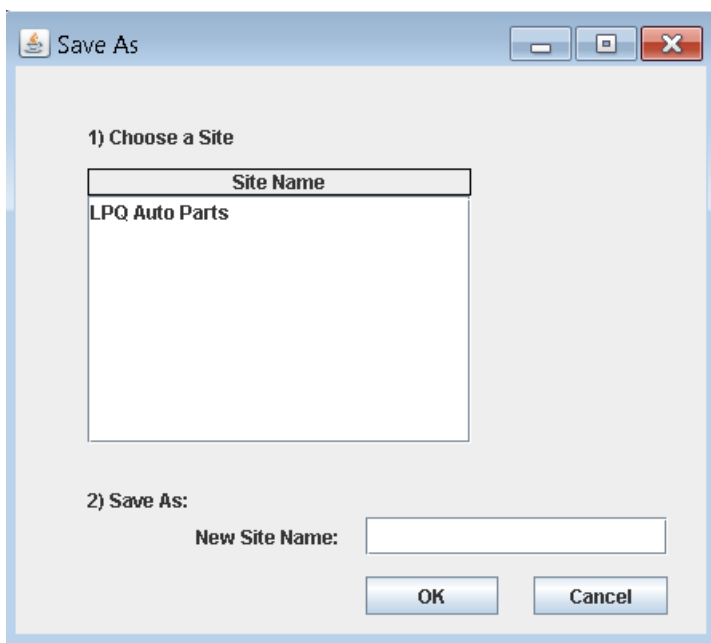


Figure 2-7: Save as a new site or scenario

Once a choice is made, you will need to type the new site or scenario name into the text box and click “OK”. The new site or scenario will appear as a new folder within the file manager window to the left of the screen. The “Save As” function has replaced the “Copy” function from previous versions of Quickscore.

2.2.4.2 How do I use the “Export” option?

The purpose of this button on the Action Toolbar is to export site/scenario information to another user's HRS Quickscore program. To export this information, first create an empty folder on your hard drive. When you select “Export,” make your selection and then use the “Browse” button to locate the empty folder that you created earlier. Export your files into the empty folder. Then, zip the folder for easy transportation via email or disk or for importing later.

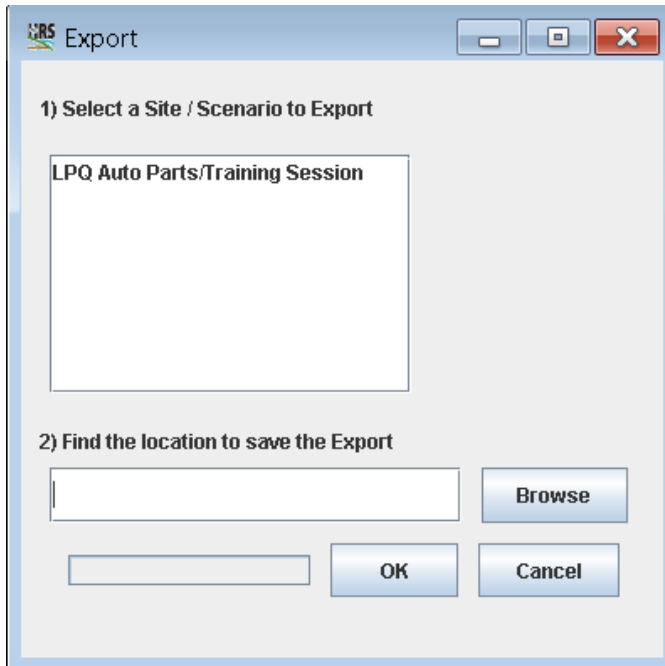


Figure 2-8: Export Function

2.2.4.3 How do I use the “Import” option?

The purpose of this button on the Action Toolbar is to import site/scenario information to your HRS Quickscore data files that were exported from an outside source, such as a co-worker's data files. Since multiple files are used to create this information, zipping the data files is the best way to transport a session from one computer to another. Unzip and save the session data files in a folder on your hard drive. Next, the information has to be imported into HRS Quickscore. When you select “Import”, you are asked to select the folder in which the data files were unzipped. Browse to the location on your hard drive where the unzipped data has been saved, and select the OK button to complete the function. A progress bar will scroll across the bottom of the window to show the progress of the import process.

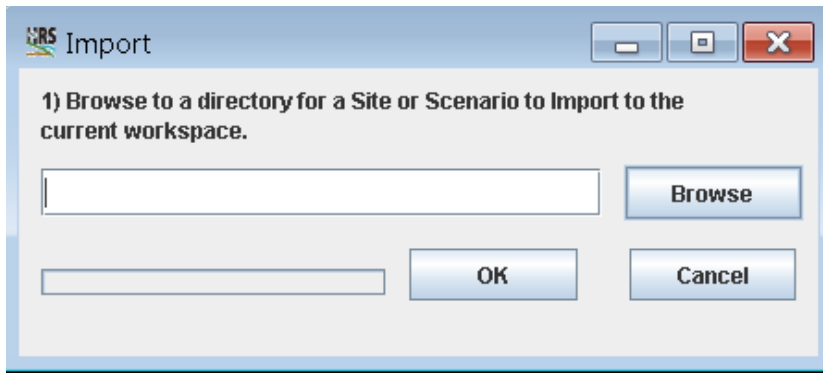


Figure 2-9: Import Function

2.2.4.4 How do I use the “Undo” option?

The “Undo” function is not available in Version 3.2 of Quickscore. This function will be considered for addition in a future Quickscore version.

2.2.4.5 How do I use the “Redo” option?

The “Redo” function is not available in Version 3.2 of Quickscore. This function will be considered for addition in a future Quickscore version.

2.2.4.6 What are my printing options within HRS Quickscore?

When you click on “Print” in the Action Toolbar, you have two options; one option is to Print Blank Scoresheets and the other is to print Final Scoresheets for a scenario.

To print blank scoresheets, select “Blank Scoresheet” from the pull-down Print menu and the following pop-up box will appear (Figure 2-10). Choose the scoresheets you wish to print and select the OK button. Microsoft Word will open and will contain the scoresheets you selected. You may populate with your data, and you can print or save your scoresheets from Microsoft Word.

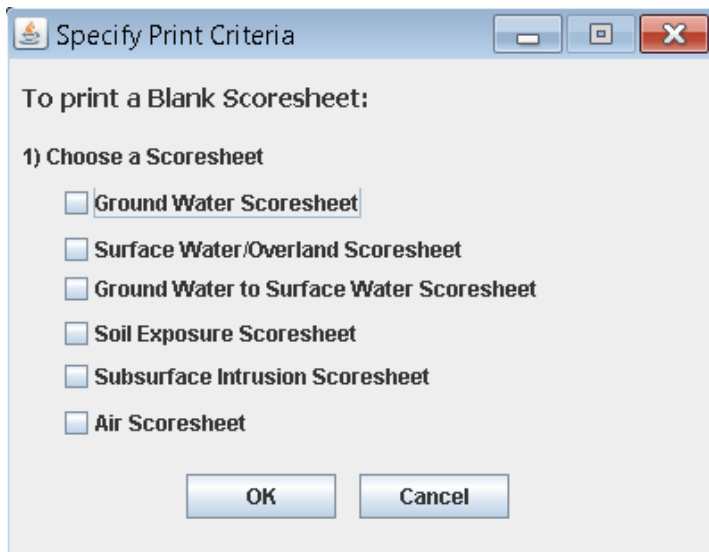


Figure 2-10: Printing Blank Scoresheets

To print final scoresheets, select “Final Scoresheet” from the pull-down menu and the following pop-up box will appear (Figure 2-11). Select the site you wish to print and select the OK button. Microsoft Word will open and be populated with your data. Once this Microsoft Word scoresheet file is created, you can print, edit or save your document as you would with any other Word document.

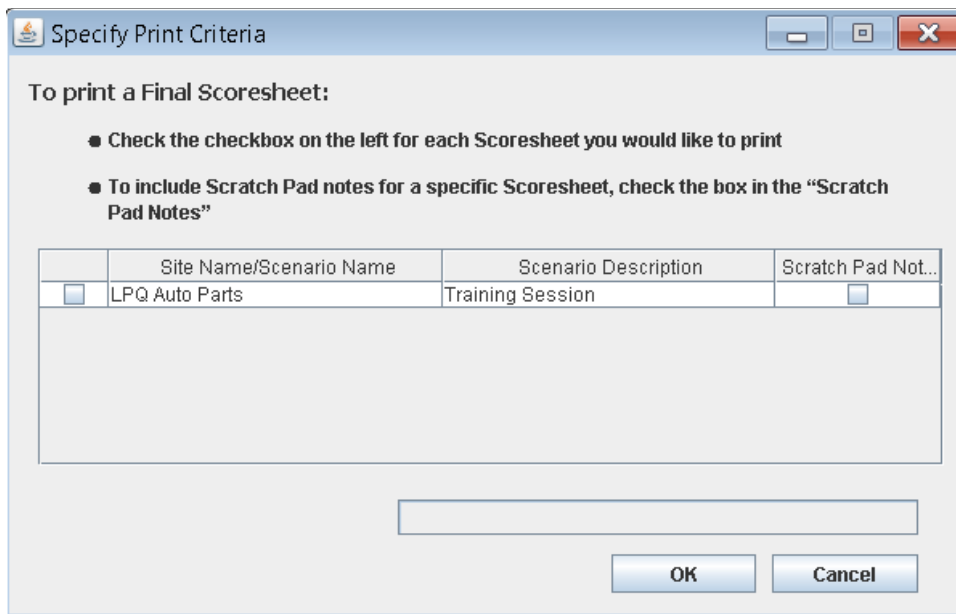


Figure 2-11: Printing Final Scoresheets

2.2.4.7 How do I use the Calculator function?

When you select the "Calculator" Button from the Action Toolbar, a calculator will open. For Operating Systems using Windows 7 or higher, the Windows calculator will launch. Users should select "Unit Conversion" from the view menu (if the calculator does not open to the view in Figure 2-12). To convert values, select the units you want to convert from and to on the right side of the calculator (see Figure 2-12). For user using Windows Operating Systems XP or older, the Quickscore version of the calculator will open directly to a unit conversion view.

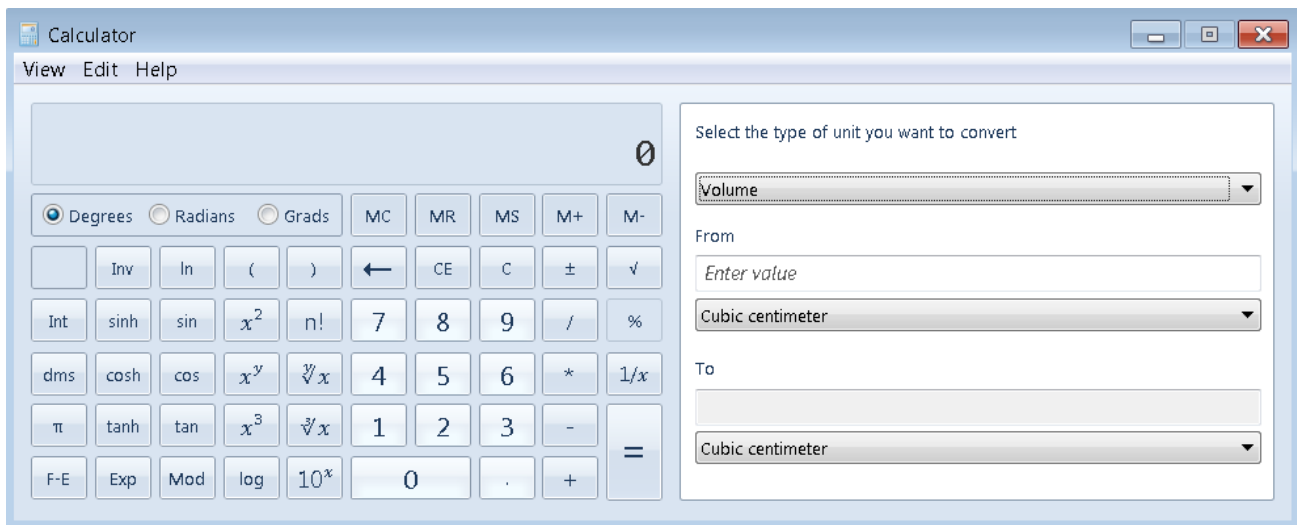



Figure 2-12: Quickscore Calculator

2.2.5 How do I enter notes, references or other comments?

By clicking the pencil icon,  found throughout the Quickscore pages, a scratch pad for entering and recording specific information about sites, scenarios, pathways, sources or other data will pop-up. Enter information you want, then select "New Note" to save your work and create a new scratch pad entry. When you are finished entering notes, press "Save & Close" to exit Scratch Pad.

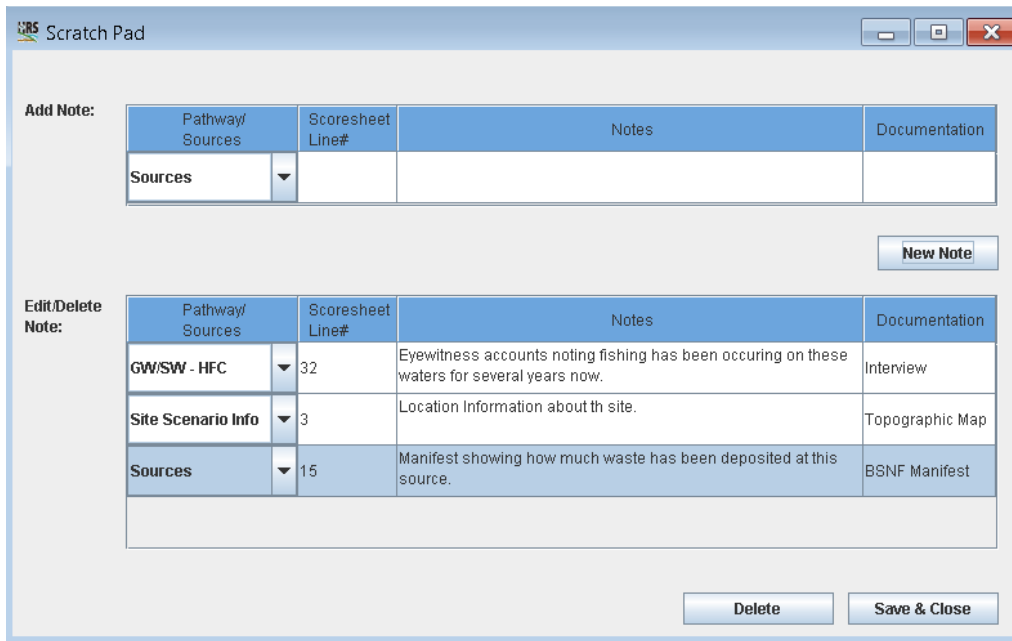


Figure 2-13: Scratch Pad


2.2.6 What do the “Source Information” and “Pathway Scoresheets” tabs do?

The “Source Information” tab (Figure 2-14) takes the user to the screen which allows source information to be entered. See Section 3.3: *How do I enter source information?* for more information about the “Source Information” tab. The “Pathway Scoresheets” tab (Figure 2-14) takes the user to the Scenario Summary screen, where the user can access specific pathway screens. See Section 3.4: *How do I use the pathway scoresheets?* for more information about the pathway screens.



Figure 2-14: Source Information and Pathway Scoresheets Tab

2.2.7 How do I delete information?

To delete information simply press the  button located near the bottom of the pages. If you press the “Delete” button on the “Site/Scenario Information” page the scenario will be deleted and if there is only one scenario then the site will be delete as well, on the “Source Information” page, that source will be deleted and on the “Pathway Scoresheets” page, the aquifer, watershed, soil exposure scoresheet or air pathway scoresheet will be deleted. You will receive a warning box alerting you as to what you are about to delete. All subordinate (or “child”) records for that entry will also be deleted.

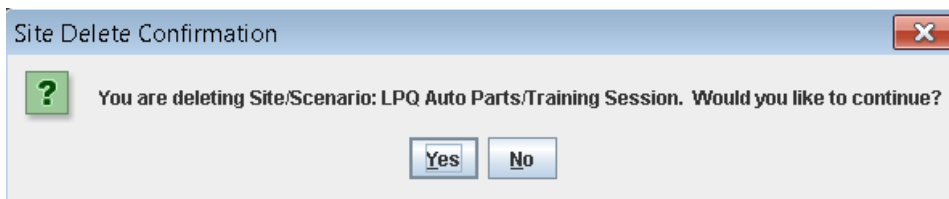


Figure 2-15: Delete Confirmation


2.2.8 How do I save information?

Information is automatically saved as it is entered into Quickscore. For information about the “Save As” function see Section 2.2.4.1 *How do I use the “Save As” option?*

2.2.9 What does the summary window at the bottom of the screen do?

On each of the main pages “Site/Scenario Information,” “Source Information,” and “Pathway Scoresheets” there is a summary window at the bottom of the screen. This window summarizes the information displayed on that page and other relevant information. With the exception of the Scenario Summary screen the user can click on any entry in this summary window to go directly to that entry.

2.3 How do I update SCDM values?

Quickscore will automatically check to see if SCDM values have recently been updated and prompt the user to take action if an update is detected. If new values are available users will be prompted with text above the  button with “Updates Available” (Figure 2-16).

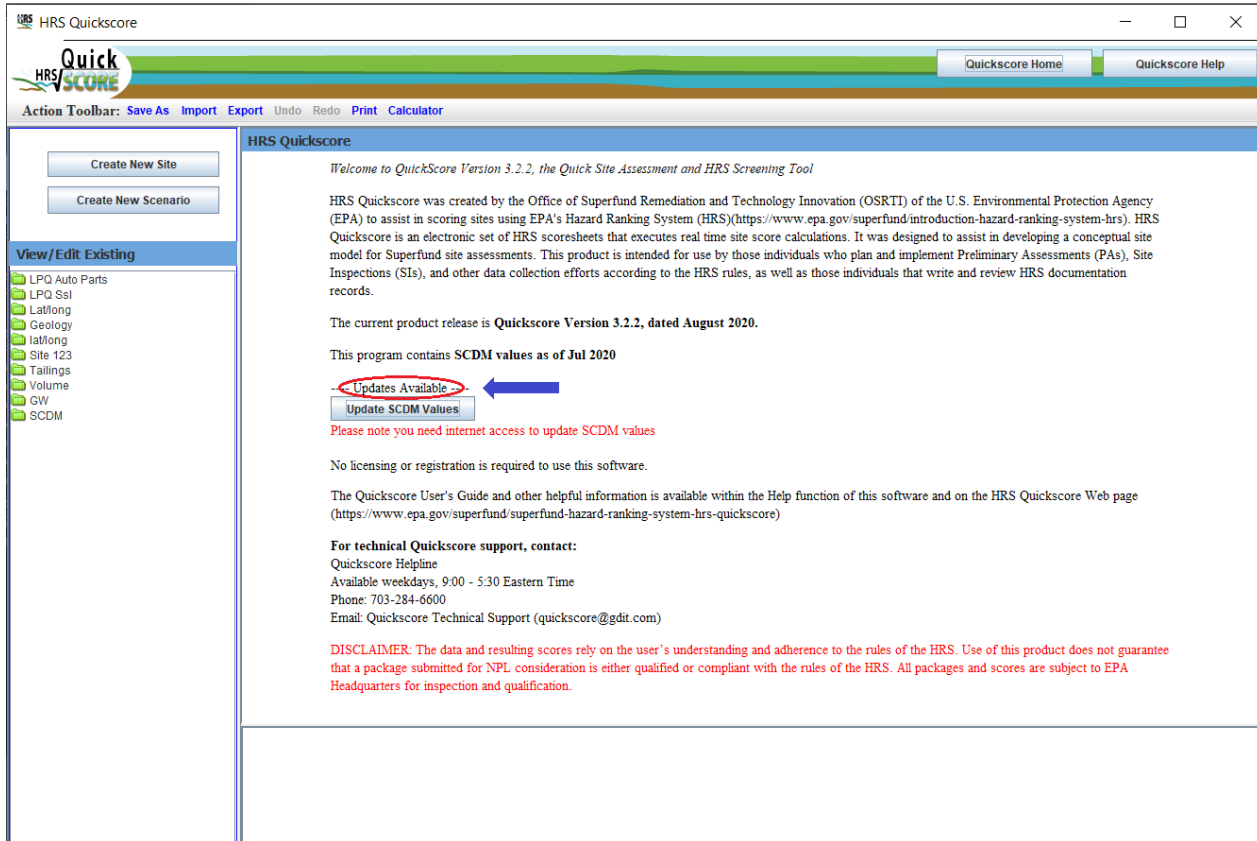
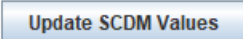


Figure 2-16: Update SCDM Values

Users can also force an update at any time by selecting the  button on the Quickscore Home page.

The date SCDM values are current will be displayed on the Quickscore Home page. Please note you do need an internet connection to update the SCDM values. You will get an error message (Figure 2-17) requesting you try again later if for some reason Quickscore is unable to complete the update. See instructions below if this error message persists.

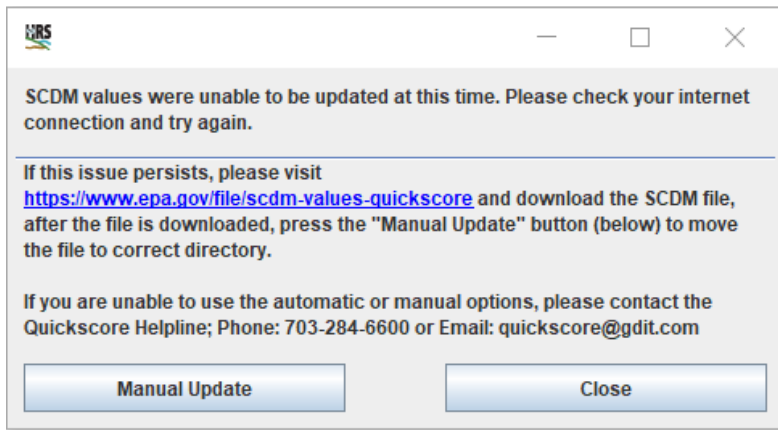


Figure 2-17: Internet Connection Error

When SCDM values are updated successfully, there will a pop-up “Updated successfully” message (Figure 2-18) and be a message under the “Update SCDM Values” button (Figure 2-19).

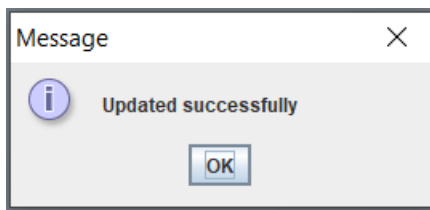


Figure 2-18: Update Successful Message

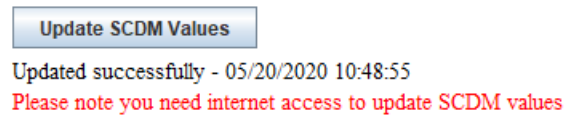


Figure 2-19: Update Successful on Quickscore Home

If the error message (Figure 2-17) noting that SCDM was unable to update persists and the user is unable to update SCDM, please follow these steps.

Download the SCDM file from the website <https://www.epa.gov/file/scdm-values-quickscore>

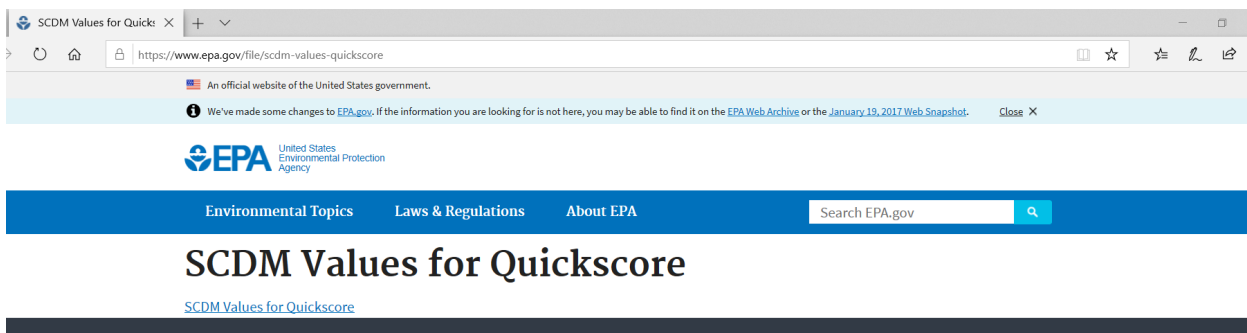
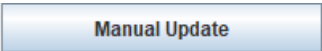


Figure 2-20: SCDM Website

Save this file to your computer.

Press the  button. Then Navigate to the location where the SCDM file was saved (see Figure 2-21).

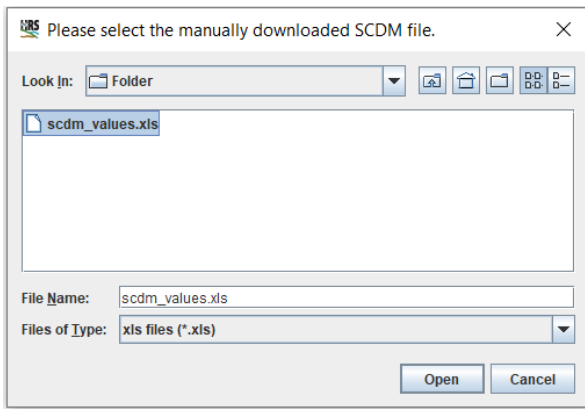


Figure 2-21: SCDM Values File Dialogue Box

The user should see Figure 2-18 update successful if this “manual update” was successful.

If the user is unable to use the “manual update” option, please contact the Quickscore Helpline:

Quickscore Helpline

Available weekdays, 9:00 - 5:30 EST

Phone: 703-284-6600

Email: Quickscore Technical Support (quickscore@gdit.com)

3.0 Scoring a Site

3.1 How do I calculate a score using HRS Quickscore?

The user can calculate the site score using one of two methods. One method is to enter pathway values directly into the HRS Summary Scoresheet screen (Figure 3-1).

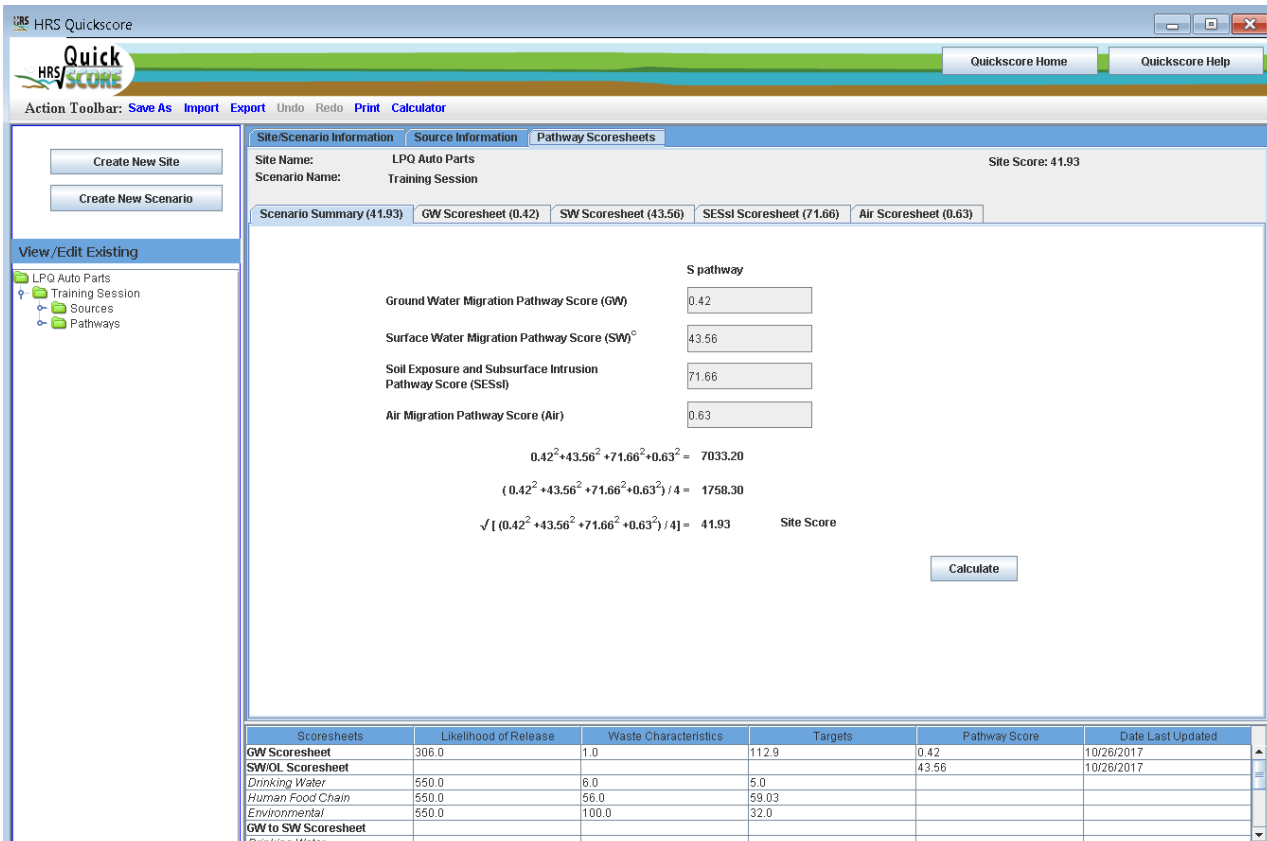


Figure 3-1: Summary Scoresheet

HRS Quickscore will calculate the site score when pathway scores are entered by the user and the Calculate button is selected. This function cannot be used if pathway values have not been entered into a pathway already. This function is intended to allow the user to see what combination of pathway scores will yield certain site scores (e.g., at or above the 28.50 cutoff). Once information has been entered into the pathway scoresheets, the pathway scores become calculated fields and cannot be changed.

The second method is to enter the detailed information into the source screen and pathway scoresheet screens. HRS Quickscore will calculate the pathway score and automatically enter the calculated pathway score into the summary screen and calculate a site score from this data.

The Summary Scoresheet indicates the date that the score was last updated on the bottom half of the screen in the summary window (Figure 3-1).

Note: As a safeguard, once you begin entering detailed data into specific pathways, HRS Quickscore will no longer permit you to enter values for the same pathway directly onto the summary screen.

3.2 How do I enter Site Characteristics (site/scenario) information?

A Site Name and a Scenario Name are required. All other information on the Site/Scenario Information screen is optional. Many of these items are required for the submission of a Final HRS Scoresheet. However, this information does not need to be complete to obtain a score. When the user clicks on "Create New Site" located on the Summary Screen, the Site/Scenario Information screen (Figure 3-2) will appear.

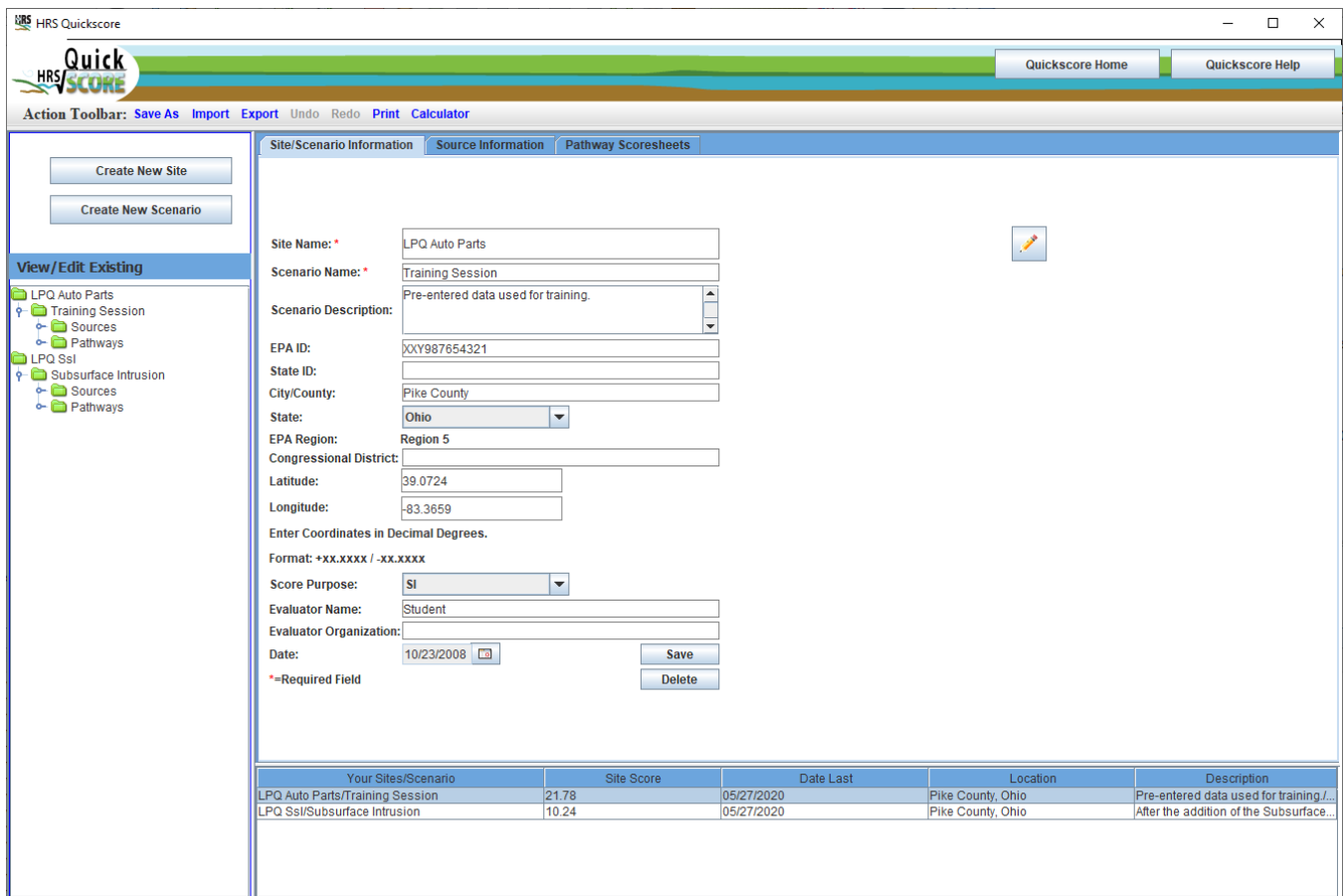


Figure 3-2: Site/Scenario Screen

This screen contains fields for the Site Name, Scenario Name, Scenario Description, EPA ID, State ID, City/County, State, EPA Region, Congressional District, Latitude and Longitude, Score Purpose, Evaluator Name, Evaluator Organization, and the Date. The State, Score Purpose and Date fields have

drop down lists from which to choose values; EPA Region automatically populates based on the state that is chosen. Figure 3-2 shows a sample scenario containing some site information.

Coordinates should be entered using decimal degree (DD) formats, rather than degree/minute/seconds (DMS). This change was made to comply with the Superfund Program's geospatial data requirements. Please enter coordinates in decimal degrees with four significant digits at a minimum. Note, except for certain territories in the Pacific Ocean, all sites in the U.S. states and territories are located within the northern and western hemispheres and will have a positive latitude sign and a negative longitude sign. The coordinate signs should be changed as necessary for sites in the southern and/or eastern hemispheres.

3.3 How do I enter source information?

Source information is entered by clicking on the "Source Information" tab at the top middle of any Quickscore screen shown in Figure 3-2.

To add a source, click on the "Add New Source" button. All the fields will clear except the *Source #* field. HRS Quickscore will automatically number and order the sources as they are entered. Follow the five steps outlined on the Source Information page (Figure 3-3).

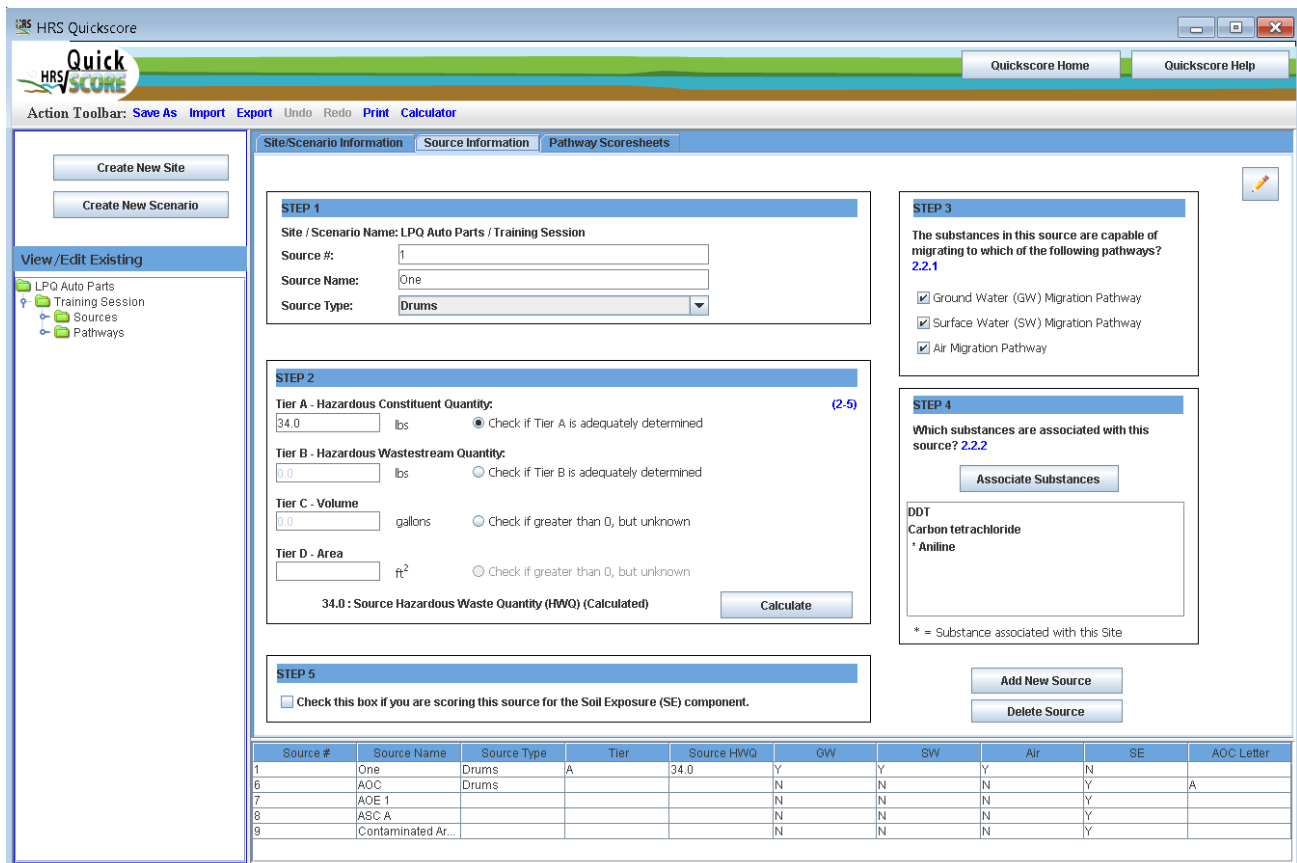


Figure 3-3: Source Information Screen

STEP 1 – enter the Source Name and select the Source Type from the drop down list. Although Quickscore automatically populates the Source # field, the user may edit this value. Step 1 must be completed before information can be added under Steps 2 through 5.

STEP 2 – enter the quantity of waste for any appropriate tier. The Source Hazardous Waste Quantity (HWQ) value will show at the bottom of the STEP 2 box once this step is completed and the "Calculate" button is pressed.


STEP 3 – check all pathways to which the substances in the source are available to migrate.

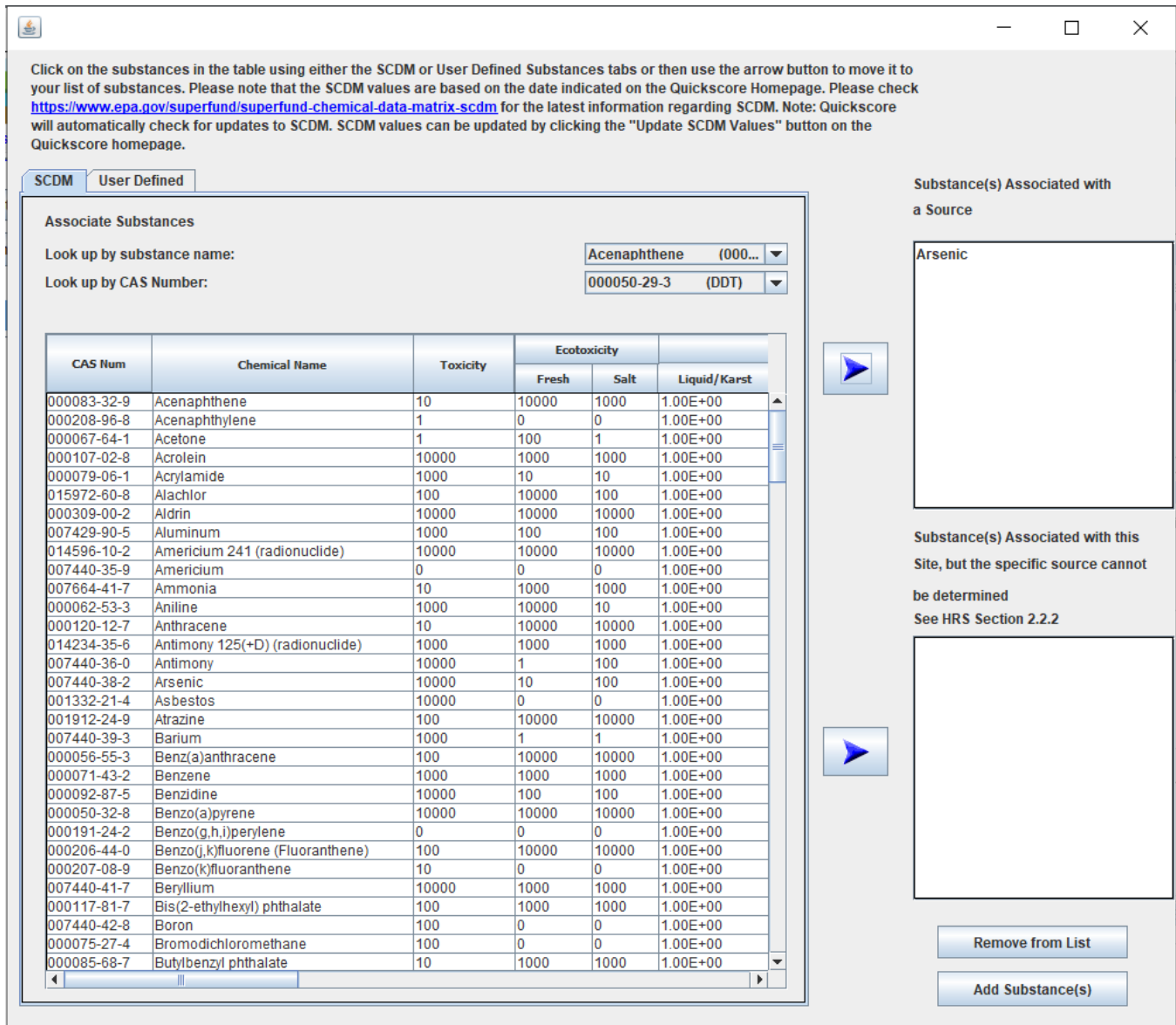
The soil exposure pathway is not included in Step 3 because it is not a “migration” pathway.

STEP 4 – is where Associate Substances is used to pick the hazardous substances associated with the source or the site. See Section 3.3.1: *How do I use the “Associate Substances” button* below for more information.

STEP 5 – check the box if this source is being scored for the Soil Exposure pathway.

3.3.1 How do I use the “Associate Substances” button?

By pressing the  button the screen which will allow the user to select hazardous substances associated with that source and/or site will open. Figure 3-4 shows an example of the SCDM screen.



Click on the substances in the table using either the SCDM or User Defined Substances tabs or then use the arrow button to move it to your list of substances. Please note that the SCDM values are based on the date indicated on the Quickscore Homepage. Please check <https://www.epa.gov/superfund/superfund-chemical-data-matrix-scdm> for the latest information regarding SCDM. Note: Quickscore will automatically check for updates to SCDM. SCDM values can be updated by clicking the “Update SCDM Values” button on the Quickscore homepage.

SCDM User Defined

Associate Substances

Look up by substance name: Acenaphthene (000...)

Look up by CAS Number: 000050-29-3 (DDT)

CAS Num	Chemical Name	Toxicity	Ecotoxicity		
			Fresh	Salt	Liquid/Karst
000083-32-9	Acenaphthene	10	10000	1000	1.00E+00
000208-96-8	Acenaphthylene	1	0	0	1.00E+00
000067-64-1	Acetone	1	100	1	1.00E+00
000107-02-8	Acrolein	10000	1000	1000	1.00E+00
000079-06-1	Acrylamide	1000	10	10	1.00E+00
015972-60-8	Alachlor	100	10000	100	1.00E+00
000309-00-2	Aldrin	10000	10000	10000	1.00E+00
007429-90-5	Aluminum	1000	100	100	1.00E+00
014596-10-2	Americium 241 (radionuclide)	10000	10000	10000	1.00E+00
007440-35-9	Americium	0	0	0	1.00E+00
007664-41-7	Ammonia	10	1000	1000	1.00E+00
000062-53-3	Aniline	1000	10000	10	1.00E+00
000120-12-7	Anthracene	10	10000	10000	1.00E+00
014234-35-6	Antimony 125(+D) (radionuclide)	1000	1000	1000	1.00E+00
007440-36-0	Antimony	10000	1	100	1.00E+00
007440-38-2	Arsenic	10000	10	100	1.00E+00
001332-21-4	Asbestos	10000	0	0	1.00E+00
001912-24-9	Atrazine	100	10000	10000	1.00E+00
007440-39-3	Barium	1000	1	1	1.00E+00
000056-55-3	Benz(a)anthracene	100	10000	10000	1.00E+00
000071-43-2	Benzene	1000	1000	1000	1.00E+00
000092-87-5	Benzidine	10000	100	100	1.00E+00
000050-32-8	Benzo(a)pyrene	10000	10000	10000	1.00E+00
000191-24-2	Benzo(g,h,i)perylene	0	0	0	1.00E+00
000206-44-0	Benzo(k)fluorene (Fluoranthene)	100	10000	10000	1.00E+00
000207-08-9	Benzo(k)fluoranthene	10	0	0	1.00E+00
007440-41-7	Beryllium	10000	1000	1000	1.00E+00
000117-81-7	Bis(2-ethylhexyl) phthalate	100	1000	1000	1.00E+00
007440-42-8	Boron	100	0	0	1.00E+00
000075-27-4	Bromodichloromethane	100	0	0	1.00E+00
000085-68-7	Butylbenzyl phthalate	10	1000	1000	1.00E+00

Substance(s) Associated with a Source

Arsenic

Substance(s) Associated with this Site, but the specific source cannot be determined
See HRS Section 2.2.2

Remove from List

Add Substance(s)

Figure 3-4: SCDM Entry Screen

Check the home page to see the date of the current SCDM values used in Quickscore.

On the “Associated Substances” screen the user can search for and view SCDM values. The user may search by CAS number or by chemical name. Chemical name are listed alphabetically and the CAS numbers are in listed in ascending order for the ease of use. To begin a search, the user should click on the downward scroll bar to the right of the lookup field to view substances further down in the alphabet. Once the desired chemical has been chosen, the user may scroll to the right to see the desired values. The user may highlight individual substances by clicking on the substance row or use the “control” key to highlight multiple substances at once.


Once the substance(s) are highlighted, select the appropriate blue arrow button to associate the substance(s) with either **the source or the site**. The top box is used to list the substances that are documented to be associated with that source. The bottom box is used to associate hazardous substances that are not present in a specific source, but are documented to be present at, and attributable to, the site. Once a substance is associated with the site it will appear in all sources and it will be identifiable by an asterisk. Therefore it will not be necessary to select this substance in the subsequent sources.

After all substances are listed in either of the two boxes to the right, select the “Add Substance(s)” button on the bottom of the screen and the Associated Substances page will be closed. If a hazardous substance needs to be removed, the Associated Substances page should be re-opened and the “Remove from List” button should be used. By highlighting a substance(s) in either of the two boxes and then selecting the “Remove from List” button at the bottom of the screen, the substance will be removed. See Figure 3-4.

If you have questions about the SCDM values, or need to use a hazardous substance that is not currently listed in SCDM, please see the [SCDM](https://www.epa.gov/superfund/superfund-chemical-data-matrix-scdm) website for contact information (<https://www.epa.gov/superfund/superfund-chemical-data-matrix-scdm>).

In addition to substances contained within SCDM, there is now an option for users to enter “User Defined” substances. This allows user to enter a user defined substance rather than pick from SCDM. This feature accommodates substances which are not included in SCDM; instances where new substances are added to SCDM but Quickscore has not yet been updated to include them; and situations where a set of values have changed for a SCDM substance but Quickscore has not yet been modified for the changes.

The “User Defined” screen works much the same way as the SCDM screen. After selecting the “User Defined” tab, the user enters the chemical name (the CAS Number will be default “User Defined”). After entering the new substance name, the user will then use drop down windows to assign toxicity, mobility, persistence and other factor values. *Please note a chemical name and toxicity is required before a new substance can be saved.* After entering your substance and

associated factor values, press the  button and the substance will be available to be used for scoring sites within Quickscore.

Users can add user defined substances to sources and/or the site the same way SCDM substances are added, see above.

Substances added by the user in this data entry field will be shown along with all other SCDM substances in each of the “Assign Substances” HRS pathways screens. This will allow those “user defined” substances to be compared with SCDM substances to determine the most hazardous substance for the pathway, component or threat. A marker/indicator will be added to show the user which substances and values are user defined.

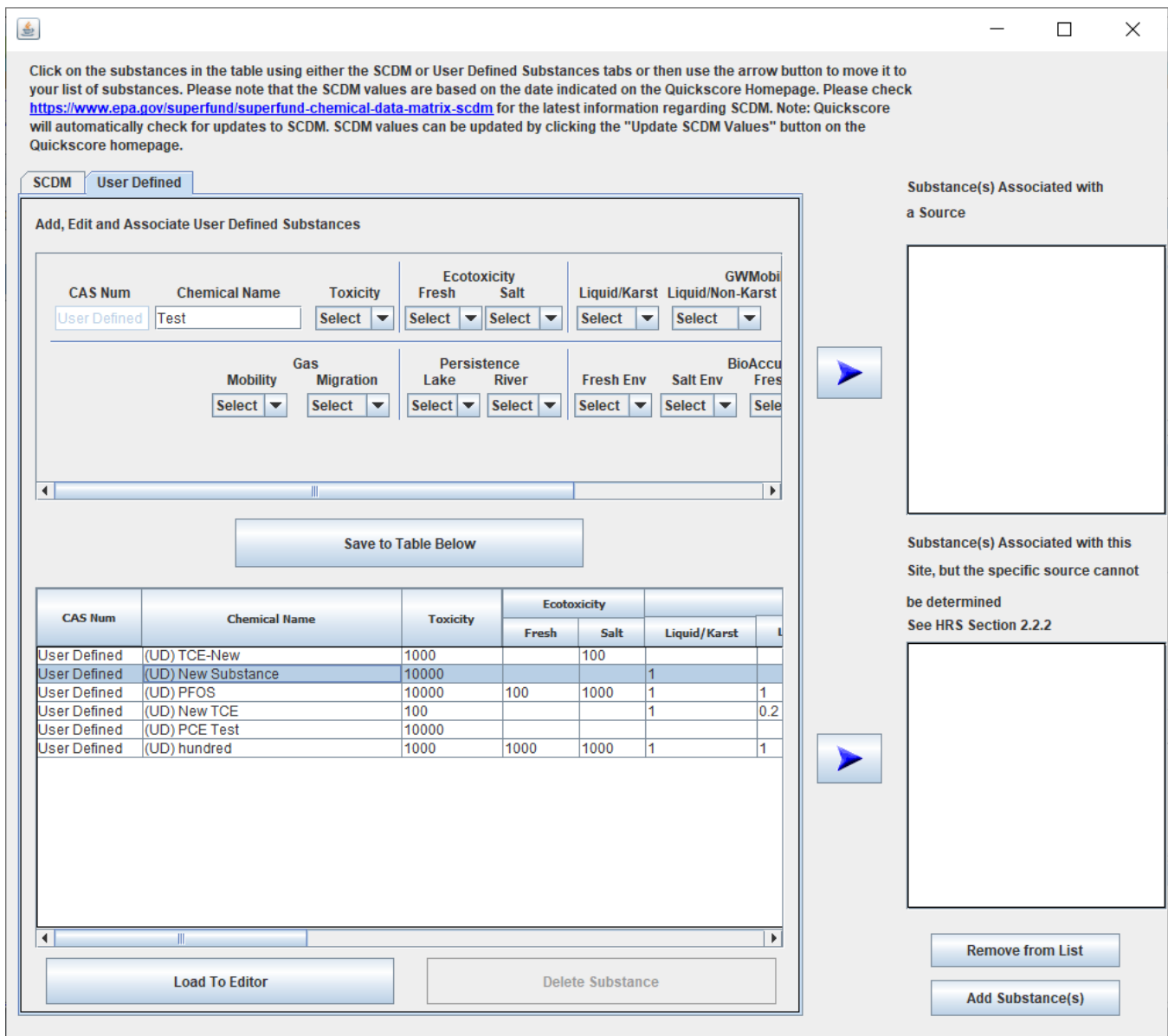
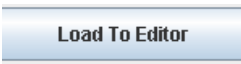


Figure 3-5: User Defined Substance Entry Screen

To edit values entered for a previously saved “user defined” substance from the “User Defined” tab highlight the substance you wish to edit and press the  button and the substance and associated values will populate the top portion of the screen and allow the user to make changes to any of the values they choose. After you are finished editing click on the “Save to Table Below” button and the new information will population the table.

3.4 How do I use the pathway scoresheets?

Each pathway has its own scoresheet. The “Site/Scenario Information,” “Source Information” and “Pathway Scoresheets” tabs can be found at the top of the screen (Figure 3-1 above). The “GW Scoresheet,” “SW Scoresheet,” “SE Scoresheet,” and “Air Scoresheet” tabs can be accessed using the Pathway Scoresheets tab.

3.4.1 How do I use the Scenario Summary?

As discussed in Section 3.1 *How do I Score a Site* you can enter pathway scores directly into the “Scenario Summary” page to obtain a site score. This page also summarizes all of the pathway scores and the site score.

3.4.2 How do I use the GW Scoresheet?

To use the GW Scoresheet you must first enter an Aquifer Name or Pathway Scenario. This is a required field, and once a name is entered the rest of the scoresheet can be filled out. If you enter more than one aquifer, HRS Quickscore will use the highest scoring aquifer in calculating the pathway score. If you would like HRS Quickscore to use an aquifer other than the highest scoring aquifer for the pathway score, then check the box underneath “Aquifer Name or Pathway Scenario” (Figure 3-6).

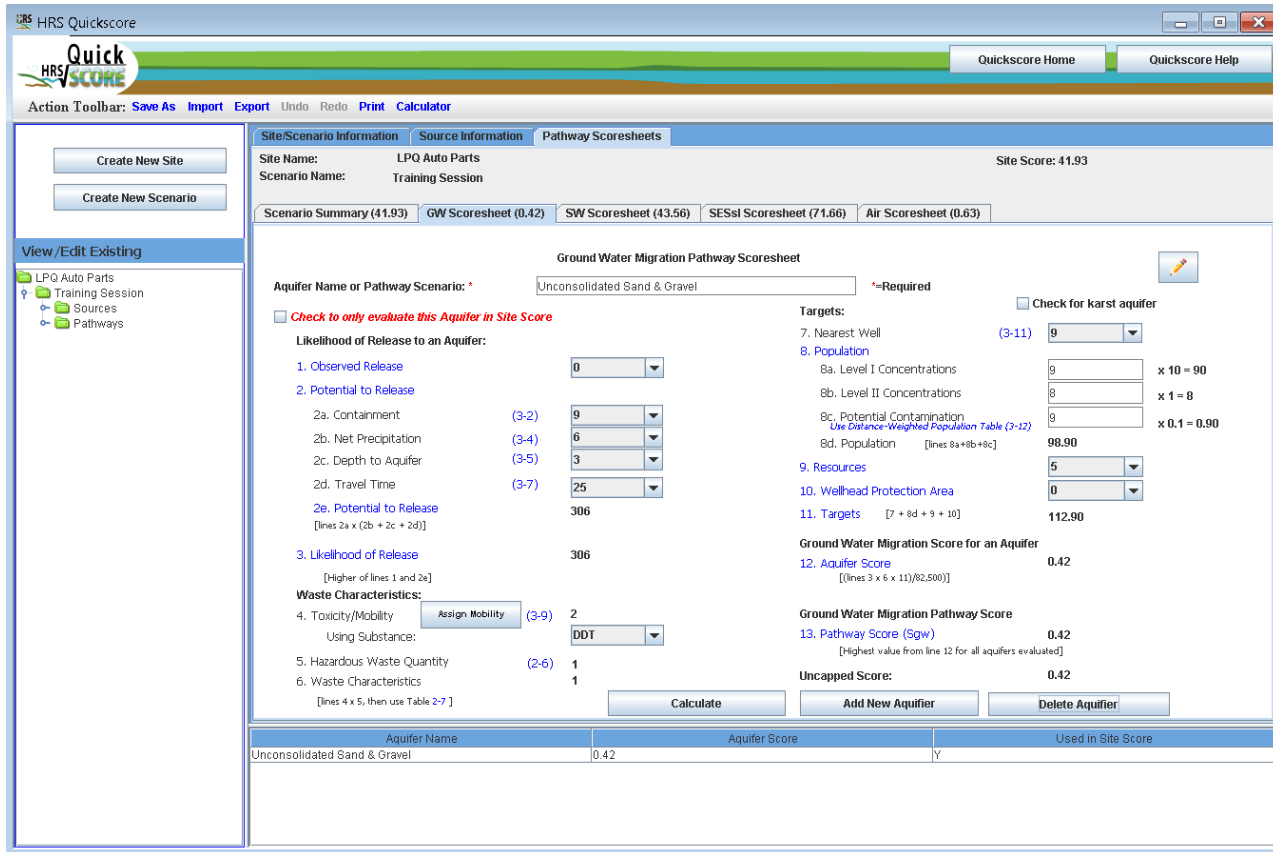
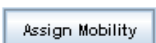


Figure 3-6: Ground Water Scoresheet

3.4.2.1 How do I calculate a Ground Water Pathway score?

The rest of this scoresheet provides data entry fields to enter information about the Likelihood of Release, Waste Characteristics and Targets, used to calculate a Ground Water Pathway Score.

Use the drop-down boxes to enter information about the Observed Release and the Potential to Release for the Aquifer. Once this information is entered, the program automatically calculates the Likelihood of Release Factor Category Value.



Select the **Assign Mobility** button to bring up a pop-up box allowing you to assign ground water mobility types to the hazardous substances (see Figure 3-7). First select the substance, then choose the Mobility Type, you will repeat this for each substance. You may use the “control” key to select multiple substances that have the same Mobility Type. The summary window at the bottom of the screen allows

you to see the properties of the substances. Finally, press the **Save & Return to Scoresheet** button near the bottom of the screen. The “GW Scoresheet” will now be populated with the Toxicity/Mobility value and will also indicate which substance is being used.

The HWQ factor value is automatically populated by information entered on the sources page. Minimum HWQ factor values are automatically assigned when actually contaminated targets or Nearest Well values of 45 or greater are entered.

Substance	Toxicity	Mobility Type	Mobility Value	Toxicity/Mobility
Aniline	1000			
Carbon tetrachloride				
DDT	1000	Non-Liquid/Karst	2.00E-01	200

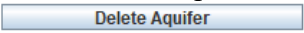
Figure 3-7: Ground Water Scoresheet – Assign Mobility

Next you will use the drop-down boxes and fill-in boxes to enter target information. Note that you will enter the actual number of targets for Level I and Level II Concentrations and Potential Contamination and Quickscore will apply the appropriate multiplier, for the Population value. For Potential Contamination use the HRS Distance-Weighted Population Table 3-12 to determine the distance-weighted population, enter that value for potential population, the program will apply the appropriate multiplier.

At the bottom of this page you will find the Aquifer Score, Ground Water Migration Pathway Score and the Uncapped Score of the Aquifer.

3.4.2.2 How do I add or delete aquifers?

To add a new Aquifer press  button at the bottom of the screen and repeat the above steps.

To delete an Aquifer, make sure you have the Aquifer that you wish to delete selected and press  button, a warning box will appear telling you the name of Aquifer you are about to delete and asking if you want to continue (Figure 3-8).

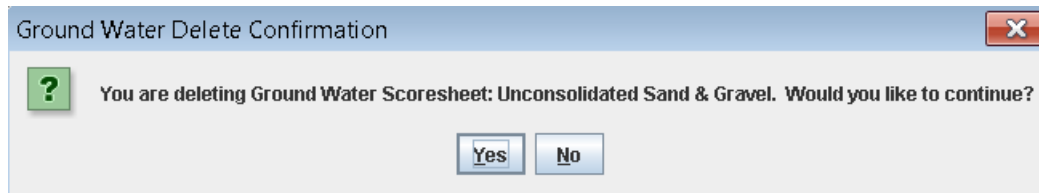


Figure 3-8: Delete Aquifer Dialogue box

3.4.3 How do I use the SW Scoresheet?

The SW Scoresheet is divided into two components, the “Surface Water/Over Land Scoresheet” and the “Ground Water to Surface Water Scoresheet.” There are two buttons at the top of the “SW Scoresheet” which allow you to switch between the two components.

Each of these components have three threats; Drinking Water, Human Food Chain, and Environmental. These threats are listed on tabs about half way down the screen.

To use the SW Scoresheet you must first enter a Watershed Name, this is a required field. Once a name is entered the rest of the scoresheet can be filled out. If you enter more than one watershed, HRS Quickscore will use the highest scoring watershed in calculating the pathway score. If you would like HRS Quickscore to use a watershed other than the highest scoring watershed for the pathway score, then check the box to the right of “Watershed Name” (Figure 3-9).

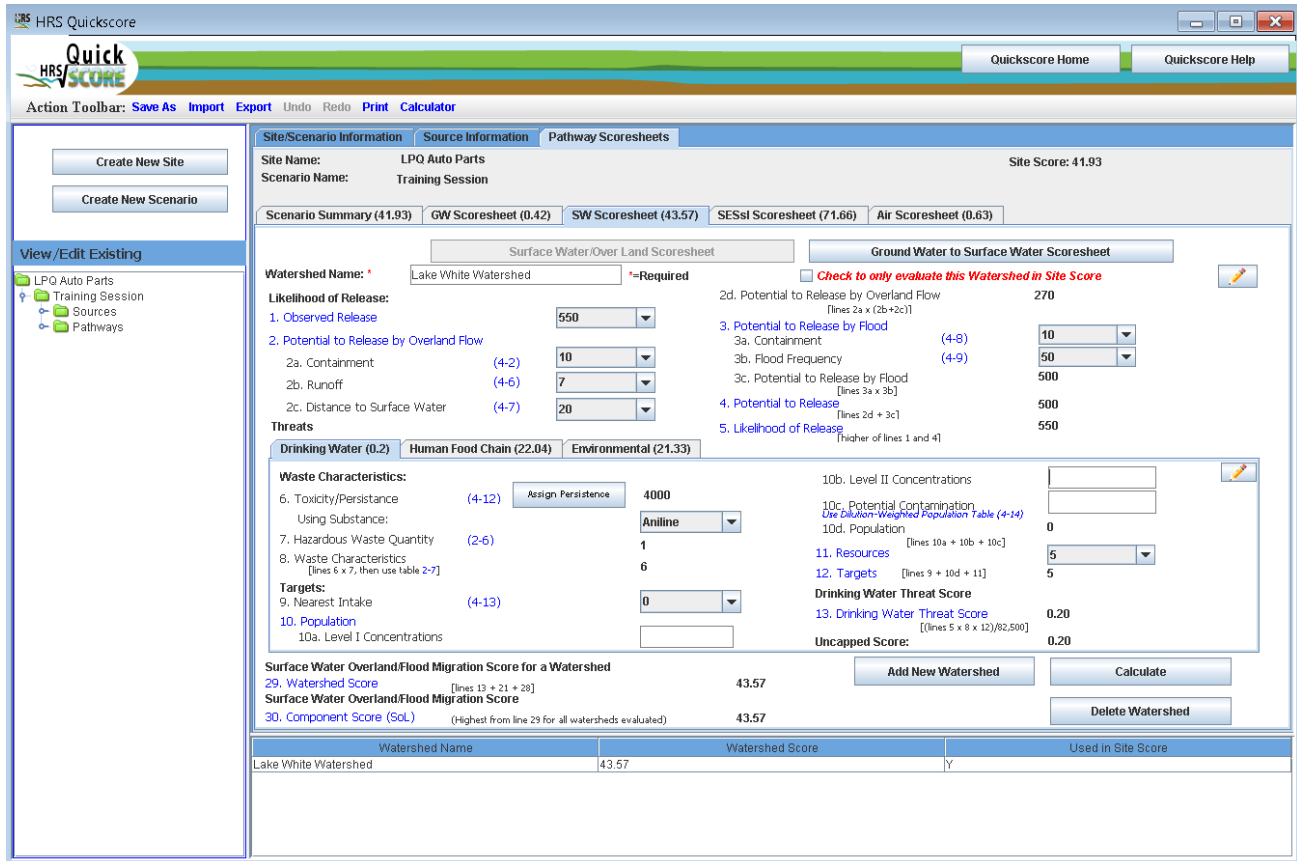



Figure 3-9: Surface Water (Overland Flow Component – Drinking Water Threat) Scoresheet


3.4.3.1 How do I enter the Overland Flow component?

Press the **Surface Water/Over Land Scoresheet** button near the top of the screen. Use the drop-down boxes to enter information about the Observed Release and the Potential to Release by Overland Flow for the Watershed. The program automatically calculates the Likelihood of Release.

Then for each threat you will enter specific information about Waste Characteristics and Targets.

For Drinking Water Threat

Click the  button to assign persistence to the hazardous substances available to the Surface Water Overland Flow component. See Figure 3-10. First select the substance, then choose the Predominant Water Category (Persistence), you will repeat this for each substance. You may use the “control” key to select multiple substances that have the same Predominant Water Category. The summary window at the bottom of the screen allows you to see the properties of the substances.

Finally, press the  button near the bottom of the screen. The “SW Scoresheet” will now be populated with the Toxicity/Persistence value and will also indicate which substance is being used.

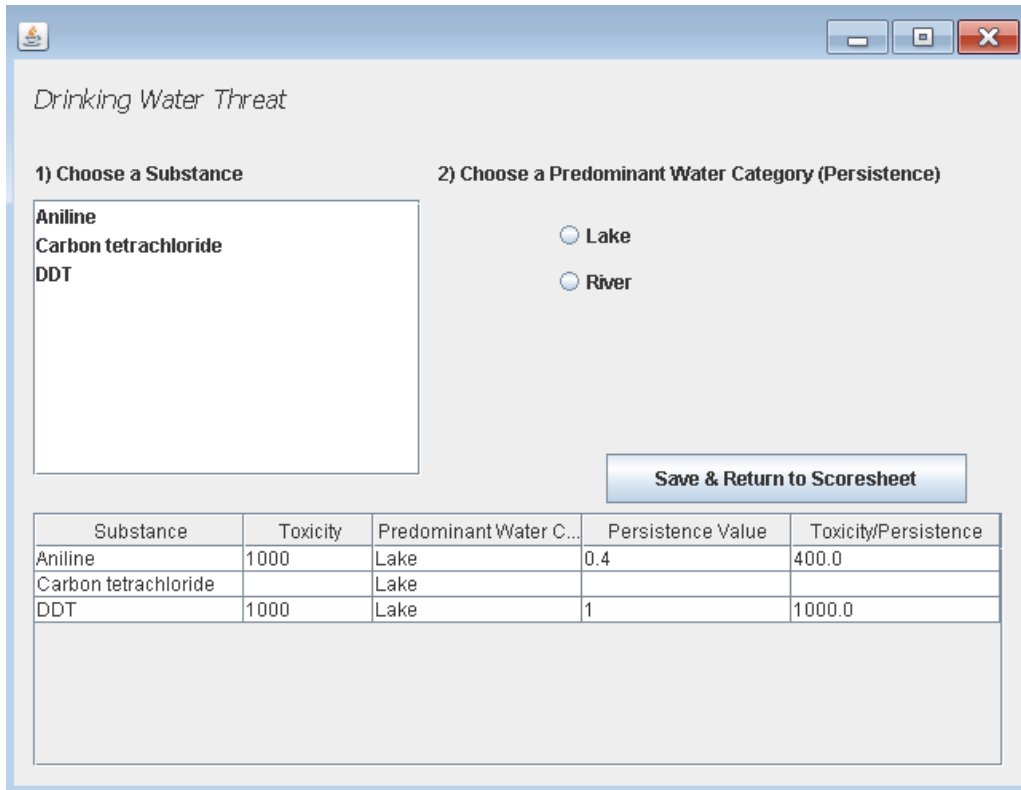


Figure 3-10: Surface Water Overland Flow Component – Assign Persistence for Drinking Water Threat

Next you will use the drop-down boxes and fill-in boxes to enter information for the Drinking Water Threat Targets. Note that you will enter the actual number of targets for Level I and Level II Concentrations and Potential Contamination and Quickscore will apply the appropriate multiplier, for the Population value. For Potential Contamination use the HRS Dilution-Weighted Population Table 4-14 to determine the distance-weighted population, enter that value for potential population, the program will apply the appropriate multiplier. The Waste Characteristics value may also re-calculate automatically depending on the information entered in the Targets Section.

At the bottom of this page you will find the Drinking Water Threat Score and the Uncapped Score, as well as the Watershed Score (the sum of the Threats) and the Surface Water Overland Flow Component Score (the highest value of all the watersheds being evaluated or the Watershed you selected to be used in the site score) (see Figure 3-10 above).

For Human Food Chain Threat

Click the **Assign Persistence/Bioaccum** button to assign persistence to the hazardous substances available to the Surface Water Overland Flow component (see Figure 3-11). First select the substance, then choose the Predominant Water Category (Persistence), and then choose a Water Body Type (Bioaccumulation); you will repeat this for each substance. You may use the “control” key to select multiple substances that have the same Predominant Water Category and Water Body Type. The summary window at the bottom of the screen allows you to see the properties of the substances. Finally, press the

Save & Return to Scoresheet button near the bottom of the screen. The “SW Scoresheet” will now be populated with the Toxicity/Persistence value and will also indicate which substance is being used.

Substance	Toxicity	Persistence Value	Bioaccumulation value	Toxicity/Persistence/Bioacc...
Aniline	1000			
Carbon tetrachloride				
DDT	1000	1	5000	5000000.0

Figure 3-11: Surface Water Overland Flow Component – Assign Persistence/Bioaccumulation for Human Food Chain Threat

Next you will use the drop-down boxes and fill-in boxes to enter information for the Human Food Chain Threat Targets. Note that you will enter the actual number of targets for Level I and Level II Concentrations and Potential Contamination and Quickscore will apply the appropriate multiplier, for the Population value. For Potential Contamination use the HRS Dilution-Weighted Population Table 4-13 to determine the distance-weighted population, enter that value for potential population, the program will apply the appropriate multiplier. The Waste Characteristics value may also re-calculate automatically depending on the information entered in the Targets Section.

At the bottom of this page you will find the Human Food Chain Threat Score and the Uncapped Score, as well as the Watershed Score (the sum of the Threats) and the Surface Water Overland Flow Component Score (the highest value of all the watersheds being evaluated or the Watershed you selected to be used in the site score) (see Figure 3-12).

The screenshot displays the 'Surface Water Over Land Scoresheet' for the 'Lake White Watershed'. The interface is divided into several sections:

- Site Information:** Site Name: LPQ Auto Parts, Scenario Name: Training Session, Site Score: 41.93.
- Scenario Summary:** GW Scoresheet (0.42), SW Scoresheet (43.57), SESSl Scoresheet (71.66), Air Scoresheet (0.63).
- Surface Water Over Land Scoresheet:**
 - Watershed Name: Lake White Watershed (Required)
 - Check to only evaluate this Watershed in Site Score:
 - Likelihood of Release: 550
 - 2d. Potential to Release by Overland Flow: 270
 - 3. Potential to Release by Flood: 10
 - 3a. Containment: 10
 - 3b. Flood Frequency: 50
 - 3c. Potential to Release by Flood: 500
 - 4. Potential to Release: 500
 - 5. Likelihood of Release: 550
- Threats:**
 - Drinking Water (0.2): 14. Likelihood of Release: 550
 - Human Food Chain (22.04):
 - 15. Toxicity/Persist/Bioaccum: 5.0E7
 - 15a. Tox/Persistence: 1000
 - Using Substance: DDT
 - 15b. Bioaccumulation Value: 50000
 - 16. Hazardous Waste Quantity: 1
 - 17. Waste Characteristics: 56
 - 18. Food Chain Individual: 50.0
 - Environmental (21.33):
 - 19. Population: 9.03
 - 19a. Level I Concentrations: 0.6 (x 10 = 6)
 - 19b. Level II Concentrations: 3.0 (x 1 = 3)
 - 19c. Potential HFC Contamination: 0.30 (x 0.1 = 0.03)
 - 19d. Population: 9.03
 - 20. Targets: 59.03
 - 21. Human Food Chain Threat Score: 22.04
 - Uncapped Score: 22.04
- Summary:**
 - 29. Watershed Score: 43.57
 - 30. Component Score (SoL): 43.57

Figure 3-12: Surface Water - Overland Flow Component – Human Food Chain Threat Scoresheet

For Environmental Threat

Click the **Assign Persistence/Bioaccum** button to assign persistence to the hazardous substances available to the Surface Water Overland Flow component. See Figure 3-13. First select the substance, then choose the Predominant Water Category (Persistence), and then choose a Water Body Type (Bioaccumulation); you will repeat this for each substance. You may use the “control” key to select multiple substances that have the same Predominant Water Category and Water Body Type. The summary window at the bottom of the screen allows you to see the properties of the substances. Finally, press the

Save & Return to Scoresheet button near the bottom of the screen. The “SW Scoresheet” will now be populated with the Toxicity/Persistence value and will also indicate which substance is being used.

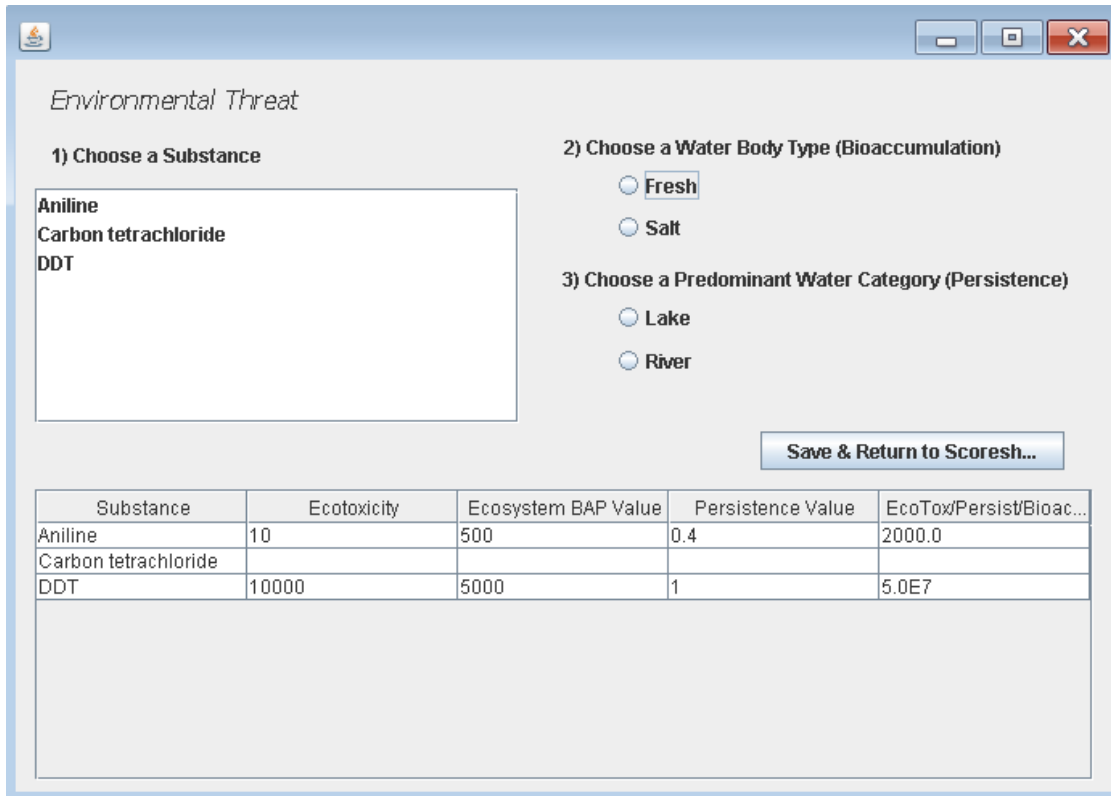


Figure 3-13: Surface Water Overland Flow Component – Assign Persistence/Bioaccumulation for Environmental Threat

Next you will use the drop-down boxes and fill-in boxes to enter information for the Environmental Threat Target information. Note that you will enter the actual number of targets for Level I and Level II Concentrations and Potential Contamination and Quickscore will apply the appropriate multiplier, for the Population value. For Potential Contamination use the HRS Dilution-Weighted Population Table 4-13 to determine the distance-weighted population, enter that value for potential population, the program will apply the appropriate multiplier. The Waste Characteristics value may also re-calculate automatically depending on the information entered in the Targets Section.

At the bottom of this page you will find the Environmental Threat Score and the Uncapped Score, as well as the Watershed Score (the sum of the Threats) and the Surface Water Overland Flow Component Score (the highest value of all the watersheds being evaluated or the Watershed you selected to be used in the site score) (see Figure 3-14).

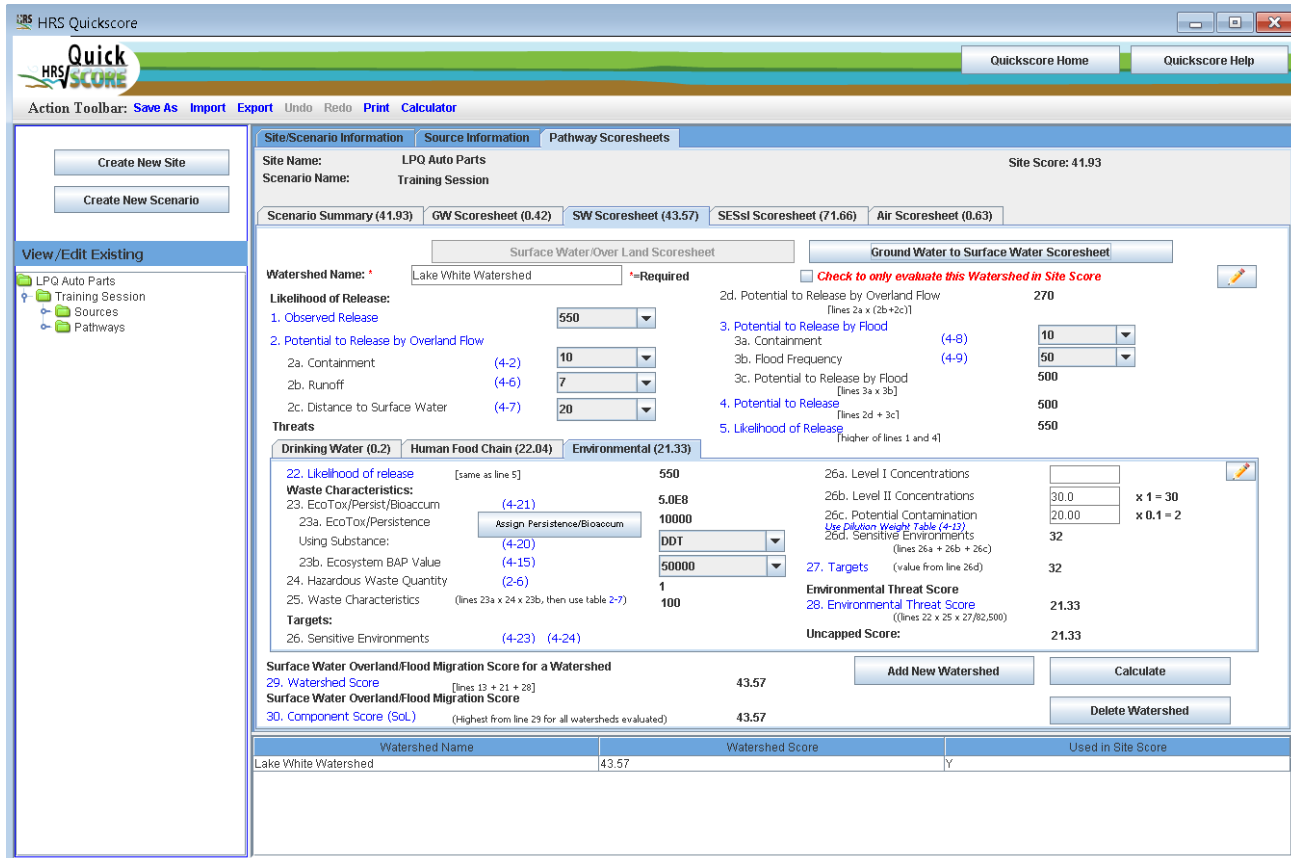


Figure 3-14: Surface Water - Overland Flow Component – Environmental Threat Scoresheet

3.4.3.2 How do I enter the Ground Water to Surface Water component?

Press the **Ground Water to Surface Water Scoresheet** button near the top of the screen. Use the drop-down boxes to enter information about the Observed Release and the Potential to Release by Ground Water to Surface for the Watershed, the program automatically calculates the Likelihood of Release.

Then for each threat you will enter specific information about Waste Characteristics and Targets.

For Drinking Water Threat

Click the button to assign persistence to the hazardous substances available to the Ground Water to Surface Water component. See Figure 3-15. First select the substance, choose a Mobility Type, then choose the Predominant Water Category (Persistence), you will repeat this for each substance. You may use the “control” key to select multiple substances that have the same Mobility Type and Predominant Water Category. The summary window at the bottom of the screen allows you to see the properties of the substances. Finally, press the button near the bottom of the screen. The “SW Scoresheet” will now be populated with the Toxicity/Mob/Persistence value and will also indicate which substance is being used.

Substance	Toxicity	Mobility Value	Persistence Value	Tox/Mob/Persistence
Aniline	1000	1	1	1000.0
Carbon tetrachloride				
DDT	1000	1	1	1000.0

Figure 3-15: Ground Water to Surface Water Component – Assign Persistence for Drinking Water Threat



Next you will use the drop-down boxes and fill-in boxes to enter information for the Drinking Water Threat Targets. Note that you will enter the actual number of targets for Level I and Level II Concentrations and Potential Contamination and Quickscore will apply the appropriate multiplier, for the Population value. For Potential Contamination use the HRS Dilution-Weighted Population Table 4-27 to determine the distance-weighted population, enter that value for potential population, the program will apply the appropriate multiplier. The Waste Characteristics value may also re-calculate automatically depending on the information entered in the Targets Section.

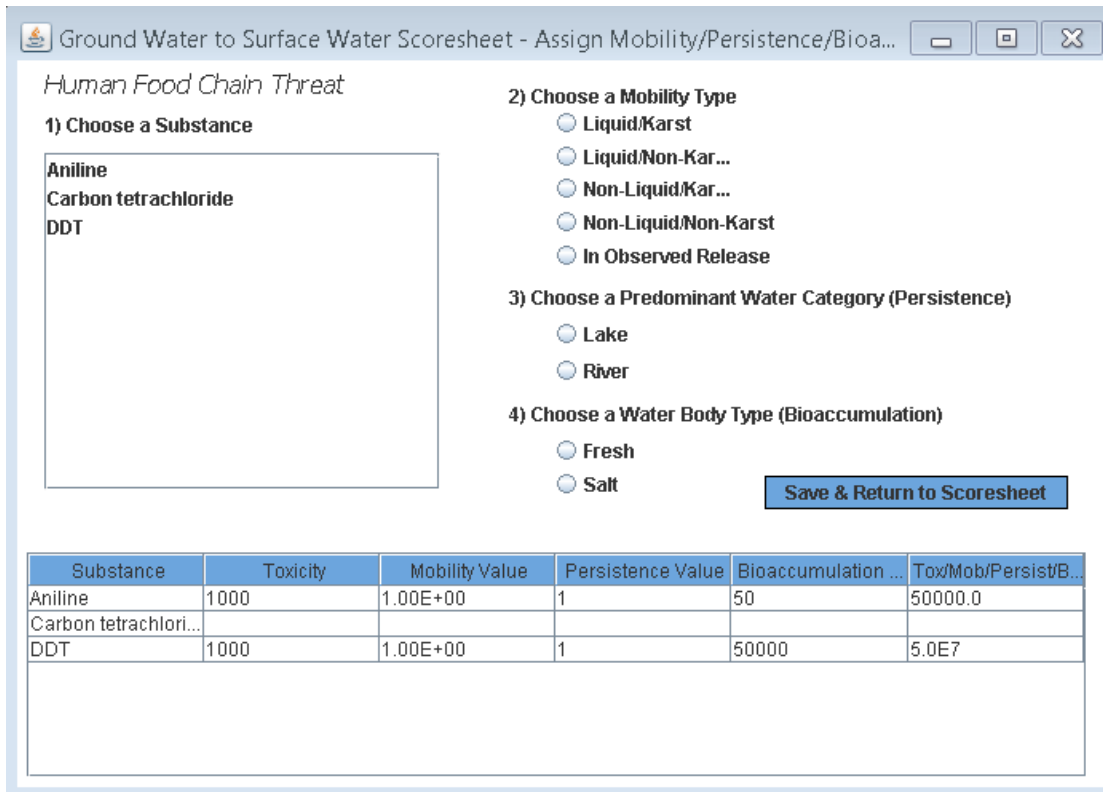
At the bottom of this page you will find the Drinking Water Threat Score and the Uncapped Score, as well as the Watershed Score (the sum of the Threats) and the Ground Water to Surface Water Component Score (the highest value of all the watersheds being evaluated or the Watershed you selected to be used in the site score) (see Figure 3-16).

The screenshot displays the HRS Quickscore software interface. The main window is titled 'HRS Quickscore' and shows a 'Site/Scenario Information' tab. The 'Site Name' is 'LPQ Auto Parts' and the 'Scenario Name' is 'Training Session'. The 'Site Score' is 41.93. The interface is divided into several sections: 'Scenario Summary' (41.93), 'GW Scoresheet' (0.42), 'SW Scoresheet' (43.57), 'SESSl Scoresheet' (71.66), and 'Air Scoresheet' (0.63). The 'Surface Water/Over Land Scoresheet' is currently active, showing inputs for 'Watershed Name' (Lake White Watershed), 'Factor Categories & Factors Likelihood of Release' (1, 0, 0, 1), 'Threats' (0, 0, 0), 'Waste Characteristics' (10000, 1, 10), 'Targets' (0, 0), and 'Ground Water to Surface Water Migration Score' (0, 0). A summary table at the bottom lists the 'Watershed Name' as 'Lake White Watershed', 'Watershed Score' as 0, and 'Used in Site Score' as Y.

Figure 3-16: Surface Water (Ground Water to Surface Water Component – Drinking Water Threat) Scoresheet

For Human Food Chain Threat

Click the  button to assign persistence to the hazardous substances available to the Surface Water Overland Flow component. See Figure 3-17. First select the substance, choose a Mobility Type, then choose the Predominant Water Category (Persistence), and finally choose a Water Body Type (Bioaccumulation), you will repeat this for each substance. You may use the “control” key to select multiple substances that have the same Mobility Type, Predominant Water Category, and Water Body Type. The summary window at the bottom of the screen allows you to see the properties of the substances. Finally, press the  button near the bottom of the screen. The “SW Scoresheet” will now be populated with the Tox/Mob/Persistence value and will also indicate which substance is being used.



Substance	Toxicity	Mobility Value	Persistence Value	Bioaccumulation ...	Tox/Mob/Persist/B...
Aniline	1000	1.00E+00	1	50	50000.0
Carbon tetrachlori...					
DDT	1000	1.00E+00	1	50000	5.0E7

Figure 3-17: Surface Water Overland Flow Component – Assign Mobility/Persistence/Bioaccumulation for Human Food Chain Threat

Next you will use the drop-down boxes and fill-in boxes to enter information for the Human Food Chain Threat Targets. Note that you will enter the actual number of targets for Level I and Level II Concentrations and Potential Contamination and Quickscore will apply the appropriate multiplier, for the Population value. The Waste Characteristics value may also re-calculate automatically depending on the information entered in the Targets Section.

At the bottom of this page you will find the Human Food Chain Threat Score and the Uncapped Score, as well as the Watershed Score (the sum of the Threats) and the Ground Water to Surface Water Component Score (the highest value of all the watershed being evaluated or the Watershed you selected to be used in the site score) (see Figure 3-18).

The screenshot displays the HRS Quickscore application window. The main interface is titled 'Surface Water/Over Land Scoresheet' and 'Ground Water to Surface Water Scoresheet'. The 'Watershed Name' is 'Lake White Watershed'. The 'Site Score' is 41.93. The 'Scenario Name' is 'Training Session'. The 'Site/Scenario Information' tab is active, showing 'Site Name: LPQ Auto Parts' and 'Scenario Name: Training Session'. The 'Scenario Summary' tab is also visible, showing scores for various components: GW Scoresheet (0.42), SW Scoresheet (43.57), SESSL Scoresheet (71.66), and Air Scoresheet (0.63).

The 'Factor Categories & Factors Likelihood of Release' section includes:

- 1. Observed Release: 0
- 2. Potential to Release by Overland Flow:
 - 2a. Containment (3-2): 0
 - 2b. Net Precipitation (3-4): 0
 - 2c. Depth to Aquifer (3-5): 1
- 2d. Time Travel (3-7): 1
- 2e. Potential to Release (lines 2a(2b+2c+2d)): 0
- 3. Likelihood of Release (higher of line 1 and 2e): 0

The 'Threats' section is divided into 'Drinking Water (0)', 'Human Food Chain (0)', and 'Environmental (0)'. The 'Human Food Chain' section includes:

- 12. Likelihood of Release (Same as line 3): 0
- 13. Toxicity/Mobility/Persist/Bioaccum (4-28): 5.0E7
- 13a. Tox/Mob/Persistence: Assign Mobility/Persist/Bioaccum: 1000
- Using Substance: (4-26): DDT
- 13b. Bioaccumulation Value (4-15): 50000
- 14. Hazardous Waste Quantity (2-6): 1
- 15. Waste Characteristics (lines 13a x 14 x 13b, then use table 2-7): 56
- 16. Food Chain Individual Targets: 0
- 17. Population (4-18): 0
- 17a. Level I Concentrations: [input field]
- 17b. Level II Concentrations: [input field]
- 17c. Potential HFC Contamination (Use Pollution Weight Table (4-13) 17c1. Population ((lines 17a + 17b + 17c1)): 0
- 18. Targets (lines 16 + 17d): 0
- 19 Human Food Chain Threat Score (lines 12 x 15 x 10/62,500): 0
- Uncapped Score: 0

The 'Ground Water to Surface Water Migration Score for a Watershed' section includes:

- 27. Watershed Score (lines 11 + 19 + 26): 0
- Ground Water to Surface Water Migration Score
- 28. Component Score (Sol.) (Highest from line 27 for all watersheds evaluated): 0

Buttons for 'Add New Watershed', 'Calculate', and 'Delete Watershed' are present. A summary table at the bottom shows:

Watershed Name	Watershed Score	Used in Site Score
Lake White Watershed	0	Y

Figure 3-18: Surface Water – Ground Water to Surface Water Component – Human Food Chain Threat Scoresheet

For Environmental Threat

Click the **Assign Mobility/Persist/Bioaccum** button to assign persistence to the hazardous substances available to the Surface Water Overland Flow component. See Figure 3-19. First select the substance, choose a Mobility Type, then choose the Predominant Water Category (Persistence), finally choose a Water Body Type (Bioaccumulation), you will repeat this for each substance. You may use the “control” key to select multiple substances that have the same Mobility Type, Predominant Water Category, and Water Body Type. The summary window at the bottom of the screen allows you to see the properties of the substances. Finally, press the **Save & Return to Scoresheet** button near the bottom of the screen. The “SW Scoresheet” will now be populated with the Tox/Mob/Persistence value and will also indicate which substance is being used.

Substance	Ecotoxicity	Mobility Value	Ecosystem BAP Val...	Persistence Value	EcoTox/Mob/Persis...
Aniline	10	1.00E+00	500	1	5000.0
Carbon tetrachloride					
DDT	10000	1.00E+00	50000	1	5.0E8

Figure 3-19: Surface Water Overland Flow Component – Assign Persistence/Bioaccumulation for Environmental Threat

Next you will use the drop-down boxes and fill-in boxes to enter information for the Environmental Threat Target information. Note that you will enter the actual number of targets for Level I and Level II Concentrations and Potential Contamination and Quickscore will apply the appropriate multiplier, for the Population value. For Potential Contamination use the HRS Dilution-Weighted Population Table 4-13 to determine the distance-weighted population, enter that value for potential population, the program will apply the appropriate multiplier. The Waste Characteristics value may also re-calculate automatically depending on the information entered in the Targets Section.

At the bottom of this page you will find the Environmental Threat Score and the Uncapped Score, as well as the Watershed Score (the sum of the Threats) and the Ground Water to Surface Water Component Score (the highest value of all the watershed being evaluated or the Watershed you selected to be used in the site score) (see Figure 3-20).

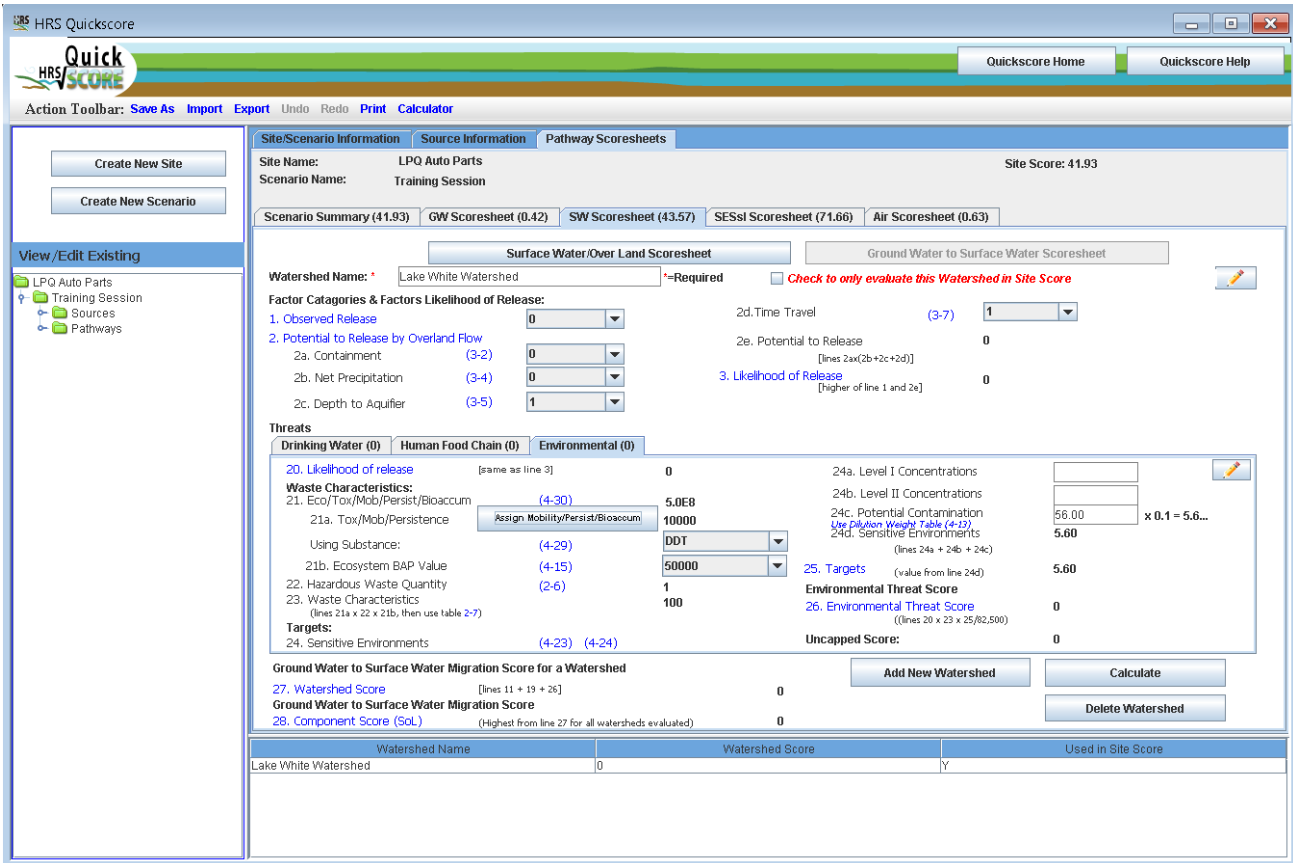



Figure 3-20: Surface Water – Ground Water to Surface Water Component – Environmental Threat Scoresheet

3.4.3.3 How do I add or delete Watersheds?

To add a new Watershed press  button at the bottom of the screen and repeat the above steps.

To delete a Watershed, make sure you have the Watershed that you wish to delete selected and press  button, a warning box will appear telling you the name of Watershed you are about to delete and asking if you want to continue (Figure 3-21). The Watershed will be deleted from both the Overland Flow and Ground Water to Surface Water components.

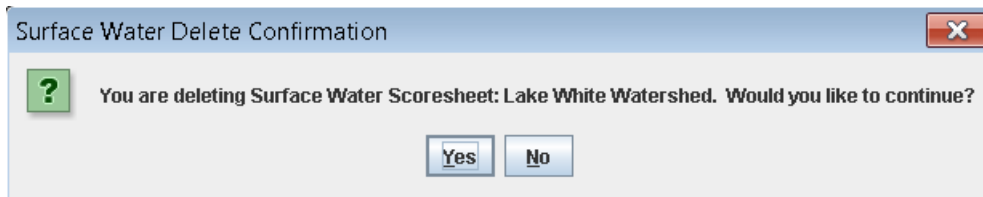


Figure 3-21: Delete Watershed Dialog Box

3.4.4 How do I use the SESSI Scoresheet?

The Soil Exposure and Subsurface Intrusion scoresheet is divided into two components, the Soil Exposure component and the Subsurface Intrusion component. There are buttons at the top of the “SESSI Scoresheet” which allow you to switch between the two components and access the AOC, AOE and ASC data entry sheets.

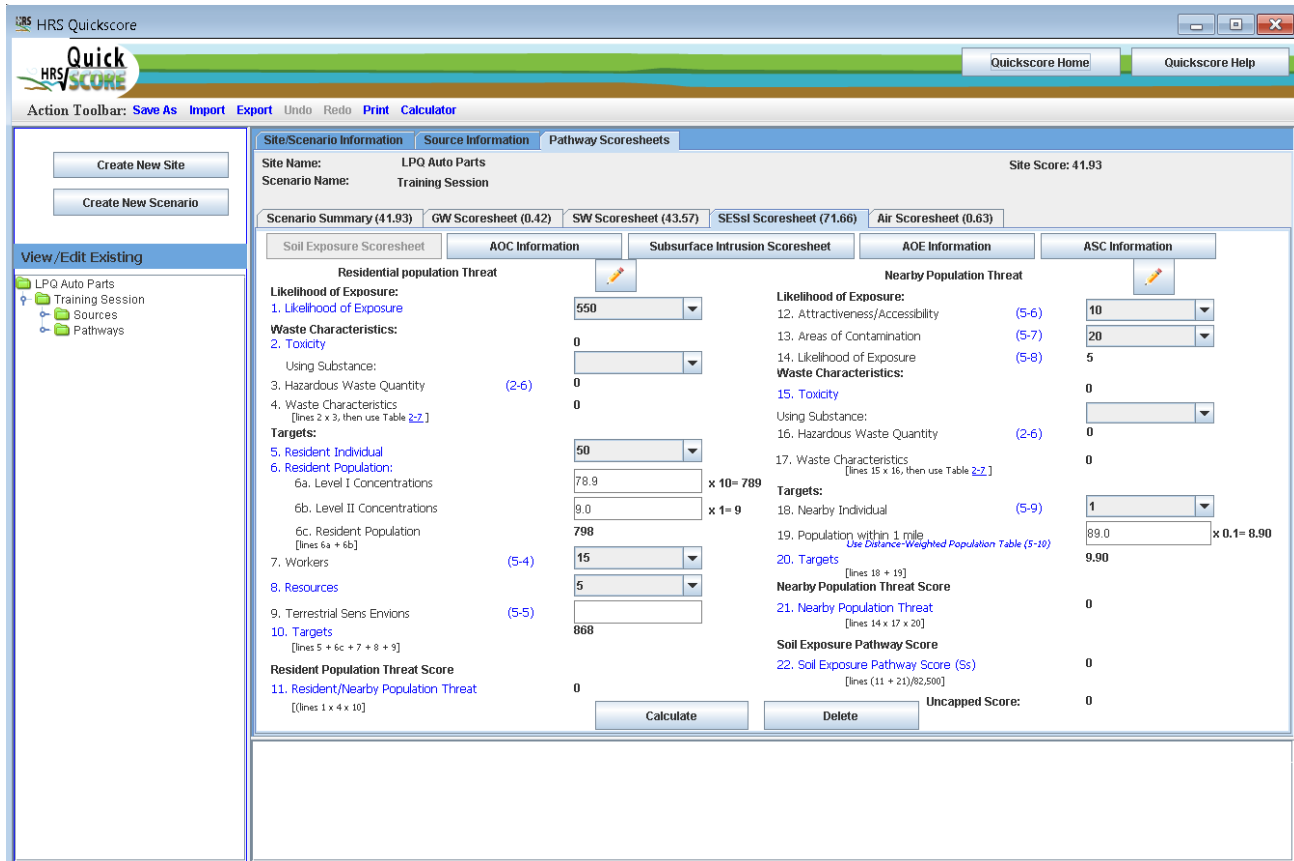


Figure 3-22: Soil Exposure and Subsurface Intrusion Scoresheet

3.4.4.1 How do I enter Areas of Contamination for the Soil Exposure Component?

Click the **AOC Information** button at the top of the scoresheet.

This opens the AOC screen; which functions similarly to the Source Information screen from the migration pathway screens (see Section 3.3). Any sources entered on the Source Information screen that have been checked as being scored for the Soil Exposure Pathway will already be listed as AOCs. Only the information for Step 1 will automatically be completed by HRS Quickscore for these AOCs, Step 2 and Step 3 information must be entered separately because they will differ from the information in the corresponding Source.

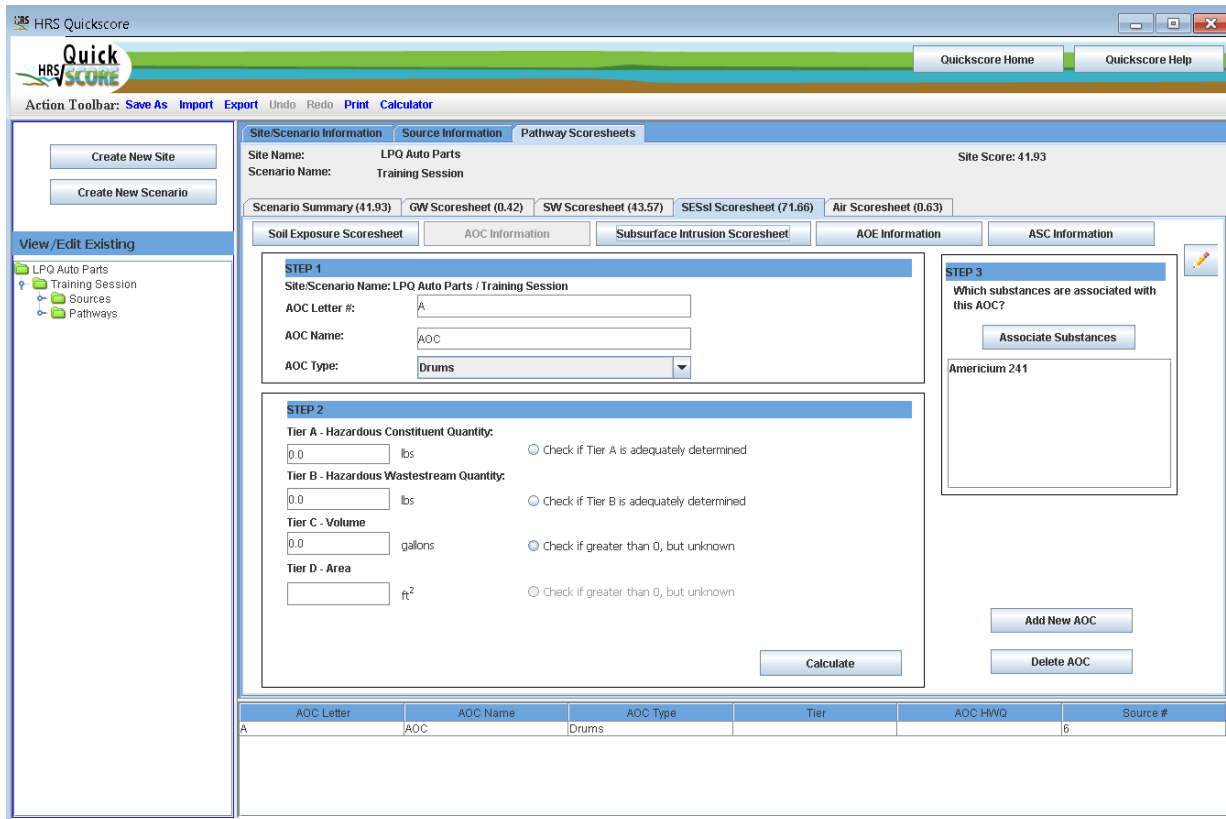


Figure 3-23: Area of Contamination Entry Screen



To add a new AOC, click the **Add New AOC** button at the bottom right of the AOC Information screen. Follow the steps outlined on the AOC screen:

STEP 1 – HRS Quickscore will automatically populate the AOC Letter field. Enter the AOC Name and select the AOC Type from the drop-down list provided. Note that if the AOC is also a source, HRS Quickscore will automatically populate the AOC Name and AOC Type with the information from the Source Information entry. The information can be updated here if appropriate. Changing the AOC Name or AOC Type will not change the Source Information.

STEP 2 - Enter the waste quantity data and select the appropriate radio button. Click the **Calculate** button to see the Hazardous Waste Quantity (HWQ) (Calculated) value at the bottom of the STEP 2 box.

STEP 3 – Click the **Associate Substances** button to select the substance associated with the AOC. This screen functions similarly to the Associate Substances screen from the Source Information section (see Section 3.3.1).

Note: When a new AOC is created from the Soil Exposure Scoresheet a corresponding Source with the same name and type is created with Step 5 checked (see Section 3.3: How do I enter source information?).

To delete an AOC, click  at the bottom right of the AOC Information screen. A dialogue box will appear to confirm the AOC you are about to delete. To return to the Soil Exposure Scoresheet, click  at the top of the AOC Information screen.

3.4.4.2 How do I calculate a Soil Exposure Component score?


For the Resident Population Threat

Use the drop-down box provided to enter the Likelihood of Exposure Factor Category Value. The Waste Characteristics Factor Category Value is calculated by HRS Quickscore based on the information entered for AOCs. The substance used for assigning the Toxicity factor value will be displayed below Line 2 on the Resident Population Threat scoresheet. Next use the drop-down boxes and fill-in boxes to enter information for targets. HRS Quickscore will apply the appropriate weighting factor based on Level of Concentration for the Resident Population factor value. Once there are data to calculate each Factor Category Value, HRS Quickscore will automatically calculate the Resident Population Threat score, and the Soil Exposure Pathway score.

For the Nearby Population Threat

Use the drop-down boxes provided to enter the Likelihood of Exposure Factor Category Value. The Waste Characteristics Factor Category Value is calculated by HRS Quickscore based on the information entered for AOCs. The substance used for assigning the Toxicity factor value will be displayed below Line 2 on the Nearby Population Threat scoresheet. Next use the drop-down box and fill-in box to enter information for targets. For Population within 1 Mile factor value use the HRS Distance-Weighted Population Table 5-10 to determine the distance-weighted population, enter that value for potential population, the program will apply the appropriate multiplier. Once there are data to calculate each Factor Category Value, HRS Quickscore will automatically calculate the Nearby Population Threat score, and the Soil Exposure Pathway score.

3.4.4.3 How do I delete a SE Scoresheet?

Click  at the bottom of the Soil Exposure scoresheet. A dialogue box will appear confirming that you are deleting the Soil Exposure scoresheet. Selecting “Yes” will clear all the fields on the Soil Exposure scoresheet, except those calculated by HRS Quickscore based on the AOC Information.

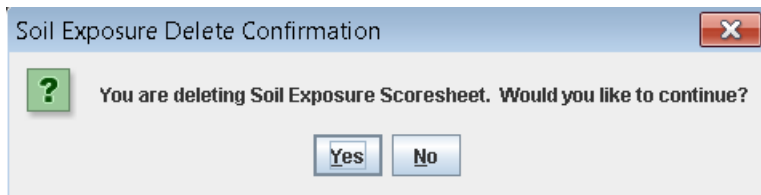


Figure 3-24: Delete Soil Exposure Dialogue Box

3.4.4.4 How do I enter Areas of Observed Exposure for the Subsurface Intrusion Component?

Click the **AOE Information** button at the top of the scoresheet. This opens the AOE screen; which functions similarly to the Source Information screen from the migration pathway screens (see Section 3.3).

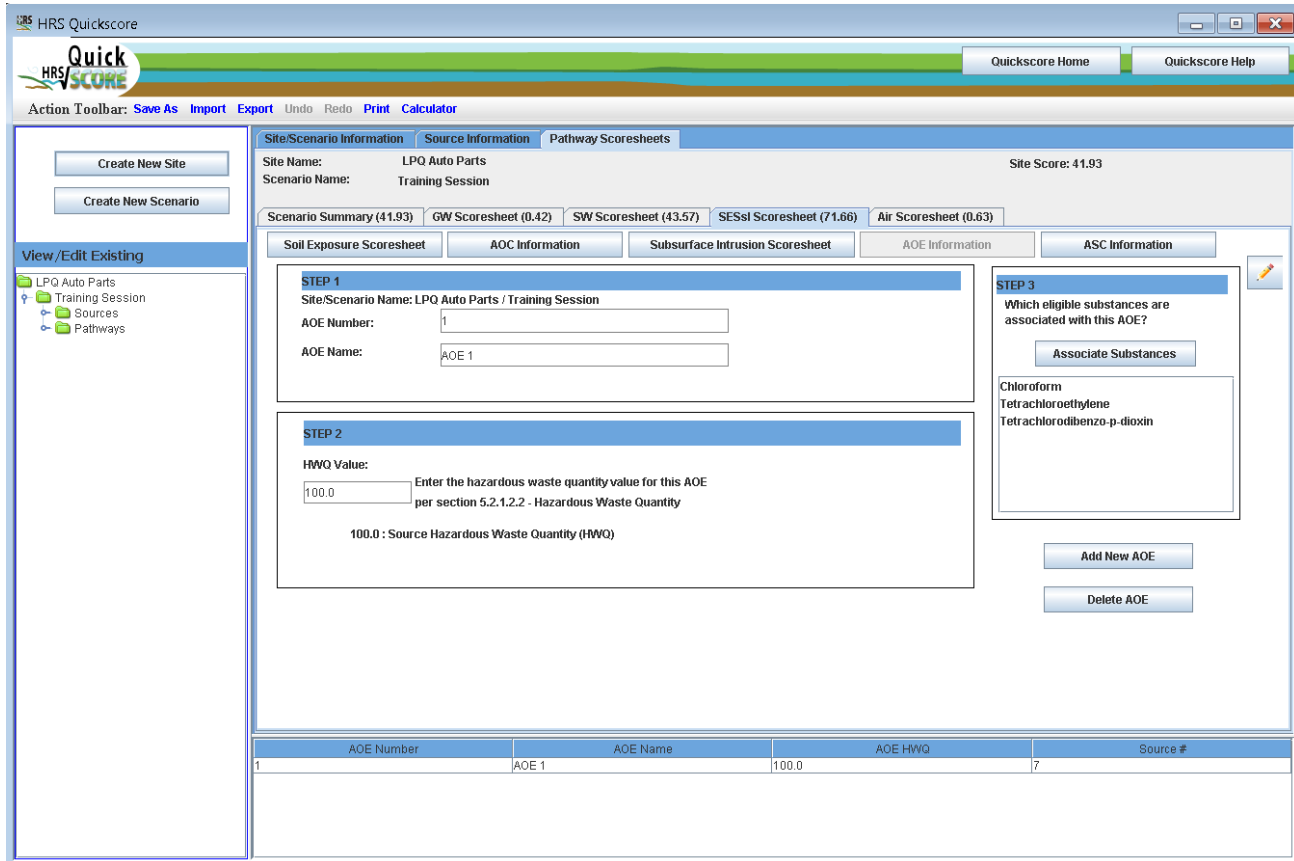


Figure 3-25: Area of Observed Exposure Entry Screen

To add a new AOE, click **Add New AOE** at the bottom right of the AOE Information screen. Follow the steps outlined on the AOE screen:

STEP 1 – HRS Quickscore will automatically populate the AOE Number field. Enter the AOE Name.

STEP 2 - Enter the total hazardous waste quantity value for this AOE per section 5.2.1.2.2 of the HRS.

STEP 3 – Click the **Associate Substances** button to select the substance associated with the AOE. This screen functions similarly to the Associate Substances screen from the Source Information section (see Section 3.3.1).

To delete an AOE, click **Delete AOE** at the bottom right of the AOC Information screen. A dialogue box will appear to confirm the AOC you are about to delete. To return to the Subsurface Intrusion Component Scoresheet, click **Subsurface Intrusion Scoresheet** at the top of the AOE Information screen.

3.4.4.5 How do I enter an Area of Subsurface Contamination for the Subsurface Intrusion Component?

Click the **ASC Information** button at the top of the scoresheet.

This opens the ASC screen; which functions similarly to the Source Information screen from the migration pathway screens (see Section 3.3).

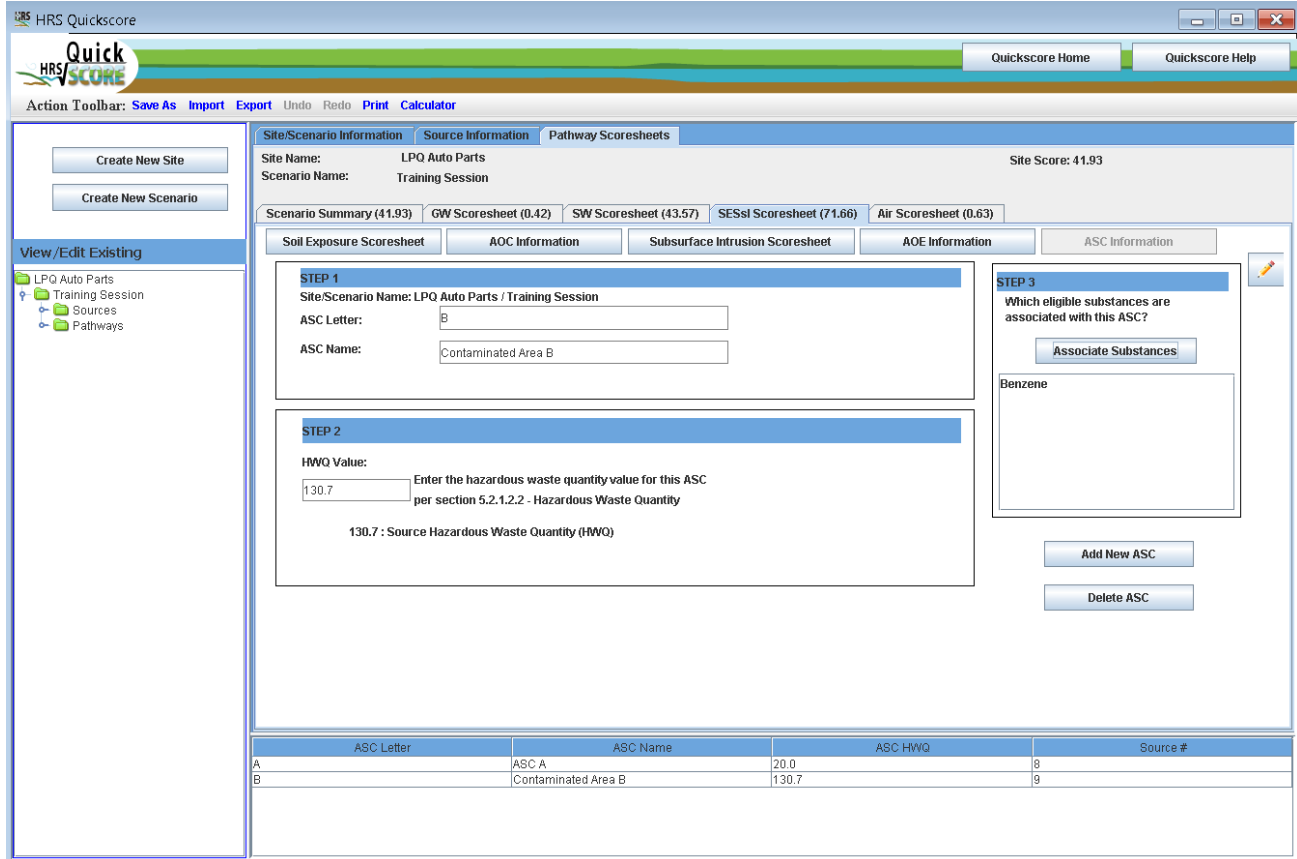


Figure 3-26: Area of Area of Subsurface Contamination Entry Screen

To add a new ASC, click **Add New ASC** at the bottom right of the ASC Information screen. Follow the steps outlined on the ASC screen:

STEP 1 – HRS Quickscore will automatically populate the ASC letter field. Enter the ASC Name.

STEP 2 - Enter the total hazardous waste quantity value for this ASC per section 5.2.1.2.2 of the HRS.



STEP 3 – Click the **Associate Substances** button to select the substance associated with the AOE. This screen functions similarly to the Associate Substances screen from the Source Information section (see Section 3.3.1).

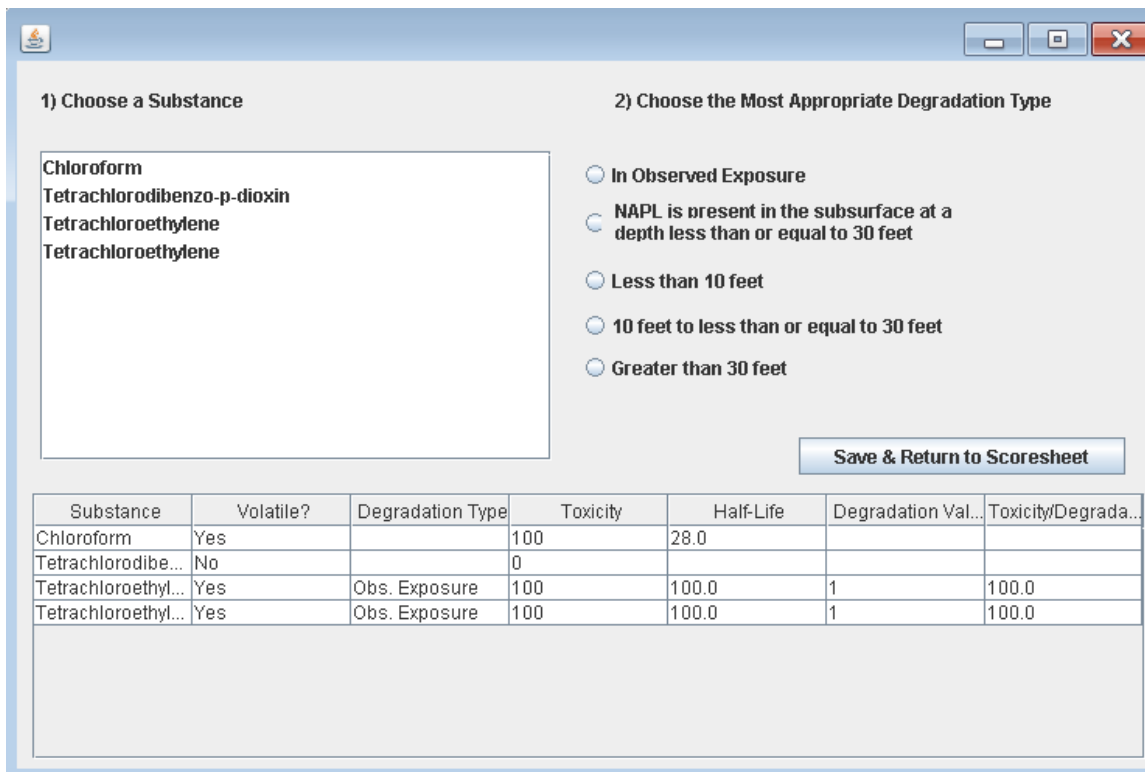
To delete an ASC, click **Delete ASC** at the bottom right of the AOC Information screen. A dialogue box will appear to confirm the AOC you are about to delete. To return to the Subsurface Intrusion Component Scoresheet, click **Subsurface Intrusion Scoresheet** at the top of the AOE Information screen.

3.4.4.6 How do I calculate a Subsurface Intrusion Component score?

The scoresheet provides data entry fields to enter information about Likelihood of Exposure, Waste Characteristics and Targets, used to calculate a Subsurface Intrusion Component score.

Use the drop-down boxes to enter information about the Observed Exposure and the Potential for Exposure for the component. Once this information is entered, the program automatically calculates the Likelihood of Exposure Factor Category Value.

Select the Assign Degradation button  to bring up a pop-up box allowing you to assign degradation parameters to the hazardous substances (see Figure 3-26). First select the substance, then choose the most appropriate degradation type, you will repeat this for each substance. The summary window at the bottom of the screen allows you to see the properties of the substances. Finally press the Save & Return to Scoresheet button  near the bottom of the screen. The Subsurface Intrusion Component scoresheet will now be populated with the Toxicity/Degradation value and will also indicate which substance is being used.



Substance	Volatile?	Degradation Type	Toxicity	Half-Life	Degradation Val...	Toxicity/Degrada...
Chloroform	Yes		100	28.0		
Tetrachlorodibe...	No		0			
Tetrachloroethyl...	Yes	Obs. Exposure	100	100.0	1	100.0
Tetrachloroethyl...	Yes	Obs. Exposure	100	100.0	1	100.0

Figure 3-27: Subsurface Intrusion Component Scoresheet – Assign Degradation


The HWQ factor value is automatically populated by information entered on the sources page. Minimum HWQ factor values are automatically assigned when actually contaminated targets or Exposed Individual values of 45 or greater.

Next you will use the drop-down boxes and fill-in boxes to enter target information. Note that you will enter the actual number of targets for Level I and Level II Concentrations and Population within Area(s) of Subsurface Contamination. Quickscore will then apply the appropriate multiplier for the Population value. For Population within Area(s) of Subsurface Contamination use the HRS Weighting Factor Values for Populations within an Area of Subsurface Contamination Table 5-12 to determine the population weighting factor. Sum the weighted population in all structures within the area(s) of subsurface contamination and enter this sum as the population within an area of subsurface contamination factor value.

At the bottom of this page you will find the Subsurface Intrusion Component score, Soil Exposure and Subsurface Intrusion Pathway Score, and the Uncapped Score.

Note on workers who are targets: Workers need to be calculated by users and added to the appropriate Level of Concentrations.

3.4.4.7 How do I delete a SSI Scoresheet?

Click  at the bottom of the Subsurface Intrusion scoresheet. A dialogue box will appear confirming that you are deleting the Soil Exposure scoresheet. Selecting “Yes” will clear all the fields on the Subsurface Intrusion scoresheet, except those calculated by HRS Quickscore based on the AOE and ASC Information.

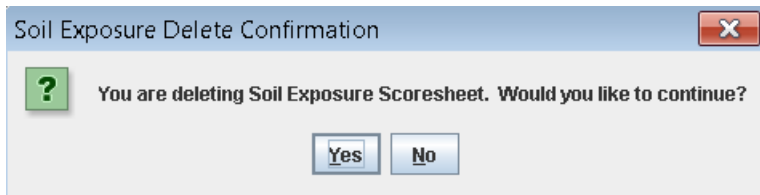


Figure 3-28: Delete Soil Exposure Dialogue Box

3.4.5 How do I use the Air Scoresheet?

To enter Likelihood of Release data, use the drop-down box to enter the Observed Release factor value and the fill-in boxes to enter the Potential to Release factor value, HRS Quickscore will automatically calculate the Likelihood of Release Factor Category Value.

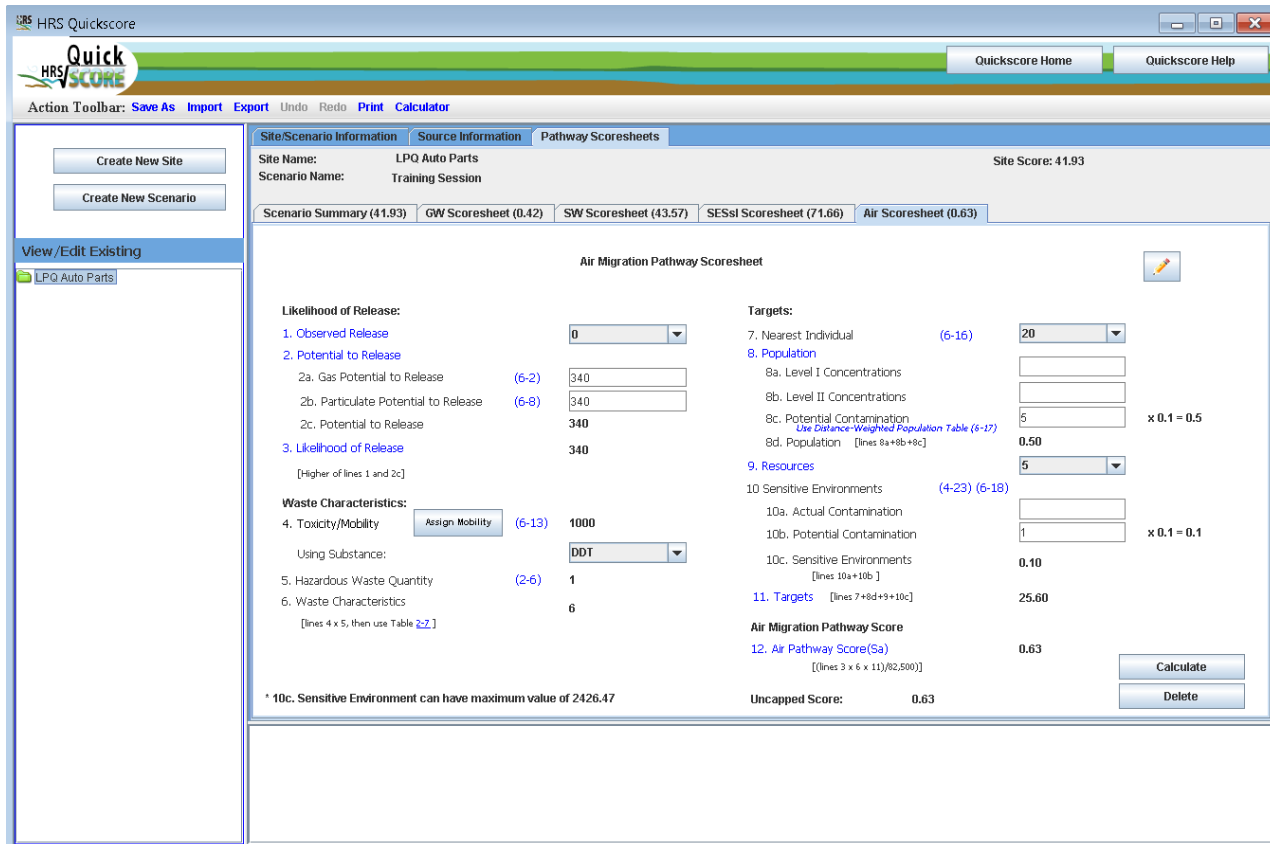




Figure 3-29: Air Pathway Scoresheet

Waste Characteristics data are based on the information entered for Sources. Click  to assign a Mobility Type for each substance available to the Air Migration Pathway. You may use the “control” key to select multiple substances that have the same Mobility Type.

3.4.5.1 Air mobility


Highlight the substance by clicking on it in the Choose a Substance box on the left of the screen. On the right of screen, assign the mobility value by clicking the appropriate radio button under Choose a Mobility Type. For substances designated as gaseous and particulate under Choose a Mobility Type, select the appropriate particulate mobility type from the drop-down box next to Assign Particulate Mobility Value.

Click  to return to the Air scoresheet. The substance used for assigning the Toxicity/Mobility factor value will be displayed below Line 4 on the Air scoresheet.

Use the drop-down boxes and fill-in boxes to enter information for targets. HRS Quickscore will apply the appropriate weighting factor based on Level of Concentration. Note that you will enter the actual number of targets for Level I and Level II Concentrations and Potential Contamination and Quickscore will apply the appropriate multiplier, for the Population value. For Potential Contamination use the HRS Distance-Weighted Population Table 6-17 to determine the distance-weighted population, enter that value for potential population, the program will apply the appropriate multiplier.

Once there are data to calculate each Factor Category Value, HRS Quickscore will automatically calculate the Air Migration Pathway score.

3.4.5.2 How do I delete an Air Scoresheet?

Click  at the bottom of Air scoresheet. A dialogue box will appear confirming that you are deleting the Air scoresheet. Selecting “Yes” will clear all the fields on the Air scoresheet.

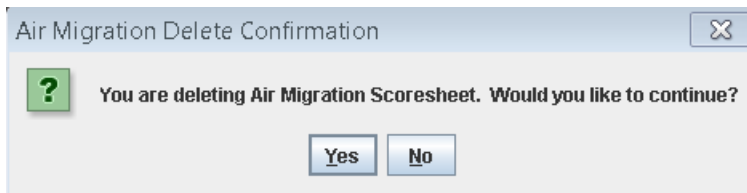


Figure 3-30: Delete Air pathway Pathway Dialogue Box

Appendix A Printout of Blank HRS Scoresheets

****** CONFIDENTIAL ******
******PRE-DECISIONAL DOCUMENT ******
****** SUMMARY SCORESHEET ******
****** FOR COMPUTING PROJECTED HRS SCORE ******

****** Do Not Cite or Quote ******

Site Name:

Region:

City, County, State:

Evaluator:

EPA ID#:

Date:

Lat/Long:

Congressional District:

This Scoresheet is for:

Scenario Name:

	S pathway	S ² pathway
Ground Water Migration Pathway Score (S _{gw})		
Surface Water Migration Pathway Score (S _{sw})		
Soil Exposure and Subsurface Intrusion Pathway Score (S _{sessi})		
Air Migration Score (S _a)		
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_{sessi} + S^2_a)/4}$		

Pathways not assigned a score (explain):

TABLE 3-1 GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Aquifer Evaluated:		
Likelihood of Release to an Aquifer:		
1. Observed Release	550	
2. Potential to Release:		
2a. Containment	10	
2b. Net Precipitation	10	
2c. Depth to Aquifer	5	
2d. Travel Time	35	
2e. Potential to Release [(lines 2a(2b + 2c + 2d)]	500	
3. Likelihood of Release (higher of lines 1 and 2e)	550	
Waste Characteristics:		
4. Toxicity/Mobility	(a)	
5. Hazardous Waste Quantity	(a)	
6. Waste Characteristics	100	
Targets:		
7. Nearest Well	(b)	
8. Population:		
8a. Level I Concentrations	(b)	
8b. Level II Concentrations	(b)	
8c. Potential Contamination	(b)	
8d. Population (lines 8a + 8b + 8c)	(b)	
9. Resources	5	
10. Wellhead Protection Area	20	
11. Targets (lines 7 + 8d + 9 + 10)	(b)	
Ground Water Migration Score for an Aquifer:		
12. Aquifer Score [(lines 3 x 6 x 11)/82,500 ^c	100	
Ground Water Migration Pathway Score:		
13. Pathway Score (Sgw), (highest value from line 12 for all aquifers evaluated) ^c	100	

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c Do not round to nearest integer

TABLE 4-1 SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
-------------------------------	---------------	----------------

Watershed Evaluated:

Drinking Water Threat

Likelihood of Release:

1. Observed Release	550
2. Potential to Release by Overland Flow:	
2a. Containment	10
2b. Runoff	10
2c. Distance to Surface Water	5
2d. Potential to Release by Overland Flow [(lines 2a(2b + 2c)]	35
3. Potential to Release by Flood:	
3a. Containment (Flood)	10
3b. Flood Frequency	
3c. Potential to Release by Flood (lines 3a x 3b)	500
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500
5. Likelihood of Release (higher of lines 1 and 4)	550

Waste Characteristics:

6. Toxicity/Persistence	(a)
7. Hazardous Waste Quantity	(a)
8. Waste Characteristics	100

Targets:

9. Nearest Intake	50
10. Population:	
10a. Level I Concentrations	(b)
10b. Level II Concentrations	(b)
10c. Potential Contamination	(b)
10d. Population (lines 10a + 10b + 10c)	(b)
11. Resources	5
12. Targets (lines 9 + 10d + 11)	(b)

Drinking Water Threat Score:

13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a max of 100]	100
--	-----

Human Food Chain Threat

Likelihood of Release:

14. Likelihood of Release (same value as line 5)	550
--	-----

Waste Characteristics:

15. Toxicity/Persistence/Bioaccumulation	(a)
16. Hazardous Waste Quantity	(a)
17. Waste Characteristics	1000

Targets:

18. Food Chain Individual	50
19. Population	
19a. Level I Concentration	(b)
19b. Level II Concentration	(b)
19c. Potential Human Food Chain Contamination	(b)

TABLE 4-1 SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Watershed Evaluated:		
19d. Population (lines 19a + 19b + 19c)	(b)	
20. Targets (lines 18 + 19d)	(b)	
Human Food Chain Threat Score:		
21. Human Food Chain Threat Score [(lines 14x17x20)/82500, subject to max of 100]	100	
Environmental Threat		
Likelihood of Release:		
22. Likelihood of Release (same value as line 5)	550	
Waste Characteristics:		
23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	
24. Hazardous Waste Quantity	(a)	
25. Waste Characteristics	1000	
Targets:		
26. Sensitive Environments		
26a. Level I Concentrations	(b)	
26b. Level II Concentrations	(b)	
26c. Potential Contamination	(b)	
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)	
27. Targets (value from line 26d)	(b)	
Environmental Threat Score:		
28. Environmental Threat Score [(lines 22x25x27)/82,500 subject to a max of 60]	60	
Surface Water Overland/Flood Migration Component Score for a Watershed		
29. Watershed Score ^c (lines 13+21+28, subject to a max of 100)	100	
Surface Water Overland/Flood Migration Component Score		
30. Component Score (Ssw) ^c (highest score from line 29 for all watersheds evaluated)	100	

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c Do not round to nearest integer

TABLE 4-25 GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Aquifer Evaluated:		
Drinking Water Threat		
Likelihood of Release to an Aquifer:		
1. Observed Release	550	
2. Potential to Release:		
2a. Containment	10	
2b. Net Precipitation	10	
2c. Depth to Aquifer	5	
2d. Travel Time	35	
2e. Potential to Release [(lines 2a)(2b + 2c + 2d)]		
3. Likelihood of Release (higher of lines 1 and 2e)	550	
Waste Characteristics:		
4. Toxicity/Mobility	(a)	
5. Hazardous Waste Quantity	(a)	
6. Waste Characteristics	100	
Targets:		
7. Nearest Well	(b)	
8. Population:		
8a. Level I Concentrations	(b)	
8b. Level II Concentrations	(b)	
8c. Potential Contamination	(b)	
8d. Population (lines 8a + 8b + 8c)	(b)	
9. Resources	5	
10. Targets (lines 7 + 8d + 9)	(b)	
Drinking Water Threat Score:		
11. Drinking Water Threat Score [(lines 3 x 6 x 10)/82,500, subject to max of 100]	100	
Human Food Chain Threat		
Likelihood of Release:		
12. Likelihood of Release (same value as line 3)	550	
Waste Characteristics:		
13. Toxicity/Mobility/Persistence/Bioaccumulation	(a)	
14. Hazardous Waste Quantity	(a)	
15. Waste Characteristics	1000	
Targets:		
16. Food Chain Individual	50	
17. Population		
17a. Level I Concentration	(b)	
17b. Level II Concentration	(b)	
17c. Potential Human Food Chain Contamination	(b)	
17d. Population (lines 19a + 19b + 19c)	(b)	
18. Targets (lines 16 + 17d)	(b)	
Human Food Chain Threat Score:		
19. Human Food Chain Threat Score [(lines 12x15x18)/82,500,subject to max of 100]	100	

TABLE 4-25 GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Aquifer Evaluated:		
Environmental Threat		
Likelihood of Release:		
20. Likelihood of Release (same value as line 3)	550	
Waste Characteristics:		
21. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	
22. Hazardous Waste Quantity	(a)	
23. Waste Characteristics	1000	
Targets:		
24. Sensitive Environments		
24a. Level I Concentrations	(b)	
24b. Level II Concentrations	(b)	
24c. Potential Contamination	(b)	
24d. Sensitive Environments (lines 24a + 24b + 24c)	(b)	
25. Targets (value from line 24d)	(b)	
Environmental Threat Score:		
26. Environmental Threat Score [(lines 20x23x25)/82,500 subject to a max of 60]	60	
Surface Water Overland/Flood Migration Component Score for a Watershed		
27. Watershed Score ^c (lines 11 + 19 + 28, subject to a max of 100)	100	
Surface Water Overland/Flood Migration Component Score		
28. Component Score (Ssw) ^c (highest score from line 27 for all watersheds evaluated, subject to a max of 100)	100	

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c Do not round to nearest integer

TABLE 5-1 SOIL EXPOSURE COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Likelihood of Exposure:		
1. Likelihood of Exposure	550	
Waste Characteristics:		
2. Toxicity	(a)	
3. Hazardous Waste Quantity	(a)	
4. Waste Characteristics	100	
Targets:		
5. Resident Individual	50	
6. Resident Population:		
6a. Level I Concentrations	(b)	
6b. Level II Concentrations	(b)	
6c. Population (lines 6a + 6b)	(b)	
7. Workers	15	
8. Resources	5	
9. Terrestrial Sensitive Environments	(c)	
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)	
Resident Population Threat Score		
11. Resident Population Threat Score (lines 1 x 4 x 10)	(b)	
Nearby Population Threat		
Likelihood of Exposure:		
12. Attractiveness/Accessibility	100	
13. Area of Contamination	100	
14. Likelihood of Exposure	500	
Waste Characteristics:		
15. Toxicity	(a)	
16. Hazardous Waste Quantity	(a)	
17. Waste Characteristics	100	
Targets:		
18. Nearby Individual	1	
19. Population Within 1 Mile	(b)	
20. Targets (lines 18 + 19)	(b)	
Nearby Population Threat Score		
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)	
Soil Exposure Pathway Score:		
22. Pathway Score ^d (Ss), [(lines (11+21)/82,500, subject to max of 100]	100	

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60

^d Do not round to the nearest integer

TABLE 5-11 SUBSURFACE INTRUSION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
1. Observed Exposure	550	
2. Potential for Exposure		
2a. Structure Containment	10	
2b. Depth to contamination	10	
2c. Vertical Migration	15	
2d. Vapor Migration Potential	25	
3. Potential for Exposure (lines 2a * (2b+2c+2d), subject to a maximum of 500)	500	
4. Likelihood of Exposure (higher of lines 1 or 3)	550	
Waste Characteristics:		
5. Toxicity/Degradation	(a)	
6. Hazardous Waste Quantity	(a)	
7. Waste Characteristics (subject to a maximum of 100)	100	
Targets:		
8. Exposed Individual	50	
9. Population:		
9a. Level I Concentrations	(b)	
9b. Level II Concentrations	(b)	
9c. Population within an Area of Subsurface Contamination	(b)	
9d. Total Population (lines 9a + 9b + 9c)	(b)	
10. Resources	5	
11. Targets (lines 8 + 9d + 10)	(b)	
Subsurface Intrusion Component Score		
12. Subsurface Intrusion Component (lines 4 x 7 x 11)/82,500 ^c (subject to a maximum of 100)	100	
Soil Exposure and Subsurface Intrusion Pathway Score		
13. Soil Exposure Component + Subsurface Intrusion Component (subject to a maximum of 100)	100	

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60

TABLE 6-1 AIR MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Likelihood of Release:		
1. Observed Release	550	
2. Potential to Release:		
2a. Gas Potential to Release	500	
2b. Particulate Potential to Release	500	
2c. Potential to Release (higher of lines 2a and 2b)	500	
3. Likelihood of Release (higher of lines 1 and 2c)	550	
Waste Characteristics:		
4. Toxicity/Mobility	(a)	
5. Hazardous Waste Quantity	(a)	
6. Waste Characteristics	100	
Targets:		
7. Nearest Individual	50	
8. Population:		
8a. Level I Concentrations	(b)	
8b. Level II Concentrations	(b)	
8c. Potential Contamination	(c)	
8d. Population (lines 8a + 8b + 8c)	(b)	
9. Resources	5	
10. Sensitive Environments:		
10a. Actual Contamination	(c)	
10b. Potential Contamination	(c)	
10c. Sensitive Environments (lines 10a + 10b)	(c)	
11. Targets (lines 7 + 8d + 9 + 10c)	(b)	
Air Migration Pathway Score:		
12. Pathway Score (S_a) $[(\text{lines } 3 \times 6 \times 11)/82,500]^d$	100	

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to a maximum of 60.

^d Do not round to nearest integer