## Quickscore User's Guide Version 3.1

**Environmental Protection Agency** 

Office of Superfund Remediation and Technology Innovation

Prepared by: SRA International, Inc. of Arlington, Virginia Under Subcontract to Environmental Management Support, Inc., of Silver Spring, MD Prime EPA Contract # EP-W-13-016

## 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.

## **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) (<u>http://www.epa.gov/superfund/programs/npl\_hrs/hrsint.htm</u>).

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 installing from a CD, identify your CD drive or, if downloading from a network or internet, identify the drive and directory where HRS Quickscore is located.

Step 2: Locate the HRSQuickscoreV31Installer.exe file on your CD drive or in the directory where you downloaded HRS Quickscore.



Figure 1-1: Location of Quickscore 3.1 setup.exe file

Step 3: Double-click on the HRSQuickscoreV31Installer.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.



Figure 1-2: .NET Installation

Step 5: .NET Framework 2.0 installation will start and this may take several minutes.

🐻 HRS	Quickscore v3 Setup	×
Ø	Installing .NET Framework 2.0 (x86)	
	<u>C</u> ancel	

Figure 1-3: Installing .NET Framework 2.0

Step 6: Follow the prompts in the installation process. The

screens of the installation process are as follows:

Windo	ws Installer	
17	Preparing to install	
		Cancel

Figure 1-4: Preparing to install...

j∯ HRS Quickscore v3	
Welcome to the HRS Quickscore v3 Setup Wizard	
The installer will guide you through the steps required to install HRS Quickscore v3 o computer.	n your
WARNING: This computer program is protected by copyright law and international tr Unauthorized duplication or distribution of this program, or any portion of it, may result or criminal penalties, and will be prosecuted to the maximum extent possible under the Cancel Cancel Cancel	eaties. t in severe civil ne law.
	INEX()

Figure 1-5: Welcome to HRS Quickscore v3 Setup Wizard.

This screen (Figure 1-5) will guide you through the installation process. Click "**Next**" to follow directions.

🕼 HRS Quickscore v3		
Select Installation Fol	der	
The installer will install HRS Quicks	core v3 to the following folder.	
To install in this folder, click "Next".	To install to a different folder, enter it belov	v or click "Browse".
<u>E</u> older:		
C:\Program Files\HRS Quicksco	pre v3\	Browse
		Disk Cost
Install HRS Quickscore v3 for you	irself, or for anyone who uses this compute	ər.
Everyone		
<ul> <li>Just me</li> </ul>		
	Cancel < Back	Next >

Figure 1-6: Select Installation Folder

This screen (Figure 1-6) 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. You may choose to install HRS Quickscore for everyone or just yourself by clicking the appropriate button. Once all information is set, click "**Next**".



Figure 1-7: Confirm Installation

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 "**Next**" to continue.

j를 HRS Quickscore v3			
Installing HRS Quicksco	ore v3		
HRS Quickscore v3 is being installed.			
Please wait			
	Cancel	< Back	Next >

Figure 1-8: Installing HRS Quickscore v30

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 Version 3.1.0 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 (shown in Step 4/Figure 1-2 above).

## 1.6 How do I start HRS Quickscore?

You can start HRS Quickscore by:

- 1) Select Start from Windows, then click All Programs, and then click HRS Quickscore (or whatever name you selected during installation), OR
- 2) Double-click on the shortcut icon that you created on your desktop, OR
- 3) 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 (<u>quickscore@sra.com</u>) The **Quickscore User Guide** and other helpful information is available on the HRS Quickscore Version 3.1 Web page (http://www.epa.gov/superfund/programs/npl\_hrs/quickscore.htm)

#### 2.1 Getting Around

#### 2.2 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.

#### 2.3 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.

Create New Scenario	Expert une receiver Print Calculator	
W/Edit Existing	Site Name: *       LPG Auto Parts         Scenario Name: *       Substances         Scenario Description:       Image: State         EPA ID:       Image: State         State ID:       Image: State         City/County:       Image: State         State:       Select One         EPA Region:       Image: State         Congressional District:       Image: State         Lat:       0       10       Image: State         Format II:       Image: State: Select One       Image: Select One       Image: Select One         Format II:       State: Select One       Image: Select One       Image: Select One         Valuator Name:       Image: Select One       Image: Salect One       Image: Salect One         Valuator Organization:       Image: Salect One       Image: Salect One       Image: Salect One         Image: Im	
	Your SitesRicenano 34e Score Date Last LPO Auto Parts/Substances 22.50 06/22/2014	Location Description /LPQ Auto Parts

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  $\square$ , 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 righthand 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.

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.



Figure 2-2: Maximize, Minimize and Exit Buttons

## 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



Figure 2-3: Quickscore Home and Help Buttons

Quickscore Home

Selecting Quickscore Help 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.

Navigation is available under the SCDM section in Quickscore Help to three different tables: SCDM Hazardous Substance Factor Values; SCDM Hazardous Substance Benchmarks; and SCDM Hazardous Substance Radionuclide Bench Marks.

# 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

Create New Site

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.

Action Toolhar: Sam As Import	Extent Date linds Date Co	entator.			
ALUM TOUDAL SHEAT ADD	Site Scenario Information				
Create New Site					
ew/Edit Existing	Site Name: *				
LPO Auto Parts	Scenario Description [PA ID: State ID: Cap/County: State: EVA Region: Corgeressional Databac: Lat: Long: Form Scene Propose: Evaluation Rame:	al Correction ( ) 4	0.0000.*01.000.1		
	Evaluator Organization:				
	Date:	100	Save		
	*-Required Field		Deleta		
	Tour Stes Scenado	Sille Score	Date Last 08/17/2009	Cuvahoga Ohio Pre-	entered data used for training E

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?

Create New Scenario

button on

In order to create a new scenario, click the 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.

LPQ Auto Parts	

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.

<u></u>	
1) Select a Site / Scenario to Export	
LPQ Auto Parts/Training Session	
2) Find the location to save the Export	
	Browse
ОН	Cancel

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.

2		
1) Browse to a di current workspa	rectory for a Site or Scenario to Imp ce.	port to the
		Browse
	ок	Cancel

Figure 2-9: Import Function

#### 2.2.4.4 How do I use the "Undo" option?

The "Undo" function is not available in Version 3.1 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 3.1 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.

🖆 Specify Print Criteria 📃 📃 🗙
To print a Blank Scoresheet:
1) Choose a Scoresheet
Ground Water Scoresheet
Surface Water/Overland Scoresheet
Ground Water to Surface Water Scoresheet
Soil Exposure Scoresheet
Air Scoresheet
OK Cancel

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.

Site Name/Scenario Name Scenario Description Scratch Pad No LPQ Auto Parts Training Session	prir •	nt a Final Scoresheet: Check the checkbox on the left for To include Scratch Pad notes for a Pad Notes"	each Scoresheet you would like to specific Scoresheet, check the bo	print x in the <i>"</i> Scratch
LPQ Auto Parts Training Session		Site Name/Scenario Name	Scenario Description	Scratch Pad Note
		LPQ Auto Parts	Training Session	

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, the calculator will open. See Figure 2-12. Use it as you would any calculator. Some common unit conversions are listed on the left for your reference. The calculator does not automatically convert calculated values.

StartingUnits	EndingUnits	factor	<u>_</u>						
acres	sq ft	43560							
acres	sq yd	4840							
cu ft	cu m	0.02832							
cu ft	cu yd	0.03704							
cu nm	cu ft	35.31							
cu m	cu yd	1.308							
cu yd	cu ft	27							
cu yd	cu m	0.7646							
gal	cu yd	0.004951							
kg	lb	2.205							
mg/L	ug/L	1000							
mg/kg	ug/kg	1000							
mg/m3	ng/m3	1000000							
mg/m3	ug/m3	1000							
mg/m3	ug/m3	1000							
ng/m3	mg/m3	1E-6							
ng/m3	ug/m3	1000							
rightio	ua/L	1							
ppb									
ppb	ug/L	1000			and the second se			CE	
ppb ppm sq ft	ug/L acres	1000 2.296E-5		MC	СТ	Bac	K   2		
ppb ppm sq ft sq ft	ug/L acres sq yd	1000 2.296E-5 0.1111		MC	СТ	Bac			
ppb ppm sq ft sq ft sq yd	ug/L acres sq yd acres	1000 2.296E-5 0.1111 0.0002066		MC MR	СТ 7	Bac	<b>^</b>		
ppb ppm sq ft sq ft sq yd sq yd	ug/L acres sq yd acres sq ft	1000 2.296E-5 0.1111 0.0002066 9		MC	CT 7	Bac	9		
ppb ppm sq ft sq ft sq yd sq yd sq yd	ug/L acres sq yd acres sq ft sq m	1000 2.296E-5 0.1111 0.0002066 9 0.8361		MC MR MS	CT 7	Bac 8	9		
ppb ppm sq ft sq yd sq yd sq yd sq yd ug/L	ug/L acres sq yd acres sq ft sq m mg/L	1000 2.296E-5 0.1111 0.0002066 9 0.8361 0.001		MC MR MS	CT 7 4	Bac 8 5	9		
ppb ppm sq ft sq yd sq yd sq yd sq yd ug/L ug/L	ug/L acres sq yd acres sq ft sq m mg/L ppb	1000 2.296E-5 0.1111 0.0002066 9 0.8361 0.001 1		MC MR MS	CT 7 4	Bac 8 5	9		

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.

dd Note:	Pathway/ Sources		Scoresheet Line#	Notes	Documentation
	GW/SW - HFC	-			12
					New Note
lit/Delete ote:	Pathway/ Sources		Scoresheet Line#	Notes	Documentation
	GW/SW - HFC	-	32	Eyewitness accountes noting fishing has been occuring on these waters for several years now	Interviews
	Site Scenario Info	-	3	Location information about site	Topographic Ma.
	Sources	-	15	Manifest showing how much waste has been deposited at this source	BSNF Manifest
				-	

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.

Source Information Pathway Scoresheets

Figure 2-14: Source Information and Pathway Scoresheets Tab

#### 2.2.7 How do I delete information?

To delete information simply press the **Delete** 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.

## 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).

15 Quickscore								
						Quickscore Home	Quickscore Help	
on Toolbar: Save As Import	Export Undo Redo Print Cal	culator						
	Site/Scenario Information	Source Information Pa	thway Scoresheets					
Create New Site	Site Name: LP	Q Auto Parts				Site Score: 50.47		
Create New Scenario	acenario name. Ira	ning Seasion						
	Scenario Summary (50.47)	GW Scoresheet (7.04)	SW Scoresheet (100)	SE Scoresheet (7.07)	Air Scoresheet (9.54)			
Edit Existina								
Auto Parts				S pathway				
raining Session	Gro	und Water Migration Pathy	way Score (GW)	7.04				
					1			
	Sur	face Water Migration Path	way Score (SW)°	100				
	Soi	Exposure Pathway Score	(SE)	7 07	ľ			
	10.500		31085 113	Long the	1			
	Air	Migration Pathway Score (	Air)	9.54				
		(7.01 √[(7.04 <sup>2</sup>	7,04 <sup>2</sup> +100 <sup>2</sup> +7,07 <sup>2</sup> +9,54 <sup>2</sup> ) 1 <sup>2</sup> +100 <sup>2</sup> +7,07 <sup>2</sup> +9,54 <sup>2</sup> ) / 4 <sup>2</sup> +100 <sup>2</sup> +7,07 <sup>2</sup> +9,54 <sup>2</sup> ) / 4	'= 10190.56  = 2547.64  = 50.47 Site S	icore	Calculate		
	Scoresheets GW Scoresheet	Likelihood of Release	Waste Chara	derivation 59.3	Targets 7.04	Palhway Score	Date East Updated	
	SW/OL Scoresheet				100.	00	00/03/2009	
	Drinking Water	550.0	32.0	3.00000001	734E10			
	Human Food Chain	550.0	320.0	458.8				
	Environmental	550.0	320.0	116.0	100		1. T. 1977	
	Tribulation of the state of the							

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).

<u>Note</u>: 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.

HRS Quickscore								
						Quickscore	Home	Quickscore Help
Action Toolbar: Save As Import Exp	port Undo Redo Prin	Calculator	F					
Create New Site Create New Scenario	Site/Scenario Informat Site/Scenario Name: * Scenario Description: EPA ID; State ID; CRytCounty; State: EPA Regime Congressional District Lat; Long; Score Purpose; Evaluator Name; Evaluator Name; Evaluator Organization Date; '*Required Field	Nonrce           LPO Auto Par           Training Ses           Pre-entered i           Corys876543           Curshoga           Ohio           Region 5           Formed **           Student           10/23/2008	tis stan s	-41.53167 -61.50194 -0.00000, 90.0000 Delete				
					Poder Locale			

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.

Latitude/Longitude can be entered in either decimal degrees or in degrees, minutes, and seconds formats. There are data entry boxes for either format. The program will automatically convert the coordinate pair to the other format, so both formats will be recorded and saved on this page.

#### 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).

	Quickscore Home Quickscore Help
Action Toolbar: Save As Import E	xport Undo Redo Print Calculator
Create New Site           Create New Scenario           View/Edit Existing           D IPO Auto Parts           + Training Session           + Sources           - Pathwars	Ste/Scenario Information       Source Information       Pathway Scoresheets         Ste/Scenario Information       Surce Information       Pathway Scoresheets         Ste/Scenario Name: LPQ Auto Parts / Training Session       The substances in this source are capable of migrating to which of the following pathways? 2.2.1         Source Name:       One       Source Type:       Drums         Source Type:       Drums       Surget on Water (GW) Migration Pathway
	STEP 2         Tier A - Hazardous Constituent Quantity:       (2-5)         1.0E8       bs       © Check if Tier A is adequately determined         Tier B - Hazardous Wastestream Quantity:       (2-5)         100       bs       © Check if Tier B is adequately determined         Tier C - Volume       (2-10)         20       galons       © Check if greater than 0, but unknown         Tier D - Area       ft <sup>2</sup> © Check if greater than 0, but unknown         1: Source Hazardous Waste Quantity (HWQ) (Calculated)       Calculate
	STEP 5       Check this box if you are scoring this source for the Soil Exposure (SE) pathway.       Add New Source         Check this box if you are scoring this source for the Soil Exposure (SE) pathway.       Delete Source         Source #       Source Name       Source Type         1       One       Drums       A       1.0       Y       Y       Y       N         6       AOC       Drums       N       N       N       Y       A

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 **Associate Substances** button the screen which will allows 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.

Associate Substa						1	Substance(s) Associated with a Source
	nces						DDT
ook up by substa	nce name:		Acenaphthen	e (000	-		Carbon tetrachloride
ook up by CAS Nu	umber:		000050-29-3	(DDT)	-		Carbon tetraemonae
			Ecoto	xicity			
CAS Num	Chemical Name	Toxicity	Fresh	Salt	1		
000083-32-9	Acenaphthene	10	10000	1000			
00208-96-8	Acenaphthylene	0	0	0			
00067-64-1	Acetone	1	100	1			
000107-02-8	Acrolein	10000	1000	1000			
000079-06-1	Acrylamide	10000	10	10			
015972-60-8	Alachlor	100	1000	1000			Substanco(s) Associated with t
00309-00-2	Aldrin	10000	10000	10000			Substance(s) Associated with t
07429-90-5	Aluminum	0	100	100			Site, but the specific source ca
014596-10-2	Americium 241	10000	10000	10000			be determined
07440-35-9	Americium	0	0	0			See HRS Section 2.2.2
07664-41-7	Ammonia	100	1000	1000			
000062-53-3	Aniline	10000	10000	10			Aniline
000120-12-7	Anthracene	10	10000	10000			
)14234-35-6	Antimony 125(+D) (radionuclide)	1000	1000	1000			
07440-36-0	Antimony	10000	100	100			
07440-38-2	Arsenic	10000	10	100			
001332-21-4	Aspestos	10000	0	0			
01912-24-9	Atrazine	100	1000	10000			
007440-39-3	Barium	10000	1	1			
000056-55-3	Benz(a)anthracene	1000	10000	10000			
000071-43-2	Benzene	1000	1000	1000			
100092-87-5	Benzidine	10000	100	100			
100050-32-8	Benzo(a)nvrene	10000	10000	1000	+		L
100101-24-2	Benzo(a b i)ner/lene	0	0	0	+		
	Deuto(3/1/1/her/terre	· ·	1 <b>0</b>	1×	11		Domouo from Lint

Figure 3-4: SCDM Entry Screen

Quickscore 3.1 contains all SCDM values as of June 2014.

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 <u>SCDM</u> website for contact information (<u>http://www.epa.gov/superfund/sites/npl/hrsres/tools/scdm.htm</u>).

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

#### Save to Table Below

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 **Load To Editor** 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).



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.

	Assign Mobility		
Select the		button to bring up a pop-up box allowing you to as	ssign ground
water mob	ility types to the	hazardous substances (see Figure 3-7). First select	the substance,
then choos	e the Mobility T	ype, you will repeat this for each substance. You n	nay use the
"control" k	key to select mult	tiple 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.

🛓 Ground Water	Scoresheet - As	sign Mobility						
1) Choose a Substan	ce		2) Choose a Mobility	у Туре				
Acrylamide		]	🔾 Liquid/Karst					
Aniline			🔾 Liquid/Non-Kar	st				
Dichloroethane, 1,2-			○ Non LinuidMor	t				
Thorium 232 (radion	uclide)							
			Non-Liquid/Nor	n-Karst				
			In Observed Release					
			Save & Retur	n to Scoresheet				
Substance	Toxicity	Mobility Type	Mobility Value	Toxicity/Mobility				
Acrylamide	10000	Liquid/Karst	1.0	10000				
Aniline	10000							
DUI Dishlaraathana 4.2	1000	Non-Liquid/Karst	0.0020	2				
Thorium 232 (radion	10000	Liquid/Karst	1.0	10000				

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 Add New Aquifier 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 **Delete Aquifier** 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).

	Site/Scenario Information	Source Information Pa	thway Scoreshee	ts					
Create New Site Create New Scenario	Site Name: Scenario Name: Scenario Summary (21.78)	LPQ Auto Parts Training Session GW Scoresheet (0.42)	SW Scoresheet	(43.57) SE Sco	resheet (0) 🍸 Ai	r Scoresheet (0.63)	Site	Score: 21.78	
ew/Edit Existing		ริยา	face Water/Over	Land Scoresheet		Groun	d Water to Surface Wat	er Scoresheet	
CPG Ako Parts     Training Session     Training Session     Ore     Ore	Watershed Name: * Likelihood of Release: 1. Observe Greaters 2. Contament 2b. Runnet 2b. Runnet 2b. Contament 2b. Costance to Surface Threads Drinkling Water (0.2) Waste Characteristics: 6. Torock//PensBunce Using Solvance: 7. Hazardow Waste Que 8. Water (Anarchemistic Bos 6 x 7. then use th Targets: 9. Nearest Intake 10. Population 10a. Level I Concent	Lake White Watershed (4-2) (4-6) (4-6) Water (4-7) Human Food Chain (22.04) (4-12) (4-12) (4-13) rations	550 10 7 20 Environmental ( asign Persistance	*-Required	2d. Potential to 3a. Contain 3b. Flood Fri 3c. Potential 4. Potential to 5. Likelihood of	Check to only evaluate Release by Poretind Fig. Release by Pood ment generation of the state Release by Flood (Inva 24 + 3c) Release (Inva 24 +	are this Watershed in S           m           (4-0)           (4-1)           (4-1)           (4-1)           (4-1)           (4-1)           (4-1)	ter Score 270 10 ▼ 50 ▼ 500 500 550 0 5 5 0.20 0.20	
	Surface Water Overland/Fil 29. Watershed Score Surface Water Overland/Fil 20. Component Score (Sci	(ines 13 + 21 + 28) ood Migration Score		43.57	Add	New Watershed	Cak Delete V	culate Vatershed	

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 Assign Persistence 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 **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.

1) Choose a Substance	1	2) Choose a P	redominant Water Cat	egory (Persistence)		
Acrylamide Aniline DDT Dichloroethane, 1,2- Thorium 232 (radionuclide)			2) Choose a Predominant Water Category (Persistence) C Lake River			
			Save & Return	n to Scoresheet		
Quinstance	Tovicity	Predominant Water C	Save & Return	n to Scoresheet		
Substance	Toxicity	Predominant Water C	Save & Return Persistence Value 1	n to Scoresheet		
Substance Acrylamide Aniline	Toxicity 10000 10000	Predominant Water C	Save & Return Persistence Value	n to Scoresheet Toxicity/Persistence 10000.0		
Substance Acrylamide Aniline DDT	Toxicity 10000 10000 1000	Predominant Water C	Save & Return Persistence Value	n to Scoresheet Toxicity/Persistence 10000.0		
Substance Acrylamide Aniline DDT Dichloroethane, 1.2-	Toxicity 10000 10000 1000 1000	Predominant Water C Lake	Save & Return Persistence Value 1 1 1	Toxicity/Persistence		

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 Distance-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 3-9 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.

1) Choose a Substance Acrylamide Aniline DDT Dichloroethane, 1,2- Thorium 232 (radionuclide)		<ul> <li>2) Choose a Predominant Water Category (Persistence)</li> <li>Lake</li> <li>River</li> <li>3) Choose a Water Body Type (Bioaccumulation)</li> </ul>						
		⊖ Fresh ⊖ Salt	Save & Re	aturn to Scoresh				
Substance	Toxicity	Parcictance Value	Bigarcumulation val	Tovicity/Persistence				
Acrylamide	10000	1	5	10000 0				
Aniline	10000							
DDT	1000	1	50000	1000.0				
Dichloroethane, 1,2-	100							
	40000							

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. The Waste Characteristics value may also recalculate 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).

7	Site/Scenario Information	Source Info	rmation []	Pathway Sci	oresheet							
Create New Site	Site Name: LP Scenario Name: Trai	Q Auto Parts ining Session							Site	e Score	: 50.47	
Create New Scenario	Scenario Summary (50.47)	GW Score	sheet (7.04)	SW Sco	resheet (	100) SE Sc	oresheet (7.	07)   Air Scoresheet (9	.54)			
ew/Edit Existing			Surfac	e Water/Ove	r Land S	coresheet		Ground Wa	ter to Surface Wa	ster Sco	presheet	
D LPQ Auto Parts ←  ☐ Training Gession	Watershed Name: * Likelihood of Release:	ake White W.	atershed123	3	*-Req	uired 2d	Potential to	Check to use this Wa Release by Overland Flor [lines 2a x (2b+2c)]	dershed in Site Sc w	130	lentations	
	1. Observed Release 2. Detection to Release by O	undared Elever		550		З.	Potential to P	telease by Flood	(4.8)	10	-	
	2a. Containment		(4-2)	10	-		3b. Flood Fre	quency	(4-9)	25	-	
	2b. Runoff		(4-6)	7	-		3c. Potential	to Release by Flood		250		
	2c. Distance to Surface V	Water	(4-7)	6		4.1	Potential to R	tolease		380		
	Threats					5.	Likelihood to	Release	al.	550		
	Drinking Water (100)	Human Food	Chain (100)	Envis onen	vental (60	1						
	14. Litercod of Release Waste Characteristics:	[Saria	at line 5]			550		19. Population	(4	-18)	460	10 - 450
	15. Toxicity/Persist/Bioac	nua	(4-15)			5		19b. Level II Con	centrations		6.0	1=6
	15a. Tox/Persistano	0	Assign Per	rsisterus/Bioso	eum.	10000		19c. Potential HF	C Contamination		8.00	01-08
	Using Substance:	Using Substance: (4-12)					Aamide		[inst 13a + 15b +	Direct 19a + 19b + 19c] 456.8	456.80	× 0.1 = 0.0
	15b. Bioaccumulatio	n Value	(4-15)	[50] 100 (5), then use fable ≥7) 320		50000	20. Targets		Targets [irel 16 + 16] nan Food Chain Threat Score	458.80		
	16. Hazardous Waste Qu	lantity	(20)			100 Human F 320 21. Hum		Human Food Chain Th			120,00	
	Treaster	, from a						21. Human Food Chain Threat Score		12,5003	100	
	18. Food Chain Individual	1				2.0		Uncapped Score:			922.84	
	Surface Water Overland Flor 29. Watershed Score	od Migration	Score for a	Watershed			100	Add Nes	w Watershed		Calcul	ate
	Surface Water Overland Flor 30. Component Score (Sol.)	od Migration (HgHz)	Score thom ine 21 ft	tr all watershed	tt evaluated	0	100			0	Delete Wat	ershed
	Viaters	ned Name				V	latershed Bci	DEM .			Used in Sile Sc	one -

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.

1) Choose a Substanc	e		2) Choose a	Water Body Type (Bio	accumulation)
Acrylamide Aniline DDT Dichloroethane, 1,2- 'horium 232 (radionuclide)		⊖ Fre ⊖ Sa 3) Choose a ⊖ La ⊖ Riv	esh It Predominant Water C ke rer Save & R	ategory (Persistence) eturn to Scoresh	
Substance	Ecotoxicity	Ecosys	stem BAP Value	Persistence Value	EcoTox/Persistence
Substance Acrylamide	Ecotoxicity	Ecosys	stem BAP Value	Persistence Value	EcoTox/Persistence
Substance Acrylamide Aniline	Ecotoxicity	Ecosys	stem BAP Value	Persistence Value	EcoTox/Persistence
Substance Acrylamide Aniline DDT	Ecotoxicity	Ecosys	stem BAP Value	Persistence Value	EcoTox/Persistence
Substance Acrylamide Aniline DDT Dichloroethane, 1,2-	Ecotoxicity	Ecosy	stem BAP Value	Persistence Value	EcoTox/Persistence

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. 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).

Action Toolbar: Save As Import	Export Undo Redo Print Calcu	lator				
Create New Site	Site Name: LPQ / Scenario Name: Trainin	Auto Parts ng Session	athway Scoresheet	5		Site Score: 50,47
Create New Scenario	Scenario Summary (50.47)	GW Scoresheet (7.04)	SW Scoresheet	100) SE Scoresheet (7	.07) Air Scoresheet (9.54)	
w/Edit Existing		Surface	Water/Over Land S	coresheet	Ground Water to Surface V	Water Scoresheet
LPO Auto Parts Training Session	Likelihood of Release: 1. Observed Release by Oire 2. Potential to Release by Oire 2a. Containment 2b. Runoff 2c. Distance to Surface Wa Timetils Disekting Water (100) Hite 22. Likelhood of release Wate Characteristics 23. Econytem BAP Vila 24. Hardos Wate Qound 25. Waste Characteristics Targets: 26. Sensitive Environments	Hand Flow (4-2) (4-6) ter (4-7) man Food Chain (100) [same at les 6] (4-21) (4-20) (4-20) (4-20) (0ns 29+24+28, % (4-22) (4-22)	550 • • 10 • • 7 • • 6 • • Error ommental (60 • • en use table 2-7) • -24)	2d. Potential to 3. Potential to 3. Contain 3. Contain 4. Potential to 5. Likelihood fr 5. Diselihood fr 5. Disel	Celesse by Overland Row Innet a + (26 + 201) Melaze by Rod Innet a + (26 + 201) Melaze by Rod Innet a + 201 Relazes by Rod Innet a + 201 Relazes by Rod Relaze by Rod Relaze by Rod Relaze by Rod Relaze by Relaze at less 1 and 41 263. Level II Concentrations 265. Rodenal Contamination 265. Sensitive Environments (Net 36 + 26 + 260) 27. Targets (Net 36 + 26 + 260) (Net 36 + 26 + 260) Chargets 265. Environmental Thread Score 20. Environmental 20.	130 10 25 750 390 550 87.0 45.0 45.0 45.0 116 116 60 247.47
	Surface Water Overland Flood 29. Waterched Score Surface Water Overland Flood 30. Component Score (SoL) Watershe	Migration Score for a V [Invis 13 + 21 + 29] Migration Score (Highest from line 29 for d Name	al watersheds evaluated	) 100 ) 100 Watershed Bi	Add New Watershed	Calculate Delete Watershed Used in Site Score

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 Assign Persistence 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

Save & Return to Scoresheet 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.

撞 Ground Water	r to Surface Wat	er Scoresheet - A	Assign Mobility/Pe	ersis 🔳 🗖 🔀			
Drinking Water Thre	at						
1) Choose a Substa	nce	2) Choose a Mol	bility Type				
Acrylamide		🔵 Liquid/Kar	rst				
Aniline		C Liquid/Non-Karst					
DDT Dichloroethane 1.2	_	Non-Liquid/Karst					
Thorium 232 (radionuclide)		Non-Liquid/Non-Karst					
		In Observed Release					
		3) Choose a Pre	dominant Water Categ	ory (Persistence)			
		🔾 Lake					
		River					
			Save & Ret	turn to Scoresheet			
Substance	Toxicity	Mobility Value	Persistence Value	Tox/Mob/Persistence			
Acrylamide	10000	1.0	1	10000.0			
Aniline	10000						
DDT	1000						
Dichloroethane, 1,2-	100						
Thorium 232 (radion	10000	1.0	1	10000.0			

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 Distance-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).



Figure 3-15: Surface Water (Ground Water to Surface Water Component – Drinking Water Threat) Scoresheet

#### For Human Food Chain 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 3-16. 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 **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.

差 Ground Wat	er to Surface V	/ater Scoreshe	et - Assign Mob	ility/Persistenc	e/ 🔳 🗖 🔀				
Human Food Ch	ain Threat								
1) Choose a Subs	tance	2) CI	2) Choose a Mobility Type						
Acrylamide Aniline DDT Dichloroethane, 1 Thorium 232 (rad	l,2- ionuclide)	3) CI 4) CI	<ul> <li>Liquid/Karst</li> <li>Liquid/Non-Karst</li> <li>Non-Liquid/Karst</li> <li>Non-Liquid/Non-K</li> <li>In Observed Rele</li> <li>noose a Predominant</li> <li>Lake</li> <li>River</li> <li>noose a Water Body</li> <li>Fresh</li> <li>Salt</li> </ul>	arst ase t Water Category (P4 Type (Bioaccumulat Save & Return	ersistence) ion) n to Scoresheet				
Substance	Toxicity	Mobility Value	Persistence Value	Bioaccumulation V.,					
Acrylamide	10000	1.0	1	5	10000.0				
Aniline	10000								
DDT	1000								
Dichloroethane, 1,	100								
Thorium 232 (radi	10000	1.0	1	0.5	10000.0				

Figure 3-16: 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 recalculate 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 3-17).

SCORE							_			-	
tion Toolbar: Save As Import	Export Unido Redo Print Calci	dator			-		_				
5 4 H	Site/Scenario Information 5	Source Informatio	n Path	way Scoresheets					-		
Create New Site	Scenario Name: Traini	ng Session							Site Score:	20,47	
Create New Scenario	Scenario Summary (50.47)	GW Scoresheet	(7.04)	W Scoresheet (1	00) SE	Scoresheet (7.	.07)	Air Scoresheet (9.54)			
r/Edit Existing	-	s	urface Wa	ter/Over Land Sci	oresheet	1	1	Ground Water to S	urface Water Scor	esheet	1
Q Auto Parts	Watershed Name: * Lake	White Watershed	1123		*-Require	d 🗌 G	heck to	use this Watershed in S	ite Score calculati	0/15	
Training Session	Factor Catagories & Factors	Likelihood of Rele	ase:	-							
	1. Observed Release		550	-		20.1me 1n	avel	(3-7)	1 1		
	2. Potential to Release by Ow	erland Flow	0			2e. Potenti	al to Re	leate	0		
	2a. Containment	(3.2)	0	-		3 Likelineri te	(Bre	s 2ax(2b +2c +2d)]			
	20. Net Precipitation	(3.4)	U			5. Lives 1000 (0	(hig	her of lines 1 and 4]	550		
	2c. Depth to Aquifier	(3-5)	1	*							
	Threats										
	Drinking Water (100) H	iman Food Chain	(100) E	nvironmental (60)							
	12. Likelihood of Kelease Waste Characteristics:	(Same at la	ne 3]		550		17. Pi	opulation	(4-18)	lune 1	
	13. Toxicity/Mobility/Persis	t/Bioaccum		(4-28)	50000		- 6	26. Level II Concentration	6	6644.0	x 10 = 44440.
	13a. Tox/Mob/Perss	tence No	sign Mobility	Persist/Bioacoum	10000		1	76. Detected UEC Contracto	15	8.0	x 1 = 9.0
	Uana Substance:			(4-26)	Thorium	232 (ra_ 🔻		7c. Potential HPC Contan 7d. Doculation Mile	nmation	44449	
	13b. Bioaccumulation	Value		(4-15)	5	-	10 7	Va. Population (or	es 1/4 + 1/0 + 1/c)j	44442	
	14. Hazardous Waste Quar	wity		(2-6)	100		10. 1	er/feite fauer te + tud	1	44449	
	15. Waste Characteristics	Dines 15a x	16 x 15b, the	n use table 2-7]	32		19 H	aman Food Chain Threat	Score	100	
	Targets:							(()rves 12 x 25	× 18/92,500)	0040 50	
	16. Food Chain Individual				0	-	Unc	apped Score:		8940.60	
	Ground Water to Surface W	ater Migration Sco	ore for a V	/atershed				Add New Water	shed	Calculate	1
	27. Watershed Score	[lines 11	+ 17 + 26]			100	ĉ.				
	28. Component Score (Sol.)	eter Migration Sco (Highist	from line 27	for all watersheds eval	ueted)	100				Delete Water	shed
	Watershell 13	id Name		100.0		Watershed Sci	ore	N		Used in Site Scor	0
	Lane Trille Trateroneurza			1100.0				jix.			

Figure 3-17: 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 3-18. 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.

🛓 Ground Wat	er to Surface V	Vater Scoreshe	eet -Assign Mobi	ility/Persistence	=/в 🔳 🗖 🗙				
Environmental	Threat								
1) Choose a Sub	ostance	2) C	2) Choose a Mobility Type						
Acrylamide Aniline DDT Dichloroethane, 1	,2-		<ul> <li>Enquisitai st</li> <li>Liquid/Non-Karst</li> <li>Non-Liquid/Karst</li> <li>Non-Liquid/Non-Karst</li> </ul>						
Thorium 232 (rad	ionuclide)	3) C	<ul> <li>In Observed Release</li> <li>3) Choose a Water Body Type (Bioaccumulation)</li> <li>Fresh</li> </ul>						
		4) C	<ul> <li>Sat</li> <li>4) Choose a Predominant Water Category (Persistence)</li> <li>Lake</li> <li>Binst</li> </ul>						
				Save & Retu	rn to Scoresheet				
Substance	Ecotoxicity	Mobility Value	Ecosystem BAP V.,	Persistence Value	EcoTox/Mob/Persi				
Acrylamide	10	1.0	5	1	10.0				
Aniline	40000	4.0	50000	1	10000.0				
DDI Dishlaraathana 1	10000	1.0	50000	1	10000.0				
Thorium 232 (radi	10000	1.0	0.5	1	10000.0				
		·		·					

Figure 3-18: 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. 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 3-19).

Vscome			_	-				Quicks	core Home	Quickscore Hel
on Toolbar: Save As Import	Export Undo Redo Print Cal	culator								
Create New Site	Site/Scenario Information Site Name: LP Scenario Name: Trai	Source Infor Q Auto Parts	mation Pa	dhway Scoresheel	5			Site	Score: 50.47	
Create New Scenario										
	Scenario Summary (50.47)	GW Score	theet (7.04)	SW Scoresheet	(100) SE Sco	presheet (7.07	7) Air Scoresheet (9.54)			
Edit Existing			Surface	Water/Over Land S	coresheet		Ground Water to	Surface Wat	er Scoresheet	- 53
Arde Darts	Watershed Name: Lai	ke White Wate	rshed123		*-Required	Che	ck to use this Watershed it	Site Score ca	aculations	
aining Session	Factor Catagories & Factor	s Likelihood a	f Release:					Construction of the		
	1. Observed Release		550	-		2d.Time Trave	el (3-7)	1	~	
	2. Potential to Release by O	verland Flow		141		2e. Potential	to Release	0		
	2a. Contanment	(3)	0		2.1	Authors to D	[linet 2xx(2b+2c+2d)]			
	2b. Net Precipitation	(3-	0		3.6	Remood to R	(higher of lines 1 and 4)	550		
	2c. Depth to Aquifer	(34	1	-						
	Threats	hmore Food	Thesis (400)	For the summer to be the	<b>m</b>					
	Drinking water (100)	Numan Pood	Linalei (100)	citiva oranjenicai (o					6	
	Waste Characteristics:		ane as the J		550		24a. Level I Concentra	ions	34.0	
	21. Ecosystem/Tox/Mob	Eloaccum	(4-	30)	5		240. Level II Concentra Dán Dotantial Contami	cons stime	45.0	
	21a. Tox/Mob/Perst	stence	Ausign Mobilit	yPersist thickcours	10000		24d. Sensitive Environm	write	134	
	Using Substance:		(4.	29)	DOT	-	(Ines 24a + 2	6+24c)		
	21b. Ecosystem BAP	Value	(4-	15)	50000		25. Targets (value from la	n 242)	134	
	22. Habiroous waste Qu 23. Waste Characteristics	r Helock	(2)	0)	100		Environmental Threat Score		60	
	(lines 21a x 22 x 21b, the Tax center	n use table 2-7)					(()irws 20 + 23	× 25/82,800)	00	
	24. Sensitive Environmen	its	(4-	23) (4-24)			Uncapped Score:		295.07	
	Ground Water to Surface V	Valer Migrati	on Score for	a Watershed			Add New Wa	tershed	Cateu	fate
	27. Watershed Score	D	ras 11 + 19 + 20	0		100			-	
	Ground Water to Surface V 29. Component Some (Set	Vater Migrati	on Score	22 for all autocheck on		100			Delete W/	tershed
	Protection of the second second	hard bi arma				And the Party			Linester Site S	7.008
	Lake White Watershed123	Contract and Contract of		100.0	110	ALC: NO. OF ALC: NO.	N		CANADARI DILIN D	LUIE .

Figure 3-19: Surface Water – Ground Water to Surface Water Component – Environmental Threat Scoresheet

#### 3.4.3.3.How do I add or delete Watersheds?



To delete a Watershed, make sure you have the Watershed that you wish to delete selected and

press **Delete Watershed** 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 3-20). The Watershed will be deleted from both the Overland Flow and Ground Water to Surface Water components.



Figure 3-20: Delete Watershed Dialogue Box

## 3.4.4 How do I use the SE Scoresheet?

The Soil Exposure scoresheet is divided based on the two threats for the pathway: resident population and nearby population. The overall pathway score is displayed on the bottom right of the screen, along with the calculated uncapped pathway score.

Create New Site	Site Name: LPQ Auto Scenario Name: Training Se	Parts				Site Score	: 21.79	
Create New Scenario	Scenario Summary (21.79) GW Sco	oresheet (0.42)	SW Scoresheet (43.57)	SE Scoresheet (0)	Air Scoresheet (1.02)			
v/Edit Existing		Soil Expo	sure Scoresheet		Area of Contamination (AOC) Information	noite		-
YO Auto Parts	Likelihood of Exposure Likelihood of Exposure Wasis Characteristics: 2. Toxot/y Uang Substance: 3. Haardouw Waste Quantity 4. Waste Characteristics [mail: 1. how with the 22] Targets: 5. Restort Endought 6. Level II Concentrations 6. Level II Concentrations 6. Level II Concentrations 6. Level II Concentrations 8. Resources 9. Terrestul Sens Environs 10. Tragets [mail: 14c + 7 + 8 + 9] Resident Population Threat Score 11. Resident/Narry Resulton Threat Score	(2-6) (5-4) (5-5)	550 0 0 0 560 78.9 7.0 7.9 7.5 5 5 8 868 0	▼ × 10-789 × 1-9 ▼	Likelihood of Exposure: 12. Attractiveness/Accessibility 13. Areas of Contamination 14. Likelihood of Exposure Waste Characteristics: 15. Toxicty Using Substance: 16. Hazardow Waste Quantity 17. Waste Characteristics: 18. Heathy Individual 19. Population Threat Score 20. Targets: 18. Heathy Individual 20. Targets: 19. Neositic 20. Targets: 19. Neositic 20	(5-6) (5-7) (5-8) (2-6) ) (2-6)	10 20 5 0 0 0 1 99.0 9.90 0 0	• • •
	(Ires 5 + 5 + 7 + 4 + 9) Readern Population Threat Score 11. Resident/Nextby Population Threat (Items 1 + + 20)	¢.	0 Caic	ulate	Sof Experience Pathway Score 22. Sof Experience Pathway Score (St) Press (11 - 21)/E.500 Delete Delete	Score:	0	

3-21: Soil Exposure Scoresheet

## 3.4.4.1 How do I enter Areas of Contamination?

Click the **Area of Contamination (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.

Create New Scenario						
	Scenario Summary (21.79)	GW Scoresheet (0.42)	SW Scoresheet (43.57) SE Se	oresheet (0) Air Scoresheet (1.02)	R	
		Soil Exp	osure Scoresheet	Area of Contamina	tion (AOC) Information	
Edit Existing	STED 4					
Auto Parts	Site/Scenario Name:	LPQ Auto Parts / Training	Session		Which substance	s are associated with this
	AOC Letter #:	A			AOC?	and approximately which they
	AOC Name:	AOC			Associ	late Substances
	ADC Type:	Drume				
	0.0 Tier C - Volume 0.0 Tier D - Area	bs gallons ft <sup>2</sup>	Check if Tier B is adequatele     Check if greater than 0, bu     Check if greater than 0, bu	r determined t unknown t unknown	A	dd New AOC
				Calcula	ite	Jelete AOC
					Contraction in the second seco	Construction of the local data and the local data a

3-22: Area of Contamination Entry Screen

To add a new AOC, click Add New AOC 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 **Delete AOC** 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 **Soil Exposure ScoreSheet** at the top of the AOC Information screen.

## 3.4.4.2 How do I calculate a Soil Exposure Pathway 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. HRS Quickscore will apply the appropriate weighting factor for the Population within 1 Mile factor value. 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 **Delete** 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.

Soil Ex	xposure Delete Confirmation	ζ
?	You are deleting Soil Exposure Scoresheet. Would you like to continue	?
	<u>Y</u> es <u>N</u> o	

3-23: 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.

Create New Site Create New Scenario	Steh Name: LPQ Auto Parts Steh Name: LPQ Auto Parts Scenario Name: Training Session Scenario Summary (21.79) GW Scoresheet (0.42) SW	Scoresheet (43.57) SE Scoresh	eet (0) Air Scoresheet (1.02)	Site Score: 21.79	
Edit Existing		Air Migration Pathway Scores	sheet		1
Auto Parts	Likelihood of Release: 1. Observed Release 2. Potential to Release 2. Botential to Release 3. Lebiood of Release 3. Lebiood of Release 9. Helenod of Relea	550         ¥           340         340           350         550           1000         000T         ¥           1         6         6	Targets:         (6-16)           7. Nearest, Individual         (6-16)           8. Poolubion         Ba. Level I Concentrations           8.b. Level II Concentrations         Bb. Level II Concentrations           8.b. Level II Concentrations         Bc. Poolubion           9.c. Postarial Contramation         Bc. Poolubion           9.c. Postarial Contramation         100. Actual Contamination           100. Pootnatic Contamination         100. Pootnatic Contamination           100. C. Senable Environments [mail:1014]         [mail:104]           11. Targets         [mail:104]           12. Actual Contamination         100. Pootnatic Contamination           10.c. Senable Environments [mail:104]         [mail:104]           11. Targets         [mail:104]	20 ▼ 5 ▼ 11 0.10 25.60	x 0.1 = 0.5 x 0.1 = 0.1
			12. Air Pathway Score(Sa)	1.02	Calculate
	10c Sanctine Environment can have maximum value of 1	600	Incased Core: 4.53		Delate

3-24: Air Pathway Scoresheet

Assign Mobility

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 **Save & Return to Scoresheet** 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. 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 **Delete** 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.



3-25: 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 <sup>2</sup> pathway
Ground Water Migration Pathway Score (Sgw)		
Surface Water Migration Pathway Score (S <sub>sw</sub> )		
Soil Exposure Pathway Score (S <sub>s</sub> )		
Air Migration Score (S <sub>a</sub> )		
$S^{2}_{gw} + S^{2}_{sw} + S^{2}_{s} + S^{2}_{a}$		
$(S^{2}_{gw} + S^{2}_{sw} + S^{2}_{s} + S^{2}_{a})/4$		
$/(S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2)/4$		

Pathways not assigned a score (explain):

TABLE 3-1 GROUND WATER MIGRATION PATHW	AY 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. ellhead 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)/82,5000] <sup>c</sup>	100	
Ground Water Migration Pathway Score:		
13. Pathway Score (Sgw), (highest value from line 12 for all aquifers evaluated) <sup>c</sup>	100	
<sup>a</sup> Maximum value applies to waste characteristics category		

<sup>b</sup> Maximum value not applicable <sup>c</sup> Do not round to nearest integer

TABLE 4-1 SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONE	INT 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	50	
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	(6)	
13 Drinking Water Threat Score [(lines 5x8x12)/82 500 subject to a max of 100]	100	
Human Food Chain Threat	100	
l ikelihood of Release:		
14 Likelihood of Release (same value as line 5)	550	
Waste Characteristics:	000	
15. Toxicity/Persistence/Bioaccumulation	(a)	
16. Hazardous Waste Quantity	(a)	
17 aste Characteristics	1000	
Tarnets:	1000	
18 ood Chain Individual	50	
10. Population	00	
19a Level I Concentration	(b)	
19h Level II Concentration	(b)	
190. Level II Concentration 19c. Potential Human Food Chain Contamination	(b)	
10d Dopulation (lines $10a \pm 10b \pm 10a$ )	(D) (b)	
$130.$ Function (mines $13a \pm 130 \pm 136)$	(D) (b)	
Luman Food Chain Throat Score:	(0)	
11 Human Food Chain Threat Score [/lines 14v17v20\/02500_subject to may of 100]	100	
Environmental Threat	100	

550 (a) (a)
(a) (a)
(a) (a)
(a)
1000
(b)
60
100
100

<sup>a</sup> Maximum value applies to waste
 <sup>b</sup> Maximum value not applicable
 <sup>c</sup> Do not round to nearest integer

TABLE 4-25 GROUND WATER TO SURFACE WATER MIGRATION CO	MPONENT 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)]	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 Targets (lines $7 + 8d + 9$ )	(b)	
Drinking Water Threat Score	(6)	
11 Drinking Water Threat Score (Ilines 3 x 6 x 10)/82 500 subject to max of 100)	100	
Human Food Chain Threat	100	
Likelihood of Release:		
12 Likelihood of Release (same value as line 3)	550	
Waste Characteristics:	000	
13 Toxicity/Mobility/Persistence/Bioaccumulation	(a)	
14 Hazardous Waste Quantity	(a)	
15 aste Characteristics	1000	
	1000	
16. ood Chain Individual	50	
17 Population	50	
17a Level I Concentration	(b)	
17b Level II Concentration	(b)	
17c. Potential Human Food Chain Contamination	(b)	
17d. Population (lines $17a \pm 17b \pm 17c$ )	(b)	
18 Targets (lines $16 \pm 17d$ )	(b) (b)	
Human Food Chain Threat Score:	(b)	
10 Human Food Chain Threat Score [(lines 12x15x18)/82 500 suject to max of 100]	100	
Finite Text 5, 10, 100, 50, 50, 50, 50, 50, 50, 50, 50, 50,	100	
Livionnentai meat		
20 Likelihood of Release (same value as line 2)	550	
20. Line in 1000 of the lease (same value as life 3) Waste Characteristics:	000	
21 Ecosystem Toxicity/Dereistonee/Disaccumulation	$(\mathbf{a})$	
21. Luosystem Tuxiuly/Felsisteme/bloaccumulation	(a)	
	(a)	

23. aste 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	
Ground Water to Surface Water Migration Component Score for a Watershed		
27. atershed Score <sup>c</sup> (lines 11 + 19 + 28, subject to a max of 100)	100	
28. Component Score $(S_{gs})^c$ (highest score from line 27 for all watersheds evaluated, subject to a max of 100)	100	

<sup>a</sup> Maximum value applies to waste characteristics category <sup>b</sup> Maximum value not applicable <sup>c</sup> Do not round to nearest integer

TABLE 5-1SOIL EXPOSURE PATHV	VAY 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. aste 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 <sup>d</sup> (S <sub>s</sub> ), [lines (11+21)/82,500, subject to max of 100]	100	
<sup>a</sup> Maximum value applies to waste characteristics category		

<sup>a</sup> Maximum value applies to waste characteristics category <sup>b</sup> Maximum value not applicable <sup>c</sup> No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60 <sup>d</sup> Do not round to nearest integer

Factor categories and factorsMaximum ValueValue AssignedLikelihood of Release:5501. Observed Release5502. Potential to Release:5002a. Gas Potential to Release5002b. Particulate Potential to Release5002c. Potential to Release (higher of lines 2a and 2b)5003. Likelihood of Release (higher of lines 1 and 2c)550Waste Characteristics:4. Toxicity/Mobility4. Toxicity/Mobility(a)5. Hazardous Waste Quantity(a)6. Waste Characteristics100Targets:7. Nearest Individual8. Level I Concentrations(b)8b. Level II Concentrations(b)8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
Likelihood of Release:       550         1. Observed Release       550         2. Potential to Release:       2a. Gas 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         4. Toxicity/Mobility       (a)         5. Hazardous Waste Quantity       (a)         6. Waste Characteristics       100         Targets:       7. Nearest Individual       50         8. 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:       5
1. Observed Release5502. Potential to Release:5002a. Gas Potential to Release5002b. Particulate Potential to Release5002c. Potential to Release (higher of lines 2a and 2b)5003. Likelihood of Release (higher of lines 1 and 2c)550Waste Characteristics:4. Toxicity/Mobility(a)5. Hazardous Waste Quantity(a)6. Waste Characteristics100Targets:7. Nearest Individual508. Level I Concentrations(b)8a. Level I Concentrations(b)8b. Level II Concentrations(c)8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
2. Potential to Release:       500         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:       50         8. 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:       5
2a. Gas Potential to Release5002b. Particulate Potential to Release5002c. Potential to Release (higher of lines 2a and 2b)5003. Likelihood of Release (higher of lines 1 and 2c)550Waste Characteristics:4. Toxicit//Mobility(a)5. Hazardous Waste Quantity(a)6. Waste Characteristics100Targets:7. Nearest Individual508. Level I Concentrations(b)8b. Level II Concentrations(b)8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
2b. Particulate Potential to Release5002c. Potential to Release (higher of lines 2a and 2b)5003. Likelihood of Release (higher of lines 1 and 2c)550Waste Characteristics:4. Toxicity/Mobility(a)5. Hazardous Waste Quantity(a)6. Waste Characteristics100Targets:7. Nearest Individual508. Level I Concentrations(b)8b. Level II Concentrations(b)8c. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
2c. Potential to Release (higher of lines 2a and 2b)5003. Likelihood of Release (higher of lines 1 and 2c)550Waste Characteristics:(a)4. Toxicity/Mobility(a)5. Hazardous Waste Quantity(a)6. Waste Characteristics100Targets:7. Nearest Individual508. Population:(b)8a. Level I Concentrations(b)8b. Level II Concentrations(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
3. Likelihood of Release (higher of lines 1 and 2c)550Waste Characteristics:4. Toxicity/Mobility(a)5. Hazardous Waste Quantity(a)6. Waste Characteristics100Targets:7. Nearest Individual508. Population:508. Level I Concentrations(b)8b. Level II Concentrations(b)8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
Waste Characteristics:(a)4. Toxicity/Mobility(a)5. Hazardous Waste Quantity(a)6. Waste Characteristics100Targets:7. Nearest Individual508. Population:508. Level I Concentrations(b)8b. Level II Concentrations(b)8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
4. Toxicity/Mobility(a)5. Hazardous Waste Quantity(a)6. Waste Characteristics100Targets:7. Nearest Individual508. Population:508a. Level I Concentrations(b)8b. Level II Concentrations(b)8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
5. Hazardous Waste Quantity(a)6. Waste Characteristics100Targets:7. Nearest Individual508. Population:508a. Level I Concentrations(b)8b. Level II Concentrations(b)8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
6. Waste Characteristics100Targets:7. Nearest Individual508. Population:508a. Level I Concentrations(b)8b. Level II Concentrations(b)8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
Targets:       50         7. Nearest Individual       50         8. Population:       50         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:       5
7. Nearest Individual       50         8. Population:       (b)         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:       5
8. Population:       (b)         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:       5
8a. Level I Concentrations(b)8b. Level II Concentrations(b)8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:
8b. Level II Concentrations(b)8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
8c. Potential Contamination(c)8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
8d. Population (lines 8a + 8b + 8c)(b)9. Resources510. Sensitive Environments:5
9. Resources 5 10. Sensitive Environments:
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 (Sa) [(lines 3 x 6 x 11)/82,500] <sup>d</sup> 100

<sup>a</sup> Maximum value applies to waste characteristics category
 <sup>b</sup> Maximum value not applicable
 <sup>c</sup>No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to a maximum of 60.
 <sup>d</sup> Do not round to nearest integer

#### Appendix B - Example Printout of Final HRS Scoresheets \*\*\*\* CONFIDENTIAL \*\*\*\* \*\*\*\*PRE-DECISIONAL DOCUMENT \*\*\*\* \*\*\*\* SUMMARY SCORESHEET \*\*\*\* \*\*\*\* FOR COMPUTING PROJECTED HRS SCORE \*\*\*\*

## \*\*\*\* Do Not Cite or Quote \*\*\*\*

Site Name: LPQ Auto Parts	Region: Region 5
Scenario Name: Training Session	
City, County, State: , Ohio	Evaluator: Student
EPA ID#: XXY987654321	Date: 10/23/2008
Lat/Long: -0:0:0,-23:8:8.001	
Congressional District:	
This Scoresheet is for: SI	
Scenario Name: Training Session	

Description: Pre-entered data used for training.

	S pathway	S <sup>2</sup> pathway
Ground Water Migration Pathway Score (Sgw)	7.04	49.5616
Surface Water Migration Pathway Score (S <sub>sw</sub> )	100.0	10000.0
Soil Exposure Pathway Score (S <sub>s</sub> )	7.07	49.9849
Air Migration Score (S <sub>a</sub> )	9.54	91.01159999999999 9
$S^{2}_{gw} + S^{2}_{sw} + S^{2}_{s} + S^{2}_{a}$		10190.5581
$(S^{2}_{gw} + S^{2}_{sw} + S^{2}_{s} + S^{2}_{a})/4$		2547.639525
$/(S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2)/4$		50.47414709532

Pathways not assigned a score (explain):

TABLE 3-1 GROUND WATER MIGRATION PATHWA	Y SCORESHEET		
Factor categories and factors	Maximum Value	Value A	ssigned
Aquifer Evaluated:			
Likelihood of Release to an Aquifer:			
1. Observed Release	550	0.0	
2. Potential to Release:			
2a. Containment	10	9.0	
2b. Net Precipitation	10	6.0	
2c. Depth to Aquifer	5	3.0	
2d. Travel Time	35	25.0	
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500	306.0	
3. Likelihood of Release (higher of lines 1 and 2e)	550		306.0
Waste Characteristics:			
4. Toxicity/Mobility	(a)	10000.0	
5. Hazardous Waste Quantity	(a)	100.0	
6. Waste Characteristics	100		32.0
Targets:			
7. Nearest Well	(b)	45.0	
8. Population:			
8a. Level I Concentrations	(b)	0.0	
8b. Level II Concentrations	(b)	0.0	
8c. Potential Contamination	(b)	9.3	
8d. Population (lines 8a + 8b + 8c)	(b)	9.3	
9. Resources	5	5.0	
10. Wellhead Protection Area	20	0.0	
11. Targets (lines 7 + 8d + 9 + 10)	(b)		59.3
Ground Water Migration Score for an Aquifer:			
12. Aquifer Score [(lines 3 x 6 x 11)/82,5000] <sup>c</sup>	100	7.04	
Ground Water Migration Pathway Score:			
13. Pathway Score (S <sub>gw</sub> ), (highest value from line 12 for all aquifers evaluated) <sup>c</sup>	100	0.0	
<ul> <li><sup>a</sup> Maximum value applies to waste characteristics category</li> <li><sup>b</sup> Maximum value not applicable</li> <li><sup>c</sup> Do not round to nearest integer</li> </ul>			

TABLE 4-1 SURFACE WATER OVERLAND/FLOOD MIGRATION COMPO	NENT SCORESHE	ET	
Factor categories and factors	Maximum Value	Value As	signed
Watershed Evaluated:			
Drinking Water Threat			
Likelihood of Release:			
1. Observed Release	550	550.0	
2. Potential to Release by Overland Flow:			
2a. Containment	10	10.0	
2b. Runoff	10	7.0	
2c. Distance to Surface Water	5	6.0	
2d. Potential to Release by Overland Flow [lines 2a(2b + 2c)]	35	130.0	
3.Potential to Release by Flood:			
3a. Containment (Flood)	10	10.0	
3b. Flood Frequency	50	25.0	
3c. Potential to Release by Flood (lines 3a x 3b)	500	250.0	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	380.0	
5. Likelihood of Release (higher of lines 1 and 4)	550		550.0
Waste Characteristics:			
6. Toxicity/Persistence	(a)	10000.0	
7. Hazardous Waste Quantity	(a)	100.0	
8. Waste Characteristics	100		32.0
Targets:			
9. Nearest Intake	50	50.0	
10. Population:			
10a. Level I Concentrations	(b)	120.0	
10b. Level II Concentrations	(b)	3.0E10	
10c. Potential Contamination	(b)	3.4	
10d. Population (lines 10a + 10b + 10c)	(b)	3.000000012 34E10	
11. Resources	5	0.0	
12. Targets (lines 9 + 10d + 11)	(b)	3.000000017 34E10	
Drinking Water Threat Score:			
13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a max of 100]	100	100.0	
Human Food Chain Threat			
Likelihood of Release:			
14. Likelihood of Release (same value as line 5)	550	550.0	
Waste Characteristics:			
15. Toxicity/Persistence/Bioaccumulation	(a)	5.0E8	
16. Hazardous Waste Quantity	(a)	100.0	
17. Waste Characteristics	1000	320.0	
Targets:			
18. ood Chain Individual	50	2.0	
19. Population			
19a. Level I Concentration	(b)	450.0	
19b. Level II Concentration	(b)	6.0	
19c. Potential Human Food Chain Contamination	(b)	0.8	
19d. Population (lines 19a + 19b + 19c)	(b)	456.8	
20. Targets (lines 18 + 19d)	(b)		458.8
Human Food Chain Threat Score:			

21. Human Food Chain Threat Score [(lines 14x17x20)/82500, subject to max of 100]	100		100.0
Environmental Threat			
Likelihood of Release:			
22. Likelihood of Release (same value as line 5)	550		550.0
Waste Characteristics:			
23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	5.0E8	
24. Hazardous Waste Quantity	(a)	100.0	
25. aste Characteristics	1000		320.0
Targets:			
26. Sensitive Environments			
26a. Level I Concentrations	(b)	67.0	
26b. Level II Concentrations	(b)	45.0	
26c. Potential Contamination	(b)	4.0	
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)	0.0	
27. Targets (value from line 26d)	(b)		116.0
Environmental Threat Score:			
28. Environmental Threat Score [(lines 22x25x27)/82,500 subject to a max of 60]	60		60.0
Surface Water Overland/Flood Migration Component Score for a Watershed			
29. Watershed Score <sup>c</sup> (lines 13+21+28, subject to a max of 100)	100		100.00
Surface Water Overland/Flood Migration Component Score			
30. Component Score (S <sub>sw</sub> ) <sup>c</sup> (highest score from line 29 for all watersheds evaluated)	100		100.00
<sup>a</sup> Maximum value applies to waste characteristics category			

<sup>a</sup> Maximum value applies to waste
 <sup>b</sup> Maximum value not applicable
 <sup>c</sup> Do not round to nearest integer

Factor categories and factors	Maximum Value	Value A	ssigned
Aquifer Evaluated:			
Drinking Water Threat			
1. Observed Palazza	550	550.0	
2. Detential to Poloase:	550	550.0	
2. Potential to Release.	10	0.0	
2h. Net Precipitation	10	0.0	
2c. Depth to Aquifer	5	1.0	
2d. Travel Time	35	1.0	
2e. Potential to Release [lines $2a(2b + 2c + 2d)$ ]	500	0.0	
3. Likelihood of Release (higher of lines 1 and 2e)	550		550.0
Waste Characteristics:			00010
4 Toxicity/Mobility	(a)	10000.0	
5. Hazardous Waste Quantity	(a)	100.0	
6. Waste Characteristics	100		32.0
Targets:			02.0
7 Nearest Well	(b)	0.0	
8 Population	(0)	010	
8a. Level I Concentrations	(b)	0.0	
8b. Level II Concentrations	( <i>b</i> )	444444.0	
8c. Potential Contamination	(b)	0.6	
8d. Population (lines 8a + 8b + 8c)	(b)	444444.6	
9. Resources	5	5.0	
10. Targets (lines 7 + 8d + 9)	(b)		444449.6
Drinking Water Threat Score:			
11. Drinking Water Threat Score (Ilines 3 x 6 x 10]/82,500, subject to max of 100)	100		948149.25
Human Food Chain Threat			
Likelihood of Release:			
12. Likelihood of Release (same value as line 3)	550	550.0	
Waste Characteristics:			
13. Toxicity/Mobility/Persistence/Bioaccumulation	(a)	50000.0	
14. Hazardous Waste Quantity	(a)	100.0	
15. Waste Characteristics	1000		32.0
Targets:			
16. Food Chain Individual	50	0.0	
17. Population			
17a. Level I Concentration	(b)	44440.0	
17b. Level II Concentration	(b)	9.0	
17c. Potential Human Food Chain Contamination	(b)	0.0	
17d. Population (lines 17a + 17b + 17c)	(b)	44449.0	
18. Targets (lines 16 + 17d)	(b)		44449.0
Human Food Chain Threat Score:			
19. Human Food Chain Threat Score [(lines 12x15x18)/82,500,suject to max of 100]	100		100.0
Environmental Threat			
Likelihood of Release:			
20. Likelihood of Release (same value as line 3)	550	550.0	
Waste Characteristics:			
21. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	5.0E8	

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

22. Hazardous Waste Quantity	(a)	100.0	
23. Waste Characteristics	1000		320.0
Targets:			
24. Sensitive Environments			
24a. Level I Concentrations	(b)	34.0	
24b. Level II Concentrations	(b)	45.0	
24c. Potential Contamination	(b)	55.0	
24d. Sensitive Environments (lines 24a + 24b + 24c)	(b)	0.0	
25. Targets (value from line 24d)	(b)		134.0
Environmental Threat Score:			
26. Environmental Threat Score [(lines 20x23x25)/82,500 subject to a max of 60]	60		60.0
Ground Water to Surface Water Migration Component Score for a Watershed			
27. Watershed Score <sup>c</sup> (lines 11 + 19 + 28, subject to a max of 100)	100		100.0
28. Component Score $(S_{gs})^{c}$ (highest score from line 27 for all watersheds evaluated, subject to a max of 100)	100		100.0

<sup>a</sup> Maximum value applies to waste characteristics category <sup>b</sup> Maximum value not applicable <sup>c</sup> Do not round to nearest integer

Factor categories and factors	Maximum Value	Value	Value Assigned	
Likelihood of Exposure:				
1. Likelihood of Exposure	550		550.0	
Waste Characteristics:				
2. Toxicity	(a)	10000.0		
3. Hazardous Waste Quantity	(a)	1.0		
4. Waste Characteristics	100		10.0	
Targets:				
5. Resident Individual	50	50.0		
6. Resident Population:				
6a. Level I Concentrations	(b)	56.0		
6b. Level II Concentrations	(b)			
6c. Population (lines 6a + 6b)	(b)	56.0		
7. Workers	15	0.0		
8. Resources	5			
9. Terrestrial Sensitive Environments	(c)			
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)		106.0	
Resident Population Threat Score				
11. Resident Population Threat Score (lines 1 x 4 x 10)	(b)		583000.0	
Nearby Population Threat				
Likelihood of Exposure:				
12. Attractiveness/Accessibility	100	10.0		
13. Area of Contamination	100	20.0		
14. Likelihood of Exposure	500		5.0	
Waste Characteristics:				
15. Toxicity	(a)	10000.0		
16. Hazardous Waste Quantity	(a)	1.0		
17. Waste Characteristics	100		10.0	
Targets:				
18. Nearby Individual	1	0.0		
19. Population Within 1 Mile	(b)	0.05		
20. Targets (lines 18 + 19)	(b)		0.05	
Nearby Population Threat Score				
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)		2.5	
Soil Exposure Pathway Score:				
22. Pathway Score <sup>d</sup> (S <sub>s</sub> ), [lines (11+21)/82,500, subject to max of 100]	100		7.07	

<sup>a</sup> Maximum value applies to waste characteristics category
 <sup>b</sup> Maximum value not applicable
 <sup>c</sup> No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60
 <sup>d</sup> Do not round to nearest integer

TABLE 6-1 AIR MIGRATION PATHWAY SCORESHEET					
Factor categories and factors	Maximum Value	Value Assigned			
Likelihood of Release:					
1. Observed Release	550	0.0			
2. Potential to Release:					
2a. Gas Potential to Release	500	355.0			
2b. Particulate Potential to Release	500	0.0			
2c. Potential to Release (higher of lines 2a and 2b)	500	355.0			
3. Likelihood of Release (higher of lines 1 and 2c)	550		355.0		
Waste Characteristics:					
4. Toxicity/Mobility	(a)	10000.0			
5. Hazardous Waste Quantity	(a)	100.0			
6. Waste Characteristics	100		32.0		
Targets:					
7. Nearest Individual	50	20.0			
8. Population:					
8a. Level I Concentrations	(b)	40.0			
8b. Level II Concentrations	(b)	4.0			
8c. Potential Contamination	(c)	0.09			
8d. Population (lines 8a + 8b + 8c)	(b)	44.0			
9. Resources	5	5.0			
10. Sensitive Environments:					
10a. Actual Contamination	(c)	0.2			
10b. Potential Contamination	(c)	0.09			
10c. Sensitive Environments (lines 10a + 10b)	(c)	0.29			
11. Targets (lines 7 + 8d + 9 + 10c)	(b)		69.29		
Air Migration Pathway Score:					
12. Pathway Score (S <sub>a</sub> ) [(lines 3 x 6 x 11)/82,500] <sup>d</sup>	100		9.54		

<sup>a</sup> Maximum value applies to waste characteristics category
 <sup>b</sup> Maximum value not applicable
 <sup>c</sup>No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to a maximum of 60.
 <sup>d</sup> Do not round to nearest integer