earthsoft

EQuIS® Risk3T

Risk Assessment Calculator

User Manual

125 S. Alcaniz St., Suite 2, Pensacola, FL 32502 USA

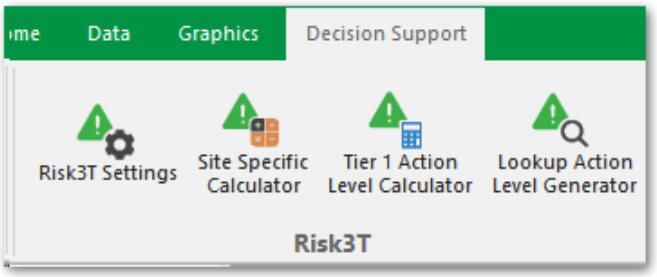
Table of Contents

1 Getting Started

1.1 Overview

Risk3T is a human health risk assessment tool that supports a tiered approach for carcinogenic and non-carcinogenic risks and uses screening level calculations established by the United States Environmental Protection Agency for a variety of exposure routes and media types. Risk assessors can perform site-specific calculations, but also have access to an action level calculator and can generate action levels.

Risk3T is internal to EQuIS Professional but licensed separately. Risk3T functions seamlessly as a series of forms within EQuIS Professional, and provides users with an interactive workspace with direct access to existing action level tables and facility analytical data sets residing within EQuIS Schemas. The **Risk3T** ribbon has the following buttons:



Risk3T Settings – Provides interactive access to the various tables of setup values used for each function of Risk3T.

Site Specific Calculator – Users have two options to calculate site-specific action levels:

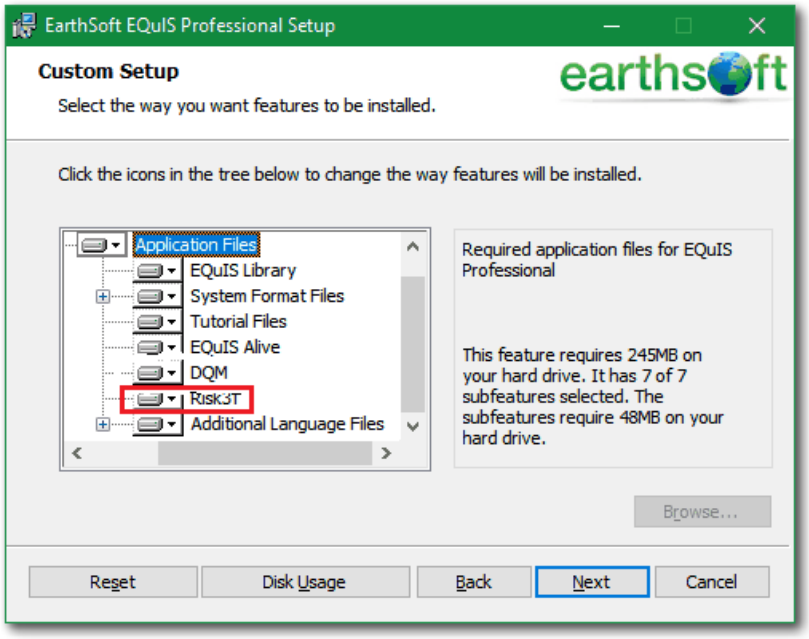
- Risk Assessment Report with Action Level Calculator
  - Selects the EQuIS sample/test/result data to be used in the risk calculations and automatically creates a list of analytes from those results.
  - Calculates summary statistics (i.e., maximum detected concentration) for each analyte, for automated comparison to risk-based screening levels and action levels.
  - Calculates Tier 2 (site-specific) screening levels and action levels after the appropriate selection of exposure pathways and the entry of site-specific values for the modeling input parameters.
  - Provides formatted Risk Assessment reports for the presentation of all the above information.
  - Saves the selected action levels to the DT_ACTION_LEVEL and DT_ACTION_LEVEL_PARAMETER tables for use in other EQuIS reports.
- Action Level Calculator Only
  - Calculates Tier 2 (site-specific) screening levels and action levels after the appropriate selection of exposure pathways and the entry of site-specific values for the modeling input parameters.
  - Automatically saves the selected action levels to the DT_ACTION_LEVEL and DT_ACTION_LEVEL_PARAMETER tables.

Tier 1 Action Level Calculator – Opens the Risk3T forms for the function which calculates Tier 1 EQuIS Action Levels with all the chemicals in the selected Chemical Toxicity/Properties table from a regulatory agency.

Lookup Action Level Generator – Opens the Risk3T forms for the function which generates EQuIS Action Levels from Pathway-Specific Lookup Tables from regulatory agencies.

1.2 Installation

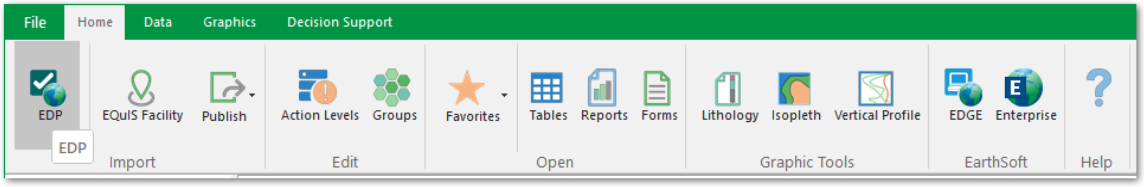
The *Risk3T.Forms.dll* file must be present in the EQuIS Professional installation folder, and the Risk3T Schema must have been applied to the EQuIS database for Risk3T to be enabled. The necessary files are copied to the correct folders when the Risk3T option is selected during the EQuIS Professional installation process. The EQuIS Professional Installer can be run again to add Risk3T to an existing installation.



1.3 Reference Values

After Risk3T has been installed and the Risk3T Schema has been applied to the database, Risk3T reference values for input parameter sources as well as chemical property and toxicity data must be added to the database. Example Risk3T EDDs (Microsoft Excel files) are provided to serve as a starting point (*Risk3T-refvals_EPA_11_2018_HQpt1.xlsx* and *Risk3T-refvals_TCEQ_2018.xlsx*). These input parameter sources can be modified later within Risk3T (see Sections 2.2 and 2.3). The next step is to load the Risk3T EDD(s) to the EQuIS database using EDP.

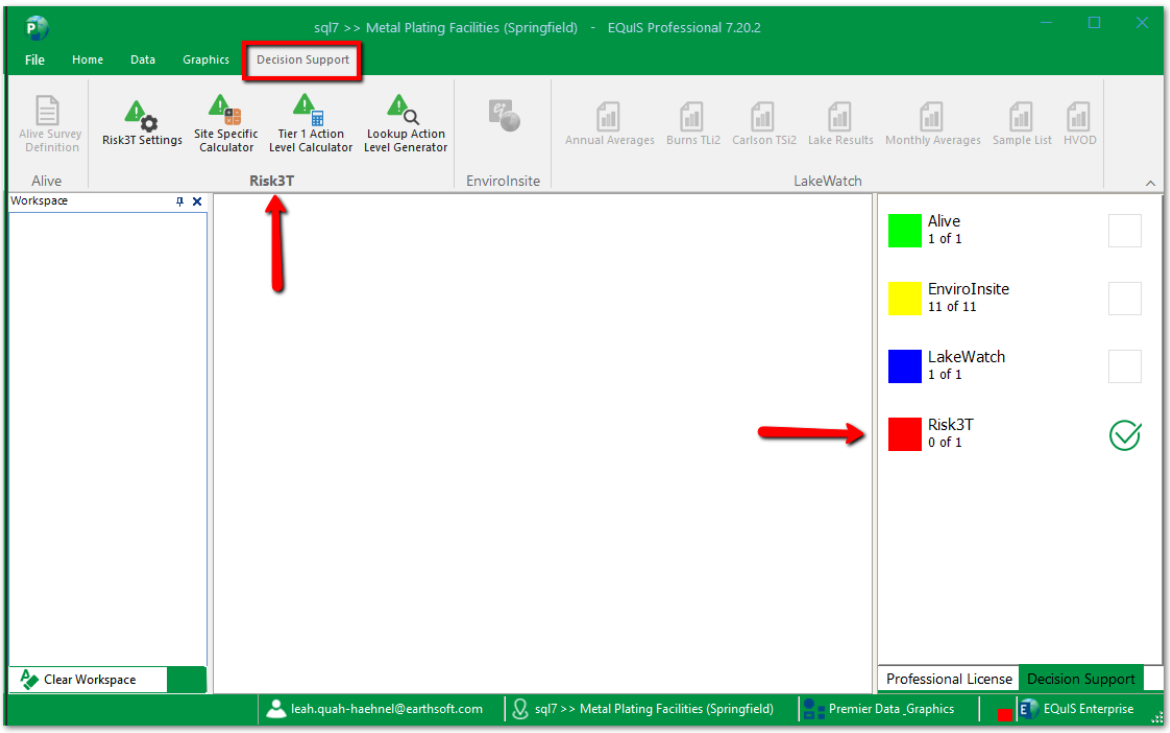
1. On the EQuIS Professional Home ribbon, select the **EDP** button.



2. Click the **Format** button and select ***Risk3T-refvals.zip*** from the installed Risk3T files, typically located by default in *\Programs Files\EarthSoft\EQuIS\Formats\Risk3T*.
3. Click the **EDD** button and select each of the desired Risk3T EDD(s) supplied in that same folder.
4. **Create** and **Commit** the EDD(s).

1.4 Opening Risk3T

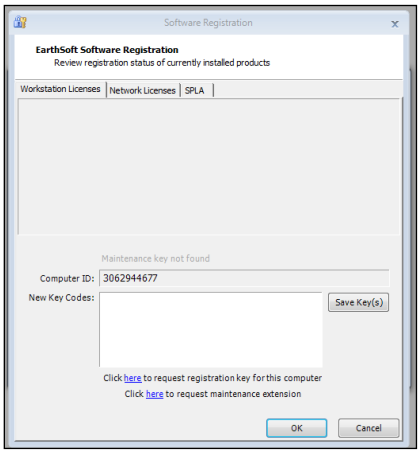
1. Open EQuIS Professional.
2. Select the **Risk3T license** (on the Decision Support license tab).
3. Select the **Decision Support** ribbon.
4. Click the desired **Risk3T** option.



1.5 Registration Instructions

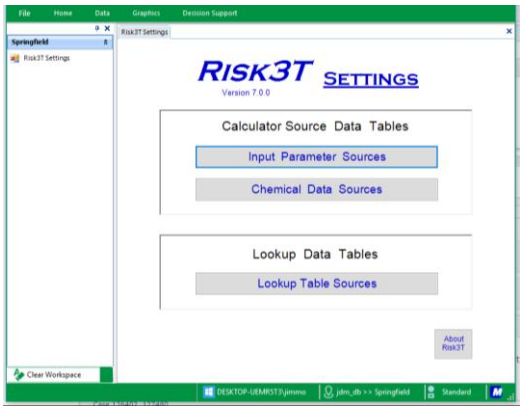
Risk3T must be registered before it can be run on the workstation. The Registration process is the same as for any other EarthSoft application.

The first time Risk3T is opened following installation, a screen showing how to register the program is displayed. Prior to registration, all buttons will be inactive. Once the program has been registered, the screen will no longer be displayed upon starting the program.



2 Risk3T Settings

2.1 Navigating the Risk3T Settings Form



Click the **Risk3T Settings** button on the Decision Support ribbon to open the Risk3T Settings Form. Users can access the:

- Input Parameter Sources
- Chemical Data Sources
- Lookup Table Sources

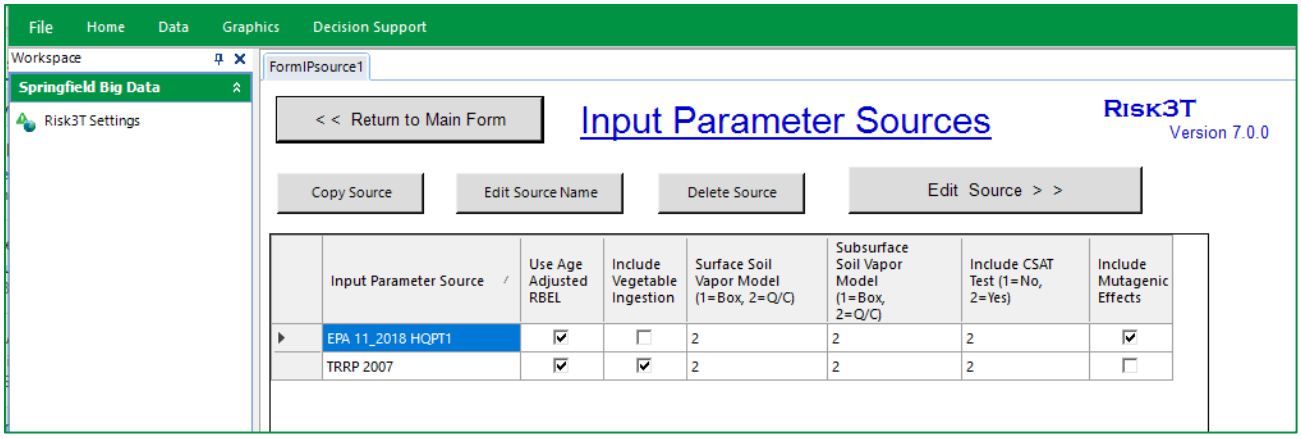
Note: Using the Risk3T-refvals format is the easiest way to load input parameter sources, chemical property and toxicity data, and lookup values for regulatory agencies that do not provide the input parameters and chemical data necessary to use the Risk3T calculators (see Section 1.3). These values can then either be edited directly in Risk3T or copied and edited to create a new source.

2.2 Input Parameter Sources

Select the **Input Parameter Sources** button to open the Input Parameter Sources Form, where users can view, create, edit, and delete input parameter sources to align with regulatory agency rules.

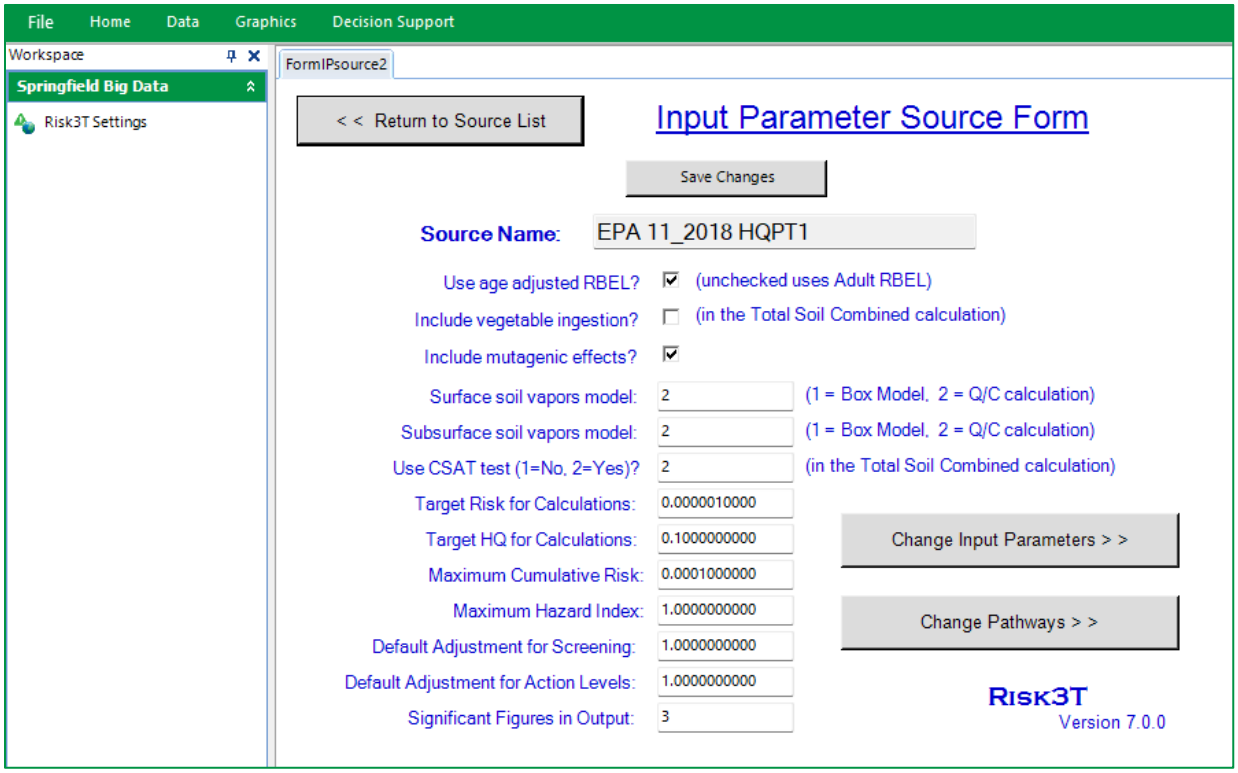
2.2.1 Add Input Parameter Source

To add a new Input Parameter Source, highlight the existing source that is most like the one to add and select the **Copy Source** button. Change the Source Name on the copy and then modify any Input Parameters as desired (see Section 2.2.2).



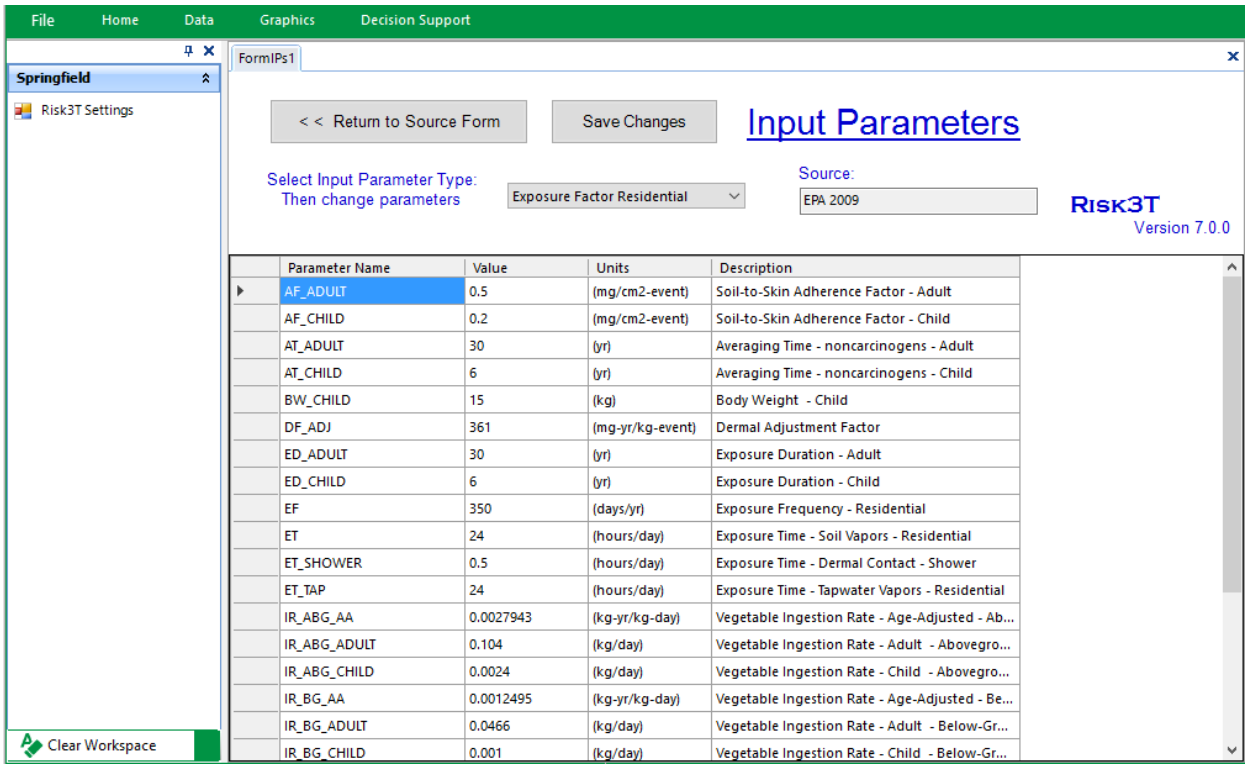
2.2.2 Edit Input Parameter Source

To modify the source input parameters, highlight the source to edit and click the **Edit Source** button. The Input Parameter Source Form will open, allowing users to modify the overall settings (e.g., Target Risk) for the source.



Edit Input Parameters

Click the **Change Input Parameters** button to open the Input Parameters Form and modify the input parameters for each risk exposure pathway's equation.



Parameter Name	Value	Units	Description
AF_ADULT	0.5	(mg/cm2-event)	Soil-to-Skin Adherence Factor - Adult
AF_CHILD	0.2	(mg/cm2-event)	Soil-to-Skin Adherence Factor - Child
AT_ADULT	30	(yr)	Averaging Time - noncarcinogens - Adult
AT_CHILD	6	(yr)	Averaging Time - noncarcinogens - Child
BW_CHILD	15	(kg)	Body Weight - Child
DF_ADJ	361	(mg-yr/kg-event)	Dermal Adjustment Factor
ED_ADULT	30	(yr)	Exposure Duration - Adult
ED_CHILD	6	(yr)	Exposure Duration - Child
EF	350	(days/yr)	Exposure Frequency - Residential
ET	24	(hours/day)	Exposure Time - Soil Vapors - Residential
ET_SHOWER	0.5	(hours/day)	Exposure Time - Dermal Contact - Shower
ET_TAP	24	(hours/day)	Exposure Time - Tapwater Vapors - Residential
IR_ABG_AA	0.0027943	(kg-yr/kg-day)	Vegetable Ingestion Rate - Age-Adjusted - Ab...
IR_ABG_ADULT	0.104	(kg/day)	Vegetable Ingestion Rate - Adult - Abovegro...
IR_ABG_CHILD	0.0024	(kg/day)	Vegetable Ingestion Rate - Child - Abovegro...
IR_BG_AA	0.0012495	(kg-yr/kg-day)	Vegetable Ingestion Rate - Age-Adjusted - Be...
IR_BG_ADULT	0.0466	(kg/day)	Vegetable Ingestion Rate - Adult - Below-Gr...
IR_BG_CHILD	0.001	(kg/day)	Vegetable Ingestion Rate - Child - Below-Gr...

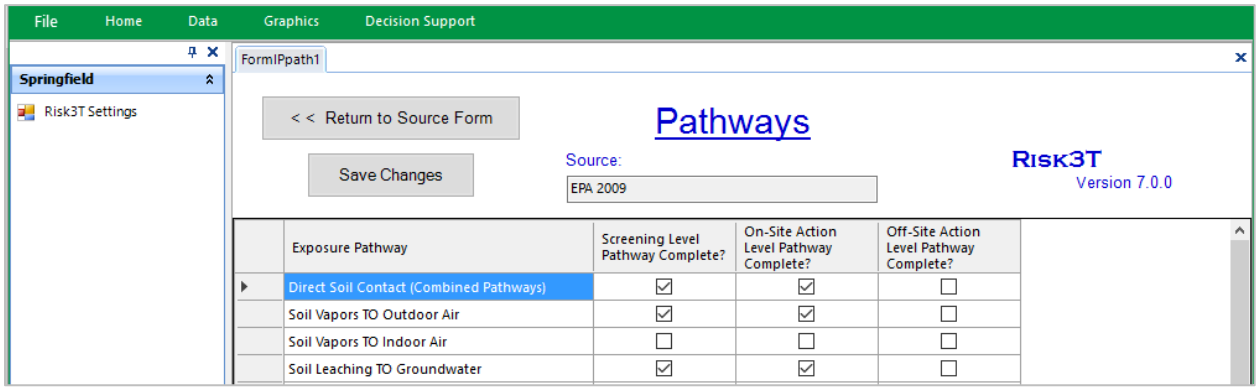
Use the drop-down menu on the Input Parameters Form to select the **Input Parameter Type** (e.g., Exposure Factor Residential). Each type of parameter has a specific set of variables that can be modified. The following is a list of parameter types that can be modified:

- Distance to POE
- Exposure Factor
- Exposure Factor – Commercial/Industrial
- Exposure Factor – Mutagenic
- Exposure Factor – Recreation Water
- Exposure Factor – Residential
- Input Parameter – Building
- Input Parameter – Groundwater
- Input Parameter – Particulate Emission Rate (PEF)
- Input Parameter – Soil
- Input Parameter – Soil to Groundwater
- Source Area Size – Groundwater
- Source Area Size – Soil

Once changes have been made, select the **Save Changes** button and then the **Return to Source Form** button.

Edit Pathways

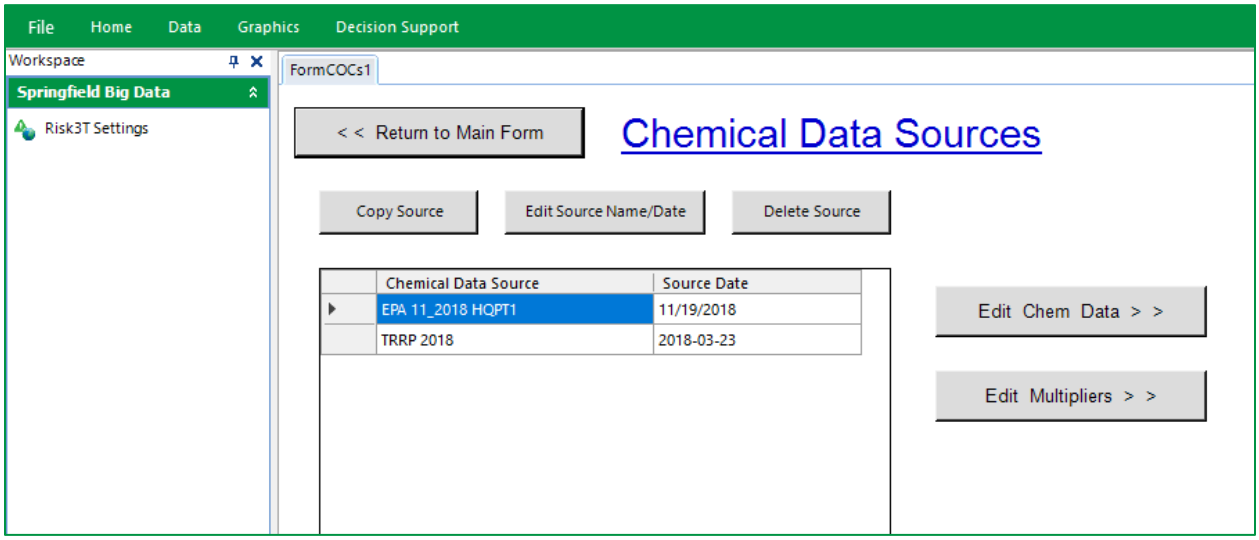
Click the **Change Pathways** button to edit the pathways that are included by default in the calculations for the Input Parameter Source. (Pathways can be added or removed from any site-specific calculation.)



Once changes have been made, select the **Save Changes** button and then the **Return to Source Form** button.

2.3 Chemical Data Sources

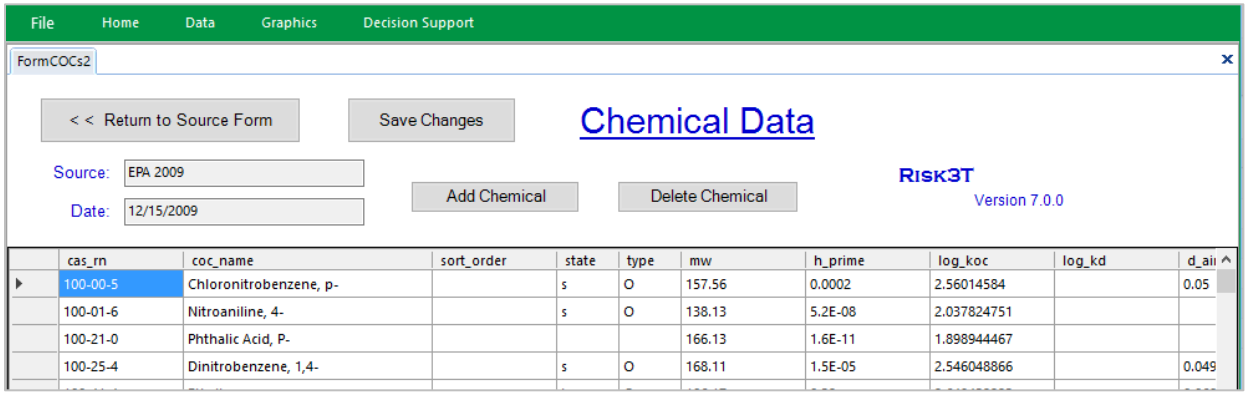
Selecting a chemical data source is similar to selecting the Input Parameter Source. From the Risk3T Settings form, click the **Chemical Data Sources** button to open the Chemical Data Sources Form.



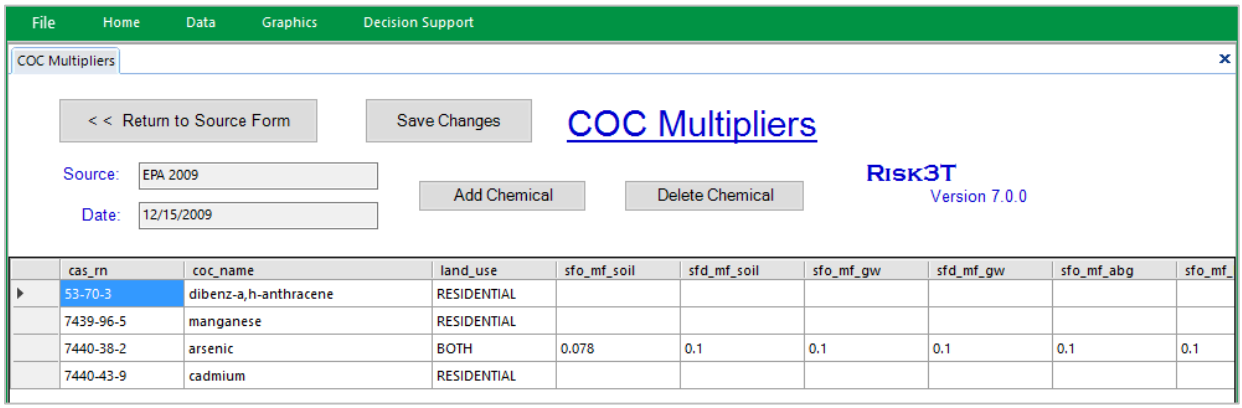
2.3.1 Copy and Edit Chemical Data Source

Once in the Chemical Data Sources Form, the chemical sources can be copied, modified, and/or deleted. To create a new chemical source, highlight the existing source that is most like the one to add and select the **Copy Source** button. Once the copy of the existing source appears in the table, change the name and date of the source by selecting the **Edit Source Name/Date** button.

Once the new chemical data source has been created, select the **Edit Chem Data** button to add, modify, and/or delete chemicals from the new source. In the Chemical Data Form, a chemical's data can be modified by typing the new information into the table cells. A chemical can be added to the source by selecting the **Add Chemical** button. A blank row will appear at the bottom of the table where users can enter the new chemical information. To save the new chemical(s) to the list, select the **Save Changes** button. To delete a chemical from the data source, select the chemical and click the **Delete Chemical** button. Risk3T automatically saves changes following chemical deletion.



Select the **Edit Multipliers** button on the Chemical Data Sources Form to add, modify, and/or delete chemical-specific adjustments to the toxicity exposure equations.



cas_rn	coc_name	land_use	sfo_mf_soil	sfd_mf_soil	sfo_mf_gw	sfd_mf_gw	sfo_mf_abg	sfo_mf_
53-70-3	dibenz-a,h-anthracene	RESIDENTIAL						
7439-96-5	manganese	RESIDENTIAL						
7440-38-2	arsenic	BOTH	0.078	0.1	0.1	0.1	0.1	0.1
7440-43-9	cadmium	RESIDENTIAL						

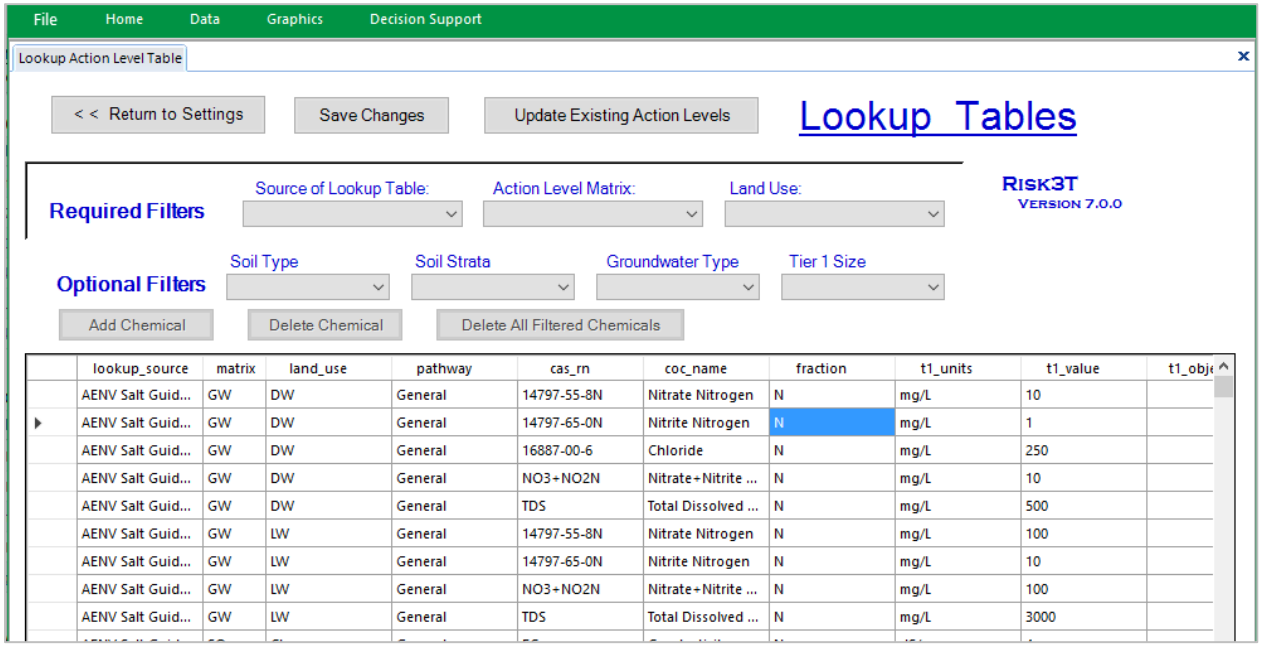
2.4 Lookup Table Sources

To edit Lookup Table Sources, select the **Lookup Table Sources** button from the Risk3T Settings Form.

In the Lookup Table Form, the Action Level Lookup Table can be modified by typing the new information into the table cells. To save changes, select the **Save Changes** button.

A chemical can be added to the source by selecting the **Add Chemical** button. A blank row will appear at the bottom of the table where users can enter the new chemical information. To save the new chemical(s) to the list, select the **Save Changes** button.

To delete a chemical from the data source, select the chemical and click the **Delete Chemical** button. Risk3T automatically saves changes following chemical deletion.



lookup_source	matrix	land_use	pathway	cas_rn	coc_name	fraction	t1_units	t1_value	t1_obje
AENV Salt Guid...	GW	DW	General	14797-55-8N	Nitrate Nitrogen	N	mg/L	10	
AENV Salt Guid...	GW	DW	General	14797-65-0N	Nitrite Nitrogen	N	mg/L	1	
AENV Salt Guid...	GW	DW	General	16887-00-6	Chloride	N	mg/L	250	
AENV Salt Guid...	GW	DW	General	NO3+NO2N	Nitrate+Nitrite ...	N	mg/L	10	
AENV Salt Guid...	GW	DW	General	TDS	Total Dissolved ...	N	mg/L	500	
AENV Salt Guid...	GW	LW	General	14797-55-8N	Nitrate Nitrogen	N	mg/L	100	
AENV Salt Guid...	GW	LW	General	14797-65-0N	Nitrite Nitrogen	N	mg/L	10	
AENV Salt Guid...	GW	LW	General	NO3+NO2N	Nitrate+Nitrite ...	N	mg/L	100	
AENV Salt Guid...	GW	LW	General	TDS	Total Dissolved ...	N	mg/L	3000	

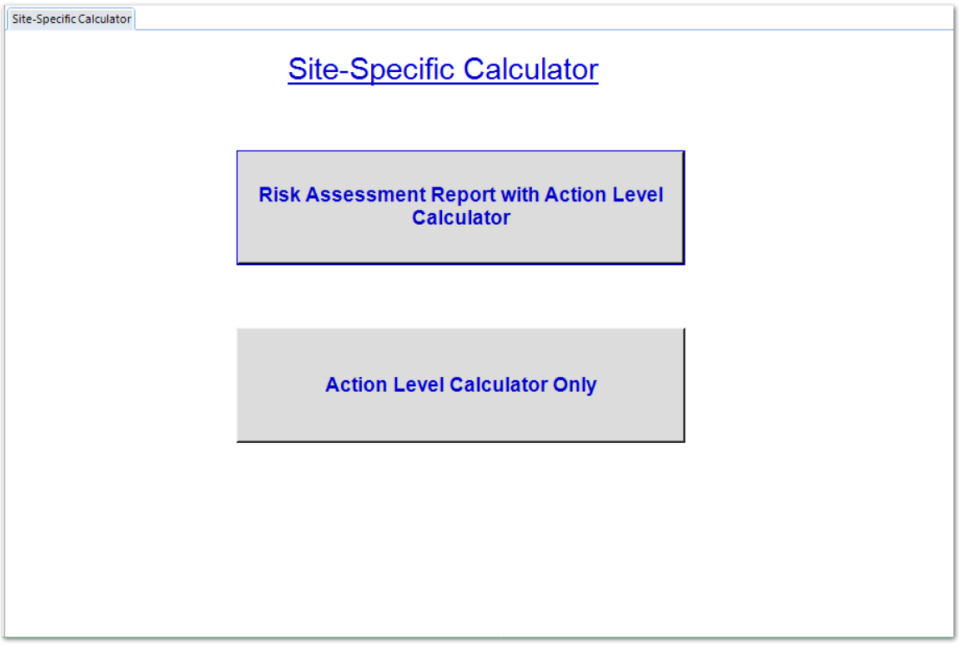
3 Site-Specific Action Levels

3.1 Overview

Risk3T provides two options for calculating Site-Specific Action Levels:

- Create a full risk assessment report including calculated site-specific action levels. This includes selecting a dataset of analytical results for inclusion in the Maximum Concentration calculations and conducting Analyte Screening based on those maximum values.
- Run the site-specific action level calculator for all the analytes in the selected Chemical Data Source.

Begin working on Site-Specific Action Levels by clicking the **Site-Specific Calculator** button on the Risk3T Ribbon to open the Site-Specific Calculator selection form.



Click the button for the desired calculation.

Risk Assessment Report with Action Level Calculator – This will open the Site-Specific Calculator -- Area of Concern (AOC) List form with any previously defined AOCs. Users will have full functionality to add, edit, or delete AOCs and all applicable buttons on the Scenario Form will be enabled. Continue to Section 3.2 (Area of Concern List Form) if this option is selected.

Action Level Calculator Only – This will open a modified Scenario List with the AOC code "ALConly" automatically added in the background. Continue to Section 3.4 (Managing Risk Assessment Scenarios within the AOC) if this option is selected.

3.2 Area of Concern List Form

The Site-Specific Calculator -- Area of Concern (AOC) List form is where AOCs can be added, edited, organized, and/or deleted. At least one AOC must be created and available to organize laboratory analytical data in Risk3T.

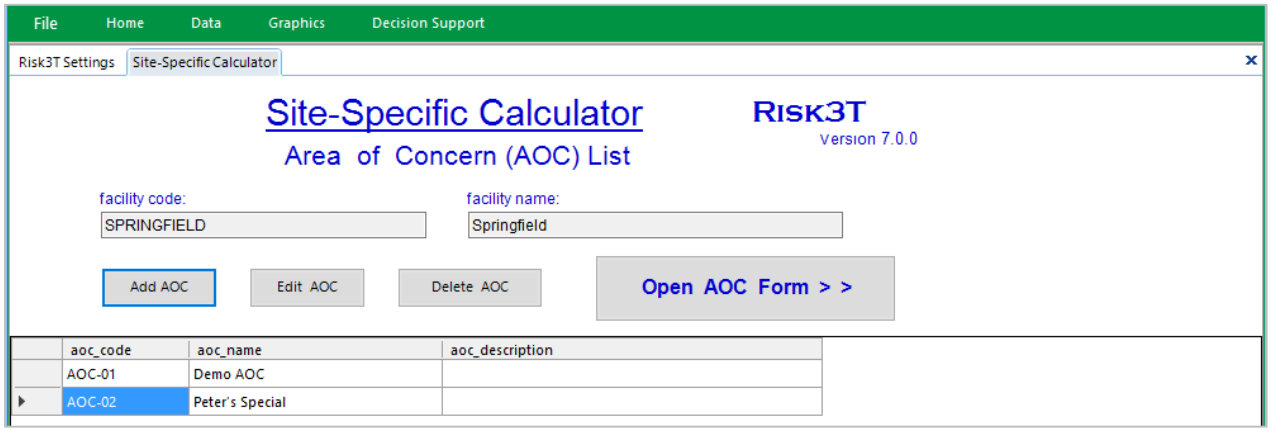
An AOC is a site, or a portion of a site, that is being investigated. It is possible for one site to have several AOCs or the entire site may be a single AOC. To create a new AOC:

- Select the **Add AOC** button from the AOC List Form.
- A suggested **AOC Code**, used to organize the AOCs within Risk3T, will be automatically provided. Users can accept the suggested code or create a user-specified code consistent with their own unique numbering system.
- The **AOC Name**, a short descriptor used to identify the site, is required. The AOC Name will be displayed on all printed reports.
- The **AOC Description**, a more detailed description of the AOC, may also be provided, however, the description is not required for the program to function.

To edit a previously created AOC, select the **Edit AOC** button. The AOC code, name, and description of the selected AOC will be displayed and can then be edited.

To delete a previously created AOC, select the **Delete AOC** button. Deleting an AOC does not delete any laboratory analytical data stored in EQuIS. Deleting an AOC does, however, delete all the assignments, risk scenarios, and calculations completed for that AOC.

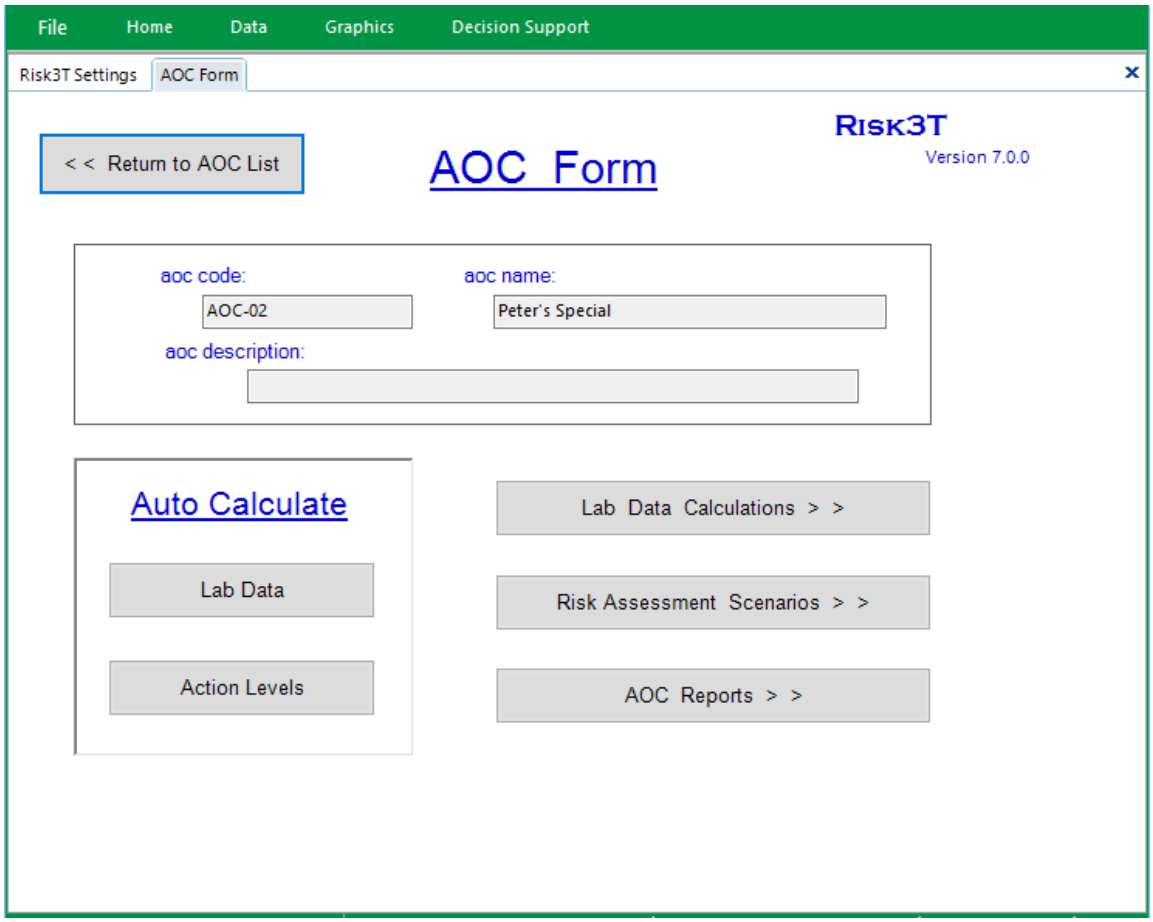
To access the AOC Form, select the **Open AOC Form** button. Users will then be directed to additional sections and features of the Risk3T program. The AOC Form is detailed in the next section.



3.3 Managing Data within the Area of Concern Form

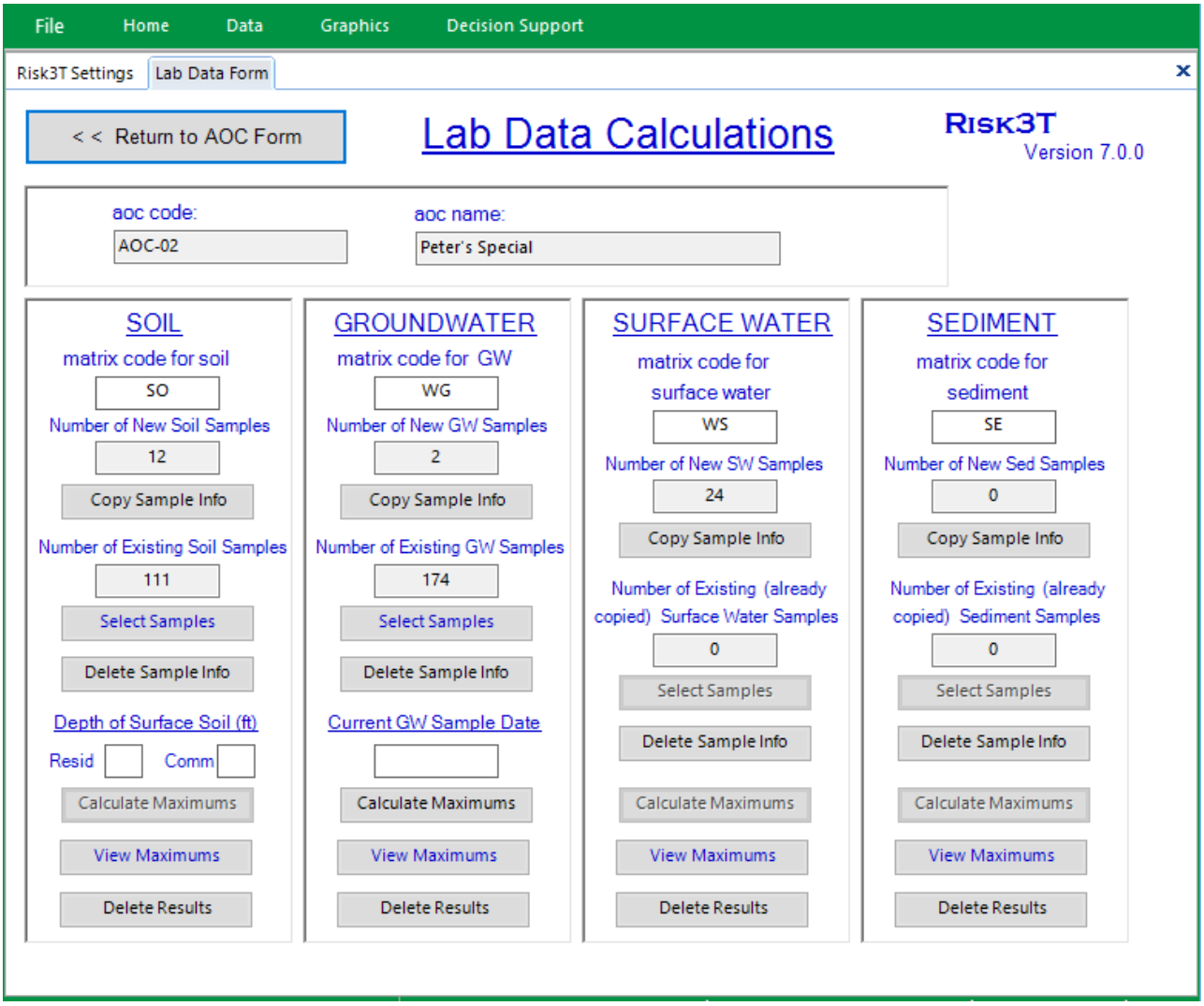
The AOC Form is an interface that acts as a switchboard, linking to other facets of the Risk3T program. Once an AOC has been created, users can access the AOC Form by selecting the **Open AOC Form** button. Users who selected the "Action Level Calculator Only" option will be automatically taken to the AOC Form and will not have the ability to return to the AOC List form. The AOC Form consists of the following buttons:

- **Lab Data** – Used to auto Calculate Maximum Concentrations.
- **Action Levels** – Used to auto calculate screening levels, perform auto screening function, and to auto calculate Protective Concentration Levels (PCLs).
- **Lab Data Calculations** – Used to assign laboratory analytical data from EQuIS to this AOC. The assigned data will be used in comparisons with the screening levels and action levels calculated in the risk assessment scenario(s).
- **Risk Assessment Scenarios** – Used to create and/or modify risk assessment scenarios (see Section 3.4).
- **AOC Reports** – Used to select reports of interest for risk assessment and to compare calculated risk values to laboratory analytical data (see Section 3.5).



3.3.1 Laboratory Analytical Data Calculations

Select the **Lab Data Calculations** button to assign laboratory analytical data from EQuIS tables to this AOC. This feature will import the laboratory analytical data from EQuIS Professional into the currently selected AOC. Users can choose to assign all, or portions, of a data set to the AOC. This feature also allows the exclusion of samples that are typically not used in risk assessment calculations (i.e., quality assurance/quality control samples) and identifies maximum concentrations for chemicals to be used in risk assessment comparisons.



3.3.2 Assigning Data from EQuIS Tables

The Lab Data Calculations Form is divided into four sections representing different environmental media. These include soil, groundwater, surface water, and sediment. The steps required to assign laboratory analytical data from EQuIS tables are outlined below:

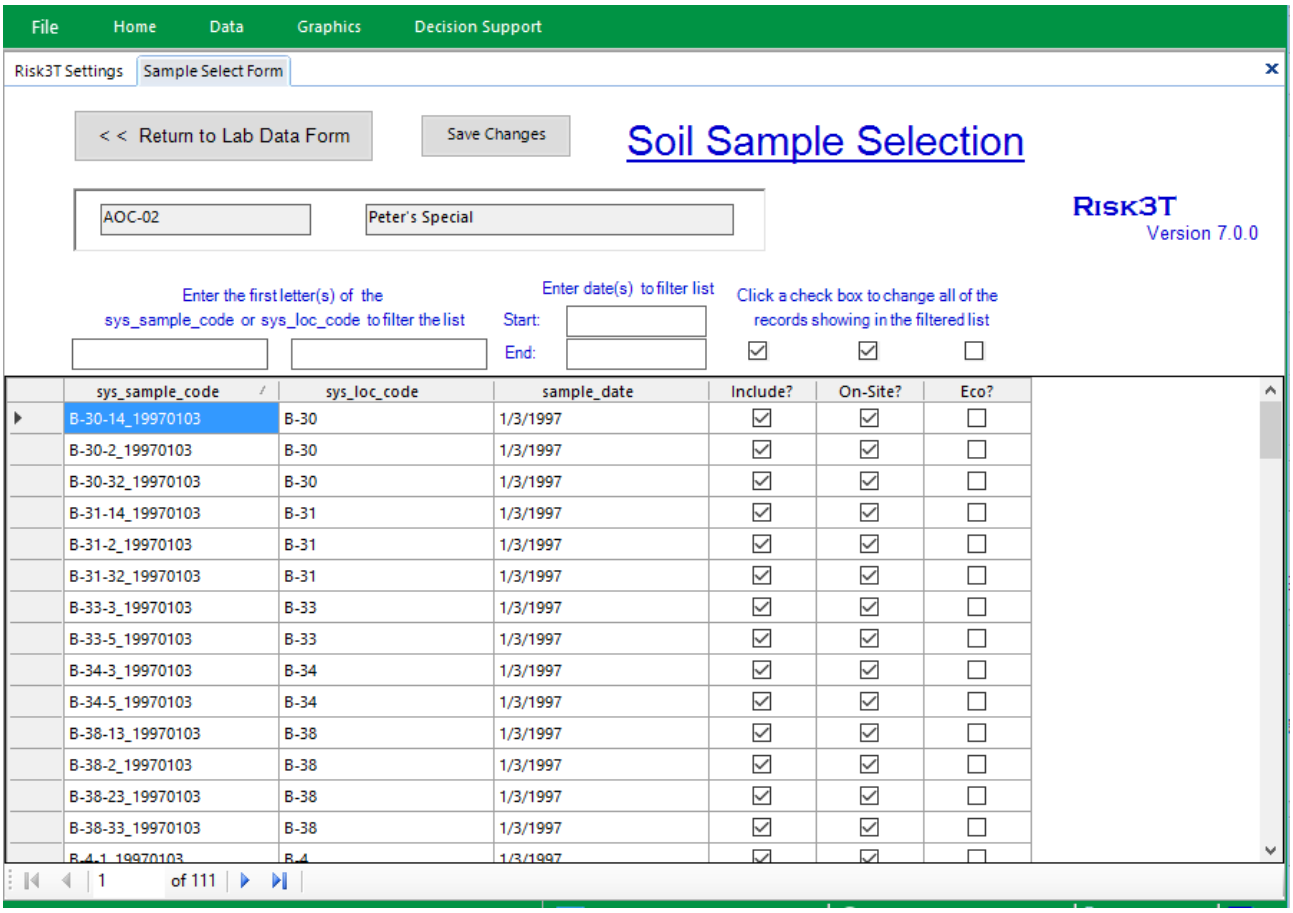
- For each data set being used, enter the **Matrix Code** for the type of media sampled. The Risk3T default Matrix Codes are SO (soil), WG (groundwater), WS (surface water), and SE (sediment). If different matrix codes are being used for a dataset, type those codes over the default values.

- The total number of samples in the EQuIS tables for each matrix code will be listed under the heading "Number of New Soil/GW/SW/Sed Samples."
- Click the **Copy Sample Info** button to copy the sample information for these samples into the Risk3T tables.
- If more than one code is being used for a given matrix, copy the sample info for the first code, then enter the second code and click the **Copy Sample Info** button again. The "Number of Existing Samples" will be the total of the number of samples copied.

Note: The Matrix Codes used in EQuIS Professional should be reviewed to ensure all available data have been imported into the Risk3T program prior to initiating risk assessment calculations.

3.3.3 Selecting Samples

From the Lab Data Calculations Form, click the **Select Samples** button once for each type of media being used to assign sample results. The Sample Selection Form for the selected media will open.



The sample identification and date are provided, followed by two or three columns of check boxes. The first two columns are titled "Include" and "On-Site". The third column, if present, depends on the media selected and will be titled "Eco" for soil or "SWPOE" (Surface Water Point of Exposure) for groundwater. By checking these boxes, users can indicate which samples should be included in the risk assessment comparisons.

The following provides a description of each column heading.

- **Include** – When a check is placed in a box in the "Include" column, Risk3T adds that sample to the population of data used to calculate the maximum concentration of each chemical of concern (COC). Risk3T also determines the maximum detection limit for all non-detect samples for each COC. Check the box above the "Include" column to include all samples, or uncheck the upper box to unselect all samples and then check individual boxes to include only certain samples.
- **On-Site** – A check placed in a box in the "On-Site" column indicates that sample was collected on-site, while no check indicates that sample was collected off-site. Risk3T calculates separate maximum concentrations for the on-site sample population and the off-site sample population.
- **Eco** – Only available for soil samples. A check placed in a box in the "Eco" column indicates that sample was collected from an ecologically sensitive area. Risk3T calculates separate maximum concentrations for ecologically sensitive areas.
- **SWPOE** – Only available for groundwater samples. A check placed in a box in the "SWPOE" column indicates that sample was collected from a SWPOE monitoring well. Risk3T calculates separate maximum concentrations for these wells.

The sample list can be filtered using the boxes located above the sample name, location, and sample date.

- **Sample Name (SYS_SAMPLE_CODE) Filter** – To filter samples according to their name, enter the first few letters or numbers of the desired sample name. As information is entered, the filter will automatically start displaying only those sample names beginning with those letters and numbers. To display all the matrix samples after performing a filter, simply delete any text from the box.
- **Location Name (SYS_LOC_CODE) Filter** – To filter locations according to their name, enter the first few letters or numbers of the desired location name. As information is entered, the filter will automatically start displaying only those location names beginning with those letters and numbers. To display all the locations after performing a filter, simply delete any text from the box.
- **Sample Date Filter** – To select samples collected on a certain date(s), enter the starting date into the "Start" box and the ending date into the "End" box. To display all the matrix samples after performing a filter, simply delete the dates from both boxes.

When the sample list is filtered, clicking a check box above a column will only change the data in the filtered display.

Once all samples required for inclusion in the maximum concentration calculations have been selected, click the **Save Changes** button. If inappropriate samples have been selected or inadvertent changes were made to the sample selection, click the **Return to Lab Data Form** button to discard selections and return to the Lab Data Calculations Form.

3.3.4 Deleting Sample Information

From the Lab Data Calculations Form, select the Delete Sample Info button to delete all sample selections. This, in turn, will also delete any maximum concentration calculations performed on the previously selected samples. Users can then begin anew with the sample selection process.

3.3.5 Calculating Maximum Concentrations

Once the appropriate samples have been selected, the maximum concentrations can be calculated.

- **Soil** – Prior to calculating the maximum soil concentrations detected, the depth of surface soil at the site must be entered. Under the heading "Depth of Surface Soil," two entry boxes are available: one for residential ("Resid") and one for commercial ("Comm"). Enter the depth of surface soil in each box. Upon doing so, the **Calculate Maximums** button will be enabled. Click the **Calculate Maximums** button. The program will display a progress bar and provide the number of samples included for each type of calculation.

- **Groundwater** – To calculate the maximum groundwater concentrations detected, no additional information is required. Click the **Calculate Maximums** button. The program will display a progress bar and provide the number of samples included for each type of calculation. Users can choose to enter a date into the "Current GW Sample Date" box. By doing so, Risk3T will only calculate maximums using the results of samples collected on or after the date entered.

- **Surface Water and Sediment** – To calculate the maximum surface water and sediment concentrations detected, no additional information is required. Click the **Calculate Maximums** button. The program will display a progress bar and provide the number of samples included for each type of calculation.

Note: Sample information must have been previously copied into Risk3T for the "Calculate Maximums" buttons to be active.

3.3.6 Viewing Calculated Maximum Concentrations

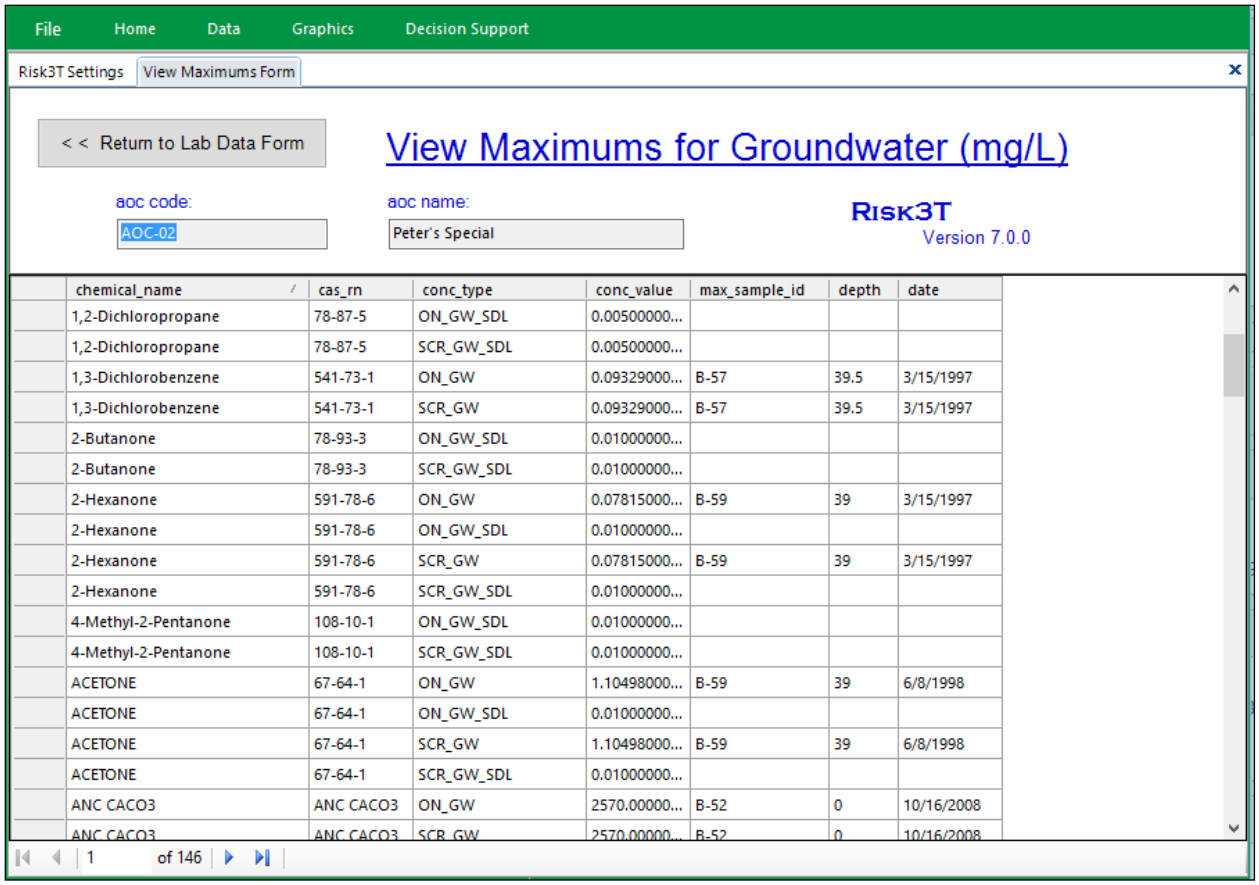
By selecting the **View Maximums** button, the resulting maximum concentrations can be reviewed. When selected, the following information is displayed:

- **Chemical Name (CHEMICAL_NAME)** – Each chemical in the data set will have multiple calculated maximum concentrations. A maximum concentration is calculated for each sampled media, land use, and screening level.

- **CAS Number (CAS_RN)** – The CAS number for each chemical is displayed for reference.

- **Concentration Type (CONC_TYPE)** – Multiple concentration types are calculated in Risk3T. The concentration type name represents whether the sample is on-site/off-site, commercial/industrial or residential, screening level, and if it is a detected concentration or non-detected sample detection limit. Some example concentration types are:
  - "ON_SUB_SDL_C" indicates this maximum is for on-site subsurface soil sample detection limit for commercial/industrial land use.
  - For a detected concentration, the concentration type name is "ON_SUB_C" for maximum detected on-site subsurface soil concentration for commercial/industrial land use.
  - "SCR_SUB_SDL_C" is a screening concentration type for non-detected sample detection limits and "SCR_SUB_C" is a screening concentration type for detected concentrations.

- **Concentration Value (CONC_VALUE)** – This is the maximum calculated concentration for each concentration type for each individual chemical. This value will be either an on-site or off-site maximum for commercial/industrial or residential or the screening level maximum.



3.3.7 Deleting Calculated Maximum Concentrations

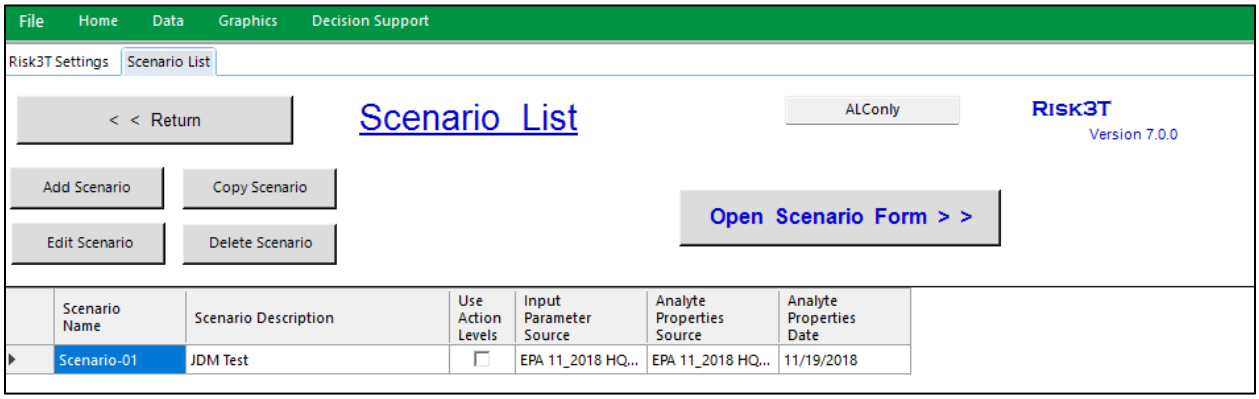
Select the **Delete Results** button to delete the calculated maximum concentrations for each sample media.

3.4 Managing Risk Assessment Scenarios within the AOC

Selecting the **Risk Assessment Scenarios** button from the AOC Form opens the Scenario List Form and allows users to create various scenarios for risk assessment calculations. Different scenarios can be created by altering variables such as land use, and by entering site-specific input parameters. Risk3T calculates screening and action levels based on these input parameters.

3.4.1 Scenario List

The Scenario List Form allows users to create, edit, and delete risk assessment scenarios. The Action Level Calculator Only option opens to the following Scenario List:



The following options are available to define scenarios prior to opening the Scenario Form:

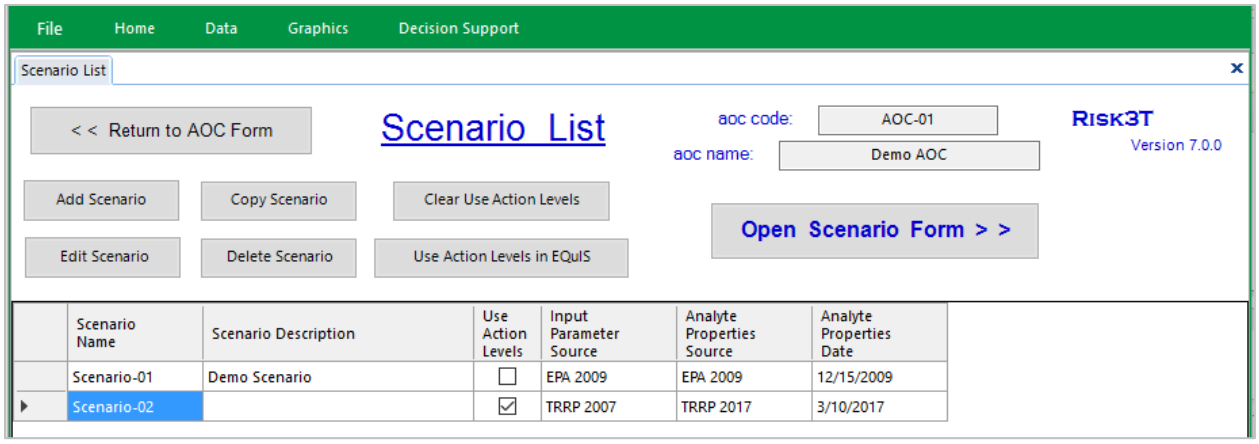
- **Add Scenario** – A separate window opens where users can create the name of the scenario and provide a brief description. Users can also choose the source of the input parameter and chemical property tables. See Sections 2.2 and 2.3, respectively).
- **Edit Scenario** – After a scenario is created, users have the option to change the name, description, and the input parameter and chemical property sources.
- **Copy Scenario** – Use this button to copy risk assessment scenarios.
- **Delete Scenario** – Use this button to delete unwanted risk assessment scenarios.

The Scenario List for the full Risk Assessment Report option includes two additional buttons:

- **Use Action Levels in EQuIS** and **Clear Use Action Levels** – Before using the AOC Reports form, highlight the scenario from the scenario list on the Scenario List Form that will be used in the risk assessment reports and click the **Use Action Levels in EQuIS** button. A popup window will appear allowing the user to keep or modify the default Action Level Code that is created.

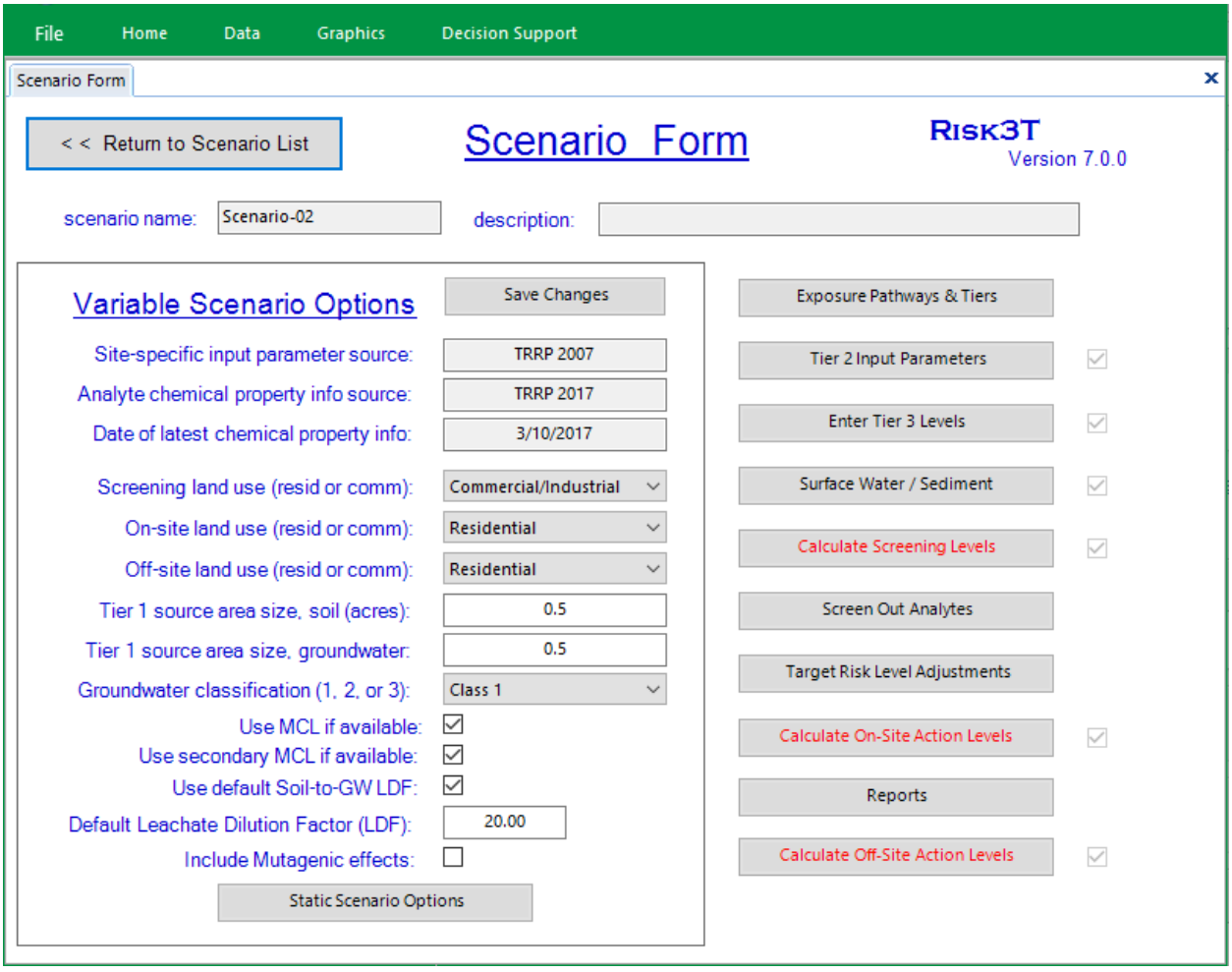
  Select the **Clear Use Action Levels** button to clear the scenario specific action levels and make another selection.

  See Section 3.5 (AOC Reports) for more information about reviewing risk assessment summary reports.

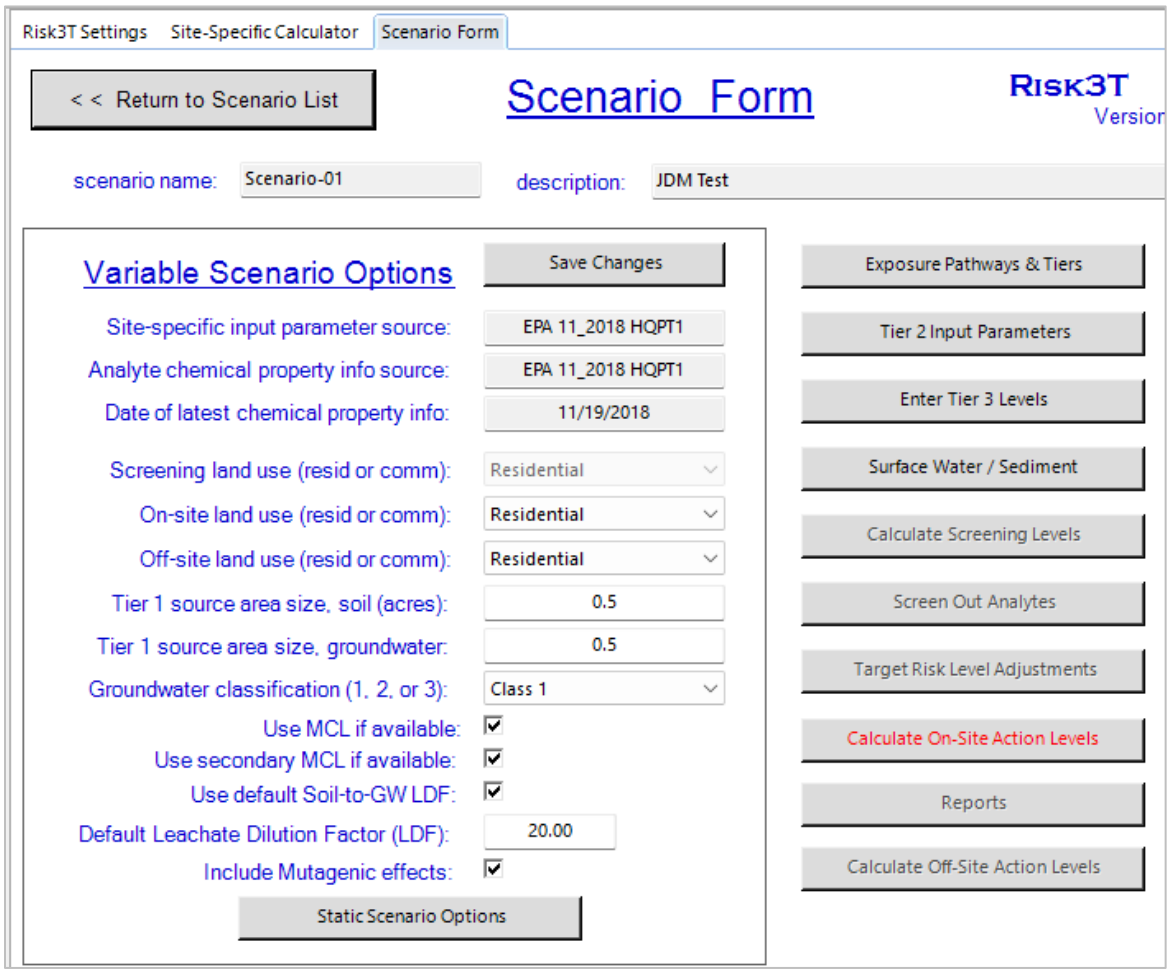


3.4.2 Scenario Form

The Scenario Form when using the Risk Assessment Report option:



The Scenario Form when using the Action Level Calculator Only option:

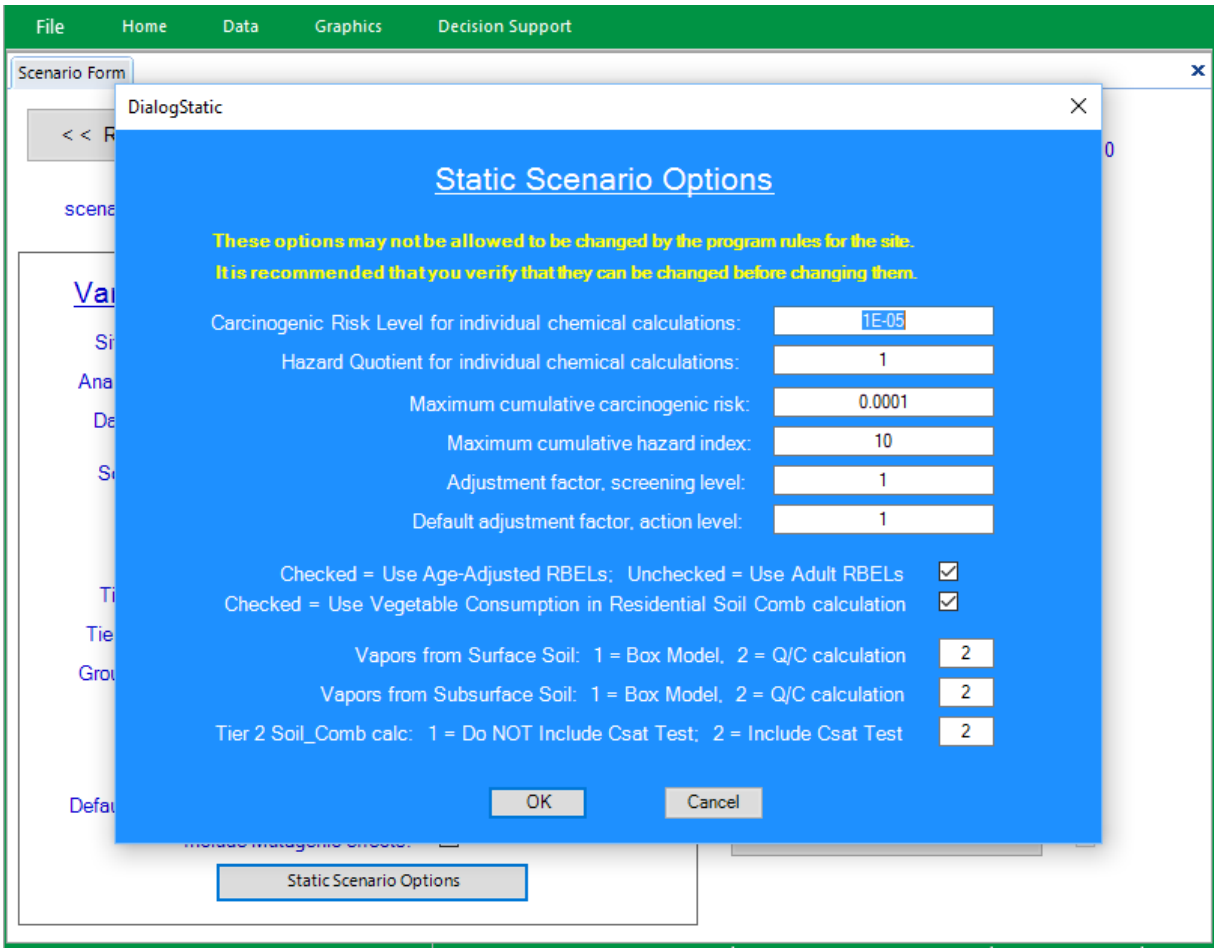


Scenario Options

After creating a scenario, select the **Open Scenario Form** button to access the two scenario options: variable and static.

Variable Scenario Options – Users can change the variable scenario options for the site, including screening land use, on-site/off-site land use, Tier 1 source area size for soil and groundwater, and groundwater classification. Users have the option to use the maximum contaminant level (MCL) or secondary MCL for chemicals, and to modify the leachate dilution factor. To change input parameters and chemical properties, click **Return to Scenario List** and edit these options from the Edit Scenario form. Once all changes have been made, the **Save Changes** button will turn red; select the button to save any modifications to the scenario.

Static Scenario Options – These options are associated with default, site-specific input parameters that are typically not modified due to the state or federal program by which they are regulated. However, users can use input parameters from one state program in a different state. For instance, users can use TRRP input parameters in another state or in risk calculations that do not fall under TRRP, and then modify the static scenario options. If changes are made to these options that are not allowed, an error message will flash next to that option. Save changes by selecting the **OK** button. Cancel changes by selecting the **Cancel** button.



Exposure Pathways and Tier Selections

After selecting scenario options, users can immediately calculate screening levels and on-site action levels using the default exposure pathways and Tier selections. However, users can still change the default pathway and tier by selecting the **Exposure Pathway and Tiers** button to open the "Exposure Pathways & Tier Selection" form.

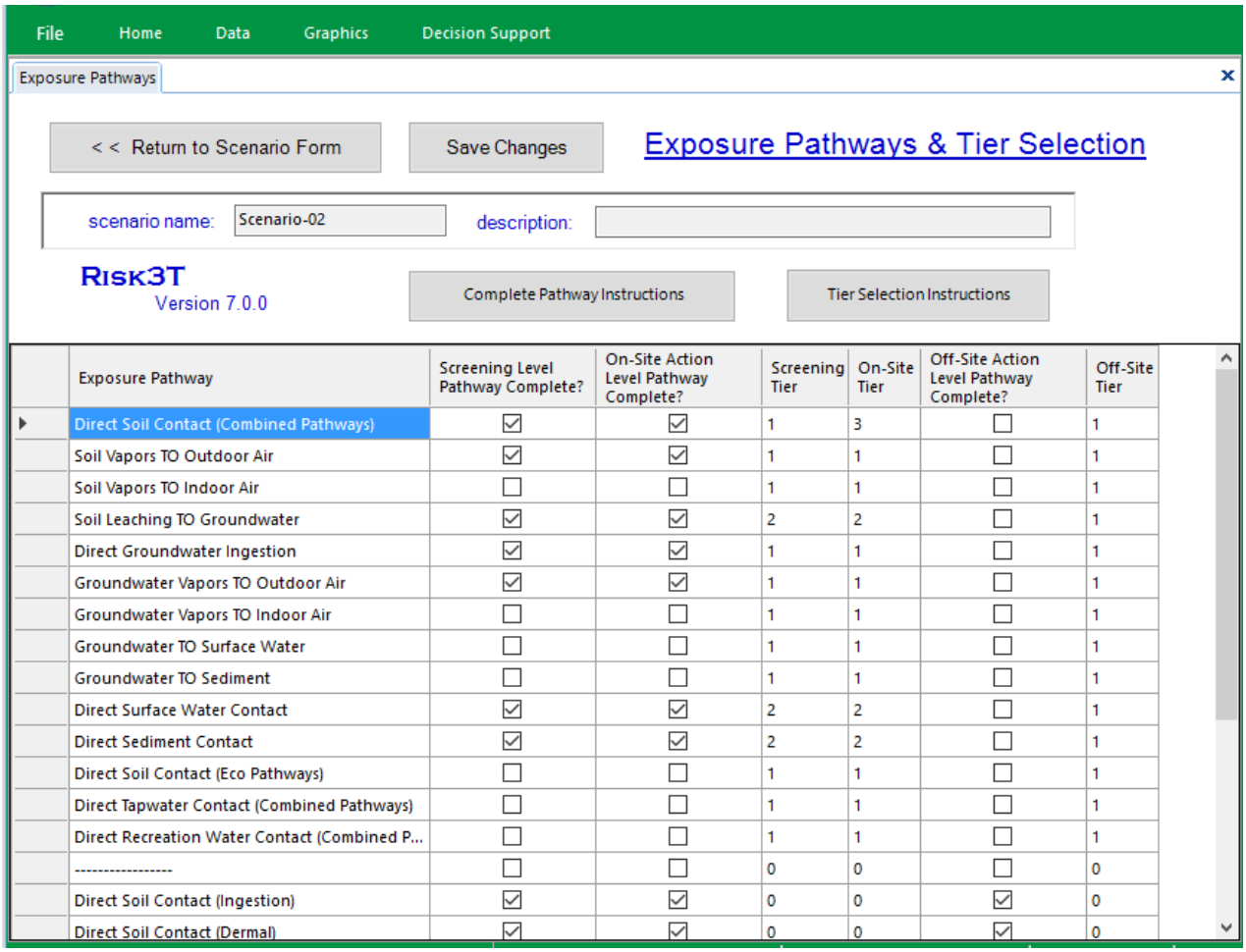
Exposure Pathways – This column lists the possible exposure pathways users can select for the scenario. Five default pathways will already be selected:

- Direct Soil Contact (Combined Pathways)
- Soil Vapors to Outdoor Air
- Soil Leaching to Groundwater
- Direct Groundwater Ingestion
- Groundwater Vapors to Outdoor Air

Select additional (or deselect default) completed pathways by using the check boxes in the following columns:

- Screening Level Pathway Complete
- On-Site Action Level Pathway Complete
- Off-Site Action Level Pathway Complete

Note: Some of these columns will be disabled when opened with the Action Level Calculator Only mode.



Exposure Pathway	Screening Level Pathway Complete?	On-Site Action Level Pathway Complete?	Screening Tier	On-Site Tier	Off-Site Action Level Pathway Complete?	Off-Site Tier
Direct Soil Contact (Combined Pathways)	☑	☑	1	3	☐	1
Soil Vapors TO Outdoor Air	☑	☑	1	1	☐	1
Soil Vapors TO Indoor Air	☐	☐	1	1	☐	1
Soil Leaching TO Groundwater	☑	☑	2	2	☐	1
Direct Groundwater Ingestion	☑	☑	1	1	☐	1
Groundwater Vapors TO Outdoor Air	☑	☑	1	1	☐	1
Groundwater Vapors TO Indoor Air	☐	☐	1	1	☐	1
Groundwater TO Surface Water	☐	☐	1	1	☐	1
Groundwater TO Sediment	☐	☐	1	1	☐	1
Direct Surface Water Contact	☑	☑	2	2	☐	1
Direct Sediment Contact	☑	☑	2	2	☐	1
Direct Soil Contact (Eco Pathways)	☐	☐	1	1	☐	1
Direct Tapwater Contact (Combined Pathways)	☐	☐	1	1	☐	1
Direct Recreation Water Contact (Combined P...	☐	☐	1	1	☐	1
----------	☐	☐	0	0	☐	0
Direct Soil Contact (Ingestion)	☑	☑	0	0	☑	0
Direct Soil Contact (Dermal)	☑	☑	0	0	☑	0

Tier Selection – Select the tier (Tier 1, Tier 2, or Tier 3) to use in the risk assessment scenario by typing in "1", "2", or "3" in the **Screening Tier**, **On-Site Tier**, and **Off-Site Tier** columns.

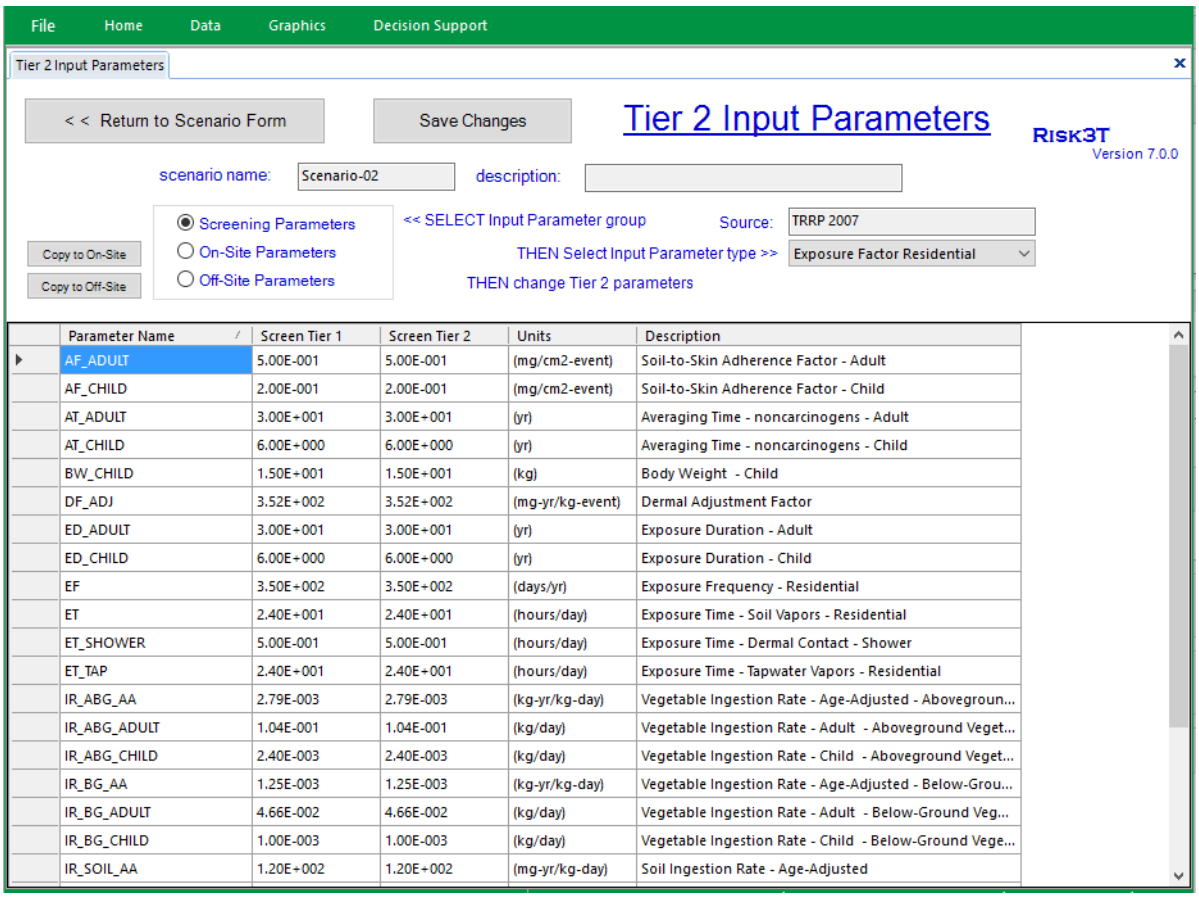
Complete Pathway and Tier Selection Instructions – These two buttons give guidance on how to choose completed pathways and give instruction on how to select the Risk Assessment Tier for the site.

After selecting the exposure pathways and risk assessment tiers for the scenario, save changes using the **Save Changes** button at the top of the form. Select the **Return to Scenario Form** button to return to the Scenario Form.

If the surface water and sediment pathways, and/or Tier 2 or 3 for the risk assessment calculations are selected, the "Tier 2 Input Parameters", "Enter Tier 3 Levels", and "Surface Water / Sediment" input buttons will be enabled. If the off-site exposure pathways were selected, the "Calculate Off-site Action Levels" button will be active.

Tier 2 Input Parameters

After selecting Tier 2 to calculate the action levels, use the **Tier 2 Input Parameters** button on the Scenario Form to modify these parameters.



Parameter Name	Screen Tier 1	Screen Tier 2	Units	Description
AF_ADULT	5.00E-001	5.00E-001	(mg/cm2-event)	Soil-to-Skin Adherence Factor - Adult
AF_CHILD	2.00E-001	2.00E-001	(mg/cm2-event)	Soil-to-Skin Adherence Factor - Child
AT_ADULT	3.00E+001	3.00E+001	(yr)	Averaging Time - noncarcinogens - Adult
AT_CHILD	6.00E+000	6.00E+000	(yr)	Averaging Time - noncarcinogens - Child
BW_CHILD	1.50E+001	1.50E+001	(kg)	Body Weight - Child
DF_ADJ	3.52E+002	3.52E+002	(mg-yr/kg-event)	Dermal Adjustment Factor
ED_ADULT	3.00E+001	3.00E+001	(yr)	Exposure Duration - Adult
ED_CHILD	6.00E+000	6.00E+000	(yr)	Exposure Duration - Child
EF	3.50E+002	3.50E+002	(days/yr)	Exposure Frequency - Residential
ET	2.40E+001	2.40E+001	(hours/day)	Exposure Time - Soil Vapors - Residential
ET_SHOWER	5.00E-001	5.00E-001	(hours/day)	Exposure Time - Dermal Contact - Shower
ET_TAP	2.40E+001	2.40E+001	(hours/day)	Exposure Time - Tapwater Vapors - Residential
IR_ABG_AA	2.79E-003	2.79E-003	(kg-yr/kg-day)	Vegetable Ingestion Rate - Age-Adjusted - Abovegroun...
IR_ABG_ADULT	1.04E-001	1.04E-001	(kg/day)	Vegetable Ingestion Rate - Adult - Aboveground Veget...
IR_ABG_CHILD	2.40E-003	2.40E-003	(kg/day)	Vegetable Ingestion Rate - Child - Aboveground Veget...
IR_BG_AA	1.25E-003	1.25E-003	(kg-yr/kg-day)	Vegetable Ingestion Rate - Age-Adjusted - Below-Grou...
IR_BG_ADULT	4.66E-002	4.66E-002	(kg/day)	Vegetable Ingestion Rate - Adult - Below-Ground Veg...
IR_BG_CHILD	1.00E-003	1.00E-003	(kg/day)	Vegetable Ingestion Rate - Child - Below-Ground Vege...
IR_SOIL_AA	1.20E+002	1.20E+002	(mg-yr/kg-day)	Soil Ingestion Rate - Age-Adjusted

Select Input Parameter Group – Choose one of the parameter groups: Screening Level Parameters, On-Site Parameters, or Off-Site Parameters. Modifying these parameters will change the action level calculations for screening, on-site, and off-site. The table displays the parameter, the default Tier 1 value, Tier 2 value, and a description of that particular parameter.

Note: When opened with the Action Level Calculator Only mode, only the On-Site Parameters option will be available.

Select Parameter Type – There are 11 parameter types, which remain the same for each parameter group. Each parameter type has a specific set of variables that can be modified. The Tier 1 column cannot be modified and is provided for reference when entering Tier 2 values. The parameter types are:

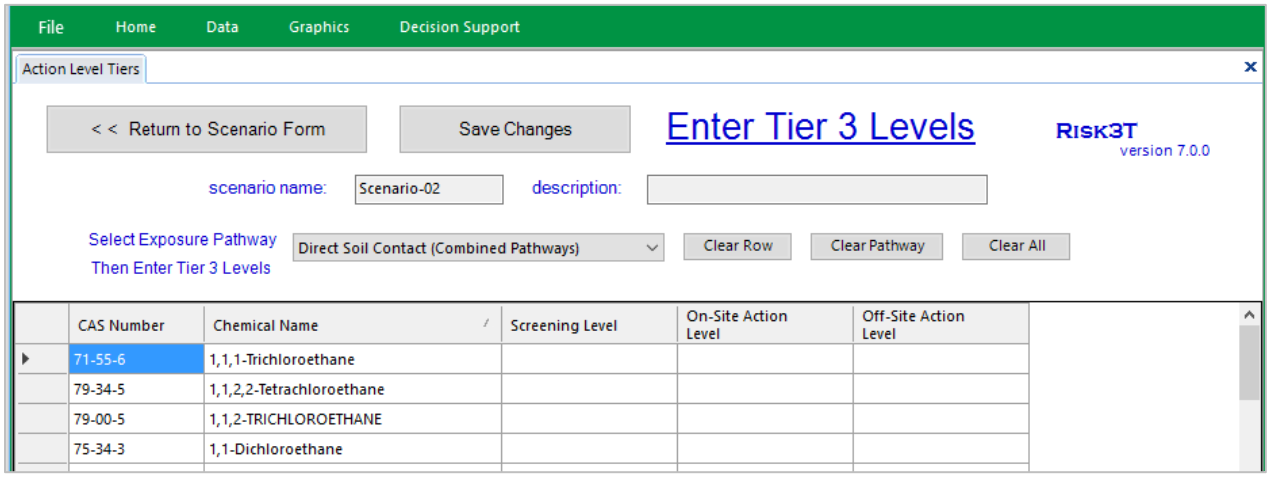
- Distance to POE
- Exposure Factors
- Exposure Factors – Commercial/Industrial
- Exposure Factors – Residential
- Input Parameter – Building
- Input Parameter – Groundwater
- Input Parameter – Particulate Emission Rate (PEF)
- Input Parameter – Soil
- Input Parameter – Soil to Groundwater
- Source Area Size – Groundwater
- Source Area Size – Soil

Copy to On-Site and Copy to Off-Site – After making changes to any of the three input parameter groups (screening, on-site and off-site), use the **Copy to On-Site** and **Copy to Off-Site** buttons to copy the same changes to on-site and off-site Tier 2 parameters. For instance, to apply changes made to the Screening Parameter group to the on-site parameters, simply select the **Copy to On-Site** button and those changes will be made to those on-site parameter types. After selecting the **Copy to On-Site** or **Copy to Off-Site** buttons, the changes are automatically saved.

Users can save changes as each parameter type is modified or can make all the changes at once and save when finished. Select the **Return to Scenario Form** button to return to the Scenario Form.

Tier 3 Levels

If Tier 3 is selected on the Exposure Pathways & Tier Selection form, click the **Enter Tier 3 Level** button on the Scenario Form. On this screen, enter the Tier 3 results calculated from programs outside of Risk3T.

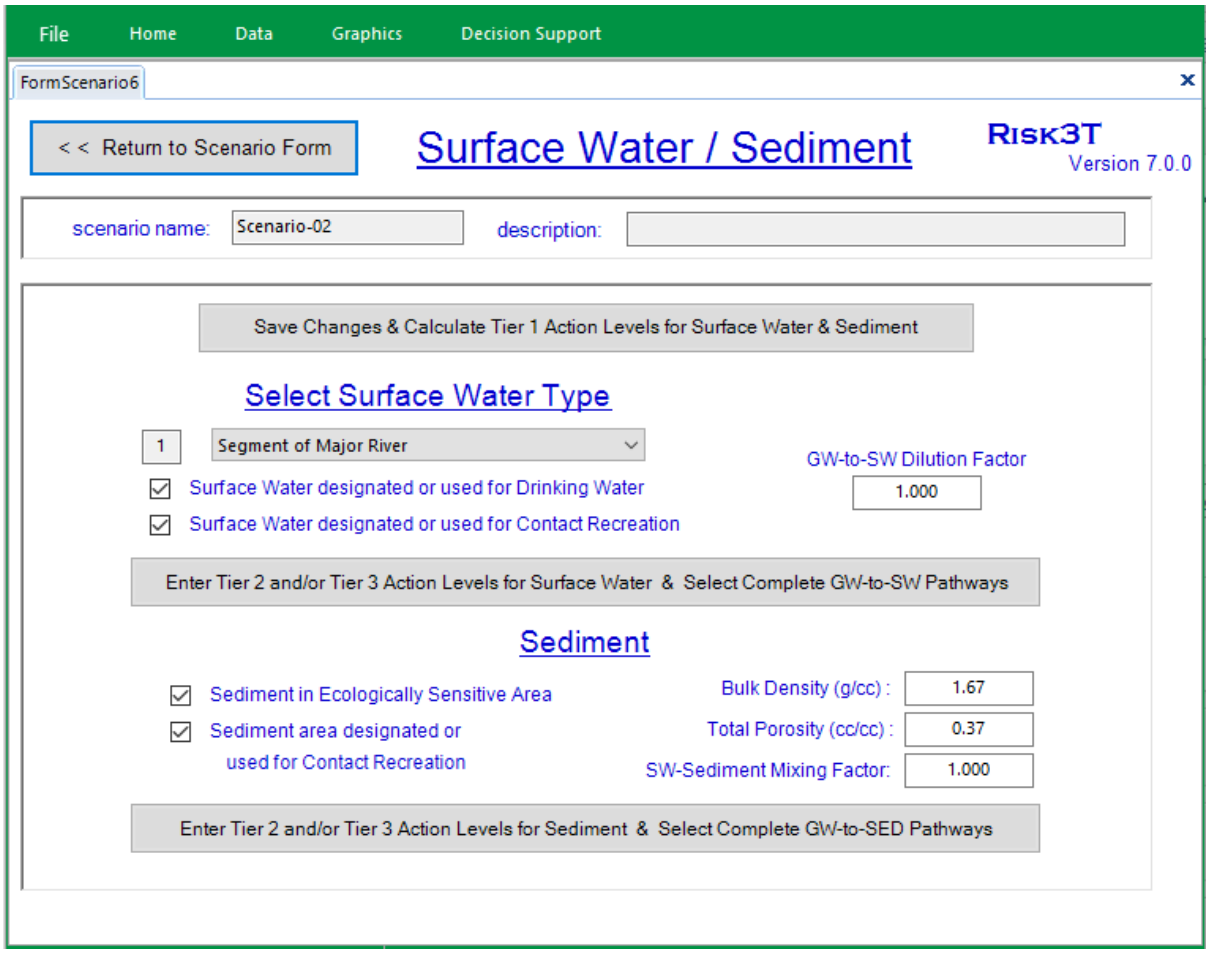


Select Exposure Pathway – The drop-down menu for exposure pathways is restricted to the pathways selected on the Exposure Pathway & Tier Selection form. Select a pathway to start entering the Tier 3 results. The table presents the chemical name and its CAS number, and three columns to enter in Tier 3 values for screening level and on-site and off-site action levels. To save changes, select the **Save Changes** button from the top of the form.

Select the **Return to Scenario Form** button to return to the Scenario Form.

Surface Water and Sediment

If a surface water or sediment pathway was selected from the Exposure Pathway & Tier Selection form, select the **Surface Water / Sediment** button on the Scenario Form to open the Surface Water / Sediment form.

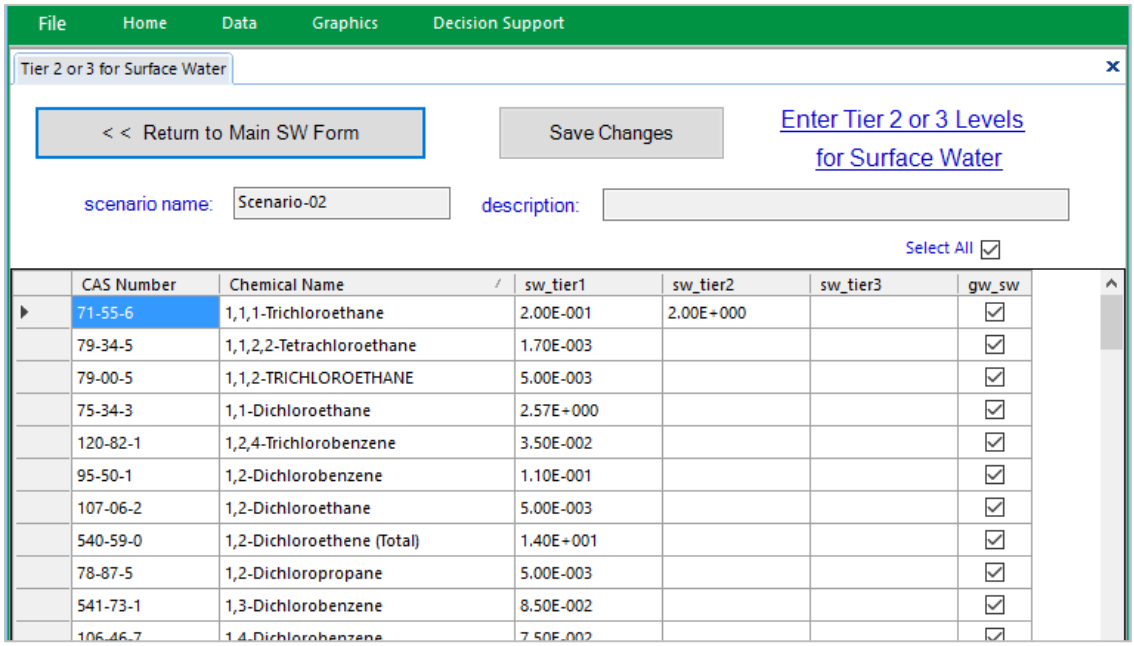


Prior to calculating Tier 1 action levels for surface water and/or sediment, various options and properties must be set. For surface water, select the type of surface water and its use. For sediment, select its use and properties.

When the Surface Water / Sediment form is first opened, there are no action levels calculated. So, the action level table will be empty when either of the **Enter Tier 2 and/or Tier 3 Action Levels for Surface Water [Sediment] & Select Complete GW-to-[SW or SED] Pathways** buttons are selected. Once inputs for surface water and sediment are selected, the Tier 1 action levels are calculated and will populate the action level table.

The Surface Water and Sediment action level tables have Tier 2 and Tier 3 columns, which can be used to input Tier 2 and Tier 3 values calculated using an external program. Entered Tier 2 or Tier 3 values override Tier 1 values. Users can also select which chemicals have completed Groundwater to Surface Water and Groundwater to Sediment pathways. Use the toggle check box above the pathway column to select all chemicals or deselect all and individually check chemicals to include.

Changes are automatically saved when the **Save Changes & Calculate Tier 1 Action Levels for Surface Water & Sediment** button is selected. Click the **Return to Scenario Form** button to return to the Scenario Form.

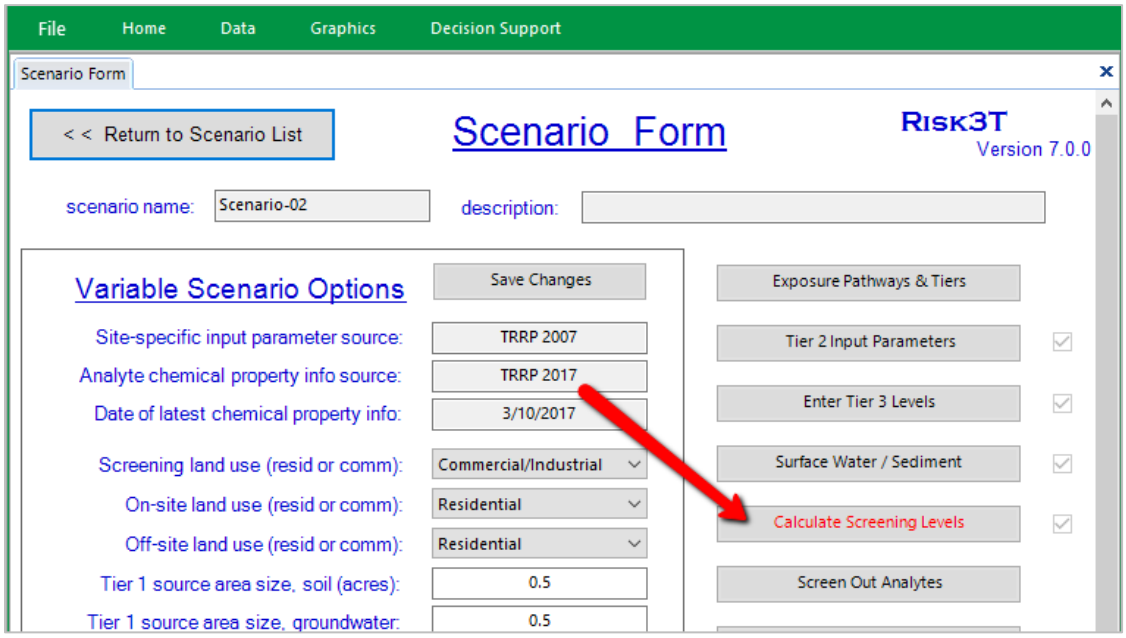


CAS Number	Chemical Name	sw_tier1	sw_tier2	sw_tier3	gw_sw
71-55-6	1,1,1-Trichloroethane	2.00E-001	2.00E+000		☑
79-34-5	1,1,2,2-Tetrachloroethane	1.70E-003			☑
79-00-5	1,1,2-TRICHLOROETHANE	5.00E-003			☑
75-34-3	1,1-Dichloroethane	2.57E+000			☑
120-82-1	1,2,4-Trichlorobenzene	3.50E-002			☑
95-50-1	1,2-Dichlorobenzene	1.10E-001			☑
107-06-2	1,2-Dichloroethane	5.00E-003			☑
540-59-0	1,2-Dichloroethene (Total)	1.40E+001			☑
78-87-5	1,2-Dichloropropane	5.00E-003			☑
541-73-1	1,3-Dichlorobenzene	8.50E-002			☑
106-46-7	1,4-Dichlorobenzene	7.50E-002			☑

Calculate Screening Levels

Note: This button is not enabled when using Action Level Calculator Only option.

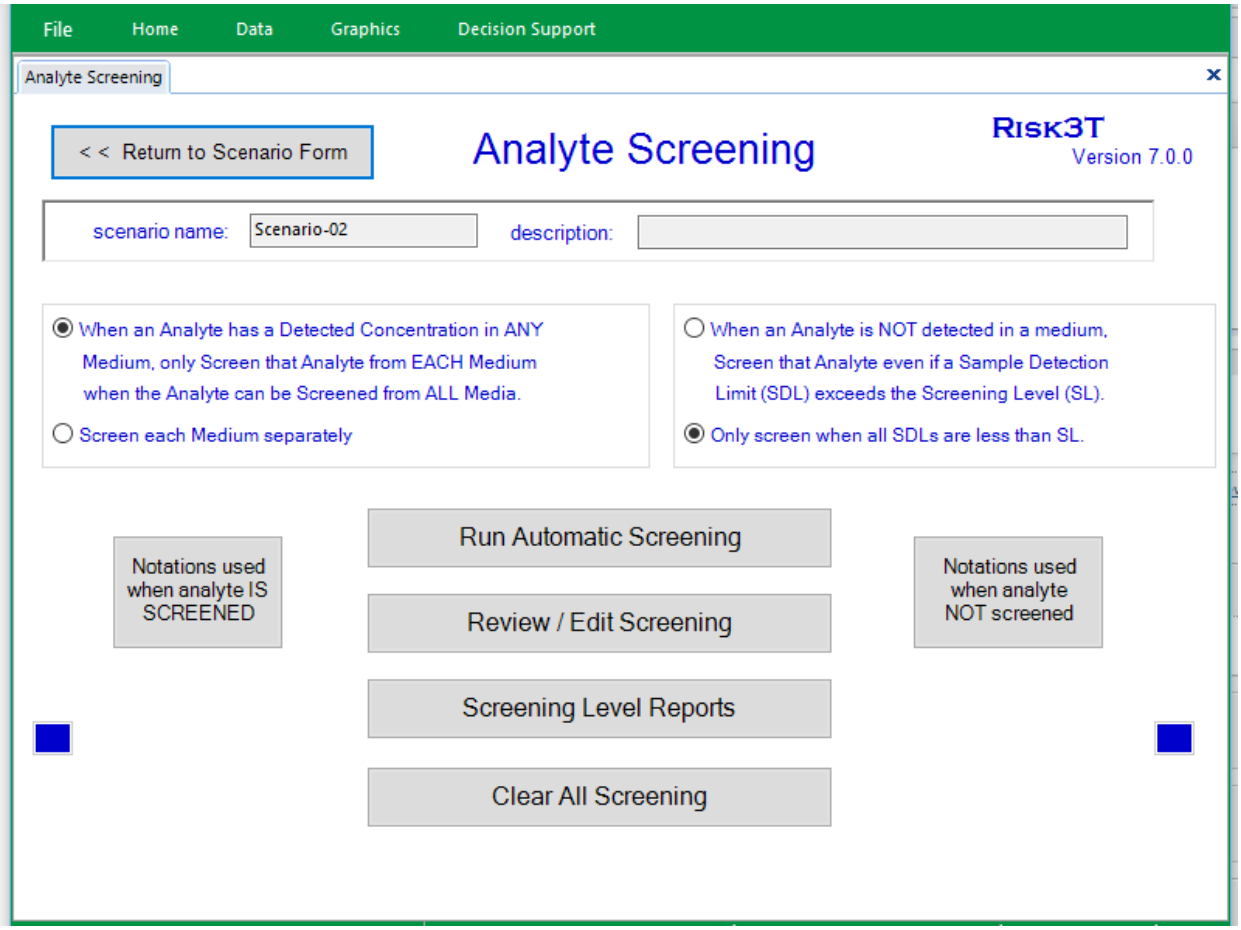
After choosing exposure pathways, tiers, and making tier adjustments, the font on the Calculate Screening Levels button on the Scenario Form will be red, indicating changes have been made and screening levels must be calculated (or re-calculated). When clicked, the chemicals for which Tier 1, 2 and 3 levels are being calculated will be displayed at the bottom of the form. [Note: If the Tier 2 or Tier 3 for Soil Leaching to Groundwater pathway is selected, the calculation will be displayed with the Soil to Groundwater pathway calculation, not the Tier 2 Screening Levels listing.] When calculations are complete, this button returns to a black font.



Screening Analytes

Note: This button is not enabled when using Action Level Calculator Only option.

Once screening levels have been calculated, users are ready to screen out analytes from the environmental media. To begin, select the **Screen Out Analytes** button on the Scenario Form to open the Analyte Screening Form. On the Analyte Screening Form, choose how to screen the detected samples by sample media and how to treat non-detect samples and their sample detection limits.



There are two information buttons on the Analyte Screening Form that describe the notations for screened and unscreened analytes. These will be useful when reviewing the analyte screening results.

Screening Options

Detected Results – The preselected default option for screening detected results is when an analyte has a detected concentration in any environmental medium, only screen that analyte from each medium when that analyte can be screened from all media. The other option is to screen out analytes from each medium separately. To change options, simply select the radio button next to the desired option.

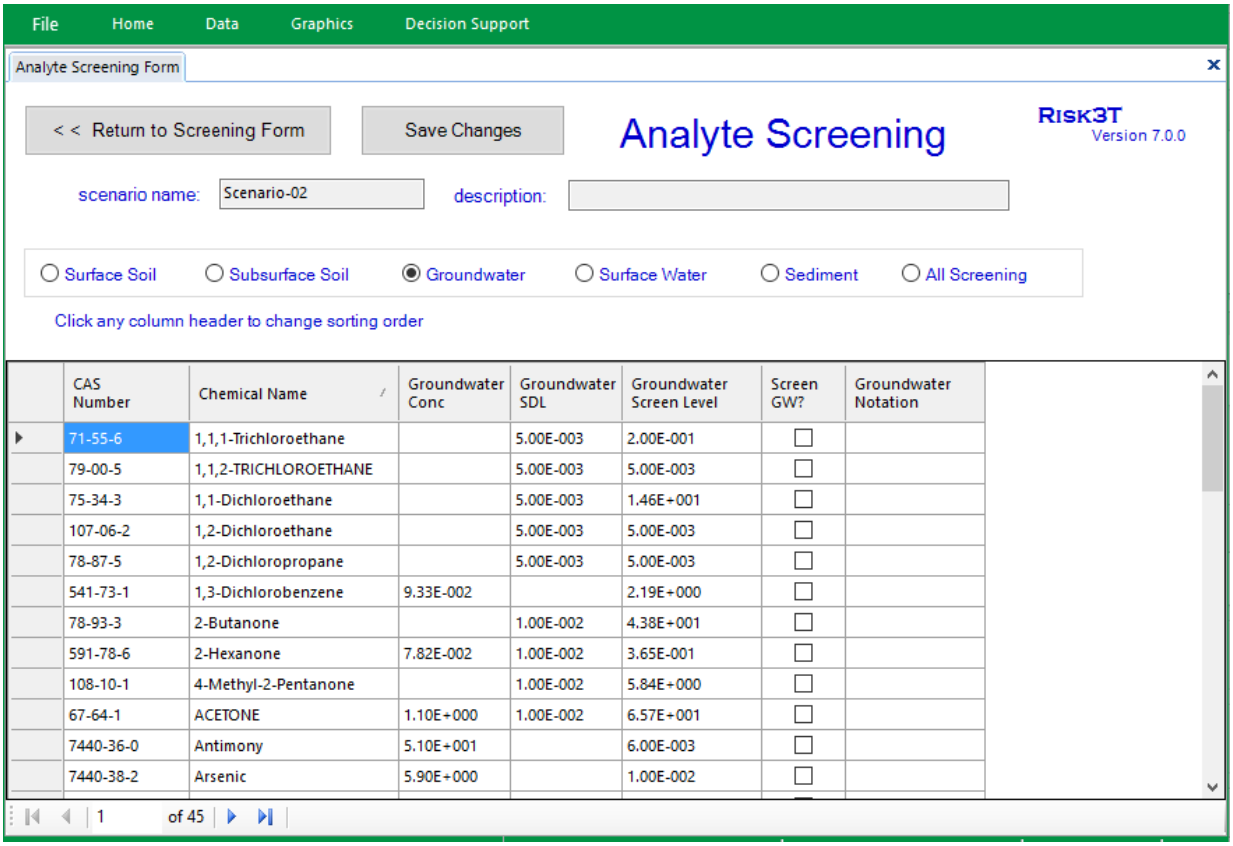
Non – Detected Results – The preselected default option for non-detected results is to only screen out the analyte if the sample detection limit (SDL) is less than the screening level (SL). Another option is to screen out the analyte from the medium even if the SDL exceeds the SL. To switch from one option to the other, select the radio button next to the desired option.

Automatic Screening

The **Run Automatic Screening** button screens the sample analytes based on the calculated screening levels and the selected screening options. Once the **Run Automatic Screening** button is selected, a separate window appears, displaying all the chemicals that are screened.

Review and Edit Screening

Once the automatic screening is run, users can choose to review and/or edit these results by selecting the **Review/Edit Screening** button. Please note screening notation definitions for screened and unscreened results are located on the main Analyte Screening Form on the left and right sides.



On the review/edit screen, screening results are filtered by environmental media. Toggle through the results using the radio buttons next to each medium (Surface Soil, Subsurface Soil, Groundwater, Surface Water, and Sediment) or choose to show all results from all media (All Screening). The table shown below will change each time a different medium is selected.

The screening table will display the chemical, its CAS number, the detected concentration, the SDL, and the screening notation (see notation instruction screen for definitions). There is also a column where users can check or uncheck to screen or un-screen chemicals. If "All Screening" is selected, the table will show the chemical name and CAS number and will also list which media is or is not screened out for each chemical. Users can also use the check boxes in each column to screen or un-screen each chemical.

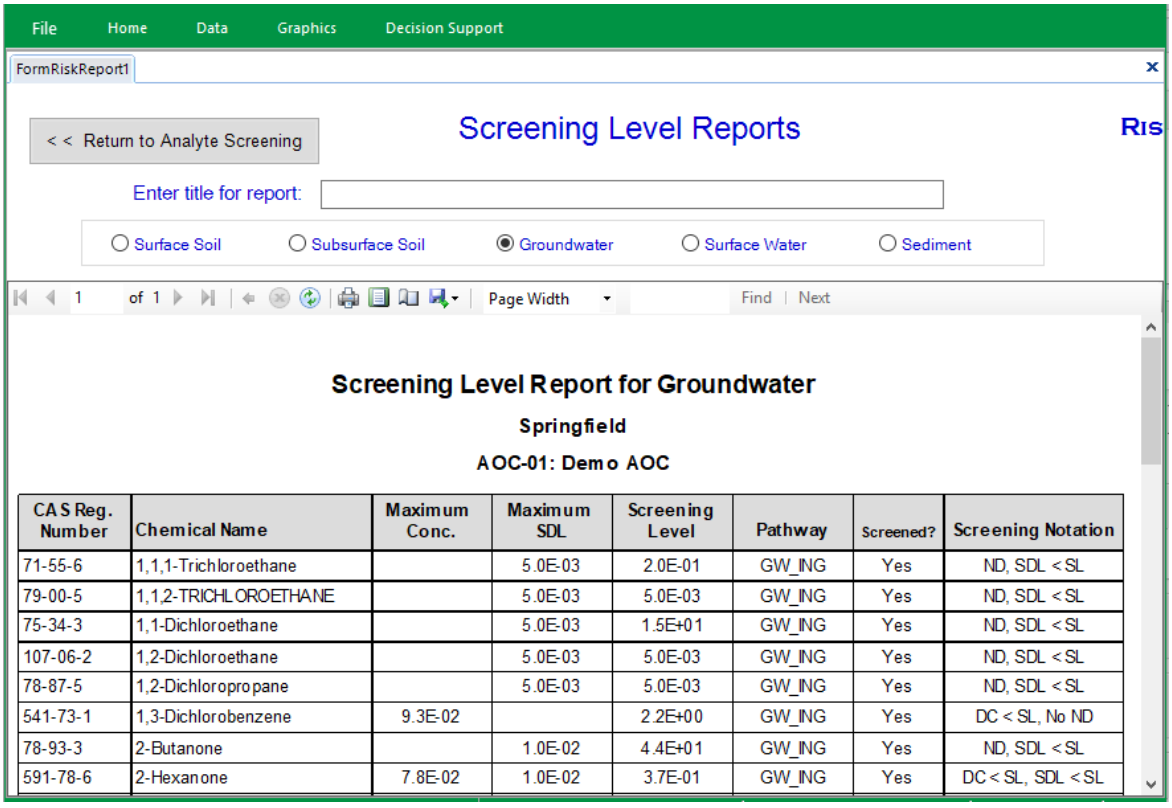
To save changes, select the **Save Changes** button from the top of the form. To return to the main Analyte Screening form, select the **Return to Screening Form** button.

Screening Level Reports

Users can view, print, and/or export to Microsoft Excel the screening level report. Select the **Screening Level Reports** button on the Analyte Screening Form to open the Screening Level Reports form.

Screening level reports are created for each environmental media and are displayed one at a time in the report viewer. To switch between each environmental medium report, use the radio buttons just above the report viewer.

Each report includes a preformatted title section indicating the environmental media, facility name, and AOC name and number. The preformatted footer at the bottom of the report includes the scenario number, scenario name, and date the report was generated. Users can also type in a report title using the text box located above the report viewer. After typing the title, select Enter or tab from the keyboard and the title will be added to the report. This title will be included on each report when toggling through the media options.



CAS Reg. Number	Chemical Name	Maximum Conc.	Maximum SDL	Screening Level	Pathway	Screened?	Screening Notation
71-55-6	1,1,1-Trichloroethane		5.0E-03	2.0E-01	GW_ING	Yes	ND, SDL < SL
79-00-5	1,1,2-TRICHLOROETHANE		5.0E-03	5.0E-03	GW_ING	Yes	ND, SDL < SL
75-34-3	1,1-Dichloroethane		5.0E-03	1.5E+01	GW_ING	Yes	ND, SDL < SL
107-06-2	1,2-Dichloroethane		5.0E-03	5.0E-03	GW_ING	Yes	ND, SDL < SL
78-87-5	1,2-Dichloropropane		5.0E-03	5.0E-03	GW_ING	Yes	ND, SDL < SL
541-73-1	1,3-Dichlorobenzene	9.3E-02		2.2E+00	GW_ING	Yes	DC < SL, No ND
78-93-3	2-Butanone		1.0E-02	4.4E+01	GW_ING	Yes	ND, SDL < SL
591-78-6	2-Hexanone	7.8E-02	1.0E-02	3.7E-01	GW_ING	Yes	DC < SL, SDL < SL

The report format includes the chemical name and CAS number, maximum detected concentration for each chemical, maximum SDL, screening level, location and depth (soil/sediment) of sample with maximum concentration, and date sample was collected.

Shading in the table represents chemicals not screened out based on the screening options chosen on the Analyte Screening Form. If a chemical is not shaded, it was successfully screened out based on the criteria selected.

The report viewer allows users to change page numbers, print, modify the print layout and page setup, and export the table to Excel.

Remove Screening

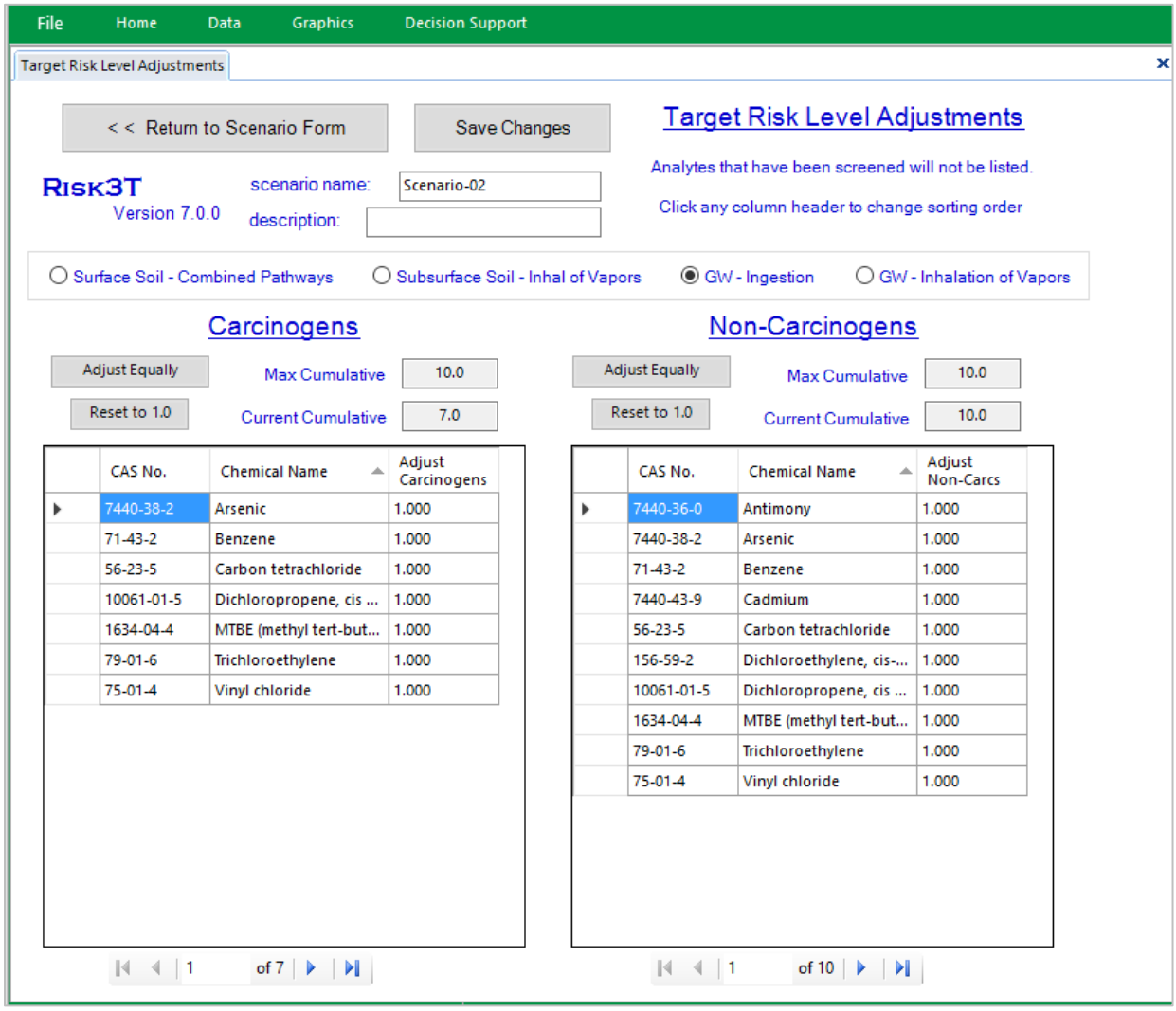
After reviewing the screening for each chemical and each media, users can choose to keep it or clear it. To remove or clear the screening results, select the **Clear All Screening** button on the Analyte Screening Form. Return to the Scenario Form by selecting the **Return to Scenario Form** button.

Target Risk Level Adjustments

Note: This button is not enabled when using Action Level Calculator Only option.

Once users have calculated the screening levels and screened the chemicals and environmental media, they can adjust the target risk levels as necessary. To do this, select the **Target Risk Level Adjustments** button on the Scenario Form.

The Target Risk Level Adjustment form only lists those chemicals which did not screen out during the screening process. There are four pathways that can be adjusted: Surface Soil Combined, Subsurface Soil – Inhalation of Vapors, Groundwater – Ingestion, and Groundwater – Inhalation of Vapors. Use the radio button next to each pathway to toggle between them.

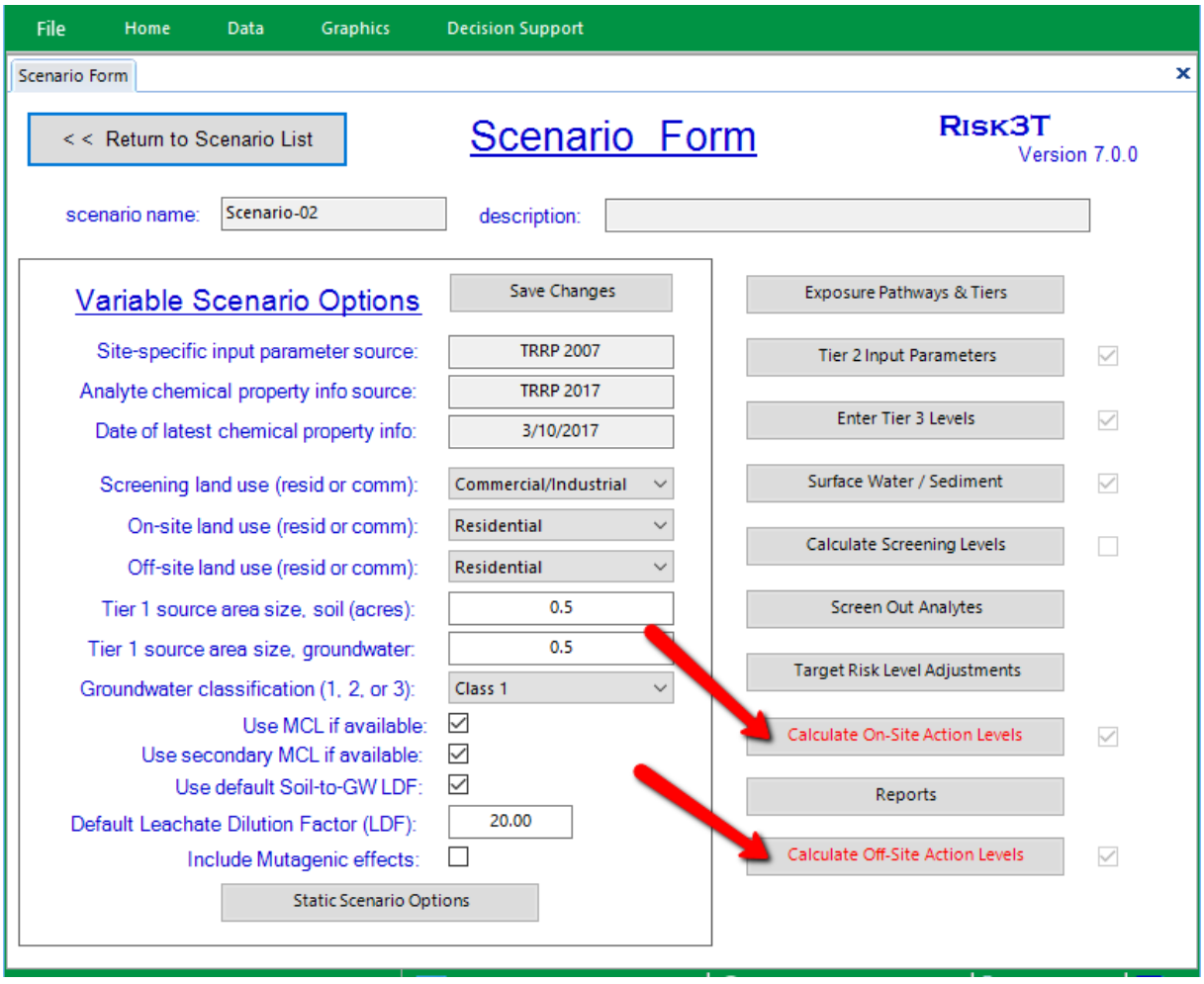


On this form, chemicals are separated into two categories: carcinogenic and non-carcinogenic. In some cases, a chemical will have both carcinogenic and non-carcinogenic properties and therefore will be listed in both tables.

The maximum cumulative and current cumulative values are displayed above each table. The decision to adjust target risk levels is based on the comparison between the allowable maximum cumulative risk and the current cumulative risk. The state or federal rule being applied to the site will determine the allowable maximum cumulative risk. To adjust the risk values, users can manually change them or use the **Adjust Equally** button above each table. If manual changes are made in the Adjust Carcinogens / Non-Carcinogens column on the table, users need to select the **Save Changes** button at the top of the form to save any changes. Changes are automatically saved when using the **Adjust Equally** button. To return to the Scenario Form, select the **Return to Scenario Form** button.

On-Site and Off-Site Action Level Calculations and Reports

Note: The Off-Site button is not enabled when using the Action Level Calculator Only option.



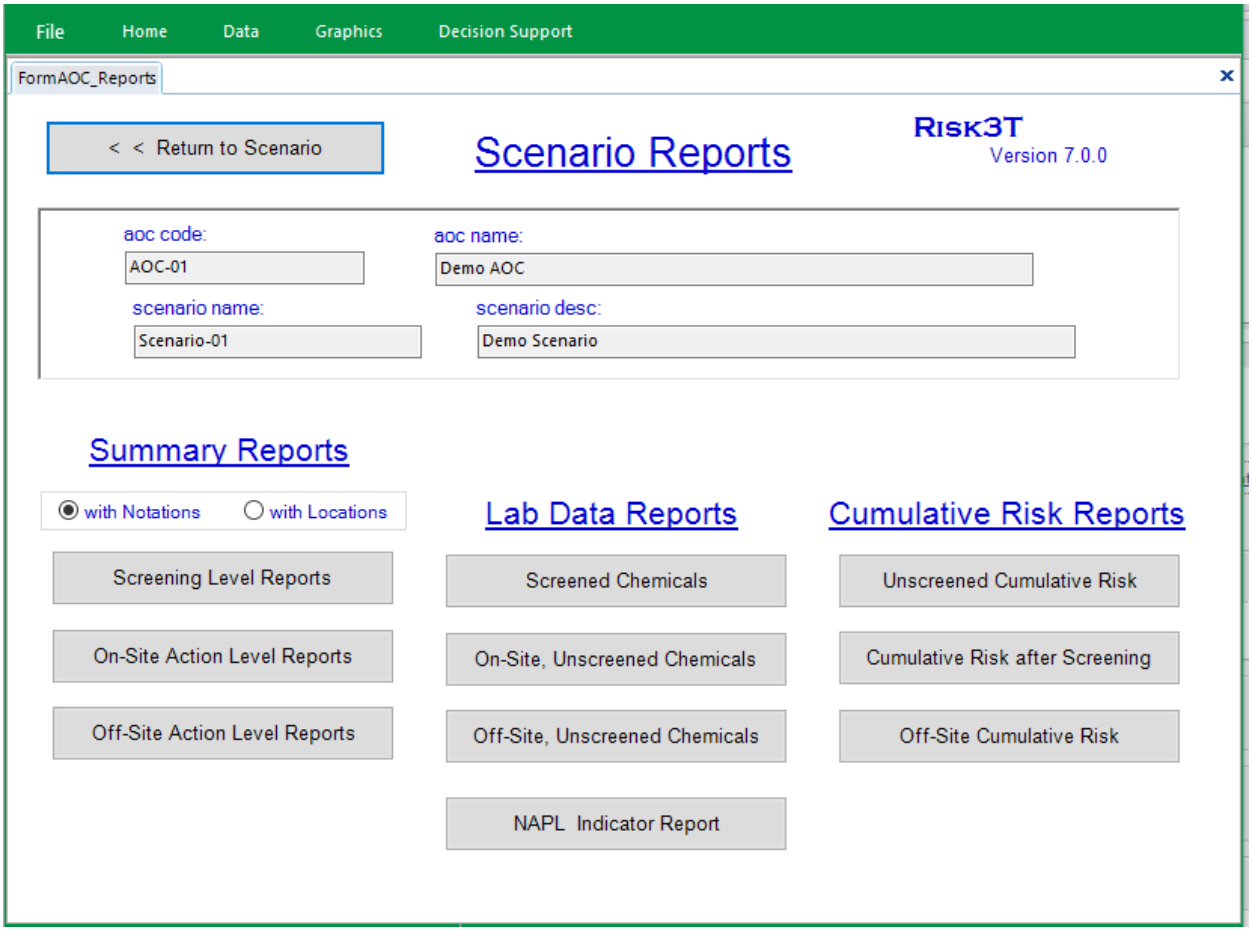
Action levels are calculated separately using the **Calculate On-Site Action Levels** and **Calculate Off-Site Action Levels** buttons. Once either of these buttons is selected, the chemicals for which action levels are being calculated will be displayed at the bottom of the form until calculations are completed.

When using the Action Level Calculator Only option, a popup window will appear allowing the user to keep or modify the default Action Level Code that is created. Then the calculated action levels are saved to the DT_ACTION_LEVEL and DT_ACTION_LEVEL_PARAMETER tables.

To save calculated action levels to the EQuIS tables when using the Risk Assessment Report option, click the **Use Action Levels in EQuIS** button on the Scenario List screen.

Select the **Reports** button to open the Scenario Reports form.

Note: This button is not enabled when using Action Level Calculator Only option.



The Action Level Reports form for both on-site and off-site calculations is similar to the Screening Level Report Form. Action level reports are created for each environmental media and are displayed one at a time in the report viewer. To switch between each environmental medium report, use the radio buttons next to each media located just above the report viewer. Each report includes a preformatted title section, indicating on-site/off-site action levels, facility name, and AOC name and number. Users can also type in a report title using the text box located above the report viewer. After typing the title, select Enter or tab from the keyboard and the title will be added to the report. This title will be included on each report when toggling through the media options.

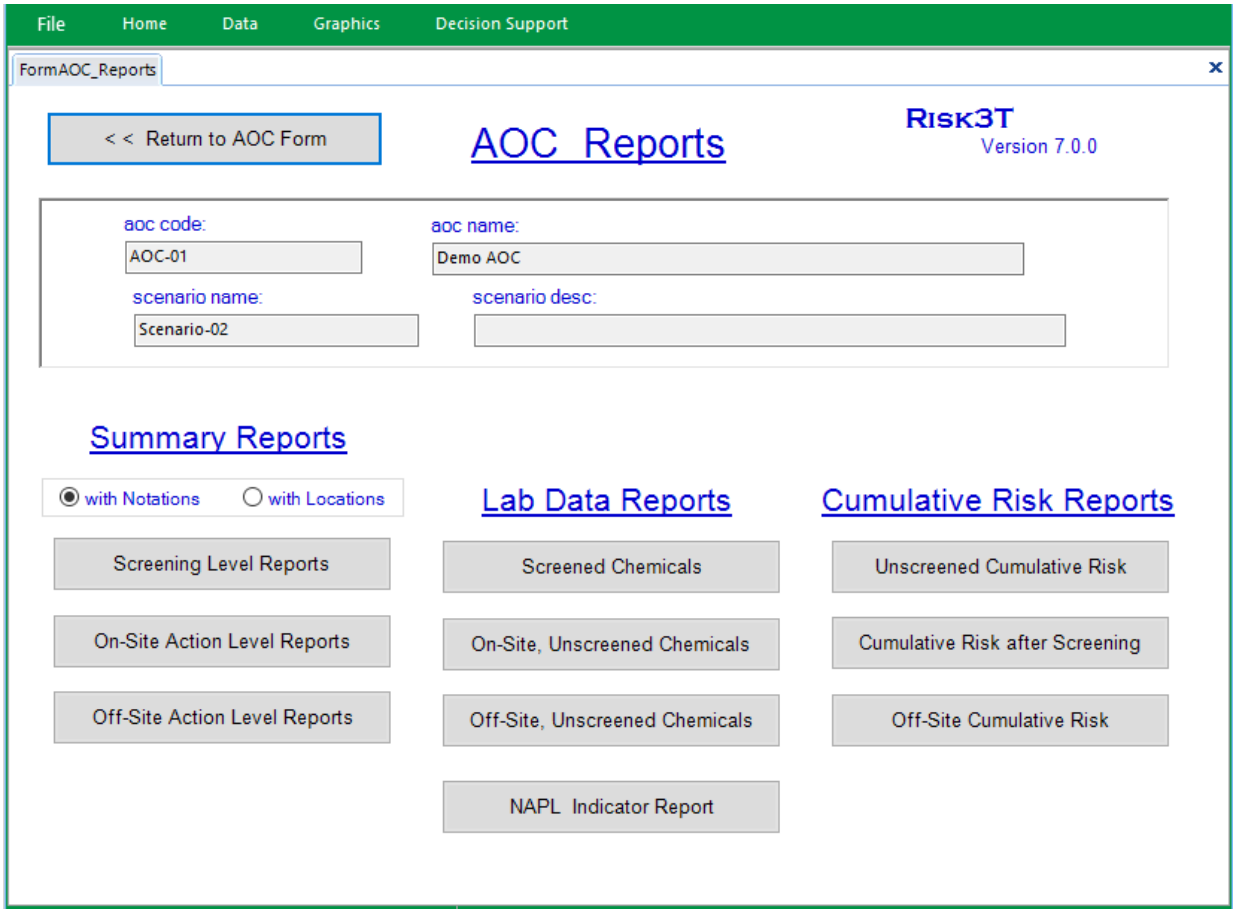
The on-site and off-site action level reports include the chemical name and CAS number, maximum concentration, maximum SDL, action level, whether or not users need to remedy the chemical, and the screening notation. If the maximum concentration of the chemical exceeds the action level either on-site or off-site, the chemical name is shaded in the table and the word 'remedy' appears in the "Remedy?" column. If the maximum concentration or SDL does not exceed the action level, the chemical name is not shaded and NFA appears in the "Remedy?" column.

The report viewer allows users to change pages, print, modify the print layout and page setup, and export the table to Excel.

3.5 AOC Reports

Prior to generating AOC Reports, users must first select the scenario to view. Click the **Risk Assessment Scenarios** button on the AOC Form to open the Scenario List. Select the scenario to use by clicking on it and then selecting the **Use Action Levels in EQuIS** button. This will place a checkmark in the column "Use Action Levels." Return to the AOC Form by clicking the **Return to AOC Form** button. (See Section 3.3, Scenario List, for additional details.)

Clicking the **AOC Report** button on the AOC Form allows the user to select the various types of reports to include in a risk assessment report. These reports include screening level reports, on-site and off-site action level reports, and laboratory data reports.



3.5.1 Summary Reports

The summary reports include screening level reports and on- and off-site action level reports. They display similarly to the screening level report form and on- and off-site action level report forms.

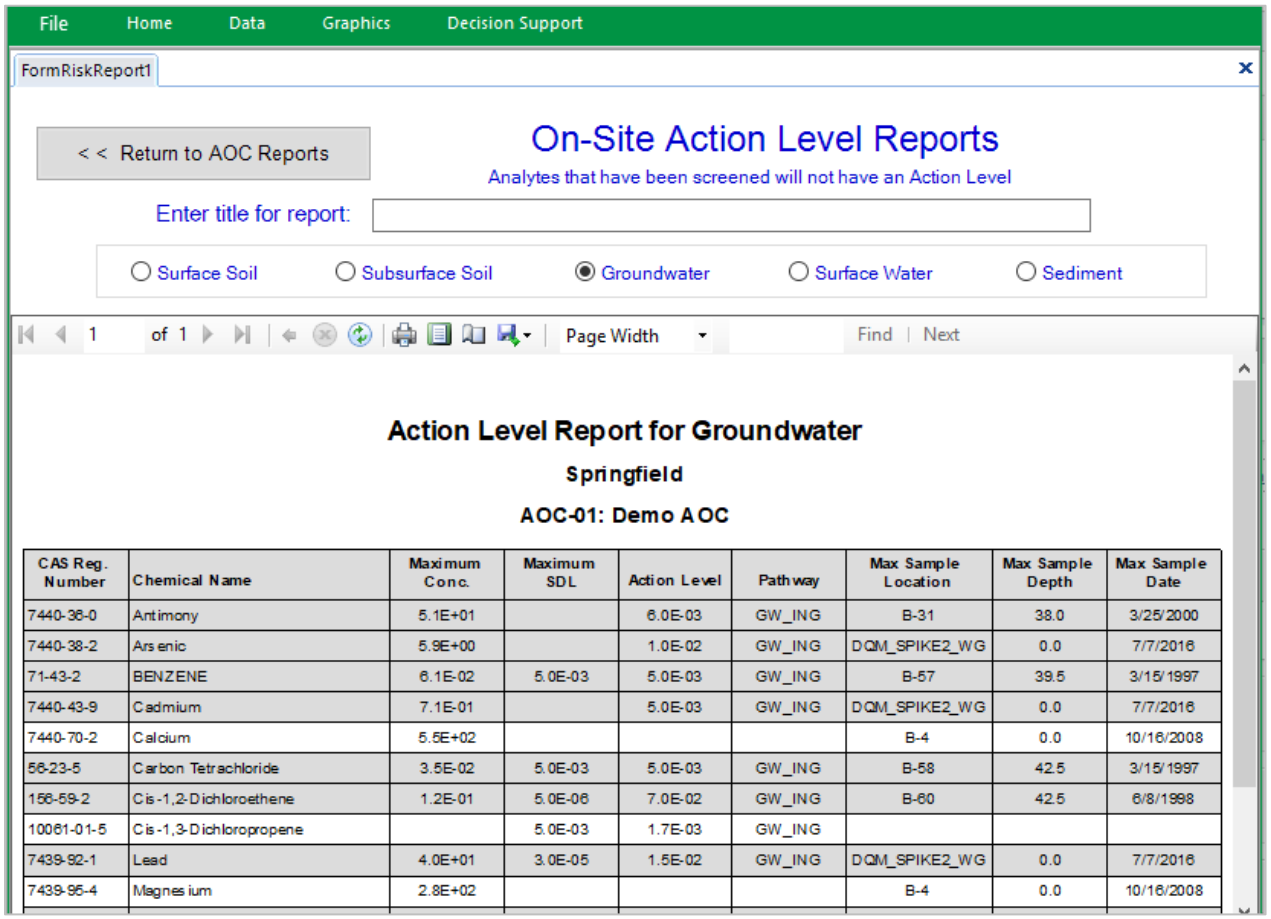
Screening Level Reports – When displaying screening level reports, two choices are available based on the radio buttons above the Screening Level Reports button:

- **with Notations** – The notations explaining the rationale behind each screening are displayed.
- **with Locations** – The location of the sample with the maximum detected concentration is displayed.

Any chemical not screened will be shaded. The report is preformatted with a title block displaying the name of the table, the environmental media, the facility name and the AOC name and number. Users can also type in a report title using the text box located above the report viewer. The footer displays the selected scenario number and the date report was generated.

On-Site Action Level Reports – These reports display the same as they do on the On-Site Action Level Reports Form from the Scenario Form. (Refer to Section 3.4.2, On-Site and Off-Site Action Level Calculations and Reports, for additional information.)

Off-Site Action Level Reports – These reports display the same as they do on the Off-Site Action Level Reports Form from the Scenario Form. (Refer to Section 3.4.2, On-Site and Off-Site Action Level Calculations and Reports, for additional information.)



Action Level Report for Groundwater

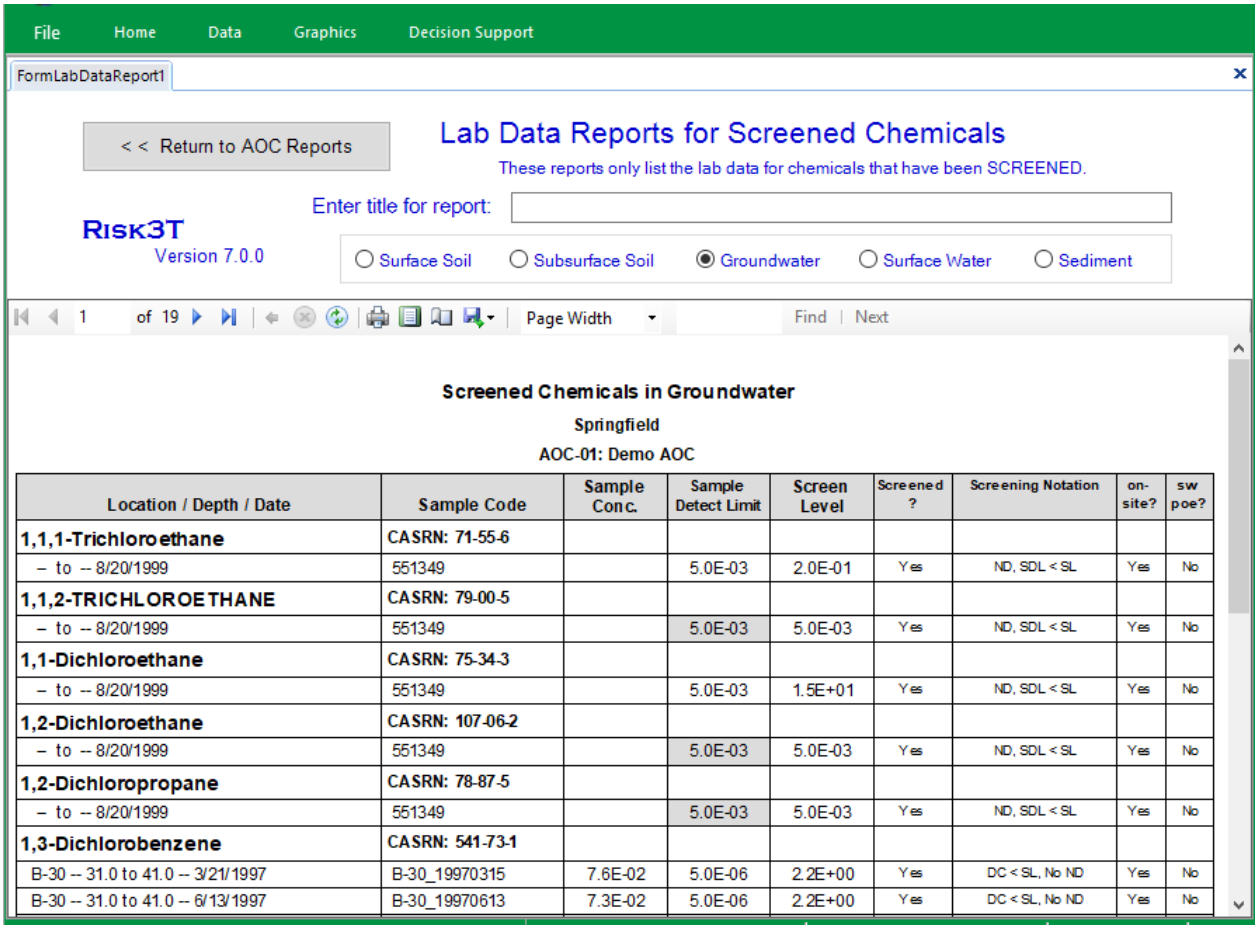
Springfield

AOC-01: Demo AOC

CAS Reg. Number	Chemical Name	Maximum Conc.	Maximum SDL	Action Level	Pathway	Max Sample Location	Max Sample Depth	Max Sample Date
7440-36-0	Antimony	5.1E+01		6.0E-03	GW_ING	B-31	38.0	3/25/2000
7440-38-2	Arsenic	5.9E+00		1.0E-02	GW_ING	DQM_SPIKE2_WG	0.0	7/7/2016
71-43-2	BENZENE	6.1E-02	5.0E-03	5.0E-03	GW_ING	B-57	39.5	3/15/1997
7440-43-9	Cadmium	7.1E-01		5.0E-03	GW_ING	DQM_SPIKE2_WG	0.0	7/7/2016
7440-70-2	Calcium	5.5E+02				B-4	0.0	10/16/2008
56-23-5	Carbon Tetrachloride	3.5E-02	5.0E-03	5.0E-03	GW_ING	B-58	42.5	3/15/1997
156-59-2	Cis-1,2-Dichloroethene	1.2E-01	5.0E-06	7.0E-02	GW_ING	B-60	42.5	6/8/1998
10061-01-5	Cis-1,3-Dichloropropene		5.0E-03	1.7E-03	GW_ING			
7439-92-1	Lead	4.0E+01	3.0E-05	1.5E-02	GW_ING	DQM_SPIKE2_WG	0.0	7/7/2016
7439-95-4	Magnesium	2.8E+02				B-4	0.0	10/16/2008

3.5.2 Laboratory Data Summary Reports

Users have the option of printing laboratory data summary reports from Risk3T, including all screened chemicals, and on-site or off-site unscreened chemicals.



Screened Chemicals in Groundwater

Springfield

AOC-01: Demo AOC

Location / Depth / Date	Sample Code	Sample Conc.	Sample Detect Limit	Screen Level	Screened ?	Screening Notation	on-site?	sw poe?
1,1,1-Trichloroethane	**CASRN: 71-55-6**							
– to -- 8/20/1999	551349		5.0E-03	2.0E-01	Yes	ND, SDL < SL	Yes	No
1,1,2-TRICHLOROETHANE	**CASRN: 79-00-5**							
– to -- 8/20/1999	551349		5.0E-03	5.0E-03	Yes	ND, SDL < SL	Yes	No
1,1-Dichloroethane	**CASRN: 75-34-3**							
– to -- 8/20/1999	551349		5.0E-03	1.5E+01	Yes	ND, SDL < SL	Yes	No
1,2-Dichloroethane	**CASRN: 107-06-2**							
– to -- 8/20/1999	551349		5.0E-03	5.0E-03	Yes	ND, SDL < SL	Yes	No
1,2-Dichloropropane	**CASRN: 78-87-5**							
– to -- 8/20/1999	551349		5.0E-03	5.0E-03	Yes	ND, SDL < SL	Yes	No
1,3-Dichlorobenzene	**CASRN: 541-73-1**							
B-30 -- 31.0 to 41.0 -- 3/21/1997	B-30_19970315	7.6E-02	5.0E-06	2.2E+00	Yes	DC < SL, No ND	Yes	No
B-30 -- 31.0 to 41.0 -- 6/13/1997	B-30_19970613	7.3E-02	5.0E-06	2.2E+00	Yes	DC < SL, No ND	Yes	No

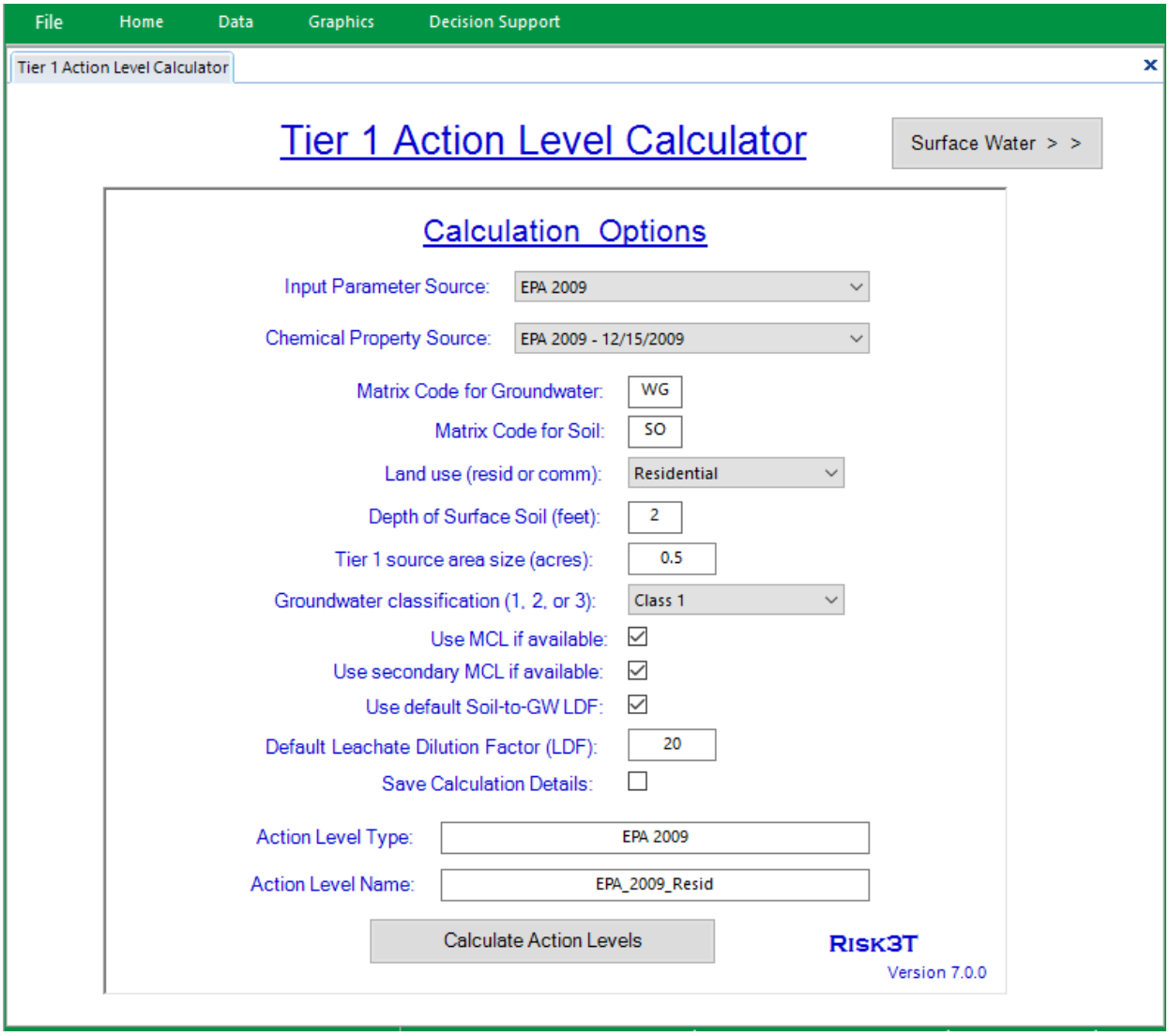
Screened Chemicals – The report generated here only presents screened out chemicals from the environmental media. Users can toggle between the different media using the radio buttons next to each media. Each report displays a default title; however, a custom title can be added using the title text box near the top of the form. The footer displays the selected scenario number and the date report was generated.

On-Site, Unscreened Chemicals – This report displays all on-site screened chemicals for the project. Samples which exceeded the screening level are shaded. Users can toggle between the different media using the radio buttons next to each media. Each report displays a default title; however, a custom title can be added using the title text box near the top of the form. The footer displays the selected scenario number and the date report was generated.

Off-Site, Unscreened Chemicals – This report displays all off-site screened chemicals for the project. Samples which exceeded the screening level are shaded. Users can toggle between the different media using the radio buttons next to each media. Each report displays a default title; however, a custom title can be added using the title text box near the top of the form. The footer displays the selected scenario number and the date report was generated.

4 Tier 1 Action Level Calculator

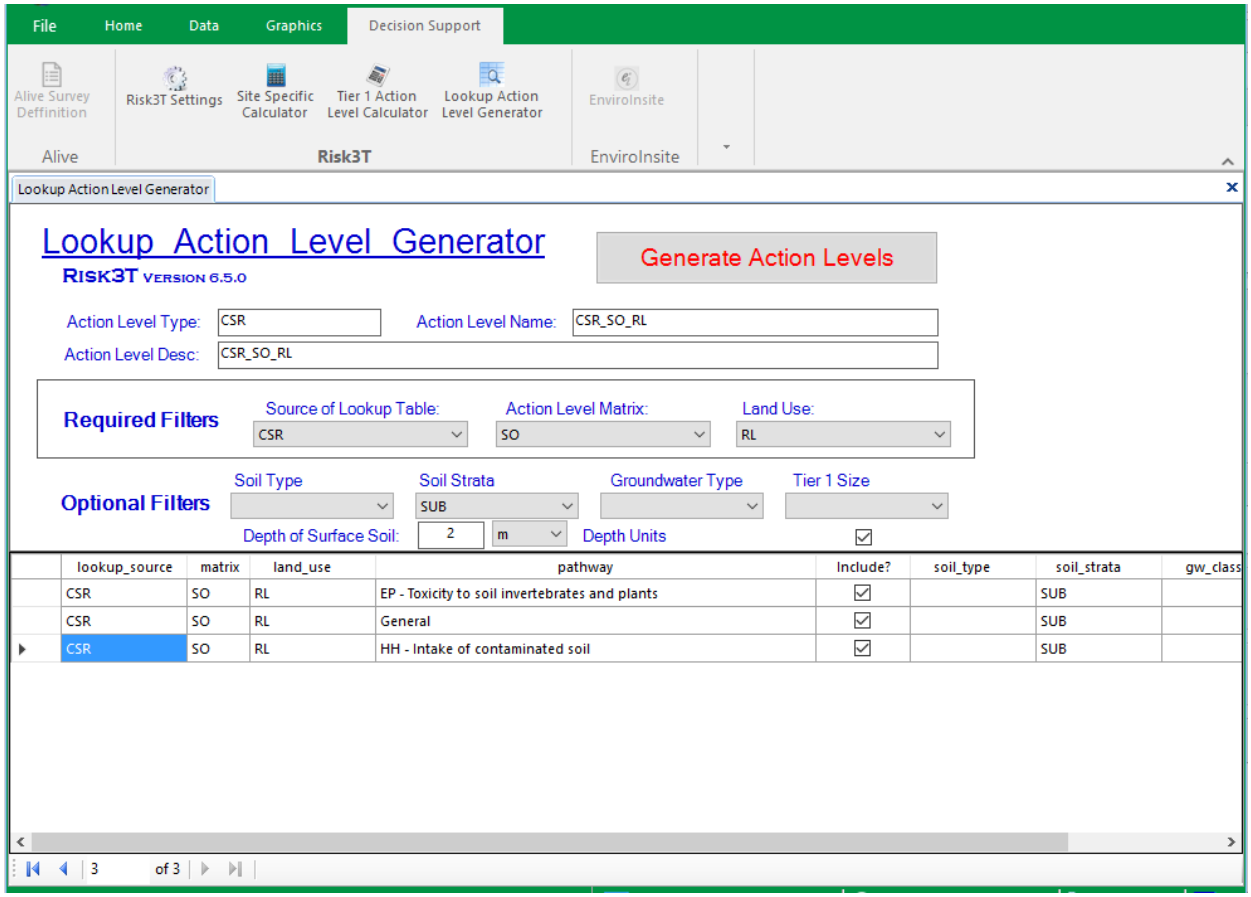
Click the **Tier 1 Action Level Calculator** button on the Risk3T Ribbon to open the Tier 1 Action Level Calculator form. Select a value in each of the two drop-down lists to select the desired Input Parameter and Chemical Property Sources. Change other selections as necessary. Review and, if desired, modify the Action Level Type and Action Level Name fields.



Click the **Calculate Action Levels** button to create a new Action Level in EQuIS.

5 Lookup Action Level Generator

Click the **Lookup Action Level Generator** button on the Risk3T Ribbon to open the Lookup Action Level Generator form. Select a value in each of the **Required Filters** drop-down lists to reduce the list of available pathways. Select a value from the **Optional Filters** drop-down lists, to further reduce the list of pathways, if desired.



Click the **Include?** checkboxes of the pathways to include in the Action Level. After filtering, clicking the checkbox above the grid will include all the filtered pathways.

Click the **Generate Action Levels** button to create a new Action Level in EQuIS.